

Interactive Corruption: Atonal Freedom and Narrative in Video Games

by

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DISSERTATION ABSTRACT

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Engagement in rigorous pitch analysis of dissonant media music is remarkably infrequent; I attribute this reluctance to the (perfectly valid) reason of horrific music often being difficult to transcribe and/or using non-discrete pitches. As a result, such music is often viewed through an affective or topical lens. I acknowledge that both of these factors are important to the listening experience; as such, I view atonality (and the analysis thereof) as a sort of topic in and of itself. When a dissonant piece *does* utilize discrete pitches, however, analyzing its pitch content with greater specificity than has been historically applied offers rich information about a game's story, its world, and its characters. My choice to use video game music is purposeful: ludomusicology is a field that is, perhaps more than any other discipline, chiefly concerned with media immersion. My study, then, adds a pitch-narrative dimension to ludomusicological analyses of horror and horror-adjacent music.

In this dissertation, I apply relatively basic post-tonal analytical techniques to video game music tracks that may be considered “atonal” or otherwise dissonant. Following Gassi (2019), I contend that composers set significant atonal relationships using other musical parameters to increase their audibility to the audience, even if subconsciously. In doing so, I elucidate otherwise latent narrative information that arises from the relationships discovered in those analyses.

In total, I do not only conclude that post-tonal analysis can reveal dormant conflict narratives in video game music. I also argue that video game music tells us a great deal about post-tonal analysis at large, that when it is applied to a medium that necessitates audience input, it inherently flirts with an interpretive dimension beyond merely pitch and narrative: other musical parameters such as rhythm, timbre, and dynamics become analogous to active *agents* in both the subconscious and perceivable realization of narrative.

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Chapter I: Introduction

...we have neither behind us, nor before us in a luminous realm of values, any means of justification or excuse. — We are left alone, without excuse. That is what I mean when I say that man is condemned to be free. Condemned, because he did not create himself, yet is nevertheless at liberty, and from the moment that he is thrown into this world he is responsible for everything he does.

—Jean-Paul Sartre

“Condemned to Be Free”

When Arnold Schoenberg first wrote the words, “emancipation of the dissonance,” he described atonal harmony’s ability to paint the same kinds of pictures and convey the same types of emotional ideas—if not the emotions themselves—as tonal music.¹ As audiences became more accustomed to dissonance, its “comprehensibility” only increased;² the acceptance of a distinctly atonal style that utilized ingrained tonal conventions permitted similar emotional affordances.³ The extent to which this emancipation could be applied, however, was only speculated upon. Jean-Paul Sartre, in *Existentialism is a Human*, describes freedom as nothing but a wholly terrifying prospect; indeed, composers since Schoenberg’s time were “condemned to be free,”⁴ faced with a staggeringly titanic litany of stylistic options and forced to discern which suited them and their musical projects the best.

Without a doubt, timbral extremism, aleatoricism, and piercing dissonances soon followed this declaration. These developments were by no means “incomprehensible,” however; on the contrary, the emotive power of these techniques was frequently embraced. Mariusz Kozak writes that Elliott Carter,

¹ Schoenberg (1975, 104).

² Schoenberg (1975, 104).

³ Schoenberg (1975, 105).

⁴ Sartre (1946, 5).

for instance, was captivated by the “severe, harsh sonic effects” of Penderecki’s *Threnody for the Victims of Hiroshima*.⁵ Although Kozak criticizes Carter’s use of the word “primitive” as an additional descriptor,⁶ both of their fascinations with the piece—as with many others—stems from the acceptance of the most liberal application of Schoenberg’s proclamation. Though the burden of freedom was enthusiastically embraced, the extent to which it was employed varied widely. Indeed, in the modern era, compositions utilize a broad spectrum of “dissonances”: the most famous compositions of Einojuhani Rautavaara use largely triadic structures that progress in ways atypical of common-practice tonality.⁷ Alfred Schnittke, meanwhile, often utilizes intensely dissonant explorations on single pitches (very often utilizing quarter-tones) and extended, cluster drones primarily for effect.⁸ The wide variety of choices is used in a similarly broad manner; the result is a stylistic conglomerate that rejects a singular idiomatic definition—defining all of these as merely “atonal” is undoubtedly and unnecessarily reductive.

Many composers, now writing with these new allotments, were nonetheless rooted in recognizable musical configurations. Countless composers, for instance, composed “sonatas” and other

⁵ Kozak (2016, 200); (Carter 1963, 202).

⁶ Kozak (2016, 200). In particular, he notes that the piece’s use of formal canon and the sociocultural and technical knowledge required to perform the piece negates an interpretation of either the piece’s composition or the sounds therein as “primitive.”

⁷ See in particular *Cantus Arcticus* (1972) and the *Piano Concerto No. 1* (1969), both of which use Neo-Riemannian cycles in two different segments of the orchestra. The first movement of *Cantus Arcticus*, for example, consists of four sections that utilize the same network, transformed down a minor third each time. For more information on Rautavaara’s harmonic practices and the development thereof, I recommend consulting Tiikkaja (2019).

⁸ For examples of each, I offer the conclusion of the fourth movement of his *Piano Quintet* (1976) and the finales of the *Concerto Grosso No. 1* (1977) and *Concerto for Viola and Orchestra* (1985) (amongst others), respectively.

music in recognizable forms, maintaining a familiar formal background. George Walker's first piano sonata contains clear alignment with some of sonata form's main components, even despite a tonal language that can be neatly organized into non-diatonic referential collections:⁹ properly relative "key" centers on C# minor and E major; P and S themes, dominant locks, etc.; and the character of those themes (e.g., a softer, more "feminine" S theme) are all retained.¹⁰ Bartók, too, utilizes familiar formal delineations: mm. 2–9 of his second violin concerto, for instance, can be understood as two Caplinian sentences, with basic ideas, repetitions of those ideas, and continuations.¹¹ Indeed, freedom was not often employed to its maximal extent, though later composers would obviously challenge even these stylistic normalities.

In spite of these appeals towards some sense of idiomatic normalcy, horror media for mass consumption has been one of this larger stylistic freedom's biggest purveyors. David Code writes that the lineage of classic horror films—a lineage that includes *The Exorcist* (1973), *Rosemary's Baby* (1968), and *The Shining* (1980)—were noteworthy for their "score[s] that makes abundant use of radically dissonant, sonorously extreme modernist musical languages."¹² In fact, *The Shining's* use of pre-composed music by Ligeti, Bartók, and Penderecki points to a distinct awareness (or "comprehension") of this style's emotive capabilities. Furthermore, Code argues that a deep understanding of these

⁹ Boss (2022).

¹⁰ Boss describes the secondary theme as *cantabile*, perhaps to avoid the somewhat problematic characterization of S as "feminine" that is taken from Marx (1845). Although Hepokoski (1994, 494) calls for these terms to be used on a more individual basis, I use the term here as a recognizable musical reference; as Hepokoski notes, this idea of musical femininity became ubiquitous in musical discourse after its denotation as such by Marx.

¹¹ Broman (2007, 116).

¹² Code (2009, 133).

conventions' potential applications permits narrative insight; in the case of *The Shining*, he suggests that large pitch distances in Ligeti's *Lontano* are representative of Danny's ghostly vision.¹³

As these compositional techniques became more commonplace in the media sphere, particularly in film, they became associated with certain affective or narrative markers. This emotive transference is perhaps best represented through juxtapositions of atonality and tonality: Richard Ness recounts, for example, that the idea of *noir* mystery is communicated by a friction between the relative comprehensibility of tonality and the 'foreignness' of atonality.¹⁴ Furthermore, atonality gained the power to "degrade" tonality, in a sense; Ness also notes that the music for the "Merry Widow Murderer" from *Shadow of a Doubt* (1943) is "subjected to progressively distorted variations that deny tonal resolution."¹⁵ Notably, this association did not dissipate in the face of freedom's further dissemination; although dissonance may have initially been a useful tool due to its use for an "audience used to a diet of tonal music" in which "atonal music may more easily evoke associations related to alienation or otherness," atonality seemed to form an identity of its own with its own affective properties and associations.¹⁶ Indeed, atonality does not necessitate an association with shock or sadness. Changes in musical style, however, are often considered in analysis; "why use tonality to communicate tragedy," one may ask, "when a change to atonality communicates it more effectively?" This dissertation, as such, examines the cultural role of dissonance in video game music, and utilizes

¹³ Code (2009, 142).

¹⁴ Ness (2008, 56); Flinn (1992, 94).

¹⁵ Ness (2008, 57).

¹⁶ Gassi (2019, 151).

atonal analytical methods to elucidate how relationships between atonal pitch sets and successions support ludic settings and their narratives.

Ludic Media and Dissonance

The sonic freedom afforded to art music, then funneled into filmic media, is perpetuated—and perhaps felt with greater potency on account of the ludic immersion—in video games as well. Indeed, Mark Sweeney, writing on the survival-horror game franchise *Dead Space*, “trace[s] its origins back, via Hollywood, to the aleatory avant-garde music prevalent since the 1950s.”¹⁷ Much like *The Shining*’s musical references, Sweeney writes furthermore that Penderecki, Lutosławski, and Gorecki were composers that Jason Graves (*Dead Space*’s composer) “paid particular attention to.”¹⁸ The artistic result of that sonic freedom was, as Tim Summers writes, “[a] score [that] functions nearly exclusively through ‘global’ musical semiotics and the *sheer aural abrasiveness of the timbres*.”¹⁹ Critically, Summers notes that Graves’s score, “embodies a modernist aesthetic,” an explicit acknowledgement that dissonant freedom often typifies a musical image as opposed to a style.

The extent to which horror is implemented into video games (as is the case with movies, of course) most certainly exists on a continuum; not every instance of horror is as explicit or harsh as those exemplified in *Dead Space*. “Creepy,” “ominous,” and “spooky” are all terms that are associated with horror themes, but far milder in execution. In *SIGNALIS* (2022), for example, harsher timbres

¹⁷ Sweeney (2017, 172).

¹⁸ Sweeney (2017, 174).

¹⁹ Summers (2020, 131; emphasis mine).

♩ = c. 60

Brighter Timbre

Sunken Timbre

Piano

p

Em₉,13 F add2 Em₉,13

3

p

Am

mp

E^b maj7(add 9)

3

mf

sfz

Pno.



Example 1: *SIGNALIS*, Save Room in S-23 Sierpinski

and distant chord changes perfectly accompany the decaying, rotting environment of S-23 Sierpinski; crazed, corrupted robots attack the protagonist, LSTR, screaming and doing everything in their power to beat her down. The only respite she has from these environments are the "Save Rooms,"²⁰ which have a horrifyingly ominous and, in reality, not very pacifying red glow from a computer screen (Example 1). In contrast, *Luigi's Mansion* (2001), while it features a plethora of ghosts in a dark, secluded mansion, the tone is far lighter, as the game is marketed towards children. As Luigi—a perpetually fearful character—travels through the abode, he defeats them with a *Ghostbusters*-like vacuum called the "Poltergust 5000" (Example 2). All the while, a lighthearted soundtrack—relative to



Example 2: *Luigi's Mansion*, using the "Poltergust 5000"

SIGNALIS, at least—accompanies; more tonal elements (i.e., centricity, functional harmony, etc.) are contrasted with timbral effects that evoke a more unsettling environment. Despite being a "horror"

²⁰ "Save Room" is a ludicrously generic term that refers to an area in which the player may save their progress. Oftentimes, players are safe from external harm in such areas.

setpiece, its lighter character transforms it from "horrific" to something more akin to "spooky," the kind of horror one might use with a child celebrating Halloween.

This continuum is not only "interludic," so to speak; that is to say, the continuum is not only fit for the soundtracks between different games. It may also be applied "intraludically": within one game, multiple styles of horror and dissonance may be applied. *SIGNALIS* is one such example: both subtle and explicit horror are present within the game's soundtrack. This is obviously a common phenomenon: *Resident Evil* games are also known for having Save Room music that tempers the overall horrific soundtrack of the rest of the game. More practically, however, a horror game (or any media type) without sufficient musical contrast may result in a less nuanced experience for the player. *Little Nightmares II* (2023), for example, features many gameplay sequences without music; the sequences with music are typically underscored with a more prototypically horrific soundtrack. When the deuteragonists, Mono and Six, are being chased by the Hunter, the track "Boots through the Undergrowth" plays in the background, a rhythmically driving and timbrally abrasive piece of music that accompanies the game's first major test of the player's ability to control the characters. "Étude for a Minor," on the other hand, plays as the Teacher—a being with a never-ending smile and a horrifyingly extendable neck—plays the piano. Mono and Six must sneak around her to avoid being detected as she does so. "Étude" is far more tonal and timbrally standard relative to "Boots"; indeed, it exists on a

different end of the horror continuum. Subtle timbral alterations and nonstandard chord inversions, however, forbid it from being heard as completely tranquil, suiting the tone of the rest of the game.²¹

The ludic effect of video game horror is well documented. William Cheng writes, for instance:

“One way survival-horror games elicit fear is indeed by destabilizing the player’s sense of control. Mark Simmons, the project director for *Silent Hill: Origins* (2007) and *Silent Hill: Shattered Memories* (2009), declared in an interview that when one ‘[looks] back at the survival-horror genre, it’s pretty clear that the monster scares were built upon awkward controls, clumsy combat, and constantly being kept in a state of low health. Other genres had moved on [by] leaps and bounds, but the survival-horror genre continued to fall back on these unrefined elements of gameplay because they added to the fear.’”²²

Put simply, horrific music in a horror setting does not merely underscore scenes or provoke emotions.

It affects, additionally, how the player interacts with the ludic environment, most recognizably through supporting an environment in which fear is ubiquitous.²³ To truly elicit this fear, though, sound in video games extends beyond the screen into the player’s space.²⁴ By “spatializing” the sound beyond the screen, the virtual world extends into the interactive space of the player;²⁵ in horror, this effect is enhanced by initiating the fear response a player might have to a threat in the real half of that twofold environmental interaction.

