THE VIRTUAL-MUSICAL OTHER: CREATING UNIQUE WORLDS THROUGH
MUSICAL SOUND IN VIDEOGAMES

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ABSTRACT

The post-apocalypse is a narrative context that focuses on the destruction and rebirth of civilization, society, and culture. Familiar signs are mixed with the unfamiliar to create something new, a unique post-apocalyptic Other as the decontextualization, recontextualization, and resignification of sound breed new possibilities for identity. Videogames allow players to explore this new identity as an expressly interactive and immersive medium, while eclectic digital music embodies and communicates this identity within the medium in ways that it cannot in others.

In this work, I analyze the musical approaches in three post-apocalyptic videogames, Borderlands, Bastion, and Fallout 3. In these games, the eclectic musical approach aims to evoke an ambiguity and originality achieved through digital production using synthetic and instrumental sounds found in sound library software. Also, pre-existing music from a specific time period is recontextualized in the futuristic post-apocalypse, establishing a temporal Other through temporal displacement. Both are possible due to the global digital database, a growing, easily accessed digital archive epitomized in sound library software and digital composition. It is in this database and through the use of technology that sound becomes a simulacrum of its former self, and the barrier created by terms like “Western” and “non-Western” decays. The virtual Othering in these three games draws attention to the value of sound in music-making and, consequently, to the redirection of meaning in musical sound and the virtual world.
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CHAPTER 1
INTRODUCTION

Today, a new music is on the rise, one that can neither be expressed nor understood using the old tools, a music produced elsewhere and otherwise. It is not that music or the world [has] become incomprehensible: the concept of comprehension itself has changed; there has been a shift in the locus of the perception of things.

Music creation has come into an age in which there is an expansive range of possibilities in a home studio as long as one has the requisite technology and aptitude. Over the last twenty years, music making has also changed to become a new process that is as infinite as the imagination, unshackled from the physical realm and made virtual through the utilization of sampling and digital software. Sampling allows one to “encode a fragment of sounds, from one to several seconds in duration, in a digitized binary form which can then be stored in computer memory” (Porcello 1991, 69). Timbres and sounds can be created and modified with a keyboard (computer or instrument), mouse, and laptop, foregoing the use of notation, instrumentalists, instruments, and vocalists. Such modifications change the musical landscape of the world as a whole, allowing for a completely new approach to music composition that challenges old conventions, conceptions, and, inevitably, representations. Sound becomes an easily accessed archive, disembodied from instruments and ambiguated as sound sources. In an archive, sound from a specific culture, whether instrumental or vocal, exists as a decontextualized aural phenomenon, with all sound accessed in this resource holding the potential to become familiar through repeated usage.

In this study I use the term cultural sound rather than multicultural or world music in an effort to disturb the boundaries of differentiation that currently exist between
Western and non-Western music, Western sound and “world music,” and musicology and ethnomusicology. I wish to highlight that this boundary is eroding. Current technology and its contemporary usage are opening to a view of sound as a tractable aural space, open to our creative imaginations and unbounded by pre-digital physical limitations or situated origins. Disembodied sound as a musical tool unconsciously works to decay the Western and non-Western dichotomy in music.

Music in the digital age affects and overlaps with other types of digital and virtual creativity to give rise to new meaning in new contexts. Videogames are a growing and powerful part of popular culture around the world, appealing to an extremely diverse economic and geo-cultural population that plays these on consoles, computers, portable systems, and phones. The experiences videogames offer are more varied than they have ever been, ranging from casual to intensive and even including genre crossovers and hybrids like first-person shooter role-playing games. The music has followed suit. Virtual worlds are full of orchestral, electronic, and other varieties of music produced by renowned and talented composers. Videogame music often uses instruments and techniques from a global world to evoke places, people, and themes, but sometimes that music functions outside of essentialism and representation. In videogame soundtracks, musical sounds from multiple origins help to create unique, new musical identities that enhance the gaming experience by representing fantasy and sci-fi themes, locations, characters, and action, as well as by operating within typical game audio parameters and functions. By sampling many cultures’ sounds in conjunction with new synthesized sounds, videogame music producers evoke both alien and familiar environments. Even familiar or pre-existing music is repurposed in the context of the virtual world to fashion
a new identity in concert with diverse environments and themes. This all leads to complex meaning-making in a medium that relies on depth of experience, conceptions of play, and—most importantly—immersion in the game world to generate meaningful and memorable experiences.

In this work, I introduce the concept of the eclectic musical approach, which aims to evoke an ambiguity and originality achieved through digital production and the wide array of synthetic and instrumental sounds that are available in sound library software and without cultural boundaries. Specifically, this approach uses music composition software in tandem with digital sound libraries to create music. This ambiguity and originality creates the virtual world players inhabit, becoming one with the fiction and ultimately completing the immersive experience through a unique, eclectic presentation.

As an ethnomusicologist and avid gamer, I decided to explore how the eclectic musical approach and repurposed cultural sound are used in three post-apocalyptic themed videogames—Borderlands (2009), Bastion (2011), and Fallout 3 (2007)—to benefit their immersive qualities and unique contexts.¹ The post-apocalypse is a thematic framework of broken civilizations, systems, and cultures that are replaced by fragments and remnants of their former selves, comingling into new forms that are familiar yet inherently new and strange. I argue that the soundtracks of these games and the technology utilized in making them are essential elements in the identities of these worlds, creating music that mimics or embodies the de- and reconstructed nature of the post-apocalypse. They also represent a new type of composition that reflects both the minimalization of modern exoticism in the face of postmodern eclecticism and the

¹ These titles are listed and discussed in this order for particular reasons that are discussed in my methodology.
valuing of music as disembodied sound. The tools utilized in the musical production
explored here make the origin and cultural context of sound in the compositional process
irrelevant. Rather, sounds are valued by the composers in the same way paints are by the
painter—as raw elements to mix, layer, and apply to a blank canvas. In this case,
however, the canvas itself has a context, as if the painter’s project were a mural on a
barren wall in an urban district rich with its own history, sociality, and activity.

In the following chapters I explore the use of the eclectic musical approach in
Borderlands and Bastion and the role repurposed licensed music in Fallout 3’s diegesis,
both processes effectively contributing to the mythos of a post-apocalyptic world.
Diegetic sound, to be explained further in the discussion of film music in chapter 2, is
sound that exists in the fictional space of the game and is heard by characters within that
space. The diegesis of a game therefore is the fictional aural space or all sound that exists
within the narrative as much as the environments and characters do. Borderlands and
Bastion use the eclectic musical approach to pull players away from Earth to an
elsewhere; the music helps create a foreign setting. Fallout 3’s setting and history take
the familiar and render it unfamiliar to create an Other that exists in time rather than
place. All three games have the same goal, to evoke a post-apocalypse without equal and
to play on the idea of the cultural and temporal Other. The Other in these cases is the
fictional space itself, or the not-here; it is the game-space that is Othered in these games. I
use the compositional approaches in these three games to explore music’s role in identity
formation within the context of post-apocalyptic worlds.

In the final chapter, I discuss ways in which the eclectic musical approach and its
technologies represent a new conceptualization of music and cultural identity within the
unique arena of a virtual, interactive space, an identity enabled by Hiroki Azuma’s
database information model and Jean Baudrillard’s use of simulacrum. Important here
also is game studies scholar Sarah Grey's assertion that games can be read critically "as
objects through which we can think" and that the unique qualities that characterize
videogames allow for very specialized experiences and reflections (Grey 2009).

The application of technology in the utilization of digital audio workstations
(DAWs), sound libraries, the global digital database, and simulation to compose eclectic
original soundtracks in post-apocalyptic fictional contexts point to a restructuring of
music making and music conceptualization. Terms like “world,” “multicultural,” and
“exotic” in reference to sound are challenged by a process of equalization when those
sounds are disembodied from instruments and ambiguated within the sound library.
French political economist Jacques Attali’s quotation at the beginning of this chapter
sums up the end result of this paper’s analysis—our comprehension of music, and
perhaps even the study of music, will have to change to keep up with the rapidly
expanding and evolving space of possibility.

**Methodology**

In going about this study of Othering—the act of creating Others—in videogames,
I wanted first and foremost to understand the process and meaning behind the music
within the context in which it is typically experienced, i.e. during gameplay. Having
played all of the games examined here multiple times from the mindset of an avid gamer
and academic ethnomusicologist, I had the pleasure of experiencing these games both as
an immersed fan and critical thinker.
The three videogames, *Borderlands*, *Bastion*, and *Fallout 3*, are listed and discussed in this order for three specific reasons. First, this is the order in which I studied them myself. Second, this order follows their complexity in substance and analysis, particularly in their narrative and fictional space and how the music figures into that space and its diegesis. The discussion flows organically in this order as it moves from simpler to more complex roles of music, and the importance and presence of diegetic music increases from one game to the next. As we shall see, the diegetic nature of music comments more directly than non-diegetic music on the fictional space. Third, these are three of my favorite games, and their music is one of the reasons I love them so much and highly recommend them. I was drawn to their soundtracks the moment I began playing them and loved how the music really shaped the fictional worlds for me. Of course, the games are also exceptionally fun to play and well designed. I always look fondly to the times I explored their worlds and will always keep them available to be revisited in the future.

I played many different post-apocalyptic titles over the years and did extra research into titles I had not played, taking notes on the content and nature of every game's music. The eclectic musical approach in post-apocalyptic videogames is a unique style of soundtrack rarely found in titles other than *Borderlands* and *Bastion*. The way in which diegetic music functions as temporal displacement in *Fallout 3* to elicit a familiar-yet-alien world is rare in videogames. Although a plethora of post-apocalyptic games have appeared in the last decade alone—e.g., *Rage* (id Software, Bethesda Softworks 2011), *Metro 2033* (4A Games, THQ 2010), the *Resistance* series (Insomniac Games, Sony Computer Entertainment 2006, 2008, 2011), the *S.T.A.L.K.E.R* series (GSC Game
World, THQ 2007, 2008, 2010), and *The Last of Us* (Naughty Dog, Sony Entertainment 2013)—most feature predominantly traditional orchestral scores or ambient, digitally produced tracks. Composers sometimes utilize rock aesthetics or a minimalistic approach, but nothing that evokes the post-apocalypse in the same way.² Their music does not reconstruct a musical identity from pieces of disparate culture or sound sources as my choices do. The eclectic musical approach and temporal displacement in post-apocalyptic soundtracks are therefore unique and original approaches of the soundtracks in these three games.

In order to explore both the sounds of videogames as musical composition and the process involved in creating those sounds, I contacted composers Raison Varner of Gearbox Software’s *Borderlands* and Darren Korb of Supergiant Games’ *Bastion*. My goals were to understand their respective creative processes, conditions of composition, work environment, and especially their musical motivations and inspirations. I collected information via e-mail correspondence and recorded interviews from 2011 to 2012; from August 18-26, 2012, I visited Gearbox Software in Plano, Texas to shadow Varner for a full week to get a firsthand feel for his experience, to conduct additional interviews, and to meet other persons involved in the creative process. Composers and designers of *Fallout 3* did not respond to repeated attempts at communication.

To understand musical meaning on the subjective level of the audience, I formulated and carried out a focused study with actual players. Early tests with *Fallout 3* proved that the game's immensity, complexity, and expansive narrative delivery required

² Developer Naughty Dog’s *The Last of Us* has a beautifully constructed minimalistic soundtrack emphasizing space, a lonely guitar, and deep, resonant percussion. It evokes the desolation and barbarity of its post-apocalyptic United States as well as the extremely emotional and tragic story of Joel and Ellie, but the music does not fit into the eclectic musical approach. The music does not create something new from bits and pieces of global sounds or the deconstruction and reconstruction of musical identity.
a great deal more time from players to get representative feedback, so the game was removed from these trials. In contrast, the simpler gameplay and experiences of *Borderlands* and *Bastion* were easier for players to approach and understand within the restricted time of a trial study session. From 2011 to 2012 I tasked twenty players with playing *Bastion* or *Borderlands* for thirty minutes, after which they participated in a short interview. I pulled these participants from music classes and dormitories at the University of Hawaii, as well as some others from the general area around the University and Honolulu. Most were from the student body. No race, age, or gender specific data was collected as I wanted to focus solely on their reception of the music while playing. In general, they were a good mix of twenty to thirty-five year-olds, almost half women and half men, most of whom had no professional musical training and were not music majors. They were not all dedicated gamers. The only requirement was that participants needed to have some sort of tactile familiarity with videogame peripherals; this was so that I would not have to teach them how to use a controller or keyboard and mouse and also so they would not be distracted by the controls while playing. Participants were not informed that the study was on the music in the games, merely their experience of it. This allowed me to get feedback as close as possible to their genuine experiences of the game without anything other than the games themselves motivating their answers.

Interview questions targeted their experiences with the music within the context of the game. In an effort to simulate a natural experience, I did not provide them with the questions beforehand. After the interview, players listened to a track and were asked 1) if

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For any future study of their subjective view of their experience with the music and the narrative content of the games, I would collect such data. In this case, however, this information was not crucial to my study, especially since their time with the games was so short. A longer, broader study that takes into account the identities and experiences of the participants can be conducted in the future.
they recognized it and 2) if they could discuss it in more depth outside of the context of the game. In this way, I elicited a qualitative glimpse at the consumers' experience of the medium and how the music generates, or fails to generate, meaning within the context of gameplay. An in-game audio physical response study by Usher of the University of Abertay (2012), discussed in chapter 2, excels at collecting objective data but does not comment on the subjective experiences of his participants. Deep subjective feedback, rather than the quantitative or objective data of the larger sample set of Usher’s study, allows for a more direct glimpse at the thoughts and experiences of gamers themselves. A subjective study sheds light on not just the material of a game, but to what extent the average gamer may understand, explore, and reflect upon the material. Observing both composer intent and gamer reception and conducting a comparative analysis allows for an understanding of the efficacy, meaning, and music-making process of the powerful music in these games.

I analyze the eclectic approaches of these soundtracks through transcription and comparison with performative and contextual norms. The composers of the discussed soundtracks created their works via digital audio workstations (DAWs) with barely, if any, actual studio audio recording. The question here becomes, if a piece uses a Mongolian chant melody, how differently does it sound when manipulated by the composer than it would when performed in a traditional context? When we look at how these instruments are played in their original contexts compared to their utilization in these soundtracks, we find that authenticity is not a goal of the videogame composer. Instead, timbre is paramount. The difference between the technological nature of this
type of music composition and the actual material of the music informs us about the
nature of cultural globalization and what I call the *global digital database.*

**DOWN THE RABBIT HOLE**

The main goals of videogame music are to communicate game states to the player
and to enhance the virtual world with emotional content. In short, music enhances
immersion. Music functions crucially—it does not merely exist in these contexts. The
following chapters discuss how the music comes into existence, motivations for choosing
the particular sounds, how sounds refer directly to the virtual world, and how the
audience perceives them. This complex relationship between composer, game, and gamer
reveals important information about contemporary music-making and game immersion as
well as Othering in virtual worlds. The games *Borderlands, Bastion,* and *Fallout 3* act as
primary examples for understanding this complexity.
CHAPTER 2
SOUND, OTHERS, AND SIMULACRA

This chapter provides tools for the reader to understand how music in the specific context of videogames can be meaningful. It explores film and videogame music, audio functionality within those mediums, exoticism and Othering, simulacra and the database, and the concept of immersion.

FILM MUSIC

Music in film and videogame sound are intrinsically related, however film music’s function and nature differ from those of game music. As a close relative and forebear of videogame music, it nevertheless shares many basic similarities that merit discussion.

Music in film is a device used to influence the audience, to define themes and to create meaning; music in film is essentially an emotional response guide. Film music is a cohesive force that helps the film maintain flow and structure, and—in its most common form as “underscore”—it is the element most removed from reality. It is also the element of film most capable of penetrating the subconscious. Indeed, film studies scholar Claudia Gorbman states that “music is in a position to free the image from strict realism” and “as something not very consciously perceived, it inflects the narrative with emotive values via cultural musical codes” (1987, 4). Music is powerful in both film and videogames in these ways as it directly appeals to the emotions. Sometimes it intensifies the dramatic effect; at other times music is a tool used to boost the excitement level of action scenes (Wierzbicki 2009, 210).
In *Film Music*, film and media studies scholar Peter Larsen summarizes the functions of film music as an integral part of the film, stating that it “says something other than the actors’ dialogue and gestures” and is something other than elements like camera work, lighting, and editing (2007, 218). Larsen establishes that an audience expects music to “fit” what is being shown on screen, and this fit can be concrete, as when a waltz is played in the soundtrack of Alfred Hitchcock’s *Waltzes from Vienna* (1934), or more abstract, as when the same waltz is played in Stanley Kubrick’s *2001: A Space Odyssey* (1968) during a long sequence in which a spaceship lands in a space station (ibid., 203). Whatever music the audience hears, they will attempt to find correspondence to something in the music, matching it in a way that makes sense. In the case of *2001*, the ship may seem to dance with the waltz, and the scene’s mood becomes cheery and playful. The audience finds what perception psychologists call synesthetic equivalents between the music and the image, ways in which the two match expressively (204). This matching governs a great deal of how film and videogame music functions.

Larsen splits these functions into several categories: formal, narrative, emotional, and thematic or leitmotivic. Formal functions of music include lending form to shot sequences by connecting or disconnecting them, pointing out transitions, and using the music’s own structure to give structure to a film’s images (208). Music acts as an indicator of the passage of time and marks both discontinuity and continuity by playing continuously through multiple scenes or changing between them. Narratively, music points out time and space, indicating where and when the events take place, and characterizes the agents in those events and places through leitmotifs, expressing their roles, feelings, experiences, and actions (210-211). Emotional functions involve the use
of tension, climax, and resolution to create moods or enhance moods already expressed through the image (212). Themes or leitmotifs create “perceptual unity” by repeating musical material—like a melodic phrase or a particular harmony—that “links the musical present to the past” (213). This tool in filmic storytelling is based on recognition, the knowledge that the audience will remember and recognize a motif from earlier and identify with it, matching it to the character, mood, action, or even environment that it signifies. This thematic material, in conjunction with emotional and space and time functions, helps establish a sense of continuity in the narrative and between characters and locations, especially in sequels and trilogies like Star Wars and The Lord of the Rings.

Furthermore, music is a unique element in filmic narration because it can be diegetic and present as part of the fantasy of the film, or nondiegetic and playing behind the events of the film outside of the narrative, unheard by the characters but heard by the audience (Gorbman 1987, 3). This concept needs clarification, as it is very important in discussing and analyzing the sound design of both films and videogames. Gorbman simply yet aptly defines diegetic in one sentence: “music that (apparently) issues from a source within the narrative” (ibid., 22). She asserts “in narrative film, diegetic music functions first and foremost as sound. Considering music this way, we are far from the concerns of pure musical codes; the issue is rather music's functioning in terms of cinematic space” (ibid., 25). French filmologue Etienne Soriau defines diegesis as “all that belongs, ‘by inference,’ to the narrated story, to the world proposed or supposed by the film's fiction” (1953, 7). Film studies scholar Jeff Smith works from Gorbman’s definition in his article “Bridging the Gap: Reconsidering the Border Between Diegetic
and Nondiegetic Music” to clarify the difference between diegetic and nondiegetic music (2009, 2). He states that diegetic music can function very simply in the cinematic space as coming from a seen or physically present source, i.e. a band or radio, but it can also function in ways that seem nondiegetic (ibid., 2).

According to Smith, understanding how music relates to diegesis, or the fictional space, draws on three analytical tools: 1) diegetic music’s aural fidelity to its source, 2) its relation to the narrative space, and 3) its relation to the communication of that narrative (ibid., 2). Aural fidelity is the volume and directional placement of the sound in regards to the camera or characters. It may operate counter to realistic expectations to act more expressively, like rising in volume even though the source may be far off to express the emotion of a particular moment. In relation to the narrative space, the source of the music may be spatially displaced, but the music is still present. In regards to the communication of film narration, diegetic music may not seem diegetic at first as it plays with the fictional space, leading the audience to believe it does not have a source in the diegesis. Smith uses the introduction of Iron Man (2008) and scenes in Blazing Saddles (1974) (Smith 2009, 20) to illustrate this effect. In the introduction of Iron Man, ACDC’s “Back in Black” is heard as the film shows an overhead shot of U.S. military vehicles driving in a desert. This cuts to a scene in one of the Humvees, in which the track’s volume and frequency change to communicate that it is being played through the radio in the vehicle. The director of Blazing Saddles similarly misleads the audience as Count Basie’s music plays while the camera follows the main character in cowboy garb slowly riding a horse. As he moves, the camera pans to reveal Count Basie leading his orchestra on a stand, and he and the main character share a high-five (ibid., 20–23). Viewers are
given no reason to believe the music exists within the narrative when they first hear it, but it reveals itself to be diegetic. A film’s diegesis therefore can be constructed in many ways other than to highlight simple realism.

Temporal displacement is a tool in which music of a specific time period performs diegetically in a fictional space that is contradictory in nature to the music. Music from a specific time period is used to evoke the cultural values or anxieties of that time in a foreign context, creating a sense of irony and inflecting value upon the narrative. A perfect example of diegesis in concert with temporal displacement in film is the use of Beethoven’s *Symphony No. 9 in D minor, Op. 125* (referred hereafter as the *Ninth*) in Stanley Kubrick’s *A Clockwork Orange*. Kubrick focuses on the diegetic use of the *Ninth* “in order to shock the spectator by the association between this work and extreme violence on the one hand; while being assisted, on the other hand, by the symbolism it contains . . . in order to raise essential questions concerning music and western culture in general” (Hanoch-Roe 2002, 172). The main character Alex typically plays a record of the *Ninth* during ultra-violent acts in a near-future, dystopic England. The music is diegetic in that he and other present characters hear it, and it is Alex’s relationship with that music that becomes a central theme of the film. His actions and experiences are framed by the diegetic use of Beethoven’s *Ninth*, and this causes the violence depicted to feel more shocking and sets up a dialogue between the *Ninth* and the content of the film in terms of symbolism.

Non-diegetic sound is heard by the audience, but not the fictional characters; this sound exists outside of the fiction. The majority of soundtracks in film and videogames are non-diegetic, playing over the action. Batman’s theme in *The Dark Knight*,
atmospheric music in *Blade Runner*, and action music in *Black Hawk Down* are all non-diegetic; none of the characters can hear this music, it is there simply for its effect on the audience's perception of the film.

In short, film music’s goals—to create the fictional space of the moving image, to give it substance and emotion beyond what is merely seen, and to draw the audience in to occupy that space—are summarized effectively by Gorbman:

> The bath of affect in which music immerses the spectator is like easy-listening, or the hypnotist's voice, in that it rounds off the sharp edges, masks contradictions, and lessens spatial and temporal discontinuities with its own melodic and harmonic continuity. It lessens awareness of the frame; it relaxes the censor, drawing the spectator further into the fantasy-illusion suggested by filmic narration. (Gorbman 1987, 6)

Music is a tool with diverse functions in films, at times acting as an aural roadmap to navigate complex ideas and relationships and at other times serving as a signpost to keep an audience aware and invested. According to Roy Prendergast, music contributes specific traits to film that enrich and enliven the experience, such as: aural color, psychological implications, filler, continuity, and emotional effectiveness (Prendergrast 1977, 329). Music adds expression and meaning, giving it a broader impact and color. Psychological implications in music cause us to look towards things off-screen, as is typical of horror films (the killer off-screen moving closer), and to make connections between ideas, themes, and characters. Music sometimes acts as filler, a subordinate element that helps a scene move along, or it adds a bit of dramatic flair. By using themes and motifs, composers inject a deep level of continuity to a film that would be absent without music, helping the audience to connect characters, themes, and events in a movie, or even series of movies. Finally, and perhaps on the deepest level, music enhances a film’s emotional effectiveness, evoking gut reactions or feelings on a subconscious level,
manipulating emotions, sometimes even promoting feelings that run counter to the visual material.

Gorbman holds that music as meaning and a means of “organizing discourse” in film occurs on three levels: pure musical code, cultural musical codes, and cinematic musical code (1987, 13). Pure musical code involves the structure, textures, and elements of the music itself, attributes that are least noticed consciously by the audience. Cultural musical code is the cultural capital the music carries outside of the film; it involves values, history, and contexts that elicit enculturated reactions based on the audience’s prior knowledge and experience. The musical cue’s signification must be recognized by the target audience if it is to “inflect the narrative with emotive values” (ibid., 4).

Cinematic musical code concerns the ways in which film music refers to a film within the “music-film dialectic,” where music is subordinate to the narrative and refers to it rather than itself (ibid., 13–14). Essentially, “any music will do something,” meaning it will have an effect within the context of the film based on the content and the cultural musical codes (ibid., 15). If you replace a film's slow-tempo and modal orchestral soundtrack with that of a dissonant rock-opera, the music is still effective, but the nature of that effect changes completely. The musical code, tempo, instrumentation, tonality, rhythm, dynamics, articulation all “have corresponding effects on the way we receive the . . . information” (ibid., 17).

Gorbman's discussion of the basic functions of film music points to and reaffirms the interdependence of music and filmic representation. She reaffirms that the presence of music itself changes the nature of a scene, and the nature and makeup of that music dictates how that scene is affected and leads viewers to discover particular meanings.
Videogame audio follows these norms as well, with music that serves all of these functions. Due to the interactive nature of videogames and the agency of the player, however, audio in the game environment has the capacity to play a complex and intimate role and shape the experience in new ways.

Audio in the Videogame Environment

Most of the functions of film music also apply to the videogame environment. Leitmotifs, for example, occur often in videogames and for the same reasons as in film. They appear particularly in longer genres, like role-playing games, which can take up to forty, sixty, or even eighty hours to complete. Even shorter games of six to twelve hours of gameplay benefit from the recognition and continuity that leitmotifs support. Diegetic sound and music in gameplay help to establish the culture or history of a gameworld. Music utilized in *Fallout 3*’s diegesis, for example, functions in a similar manner to that in *A Clockwork Orange*, setting up a dialogue between the fictional world and its history, the player’s character, and Golden-Age middle-class American lifestyles and fears.

Videogame music has shares many features with music in film, but the interactive nature of the videogame calls for approaches to audio that do not exist in film.

Jesper Juul defines the term *game* as “a rule-based system with a variable and quantifiable outcome, where different outcomes are assigned different values, the player exerts effort in order to influence the outcome, the player feels emotionally attached to the outcome, and the consequences of the activity are negotiable” (2006, 36). Game studies and videogame audio scholar Karen Collins extends that definition in *Game Sound* by using the term *videogame* to refer to those games experienced on video screens, including computer monitors, handheld devices, televisions, arcade consoles, and cell
phones (Collins 2008, 3). Videogames are interactive. They require physical input and involve *diegetic* activity, in which the player “has a conscious interaction with the interface,” and *extradiegetic activity*, in which the player has “a corporeal response to the gaming environment and experience” (Shinkle 2005, 3). Through these interactions, the videogame creates an immersion that other media do not offer; the player is actively part of and immersed in what is going on in the screen. The audio-visual representation of those immersive activities and interactions is what creates a greater degree of investment and connection in comparison to a physical board game, particularly when a strong narrative and powerful soundtrack are part of the experience.

**The Evolution of Game Audio**

Game audio has evolved according to the speed of technological innovations of videogames and game systems, similar to the ways film audio developed alongside film and audio technology. Electronic gaming stems at least from the mechanical novelty game machines of the Victorian arcades in the nineteenth century (Collins 2008, 7). The early- to mid-twentieth century saw the conception and realization of mechanical pinball and slot machines, which used bells and buzzers to attract attention and excite patrons (ibid., 7). Videogame arcades were built on the principal component of using sound to capture an audience’s attention amidst a crowd of other machines.

Creating those sounds was challenging and directly affected by available technology. In the 8-bit era of gaming (in which game graphics are limited to 8-bit quality visuals) during the 1980s to the early 1990s, sound developed alongside an emerging technology for the game environment. Atari’s *Pong*, released in 1972, was one of the first games to have sound and is a prime example of how technical limitations
affected game audio. Al Alcorn, the creator of Pong, found himself unable to create certain sounds:

The truth is, I was running out of parts on the board. Nolan [Bushnell, Atari’s founder] wanted the roar of a crowd of thousands—the approving roar of cheering people when you made a point. Ted Dabney told me to make a boo and a hiss when you lost a point, because for every winner there’s a loser. I said “Screw it, I don’t know how to make any of those sounds. I don’t have enough parts anyhow.” Since I had the wire wrapped on the scope, I poked around the sync generator to find an appropriate frequency or a tone. So those sounds were done in half a day. They were the sounds that were already in the machine. (Kent 2001, 41–42)

The famous Pong “boop” was therefore not an aesthetic decision, but rather the direct result of a practical response within the technological limitations of the time.

Sound also had to fit into available memory, a limitation that has affected the amount and quality of sound employed in games throughout videogame history. Dedicated sound chips and programmable sound generators (PSGs) became standard by 1980, which allowed for easier sound programming and facilitated the use of continuous music, albeit in short loops. As home consoles, like the Nintendo Entertainment System (NES) and personal computers (PCs), like the Commodore 64, became popular in the mid- and late-1980s, the available memory on physical and digital storage systems of the time (e.g. cartridges and floppy disks) determined the limits of the audio. Music maintained a largely loop-focused form, with some titles experimenting with random sequencing; later eras of game audio would carry on this technique.

The 16-bit era of gaming, from the late 1980s to around 1995, is marked by improved visuals and a major audio advance in the form of Frequency Modulation (FM) synthesis, which generated more realistic sounding musical instruments and allowed for a much wider range of timbres and sounds (Collins 2008, 37). In the late 1980s, 16-bit
arcades were equipped with at least one FM chip per game, and home consoles rose to a new prominence due to the better visuals, audio, and use of memory. The Sega Genesis, released in 1988, was the first widely successful true 16-bit, FM-equipped home console, and Nintendo released the Super Nintendo Entertainment System (SNES) in 1991 to compete. The audio capabilities of the SNES were slightly more advanced due to its use of a 16-bit digital signal processor (DSP), a wavetable synthesizer that supported 8 stereo channels and Musical Instrument Data Interface (MIDI). MIDI fundamentally changed music composition for games by allowing for the direct integration of musical devices like keyboards and synthesizers in one standardized format. MIDI also represented a practical advantage because it transmitted only the code, meaning file size was very small, freeing up memory for music and allowing increasingly varied musical pieces. The Interactive Music Streaming Engine (iMUSE), developed by LucasArts in 1991, was also a breakthrough development in audio, as it allowed for dynamic audio components, making the music more interactive (reactive to player actions and game states) through the use of a database of musical sequences that allowed for the creation and implementation of less linear music (Collins 2008, 51). During this period, the technical aspects of the 16-bit generation of household and arcade game audio improved greatly, however audio implementation remained mainly the same as far as music, with an emphasis on the looping form.

Game audio came of age in the 1990s largely due to the evolution of storage media, particularly CDs and DVDs, that enabled live-recorded, high quality compressed audio (Redbook) instead of only MIDI. As audio compression technology improved, given MP3 file formats, the amount of audio in games expanded. The 32- and 64-bit
systems of the mid 90s, the Playstation, Sega Saturn, and Nintendo 64 all featured high quality audio on a par with film, but the next generations of home consoles exceeded this benchmark by supporting high-definition (HD) audio. Audio, particularly music, has since taken on a far more dynamic, reactive, and integrated role in videogames.

**INTERACTIVITY**

Film and television are passive in comparison to the videogame experience, specifically in terms of the interactivity and unpredictability in which most games thrive. Movies and videogames tell stories, often equally linear in sequence, but videogames have variable narrative possibilities, meaning that players can advance through the narrative at their own pace, make mistakes, choose between or even miss out on specific events, or even decide the order in which events take place (sometimes consciously, at others, unconsciously). The difference in game and film audio centers on the level of interactivity:

[Game] audio plays a specific role in the narrative or interface . . . Indeed, it is quite evident that in many cases turning off audio would lead the player into peril. In the new Super Mario Bros for the Nintendo Ds (Nintendo, 2006), for example, enemies jump and fly in time to music, so listening to the sound signals to the player when to make his or her moves. Such use of audio indicates that game sound can be a significant element of gameplay in at least some cases, and that it can function in many ways. (Collins 2008, 129)

Collins sums up the interactivity of game audio in the above quote and in her term *dynamic audio*, but breaks it down into several different distinctions and levels of

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4 Linearity in videogames, game development, and videogame journalism most often regards how much a player is led through an environment or from one event to another. Games that are too linear are typically criticized for not having enough gameplay or environment to explore, giving the players little control, and having gameplay that emphasizes movement from point-A to point-B without enough variation or engaging elements between the two. A strength of linearity is that it allows developers to guide players through a narrative and therefore deliver it with more direction.
interactivity that take into account the diegetic or nondiegetic and the adaptive or interactive nature of the sound. *Adaptive nondiegetic* sounds “are sound events occurring in reaction to gameplay, but which are unaffected by the player’s direct movements, and are outside the diegesis” (Collins 2008, 126). Audio of this kind reacts to location or game states rather than player actions, as, for example, if day turns to night or the player has low health. *Adaptive nondiegetic sound* is heard by the player only, not by in-game characters. On the other hand, *interactive nondiegetic* sounds are “sound events occurring in reaction to gameplay, which can react to the player directly, but which are also outside of the diegesis” (ibid.). These types of sounds happen when a player actively does something, but can be heard only by the player. As such, they usually act as signals for something, for instance, when a chime sounds to indicate a puzzle has been solved or upon a character level-up.5

Dynamic audio can also be diegetic in nature and either adaptive or interactive. *Adaptive diegetic* audio, for instance, occurs in reaction to game states and is also diegetic, heard by the characters in the game (ibid.). Conversely, *interactive diegetic* audio occurs “in the character's space, and the player's character can directly interact with [it]” (ibid.). The former could be a band that begins playing a song in reaction to a specific game state, like time of day or the completion of a particular event, and the latter could be a radio the player can turn on and off. *Nondynamic diegetic* audio “occurs in the character’s space, but the character has no direct participation with it,” like a radio on a countertop that plays constantly or the repeating dialogue over an intercom system (ibid.).

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5 In role-playing games, characters that are under control of the player typically have levels that represent the growth of the character. Players move up in levels by gaining experience (or an equivalent type of value) through completing tasks like quests and/or defeating enemies. Levels typically represent advancement in or increasing depth of skills/abilities.
Dynamic audio—in its interactivity, adaptability, and diegetic possibilities—allows game music to be effective in ways unique to the medium.

**GAME MUSIC EFFECTIVENESS**

The varying nature of game audio collectively seeks to enhance immersion, to draw a gamer into an interactive digital space in the same way Gorbman’s “bath of affect” draws the filmgoer into a movie’s fiction. Music operates in tandem with interactivity to create the fictional space, act as both a narrative and gameplay signifier, and therefore aid in the immersion of the player.

Immersion is the act or state of being absorbed in—immersed in—the current activity, with little regard to outside events or effects. Media theoretician Oliver Grau offers a simple definition, saying that immersion is “characterized by diminishing critical distance to what is shown and increasing emotional involvement in what is happening” (2003, 13). This elegant and simple definition captures the basic idea of immersion, but I would argue that critical distance and increased emotional involvement can exist at the same time. As I play, I can fully engage in a game's world while remaining critical and analytical. Immersion can be different for different types of people, however, and the following approaches together help clarify how immersion can vary.

In *Interactive Storytelling: Techniques for 21st Century Fiction*, computer graphics expert Andrew Glassner describes several different degrees of immersion within a game, beginning with curiosity or the desire to know, then sympathy and empathy (identifying with/as the protagonist or avatar), and finally transportation, when players

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6 Perhaps there is a difference between critical distance and the critical closeness—or critical immersion—that I experience when I play games. Though I completely envelop myself in the fictive space of the virtual world when I play (because I enjoy the experience of doing so), I also remain critical and analytical. Future research and theorizing about this state of immersion would be useful.
can temporarily lose consciousness of the boundary between themselves and the avatar (2004, 81-82). This gradient of immersion stages is particularly useful, as people tend to experience games in different ways, and different games aim for different levels of immersion. My connection with the protagonist I choose to play in Borderlands is purely functional, whereas I feel far more empathy for The Kid in Bastion due to the delivery of the content and The Kid’s relationship with other characters and events. I feel even more attached to my avatar in Fallout 3, as I had spent the time creating the physical appearance and abilities of this avatar, and my decisions and actions are expressed through that character. Of course, I am also a gamer who delights in immersing myself in virtual worlds, so as an individual I experience the medium from that side of the spectrum; I want to be drawn in. Some of my friends, however, experience games from the opposite perspective of creating distance between themselves and the virtual world. Indeed, Grau argues that “obviously, there is not a simple relationship of ‘either-or’ between critical distance and immersion. The relations are multifaceted, closely intertwined, dialectical, in part contradictory, and certainly highly dependent on the disposition of the observer” (Grau 2003, 13).

Laura Ermi and Franz Mayra similarly analyze immersion, but rather than seeing it as degrees of increasing immersion, they view it as separate divisions or dimensions (2005, 7-8). First is sensory immersion, in which visual and aural effects overpower those from the world outside of the game, narrowing the players to focus solely on the gameworld. Second is challenge-based interaction, wherein challenge and abilities are balanced in a satisfying way. Third is imaginative immersion, when a game gives a chance for players to empathize with characters or otherwise use their imaginations.
Collins focuses on the imaginative immersive quality, which she states is “strongly enhanced by audio” and helps to communicate emotional meaning, create mood induction, or influence how the player feels (2008, 133). Grau’s, Glassner’s, Ermi’s and Mayra’s, and Collins’ conceptions of immersion collectively give a clear idea of what immersion is and underscore that any individual’s experience of it can vary in gradients and dimensions that, ultimately, draw on that individual’s imagination. It is also clear that music and audio play a key role in immersing players in digital realms.

Playing a game, whether it is *Monopoly, Checkers, Tetris,* or *Doom,* means adhering to a particular rule set that incorporates signs and signals to generate meaningful choices and actions for players within a framework and given particular goals. How does videogame music engender meaning in the game framework?

In looking at the type of effects and meanings generated by videogame music, we also need to consider the physiological effects experienced by players. A study at the University of Abertay demonstrated the effects of game audio (music and sound effects) on twelve students’ physiological states, particularly heart and respiration rates, through the use of a bioharness. It then compared two groups, one playing with disabled audio and a second audio-equipped group as they moved through the same sets of gameplay in the same three games (Usher 2012). The first selection the study used was *Osmos,* a puzzle game in which players absorb single-celled organisms into their own to gain mass. Propelling themselves around by expelling their own mass, they avoid cells of larger mass than their own. If caught by a larger cell they themselves are absorbed, and the game is lost. The second title featured in the study is *FlatOut,* a fast-paced destruction-derby style racing game. The last game in the study, *Amnesia: Dark Descent,* is a first-
person survival horror game in which players guide an unarmed amnesiac through a dark, monster-infested castle. Findings of the study showed that, while playing the game, the audio group had comparatively higher heart and respiration rates than the non-audio group, with the more intense games—FlatOut and Amnesia: Dark Descent—generating the highest difference, particularly in the case of the latter. Usher notes that this finding is impressive considering that “in the section of the game all participants played through, very little happens. There are no enemies and no fighting—just exploration—and the results suggest that audio can yet increase immersion in games” (ibid.). He suggests then that immersion is in part a physiological response to gameplay that is increased through the use of audio.

Immersion is also enhanced by a game’s ability to incite emotional and mental responses from players, particularly through the generation of meaning created within gameplay and the accompanying audio design. “Playing a game means making choices and taking actions. All of this activity occurs within a game-system designed to support meaningful kinds of choice-making. Every action taken results in a change affecting the overall system of the game” (Salen and Zimmerman 2004, 33).