Most interesting, and the topic on which this dissertation focuses, is when horrific or dissonant music is inserted into game soundtracks that are otherwise tonal or easygoing. The jarring shift in tone

²¹ At the time of writing, an article of mine called “Exploring the Uncanny: Musical Corruption in Horror Video Games” has been accepted by *Music Theory Spectrum* on this very topic. Due to its lack of proper acceptance at this current time, I abstain from citing it properly in this chapter.

²² Cheng (2014, 96).

²³ See Perron (2009, 9) for an extended discussion on the specific affordances of horror video game relative to horror films; in particular, he notes that horror video games “extends [the] bodily sensations” that are already induced through the horror film.

²⁴ Collins (2013, 47).

²⁵ Collins (2013, 48).



Example 3: UB-05, Guzzlord

from one musical style to another instills that fear suddenly and acutely, a response that is distinct from more consistent horror or dissonance. While *Little Nightmares II* utilizes a musical-horrific continuum that tends towards horror, games and soundtracks in this “abrupt” category instead dichotomize two entirely different tones. *Pokémon Sun* and *Pokémon Moon* (2016), for example, primarily feature tranquil, tonal, or recognizably fun affects, even during battle, taking place on the Hawaii-inspired beaches of the Alola region. Upon entering the Ultra Ruin, however, players are treated to a broken, radiated wasteland with nothing but the monstrous being known as Guzzlord consuming its remains (Example 3). The music for the Ultra Ruin consists of nothing but radio static and intermittent, reversed samples of the main theme of one of Alola’s islands, indicating that this wasteland was once the bright and colorful region from which the player came. This track, belonging to a child-friendly game such as *Pokémon*, is perhaps more reminiscent of the *Luigi’s Mansion* style of horror as opposed to the *Dead Space* kind; however, the sudden *jump* from happy-go-lucky to disturbing makes the track stand out even more. The freedom of dissonance, thus, contrasts with the otherwise controlled and

understandable—that is to say, "tonal"—temperament of the rest of the soundtrack, provoking a uniquely ludic discomfort in the player and their understanding of the game's world.

For the purposes of this dissertation, I prioritize games that are primarily non-horror that suddenly invoke horrific traits such as fear or suspense. Such a focus is mirrored in the games' music: these soundtracks primarily deemphasize dissonances, save for exceptional instances in which they invoke an extraordinary, marked atonality. As a result, many of the games discussed throughout this work are not from the horror genre; instead its affects, timbres,²⁶ and treatment of pitch are solicited in novel narrative situations.

A Necessary Imprecision

Analyzing horrific music like this—be it more prototypical or subtle—has historically been done in terms of affect or topic. Indeed, because of the focus on timbral harshness and freedom of pitch treatment, much of the music in this genre “def[ies] transcription with conventional Western notations for duration and pitch.”²⁷ Performing traditional Western analysis on this kind of music, therefore, is difficult due to the difficulty in transcribing it. Its “monstrous”²⁸ status—its lack of comprehensibility—is therefore a musical boon, but an analytical bane; it almost seems as though its inability to be represented in a standard format is itself a component of its effectiveness. As such, much of the language used to describe prototypically horrific music necessitates generalities: Cheng himself

²⁶ For this reason, most of the games chosen for this dissertation are relatively new, permitting a clearer embodied understanding of horror's invocation relative to older games.

²⁷ Cheng (2014, 104).

²⁸ Cheng (2014, 104).



Example 4: Flowey the Flower vs "Photoshop Flowey" (final boss form)

notes that horror soundtracks often utilize semi-familiar noises such as machinery and radio, sounds that may be calculable in terms of timbre or duration, but less so in terms of pitch.²⁹ Lloyd Whitesell, similarly, characterizes this music as using “amorphous textures and pitch continua, percussive shocks, [and] disturbing timbres...”³⁰

It is also common to describe tracks based on their interconnected processes. Such descriptions permit linguistic precision in the sense that it properly defines most of a track's structure, although they may, as a result, be musically reductive. I described the previous *Pokémon Sun* and *Moon* example, for instance, as a juxtaposition of two musical processes: a set of reversed samples and a layer of static or otherwise technological sounds. “But Nobody Came” from *Undertale* (2015) is another example of a track that elicits a potent affect through an easily describable process. It accompanies the titular text “But nobody came.” in one of the game's routes in which the player murders every single inhabitant of the Underground.³¹ On the surface, the track consists of a series of terrifyingly low-pitched events in an

²⁹ Cheng (2014, 108–109).

³⁰ Whitesell (2009, 207). For example of other authors characterizing a kind of “horror” sound, see Donnelley (2005) and Staiger (2020).

³¹ For additional context, this is by far considered to be the “bad” route of the game, as even though killing enemies is commonplace in most video games, *Undertale* largely encourages the player to befriend or spare the creatures they encounter.

effectively indiscernible meter. The track, however, is actually an extremely slowed-down version of a track that is reminiscent of “Your Best Friend,” a track that plays when the player meets Flowey (Example 4), a being who appears harmless on the surface but is actually hellbent on killing everything in the game (including the game itself). Thus, the process and narrative significance of the track are simple: it is a slowed down version of a track that is representative of a genocidal character, accompanying an action the player takes that is itself genocidal.

The further one strays away from this archetypal horror sound, however, the more precise one can be with both transcription and analysis. Fenimore's analysis of the music for the “madhouse” scene in *Psycho*, for instance, relies on motivic recognition of the “madness” motif;³² Royal Brown's analysis of the “Hitchcock chord” is also contingent on recognizable musical terminology; he describes it as off-putting due to its simultaneous major and minor flavorings.³³ To be very clear, these types of analyses are not more *valuable* in any way relative to ones that focus on musical effect; instead, they offer a different kind of insight into a kind of music that uses more aspects from more traditional music, thus they may be analyzed with more traditional tools.

Traditional analytical methods that traditionally describe atonal pitch structures, however, have rarely been seen with regard to media music. This infrequency is perhaps due to the more effect-oriented approach to dissonance in this genre; that is to say, the feeling of the music is prioritized. I, however, elucidate the advantages of a more specific focus on pitch in such dissonant video game music; in the same way atonal analysis has been used to uncover hidden conflict narratives in art music,

³² Fenimore (2009, 92).

³³ Brown (1982, 31).

so too can it be applied to media music.³⁴ After all, if the opportunity is afforded to us, why not take advantage of it?

Indeed, analytical methods such as pitch-class set analysis, twelve-tone analysis, etc., have been instrumental in identifying narrative throughlines for more programmatic atonal music. In a manner similar to Patricia Carpenter's narrative analyses,³⁵ narrative readings from Jack Boss's exploration of *Pierrot Lunaire*, Joseph Straus's analysis using intervallic representations in *The Rite of Spring*, James Donaldson's tracking of changing topics in *Living Toys*, and many others have demonstrated the ability of such systems to support story and narrative content, often by way of uncovering the otherwise hidden structures.³⁶

Suggesting that atonal analysis may be applied to media music is not unique; Vincent Gassi's dissertation primarily regarding Jerry Goldsmith's score for *Planet of the Apes* (1968) is an in-depth exploration of how the twelve-tone method can be orchestrated with the intent of being both audible and narratively significant. Gassi writes that the “manipulation of other elements such as duration, dynamics, and timbre” significantly aids in a tone row's ability to be intuited.³⁷ Although my exploration centers around video game music, I lean heavily onto this outlook in making my own assertions about the effect of suddenly dissonant music in the genre. More specifically, atonal music in these ludic circumstances oftentimes evokes a specific *topic* of atonality that can be further analyzed in terms of its discrete pitch content (as opposed to the “amorphous” pitch spectra as described by

³⁴ See the aforementioned Boss (2022) regarding sonata form in George Walker's *Piano Sonata*, Maler (2018), among many others.

³⁵ Carpenter (1983); Dineen (2005).

³⁶ Boss (2019); Straus (2022); Donaldson (2022).

³⁷ Gassi (2019, 7).

Whitesell) to better understand its placement in the narrative. To properly discuss this, I choose to investigate and discuss music that can indeed be transcribed and interpreted with more precise pitches.

Methodology and Significance

Of course, the incomprehensibility of horror music is one of its strengths. Additionally, it would seem that I'm trying to have it both ways: I argue that atonal music can itself constitute a topic that complements an enigmatic horror soundtrack while also suggesting that removing that layer of enigma enhances its inarticulability. On the contrary, I conduct my analyses such that they, broadly speaking, distinguish between sonic effect (the reaction a player has to the affect or general sound of the track independent of ludic input) and narrative effect (an understanding of how the track's musical elements support their ludic actions or the story at large). For the former, I treat pitch dissonance as a significant factor in the uncomfortable *affect* of these tracks, yet another reason as to why I choose to operate with soundtracks that are primarily tonal; dissonance becomes far more marked when it finally does appear.³⁸ Regarding the latter, I explore the tracks' statuses as novelly dissonant pieces of music by critically analyzing their pitch content, elucidating how their internal pitch structures (as made audible through other musical parameters) support the narratives or ludic situations in which they are placed. In short, I am examining both how a dissonant track *sounds* and what it may *do* to a listener; in doing so, I explore how the immersive potential of ludic environments is enhanced.

³⁸ For clarification, "marked" is being used in the way it often applied in literature regarding topic theory (see Chapter II); that is, a parameter containing significant enough contrast to the other constituent parts to make it noticeable and affective.

I demonstrate the hermeneutic benefit of analyzing such discrete pitch structures, showing that it can reveal musical conflict narratives and promote immersive potential by introducing subtle, yet noticeable incongruities between similar musical figures. More specifically, this dissertation explores dissonant music in video games in which consonance is the expected musical idiom. Such music is marked on account of its unexpectedness relative to the rest of the soundtrack. Although it is not determined that such music utilizes discrete, easily transcribable pitch configurations, I choose to focus on such tracks to aid in the process of analysis. By using fairly rudimentary atonal analytical techniques to investigate these tracks, I extract a narrative that is appropriate to the ludic situation the track accompanies; by contributing an atonal perspective to the field, this study effectively adds a narrative layer of understanding to the already intuitive and discussed connection between pitch, affect/topic, and ludic interaction. These narratives may be aurally driven by a cultural sense of topical atonality but remain personal to each listener. As such, I prove that these tracks only serve to enhance the immersive environment in which individual players find themselves, contributing to the ludomusicological field's dedication to understanding player immersion (albeit a very personal immersion), particularly through narrative.³⁹

³⁹ See Grosser (2020, 4) for further explanation on “musical narrative created through MMA and MMI in music,” effectively a means of linking player action to an embodied understanding of on-screen action, as propelled by music.

Dissertation Outline

To explore the atonal idiom in video game music, as well as specify the effects of particular atonal phenomena, this dissertation is split into several chapters. Each concerns a portion of this multifaceted question, one that necessitates various interlocking perspectives. While this codependence limits my ability to provide firm answers, my exploration nonetheless aims to apply the same analytical rigor given to atonal art music to media music, while respecting the differences between the two mediums.

Chapter II largely gives a more comprehensive review of the effects of dissonance on various audiences in different genres. In total, this review defines a sort of atonal “idiomatic topic” that, while initially not contingent on filmic associations, is then directly applied to audiovisual media to evoke certain affective responses. I loosely define several atonal or dissonant idioms that make use of dissonance in different ways; in general, those idioms that utilize discrete pitches invoke a distinctly Second-Viennese style, although it may be troped with other more intensely picturesque dissonant idioms (i.e., indiscrete pitches, etc.). By defining such a topic, we can begin to track its unique use amidst a generally tonal soundtrack, perhaps the clearest way of discerning the differences between tonal and atonal styles. As such, this chapter reviews literature on topic theory at large, the effects of dissonance on audiences, and its specific application to media; as video games are this dissertation’s primary focus, Chapter II will briefly discuss topic and its effect on immersion, although I focus more on immersive environments⁴⁰ rather than “interactive” player immersion.⁴¹

⁴⁰ Munday (2017, 52).

⁴¹ van Elferen (2016, 37); Collins (2013, 59).

Chapter III presents a more in-depth review of atonal analytical methods, pointing towards an “affect-effect” analytical dualism that permits a simultaneous reading of narrative structure and affective/sonic purpose. This chapter—and thus, this dissertation—focuses primarily on pitch-class set analysis, twelve-tone analysis, contour analysis, voice-leading analysis, transformational analysis and formal analysis. In particular, this dissertation utilizes older approaches to these analyses, those conjured and widely disseminated by Forte, Morris, etc., not necessarily out of convenience, but more as an appeal to accessibility; these methods of analysis have been widely disseminated since their inceptions.⁴² This outlook requires several theoretical backings; as such, I emphasize three atonal subfields to legitimize my analyses. First, I use studies on atonal form and segmentation to underpin my notion that discernible motives can be extracted from a dissonant texture. I then provide a comprehensive overview of the ways that motives have been related to each other in the past (set classes, etc.). Finally, and most crucially, this chapter outlines outlooks on the way in which these changes are made more audible when applied to an audiovisual narrative (through timbre, rhythmic motives, contour, etc.), how these changes may be interpreted emotionally, and how stories are supported through repetition of some iteration of the transformation.

Chapter IV presents a more precise overview on how these atonal relationships are *narratively* conceived relative to the rest of a game’s soundtrack, relying on the link between motivic expression and motivic motion found in even the most complex of analyses. Dissonance—a factor of music that

⁴² Of course, this was famously commented on by Perle (1990, 151), who criticizes *The Structure of Atonal Music*’s relation to the “‘common sense’ experience” (see Chapter III); however, I here use it to highlight motives that relate to each other, rather than as a criticism of Forte’s systems.

often necessitates such complexity—of many kinds can, of course, be used in any setting, but the musical environment in which a dissonant track finds itself may radically alter the way in which it is received or interpreted. Although I am primarily concerned with video games that use primarily tonal soundtracks, this dissonance exists, undoubtedly, on a spectrum; as such, I must here define tonality to an extent similar to how I defined atonality in the previous chapter. If a hypothetically dissonant track were to be inserted in a *Kirby* game, for instance, the effect would be far harsher than that of *Chrono Trigger* (1995), the soundtrack of which already utilizes several nonfunctional harmonic practices (the reader will find, as such, that many of my analytical examples come from children's games, though this is not unilaterally true).⁴³ Chapter IV, as such, is an extension of the second in that it acknowledges that the baseline for “dissonance” in a video game soundtrack is contingent on a complex relationship between the game's internal musical universe and the player's societally acquired understanding of consonance and dissonance. This multidimensional analysis references Jean-Jacques Nattiez's tripartite interpretive system—the poietic, the esthetic, and the trace—as well as other authors that prioritize musical expression regardless of *who* is the analytical subject.