Meaning is thus generated within a game through consequential choice-making, choices that have an effect on the game or game-world itself, and therefore the player as well. These meaningful actions and meanings created by action are enhanced by visual and auditory signs that inhabit the game-world or the sound behind it:

[Games use signs to denote the elements of the game world . . . The signs that make up the game world collectively represent the world to the player—as sounds, as images, interactions, and text. Although the signs certainly make reference to objects that exist in the real world, they gain the symbolic value or meaning from the relationship between signs within the game. (Salen and Zimmerman 2004, 43)]
Music becomes a type of sign within a game, generating meaning through its interaction between players and other signs, such as locations, characters, enemies, and events. Meaningful choice-making is enhanced and even driven by game music, which may reference real-world contexts or objects.

Functions of videogame music are effectively summarized in a definition from Zach Whalen's article “Play Along – An Approach to Videogame Music,” which contends that musical sound in videogames either “expand[s] the concept of a game’s fictional world” or “draw[s] the player forward through [a] sequence of gameplay” (2010). Themes and leitmotifs expand the fictional world by identifying characters, moods, environments, and objects that situate the player in the narrative (Collins 2008, 130-1). Whenever a theme associated with a character, location, or event appears, the gamer recollects the associated idea or emotion, and this allows for a deeper level of connection and immersion in an experience that may last many hours over many days, sometimes even over a series of games. Conveying emotions—of the player’s avatar, other characters, or the action of the gameplay—is also an important function of music. Additionally, game music also “enhances the overall structure of the game . . . [using] direct cues, such as links or bridges between two scenes, or which indicate the opening or ending of a particular part of gameplay,” to immerse the gamer in the narrative and to guide him/her at an appropriate pace (Collins 2008, 130-1). Immersion or personal investment and involvement in the game-space is a hard sought-after goal for game developers and one in which audio plays a significant role, tying in the narrative, characters, locations, and themes together, conveying moods, and promoting continuity. Collins sums up the immersive function well:
Part of the role of...audio in general is the suspension of disbelief, adding realism and creating illusion. The illusion of being immersed in a three-dimensional atmosphere is greatly enhanced by the audio...the music, dialogue, and sound effects help to represent and reinforce a sense of location in terms of cultural, physical, social, or historical environments. This function of game audio does not differ significantly from that of film; but it must be recalled that a game may take thirty to forty hours to complete even when the 'correct sequence' of events are known, and audio plays a crucial role in helping the player to recall places and characters, and to situate him- or herself in such a massive setting, reducing confusion and frustration. (ibid., 132)

Game sound, including game music, is an essential facet of the experience, as the reality must existaurally as well as visually. Music is a part of the reality that gamers explore, manipulating their emotions, communicating game states, maintaining continuity, and guiding decisions and actions. The content of this music is paramount, as different sounds can help generate different realities. An eclectic approach thus assists in this reality generation through the ambiguity that eclecticism embodies. At the same time, the sources of the sounds joined together in one piece contain their own cultural contexts, allowing for an ambiguity that contradicts the gamers' enculturated values and experiences. Borderlands, Bastion, and Fallout 3 use eclecticism to varying degrees and goals to fabricate diverse, shocking, and destructive worlds.

Audio therefore enhances the virtual space, or the space of possibility, “the space of all possible actions that might take place in a game, the space of all possible meanings which can emerge from a game design” (Salen and Zimmerman 2006, 67) This space of possibility bridges the gap between the designed structure, or form, and the player experience, or gameplay, by allowing meaningful choices within a system. Meaningful choices in the virtual space imbue the play with strengthened emotion, impetus, and sense of consequence, partly through music. The eclectic musical approach fully takes
advantage of the space of possibility as the possibilities are nearly limitless. In Borderlands, Bastion, and Fallout 3 musical conceptions are redefined to fill the space of possibility with new meaning. That redefinition is the breakdown of cultural sound into simply sound, a simulacrum of the self in global digital databases.

**EXOTICISM AND ECLECTICISM**

An understanding of eclectic approaches to music and exoticism help to provide a foundation for analyzing game soundtracks that use the eclectic approach. The definition of exoticism in ethnomusicology, according to Timothy Taylor in Beyond Exoticism, encompasses “manifestations of an awareness of racial, ethnic, and cultural Others captured in sound” (2007, 2). Exoticism is the essentialization of an Other, a different culture or a strange being, over which Western culture exercises power through its artistic imagining of that Other. Essentialization is a matter of external agency and identification that frames a culture’s representation of another, whether that representation is accurate, or intentional, or not; in this case, the framing is done through music. Taylor explains the phenomenon of essentialization in regards to the musical Other:

> The musical ‘Other’...is an essentialized concept. People in different historical situations have ways of constructing their Others in different ways, which they do in part with music; the music of the Other has not played much of a role until comparatively recently. (Taylor 2007, 7)

Taylor’s comments help to explain how elements of another culture’s music are utilized, even if that culture itself is not necessarily what is being represented and despite whether composers or performers intend to represent that culture or not. Instead, a fictional, fabricated Other is created. This concept is particularly fascinating in videogames because the Other is a fictional entity that a player interacts with in virtual
space. This affords musicians and storytellers the possibility of creating unique contexts in which newly fabricated Others can exist in an entertainment medium that involves a direct interaction and an immersive experience requiring participation, investment, and reflection on the part of players. Encompassed in the fictional settings, characters, and themes of the game, the Other assumes an identity experienced directly by the gamer and with varying levels of control. Both the presentation of a videogame’s material and the player’s actions within that game invite reflection to varying degrees. The combination of the post-apocalypse and eclectic music in *Borderlands*, *Bastion*, and *Fallout 3* repeatedly confronts players with themes of what it takes to survive and what it means to be human.

**Constructing Others in the Digital Environment**

The sonic material discussed in this paper is music that can exist as a tool to construct Others in ways not entirely based on ethnicity or exoticism. The selected games create new Others simultaneously situated in reference to the player, the player character, and the gameworld. The player character could be considered an Other in respect to the player's identity or culture, but since players often experience a world from the view of that character, the player's identity becomes that of the character, and the player experiences the game world from that point of view. In this way, Others are constructed in complex contexts and videogame soundtracks aid in that construction of the Other in the virtual realm.

The exotic loses its meaning in the face of digital globalization. In the current age of digital globalization, exoticism is a term much harder to define and to use confidently, because the database has grown exponentially. Taylor suggests that there is not exoticism but “exoticisms,” different ways of expressing Otherness that have emerged over the last
hundred years, and it is in this vein that the digital expresses Otherness with a sense of increased—or even maximized—ease and transparency in production and videogames (Taylor 2007, 9). The Other is still inherent in raw sound, as is evident in the feedback from the game composers interviewed, though we have drawn closer to a place in which the Other exists as simply sound, i.e. the aural phenomenon, and the database. The extra-musical repercussions of exoticism are still important in the wide scheme of eclectic musical approaches, however. In modern and post-modern society, identity partially lies in consumption, and consumption is an “open-ended project of self-creation,” particularly as multiculturalism legitimizes new areas of consumerism (Taylor 2007, 117):

Multiculturalism can democratize art, but this has the effect of turning art into a product, a commodity, even more than it had been in the past. Not only that, but the tools for making cultural forms are increasingly commoditized. (Taylor 2007, 125)

The means by which composers Raison Varner of Gearbox Software’s Borderlands and Darren Korb of Supergiant Games’ Bastion created their music is embedded in that commoditization, in technology and replication, and in the global digital database. The global digital database is a global information model grounded in software, computer electronics, and connectivity; the term is based on the application of the database information model discussed by Japanese cultural critic Hiroki Azuma in Otaku: Japan’s Database Animals (2004, 144). The sound library software utilized to create this music, which uses prerecorded samples, sounds, and timbres, exemplifies the extent to which culture has been commoditized and uploaded into a live, world-wide digital database. Globalization is a factor in the desire to create something new and unique out of the Other, Taylor explains:
Racism, sexism, civil rights . . . no longer matter, an ideology complemented by a form of multiculturalism. Our globalized world softens the edges of difference, making Others and their cultural forms desirable in new ways. And the ‘transculture’ is marked above all by a ‘rabid consumerism,’ with everything available on-line and hundreds of channels on cable television. (Taylor 2007, 126)

Globalization and technology have aided the musician in finding new sounds and new timbres to explore and utilize outside of their typical cultural contexts. This is the commoditization of cultures as sound. Musicians, Western or non-Western, hear a sound they like and “want to be a part of it” regardless where that sound is from; in the case of composers like Varner and Korb, sound is a resource from which one can create something new (Taylor 2007, 128). In technology, the sound is disconnected from its physical and socio-cultural source, and the musical instrument becomes a computer or MIDI keyboard. Musical acts like the band Beats Antique are perfect examples of this type of musical collaboration, a mix of trip-hop—a blend of electronica and down-tempo hip-hop, urban and ethereal, street and ambience (2013). The genre often features a string or brass section and can be either instrumental or with vocals, often female and occasionally with rap. Other instruments may also be utilized. Trip hop is heavily influenced by soul, jazz, and funk (Wikipedia 2013).
composer, feedback with game designers and the game world itself influences the end
product.

The commoditization of sound as the separation of elements of music and culture
into units for sale, particularly in the context of the digital sound library, aligns with
Canadian composer Murray Schafer’s concept of schizophonia. Schafer defines
schizophrenia simply as the splitting of sounds from their sources (1977, 90), though
ethnomusicologist and anthropologist Steven Feld suggests that it refers to more than just
that, including the “larger arena where sound recordings move into long- and short-term
routes of circulation and patterns of consumption” (2012, 41). Digital sound libraries are
a specific example of this sort of splitting and commoditization; the professional
recordings of skilled musicians on hundreds of different instruments are archived into a
software package that allows the customization and repurposing of those sounds in digital
audio workstations (DAWs) such as Sonar, Pro Logic, and Reason. These are installed on
computers with or without musical instrument data interface (MIDI) inputs and outputs
(e.g., assigning the sound of a Chinese zither to the keys of a MIDI piano-keyboard). The
sources of these sounds are immaterial to any musician who chooses to ignore that or
lacks the knowledge of the sound’s background, allowing for a vacuum of context in
music-making. In the case of libraries that contain recordings of instruments from around
the world, essentialization and exoticism may be minimized depending on the context of
that music-making. This does not preclude a user’s ability to learn about the instruments
he or she is using or the backgrounds in music that users bring to their knowledge of
culture. The sound becomes contextualized in the frame of the composers’ and
musicians’ backgrounds, work, and interests. The tool itself—the sound library—finds its context between the composer’s relationship to the sound and the end product.

In a similar way, Othering can occur as a temporal displacement. In *Fallout 3*, licensed music is taken out of an old context—a historical period—to comment ironically on a contradictory time period. The music is split from its source in time. The schizophrenia here is incomplete because the new utilization, a temporal displacement, causes the music to generate and obtain new meanings in the context of the diegetic virtual world, specifically through the music’s relationship with the original context. The sound—mid-20th century jazz showtunes—is not completely divorced from its source in the cultural context of that music's generation, as it is specifically that relationship that allows the music to construct dark humor and commentary in the world of *Fallout*.

Through schizophrenia “sounds gain a new social life as they are recontextualized and resignified” (ibid.), and within the context of the virtual world of a videogame a vast array of new meaning-making emerges. This temporal displacement allows *Fallout 3*’s diegetic music to serve as a socio-cultural element in the game’s fiction by constructing the “Other” in time, rather than place, as in *Bastion* and *Borderlands*. Familiar sound transforms into the unfamiliar.

These different theoretical insights contribute to an understanding of the potential of music to create new types of Others. The eclectic and reperiodized recontextualizations of music and sound contribute to a new way of Othering by schizophrenia—disembodied them—through technology and the global digital database.
MEANING MAKING

This sort of genre and culture mixing, this eclecticism together with schizophrenia, simultaneously reduces and creates meaning. The process of combining different sounds associated with specific cultures reduces meaning by displacing discourses. Taylor suggests this changes authenticity into a marketing handle of World Music as a music of Others/Othering, wherein these types of musical approaches create multiple referents for authenticity (2007, 138-141). Certainly, taking traditional music—its timbres, its rhythms, its qualities—into a new, alien context reduces its meaning as a part of the tradition that generated it, but that recontextualization, along with its mix combining other musics and genres, applies new meaning as well. Post-colonial scholar and theorist Homi K. Bhabha states that hybridity is the “third space . . . that enables other positions to emerge” (1990, 211), and Taylor asserts that “the process of cultural hybridity gives rise to something different, something new and unrecognizable, a new area of meaning and representation” (2007, 145). In my interview with Darren Korb, he commented that he sees his approach in the soundtrack of *Bastion* as eclectic because of his goal to create a new, unexampled musical space rather than an exoticized and essentialized one. *Bastion*’s tracks support vibrant characters, serious themes, and never-before-seen, different, unrecognizable settings. Supergiant Games creates a new area of meaning and representation, though maybe not in the same way Homi K. Bhabha might have predicted, within a virtual space and in a fictional world. Attali summarizes the creation of meaning in musical mixing:

Music, like cartography, records the simultaneity of conflicting orders, from which a fluid structure arises, never resolved, never pure. (1985, 45)
In the case of *Bastion* and *Borderlands*, music records the conflicting orders of traditions and digitization; a fluid eclectic structure yields new meanings and contexts.

Whether we call this phenomenon hybridity or eclecticism, the process has indeed generated new identities and meanings in videogames that emerge from the virtual world and new compositional contexts. Advancements in music technology have indeed afforded innovative strategies for eclecticism and, eventually, Othering.

**Technology and the Science Fiction Other**

In contemporary sound technology, we also find a lineage of essentialization of a different kind—that of the alien, the Outer Space Other. Beginning in the late 1940s in the album *Music Out of the Moon* the Theremin, an electronic instrument that allowed for an intensity in glissando and vibrato using hand gestures in two perpendicular electromagnetic fields, began to characterize a science-fiction Other from Outer Space. This continued in such films released in the 1950s such as *Destination Moon* and *Rocketship X-M*. *Rocketship X-M*, for example, used the Theremin as an “audio marker of the otherness of Outer Space and the hostile Martian environment and population” (Hayward 2004, 9-10). What this beginning of electronic music contextualization in entertainment media suggests is that the electronic and the synthetic had begun to essentialize a different kind of Other, the truly fictive Other. This use of electronic and synthesized sound continued outside of film contexts from the 1960s to the 1980s in albums and songs with outer space themes. Afrofuturism in America was expressed in the music of artists like Sun Ra, Parliament and George Clinton, and John Coltrane in his posthumous 1974 album *Interstellar Space*. In Europe, Pink Floyd's “Astronomy Domine” and “Interstellar Overdrive,” which appeared on the 1967 album *Piper at the
Gates of Dawn, expressed Otherworld themes and was inspired by the Quatermass films such as Quatermass and the Pit by Tristram Cary (Hayward 2004, 13-16). Appearing that same year, these films used “hard drones and blasts that reinforce the alien and technological theme” (ibid., 13). Generalizing the science-fiction Other through the use of electronic and synthesized sound began in the 1930s and grew as a particular kind of essentialization that could be expressed in electronic sounds, dissonances, drones, punctuations, and melodic space.

The marriage of cultural sound and sci-fi seems a logical next step in creating fictive Others, especially with electronic and synthesized sound; however, examples of a focused combination are few in film and videogame scores. According to Hayward, we find these few small examples in Akira Ifukube's references to Ainu music in Gojira (1954) and actual use of an Ainu chant in Godzilla v Mechagodzilla (1974); in addition, a highly relevant example appears in Katsuhiro Otomo's anime Akira, set in a “post-nuclear ravaged (Neo-)Tokyo” (ibid. 24). The music of the film was written and performed by Shoji Yamashiro and the Geinoh Yamashiro Gumi ensemble, which used Balinese gamelan, bamboo instrumentation, and mass choral parts to create this post-apocalyptic world:

Given an unusually free rein by the director, Yamashiro produced a score that was based on a computer database of modular units that could be assembled in various combinations to fit the final visual and narrative form of the film. While the music has been widely acclaimed, it has not spawned similar engagements with non-western musical styles within the SF genre. (Hayward 2004, 24)

I find it significant that one of the few examples of this type of marriage of non-western sound and sci-fi lies in a post-apocalyptic context and that the compositional process
employed a database of modular, mobile units. The composers of *Bastion* and *Borderlands* also utilized a database in a similar manner.

**SIMULACRA AND THE GLOBAL DIGITAL DATABASE**

The use of music to create an Other in a post-apocalyptic world involves a recontextualization of culture and society—reduced to the simplest elements and reconstructed into something different. It represents the nature of digital composition and an attitude towards sound and music-making that stems from hip hop’s sampling culture and postmodern globalized culture.

In understanding both the process of eroding the edges of difference and the eclectic musical approach, two notions are useful—Hiroki Azuma’s application of the postmodern database information model in his discussion on Otaku culture, which focuses on anime including manga, television series, films and videogames to help him realize that new realities born from simulacra can hide referents to origin and history and Jean Baudrillard’s theory of simulacrum, which holds that replication creates new realities that supersede those on which they are originally based. Together, their findings show that new realities—hyperreals—can hide, if not completely eradicate, the reality from which they sprang.

The central examples of music in this paper were composed through digital means and produced on computers using both digital audio workstations (DAWs) and digital sound libraries like Ethno World Pro and Silk. This liberal use of software and pre-existent samples exemplifies an ease of access to information that requires no documentation of background or origination, an information model I have dubbed the *global digital database*. I base this term on the postmodern database information model
discussed by Hiroki Azuma in “Otaku: Japan's Database Animals,” in which there is a surface layer of information that is accessed by users and whose content relays only what users desire. In contrast, a modern tree-based model of information has the origins and centers of information visible. Azuma uses the internet as a prime example of the database model:

On the Internet . . . there is distinct double-layer structure, wherein, on the one hand, there is an accumulation of encoded information, and, on the other hand, there are individual Web pages made in accordance with the users ‘reading them up.’ The major difference between this double-layer structure and the modern tree model is that, with the double-layer structure, the agency that determines the appearance that emerges on the surface outer layer resides on the surface itself rather than in the deep layer, i.e, it belongs on the side of the user who is doing the ‘reading up,’ rather than with the hidden information itself. (Azuma 2009, 31–32)

In other words, in the database model there is both a hidden deep inner layer of information that reflects the sources, contexts, and broad knowledge as well as information on the surface that belongs on the side of the user doing the “reading up” (ibid, 32). The theory of the "filter bubble" presented by Eli Pariser on TED Talks is a perfect example of the database model in action; when services like Google and Facebook tailor what we see as we browse for information, the deep layer becomes hidden in their algorithms (TED.com 2013). Such theories allow a view of the sound library software composers access as a sort of database, a bank of sounds whose origins are only important, or even visible, if the user wishes them to be. This is not to say that a user cannot look beyond the surface layer, or that the historical or cultural contexts of sound are completely eliminated in the database model. Sound libraries can be used for anything, and many users and audiences understand the traditional contexts of the featured instruments on some level. It is, however, the sound library’s unique form as an
easy access compositional tool, one that circumvents performance sampling and live instruments and their musicians, that makes surface layer knowledge adequate enough to possibly reconfigure audience and composer conceptions of musical sound in general. Without restrictions, boundaries blur and sound can become simply sound on the surface layer.