Chapter V presents three analyses of video game tracks, providing the musical context of each and using the atonal analytical methods as defined in Chapter III to track internal narratives that support the larger setting the track supports. Specifically, I analyze “Battle Against Dusknoir” from *Pokémon Mystery Dungeon: Explorers of Sky* (2009), “Old Chateau” from *Pokémon Diamond, Pearl, and Platinum* (2006, 2008), and “Fighting Cole and Malladus” from *The Legend of Zelda: Spirit Tracks*

⁴³ See 8-bit Music Theory's video “Nonfunctional Harmony in Chrono Trigger [sic]” (2017) for a more specific dive into the game's soundtrack; I do not discuss it in any substantial depth in this dissertation.

(2009). This chapter solidifies the argument made in the previous three chapters, that atonal analytical methods can uncover both a track's role as emotional instigator and a supporter of the ludic narrative. In doing so, I strengthen my dissertation's assertion that atonal analyses of media music can uncover special narrative traits unavailable to absolute music as well as encourage rigorous analysis of dissonant media music beyond that of a holistic label that denotes its affective function.

Chapter VI is an endorsement of utilizing this atonal-media approach in the post-tonal theory classroom. It presents analyses from throughout the dissertation and reframes them as extended lesson plans in criticism of post-tonal theory's fixation on a very specific canon, that of (often) white, Western, and male composers of classical art music. Adopting analyses such as mine permits a reexamination of this fixation and broadly encourages exploration into other ways that post-tonal analysis—considered in this chapter as a worthwhile component to undergraduate music degrees—may be implemented in the classroom. It does so, in this case, primarily by presenting other genres in which atonal idioms are used; this further breaks down the often-implied edict that Western classical music is the ultimate arbiter of musical quality. Additionally, this chapter suggests opportunities for struggling music curricula to make post-tonal analysis relevant to students of non-classical music (assuming a modular curriculum is not first applied). In general, I apply an art-first approach to this style of teaching—I always prompt student to ask contextual questions—something that I retain throughout the dissertation by including numerous musical examples, not only as a way to legitimize my thesis, but set an example for how I envision the thesis to be applied.

Before embarking on this journey, however, I want to clarify what I personally mean when I refer to "analysis." The word can mean a host of different things in different contexts, but for us here, analysis serves as an idiosyncratic connection between the individual and the community to which they belong. The way that I hear this music is driven not only by the countless number of musicians creating music, but the countless more that absorb it everyday. Indeed, the way that I choose to engage with it is unique in some way, but it is one voice in a musical landscape with innumerable other unique voices and thoughts. I stress here that the thesis of my dissertation is one that encourages other voices to speak out: considering atonal pitch relationships is only a microcosm of these beliefs—in the way that I encourage the use of a hitherto unused lens to a popular repertoire, so too do I encourage others to be critical in their listenings, in whatever way that feels appropriate to them. That is to say, I do not analyze with the intent of discovering anything “true” about the music besides how it affects me, as founded by a community of so many others who find a similar kind of beauty in what they hear.

Chapter II: Atonality as Topic in Video Game Music

“If you could imagine dissonance assuming human form—and what else is man?—this dissonance would need, to be able to live, a magnificent illusion which would spread a veil of beauty over its own nature.”

—Friedrich Nietzsche

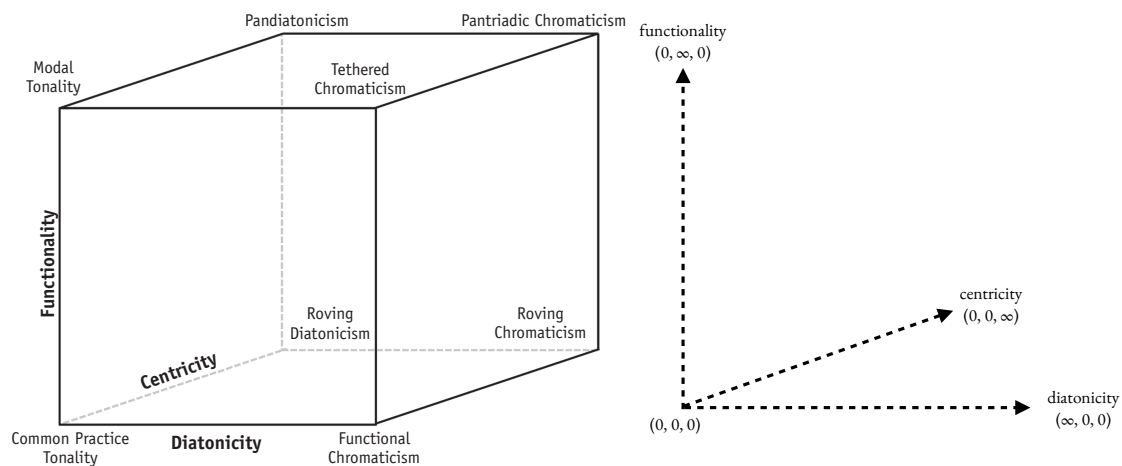
Dissonance vs. Atonality

Defining dissonance and atonality is paramount in this study because the “surprise” factor that I describe is contingent on a track’s status as decidedly “not tonal.” Such a descriptor, however, requires the qualifier that dissonance often exists amidst recognizably tonal bounds, particularly in media music. For example, Jonathan Bernard speaks of a second wave of “neotonicity” in the early 1960s, the eventual recognition of “the truly vast number of different ways it is possible for new music to be tonal.”⁴⁴ Implicit in this assertion is the understanding that aspects of *dissonance*, as was attempted to be wholly proselytized by the more experimental composers in the era prior, were retained despite America’s musical conservatism.⁴⁵ Thus, we are left in the modern era with an extensively broad view of tonality such that the minimal parameters for its application as a term may be reduced to as much as a concept of pitch centrality.⁴⁶ Indeed, defining a base standard for what is sufficiently atonal becomes surprisingly difficult; our deeply held understanding of tonal function may obscure a simple definition of a piece of music as more tonal or atonal. One may ask themselves, “is it actually atonal, or merely dissonant?”

⁴⁴ Bernard (2008, 538). Bernard borrows the term from Eric Salzman, as a way to engender tonal reference in late twentieth-century music without the generic implications of “neoclassical.”

⁴⁵ Bernard (2008, 535–7). That progressive musical interests operated only at the edges of American concert-musical society permitted a distinctly national conservative lean to take root, perhaps permanently.

⁴⁶ Salzman (1974).



Example 5a (left): Lehman, the “triadic tonality space”

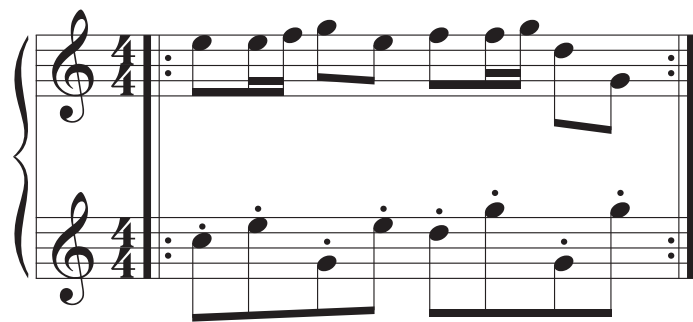
Example 5b (right): Hypothetical generalized tonality space with the origin $(0, 0, 0)$ acting as common-practice tonality

Frank Lehman presents an intriguing method to define parameters to help us answer that question with slightly more confidence. He posits three different continua (Example 5a), the three dimensions of which form a cube called the “triadic tonality space”; it contains eight different vertices effectively representing the different ways that triadic dissonance is implemented. The three continua are as follows: a) centricity, the extent to which a piece of music has a clearly highlighted pitch (class); b) diatonicity, the extent to which that piece adheres to a standard heptatonic system vs. a system with all twelve pitch classes; and c) functionality, or how “strong[ly] normative” the harmonic syntax is.⁴⁷ In Example 5a, for instance, the origin representing triadic common-practice tonality encompasses a maximum of all three criteria (despite a mathematical representation of $(0, 0, 0)$). However, the graphic

⁴⁷ Lehman (2018, 204–5). Lehman defines such normative harmonic syntax as a “fifth-based harmonic grammar of common practice (CP) tonality.” Although other historical methods of conceiving of tonal function exist (see Riemann (1872b), for example), this definition remains sufficient due to the omnipresence of ii–V–I that dominates tonal landscapes.

representation of the space implies “pantriadic chromaticism.”⁴⁸ If one were to remove the requirement of triadic chord configurations (and, thus, the necessity of defined endpoints for each continuum; see Example 5b), they could reasonably define remote vertices as the antithesis of tonality writ large (that is, common-practice tonality) as it too can be described as lacking centricity, diatonicity, and functionality. Adopting this definition has its advantages; it clearly delineates atonality from extensive dissonance in that any piece in which any of Lehman’s criteria can be detected would be, by definition, not completely atonal, instead utilizing a heavy amount of dissonance.

Retaining his model without the triadic criterion or definite endpoints, however, is not without its disadvantages. Indeed, the system provides the analyst with terminology they may use to *post hoc* provide a label to a piece of music after the listening experience (and perhaps even the analysis). It, maybe more importantly, also allows the analyst to reference tonal parameters as potentially signaling something important amidst an atonal framework.⁴⁹ On the other hand, it does not sufficiently describe or define the threshold at which a listener will characterize that music as “adequately dissonant”; that is to say, it



Example 6: *Undertale*, "But Nobody Came," only perceivable when sped up

⁴⁸ Lehman (2018, 66; emphasis mine).

⁴⁹ Allusions to tonality in atonal frameworks, for example, are one of the primary points in Jack Boss’s analysis of Schoenberg’s *Erwartung*: he writes that, in the end of the fourth scene, “Both the descent and the change to a diatonic sound world contradict the preceding ‘Body’ motive, further reinforcing the overall sense that [the lover’s body’s] presence is vanishing” Boss (2019, 218).

does not necessarily help pinpoint where a listener might consider the track marked relative to the rest of the soundtrack. Additional problems arise when the musical material is unmistakably tonal, such as the Undertale example from before (Example 6),⁵⁰ but has been altered in such a way where the tonality is masked. Again, the music has been slowed down to the point of obfuscation; it is not clear if it should be analyzed with tonal or dissonant standards.

My solution to this problem lies in topic theory. Its modern application effectively creates categories of semiotic interpretation composed of, depending on the theory, many different musical sub-parameters. Oftentimes, those subcategories include pitch. As such, should we define enough characteristics that together form a sonic *picture* of atonality, the exact point at which dissonant music becomes marked becomes significantly less important; instead, its markedness is defined holistically through the presence of enough of these characteristics.

Topic Theory: Old vs. New

I must reiterate that my use of the term “topic” is distinguished from its original conception and its modern usage. Coined by Leonard Ratner in *Classic Music: Expression, Form, and Style*, the term topic originally referred to “subjects for musical discourse,”⁵¹ essentially distinct, semiotically charged references that signified genre through stylistic allusion or vice versa. Recognition of a topic within a musical work involves, then, an understanding of two disparate musical elements; its “type,” a fully-constructed work

⁵⁰ I placed the key of this transcription as C major to avoid the problems that would arise from designating it a key when it was not originally meant to be interpreted as in one at all without sonic modification.

⁵¹ Ratner (1980, 9).

equivalent to a genre,⁵² and the “style,” the signified element within that type that typifies the original musical referent (the “hunt,” therefore, is a fairly common example of such a topic). As such, Robert Hatten arbitrated Ratner’s initial definition to refer to “complex musical correlation[s] originating in a kind of music”⁵³ and then applied to another piece of music with the intent on signifying the original correlation.

It is arguably this arbitration that initiated the path toward its modern application. Discussions of topic—in media music especially—seem to conceive as topics as far more fundamentally pictorial or representative in nature. Instead of a compositional style that is necessarily interpreted in terms of the genre in which it is utilized, the elements that compose a modern topic are themselves stylistic elements, without the explicit reference to an underpinning genre. Due to the reference to some sort of stylistic inclination in both the older and newer definitions, the confusion and differentiation in their use, becomes clear. Indeed, Danuta Mirka writes that:

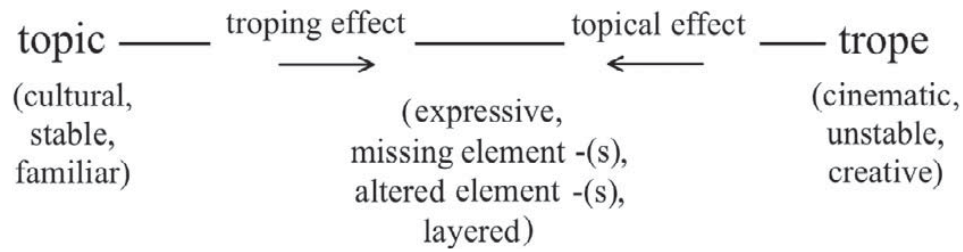
“...the study of musical topics has been confounded by discrepancies between representatives of topic theory, who expanded this concept beyond cross-references between styles and genres.”⁵⁴

Her desire to disambiguate the use of the term in her volume is clear. As such, the term stands (as is its use in this dissertation) as a reference to related, yet distinct dimensions of music with different analytical considerations.

⁵² Mirka (2014, 1) writes that types and genres are more or less equivalent, a conclusion drawn by examining Ratner’s list of types; I will use my understanding of “genre” in my subsequent explanations.

⁵³ Hatten (1994, 294).

⁵⁴ Mirka (2014, 1).



Example 7: Neumeyer, the “continuum model”

David Neumeyer’s seminal book, *Meaning and Interpretation of Music in Cinema*, further generalizes the pictorial concept of topic. Referencing Hatten, he develops something of a continuum for topics and their associated concept of “trope.” While Hatten defines trope, effectively, as an additive process combining multiple topics,⁵⁵ implying a sort of boundary between the two, Neumeyer places the two on a spectrum (Example 7). It is worth noting Hatten’s inclusion of a third category called “gesture,” musical figures that combine to form topics, something like a morpheme in linguistics. Topic, however, seems to carry more weight as the more important musical concept due to the relative ease with which one may associate meaning to each.

For the purposes of this dissertation, this effectively means that topics can indeed (and without too much semiotic headache) be understood as imprecise stylistic associations; so long as the “culturally stable [and] familiar” aspects of the topic are identifiable, it may be heard as a topic.⁵⁶ Even more pertinently, should a sufficiently *atonal* piece include elements of tonality, it can be understood as a trope, the constituent topics of which are applied unevenly and “cinematically”; the weight of each would, then,

⁵⁵ Hatten (2004, 3).

⁵⁶ Neumeyer (2015, 185).

potentially determine its overall affect. One purpose of this descriptive ambiguity is ironically in service of definitional rigidity. Neumeyer himself quotes Raymond Monelle (2006):

“Comprehensive lists of topics are probably of little use and are not the way to do topic theory. . . . Topical analysis works best when we proceed ad hoc, allowing musical texts to suggest new topics as they arise.”⁵⁷

Such commitment to understanding musical affect and topic in terms of the emotional responses they elicit is the perspective from which this dissertation originated.

It is worth reiterating, however, that this difference is slight relative to the other things they share, likely a portion of why Mirka’s disambiguation in her Introduction was necessitated in the first place. Authors more concerned with Classic music such as Giorgio Pestelli—and Kofi Agawu thereafter—similarly reference aspects of topic that, when combined, form a “universe of topics.”⁵⁸ Agawu notes that

- | | |
|---------------------------------|---------------------|
| 1. alla breve | 15. Mannheim rocket |
| 2. alla zoppa | 16. march |
| 3. amoroso | 17. minuet |
| 4. aria | 18. musette |
| 5. bourrée | 19. ombra |
| 6. brillante style | 20. opera buffa |
| 7. cadenza | 21. pastoral |
| 8. sensibility Empfindsamkeit | 22. recitative |
| 9. fanfare | 23. sarabande |
| 10. fantasy | 24. sigh motif |
| 11. French overture | (Seufzer) |
| 12. gavotte | 25. singing style |
| 13. hunt style | 26. Sturm und Drang |
| 14. learned style | 27. Turkish music |

Example 8: Agawu, “The Universe of Topic” (provisional)

⁵⁷ Neumeyer (2015, 187); Monelle (2006, ix–x).

⁵⁸ Agawu (1991, 30).

although Pestelli did not himself use the term “topic,” his writing on the stylistic possibilities of the time map fairly well onto the concept of topics as described by Ratner et al. Stylistic quirks such as “Alberti bass” construct semiotic affordances that are used to signal certain larger stylistic categories.⁵⁹ Though not an exhaustive list by his own admission, Agawu discusses a set of twenty-seven different topics that result from Pestelli’s music-stylistic observances, shown in Example 8.⁶⁰ Indeed, Pestelli writes that Mozart’s strength was in manipulating these styles such that they would effortlessly intermingle, creating a “network of nuances and complex relationships between pre-existing musical ideas.”⁶¹ Such technical ability indicates that certain musical elements can, in a sense, pivot to being part of a different topic, almost akin to Neumeyer’s continuum.

Both the conservative and modern definitions of topic can at least agree that identifying the musical figures and parameters that make up a topic requires a hefty amount of specificity in order to differentiate one topic from another, even if they may share similar qualities on the surface. Stephen Rumph, championing the more classical definition, for instance, borrows a linguistic term from Louis Hjelmslev in the conception of musical *figurae*, what he summarizes as “the equivalent of a topical phoneme.”⁶² A *figura* is in itself a nonsignified element of language (or music, in this case) that gains meaning due to new arrangements thereof. Similar to how I described Hatten’s concept of gesture as a morpheme—multiple phonemes compose a morpheme—multiple *figurae* compose a gesture. Following Hatten’s definition, many *arrangements* of *figurae*, therefore, compose topics. Rumph’s first example of

⁵⁹ Agawu (1991; 31); Pestelli (1979, 136).

⁶⁰ Agawu (1991, 30). Many of the styles in which Pestelli claims composers were well-versed (particularly Mozart) appear here as well.

⁶¹ Pestelli (1979, 138).

⁶² Rumph (2011, 70); Hjelmslev (1961, 47–60).

this interaction references Mozart's *Le nozze di Figaro*: Susanna's gavotte features a displaced meter wherein a double upbeat is created due to the accent of the third beat of the meter. Much in line with the older conception of topic being reliant on an overarching genre, Rumph claims that—although displaced meter is not in itself a topically charged musical element—this metrical offset, combined with other *figurae*, such as the “horn pedal and concertante winds,” create topical references. Such potential references include a list consisting of “gavotte, pastorale, gigue, siciliano, and passepied,” a clear signal that a generic foundation is vital for the understanding of classical topic.⁶³

An uncannily similar approach is taken with the more modern definition of topic, perhaps best illustrated by Megan Lavengood and Evan Williams. Their article attempts to define a “winter topic” in video game music by utilizing computational musicology to extract “tags”—essentially the computational version of *figurae*—that are found consistently through relevant soundtracks. By investigating “over 160 examples of music accompanying wintry settings, broadly construed to include towns blanketed in snow, ice caverns, winter holiday celebrations, and winter sporting events,” Lavengood and Williams generate tags that accurately describe each piece. The tags, which include terms such as #electric_piano and #major, do not communicate any inherent topical significance just as Rumph's do not. There are, for instance, an inconceivably large number of pieces of music that are in the major mode that do not signify winter. Also like Rumph, however, the combination of these tags with other common wintry tags does indeed form topical associations. The list of tags that they consider “winter's most important musical characteristics” includes reverb, arpeggiations, metallic percussion (pitched), pizzicato strings, and the

⁶³ Rumph (2011, 70).

absence of standard drums (membranophones).⁶⁴ The major difference between this approach and Rumph's, however, is again the way in which the musical phoneme becomes marked; while the novelty of Rumph's *figurae* presupposes a *conflict* in the performed genres, Lavengood and Williams' tags are novel because they communicate the *congruence* between audio and visuals, as is appropriate for the multimedia they are describing. My dissertation continues to use the term *figurae* to denote the individual stylistic components because they were not extracted computationally as Lavengood and Williams' were; however, I still use the term in service of the audiovisual congruence I described before.

Ludomusicological Topic and Immersion

Many authors have described the power of this congruence in video game music. Indeed, ludic topic and its more conservative interpretations share a reliance on cultural understanding.⁶⁵ In fact, the power of topical signification is arguably more important in video game music because of the commitment to immersion.⁶⁶ More importantly, it is the repetition of these topical signifiers that truly gives them meaning; without it, the individual gestures cannot, as a single entity, appropriately enhance the game's environment. After all, the sounds that we experience in a ludic environment are *entirely* constructed; the inherent soundlessness of a ludic environment requires music to “repair” the game world, in a sense. High immersive potential is necessary to make up for this soundlessness because computer-generated environments are inherently silent.⁶⁷ Unfortunately, merely using realistic sounds is

⁶⁴ Lavengood & Williams (2023).

⁶⁵ Summers (2019, 40).

⁶⁶ Summers (2019, 41). Summers characterizes this as “communicating with the player,” though the implication is that this is in service of immersing them. See also Whalen (2004).

⁶⁷ Munday (2007, 52); Cohen (2000, 367).

not sufficient to create a believable sonic world; it is the job of the composer, sound designer, etc., to artfully promote a “sympathetic” relationship between player and environment. This dissertation reasserts that topic aids this relationship further.⁶⁸

To that end, nearly all scholarship on video game music and immersion refers to a certain level of congruence between music and environment. Isabella van Elferen’s chapter on the “ALI model,” for example, constructs a tripartite understanding of how players become immersed in environments. In short, this understanding comprises the affect of the music, the level of literacy the player has with sonic convention, and the amount of interaction the player has with the sonic elements of the world. Her assertion that *literacy* is a significant portion of the system is important; the “recognizability” is critical in promoting the critical environmental sympathy.⁶⁹ Such recognition is undeniably similar to how Agawu characterizes the recognition of topic even in eighteenth-century music; being knowledgeable in its stylistic devices is to be aware of the paradigms that compose them. Such a relationship, as Agawu puts it, is inherently “listener-oriented.”⁷⁰

Although van Elferen does not use the word “topic” in her chapter, she describes the constituent elements (the tags, *figurae*, etc.) that could compose them. Notably, they are not necessarily exclusive to video games; they might perform a similar role for film and television. As such, media literacy *at large* contributes to increased immersive potential in video games.⁷¹ For instance, in describing the filmic

⁶⁸ Collins (2008, 133).

⁶⁹ van Elferen (2016, 37). See Grasso (2020, 58) for a further differentiation between “knowing” and “feeling” the affective changes in a video game environment and its associated music. Musical elements that reflect the “pastoral,” for example—solemn, Taps-like melody contour and tempo—might be affectively charged because of their *relative* positioning in the open form as opposed to any objective temporal measurement.

⁷⁰ Agawu (1991, 49).

⁷¹ van Elferen (2016, 36).

fantasy genre, she lists many stylistic elements such as “airy female voices indicating the fantasy world's idyllic peace; heavy drums, brass and choir indicating the threat of evil powers; [and] the consonant, cadencing relief of heroic rescue.”⁷² Furthermore, in horror contexts, she references *Dead Space's* distorted versions of “the ambient soundscape of white noise and wind... completed by worn-out horror film clichés such as disembodied laughter, ephemeral childsong, ghostly music boxes, and the sounds of half-broken arcade game consoles.”⁷³ Critically, the recognizability of the topical components (be it the parts or the topics themselves) promotes the immersion; she criticizes theories such as “imaginative immersion” as they do not inherently incorporate extraludic context as she believes is necessary.⁷⁴ We will return to such prototypical characterizations in my later discussion of topical dissonance.

In short, the recognizability of a topic facilitates the otherwise inhuman environment to which it is applied. As Collins asserts, games often deal with the unrealistic, but a level of “believability” is still required to foster the desired sympathy. To make matters more complex, she cites James Lastra in her claim that a certain amount of “naturalness” is necessary in the constructed sound in a potentially unrealistic environment as well, generating a realistic enough sense of ludic action.⁷⁵ Julianne Grasso adopts “affective zones” to facilitate the transmission of particular emotional responses; in effect, VGM prompts both a cerebral (memory) and embodied response and the environments/mechanics within the

⁷² van Elferen (2016, 37).

⁷³ van Elferen (2016, 41).

⁷⁴ van Elferen (2016, 37); Collins (2008, 134). The original term that van Elferen criticizes refers more to the offer by the game to become immersed in the way that they so desire. Presumably, van Elferen does not disagree with the concept, simply that the acceptance of the offer necessitates more than merely engaging with the ludic objects alone.

⁷⁵ Collins (2008, 134–35); Lastra (2000, 207).

game serve as the glue that converge the two into what she calls “congruence” between all three.⁷⁶

Although she does not emphasize it, topic theory serves as an apt answer to this conundrum as well (in accordance with van Elferen's property of recognizability). Although it is difficult to determine the extent to which music is affecting the player or the environment (because of the connection between player and environment that is promoted through ludic interaction), it is reasonable to assume that any topical reference does, as Agawu noted, rely on *listener* interpretation.⁷⁷

And how have these topics been historically represented in video game soundtracks, operating under the assumption of recognizability? Many authors have worked to contribute to a sort of “cinematic” topical universe (distinct from Agawu's original term), using video games as the source. Each author identifies not only the topic that contributes to environmental immersive potential, but the compositional tactics that elicit them. Occasionally, “Neumeyerian” tropes are invoked, and the authors will discuss how the combination of topics, typically stemming from a dual-purpose *figura* or tag, will create new meanings that paradoxically contribute to immersion instead of detracting from it.

Perhaps the most widely disseminated article on the subject is Sean Atkinson's from 2019, writing about the “soaring” topic. He describes it as itself a trope of several other pictorial topics: “the martial, transcendence, machines, and the supernatural.”⁷⁸ Interestingly, however, its formation as a conglomerate of other topics does not preclude it from having its own set of *figurae*: Atkinson lists several different musical examples from film that (together) contribute to a feeling of flight: examples include rapid

⁷⁶ Grasso (2020, 69–71).

⁷⁷ This imprecision is highlighted most notably by Munday (2007, 57), who posits a sort of “cognitive immersion” that suggests that “the choice of music played in a video-gaming situation is immaterial to the immersion it provides.”

⁷⁸ Atkinson (2019).

moving figures and arpeggiations, large melodic leaps, ascending melodies, and the Lydian mode.

Notably, he writes that such a topic is recognizable even without a filmic or ludic analog;⁷⁹ however, it is undeniable that its use in video game music can be used to influence player decisions by alluding or recalling certain narrative events. Atkinson's article, however, focuses more on pitch configurations. The primary reference to an instrumental or timbral contribution to the soaring topic is the harp flourish that ascends via glissando; in this case, the combination of the two appears to be the actual *figura*, not the separate presences of harp and ascending glissandi.