With the concept of the global digital database in mind, a new kind of product emerges, a *simulacrum* emanating from information without origin and from the surface layer:

In postmodern society the distinction between original products and commodities and their copies weakens, while an interim form called the *simulacrum*, which is neither original nor copy, becomes dominant. (Azuma 2009, 52)

In Azuma’s example this refers to fan- and market-generated products in Otaku culture, in which styles of art and its themes are recycled and emulated in fan pieces and generations of manga and television shows until original and emulated styles no longer differ. Meaning becomes equalized along the entire spectrum, from originator to emulator, and the products, and perhaps even culture, become simulacra. The authentic and its replication become different only in context or lack thereof. This process applies in the same way to technology and music, particularly in the case of sample, midi, and sound library technology; cultural sounds are recorded and circulated to create a simulacrum of the original sound and context, and then vast digital sound libraries create a deeper simulacrum of not only musical sound, but composition process as a whole, perhaps even establishing the sound library as a sort of *hyperreal*, or new reality. To elaborate on this theory, I look to Baudrillard's *Simulacrum* (1994), in which he discusses
a cartographer’s simulation of the real with a map and the relationship between it and the real geography it represents:

This representational imaginary, which both culminates in and is engulfed by the cartographer’s mad project of an ideal coextensivity between the map and the territory, disappears with simulation—whose operation is nuclear and genetic, and no longer specular and discursive. With it goes all of metaphysics. No more mirror of being and appearances, of the real and its concept. No more imaginary coextensivity: rather, genetic miniaturization is the dimension of simulation. The real is produced from miniaturized units, from matrices, memory banks and command models—and with these it can be reproduced an indefinite number of times. It no longer has to be rational, since it is no longer measured against some ideal or negative instance. It is nothing more than operational. In fact, since it is no longer enveloped by an imaginary, it is no longer real at all. It is a hyperreal, the product of an irradiating synthesis of combinatory models in a hyperspace without atmosphere. (Baudrillard 1994, 5)

Therefore, the idea of the simulation and the hyperreal exceeds simple representation. In music, the nature of replication and creation of the new through replication is directly tied to technology, sampling, and specifically the sound library, a central facet of the global digital database. The concepts of simulation and global digital database allow the musical works discussed here to exist and direct our attention to the changing nature of music and music making in a world of limitless sound and contexts. Videogames provide unexplored worlds that have the capacity to cultivate music that exists through simulation; videogames are, after all, simulations at their core.

The eclectic musical approach breaks down the walls that define Western and non-Western sound, leaving just sound. It is a clear example of Taylor’s globalized world and its consequential reduction of difference. The three games analyzed in this study and the processes involved in producing them are clear examples of this post-modern environment that Taylor references. Yes, our globalized world may soften the edges of difference, but the *global digital database* provides a device for doing that.
Temporal displacement involves the recontextualization of preexisting pieces from a particular time period in the fiction of a different time period. The film *A Knight's Tale* (2001) utilizes 1970s rock music, both diegetically and non-diegetically, to bring the middle ages of the late 14th century to the audience’s level and to capture the rebellious nature of the main characters. The opening credits, for instance, feature a scene in a jousting stadium with the audience clapping their hands and stomping their feet to Queen’s “We Will Rock You” creating a temporal displacement of that tune. By placing it in a different time period, the scene is injected with the enculturated values associated with the tune, creating a new meaning between the music and the visuals. Immediately, viewers are led to associate jousting with modern-day spectator sports and the prestige those athletes inhabit. *Fallout 3* created an Other in time by using the temporal displacement of music from the mid-20th century—which embodies the baby-boomer post-war golden age—in a lawless, radiated, barren post-nuclear America. The familiar is made unfamiliar through temporal displacement.
CHAPTER 3
EXISTING ON THE BORDER IN BORDERLANDS

Imagine an expansive scene spread before you, a desolate, dusty, craggy landscape dotted with rusty shanty-towns consisting of makeshift shelters and dilapidated yet futuristic buildings. Madmen and cannibals patrol the wastelands while vicious creatures prey on any living thing. Civilization is tenuous and rare, violence and the strange are commonplace, and in the midst of it all is a very thick air of humor—sarcastic, snarky, and ironic. *Borderlands* is a first-person shooter with role-playing game elements and a post-apocalyptic theme, a hybrid in which players take the role of one of four mercenaries who they build in abilities and equipment over the course of the campaign (fig. 1).

![Borderlands cover art](http://www.gearboxsoftware.com/games/borderlands/)

Players can play alone or cooperatively with up to three others. From a first-person point of view, players see the world through their avatar’s eyes and gain experience points, a numerical measurement of their avatar’s actions and
accomplishments, which they use to enhance abilities and otherwise build their avatar in a role-playing, strategic system. Released in 2009 by Gearbox Software, the title was lauded by industry reviews for successfully and uniquely combining many great elements of loot-collecting role-playing games, fast and frenetic first-person shooters, and tight cooperative multiplayer experiences to earn high review scores and acclaim in the videogame community (Gameinformer 2013; Gamespot 2013).

At every turn, lead audio designer Raison Varner has tailored the music to enhance the hodge-podge of characters, environments, items, and creatures. Synthetic electronic sounds are backed up by numerous sampled instruments and timbres from many different cultures, as exemplified on several of Varner's tracks (e.g. “Rakkhive Emerges,” “Assaulting Krom’s Canyon,” and “Fighting off the Skags”) (Varner 2009). There were three other composers contracted from outside of Gearbox software to make music for Borderlands, but Varner’s work provides a superb example of the game’s musical style, and his position as a lead member of Gearbox Software’s staff adds authority to the feedback he so helpfully supplied. His application of the eclectic elements present in Borderlands’ music are efficacious in helping to establish a unique musical identity. Rather than evoking specific places and culture, he takes the sounds out of their cultural contexts to create meaning within a new one—the post-apocalypse. I frame my analysis of the audio tracks as experienced through playing the game and from comments I received in direct email from Varner noting Stephen Blum’s statement “once the analyst has ascertained the variables and the ranges of variation in both idiom and performance context, analysis of the performance process can show how the context of

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8 Sascha Dicikyan, Chris Velasko and Jesper Kyd worked on this project under a contract with Gearbox Software. None responded to my emails or requests for a meeting.
performance affects the music being performed” (Blum 1992, 201). By understanding the music and its context, I underscore how Varner’s treatment of the music and its performance affects the music itself. First, I summarize the game’s plot to provide a simple understanding of Borderlands’ premise and situate the music within the frame of the story. I then discuss my fieldwork and correspondence with Varner and detail his compositional process followed by the musical analysis of his work. Finally, I frame the compositional process and music within the eclectic musical approach and the simulacrum and database theories.

**Plot**

The action takes place on the planet Pandora—sometime in humanity’s inter-galactic future—and across failed colonies, junk-heaps, caverns, deserts, and crumbling colonies inhabited by struggling survivors, crazed bandits, and vicious varieties of fauna.

Four mercenaries, Brick, Lilith, Mordecai, and Roland, have come to Pandora to find a legendary hidden alien vault that only opens every 200 years and is said to contain untold riches and alien technology. They are helped by the enigmatic Angel who guides them to opening the vault, communicating only by echo transmission, a type of Bluetooth satellite call with a visual display. In order to find the vault, the mercenaries help Pandora’s people struggling to survive by fighting lawless, crazed bandits, the surrounding fauna (fig. 2), and the intervening Atlus Corporation with its Crimson Raiders army who vie to open the vault themselves. Most actions lead to discovering parts of a key required to open the vault. In an unexpected twist, the vault opens but releases a gigantic, tentacled, one-eyed abomination; the mercenaries are forced to destroy it and seal the vault forever. As it turns out, the vault was never a treasure trove of weapons and riches but a doorway to a separate dimension that acted as a prison for the monster.

The story unfolds through quest-explaining text and fully voiced radio dialogs—echo transmissions—by non-playable-characters (NPCs) and antagonists; players can easily ignore both the text and dialogs, but they add depth, breadth, and a great deal of humor to the world for those who pay attention. Central to the game are fast-paced, frenetic, in-your-face action, equipment collection, and avatar development.

The game depicts society as being almost destroyed, with scavenging and survival main themes dominant everywhere the mercenaries go; there is a lack of any sort of deep culture (fig. 3). After playing the game, for example, a player would not know what the inhabitants of Pandora do in their extra time, what they celebrate, or even how they converse. There is a lack of recognizable cultural markers in structures or clothing, and buildings are mostly makeshift sheet metal and wood, clothing is piecemeal and ad-hoc, and anything that does not look scavenged is sleek and futuristic, including the weapons. Desolation and lawlessness reign, and even the unique, comic-book visual style makes everything feel alien.
MUSICAL FUNCTION

In *Borderlands*, music functions as either an ambient backdrop to exploring and moving about an area or as an energetic accompaniment to combat. In this way, the *Borderlands*’ soundtrack is almost exclusively non-diegetic adaptive audio, reacting to the game states of being in or out of combat and acting as an indicator to the player, making him or her aware that a threat is near. The music also fades if the player increases his or her distance from that threat. If all the enemies in combat have been defeated or if the player has successfully fled far enough away that enemies no longer follow or attack, the combat music completely fades out and the ambient track gently fades back in.

Varner explained that a simple algorithm controls the activation of combat music. If the enemies present are not a threat to a player, due to their quantity or level, combat music will not activate even though the player may be fighting (Raison Varner, pers. comm. Feb 22, 2011). In this way, combat music directly correlates with threats to the player while ambient music indicates relative safety. Additionally, some tracks, particularly ambient tracks, only play in particular areas. “Assaulting Krom’s Canyon,” for example, plays in one specific locale, Krom’s Canyon, which is a set of sheer, tall canyons and cliffs; it also functions as an ambient track that plays outside of combat. In contrast “Fighting off the Skags” is a combat track that plays in many different locations in *Borderlands*, but almost always in response to combat with skags, which are armored dog-like animals, and other creatures. “Rakkhive Emerges” is also a combat track, but it only plays in one specific location during a “boss” fight—a fight in videogames typically focused on one very challenging enemy—with a specific creature, the massive Rakkhive.
I was privileged to see firsthand the environment in which Varner created these tracks and worked on the sound design for *Borderlands*. During the week of August 18-26 2012, I traveled to Plano, Texas to shadow Varner. Visiting at any other time or for a longer period was impractical as the time-constrained nature of the videogame industry would not have allowed time to answer my questions or do interviews if work was in full progress. As it turned out, the timing of this week was fortuitous because the team had just finished work on *Borderlands 2* and was doing some last-minute touches on a downloadable content (DLC) project. Varner graciously allowed me to spend time with him at the studio absorbing his thoughts and learning about what it is like to work in the industry as the lead audio engineer.

Founded in 1999 and now boasting a current team of approximately two-hundred staff, Gearbox Software is an independent studio most notably responsible for the *Brothers in Arms* and *Borderlands* series and brands, though the company has also worked on such prominent franchises as *Duke Nukem, Aliens, Halo, Tony Hawk, James Bond,* and *Samba de Amigo* (Gearbox Software 2013). Gearbox Software occupies three main offices for activities such as art, production, audio, quality assurance, and motion capture. I spent most of my time in Varner’s studio, watching him work and discussing music, audio, and game design. Pictured is the setup that Varner uses, detailed from left to right: keyboard, Virus TI synth hardware (used for all synth), Demon (game console input via HDMI, outputs the 5.1 signal to all speakers for surround sound), durometer (loudness meter for all audio input/output), RMA Fireface 800 (external audio interface for all audio input/output), and Digi 3 Control Surface (fig. 4).
The Digi 3 Control Surface is an interface for ProTools hooked up to the Mac, but this was not used for *Borderlands*. There is a microphone standing in the room (not pictured), and this is predominantly for voice-over recordings; there is no live instrumental or singing performance. All sound in the tracks composed by Varner relies solely on software that he uses in this setup. The software he prefers (fig. 5) includes Sonar 7 Producer Edition as the Digital Audio Workstation (DAW) plus sound libraries like Ethno World Pro, Tonehammer, and Quantum Leap Silk, which Varner uses extensively. Like Ethno World Pro, Tonehammer and Silk are sound and sample libraries; the most recent version—Ethno World 5 Professional and Voices—features over 240 professionally recorded instruments, twenty-five professionally recorded solo voices, and an “Ethnic Chamber Choir” with over 3800 samples and phrases (Sounds Online 2013).\(^9\) QL Silk “delivers an extensive set of articulations, legato scripting, alternate sampling.

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\(^9\) For a full list see http://www.soundsonline.com/Ethno-World-5
and phrasing, to give performances with Silk natural, smooth sound,” including modifying instruments in the software to “dozens of microtunings” and to any key (Sweetwater 2013). Composers can assign these sounds directly to midi interfaces like keyboards and drum pads and alter them in nearly limitless ways, from simple changes of pitch to modulation through hundreds of effects and settings.

With this kind of setup, Varner was able to create the music and audio for the game quickly and with a great amount of control, which is important as the time constraints for Borderlands work were very demanding. Varner spent from one to three days on any one track, and he created nine out of the total twenty-two while also working on sound design.

**Fig. 5. Examples of software Varner utilizes. Boxes lined up against the wall in his studio. Fieldwork photo by Jeremiah French**

**Musical Analysis**

The soundtrack for Borderlands features a rich list of musical pieces, but three tracks were selected as examples of the eclectic musical approach due to the range of sounds used and composer feedback. Varner was the audio lead in the project and the only composer specifically in the Gearbox Software team; his work provides many
wonderful examples for analysis, and he was the only composer who responded to attempts to gather feedback. I asked Varner to select his favorites to serve as the first two examples for analysis, and he chose “Assaulting Krom’s Canyon” and “Rakkhive Emerges.” For the third example, I selected “Fighting off the Skags” based my choice on the particular sounds and instruments implemented and their appropriateness to the specific focus of this thesis. When I asked Varner what track he thought would be a good example for this particular study, he also confirmed that “Fighting off the Skags” was a proper choice.

“ASSAULTING KROM’S CANYON”

Before Varner became the lead composer for *Borderlands*, developer Ed Lima held the position and established an ethnic or world musical direction in mock-ups, using reference material with a lot of ethnic instrumentation (Raison Varner pers. comm. Feb 11, 2011). As the game was being developed, however, it was becoming increasingly comical, campy, and ultra-violent, says Varner, who felt that the music focused too much on ethnicity, giving the world a “more serious and softer palette” than he felt appropriate (ibid.). Emphasizing an exotic instrumentation made the game feel more dramatic, which did not match the direction the game design was heading. When the musical style shifted to the more violent, gritty, and campy style that became a final feature of the game, Varner pushed the music team to use more “ragged” textures, like rubbing metal, distorted string instruments, and a heavy usage of electronic music production to “sell the ‘grunge tech’ edge to the world” (ibid.). Sounds reflective of this statement abound in “Assaulting Krom’s Canyon,” e.g. the tapping and scraping sounds of a *guiro* (a gourd
scraper) and a metallic ringing effect—possibly a heavily filtered and processed bamboo idiophone—that plays throughout (fig. 6). In the following musical transcription, I separate the sounds of scraping and tapping into two guiro parts due to their simultaneous yet separate nature. The musical line marked Guiro 1 represents the scraping sound, with a “>” symbol above a notehead indicating a quick scrape, and a “_” symbol above a notehead indicating a slow, drawn out scrape. Guiro 2 represents the tapping sounds which have a prominent echo effect, or reverb, on them.

Fig. 6. “Assaulting Krom's Canyon” excerpt, mm. 16–19.

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10 The guiro is an idiophone gourd scraper played rhythmically in South American and Latin dance music with a stick using scrapes and taps (Garland 2013)
Motifs using *bansuri* flute (bamboo transverse flute of India), trumpet and trombone tone clusters, and rhythmic instruments come together to create a dramatic, foreboding and yet driving piece that sets the mood for Krom's Canyon. The heavy use of synthetic elements in this piece enhances the ragged, ominous, and threatening tone, including a continuous low drone, a sound similar to a heart beat that crescendoes and decrescendoes, and rattling metallic sounds used ornamentally. Trumpet and trombone tone clusters crescendo at key points throughout the piece, and a *bansuri* flute and a flute provide high, shrill melodic motifs. Varner uses the *bansuri* as he does most melodic instruments in *Borderlands*, in a narrow range to provide several distinct motifs that occur throughout the piece. We see a regular use of recognizable and easy to follow motifs stacked upon one another to create an energetic and dramatic experience that fosters immersion.

“THE RAKKHIVE EMERGES”

Perhaps the most synthesized and electronically altered piece by Varner is “The Rakkhive Emerges.” In it, Varner layers simple, easy to recognize motifs (fig. 7) to construct another very high energy work. Employing a large amount of synthesized sound in the form of a sliding, low, reverberating tone that Varner's synth hardware Virus TI titled “Bitch Tits,” the piece matches a tense encounter with one of the largest enemies in the game. This sound plays almost entirely throughout “The Rakkhive Emerges.” A reverb-laden *shenai* plays sporadic, screeching two-pitch motifs. The piece also features a drum tom patch, a sound file titled “Epic Toms” (E. Toms), as well as a

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11 *The bansuri* is a flute of Southeast Asia, used particularly as an improvisational or solo instrument in both Southern and Northern Indian music (Krishnaswami 1997, 35)
12 *The shenai* is a conical double-reed aerophone from India (Garland 2013)
loosened snare called “Exploding Snare” (Snare) that sounds almost like a tambourine, low brass swells from a symphonic ensemble sample software called Symphobia (Hn. and Tbn.), and a palm-muted electric guitar that sounds more like an idiophone than a chordophone (Elec. Guit.). Fewer timbres appear in this track compared to Varner’s other tracks in Borderlands, but the piece retains a certain thickness and heaviness that differentiates it from the other two examples in addition to a deeper reliance on synthetic sound and augmentation. The palm-muted guitar, for instance, is processed and filtered so thickly that I mistook it for some sort of wooden idiophone and would never have recognized it if I had not talked directly to Varner. This sound is indicative of Varner’s goal of creating something new, rather than emulating or evoking the known and recognizable. Notice the held, rising C to Db in the shenai (Sh.), the ever-present synthetic pitches (V.TI), and the palm-muted guitar rhythm (Elec. Guit). Rhythmic parts interlock to imbue the scene with intensity, and the wailing shenai and blaring horn and trombone parts add drama to the scene.
“FIGHTING OFF THE SKAGS”

“Fighting off the Skags” uses a unique, ear-catching vocal sound as well as many percussive and synthetic layers to epitomize Varner’s approach. Mongolian throat singing, *domra* (Russian long-necked lute),¹³ *tzoura*¹⁴ (Greek long-necked lute misspelled in the software as *zsoura*), bass *darabuka* (an Eastern European and Middle-Eastern

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¹³ The *domra* is a lute with a bowl-shaped resonator and three to four strings used in Russian *balalaika* ensembles as a lead instrument (Garland 2013). It comes in a family of sizes, from soprano to bass (Atlas of Plucked Instruments 2013).

¹⁴ Searches for the *zsoura* at the library, in Garland Encyclopedia Online, and google.com or youtube.com yielded nothing. Due to the odd spelling and matching timbre, the *zsoura* at this point is assumed to be the *tzoura*, a round-bodied, long, thin-necked lute with six or eight sets of double courses (Atlas of World Instruments 2013). *Zsoura* is the spelling found in Ethno World Pro, so perhaps this is simply a case of misspelling or typo.
goblet-shaped drum), synthetic percussion, and many synthetic electronic effects coalesce to create an energetic and rhythmic piece that plays in response to combat, lending it appropriate tension and pacing.

The piece is two-part with two repetitions of AB and a slight variation of an elongated B coda in the album version: the track in-game repeats as long as combat lasts and ends with a fade out after combat is over. Since it is impossible to predict how long a player is in one area or fight, almost all of the tracks for *Borderlands* were made with looping in mind.

Correspondence with Varner revealed that he included “Mongolian throat singing, a string section, dulcimer, another guitar-like instrument, solo violin, and Virus TI as the lead high pitched synth instrument” (pers. comm. Feb 2, 2011). Soon after his message, however, I received a list of parts from Varner after he re-opened his project file for “Fighting off the Skags” in Sonar. Varner had no need to document the music he created in notation or in lists of parts, so he could only get me details from his own listening and access to the project files still saved on his studio computer. When he opened the project file in Sonar to write down this list for me, these were the sounds he saw stacked in Sonar’s interface:

1. Shaker Loop
2. “Hulk” (Sound from an effects library)
3. Hi Hat (1 Bar straight 16th loop)
4. Verb Kick w/ bass drop element (ie . . . think of the matrix slo-mo moments where you get that descending "sine" bass drop)
5. “Dead Pig” (Distorted transitional element @ 00:29)
6. Kick 2 (Electronic Kick Layer)
7. Delay Beat (Filtered beat element at 00:00)

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15 The *darabuka* is also spelled *darbuka* in the *Garland Encyclopedia Online*, but the spelling of *darabuka* is used since it is the spelling of the instrument Varner used in his software.