Timbre becomes a significantly more important aspect in *The Legend of Zelda: Breath of the Wild* (2017), as described by Wesley Bradford. Bradford indeed talks about the pitch configurations of both mechanistic and naturalistic topics that exist and commingle within the game; however, the types of timbres that form the sonic underpinning of those configurations are paramount (e.g., the distinction between human/instrumental and synthesized timbres).⁸⁰ Even more interestingly, we gain new tropic understanding (that is, new meaning when multiple topics are combined) when those timbral implications overlap with each other, such as when the naturalistic piano serves as the introduction to the dangerous, mechanistic fights against Guardians.⁸¹ While it is difficult to necessarily describe the timbres in broad categories, Bradford writes that the mechanistic topic uses “electronic or mechanical timbres”; we may summarize this as synthesized timbres.⁸² It stands to reason, thus, that the antithesis of this would be unsynthesized timbres, timbres that can be produced by humans or recognizable as being

⁷⁹ Atkinson uses the opening of “Beyond” by Daft Punk as an example.

⁸⁰ Bradford (2020, 7); Hatten (2004, 56). See also Yee (2020).

⁸¹ Bradford (2020, 8).

⁸² Bradford (2020, 8).

performed by them.⁸³ Such a distinction is reminiscent of the difference between “corporeal” and “post-corporeal” timbres as described by Arnie Cox, two key factors in understanding the type of embodied understanding a listener will have with the source.⁸⁴ As such, when Bradford references the types of timbres that are used in each topic, the *timbre*, he implicitly treats them as new *figurae*, able to be manipulated in the same way as any other pitch-based *figura*.

The notion that timbre is a vital part of musical listening and interpretation is, at this point, banal; reference to its ability to communicate aural information to listeners has been the subject of much academic study in recent years. Most often cited is Cornelia Fales’s article on the matter: she reminds us that timbre is “a link to the external world in containing the descriptive clues important for source identification and for deciphering aspects of the terrain between the source and the listener.”⁸⁵ While this is certainly worthy of consideration in all genres of music, it is particularly useful for video game music because of the *constructed* environments that it underscores. The soundlessness of video game environments requires as much interpretive information as possible for the player; timbre’s inherent property to immediately trigger an embodied understanding is most certainly leveraged in the attempt to promote ludic immersion. Thus, its inclusion as a *figura* or tag (as Lavengood & Williams

⁸³ An example of this in Cox’s view (see the below footnote) might be the comparison between a human clapping versus them playing the piano. Both would be considered “corporeal” due to their understandability as originating from human means; synthesizers, on the other hand, often do not perform timbres that mimic something of human creation.

⁸⁴ Cox (2016, 184, 208). For further information on the interaction between corporeal conceptions of timbre (including sight) and the resulting post-corporeal associations, see Waksman (2018, 255) wherein he describes the plight of guitarists such as Pat Metheny pushing the bounds of guitar timbres in an effort to achieve timbral “sourcelessness.”

⁸⁵ Fales (2002, 91).

have demonstrated) is not only merited but potentially serves as one of the strongest glues that bind the player and the environment together in the ideal audiovisual link.

Tim Summers's description of *Wolfenstein 3D* (1992), for example, treats timbre and orchestration as important aspects of the topical environment, this time of a Nazi-run “Castle Wolfenstein” during World War II. Summers identifies two layers of topical information being relayed to the player: the musical underscore and the bodily sound effects. For the former, Summers writes that American and Nazi themes appear constantly, scored in different ways each time; for instance, in the main menu, the Nazi theme, “Das Horst-Wessel-Lied” is played in a minor key. Throughout the game, however, a military topic is repeated, aided in large part by the use of a military band: “synthesized snare drums play[ing] march rhythms and piccolos play[ing trilling ornamentation]” signify the environment in which the player finds themselves. Recognition of the association between bands and their classic traits (e.g., high, shrill piccolo trills) establishes within the player “sonic enemy territory.”⁸⁶ Summers claims that these associations not only present narrative context, but apply immersive glue, so to speak, by linking the context to the player's actions—in this case, escaping Castle Wolfenstein with an assortment of high-powered firearms.⁸⁷

The second dimension Summers identifies is an assortment of heartbeats and bodily noises that permeate the soundscape. Citing Ben Winters, he writes that game's first-person perspective enhances immersion by forcing players to be aware of both the characters' and their own bodily

⁸⁶ Summers (2016, 67).

⁸⁷ Summers (2016, 68).

“precariousness.”⁸⁸ The corporeal understanding of the bodily noises imparts a fear not just for the player or the character, but a musically enacted hybrid of the two.⁸⁹ Although Summers does not particularly attribute this to a musical topic, it is undeniable that it—as a potential *figura*—contributes to any number of horror tropes that are designed to initiate panic; they themselves trope with the already present military themes of the game to form new identities of fear.

Topical Dissonance

We may now return to atonality's role in topic theory, essentially defining a set of pitch *figurae* that may together reasonably be classified as such. After all, what better way to assist topics that conjure fear than dissonance? Indeed, such observations have been psychologically examined, substantiated by authors such as Helen Mitchell: referencing *Dead Space*, as did van Elferen, she notes that “research indicates that musical or sonic characteristics commonly associated with musical portrayals of fear, horror, evil, and so on (in the popular media), such as unresolved dissonance ... tend to induce responses more normally associated with unpleasant or stressful stimuli.”⁹⁰ She also references Stefan Koelsch's work, claiming that “the perception of irregular chord functions has been shown to lead to an increase of perceived tension.”⁹¹ Clearly, dissonance has the power to elicit strong

⁸⁸ Summers (2016, 68); Winters (2008, 4).

⁸⁹ Summers (2016, 69). Here, Summers shows a diagram wherein a circle, representing the player is filled in with character information; an arrow labeled “music” is the only thing permeating the barrier between player and character.

⁹⁰ Mitchell (2015, 46).

⁹¹ Koelsch (2005, 46).

negative emotions. The question, however, remains: is this merely a property of acoustics that has been adopted by media music or can it be culturally informed in and of itself?

I choose to believe the latter, that in fact atonality and dissonance transmit a particular kind of semiotic and topical harshness that is distinct from any of its innate acoustic qualities. The audience can, that is to say, understand dissonance primarily as a topically recognizable style and extract meaning from its use in that fashion distinct from (and in addition to) its sonic abrasiveness. While Gassi does not discuss topic directly in his dissertation, he most certainly includes reference to composers who used certain atonal compositional styles to achieve a certain *stylistic* end, rather than one that ambivalently treats dissonance as an alternate harmonic language.⁹²

To this end, Sabine Feisst writes that dodecaphonic and otherwise atonal idioms were used “stereotypically” in their application in horror, science fiction, etc., in the time of Schoenberg’s role as composition instructor. She uses Ernst Gold’s score for *On the Beach* (1959) as an example: twelve-tone rows, with their physics-like properties (to the composer) and able to chain react into other reactions, were used to symbolize radiation in that film.⁹³ In this case, their effectiveness was as a result of their use as more of a style diametrically opposed to tonality as opposed to an idiom in itself.⁹⁴ Indeed, in this period, Gassi writes that aleatoricism and dissonance were a stylistic minority; his exploration of Goldsmith’s score for *Planet of the Apes* (1973) is thus in service to its commitment to a dissonant style that remained largely dodecaphonic in its execution.⁹⁵

⁹² Gassi (2019, 2–4). I place this footnote here to direct readers to Gassi’s larger list of atonal film scores, in case future readership decides to investigate the subject further.

⁹³ Feisst (1999, 106).

⁹⁴ Feisst (1999, 105).

⁹⁵ Gassi (2019, 4).

That such a style can be interpreted as “emotional” is vital to its interpretation as a topical entity. Of course, the use of sound effects and dissonances that prioritize timbre can be directly affective, as we previously noted about the power of timbre as a topical *figura*. Gassi, however, is committed to the idea that atonality can itself result in emotional responses despite it being, on the surface, enigmatic.⁹⁶ The visual aspect of film (and by extension, video games) assists atonality’s affective power, utilizing a consistent sonic language in addition to a visual one, “bind[ing] the spectator and screen”;⁹⁷ Gassi claims this can be true even if the ear is “untrained.”⁹⁸ Therefore, if atonal pitch relationships can be communicated concretely, an extra layer of semiotic and narrative understanding is achieved. This understanding is twofold—the use of discrete, discernible pitches (as is inherent with dodecaphonic music) used in an atonal fashion is intuited *topically* (their use resembles a certain type of musical composition) as well as *cerebrally* (the pitches themselves give additional narrative information).

If such information can be extracted, the bond between the viewer and the viewed, from a filmic context, is “enhanced” when applied to a ludic context.⁹⁹ Although Chapter III will be more explicit about the analytical techniques that will be applied throughout the remainder of the

⁹⁶ Gassi (2019, 18–19); Peretz (2008, 591). Gassi cites Peretz here primarily to make the distinction that I made earlier in this chapter—atonality may be interpreted both as a matter of topical as well as sonic, inherent understanding.

⁹⁷ Gassi (2019, 141).

⁹⁸ Gassi (2019, 22).

⁹⁹ I use the word “enhanced” cautiously. I do not mean to imply that filmic immersion is by any way lesser or of lower quality than ludic immersion, merely that the interactivity of video games promotes a more *direct* immersion.

dissertation, I will raise a simple example here that largely depends on tonal analysis with an allusion to topic.

The *Kirby* franchise is known for many things, the most prominent of which is its extreme cuteness, even when the narrative stakes are dire. *Kirby Star Allies* (2018) is perhaps the most illustrative example; the main villain, Hyness, is intent on repairing the Jamba Heart that would revive the cataclysmic entity "Void Termina," a cosmic being of chaos intent on destroying the galaxy. "Holy Road" (and, by extension, "Holy Shrine") underscores Kirby's (and his "star allies'") final stretch to face off against Hyness, but its introduction is insidiously poignant. The music that plays before it—the track that accompanies the level before the boss fight—is slightly dissonant but remains upbeat, understood as belonging to the same topical "universe" that encompasses the rest of the soundtrack.¹⁰⁰ As Kirby approaches Hyness, however, the old music slowly fades out; the game is silent for a few seconds (with the obvious exception of sound effects) before "Road to Holy Shrine" begins to play, a far slower, more languid, and strangely dissonant track relative to the prior music (Example 9).

♩. = c. 54

Vibraphone 1

Vibraphone 2

Example 9: *Kirby Star Allies*, "Holy Road"

¹⁰⁰ I again reference van Elferen (2016, 37); as will be discussed later, players will be able to understand the types of dissonance that are used when something is "battle music," as opposed to the topically significant version of atonality on which this dissertation focuses.

♩. = c. 54

Vibraphone 1

Vibraphone 2

(gong)

Vib. 1

Vib. 2

7

scuttling, 2x only

2x only

Vib. 1

Vib. 2

9

(gong)

Vib. 1

Vib. 2

12

scuttling, 2x only

2x only

to

Example 10: *Kirby Star Allies*, “Holy Shrine”

The change in topical understanding of this track is clear; the reduced tempo and use of reverberant vibraphone already place “Holy Road” into a different semiotic camp than the prior music. The composers, however, chose to include a stark pitch dissonance into the track as well: the consistent use of A $\sharp$ despite a tonal realm that may more reasonably support A $\flat$. A $\flat$ is, of course, found in the ostinato (represented by Vibraphone 2), but the clash with the A $\sharp$ s in the melody adds additional semiotic information through a tonal friction between parallel-related keys (in *addition* to the inherent acoustic dissonance such an interval creates). There are a few ways in which this distance may be explained; we could, for example, potentially hear it as merely one errant pitch in a largely F minor key. It is more compelling, however (and audible to that aforementioned “untrained ear”), to treat it as a competition between two parallel key centers, F major and F minor—two distinct “universes.”¹⁰¹

We may also notice the use of largely stepwise motion in the texture, with the obvious exception of the lowest voice. In this case, the motion from the tonic to the minor third is a clear assertion of key; its placement in the lowest part of the texture also makes it feel more fundamental. The remaining voices, however, act in a scalar fashion, emphasizing stepwise motion that attempts to legitimize the presence of A $\sharp$, despite an otherwise stalwart declaration of F minor as the primary key. To reiterate, the audience is likely privy to these relationships because they internalize both the extreme topical change (of which pitch dissonance is a vital part) and the narrative context of preparing to face off against an enemy that threatens to radically alter the cutesy Planet Popstar. More importantly than

¹⁰¹ Dissonance of this type is certainly not new: in concert music, one can turn to examples such as the end of Benjamin Britten's *Sinfonia da Requiem* (op. 20), where both F and F $\sharp$ are used with a clear D tonal center. In film music, parallel relationships (i.e., transformations) appear fairly often with both qualities of third acting as appropriate atop an underlying tonal center; as Lehman writes, “monotonicity is *not* a requirement in film music.” See Lehman (2018, 39; emphasis in original).

all of that, however, is the effect; because this occurs in a video game, the player is made to feel a fear not only for Kirby's well-being, but their own as well, acting as one agent.

It is possible to extend this analysis further when the player encounters the track, "Holy Shrine," wherein "Holy Road" is given a melody as they come face to face with Hyness directly (Example 10). The melody copies the minor third, key-asserting motive from the bottom of the texture in "Holy Road," weakening the presence of A $\sharp$; its status as a dissonant entity, however, is maintained as a neighboring tone and a slight scalar presence as in "Holy Road" (mm. 5 and 11).¹⁰² As opposed to the more hybrid interpretation of key afforded by "Holy Road," "Holy Shrine" seems to lean more heavily into the F minor key center, evoking the standard associations audiences may have with the minor mode while also retaining the air of conflict that arises through the now more subtler hints of the major third; as Void Termina does indeed get resurrected as the final boss of the game, the more morose key signature acting as the eventual victor feels narratively appropriate.

Atonality as Topic

The distinction between atonality with discrete pitches versus the larger dissonant styles of composition that flourished since then is critical. The horror tracks that Cheng defined as being beyond the scope of standard notation are also recognizably uncomfortable or terrifying, achieving a similar affect to that of "Holy Road" and "Holy Shrine," albeit with fewer discernible pitches.¹⁰³ How

¹⁰² In terms of normal notational voice leading practices, it would have perhaps been more appropriate to label the A $\sharp$ with its enharmonic equivalent, B $\flat$. This would have, however, detracted from my interpretation of both A $\flat$ and A $\sharp$ as important, key-defining entities within the track.