16 Raison Varner e-mail to author April 25, 2011. A project file is the digital file created in Sonar; it contains all the information about the piece of music.
8. Filtered Beat (Filtered "trashy" beat that comes in during the 2nd section)
9. “Fisbake” (Distorted transition element @ 00:32)
10. String Drone (It's a sampled phrase but I can't find the Midi source for it. Must have been something I discarded while writing . . . doh!
Instrument in Ethno World Pro I believe . . .)
11. VirusTi Synth 1
12. VirustTi Synth 2 (Long descending high note “wail” at 00:32)
13. Dizi Flute (QL Silk)
14. E Cello (QL Silk)
15. Big Bangs (Truestrike)
16. FX (Symphobia)
17. Djembe + Assorted "African Drums Menu 2 r" (Truestrike)
18. Domra Chords (Ethno World Pro)
19. Zsoura Chords (Ethno World Pro)
20. Bass Darabuka (Truestrike)
21. Male Overtone Licks (Ethno World Pro)
22. Mongolian Vocal Ensemble Drones (Ethno World Pro)

What is immediately apparent is that there are no names of performers, only programs from which Varner was able to select and utilize the sound, such as Ethno World Pro and Quantum Leap Silk. The transcription on the next page represents what I hear in response to this list and shows all parts (fig. 8):
Fig. 8. “Fighting off the Skags” excerpt, mm. 8–12.
“Male Overtone Licks” and “Mongolian Vocal Ensemble Drones,” items 21 and 22 on Varner’s list, supplied the sound for the higher and lower vocal parts, respectively (TS High and TS Low). This is a bit misleading as no overtones typical of Mongolian throat singing are actually used, just higher-pitched throat singing. Mongolia has several genres of vocal singing, but it is overtone-singing or höömii that is referenced here. In höömii a single performer simultaneously produces a “fundamental drone” in a tenor range and “flute-like harmonics” in a melody that are “heard as a melodic whistle” (Pegg 2001). That melodic whistle is not featured in the vocal sound here, only a fundamental drone (mm. 8–9) and minimally melodic motif (m. 8).

Some sounds are very difficult to hear and to differentiate, such as the domra and zsoura, which I have transcribed as the same part (D/Z). Varner also notes a string drone in line 10, and though he could not remember what instrument it was exactly, he was able to narrow it down to by referencing Ethno World Pro 5. The instrument is a cümbüs, (fretless lute from Turkey), and it (CS) plays a repeated rhythmic motif on B4 during the A sections.  

For the cümbüs, domra, zsoura, and throat singing parts, B, C, D, and F# are the only pitches heard in the entire piece. The domra and zsoura ranges are minimal, typically sounding C5 on off-beats before playing B4 on a downbeat. The Mongolian throat singing lines are also narrow in range, with the top part emphasizing movement up to D5 from C5 and B4 and the bottom droning on B2 and coming up to G3 for one bar, signaling the end of a phrase. Text used for the higher part is non-lexical, using only the syllables “moo” and “loo.”

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17 A fretless banjo-like lute from Turkey made from a metal bowl with a wooden neck and six double-courses of strings (Atlas of World Instruments 2013)
In his treatment of the sounds, Varner technically minimizes and removes these elements from their typical contexts. Only the timbre gives any hint as to the original cultural context and even there some distinctions were impossible. The sounds are simulacra of themselves, copies morphed by digital effects and context into simply sound. It is the timbre—not the instrument—that is important in these uses. The original source is immaterial.

Lajos Vargyas (1968) transcribes and discusses long and short Mongolian song in “Performing Style of Mongolian Chant,” a short paper that highlights a fundamental point: Varner's throat singing lines are extremely narrow in range by comparison to this singing as it occurs in context; moreover, he does not use an overtone for either of the lines. Vargyas’ transcriptions show a much wider range of over an octave, and he comments that many singers will use falsetto and may have a range of over three octaves (ibid., 71). Varner takes the technique and timbre out of context to simplify it in his minimalistic approach, which is nonetheless effective in creating an exclusive sound. Compare a section of Varner’s throat singing parts, without overtones (fig. 9) to Vargyas’s transcription of throat singing with overtone (fig. 10).

Fig. 9. “Fighting off the Skags,” high and low throat singing parts, mm. 4–7.
Shortly after my analysis of “Fighting off the Skags,” Varner’s computer was updated by Gearbox Software’s IT department and the information regarding his old tracks was erased. This made the analysis of “Assaulting Krom’s Canyon” and “Rakhhive Emerges” slightly more difficult, as instrument identification was very challenging due to the heavy effects processing that is crucial to his style of composition. A breakdown like that for “Fighting off the Skags” was not possible. This also made the description of synthetic sound more challenging as well. Varner’s only form of documenting the process and sounds used is the project files themselves. Because there were no further efforts to archive the compositional process, a simple technology upgrade destroyed what little archiving there was.

Fortunately, on one day during my fieldwork with him we spent some time listening to the two tracks, discussing what each sound might be if he could not outright remember. Varner would play a section of a track I wanted to discuss over and over to hear the part I was asking about, and then search through his sound libraries to find a matching sound. Though effective, this tactic was not always successful; the
identification of a metallic rhythm instrument used in “Assaulting Krom's Canyon” eluded the both of us. Though Varner initially thought it was a bamboo idiophone he had heavily processed with effects, the handful of bamboo idiophone timbres he brought up did not match the sound I was trying to find. This was an enlightening experience for me because it was the first time I was able to see him actually map sounds from his sound libraries to his keyboard.

Effects used on the chordophones and idiophones in “Fighting off the Skags” and “Assaulting Krom’s Canyon” also contributed to the problem of identifying instruments, but point to a central element in Raison’s main goal of creating unique music and sound on the leading edge of popular tastes and music technology. The treatment of all of the sounds in these three tracks forms a stylized “new” and “unique” Borderlands sound that reflects the post-apocalyptic context through eclecticism. Andrew Bartlett discusses this innate eclectic nature, as it occurs in hip-hop sampling, in his article “Airshafts, Loudspeakers, and the Hip Hop Sample: Contexts and African American Musical Aesthetics.” He states that hip-hop sampling allows for a sort of immediate and simultaneous contrast and that in sampling “we are supposed to experience the ‘great big loudspeaker’ where ‘every contrast’ is possible at once” (Bartlett 1994, 640). Varner’s music in Borderlands and Korb’s in Bastion (Chapter 4) are prime examples of simultaneous contrast actualized through sampling and, more specifically, digital sound libraries.

Decisions on ethnic instrumentation for Varner came right down to timbre and “feel,” though he did state that “there’s a primitiveness and general sense of ‘alien’ or ‘wildness’ associated with ethnic instrumentation” that applied well to Borderlands
“since the story is about a planet with never-before-seen animals of unimaginable danger that have begun to awake from a deep slumber” (pers. comm. Feb 22, 2011). Varner found himself asking why something felt right after he had already established that the musical choice “felt like it fit,” rather than the other way around (ibid.). The unique mixes in “Fighting off the Skags,” “Assaulting Krom’s Canyon,” and “Rakkhive Emerges,” for example, were done according to feel and fit, though the ethnic theme was established in Ed Lima’s earlier mock-ups. Varner incorporates non-Western elements in order to accentuate the alien, foreign, and wild themes in Borderlands rather than to evoke any sort of specific ethnicity, location, or culture in the context of gameplay. Musical essentialism plays a role in Varner’s mind through his conception of ethnic instrumentation representing a sense of wildness, but this takes a back seat to innovation and taste in his compositional process. The unique musical identity of his works empowers a special gameplay experience, explained by the fact that Varner wanted his team to “have a sound that differentiated itself from most games” (ibid.).

**THEME: WILDNESS**

Varner wanted to establish a unique musical sound through cultural sounds that fit into his concept of “primitive,” and “wild,” or even a sense of “alien” (pers. comm. 22 Feb 2011). Musical essentialism is taking effect in a less specific way; for example, Borderlands depicts a lawless, dangerous, out of control environment that easily could be described as barbaric, and the music connotes that sentiment. The main influence on musical decisions, in fact, were the actual game environments; if a track or sound did not fit the atmosphere, it was not used. Environment is the dominant feature determining the music of Borderlands, the games studied here, and many other games, sometimes
creating a “presence” that is more expressive than the non-playable characters (NPCs) in the games. From the crevices and crags of Skag Gully, the ad-hoc, stacked-box towns of New and Old Haven, and the rusty, metallic, trash-laden heaps of the Tetanus Warrens, to the vast shimmering (yet dusty) Salt Flats, the environments of Borderlands carry a great deal of character (though dirt and dust becomes somewhat repetitive) that the myriad enemies help to complete. Paul Martin writes about Bethesda’s Elder Scrolls IV: Oblivion—a similarly gigantic, open-world game—in his article “The Pastoral and Sublime in Elder Scrolls IV: Oblivion” and explains how the environment expresses the epic conflict between good and evil:

Landscape in Oblivion is…an element of the game that is capable of doing work in relation to the game’s story in the same way that we conventionally think of characters doing work. However, while characters work in the representational mode of stories and messages, landscape works primarily through embodiment and interaction. The landscape is not only something seen and read but also something inhabited and traversed. (Martin 2013)

Though in Oblivion there is a duality taking place between the environment in Tamriel18 and the hellish plane of Oblivion that doesn’t exist in Borderlands or any of the games studied, there is still a dynamic of the pastoral versus the industrial or civilized. In Borderlands the deserts and crags seem to creep into and reclaim the wasted civilizations, while refuse and scrap litter landscapes. Though Varner didn’t explicitly state that this sort of dichotomy influenced the music, it seems fitting that the music balances synthetic sound with organic timbres, even as futuristic sci-fi and post-apocalyptic themes clash

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18 Tamriel is the country that characters explore in The Elder Scrolls IV: Oblivion. Oblivion is akin to a type of Hell, complete with rampant fire, molten seas, and demons, a separate plane that players must traverse at many points in the game.
with the natural condition of Pandora. The music seems to express this clash of civilization and the lack thereof.

Varner never used the word, but it can be seen that perhaps the music, in its non-Western face-paint, seeks to evoke this sense of barbarity, the “primitiveness,” “wildness,” and “alien” that is inherent in that word so connected to violence and the unknown.

Though this may be the case, let us not forget the minimalistic approach Varner takes. All of the non-Western elements—Mongolian throat singing, zsoura, domra, and cumbus in “Fighting off the Skags,” the various percussion and woodwind instruments in “Assault on Krom’s Canyon” and “Rakkhive Emerges”—are heard differently in the context of Borderlands than they would be in that of their originating cultures; in fact they are done so in such a way as to be hard to recognize. Indeed, Varner's treatment of these musical elements in tandem with digitally synthesized sound could make them feel just as “alien” or “wild” to people who practice or regularly experience them. When asked about any sort of main theme, Varner commented that establishing a mood or theme was easy because the environments were all “brown desert and junk,” and that the “mood, overall tone of the game, overall tone of the writing, and presentation” are what affected his decisions regarding audio centrally, “but the presentation of Borderlands is pretty in your face, so the music has to follow suit.”

There was never any intent, at any point, to evoke particular cultures through the samples and timbres used.

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SIMULACRA AND SOUND

Are the sounds Varner is using indeed “real” in the sense of cultural consciousness? Is the music he creates a simulacrum, or a sort of hyperreal, a new reality born through the simulacrum of these instruments in the form of digital databases? The traditions these timbres originate from are deemphasized in lieu of creative control, the context of the game-space, and of course the environment in which the music is created: the fast-paced offices of game design. Varner’s work schedule afforded him little time to think about the sounds he was using—and therefore, their origin—in an academic sense, but instead he sought them out as a musician:

I wish I could say that I thought about the setting and instrumentation thoroughly and made a meticulous plan . . . but in all honesty, it was a real run and gun situation and the pace we were working at gave me about 1 - 2 days of writing time per track. Most of my judgment calls on instrumentation were a fluid thing. But while I had to work at a much faster pace than I would ever choose for myself, it’s not too counter to my normal creative process. I rely heavily on making intuitive leaps and I try to make decisions with music without allowing myself to get too cerebral with the judgment calls until I get the meat of the idea down. Then I allow room for the idea to solidify through more analytical means. (pers. comm. February 2, 2011)

The fast-paced working conditions obviously had a large impact on Varner’s work, but his style of composition is still “intuitive,” based on feeling, not deep analysis or even cultural references. Varner also commented more specifically on how he chose the sounds he used:

To be honest, I just cruised through instruments in my ‘ethnic’ libraries that consisted of the general timbre I was looking for for the various song elements I wanted to express. I heard the parts I wanted in my head and went searching for instruments that would get me closest to that. (pers. comm. April 25, 2011)
The sound libraries—digital databases—played a central role in composition as Varner could imagine the sound he wanted, find something similar in the libraries, and then digitally complement (or even completely alter) them with synthesis and effects. Many instruments were hard to recognize in this context, but they are present nonetheless. His quotation of *ethnic* in his e-mail is indicative of this attitude of finding a desired timbre, not a desired cultural reference. It is just sound, disembodied and disambiguated for the composer in the tool, the sound library. Perhaps that quotation is also indicative of the simulated nature of the digital database, of the sound libraries themselves, and the hyperreal nature of the tracks he creates. Nothing about *Borderlands* references “real” world cultural identity directly, except that the culture is largely a capitalist-anarchist binary; the culture is run by the drive to be monetarily successful (outside of the simple will to live), and lawless bandits spread chaos and anarchy wherever they can. Friendly camps and towns generally adhere to maintaining safety for their own and offering an economy to buy and sell equipment. There is a notably large lack of reference to real world contexts, musically and visually, and as Azuma puts it:

> Without reference to the real world, the original is produced as a simulacrum of preceding works from the start, and in turn the simulacrum of that simulacrum is propagated . . . and consumed voraciously (2009, 26).

Is Varner’s work, then, a simulacrum of preceding works? Though the music is originally his, in the sense of timbre and the digital database it is a simulacrum on a broad level, and possibly even a hyperreal, a copy of a copy that to us is original, a new reality built from sound libraries, which are a simulacrum of sampling performances, which is in turn a simulacrum of traditional context.
As newer generations listen to electronic music—sampled and engineered sound specifically—their need for a view of the entirety of music, of where these sounds are coming from, is reduced, and authenticity is eradicated as a concept. Everything is authentic, because everything they experience is on the top layer, what they “read up,” and not a full picture. Music organized as a database turns into just sound, from which there is no authentic, or real, because everything is equally authentic or real in the eyes of the generation that experiences this level of information organization. Is this new style of music and composition fragmentary, and are those fragments tied to the general culture in a stronger way than originations? The lineage of sound becomes invisible in the presence of its offspring, born in a near-vacuum: the studio.

**Summary**

In the case of *Borderlands* and Varner’s pieces, this music does not essentialize cultures to evoke places or peoples we are familiar with, but is instead utilized to emphasize the wild and the alien, innovation, and the unique experience of the gameplay. Varner’s motivations for using non-Western sounds run deep into the earlier development process through the preliminary sound designer, and these sounds were even cut back for more electronic and “grunge metal” sound that Varner felt fit the gameplay and style much more in the later developmental stages. A unique sound was Varner’s ultimate goal, using ethnic sounds that he felt evoked a theme of “wildness” and “alien,” which is appropriate in the context of the game because of the nature of the setting, storyline, characters, and creatures. Though non-Western musical elements are used to essentialize this theme of wild and alien, or barbarism, the way in which they are brought to bear in “Fighting off the Skags,” “Assaulting Krom’s Canyon,” and “Rakkhive Emerges”—
through minimalism and heavy electronic synthesis—makes them foreign even to the contexts in which they are normally heard or performed. The pieces were created with timbre in mind, not culture, and the technology, as well as the timeline restrictions allowed for such an immensely detached and eclectic creative approach.
CHAPTER 4
EXPLORING THE FRONTIER IN BASTION

Released in 2011, Bastion quickly gained cult status due to its unique art style, classic yet innovative gameplay, and exceptional audio design (fig. 11). Bastion, made by independent developer Supergiant Games, is a small budget game for PC and XBOX 360. Independent game developers function outside of the direction and demands of publishers. This means that independent developers have more creative freedom and can be more risky with their game design. The art style is colorful, with the texture of watercolor and thick outlines giving it a unique, fantastic, edgy-yet-whimsical look.


In Bastion, players take the role of The Kid—the white-haired bandage sporting hero—who wakes up to find the city of Caelondia (pronounced Sai-londia) and its surrounding areas broken and destroyed by an event called the Calamity. Almost no one
else has survived. The Kid sets off to restore the Bastion, a structure with the capacity to rebuild the world. Players control The Kid from an isometric, or birds’-eye, view and utilize a shield, two weapons, and a special skill picked from an arsenal to combat enemies that employ a large variety of tactics. Action is fast-paced yet methodical.

The Kid’s adventure is a much more complex storyline than that experienced in *Borderlands*, which affords a more critical approach to in-game culture and context. Discussing *Bastion* requires a general understanding of a more complex history for an analysis of the music in the game. This is due to the music’s important role as part of the fictional cultures depicted. In this chapter, I first discuss the game’s plot and the two characters that are important for my analysis because they are central cultural figures with specific diegetic musical examples. Second, I describe Korb’s compositional process and the tools at his disposal in order to highlight the context of the music’s creation and desired function. Finally, I analyze three pieces of music from the game in an effort to explain music’s role as a tool for Othering and as cultural expression in the fiction itself.

**Plot**

Over the course of the game, players discover a world with a history of conflict. Two races of people, the Ura and the Caelondians, live in the area where the story takes place. The Ura are the native light-skinned and dark-haired people that inhabit untamed lands fertile with resources and life—the Wilds. The Ura live in subterranean cities, the capitol of which is the Tazal Terminals. The Caelondians came from across the sea to found Caelondia, and they use their technology to spread out and gain control of land. A territorial dispute arose, which then quickly turned into a war.
The Ura-Caelondian War, fought fifty years after Caelondia’s founding, ended badly for the Ura, who lost horrifically against the Caelondians’ technological prowess. The loss of the war pushed the Ura out of the Wilds and into their subterranean homeland, the Tazal Terminals. Ura who remained in Caelondian territory were not allowed to leave, and the Caelondians forced them to settle and live in Caelondia as citizens. Caelondians regarded the Ura, including those living in Caelondia, with suspicion even though relative peace existed between the two peoples. The relative peace lasted until the Calamity.

The game commences with The Kid waking up on the Rippling Wall after the Calamity. His task is to repair the Bastion, a fortress where all Caelondians knew to meet in a time of crisis. The Bastion is a complex gigantic machine that can restore the world. After The Kid has repaired almost all of the Bastion, players discover that the Calamity was caused by a weapon made by the Caelondians. The weapon was meant to wipe out the Ura, but its creator repurposed it to target Caelondia.

**Characters**

The characters important to my analysis are Zulf and Zia. Before the Calamity, Zulf was an ambassador for the Ura who worked with Caelondians to improve and maintain positive relations (fig. 12). The Calamity takes place on the same night he proposes to his future wife, a Caelondian woman. In this way, Zulf represents potential for unity between the two peoples at this point in the story. Players find him wandering aimlessly, mouth open in pain, awe, and sadness, as he stares into the stars. The Kid takes him to the Bastion, and Zulf becomes a member of the surviving group there.
Zia was a musician who grew up in Caelondia without ever knowing much of her own people’s culture other than a few songs (fig. 13). Her father was one of the Ura stranded in Caelondian territory after the war, so he and Zia were required to live in Caelondia. Zia carries her father’s old journal, written in the Uran language, which she cannot read. It is through this journal that Zulf discovers that the Calamity was caused by a Caelondian weapon.

The discovery drives Zulf into a vengeful rage, and he becomes intent on destroying the Bastion both to prevent the restoration of Caelondia and to protect those few surviving Ura who remain at the Tazal Terminals. When The Kid attacks the Tazal Terminals, Zulf is beaten and left for dead by his own people who feel he is responsible for The Kid’s retribution. It is at this time that players face their first moral choice—to save Zulf or leave him.
As in \textit{Borderlands}, the music in \textit{Bastion} is adaptive, but it handles this in a different way. Instead of indicating combat and non-combat states, different tracks play at different locations. In this way, a location can have a piece of music aurally attached to (or associated with) it that acts as its theme, and there are several such places within the game. Within those locations, a track may stop at a particular point or event and another track may begin, either immediately or after the player reaches a particular point or takes a particular action. “Terminal March” is a non-diegetic adaptive piece that plays in several locations throughout the game, typically in response to an action that requires the character to flee an area. “Build That Wall (Zia’s Song)” plays only at one location and builds slowly over the course of the level in response to the player’s progress. “Mother,
I'm Here (Zulf's Song)” plays after a particular moment in one location after the player makes a dramatic moral choice.

**ECLECTIC APPROACH**

Most of the music in *Bastion* reminds one of the *Borderlands* soundtrack and consists of heavily synthesized, digitally composed eclectic mixes of instruments and sounds. In working on *Bastion*, sole composer and audio designer Darren Korb employed tools similar to those used by Varner. He lacked, however, the big budget of an established developer supported by a publisher (e.g., Gearbox Software is a developer backed by the publisher 2K Games). Consequently, he turned to Logic Pro on a Macintosh laptop in his apartment, using that together with some live recordings of guitar, electric bass, ‘ukulele, and voice. He incorporated a wide variety of instrumental sounds and synths through MIDI and samples solely from Logic Pro.

Korb stated that his approach was to create something “more eclectic than [he’d] heard in other games” (pers. comm, 19 Sept 2011). In other words, Korb specifically employed a compositional style for *Bastion* that represents an overall eclecticism rather than an explicit exoticism. Like Varner, Korb’s initial goal was to create a unique sound to distinguish it from the music in games with “electronic synth or chip music, or some sort of hard rock or classical, orchestral stuff, or some combination of those things” (ibid.). Once he and the team at Supergiant Games began talking about the tone of the game, the focus moved to a “Cormack McCarthy, post-apocalypse feeling with frontier elements and a time period that players wouldn’t be able to place” (ibid.). The lack of familiarity that Korb’s eclecticism breeds helps to flesh out the idiomatic game presentation of the world itself, and players can embrace the music as a guide or sense of
orientation. Eclecticism also allowed him to represent “a lot of different ideas . . . and a lot of different feelings” simultaneously. Another interesting idea in this work is that Korb created a genre of music to keep the sound focused on one central idea. He calls this genre “acoustic frontier trip hop”:

The acoustic part of that is the accessible kind of American west. [It] has a little bit of frontier applications as well, and it has a lot of bluesy kind of stuff in there as well. The frontier part is the, I think, where the exotic instruments come in. And [there are] a lot of the Asian instruments and stuff like that ‘cause I wanted it to have an otherworldly kind of feel to a degree, and I think that’s part of what helps you not be able to place really the location [and] the time period and allows you to accept it as its own thing. And then the trip-hop stuff is actually another way I wanted to confuse the time period a bit and put this modern spin on all of that stuff, without going the electronic route necessarily. (pers. comm. with Korb, Sept 19, 2011)

In this excerpt, Korb cleanly outlines the application of the sounds he uses. Acoustic instruments generate an accessible referent while also enhancing the frontier theme through the guitar’s link to the American Western frontier. Eclectic instruments enrich the frontier while also making the identity of the music, and therefore the world and time of *Bastion*, ambiguous. Finally, trip-hop strengthens the ambiguity further with digital sound. It is this ambiguity of identity that the eclectic musical approach breeds in the pursuit of the new and unique sound Varner and Korb note as so important. When asked why he used eclectic instruments, Korb stated that it helped to engender immersion in a new environment, to “create the place the game takes place in,” and to lead players to “believe [they are] transported to this other place with its own cultural history and its own architecture and art” (ibid.). The ambiguity of musical identity, or more specifically the disassociation of known referents, actually allows for and facilitates this creation of a new culture, place and time. *Bastion,* like *Borderlands,* is a unique experience not only
because of its art style and gameplay but also because of the eclectic musical approach the composer has employed.

“Terminal March”

For “Terminal March,” two instruments, the ād and bouzouki, are important to review. The ād, or oud, a wooden lute played throughout many Middle Eastern cultures in places like Syria and Egypt, features five double courses of strings and one single string (Hassan 2001). The bouzouki, a long-necked lute with double courses of strings commonly associated with Greece (Cowan 2000), takes the lead melody of the track.

“Terminal March” is a perfect example of Korb’s style. As in pieces by Varner, a distinct minimalist, layered texture is prominent and notable, especially in the repetitive ād staccato drone and the bouzouki’s melodic hook. The simplicity of the repetitive rhythmic motifs of mouth harp (MH), an ād, and an unidentified metallophone (MP) that Korb identified as a “Chinese gamelan” over the hard, driving drum beat give the piece tension and energy for the fast-paced sections of gameplay (fig. 14).
Fig. 14 “Terminal March” excerpt, mm. 7–8, 00:16 seconds. See Appendix E.
The samples used by Korb have a range that is idiomatic for the bouzouki—bouzouki lines typically hover around the key pitch of G4 in half steps—but the original studio performance recorded for Logic Pro clearly takes these sounds out of context, and Korb rearranges them into something new. The bouzouki features three motifs, one appearing in the A section (fig. 15), a second that is repeated in the B section, and a third that indicates the end of the piece. In Korb’s hands, the bouzouki part demonstrates how the database’s mobile, modular units can be copied and repurposed. He creates a simulacrum of the original instrument through its use here in that the creative process allows him to take the sounds and disembody them from the original instrument and culture in playback.

Fig. 15 “Terminal March” bouzouki excerpt, first motif, m. 11, 00:26 seconds.

The screaming and distorted electric guitar sound that Korb recorded infuses the track with a touch of hard rock, providing a breakbeat that repeats for most of the track in the kick drum and high hat to keep it grounded in the trip-hop genre. The guitar and various other instruments come together to create the Other in the frontier.

**Singing The Story**

Unique, eclectic tracks make up 77 percent of Korb’s musical work for *Bastion*, but some tracks follow a more traditional, analog route, including “Build That Wall (Zia’s Song),” “Mother, I’m Here (Zulf’s Song),” and “Setting Sail, Coming Home.” Instead of layering sounds from Logic Pro—his digital audio workstation (DAW)—alongside the live recordings of his guitar or other instruments, Korb utilized voice to
create a mellow, alternative blues and folk feel with unprocessed or only lightly mastered breathy vocals. The songs are diegetic in nature and are sung by the characters Zia and Zulf; they represent cultural artifacts of the Ura. All music in the game technically exists within the cultures of the Caelondians and the Ura. For example, a record player at the Bastion allows players to play music from the game for themselves and the characters present, and this highlights how music is central to the main story and gameplay.

“Build that Wall (Zia’s Song)” and “Mother, I’m Here (Zulf’s Song)” are the only pieces that appear as diegetic parts of the actual gameworld when they are first played. In doing so, they serve a much more direct and immersive purpose. Gorbman emphasizes the unique role that songs with lyrics occupy in the narrative space, particularly in drawing attention to a particular reading of a scene, and states that song lyrics “threaten to offset the aesthetic balance between music and narrative cinematic representation.” A common solution in film, therefore, is to “defer significant action and dialogue during their performance” (Gorbman 1987, 20). It is worth noting, then, that both of the levels, or scenes, where the pieces take place still feature Bastion’s unique narration and action with survival dependent on player performance.

“BUILD THAT WALL (ZIA’S SONG)”

The scene that features “Build That Wall (Zia’s Song)” involves three characters: The Kid, Zia, and the ever-present narrator. The Kid meets the third and final member of his surviving band, Zia, at a clifffy area called Prosper Bluff by following the sound of her guitar playing and singing. Once he arrives at the area, the music begins playing as the guitar part to the verse of “Build that Wall (Zia’s Song)” starts to loop faintly, and the narrator comments that The Kid can hear the music as he follows it, knowing that it
means another survivor awaits nearby. The narrator also comments that the song is recognizable to The Kid. Players invest emotionally in the song, as finding its source becomes the objective of this level of the game. As the player continues through the level, the sound of the guitar becomes louder, indicating a closer proximity to its source. Shortly, Zia’s humming lines out the melody, and as The Kid makes his way halfway through the level, Zia begins singing the lyrics. In this way, the diegetic tune not only sets a mood but actually builds the space, creating depth and directionality through changes in dynamics and the slow addition of song elements (Gorbman 1987, 25). “Build that Wall (Zia’s Song)”——with its minor intonation, blues-inspired rhythm and chords, and sad and vengeful lyrics—makes for a very dramatic and foreboding setting for the gameplay and for meeting Zia. Notice the Cm blues progression of i-vi-i-V-i and the bass and harmonic parts played simultaneously by the guitar (fig.16):

Fig. 16. “Build that Wall (Zia’s Song)” hummed introduction with guitar, mm. 1–12.
The first verse and chorus present the context of the song:

I dig my hole you build a wall
I dig my hole you build a wall
One day that wall is gonna fall

Come build that city on a hill
Come build that city on a hill
Some day those tears are gonna spill

So build that wall and build it strong cause
We’ll be there before too long

“Build that Wall (Zia’s Song)” refers to the Rippling Wall, Caelondia, and the Tazal Terminals. The song is an Uran folksong written in response to Caelondia's founding, the Uran loss of the Ura-Caelondia War, and the subsequent relocation of their people out of their former territories. Each verse is structured with two repeating lines that refer to the Caelondians building the Rippling Wall and Caelondia; the third line in each verse always refers to future consequences, presumably at the hands of the Ura. For example, the first line, “I dig my hole you build a wall,” immediately sets up an oppositional binary: the Tazal Terminals and the Rippling Wall, respectively. In this line, the civilizations stand in oppositional status—one building up, the other digging down, further emphasizing the binary division between the people. The last line of the verse simply states, “One day that wall is gonna fall,” as both a warning and a threat; the Ura lost the war as the Caelondians won resources and land supremacy, but the Ura will not forget. The next verse echoes the same sentiment, inviting the Caelondians to build their city, to enjoy their victory, until an inevitable loss when “tears spill.” The chorus, repeated again after another set of verses, lays out a very direct challenge that the Caelondians should build the wall strong because the Ura will be back to reclaim what is
rightfully theirs. The song thus represents the animosity and cultural and political tension generated due to the Uran defeat and relocation.

The timing and placement of the song is meaningful, as The Kid has already met and recruited Zulf; consequently, the player has already had an introduction to the Uran-Caelondia relationship and history. The level Prosper Bluff is the halfway point through the game, coming when the Bastion is just about fully repaired, and the song is used to foreshadow approaching tragic and consequential events. The level plays out dramatically and with suspense as the mood of the game changes from whimsical to threatening and foreboding, all owing to the musical design. Zulf quickly becomes an embodiment of the Uran sense of vengeance portrayed in “Build that Wall (Zia’s Song).”

“Mother, I’m Here (Zulf’s Song)”

The second song, “Mother, I’m Here (Zulf’s Song),” plays in the final stage of the game and is sung by Zulf. Players find Zulf unconscious after he was beaten by his own people. The Kid can either save Zulf or leave him to die. In both cases, “Mother, I’m Here (Zulf’s Song)” plays throughout the level as players either carry Zulf or leave him and fight their way out of the Tazal Terminals. The sparse chords, slow tempo, minor tonality, and breathy, almost strained vocals enhance the drama and lend weight to the player’s choice as well as to Zulf’s role in the narrative.

In the first two verses and the chorus, the lyrics speak of homecoming, a very personal theme for Zulf:

I set my sail  
Fly the wind, it will take me  
Back to my home  
Sweet home
Lie on my back
Clouds are making way for me
I'm coming home
Sweet home

I see your star
You left it burning for me
Mother, I'm here

For a moment, players feel the peace to which Zulf devoted his entire life. The use of the song in this scene summarizes role as the tragic anti-hero and renders it even more meaningful and memorable. The song immediately causes the player to think of Zulf’s return to the Ura and the Tazal Terminals, his first return since leaving for Caelondia as a peacekeeper, since he met and lost his wife, and since the Calamity. The reference to “Mother” may refer to the memory of his mother who died in a plague when he was young, or it could perhaps refer to his people or even to the Tazal Terminals themselves. Context enhances this message through the irony that his homecoming to the Ura and the Tazal Terminals heralds his people’s eventual betrayal in which they blame him for endangering the city. For him to “lie on his back” as the clouds “make way” for him alludes to his death. His love for his people, the “star” left burning, is the reason behind all his actions. As a summation of his peacekeeping endeavors and his ultimate vengeance, the song generates strong meaning, drama, and emotion in the scene. If players save Zulf, the Ura slowly cease their attack and watch on as The Kid, carrying Zulf, is slowly guided by the player out of the terminals.

These two songs illustrate the sad history of violence between the Caelondians and the Ura as well as the personal pain of the Ura, therefore enhancing player immersion by creating a personalized and deeply felt connection between characters and players. By
making the experience personal, through the actions of the characters, the adventure in
*Bastion* becomes more real and there is more emotional involvement. Zulf and Zia exist
as two opposite figures—one who identifies deeply with his culture and is a
knowledgeable, albeit vengeful, member of it and one who knows little more than a few
songs of her homeland that she has never seen and who feels sadness rather than hatred.
Zulf’s song forms the connection between his pain and Zia’s sadness, whereas Zia’s song
connects her to his rage. Through their songs the two become symbols of their people—
defeated, disconnected, sad, and angry.

**THE ROLE OF CHOICE IN GAMEPLAY**

The end credits for *Bastion* feature the song, “Setting Sail, Coming Home (End
Theme),” which combines “Build that Wall (Zia’s Theme)” and “Mother, I’m Here
(Zulf’s Theme)” into one polyphonic lament. The two characters sing their respective
songs as layered melodies in order to create a unified representation of the tragedy
inherent in *Bastion*. The song is up-tempo and has a gritty feel through the use of
 crunch, processed synthetic percussion and a melodic guitar solo. This unification of the
two characters' almost opposite experiences of the same tragedies allows players to
reflect upon the drama of the adventure and the repercussions of their choices during the
credits. The players choose to either save Zulf or leave him; they also choose to either
reset the world to a time before the Calamity, the Bastion’s intended purpose, or start the
Bastion’s engines, setting the fortress mobile, like a ship, into the stars to find another
planet on which to live. At endgame, both choices carry palpable emotional weight. The
layered songs remind players about everything Zulf and Zia have been through and the
effects of the player’s choices. For the first time, Zia speaks directly to the player before
s/he makes the final choice regarding the Bastion, expressing her strong desire to move on with the group and revealing that she has been happiest after the Calamity with them than she ever was before in Caelondia. The final frames depict scenes reflecting the player-selected outcome. One has the Bastion in flight, the survivors on board (with or without a recovering Zulf) looking toward the stars with hope and Zia smiling. The other shows each character being consumed by the Bastion’s energy as it resets the world, while Zia looks on resigned, melancholy, and lost. This final polyphonic song asks players to think hard about what they have done in the role of The Kid and about what the Calamity and Caelondia’s history have cost the world and its people.

**SUMMARY**

Korb’s musical approach in *Bastion* differs from that of Varner in two important ways. First, although Korb’s use of technology is still paramount, it draws from a smaller inventory of available tools. The sound library is a primary resource for both composers, but Korb relies on only one program, Logic Pro, rather than a wide set of software like what Varner used, including Ethno World Pro and Quantum Silk. Second, Korb uses live sounds in conjunction with samples and MIDI to create an eclectic mix that he specifically gears toward a genre, frontier trip-hop, which he employs in order to maintain one central musical idea throughout the game. Varner also had a central idea, creating the unique and otherworldly to establish a strong *Borderlands*-only identity, but Korb takes that idea a step further by focusing on the frontier as a theme, projecting the unknown of the frontier, and unifying that frontier through his music. The identity of the game becomes somewhat familiar and accessible through the use of blues styling and American West tropes like the lonely guitar. Korb enhances the frontier in the same way
that Varner creates the otherworld in *Borderlands*—through the use of musical eclecticism that relies on a mix of different styles, timbres, and instruments.

Music takes on an additional role in *Bastion* that it does not assume in *Borderlands*. In *Bastion*, music has its genesis in the very cultures of the gameworld, where it serves as a tool for storytelling and actually building the history of that world. “Build that Wall (Zia’s Theme)” and “Mother, I’m Here (Zulf’s Song)” call attention to central cultural and political issues that underlie the Calamity, drawing the players into those issues and forcing them to consider how these concerns affect Zia and Zulf respectively. This, in turn, enriches the game experience and enhances immersion.
CHAPTER 5

PERIOD PLAYS IN FALLOUT’S APOCALYPSE

The eclectic musical approach to post-apocalyptic soundtracks is a unique phenomenon that characterizes and fleshes out their uncommon worlds, but it certainly is not the only way to approach creating an unfamiliar identity for a new, yet-to-be reconstructed world. If the setting of a post-apocalyptic game is based on a real-world location and is inspired by specific historical-cultural values and lifestyles, how differently can the soundtrack be utilized to erect the believable and recognizable alongside the alien and twisted?


The Fallout universe, a series of games launched in 1995, utilizes real-world United States locations like California, Washington D.C., and Nevada for its settings. The first two titles are isometric, open-world, role-playing games that feature turn-based strategic combat; the most recent titles by Bethesda are enormous third-dimensional worlds that players explore in the first or third person. This chapter focuses primarily on
Fallout 3 (fig. 17), a game in which for the first time in the series audio designers diegetically utilize numerous popular songs, show tunes, and jazz hits from the 1930s-50s, e.g., “I Don’t Want to Set the World on Fire” by The Ink Spots, “Anything Goes” by Cole Porter, and “Butcher Pete (Part 1)” by Roy Brown. This music interacts with players in a specifically different way than the original music of Borderlands or Bastion, however, because the music is familiar in style and evokes a particular time period. A significant difference that this choice of music highlights is that the settings for Bastion and Borderlands are completely fictional worlds in a post-apocalyptic state, whereas the Fallout universe is based on Earth and real-world settings. This is not to say that Fallout 3 lacks an original soundtrack, because a powerful, ambient, and largely orchestral score by Inon Zur helps to evoke and heighten the desolate and dark moods of combat and the post-apocalyptic environments.

My focus here, however, is on the diegetic use of licensed music from the mid-20th century. By using time period-specific music and temporal displacement, the game creates a very different post-apocalyptic experience when music that is inherently familiar becomes transformed in the new context. This choice also helps reinforce the setting and establishes underlying narrative connections to 1950s American culture and history, particularly the fear of nuclear war tied to Cold War sentiments, mid-1900s American politically driven capitalist advertising, and baby boomer nuclear family-focused culture.

First, I introduce the premise of Fallout’s universe and plot. Then, I will give an example of how preexisting music is recontextualized in Fallout 3 in the introductory cinematic and diegetic radio channels. Finally, I explain how diegetic, time period-
specific music builds the fictional world and how that music itself is remixed into a simulacrum of itself.

**Plot**

Games in the *Fallout* universe take place in an alternate-timeframe United States in which culture and political climates changed very little from the postwar era of the 1940s and 50s. In 2077, however, a global nuclear war reduced the nation—and supposedly the entire world—to a radiation-ridden destroyed form of itself. The games take place in a future time at least one hundred years after nuclear fires have destroyed the world. Cities like Los Angeles and Washington D.C., the setting of *Fallout 3*, are steel graveyards littered with zombie-like ghouls and monstrous Super-Mutants. Entire towns and countrysides have been reduced to empty, dusty wastelands in which barely anything grows and mutated animals are free to prowl. Sparse human settlements struggle to endure, not just in the environment and against its mutated denizens, but also in the face of a degradation of society ridden by mayhem and lawlessness; clans, gangs, and roving bands of bandits use power, fear, and violence to survive and control. The series features iconic settings, such as a re-imagined capitol that includes a recreated Capitol Building, a drained reflecting pool that lies between a damaged Washington Monument and Lincoln Memorial, and numerous buildings that refer to different wings of the Smithsonian Institution. The universe of *Fallout* is a dangerous, violent, nearly hopeless one, and is laden with mature themes of violence, sexuality, politics, ethics and morality. Players create a character from scratch by choosing skin color, facial structure, body type, and skills, and have the power to permanently affect their gameworld through the choices they make, ranging from altruistic and heroic to evil or malign and everything in
between. *Fallout* has always capitalized on freedom of player choice in all aspects, including character creation, a non-linear gigantic environment, the ability to change the world, and the potential to build a reputation for good, evil, or neutrality through those world-affecting personal choices. Choice even encompasses the ability to select radio stations the character can listen to while roaming the Capital Wasteland.