¹⁰³ Cheng (2014, 104).

do we, then, define the dissonant topic on which this dissertation focuses? At what point, one may ask, does chromaticism achieve the same uncomfortable effect as true dodecaphonic atonality? Do all of these lump/group into the exact same topic?

The C major triad at the beginning of the second act of Alban Berg's *Wozzeck* (op. 7) is often referenced in literature about tonal signifiers in atonal music. Joseph Straus discusses it, notably, as a “dramatic” entity, its role as a recognizable hint of tonality marred by its placement in the larger harmonic context of the work.¹⁰⁴ In Straus's view, that dramatic function supersedes any structural role it may hold; the banality that is communicated by its presence results from a conflict between two harmonic idioms: one in which triadic structure is commonplace and one in which such constructions are rare.¹⁰⁵ Even when triadic structures are inherent to larger set classes or referential collections, its meaning can shift: Straus writes that in Stravinsky's *Symphony of Psalms* (K052), the tonal association with the *Psalms* chord can be “frozen” depending on its use in a diatonic or octatonic harmonic context.¹⁰⁶ Recalling Mirka's summary for a definition of topic, the musical style is most certainly “taken out of their proper context and used in another one.”¹⁰⁷

Cases such as these are the central focus of Thomas Johnson's 2017 article that largely contends that tonality in atonal contexts can be understood topically (interestingly, attempting to stay as close to Ratner and Mirka's definition as possible). More specifically, he applies Rumph's concept of musical *figurae* to discern which of the various aspects of common-practice tonality result in a marked

¹⁰⁴ Straus (1990, 74).

¹⁰⁵ Straus (1990, 75).

¹⁰⁶ Straus (1990, 86–90).

¹⁰⁷ Mirka (2014, 2).

Tonal topic emerges with /triadic/ (0148)

/tritone/ initiates motion

/5-cycle/s buoy topic during WT threat

Tonal topic obscured by (013)s

Aggregate completion effects /cadential/ parody

= (013)
 = Segments of 5-cycles
 = (0148)
 △ = Aggregate completion

Example 11: Johnson, “A section of Schoenberg’s Op. 19/4 with... *figurae* shown”

change in style. For instance, in his analysis of Schoenberg’s Op. 14/1, he characterizes the resolution to B minor in mm. 29–30 as particularly striking due to a number of “tonal *figurae*” at play: /triads/, /key signature/, and /harmonic succession/ are all expected, but even notions such as /resolution/ are treated as *figurae* relative to the greater atonal framework. In this particular case, Johnson claims that the resolution to B minor is preceded by a vertical sonority that contains the *figura* /V⁷/,¹⁰⁸ even though it is found in the middle of a 5-26 pentachord.¹⁰⁹

This approach to understanding the specifically pitch dimension of music is compelling; some of Johnson’s insights, however, while they operate well with the more Classical definition of topic, may fail to be as marked in a cinematic context wherein congruence is prioritized. For instance, Johnson’s analysis of Schoenberg’s Op. 19/4 (Example 11) might fail to appear as particularly tonally marked if applied to a visual setting for which atonality is already appropriate. Extracting (037)—the set class that encompasses the major and/or minor triads—from (0148) at the very end may be difficult when the tonal topic has been “obscured” as it has; it is arguably more difficult to hear vertically-sounding

¹⁰⁸ Specifically, Johnson writes that the presence of F[♯], A[♯], and E constitute enough of a V⁷ to B minor.

¹⁰⁹ Johnson (2017).

set-classes built off a foundation of /5-cycles/. Johnson's analysis, therefore, is fascinating because it highlights the differences between analyses that begin with audiovisual markedness and those that rely on potentially latent relationships. My dissertation aims to consider both dimensions simultaneously.

Johnson's more overt examples of tonal *figurae* may function better for the context of this multimedia dissertation. As such, it would seem reasonable to claim that if tonal *figurae* can effectively denote the more dramatic functions of instances of tonality within a larger atonal work, the opposite can also be true: one can construct a list of “*atonal* *figurae*” that can uncover the dramatic effect of atonality in largely tonal works.¹¹⁰ Importantly, the “larger tonal work” I mention refers to the whole of a game's soundtrack, not the whole of an individual track. These atonal *figurae*, therefore, compose a sense of atonal topic distinct from Mirka's, Ratner's, etc.; their markedness is made apparent by shifts in overall tone that match the affect/narrative emotion of the current ludic scene.

I resist, however, the temptation to generate a complete list of atonal *figurae*, lest I find myself looking back to this dissertation some amount of time after its publication, thinking I could have added more. I do not intend to often reference distinct atonal *figurae* in the rest of this dissertation, particularly in the analyses; their specific application is not very important. It is far more intuitive to conceive of them in terms of a sort of “anti-tonality”—when an atonal construct is the opposite of the way it would behave in tonal music. I rely on this anti-tonal view of the atonal topic in large part because tonality is so ubiquitous in the repertoire I am examining. As such, I am not defining *the* atonal topic, but merely *an* atonal topic. Oddly, this means that the *Pokémon Sun* and *Moon* and

¹¹⁰ Johnson leans into this dramatic reading of tonal *figurae* in the section about the /C-major triad/.

Undertale examples from the Introduction do *not* meet the necessary criteria to be analyzed post-tonally, although they are most certainly marked. Because their primary pitch material is derived from tonal pitch structures, there are not sufficient atonal *figurae* to analyze the pitch in any manner but tonally. For that reason, one *figura* I remain committed to is /dodecaphony/, or the use of only twelve equal-tempered pitch classes—other forms of atonality (i.e., those that utilize microtones) in video game music most definitely exist, though this dissertation is focused on those that meet this criterion.

What, then, is the minimum number of atonal *figurae* that must be present to label something as markedly and sufficiently atonal? In terms of pitch alone this question is hard to answer, but I here refer again to Gassi's commitment to audible representations of those atonal components; elements such as rhythm, timbre, tempo, dynamics, etc. play a considerable role in conveying an atonal topic.

Gassi writes the following:

“Though Goldsmith used a musical language where the tonal syntax lacked strongly codified connotative values, he crafted its other components (e.g., timbre, rhythm, texture) in ways similar to those used in ‘dominant’ feature films and which viewers *could* understand.”¹¹¹

The primary takeaway here is that the emphasis of atonality's pitch aspects through other musical means—in addition to the attachment to the visuals—is critical in its semiotic interpretation as markedly dissonant. In a sense, the “anti-tonal” treatment of these parameters, too, become atonal *figurae*. This means that some tonal *figurae* may indeed remain: many of the examples I refer to utilize /centricity/, for example; perhaps a result of being intended for mass consumption. Should there be

¹¹¹ Gassi (2019, 100).

enough dissonant parameters, however, the markedness of the track can still be analyzed with my approach.

A Brief Aside: Video Game "Music"

Although I have defined what I mean by “atonal,” I have not yet defined “music.” Though this feels like a frivolous task, its definition has vast implications. Elizabeth Medina-Gray notably separated the “soundscape” of a ludic environment into music, sound effects, and dialogue; her definition of the musical dimension revolves around the presence of “organized” sound, particularly applicable when discussing the music that accompanies cutscenes.¹¹² Moreover, Medina-Gray cites Karen Collins as the impetus for her chapter; Collins claims that investigating one aspect of the soundscape and not the others “miss[es] out on an important element of this experience, particularly since there is often considerable overlap between them.”¹¹³ In particular, the interaction between music, sound effects, and dialogue places slight strain on my litmus test for considering a track to be “atonal.”

For instance, Example 12 depicts the “Toad’s House” theme from *Super Mario Bros. 3*. The *music* is most certainly tonal, following the chord progression [IV–V–IV–V–♭VI–♭VII] in B♭ major. As it plays, Toad speaks throughout the whole interaction, compelling Mario to play a game of chance to receive an upgrade. The pitch the game uses as Toad’s speech progresses, however, is B4, which violently clashes with every single measure of the track;¹¹⁴ Medina-Gray writes that “such a direct

¹¹² Medina-Gray (2021, 178).

¹¹³ Medina-Gray (2021, 176); Collins (2013, 3).

¹¹⁴ Because the game can only produce three pitched audio channels, the middle voice of the transcription is omitted whenever Toad speaks. The game gives priority to the speech.



Example 12: *Super Mario Bros. 3*, “Toad's House”

juxtaposition of music and sound effects reasonably destabilizes and blurs these sonic categories.”¹¹⁵

Heard as a soundscape, indeed, this would be quite the /dissonant/ experience; however, players are capable of discerning which dimension is which when actually experiencing the game. I, therefore, push back against the notion that the entire soundscape needs to be analyzed in this dissertation, even if the sound effects and dialogue are a significant part of the stress they may feel when encountering such music.

¹¹⁵ Medina-Gray (2021, 183).

Chapter III: “Affect-Effect Dualism” in Analyzing Dissonant VGM

“You are like a chestnut burr, prickly outside, but silky-soft within, and a sweet kernel, if one can only get at it. Love will make you show your heart some day, and then the rough burr will fall off.”

—Louisa May Alcott, *Little Women*

Foreword

It is no secret that the field of music theory has long been focused on the analysis of pitch and harmony. From the moment we touch our first key, string, mouthpiece, or fret, we commit ourselves to learning notes; songs, after all, are made of notes, right?¹¹⁶ Should the commitment turn into a life-long dedication, the music theory courses undergraduates take are, aside from maybe a unit on meter, dominated by pitch. And as Michael Buchler writes, such “courses that focus heavily on pitch and pitch class likely will not sufficiently lead students to understand the manifold ways in which musical structure can be read.”¹¹⁷ Our obsession with pitch is arguably exacerbated when referencing any piece of music using an atonal harmonic language. Unless the timbres of the piece are foregrounded (see “Boots through the Undergrowth”), pitch comparisons are likely to first sprout: that doesn’t sound like Frank Sinatra or Mariah Carey—why not? It’s not “*tonal*.” Although I hope that the end of the previous chapter clearly outlined my emphasis on pitch *amidst* other musical parameters, I fear that this chapter’s emphasis on methods to analyze atonal pitch relationships may overshadow or obscure that goal. As such, I state again here in no uncertain terms that the music to which I apply these

¹¹⁶ I use the word “song” here to refer to common nomenclature—the distinction between a track, song, piece, etc., is often colloquially ignored.

¹¹⁷ Buchler (2020, 226). I discuss the pedagogical implications for this dissertation’s approach in Chapter VI.

analytical methods are notable on account of their markedness because of other musical aspects, all of which will be referenced as key elements in any subsequent analysis.

Post-Tonal Motive and the Grundgestalt

The discordance of atonal music is tantalizingly enigmatic. Truly, within the vast tree of free music, the analysts' attempts to bore into its fruits' rough husks clearly signaled the desire for understanding, and it seemed unlikely that their constrained knowledge would necessarily be applicable to this new idiom. This chapter reviews the three main theories of post-tonal music that have since emerged as the field's most pervasive (i.e., pitch-class set theory, twelve-tone theory, and transformational theory), extensions to and applications of those theories (including contour and voice leading), and their applicability to a topical and multi-parametric understanding of atonality. Specifically, a convincing segmentation of a dissonant video game track (or the identification of any other atonal pitch motive) can be aided by other musical factors such as rhythm or timbre.

Additionally, I discuss theories regarding the creation, audibility, and tracking of musical narrative in atonal music. Ultimately, this chapter supports my use of these systems for a distinct musical genre that may seem merely pictorial; on the contrary, atonal theory's dedication to the core principles of *change* and *conflict* not only substantiate their use on these soundtracks but serves to bolster their status as strong narrative accompaniment. As such, using atonal theory for similarly troubled narrative situations points to a sort of "affect-effect dualism": we may understand the *sonic*,

affective purpose of dissonant pitch structures, but analyzing them may elucidate their *narrative effect* as well.

Central to this idea of tracking change is Schoenberg's idea of *musikalische Gedanke*, or “musical idea.” Not to be confused with motive, “idea” in this sense was the whole of a musical work—its stable presentation, conflict, its unrest, and its resolution.¹¹⁸ In all, Schoenberg's conception of the musical idea was fairly dramatic and essentially tracks a central motive, its formulation, and its changes throughout a musical work, not just the motive itself.¹¹⁹ While I push back on his assertion that such an understanding of music is cosmically ordained and naturally occurring (implying that all music is centered around development and change),¹²⁰ his theories of musical progression open the door for discussion about two central concepts: musical motive and musical narrative. Indeed, to track change, one must first determine from where the change originated; similarly, even if the change that Schoenberg describes is not inherently programmatic, his theories so closely resemble theories of literary progression (which video games often use in their narratives)—that is, the deconstruction of stable beginning, culminating in a new stability.¹²¹ Because this dissertation's methodology is so heavily reliant on the audibility of recurring, changing motivic units, both considerations will be explored in detail.

¹¹⁸ Schoenberg (1946, 123).

¹¹⁹ Schoenberg (1934–36, 107).

¹²⁰ Schoenberg (1923, 1984, 209–210). Schoenberg writes that “from our nature alone I can deduce how our music is.”

¹²¹ Chief among these progressions is the monomyth, popularized by Joseph Campbell (1949), often truncated to merely “the hero's journey.”

First and foremost, how might we begin to define such motives in post-tonal music? What even constitutes a motive in the first place? Surely, the freer harmonic landscape obscures a sense of motive beyond the point of recognizability. On the contrary, several authors have created updated parameters to define motive because they too recognize that tracking motivic changes is useless if a starting point cannot itself be defined. Of course, one could view motive in the most basic of senses as Schoenberg posited:¹²² Jack Boss describes it as “a specific succession of pitches and intervals associated with a specific rhythm, which Schoenberg often called a *Grundgestalt*.”¹²³ Such a definition may also be applied to atonal music and motives as well; these parameters are not necessarily tied to any concept of key or tonality. It only describes, however, what we may classify as a “literal motive”; that is to say, some form of the *Grundgestalt* is iterated upon while maintaining the core parameters that define it. Although it may be manipulated through developing variation or other means (retrograde, inversion, among many others), the *Grundgestalt* has a very clear form. Essentially, any changes to the *Grundgestalt* threaten to jeopardize its understandability as itself.

I consider my approach distinct from the manner described by Ethan Haimo: Schoenberg would use developing variation to create virtually all the motives that would recur throughout a work, being careful to not accidentally stray too far thereby creating new motives (see my discussion of Straus (2003) below).¹²⁴ I, however, will more liberally interpret motives as related, particularly if they relate through other musical parameters. Similarly, I root these narratives in the affect of a given video game

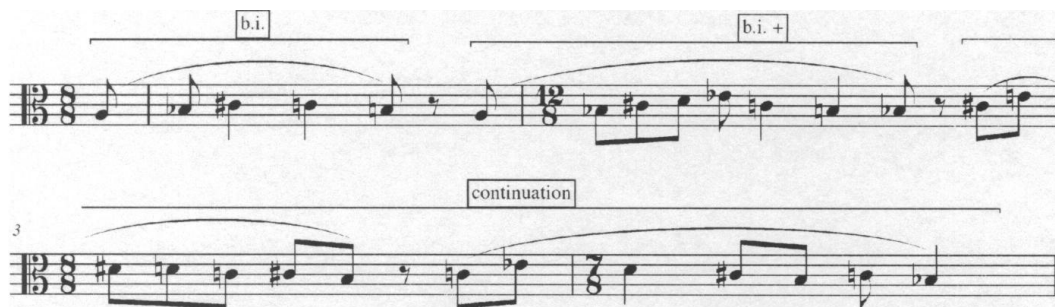
¹²² See Boss (2000, 210–212) for a convenient list of all the Schoenberg quotes from which this claim originates.

¹²³ Boss (2000, 212).

¹²⁴ Haimo (1997, 362).

scene, which may feel reminiscent of a commitment to an overarching idea or *musikalische Gedanke*, recently described by Hidetoshi Fukuchi as “a process of resolving the ‘tonal relation’ or ‘tonal problem.’”¹²⁵ Indeed, while I believe that motivic transformation and pitch narratives inherently define parts in relation to their whole, as I stated previously, I am not necessarily concerned with the resolution of conflict, neither affectively nor motivically.

Recognizable forms (regardless of their status as a *Grundgestalt*, specifically) such as these are particularly helpful for theorists studying post-tonal form, as it requires analysts to be particular with the precise musical parameters that are held between motivic or melodic iterations and which are altered. Per Broman, for instance, discusses the differing versions of sentence structure utilized in Bartók's works. Beginning with the *Idealtype*, wherein the basic idea, its repetition, and the continuation form easily-divisible eight-bar themes, Broman compares Beethoven's (pedagogically infamous) Piano Sonata No. 1, op. 2, no. 1 and Mozart's Piano Sonata K331/300i to the second movement of Bartók's second violin concerto: although the formal ratios are retained and the basic



Example 13: Broman, “Bartók, *Music for Strings, Percussion, and Celesta*, I (extended basic idea)

¹²⁵ Fukuchi (2023, 1).

ideas use the same rhythms, the expected transpositions are subverted, moving by a nondiatonic interval, with a difficult-to-define conception of continuation.¹²⁶

His subsequent examples, however, show that we may still intuit motivic and formal functions despite the increased discrepancies between motivic units. In his discussion of Bartók's *Music for Strings, Percussion, and Celesta* (Example 13), for instance, he claims that the repetition of the basic idea is “extended,” utilizing a different rhythmic profile than the prior one. Implicit to his interpretation is the contour and ending of each unit: both maintain a rising and falling contour as well as a semitonal closing descent that lasts two and half beats. Even though these are performed at different pitch levels, they can still be intuited as belonging to the same portion of the phrase.¹²⁷ Broman's study, by narrowing the scope of what makes a motive recognizable, helpfully provides a vision for defining the minimum parameters necessary for a motive to qualify as familiar.

The image shows a musical score for Violoncello and Piano. Above the staves, a diagram labels the first three measures as the "basic idea" and the fourth measure as "x?". The diagram also indicates a "rit." (ritardando) in measure 3 and a "tempo" change at the start of measure 4. The Violoncello part has dynamics ppp, sfp, and ppp, with a triplet in measure 4. The Piano part has dynamics ppp, pp, and ppp. The key signature is one sharp (F#) and the time signature is 3/8.

Example 14: Maler, “Webern, Op. 11, no. 1, mm. 1-4: motive x... as a “basic idea...”

¹²⁶ Broman (2007, 116).

¹²⁷ Broman (2007, 123).

The retention of certain, recognizable musical parameters amidst a more unfamiliar harmonic idiom becomes even more interesting when the motives themselves become shorter and more abstract. Anabel Maler, in her opening analysis of Webern's Op. 11, no. 1, for instance (Example 14), constructs the basic idea of the first phrase from three “motives” that later recur in minimally recognizable forms to form the repetition of that basic idea;¹²⁸ of course, the repetition of the basic idea is central to William Caplin's conception of the sentence, the “presentation phase.”¹²⁹ Such an analysis is only possible when the motives retain enough of the original motive's characteristics, however; for example, the *x* motive begins on an F#, followed shortly thereafter by a vertical sonority in the piano.

Maler's work, however, provides a framework for us to understand distinct formal units through non-literal means as well. Although this dissertation will discuss dodecaphonic serial techniques later in this chapter, Maler writes that Dallapiccola's *Dialoghi* utilizes cross partitioning of rows to delineate phrase structure.¹³⁰ Critically, her analysis gives us insight on how we may begin to analyze and intuit motives based on relative pitch *classes* instead of relative pitches. Despite this, however, she still accounts for parameters like register and instrumentation (timbre) that highlight the phrase structure as defined by the cross-partitions. For instance, Maler focuses on the musical parameters that point to mm. 1–3's status as serving a clear opening function. In particular, she describes the cross partitions in the first and second measures as notable on account of the present interval classes between the voices; when ic2 appears in m. 3, she claims that these measures, in total,

¹²⁸ Maler (2022, 45–6).

¹²⁹ Caplin (1998, 35).

¹³⁰ Maler (2022, 55).

serve as a dialectic unit comprised of three smaller units (in this case, row forms), mirroring very closely her analysis of the opening of Webern.¹³¹ Of course, she also mentions a return to the original timbral profile as a significant factor defining mm. 1–3 as its own unit.¹³² Perhaps even more telling is her account of mm. 9–10, in which she quotes Dana Richardson's claim that the opening measures establish “tonic pillars” that are returned to at the end, this time using the rows from which the cross partitions were derived in reverse order.¹³³ Coupled with Christopher Hasty's notion that some sort of “return” is vital in the intuition of post-tonal form (and, implicitly, post-tonal motives),¹³⁴ Maler gives credence to the idea that the ability to comprehend the form may be driven by pitch (or pitch class)—which can be *analyzed* as being important—but its conspicuousness is bolstered through other musical parameters. Careful readers may notice here that these claims are nearly identical to the ones made by Gassi, that composers may “craft [the music's] other components (e.g., timbre, rhythm, texture) in ways... [in] which viewers *could* understand.”¹³⁵ For this reason, any pitch collections or successions I define as significant throughout my analyses are labeled as such due to their use alongside another salient musical parameter.

Audibility

The previous section began discussing motives and melodic fragments that could be easily intuited as being similar, then gradually abstracted them until pitch was an obfuscated parameter in

¹³¹ Maler (2022, 56).

¹³² Maler (2022, 57).

¹³³ Maler (2022, 58); Richardson (2001, 157).

¹³⁴ Maler (2022, 58); Hasty (1981, 1984).

¹³⁵ Gassi (2019, 100).

each. The only thing left to do is take the plunge; what if pitch as a parameter for motive was substituted for a system that prioritized the relationships between pitch classes and, more specifically, the intervals between them in pitch-class space? For those readers already familiar with post-tonal analytical techniques, it might have been agonizing to get to this point; however, I maintain that the advantage of such a delayed gratification, so to speak, was to emphasize the other parameters that define motives and the changes to those motives. Indeed, those same readers are likely familiar with those who were opposed to set-class theory for various reasons. George Perle, for instance, disagrees with Forte's assessment of his own theory that it appeals to the "common sense experience." He contends that the abstract manner way one must relate motives (or sets) to each other far surpasses the effort an actual listener may take; they extract different information than the analyst.¹³⁶ But Perle himself admits that none of the methodological problems he has with Forte's systems "would carry any weight... if [he] could only *hear* the correspondences that Forte describes."¹³⁷ My response to this is fairly placid: my application of theories such as Forte's to an even wider repertoire, as I have outlined through my definition of motive, is indeed reliant on some form of traditional audibility. In other words, abstract relationships serve less as a justification of their application and more as another factor in one's analysis of more literal comparisons. In this sense, the extra narrative information elucidated through such insights is brought to the forefront through the parameters that make motives recognizable. That is to say, the specific atonal relationships may not be (and likely will not be) obvious, but we are directed to hear them as related due to other musical factors.

¹³⁶ Perle (1990, 151).

¹³⁷ Perle (1990, 168).

Furthermore, Perle's refusal to accept Forte's system also includes his experience as a composer, not merely a listener nor analyst in the sense that he finds it "irrelevant" to his compositional process; Forte's system may find relationships that were not intended, nor musically meaningful.¹³⁸ This reference to composer intent can also be seen in Ethan Haimo's writings on the topic; regarding Schoenberg, he writes that "there is no evidence of any sort in Schoenberg's manuscripts or writings, or those of his students, that would support the contention that composition with pitch-class sets was a conscious, intentional act by Schoenberg."¹³⁹ In later writings, this attitude seems to precede him in his "doubts about the value of limited pitch-class set analysis as the sole, or even the principal, analytical tool for Schoenberg's music."¹⁴⁰ I make no claim regarding the veracity of applying pitch-class set theory to Schoenberg's music; that argument regards a music that precedes Forte's formalization of his systems.¹⁴¹ Rather, I acknowledge that we live in a "post-post-tonal theory world," so to speak; a cursory Google search on the topic will yield many, many results and YouTube videos describing the process for how to use pitch-class sets, for instance, as compositional tools.¹⁴² That same search will invariably lead to Robert Morris's *Composition With Pitch-Classes: A Theory of Compositional Design*, which also serves in part as a way to encourage exploration with pitch-class processes, be they able to conform to set theory or not; as he writes, "When the aural images [of a composition] can be modeled

¹³⁸ Perle (1990, 152).

¹³⁹ Haimo (1996, 176).

¹⁴⁰ Haimo (2006, 294).

¹⁴¹ See Boss (2019, 37–40) for a direct refutation to Haimo's claims regarding the application of PC set theory to Schoenberg's music.

¹⁴² Worth noting is that the same concerns do not apply equally to twelve-tone analysis; its basic form status is very often discussed in Schoenberg's writings. Future theories on its application, however, are considerably more abstract.

by pc-space entities and relations, it is possible to find ways of building up, so to speak, to one's formal requirements by means of the resources provided by the TTOs."¹⁴³ This inevitably leads to a sort of analytical–creational cycle, particularly when disseminating beyond the bounds of genre; Michiel Schuijjer summarizes it best, writing “its productiveness in one field entitled it to move on to other fields,” and thus the cycle presses on.¹⁴⁴

Transformation of A "Non-Literal" Parameter

If we accept, therefore, that pitch-motivic content is but one of several musical parameters that constitute a recognizable motive, then the buttressing of those other musical parameters can indicate the importance of pitch *class*-motivic content. The remainder of this chapter will detail the various ways that these more non-literal motives have been described and analyzed by other theorists. More importantly, I will focus on the ways in which those same theorists have made musical arguments about each; I will focus on how these methodologies are applied musically.

Extensions of Theories on PC Sets and Intervals

As has been the focus for the previous few sections, pitch-class set theory is perhaps the most widely disseminated method for analyzing post-tonal, dodecaphonic music. Developed primarily by Allen Forte in *The Structure of Atonal Music*, its main strength is being able to, in one's analysis,

¹⁴³ Morris (1987, 123).

¹⁴⁴ Schuijjer (2008, 233).

achieve a sense of coherence through variation in abstractly related pitch-class groupings.¹⁴⁵ I will not be describing the basics of calculating or relating pitch-class sets or identifying salient pitch-classes in this chapter; I recommend reading my analyses in Chapter VI to gain a fundamental understanding of the method. Instead, this chapter will discuss the ways in which the theory has been applied musically, focusing on the other parameters that support set class analyses, and provide examples of my own.

Obviously related to the study of pitch-class sets are the ways in which they are set.¹⁴⁶ Two common ways the literature has discussed this are through interval cycles and their resulting referential collections.¹⁴⁷ It is customary to see interval cycles presented linearly and analyses associating the technique with emotional weight have been well-documented. For instance, in Philip Lambert's analysis of the end of Ives's Second String Quartet, the repeated C2₀ (essentially, a whole tone scale), *along with factors such as rhythmic non-coincidence* gives the passage a narratively transcendent feeling.¹⁴⁸ More structural incidents of interval cycles can also be used to replace set classes where other relational methods may not exist: Drew Nobile's analysis of Schoenberg's op. 15, no. 14 shows that two motives are related by *interval permutation*, and not set class; their *rhythms are identical* and their *contours are reversed* points to a desire for the underlying intervals to be examined as well.¹⁴⁹

¹⁴⁵ Schuijjer (2008, 229).

¹⁴⁶ For this particular application, I refer to structural use of interval cycles, though instances such as the opening anecdote in Perle (1977, 3–4) show instances where interval cycles are used to extrapolate and texturally diversify fundamentally atonal soundscapes.

¹⁴⁷ See Clough et al. (1999, 74–5) for an extended discussion about the mathematical connections between generating cycles and sets.