**RECONTEXTUALIZING PRE-EXISTANT MUSIC**

The use of existing music adds a high degree of meaning and even humor to *Fallout 3’s* world, largely due to the nature of the music used and the nature of its function in the game. Jazz and jazz pop tunes sound diegetically from the player’s radio (a PipBoy 3000 wrist computer the player’s character carries) and other radios found in the wasteland. This strategy of choice in licensed diegetic music is nothing new in the videogame industry—Rockstar Games’ *Grand Theft Auto* series utilizes licensed music, and period music appears in the 1980s themed *Grand Theft Auto: Vice City*, in an abundance of radio channels players could choose from while driving (Miller 2006).

These tunes are diegetic, which cements them in the fiction and lore of the gameworld and attaches them to the alternate reality of the *Fallout* universe as part of its history and culture. Denizens of the wastelands commonly experience the featured music as a relic of the past, an ironic aural equivalent to freezing time for the wasteland survivors in a new, mutated, uncontrollably violent world. This music simultaneously serves as a source of nostalgia for an older, more controlled and better time.

*Fallout* utilizes satire and contradiction to add humor to an otherwise serious, foreboding, and depressing landscape. This lends the universe an approachable, entertaining, and humorous layer that softens somewhat the ever-present desolation and
desperation of the world while simultaneously making it more apparent in a dark contradiction. Grey suggests that creating dissonance through dialectic relationships in games encourages reflection and even positive social change, adding that *Fallout 3* in particular has “a dialectical approach to dystopian violence that lends itself to philosophical thought” (Grey 2009). Irony abounds in the music and art, as both refer to a happy-go-lucky, capitalistic, nationalistic time period. “I Don't Want to Set the World On Fire” by the Ink Spots is a particularly memorable jazz show-tune featured in the game not only in the game’s dramatic cinematic intro but also through lyrics and themes that are such a vibrant contrast to *Fallout’s* world. A lilting, slow-tempo ballad, the track uses a fire metaphor for the singer’s desire to establish love and passion with another:

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I don't want to set the world on fire
I just want to start
A flame in your heart

In my heart I have but one desire
And that one is you
No other will do
I've lost all ambition for worldly acclaim
I just want to be the one you love
And with your admission that you feel the same
I'll have reached the goal I'm dreaming of

Believe me
I don't want to set the world on fire
I just want to start
A flame in your heart
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(“I Don't Want to Set the World on Fire.” The Ink Spots. 1941)

The singer refers to fire as metaphorical passion and love, setting a “flame” in his love’s heart and hoping the love will be returned. He compares this action with that of setting the world on fire, suggesting that he does not want his efforts, however strong
they may be, to be mistaken as harmful, forceful, or destructive. The world the song is featured in has, in fact, been consumed by nuclear fire; the irony is painfully obvious.

Players first encounter this tune at the beginning of *Fallout 3’s* introductory movie. A destroyed electric radio tube sparks on and the track plays as the camera zooms out to reveal a bus littered with empty bottles and people’s belongings such as bags, a teddy bear, and even a toy truck. These items beg players to think about the people that were on that bus, all with their own lives and some possibly being children. This theme pervades the entire game. As the camera pans to the rear of the bus, we see ads for enlisting in the military and purchasing a room in underground bunkers that reflect mid-1900s advertising style with bold lettering and hopeful verbiage. Panning back the player also sees grey rubble outside through shattered windows; as the camera finally reaches the back of the bus, it becomes apparent there is no back—the bus is a torn up wreck. The line “I’ll have reached the goal I’m dreaming of/Believe me/I don’t want to set the world on fire” fades out in a dramatic echo as a skeletal version of the Washington Monument comes into view in the distance. Ruined buildings line the cracked, half-buried streets.

Finally, an orchestral cue sounding in ominous deep brass plays as a figure in steel power-armor comes into view, first looking into the distance, then off screen at the player (fig. 18). The scene fades out, and series narrator Ron Perlman opens the historical

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20 This introduction is actually a trope featured in many films and other media. A perfect example is the introduction of Disney-Pixar’s *Wall-E* (2008), which begins with various frames of outer space and our solar system with “Hello Dolly” playing in the soundtrack. The camera zooms into Earth’s atmosphere in one of the frames, flying over a post-apocalyptic landscape of trash heaps, dead power plants, and skyscrapers made of compacted refuse. When the little robot Wall-E comes into frame, compacting trash and stacking it, it is revealed that “Hello Dolly” is playing from a playback device on his body (this is Smith’s diegetic narrative communication at work). The sequence introduces the audience to the world of *Wall-E* in much the same way as *Fallout 3’s* introduction does to its audience, with music that runs counter to the images and indicates a different time period than what is depicted. The difference in *Fallout 3* is that the music in interactive, situated diegetically within the world players themselves explore, and can be activated by choice by players.
portion of the introduction in a deep, dramatic, ominous voice with the first words spoken in every main *Fallout* game: “War, war never changes.”

All *Fallout* titles begin with a similar introduction that fixates first on an audio device. “I Don't Want to Set the World on Fire” accompanies scenes of destruction and loss that contradict its hopeful lyrics, and this introduction sets the mood of *Fallout 3* as a duality of playfulness and hope alongside desperation and destruction. It is specifically the music in this scene that creates such a foreboding and dark tone, and it does this through irony. This use of irony and satire within a story of a dark, disturbing world permeates *Fallout 3*’s script, art style, and—for the first time in the series—its diegetic music.

![Fig. 18 Frame from *Fallout 3* introduction sequence featuring the ruined Washington Monument and a Brotherhood of Steel soldier. Amazon.com. “Fallout 3.” http://www.amazon.com/Fallout-3-Xbox-360/dp/B000U3SVI. Accessed April 4, 2013](image-url)
TUNE IN TO THE RADIO

This introduction is the only context that scripts licensed music, albeit diegetic sound; players can hear licensed tracks play from radios within the game-world, including their own PipBoys, and on several different radio shows. Playing specific radio channels from specific radios in the world allows for a certain type of scripting. The first channel players experience is the radio system in Vault 101, the underground nuclear shelter that a player’s character has lived in since birth. Players experience growing up in the vault in an accelerated sequence that features benchmarks in the avatar’s life, from birth to eighteen years old. The time spent there is short, but the radio channel plays a large role in acclimating players to the world of Fallout.

From a narrative point of view, this montage of life events introduces characters to the world of Fallout within the safety of the vault, and therefore dramatizes the destruction, desperation, and violence that lies above. Characters have an in-game context to compare with surface living. The vault is relatively safe and practically sterile in appearance, with shiny, polished, rounded metal walls and floors and bright, iridescent lights. Once players receive a PipBoy arm computer on their tenth birthday, they have access to all in-game menus, including the radio. The only channel available is the Vault 101 PA system, which features propaganda (“Remember: Vault 101 is America”), helpful advice (“Remember: Vault Depressive Syndrome, or VDS, is a treatable condition. See your vault physician today for an anti-depressant that is right for you”), and myriad facts (“Did you know that due to the threats of radiation and mutant domination that the United States will not be habitable for at least 3 centuries?”) that repeat amidst soothing instrumental jazz tracks like "Smoothing the Whole Thing Over," "Slow Summer
Swing," and "Here Come the Cats!" This content effectively places the player and the avatar in the game world, educating both of them about the nature of the vault shelters and the imminent dangers on the surface. This technique of supplying *Fallout* universe history successfully builds tension when the player is inevitably tossed out into the Wasteland. The player obtains knowledge of the world and its culture through experiencing it and gains a general understanding of what to expect, with the music functioning as an essential tool in that experience.

**GALAXY NEWS RADIO**

There are two other radio channels players hear throughout the game. One is the popular Galaxy News Radio (GNR), a freedom and survival oriented radio show hosted by the charismatic and hopeful Three Dog. The GNR station typically plays jazz show-tunes in between Three Dog’s wasteland news reports on current events. These reports typically relate to the Vault Dweller’s exploits. GNR is popular in the Capital Wasteland and is a popular choice on many radios in bars and dwellings.

Three Dog is one of several memorable characters in the Capital Wasteland. Three Dog helps the player early in the game and explains to the player that he runs GNR to support what he calls the Good Fight. People are out in the Wasteland every day simply trying to survive against Slavers, Super Mutants, Raiders, and all kinds of dangers, but Three Dog believes he fights with his voice and music. On his show he comments on decisions the player makes in the Wasteland community that affect others.

Three Dog plays his music between these reports and other information he gives about dangers in the wasteland. Sometimes he directly references the music he plays,

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21 A full listing of music in *Fallout 3* is available at The Fallout Wiki online site [http://fallout.wikia.com/wiki/Fallout_3_soundtrack](http://fallout.wikia.com/wiki/Fallout_3_soundtrack), accessed May 5 2013
with disclaimers like “Up next is Roy Brown, telling us all about that ‘Mighty, Mighty Man,’” “It’s Cole Porter in ‘Anything Goes,’” and “And now it’s ‘Butcher Pete,’” and he often refers to the music he plays as “classic tunes.” Three Dog’s role in the game’s narrative, as an impromptu narrator and critic as well as source of aid and moral support to survivors, situates GNR as a central positive asset in the Capital wasteland. This, in turn, lends the music the radio plays a pivotal role in the environment, culture, and game as a whole.

ENCLAVE RADIO

The charismatic and patriotic leader of the Enclave, President John Henry Eden, hosts Enclave Radio, the second main radio station. He is the leader of the insidious Enclave, a military organization that claims to be the remnant of the original United States government that is coming to the wasteland to restore order. The Enclave believes that in order to restore the nation, all irradiated creatures must be destroyed and consequently, invades the Capital Wasteland late in the game with genocidal intentions. Enclave Radio features propaganda from the president amidst American instrumental pomp pieces, such as “Stars and Stripes Forever” by John Philip Sousa, “America the Beautiful” by Samuel A Ward, and “Marine's Hymn” by Jacques Offenbach. Enclave Radio plays out of hovering eyebots (fig. 19) that travel about the wasteland, in the Enclave base that is explored at the end of the main questline as well as in some Enclave-loyal locations, such as in the house of a man who believes the Enclave has arrived to save Washington DC.
President John Henry Eden’s rhetoric on Enclave Radio is similar to Three Dog’s in that he also hopes for a brighter future. Instead of the Good Fight, however, he evokes nostalgia and espouses radical change in the return of the American government to the Capital Wasteland. The Enclave sees itself as the last vestige of “true humanity,” and seeks to cleanse the United States of anyone who has been affected by radiation, which is every surface dweller. A xenophobic, clandestine, genocidal, technologically advanced group, the Enclave claims to be directly descended from the pre-apocalypse American government and intends to return that government to power. Since many wasteland residents believe the radio channel is a pre-war artifact stuck on an indefinite loop, players must decide for themselves if the Enclave is a real threat before its eventual appearance. Some NPCs comment on how the Eyebots “give me the creeps” and how those that tamper or destroy them shortly go missing or are found dead. Nathan, the only Wasteland resident loyal to the Enclave, comments to the player that he believes it is real and exists as the last remnant of the American government: “They’re the American government! The eagle! People comma we the. The more perfect union.” It is this

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22 Non-Playable Characters
feedback from NPCs along with the content of Enclave Radio that contextualizes the Enclave as mysterious and insidious.

President Eden, dramatically voiced by Malcolm McDowell, fills Enclave Radio with pro-government, hopeful, and nostalgic rhetoric to fill in the space between American anthems and marches. He praises baseball as an American pastime in an emotional, poetic monologue, promising that “this country will live again.” He discusses fixing education and youth services because “children are our priority” and talks about the need to “rebuild the American family.” He passionately states that “values of our past shall be the salvation of our future” and that, as the “voice, heart, and soul of America,” he will return the Capitol to its former glory. The patriotic music in between his speeches helps to support the nostalgic, pro-establishment, and nationalistic rhetoric. The hopeful oratory and patriotic tunes take on a sinister tone as the game reveals that the return of the old ways comes at an extremely high price. In both radio channels, pre-existing music is repurposed, using its enculturated identifications in an unfamiliar context to create a new musical and fictional identity. In the same way, Varner and Korb ambiguously present instrumental sound in their eclectic approaches to establish new identities. The Other is born through both instances of de- and recontextualization, eclecticism and temporal displacement.

**Radio Contexts in Fallout 3’s Diegesis**

The two radio channels are based on in-game culture and history, and they comment on the gameworld in an indirect way. Some NPCs comment on Three Dog’s personality and the news in the show; others comment on the “weird” Enclave channel that seems to be playing from nowhere. Three Dog’s GNR channel is far more widespread and accepted by NPCs than Enclave Radio, which is viewed with suspicion
and distaste, and this leads players to understand it as a deeper element of Capital Wasteland culture. The irony of the music heard in GNR rests in its contrast and asynchrony with the setting of the game. In the case of Enclave Radio, the American military and patriotic pieces are unrecognizable to most Wasteland dwellers, enhancing the impression that the American government is either long gone or clandestine. Players come to associate American patriotic music with subversion, violence, and genocide, and the responses of most Wastelanders are of resistance or complete disbelief that the Enclave even exists. *Fallout 3* takes place in the capital of the nation of the United States, so the irony is apparent, but this attitude contradicts the positively-aligned propaganda and advertising presented throughout the game to represent the mid-1900s post-war political promotion of the “American way of life” and the “triumph of capitalism” (May 2008, 8). Again, though the plight of the Capital Wasteland is not funny in and of itself, the presentation allows for an ironic and sardonic approach to the narrative and gameplay.

**Music’s Construction of the Fiction**

Giving players the choice to add diegetic music to their gameplay affords interesting aural possibilities, such as a jazz soundtrack for violently dismembering enemies or a patriotic march accompaniment to heavy bartering and discussion with NPCs. Since the musical cues are not contextual, however, and cannot be selected within a radio show, playback of certain tracks or commentaries is never predictable, and these tracks consequently only comment on the gameplay and world in a general sense.

This feature merits some explanation and comparison with techniques utilized by other games. *Bioshock*, another post-apocalyptic dystopian title, uses jazz showtune
music of the same era as a critical narrative tool that enhances immersion by playing a very specific role in storytelling (Gibbons 2011). Like *Fallout 3*, *Bioshock* utilizes licensed music to create a sense of irony, but unlike *Fallout*, this sense of irony emerges from specific cues based on a cinematic approach to the soundtrack rather than radio stations and player control. For example, the main character and the players controlling him are led into a monolithic lighthouse on a rocky island after a plane crash, as Django Reinhardt’s rendition of “La Mer,” a guitar and violin instrumental version of “Beyond the Sea,” sound diegetically from somewhere in the foreboding structure, leading players deeper into the lighthouse to discover a bathysphere. William Gibbons analyzes this scene in full in his article “Wrap Your Trouble in Dreams,” commenting on the irony that the song promises a better future and something grand waiting for the player, when in fact the bathysphere leads to the underwater city of Rapture that has clearly been under duress from some sort of chaotic upheaval (ibid.). Moreover, the songs in *Bioshock* help to “situate the game chronologically” and “comment on the atmosphere of dystopia that permeates Rapture and actually refer obliquely to the situations in which players find themselves,” reminding players that the world is a product of American mid-century aesthetics and cultural values and helping players feel more present in the world (ibid.).

The licensed music of *Fallout* has a similar approach and certainly comments on the atmosphere of post-apocalyptic in what I would call *temporal displacement*, a soundtrack that refers distinctively to a different, almost contradictory time period from that which the game portrays. In *Bioshock* the music represents the time period players inhabit, whereas in *Fallout* the music refers to a long-passed time. The diegetic music in *Fallout* also differs in that it is not scripted, so it does not comment directly on specific
situations; licensed tracks simply refer to the universe of *Fallout* on the whole. In temporal displacement, licensed tracks tie together the alternate timeline of *Fallout* simultaneously with art styles and designs reminiscent of time-specific advertising and the imagined future technologies of the baby boomer era to create a more convincing, immersive, and stylistic world. The postwar American ideals of utopian capitalist models appear in juxtaposition with a violence and destruction that renders those ideals naive and comical. The music, in turn, becomes associated with dystopia, violence, and the post-apocalyptic struggle. The music is transformed as much as it transforms *Fallout 3’s* virtual world through schizophrenia, Murray Schafer’s application of “new life” to sound as it splits from its source in recontextualization and resignification (1977, 90).

Elaine Tyler May uses an apt example of the culture *Fallout* mocks in the introduction of her book *Homeward Bound: American Families in the Cold War Era* (2008). As a young couple in 1959 spend their honeymoon in a bomb shelter, *Life* magazine features a photograph of them sitting and smiling on their lawn surrounded by canned goods and supplies with the article pronouncing "fallout can be fun" (May 2008, 1).
In comparing this scene to a Vault-Tec advertisement from *Fallout 3*, the inspiration for the gameworld culture is readily apparent. Baby boomers line up in front of a vault door from which a shining light emanates as nuclear explosions rise in the distance and the iconic PipBoy smiles triumphantly at the viewer (fig. 20). Both examples are powerful images of the nuclear family in the nuclear age: “isolated, sexually charged, cushioned by abundance, and protected against impending doom by the wonders of modern technology” (ibid.). *Fallout 3* draws on the parody of mid-19th century domestic ideology, consensus politics, and demographic behavior existing in a world in which those ideals have been completely obliterated in the face of nuclear war, lawlessness, and desperation. Using music from the baby boomer era not only helps to establish the alternate timeline, but also to aurally solidify the parody. In turn, the music itself “takes on new life.”
SUMMARY

The original music of *Fallout 3* may not follow the same trend as *Bastion* and *Borderlands* with their eclectic musical approaches, but it does offer a unique example of using licensed music to manifest an unfamiliar post-apocalyptic world through choice, narrative, and irony. Furthermore, like *Bastion* and *Borderlands*, *Fallout 3* creates a distinct musical identity through the recontextualization of sound, except in this case it is done through temporal displacement. The licensed music uplifts the game's mood in conjunction with mid-19th century inspired artistic touches, such as advertisements. Postwar anxiety, idealism, and middle-class economic comfort is juxtaposed with post-apocalyptic destruction, violence, chaos, and the struggle to survive. Licensed jazz tunes of the postwar period are a key element in this contradiction between the lofty expectations of middle-class American baby-boomer culture and the reality of surviving the nuclear fallout of a transformed wasteland nation. The music itself takes on a new identity in the world of *Fallout 3*, mutated like the creatures of the wastelands into a parody of an American ideology and way of life. *Fallout 3* is a great example of how the interactivity of a virtual world can influence the character of music, and how that music’s diegesis reciprocally builds the world.
CHAPTER 6

CONCLUSIONS

Within the soundtracks of Borderlands, Bastion, and Fallout 3, music is a tool or vehicle for creating unique, new identities. I refer here specfically to the resignification of sampled sound and licensed music and how these new contexts for sound contribute to each gam’s own uniquely original identity. In these games, composers remove sampled sound from the initial cultural context first by using the sound library, then by reconfiguring it sonically through digital alteration (i.e. distortion, phasing, etc.) and its utilization alongside an eclectic aural mix, and finally re-contextualizing it as a functional and cultural signifier in a game-world. The music is framed as post-apocalyptic, broken down into base elements and combined eclectically as a new sound is born from fragments and pieces of culture and technology.

The resultant signification is slightly different in each game. Borderlands’ eclecticism characterizes the virtual world only as a function for the player, wherein music acts as a tool for nondiegetic immersion. The music creates moods, communicates game states and comes to characterize the virtual world, but not the deeper culture of the denizens within it. Bastion’s soundtrack, on the other hand, exists within The Kid’s world, where music acts as cultural artifact and original diegetic tracks comment directly on the history, politics, and culture of the fiction. The soundtrack acts not only as a functional signifier for gameplay, but also as a representation of life in Bastion’s world itself. Though the original music of Fallout 3 does not follow the trend of the eclectic musical approach to composition in post apocalyptic videogames, the use of licensed diegetic music to generate an alternate time frame and to construct satire through
contradictions between mid-20th century idealization and post-apocalyptic horror is an
amazingly effective approach to creating an equivalent immersive, distinct, and bizarre
world. *Fallout 3*’s diegesis also signifies the same musical trend of embodying the post-
apocalypse within music that the soundtracks of *Borderlands* and *Bastion* do.

**GAMER RECEPTION AND FEEDBACK**

Videogames involve direct personal experience, and it is in that experience that
the game finds meaning, or lack of meaning, as a result of player reception. In an effort to
understand player reactions to videogame music, I interviewed twenty people who played
either *Bastion* or *Borderlands* in my presence for thirty minutes without any outside
distraction.

All interviewees had at least one comment about the music’s immersive quality.
For example, one said that the music goes “with what [he was] doing in the game,”
another said that it added a sense of urgency that “always made [her] feel [she] had to
complete something,” and yet another offered that it encouraged him to “want to play
more.” Music in both games maintained the simplest of functions, keeping the player
engaged and invested in the game with an urge to continue the interaction. Only one
participant commented that, as far as she could tell, the music had little or “minimum”
effect on her experience while she played *Bastion*, but even she felt that if there were no
music the game would not be as exciting. She admitted to not paying attention to the
soundtrack at all, recalling mostly sound effects and the narrator’s voice, and complained
that I had not instructed her to pay specific attention to the musical element of the game.
Repeatedly admitting to not paying attention to the music and having difficulty recalling
it, she could not recognize a track when played. She could, however, still remark in
general about the music’s content and effect on her, reporting that the music made her feel nervous and excited and had an “Indian style.” Each participant recognized the immersive aspect of each game’s soundtrack and its role in keeping the players engaged, motivated, and within the world.

Music in *Borderlands* and *Bastion* reacts to game states and events as adaptive audio, and many players were aware of that. Most participants noticed that adaptive music in *Borderlands* responds to exploration and combat states, with a subtle ambient track and a louder, more present and energetic combat track appearing in every area or section of gameplay. *Bastion* players noted that the music changed depending on the setting or an event, such as the introductory track when The Kid awakens, a fast-paced track that plays while players are on an escape barge, or the calming guitar track that plays when the player is in the relative safety of the Bastion.

Many interviewees discussed the creation of mood and theme in the soundtrack, and how this made them feel that they were the character in the game setting off on an adventure in a new world. *Bastion* players often commented on how the eclectic elements of the music evoked themes of the wild west, fantasy, and mystery, all themes that fit into the overall frontier idea the composer wanted to elicit. Participants referred multiple times to feelings like anxiousness, intensity, adventurousness, emptiness, excitement, calm, and drive; players who could not specify particular moods still gave feedback on the soundtrack’s central role in creating mood. Even the subject whose experience was minimally affected by the music commented that the music caused her to feel nervous and excited. In both games, I noted that players sometimes had trouble articulating how the game evoked moods or themes and typically gave ambiguous comments on the
eclectic nature of the music that were general and vague, e.g. a “western,” “acoustic,” or “rustic” sound; some participants identified influences and sounds as Egyptian, Indian or Middle Eastern. Familiar instruments, like the guitar in Bastion, were recognized more often than unfamiliar ones, but players still noticed the other sounds, articulating them with less clarity, such as describing the Bastion soundtrack as sounding “ethnicky,” or delineating the “metallic string instrument” and “bongos” or percussion in Borderlands.

LISTENING OUT OF CONTEXT

After participating in the survey, gamers listened to a track from their play experience by itself outside of the videogame context. All participants were able to comment more clearly on instrumentation after listening to the music outside of the context of the game; two of the twenty participants did not recognize the music I played for them as being from the game at all. One could not pick out much more than the guitar in Borderlands during her play-through, but after listening commented there was a Middle Eastern presence and that the music “sounds like Aladdin,” referring to the instruments she heard but could not identify. Many participants explained the music, both before and after the out-of-context listening, with a similar combination of ambiguity and lack of precision. One recognized Bastion’s unique, unfamiliar instrumentation while playing the game and heard a hip-hop beat after the post-game listening. Another commented on the music’s repetitive style, “ethnicky” sound, and Indian influence through a use of tablas; after post-game listening, he called it psychedelic, noticing a reverberating “kick” and comparing it to artists like Tool and Desho. One commented on the music’s role in adding “emotion and motivation, but after listening mentioned the content of the music and an Indian-sounding background string instrument.”
PREVIOUS EXPOSURE AND MUSIC EDUCATION

Three participants had prior music education and an ability to recognize more of the music’s content and function during playing than those without music training, but even their feedback was deeper and more precise after listening to the music of the game out of context. What this reveals is that the soundtracks perform on a subtle level, subconsciously affecting gamers’ experiences rather than overtly establishing their presence. It is important to note, however, that most participants in this study played these games for the first time and for only 30 minutes; one could take the study a step further by repeatedly and over time interviewing participants who play through the entire games. As the games grow more familiar, does the player’s ability to recognize musical sound and to comment on how its effects their subjective experience improve?

The eclectic nature of the soundtracks taxed the participants’ own aural libraries, but they all heard eclecticism even if they could not communicate the specific content of the tracks or their effects on the experience. In reaction to playing Borderlands, one player felt this was not the music he listens to or is familiar with but that the mixture of sounds fit the genre and made him feel like he was in a “foreign environment.” One mentioned a “cultural theme” in the music of Bastion, which effectively made her feel a part of the world, and another felt that the music and visuals gave the impression of no distinct time period, the music was “beyond all that.” He added that this was an element he enjoyed, alluding to the music’s role in creating a distinct identity for the game world he occupied. Still another reflected on the multiple references to the wild in Bastion and how both the narrator and music supported a sense of exploring a new world or frontier, like “being in the wild wild west.” Here we remember that Korb’s initial goal was to
create a sense of a time period one could not place, a post-apocalyptic age with frontier elements, and this is what lead him to his eclectic approach. The above players subjectively confirmed the success of Korb’s approach in the creation of Bastion’s overall theme and feel. Other players commented more generally on this effect, noting that the music “expressed what was going on in the game . . . the pace of the game, [and] how [the game designers] wanted it to feel.” In reaction to the eclectic nature of the music of Borderlands, one person felt like he “was in a foreign environment.” Overall, the music of both games partnered with their worlds created a sense of a new, fictional foreign environment.

**SUMMARY**

Gamer feedback reveals several generalizations that relate to these subjective experiences:

- The eclectic approach successfully generates music that creates a unique identity in conjunction with a game-world, making players feel they are in a foreign or unfamiliar place through Othering.
- The music of these games successfully affects player emotional states.
- The music in these games enhances immersion, pulling players into the game-world, making them feel a part of it, and encouraging their stay within it.

Future research could explore differences between play-throughs with and without music, comparing the subjective experiences of two different groups of players in order to ascertain the magnitude of music’s effect in generating a full experience. Such comparison would provide further information about the extent of the effect a game’s soundtrack may have on a player’s subjective experience.
A CHANGING MUSICAL LANDSCAPE

Globalization and technology in music have allowed for the commodification and commercial archiving of instrumental sound from all over the world into digital sound libraries, tools that bring thousands of instruments to a compositional setting as simple as a laptop in a living room. These sounds are simulacra of their former selves, copied and decontextualized into a basic form, and the music that springs forth in this case is a hyperreal, a new musical reality born from the simulacra. Application of the global digital database and the resultant simulacrum suggests that the eclectic musical approach is an indicator of a changing music landscape, one that has transformed drastically since the inception of recording technology. As a process, there is a new reality in music making. As Baudrillard states:

[N]o more mirror of being and appearances, of the real and its concept. No more imaginary coextensivity: rather, genetic miniaturization is the dimension of simulation. The real is produced from miniaturized units, from matrices, memory banks and command models—and with these it can be reproduced an indefinite number of times. It no longer has to be rational, since it is no longer measured against some ideal or negative instance. It is nothing more than operational. In fact, since it is no longer enveloped by an imaginary, it is no longer real at all. It is a hyperreal, the product of an irradiating synthesis of combinatory models in a hyperspace without atmosphere. (Baudrillard 1994, 5)

Through “genetic miniaturization,” cultural musical identities are reduced to timbre in these cases, often moving beyond and existing without any reference to originating style. In Raison and Korb’s minds, essentialist notions are also reduced, miniaturized to feel and fit and small units that characterize different types of cultural identities. The “real”—the source material, which in this case is a timbre from an instrument or a pre-existing song, is recorded in a cultural context—and its “miniaturized units” are “reproduced an indefinite number of times” in the form of sound libraries and
samples to result in augmented sound and musical works. The identity of a musical sound, not just “ethnic” sound but orchestral or “Western” sounds as well, is removed as it is archived and accessed by anyone with the sound library product. Even the very identity of pre-existing music is transformed in the new context it inhabits. In the case of music, this is the global digital database, the well from which the waters of creation may feed the digital musician’s thirst for a world of sound at the end of his/her fingertips. But does this thirst drain the world of music and music culture, or does the very process of composition exploit or turn it into the “ordinary?” Since the real becomes “nothing more than operational,” as it certainly does in the case of sound libraries where context is removed or ignored for the sake of free, unfettered utilization, it risks becoming a hyperreal, a “hyperspace without atmosphere.” In The Work of Art in the Era of its Technical Reproducibility, Walter Benjamin observes that reproduction absorbs the process of production, changing its finalities and altering the status of product and producer (Benjamin 1938). Reproduction and technology transform the process of composition, which in turn equally mutates and morphs not just the product, but how the product is conceptualized. As Attali suggests, comprehension and perception changes in process through reproduction (1985, 133).

The advent of the sound library was the next logical step in music technology as archiving as recording technologies and compositional tools evolved and music’s possibilities expanded through increased reproducibility and digitization. This is also a part of the ongoing process of commoditizing the musical outcome as artifact and commercial product. As the musical landscape changes, meaning also changes. The

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23 The musical market is now mostly digital, with sales in programs like iTunes, free play in online archives and radio channels like Spotify, Pandora, and Songza. Consumption of music has switched to the free
sound library, and therefore musical eclecticism, eliminates meaning while
simultaneously generating it, particularly in the highly interactive experience of gaming.
Archiving subverts meaning through recontextualization and the global digital database,
but the processes of construction and composition allow new and different meanings to
spring forth, much like the post-apocalyptic worlds explored here:

Fetishized as a commodity, music is illustrative of the evolution of our
entire society: deritualize a social form, repress an activity of the body,
specialize its practice, sell it as a spectacle, generalize its consumption,
then see to it that it is stockpiled until it loses its meaning. Today, music
heralds—regardless of what the property mode of capital will be—the
establishment of a society of repetition in which nothing will happen
anymore. But at the same time, it heralds the emergence of a formidable
subversion, one leading to a radically new organization never yet
theorized. (Attali 1985, 5)

The exchange of sound and its eventual disembodiment causes musical sound,
and sound in general, to lose its meaning. What is the chirp of a bird if we no longer
associate it with birds at all, but as an artifact, a product for our free use?24 This is the
hyperreal, a new reality born through simulacra in which sound is merely sound. Through
that archive, however, we find the sources and the rich sustenance for an eclectic musical
approach based on a completely free and individualized form of composition through a
technology that allows for the creation of new, almost completely disconnected meaning.

Indeed, sound becomes resignified in the compositional process and the contexts
of its products. This is the “formidable subversion” that leads to a “radically new
organization never yet theorized,” the equalization of raw instrumental sound across a

digital realm of the internet, and sales have come full circle from record singles to albums and CDs back to
single songs available for purchase. Whole online databases like Spotify have premium memberships that
allow for playback on mobile devices like phones and tablets. Ownership of music is replaced by
ownership of memberships and access to databases.
24 Raison Varner, for instance, used a stretched out bird sound that he then altered through sound effects
and frequency modulation to create the sound Rakks, the flying Pterodactyl-like creatures in Borderlands,
make when they attack.
broad spectrum of difference. As composers reapply the tools to help construct virtual worlds, implement them to frame both a player's actions in that world and their perception and reception of it, and use the subversion to generate brand new meanings in videogames, they further create a new organization and structure of sound. Perhaps the stockpile is not so much an indicator of the loss of meaning as it is the redirection of it, the breakdown and rebirth of sound as something unrecognizable on the whole, but familiar in its “miniaturized unit.” The post-apocalypse, a breakdown of society into miniaturized, basic elements that are resignified through the process of their mixing into the generation of a new reality.

The sound library also circumvents the ethical and economic issues of sampling licensed or ethnomusicological recordings explored in David Hesmondhalgh’s essay “International Times: Fusions, Exoticism, and Antiracism in Electronic Dance Music” (Born and Hesmondhalgh 2000, 281–304). Sampling performances can be problematic in that some samples, such as the sample of a Tahitian choir from and ethnomusicological recording that appears in Transglobal Underground’s track “Temple Head,” do not credit the original performers and require royalties to a recording company instead—or no one at all if the sample is short enough. In the case of “Temple Head,” the Tahitian sample acts as exotic backing for hip-hop vocals and provide the Other the West uses to redefine itself; in turn, the use of the samples “denies the complexity of the identities of those [O]thers” (ibid. 283). This use of a sample is unethical in that it becomes central to the identity of “Temple Head,” but the original performers receive no recognition or compensation for their performance. As much as I like the track, this issue of recognition and compensation is problematic.
On the other hand, sound libraries come with the advantage of having no one to credit, the archived sounds having been recorded in studios with professional musicians by the companies selling the libraries. These musicians were paid for their time with the product of their playing owned by the company. The composer views the sound library as an instrument to be manipulated much in the same way a performer uses a guitar effect pedal or a keyboard player employs a synthesized sound. No royalties are owed to the companies that sell these sound enhancing products. This is the sound library, a product that embodies the ultimate disembodiment and commodification of sound. Others represented by certain sounds may have their identities denied by the sound library in a general sense, but there is no specific performance outside of the studio that has been quoted, only the sound itself. Cultural identity is reduced to miniature elements and matrices to create a digital archival instrument.

Perhaps in this way the sound library is the harbinger of the eventual demise of the essentialized non-Western Other as we currently know it. This may mark the death of exoticism, the destruction of the wall constructed between Western and non-Western, between musicology and ethnomusicology. How long before the ud, bouzouki, tabla, or sinai become as familiar as the violin or piano for composers all over the world? Once a sound has become disembodied, it becomes ambiguated as a sound, but disambiguated as a tool in order to provide an amazing new resource in the process of music-making—one that heralds a great equalization of sound across the globe. Terms such as “Western” and “non-Western” or “ethnic” become meaningless when all sound is available for purchase or free download by those with some internet savvy. While this benefits the music makers, what happens to ideas of difference and cultural identity? Simulation and
reproduction threaten the contrast between “true and false” and “real and imaginary,” supplanting difference with accessibility and the hyperreal through the use of the global digital database. Eventually, such distinctions cease to exist. Reproduction, through technology and mass music, has the potential to homogenize culture and integrate consumers as important factors in centralization, cultural normalization, and “the disappearance of distinctive cultures” (Attali 2000, 111). The death of the exotic, or the difference between Western and non-Western, points to future research on sound libraries themselves. To dig deeper into the repercussions of this software, one must explore the recording process, professional musicians involved, and all stages of production.

Finally, over generations the global digital database has the potential to evolve into the central source of information, the surface layer that is all one needs and, in fact, all one sees. Azuma discusses this grand narrative—the central core of information understood to be true by a culture (in his case, Otaku culture)—and how an idea like the grand narrative cannot be sold. Consequently, small narratives are sold in the form of serialized goods, with consumers of the serialized goods able to re-imagine the grand narrative and freely manufacture small narratives for themselves, essentially causing the grand narrative to dissolve into smaller narratives. In this way, the simulacrum, the smaller narratives, create the hyperreal (Azuma 2009, 30). If applied to the simulacrum that sound libraries create, the grand narrative is cultural difference in musical characterization, the small narrative goods include world music and sound libraries, and the music created by consumers using these tools constitutes the freely manufactured small narratives that in this case resignify those sounds. Temporal displacement and the eclectic multicultural approach are also tools to create the smaller narratives into which
the grand narrative dissolves. Traditional musical practice, whether Western or otherwise, is subverted, reproduced, and potentially replaced by recording tools and media, which are then sampled to live as raw sound in digital libraries. The eclectic musical approach is a hyperreal of music making that signifies a new locus, system, or order. There is a possibility that in the new order the exotic dies, the instrument becomes ambiguous and, through technology, sound becomes an equal source with no distinction between Western or non-Western. Even “multicultural” becomes an irrelevant term when music is amalgamated from sound libraries.

The grand narrative has become opaque, and can disappear entirely, leaving a global digital database in which there is no center and no regulation. Generations that grow up with this postmodern world view “imagine the world as a database from the beginning, since they do not need a perspective on the entire world that surveys all—that is to say, they have no need for forgeries, even as a subculture” (Azuma 2009, 36). This is how music is changing, how our perceptions of it will change, and what the eclectic musical approach indicates.

Unfettered creativity reigns. Composers may conduct experiments in music and sound with a mastery of software and a simple laptop. Laptops are becoming cheaper than musical instruments, so people who are drawn to nontraditional ways of composing are able to find their sonorous soul in the digital realm. Where there is no center and no regulation musical, physical, and economical limits become low hurdles as composers and musicians stride forward, unrestricted in their use of raw sound because of technology.
Technology leads us to an undeniable new realm in which the world between people shrinks even as the world of music expands in content and possibility through cultural sound that exists as simulacra, as disassociated sound in the minds of music makers. The future holds many uncertainties pertaining to the repercussions of the global digital database, but when music making is disembodied from physical constraints, the possibilities for new creativity are limitless.
APPENDIX A
NOTES ON THE TRANSCRIPTIONS

"Assaulting Krom's Canyon," Borderlands

_ A long scrape in Guiro 1
>

A short scrape in Guiro 1

"The Rakkhive Emerges," Borderlands

V.TI A low, reverberating synthetic sound titled "Bitch Tits" in Varner's Virus TI module.

"Fighting off the Skags," Borderlands

o Delayed echoes.

DB Delay Beat (DB) a downbeat followed by delayed echoes indicated by circles above the noteheads.

FB The Filtered beat (FB) is a percussive sound reminiscent of distorted clapping or rubbing of rough materials. The assorted drum part features darabuka and other drum rhythms, with the deep open sound notated below the line and higher pitched sound above the line.

"Terminal March," Bastion

Dr Drum Set, lower pitch indicates bass and upper pitch indicates snare.

MP Unidentified metallophone (MP) with two sounds, a closed sound indicated by a notehead on the line and an open sound indicated by a notehead above the line.

HH The high-hat (HH) has two sounds, a closed sound indicated by a notehead on the line and an open sound indicated by a notehead above the line.
APPENDIX B:

MUSIC TRANSCRIPTION FOR "ASSAULTING KROM'S CANYON"

Assaulting Krom's Canyon

Transc. by Jeremiah French

Raison Varner
APPENDIX C

MUSICAL TRANSCRIPTION FOR "RAKKHIVE EMERGES," BORDERLANDS
APPENDIX D

MUSICAL TRANSCRIPTION FOR "FIGHTING OFF THE SKAGS,"

BORDERLANDS
APPENDIX E:

MUSICAL TRANSCRIPTION FOR "TERMINAL MARCH," BASTION

Terminal March

Transcribed by Jeremiah French

Mouth Harp

Drum Set

High Hat

Snare Drum

Bass

Metallophone

Hand Drum

Bouzouki

Ud

Electric Guitar (dist.)
APPENDIX F

MUSICAL TRANSCRIPTION OF "BUILD THAT WALL (ZIA'S SONG)"

Build That Wall (Zia's Song)

Transcribed by Jeremiah French

Swing \( \frac{110}{\text{Tempo}} \)
Verse melody hummed once through as intro

1. I dig my
   hole you build a wall...
   Come build that ci-ty on a hill...
   wall up to the sky...
   wall un-til it's done...

2. Gon' build that
   Gon' build that wall up to the sky...
   Gon' build that wall un-til it done...
   Gon' build that wall on a hill...
   Gon' build that wall un-til it's done...

One day that wall is go-na fall...
Some day those tears are go-na spill...
Some day your bird is go-na fly...
But now you've got no where to run...

So
build that wall and build it strong 'cause

Da Capo al Segno

we'll be there before too long
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**DISCOGRAPHY**


**LUDOGRAPHY**