¹⁴⁸ Lambert (1990, 47).

¹⁴⁹ Nobile (2013).

Example 15: *Octopath Traveler II*, “Abandoned City”

A simple example is found in *Octopath Traveler II* with a track called “Abandoned City” (Example 15).¹⁵⁰ Although meeting several criteria to be considered tonal (/centricity/, /triadic harmony/, etc.), its markedness comes from its noticeably sparse texture and /nondiatonicity/ as a result of the root progressions. Much like Lambert's analysis, the C2₀ root progression creates senses of nagging unease and timelessness relative to the other tonal *figurae*; that C2₀ is cut off adheres to a /binary hypermeter/ *figura* that also clashes with C2₀'s standard length of six.¹⁵¹ One could easily envision the cycle continuing to the roots of E and D.

The notion that intervallic content itself can represent certain pictorial affinities is not a new concept. Their consistent or structural use throughout a piece of music obviously denotes importance,

¹⁵⁰ *Octopath Traveler II* has day and night versions of many, many themes; there are minor differences between versions, but the core musical elements remain the same.

¹⁵¹ Gollin (2007, 146) defines length as “the number of distinct pcs in the cycle,” assuming a single-aggregate cycle.

Augurs of Spring
Young Women's Melody



$(0235) = 2 * 3$
 G — A — B $\flat$ — C

Introduction to Part Two
Mystic Circle Melody



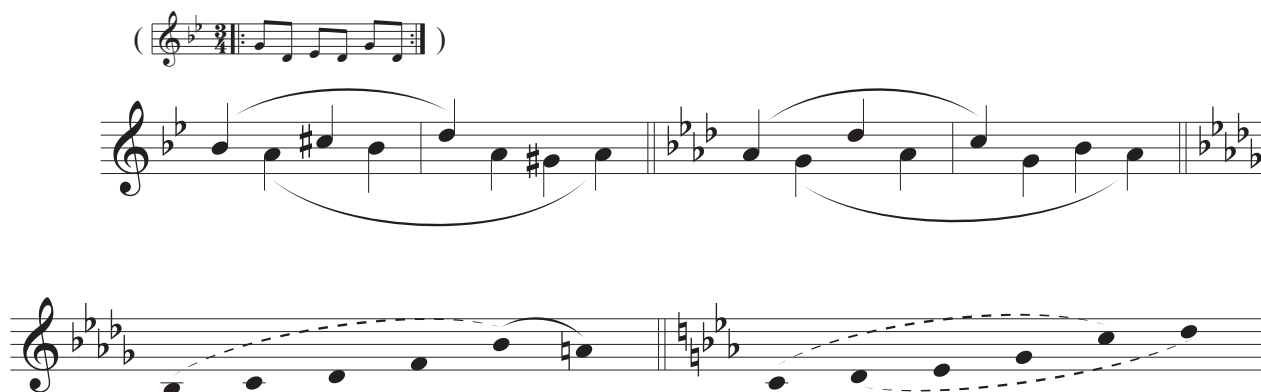
$(0257) = 2 * 5$
 F $\sharp$ — G $\sharp$ — B — C $\sharp$

$G - A \xrightarrow{T_{-1}} F\sharp - G\sharp$
 $B\flat - C \xrightarrow{T_{+1}} B - C\sharp$

Example 16: Straus, “Two melodies associated with... the feminized pastoral mode”

but intervals themselves can represent melodic entities that carry affective and topical weight. In the post-tonal realm, this was most recently and succinctly explored in Joseph Straus’s analysis of the melodies in *The Rite of Spring*. In it, he identifies four “expressive modes” that constitute Nijinsky’s ideas for *Rite*’s choreography: the pastoral, the militaristic, the religious, and wild dance. Certain groups of characters are associated with intervallic spans for the melody in pitch-class terms, which are then subdivided into pairs of identical dyads; together, these dyads create a tetrachordal and character association with any of the modes.

For instance, (07), the span of a perfect fifth, is representative of generally pastoral expressions and characters. Its primary tetrachord, (0257) can be divided two different ways: (02) related at T_5 and (05) related at T_2 . As such, the transpositional combination index Straus gives (0257) is “ $2 * 5$.” Similarly, the span of a perfect fourth (05) generally forms (0235); its dyadic subsets are (03) related by T_2 or (02) related by T_3 , resulting in the moniker “ $2 * 3$.” Straus associates this tetrachord with human characters. When two tetrachords’ shared dyads are transposed into other figures, however, a direct



Example 17: *Octopath Traveler II*, “Dark Night,” reduction

mapping of their expressive modes is created. In Example 16, for instance, the fact that (0235) and (0257) can both be explained in terms of (02) (although the dyads are transposed by different factors— T_{-1} vs. T_{+1} , an “feminized pastoral mode” is created through the combination of human association and pastoralism. Straus’s study shows us that interval content in a post-tonal texture can carry pictorial weight while simultaneously being heard as an atonal *figura*, alongside other factors like *repetition* and *melodic contour*.¹⁵²

For this reason, we may conceive of intervals as having two main properties—set class and sounding pitch—but they may or may not contribute to the same topical or narrative structure. Example 17 depicts a reduction of “Dark Night” from *Octopath Traveler II*. Much like “Abandoned City” before it, it can most certainly be heard through tonal means; the keys and a strong pronouncement of a “tonic” in each cell, at the very least, introduces /centricity/ into the soundscape. “Abandoned City,” however, also utilizes the stark change in instrumentation and texture relative to

¹⁵² Straus (2022). Straus, for instance, writes that melodies that span (05) are generally used in a descending contour, signifying heaviness and being “pulled down to earth.”

the rest of the game, consisting of only choice, piano, and soft synthesizer. These factors still permit “Dark Night” to be heard in a manner where dissonance is foregrounded in interpretation.

The semitone's, (01)'s, role as an obviously /dissonant/ *figura* is essential in this track's interpretation as markedly dissonant (alongside texture, timbre, etc.). The first two key areas feature a strident semitone between the higher and lower voices as soon as they can be heard together.

Additionally, the third key area, not only ends on an unmistakable A $\sharp$, the only note that contradicts the B $\flat$ minor key signature, but a semitone interval between it and the tonic.

However, the semitone is more than a prominent part of the sounding texture: the semitone acts as the primary interval that communicates the more structural and narrative insidiousness through its inclusion in the dominant pitch class sets. Indeed, set classes that prominently feature (01) emerge as the prevailing and fundamental sonorities throughout “Dark Night.” Before the main, sustained choir begins, an introductory ostinato (that continues throughout most of the track) in the staccato alto voices plays <G 4 , D 4 , E $\flat^4$, D 4 >; it can be condensed into (015). The top voices of the G minor and F minor key areas can be condensed into (014) and (015), respectively, always maintaining the semitonal motion. The bottom voices act in the same way: they condense into (012) and (014), respectively, and prominently feature semitonal voice-leading as a core element. Players eventually discover a plot devised by the Moonshade Order, hellbent on plunging the world into everlasting night. To show their growing influence, the player encounters a randomly occurring battle against a “Shadowy” enemy, the shock of which is bolstered by “Dark Night.” Put simply, the friction between a

recognizable world and one plunged in darkness, as well as the gradual closeness between which those two worlds exist, is represented by the similarly close semitonal structural interval.

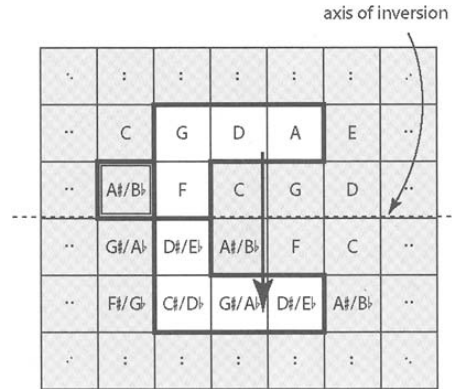
Other authors have explored more specific ways to interpret set classes through intervallic lenses, classifying them in ways that highlight the more perceivable qualities of atonality, i.e., intervals. Authors such as Stephen Brown and Dmitri Tymoczko, for example, frequently write on the conception of pitch class sets in space; the way they are *visualized* (see Chapter IV) is what relates them to each other, a perspective that allows for a relational model contingent on *motion* within that space as opposed to more abstract changes. While the result—the overarching thesis of the analysis—may end up being similar, the way in which they are represented in that analysis may differ, perhaps allowing for a more embodied understanding of intervallic content.¹⁵³

Stephen Brown's system, for instance, creates a two-dimensional space, the axes of which are interval classes that form intervallic chains from an arbitrarily assigned point.¹⁵⁴ The points in this space are pitch classes; congruent shapes—pitch-class sets—can be formed and related in various ways, namely transposition (a "slide" of the shape through the space), inversion (a "flip" of the shape over a horizontal or vertical axis), or an "interval exchange," used to describe a situation in which the x and y coordinates of the shape swap.¹⁵⁵ Most importantly, inversions do not preserve the set class of the pitches enclosed in the shapes; Brown claims that this property permits a different way of conceiving of

¹⁵³ Cox (2016, 114). My use of this term is unlike my use of it in Chapter II, wherein I discuss timbre. Rather, I here refer to Cox's conception of various spatial metaphors. In particular, the idea that we may inherently understand some musical motion as a "metaphoric sense of location-ahead," is predicated on the idea that we arrive there *from* another place.

¹⁵⁴ Brown (2003, 38).

¹⁵⁵ Brown (2003, 39).



Ordered pair mapping	Effect on pitch classes
$I_{(-,-1)}(1,0) = (1,-1)$	$F \rightarrow D\sharp$
$I_{(-,-1)}(1,1) = (1,-2)$	$G \rightarrow C\sharp$
$I_{(-,-1)}(2,1) = (2,-2)$	$D \rightarrow G\sharp$
$I_{(-,-1)}(3,1) = (3,-2)$	$A \rightarrow D\sharp$

(b) $I_{(-,-1)}$ in $ic2/ic5$ space: $\{D, F, G, A\}$ (set class 4-22[0247]) relates to $\{C\sharp, D\sharp, G\sharp\}$ (set class 3-9[027]).

Example 18: Brown, "Inversion in a DIS [continued]"

the relationship between sets.¹⁵⁶ For example, one of Brown's formative examples (Example 18) inverts the set [2579] over the axis $I_{(-,-1)}$, essentially the axis one y-space coordinate below the origin (in this case, PC 10, denoted by the double border); the resulting set is [1338]. Critically, this is not the same set class as the original set as shown in Brown's explanation; the set class is moved from 4-22 to 3-9. Note the use of arrows; the process and direction of motion is a vital part of this system's functions. Although Brown's use of arrows seems to align more with their use in transformational networks (see below), it is undeniable that he still understands his system as a vaguely temporal one, a property that is not necessarily afforded by transformational representations. Most notably, Brown's reasoning for placing certain interval classes on either the horizontal or vertical axes is as follows:

¹⁵⁶ Brown (2003, 43).

“...owing to our years of reading musical notation, we tend to associate the y-axis with the ‘vertical’ or harmonic dimension in music, and the x-axis with the ‘horizontal’ or melodic dimension. Moreover, we tend to associate upward motion along the y-axis with a rise in pitch, and rightward motion along the x-axis with forward movement in time. We should consider these ingrained tendencies both when orienting and when contemplating a DIS [dual-interval space] grid.”¹⁵⁷

Indeed, Brown seems to imply that motion in a DIS is, in a sense, predicated on a linear temporality.

This is only possible if we permit ourselves to conceive of intervals as both abstract members of pitch-class sets *and* literally represented in the music. As such, I call for a more explicit temporal association with intervallic application; we can indeed interpret intervallic motion in a space as narrative motion in a diegetic storyline.

Voice-leading through interval classes, particularly between pitch class sets, has also been thoroughly explored by the literature. Perhaps most notably, Joseph Straus's article on “transformational voice leading” offers the most relevant examples of such a practice for this study, driven by an appeal to the concepts of transposition and inversion being fundamental concepts to atonal music theory.¹⁵⁸ The basic theory is as follows: *uniformity* describes the extent to which two pitch class sets map onto each other via transposition, *balance* describes how well they map onto each other via inversion, and *smoothness* describes the total displacement in semitones as one voice maps onto the other. When an operation is not 1:1, the T or I label is given a “*” to denote its “fuzziness” (e.g., *T4) and given a parenthetical designation under the symbol to show the amount of offset present.¹⁵⁹ Additionally, one can conceive of offset as the difference from the base T or I that generally

¹⁵⁷ Brown (2003, 37; parenthetical mine).

¹⁵⁸ Straus (2003, 307).

¹⁵⁹ Straus (2003, 318).

(a)

5-z38[01258]	5-z38[01258]	5-16[01347]	5-16[01347]	5-16[01347]	5-z17[01348]
①	②	③	④	⑤	⑥
D $\frac{8}{8}$	B $\flat$ $\frac{2}{2}$	C $\frac{7}{7}$	G $\frac{2}{2}$	A $\frac{10}{10}$	G
G $\frac{8}{8}$	E $\flat$ $\frac{1}{1}$	E $\frac{7}{7}$	B $\frac{2}{2}$	C $\sharp$ $\frac{10}{10}$	B
E $\flat$ $\frac{8}{8}$	B $\frac{2}{2}$	D $\flat$ $\frac{7}{7}$	A $\flat$ $\frac{2}{2}$	B $\flat$ $\frac{10}{10}$	A $\flat$
B $\flat$ $\frac{8}{8}$	F $\sharp$ $\frac{3}{3}$	A $\frac{7}{7}$	E $\frac{2}{2}$	F $\sharp$ $\frac{9}{9}$	D $\sharp$
E $\frac{8}{8}$	C $\frac{3}{3}$	E $\flat$ $\frac{7}{7}$	B $\flat$ $\frac{2}{2}$	C $\frac{10}{10}$	B $\flat$
T_8	$*T_2$ (3)	T_7	T_2	$*T_{10}$ (1)	

(b)

D $\frac{5}{5}$	G
G $\frac{4}{4}$	B
E $\flat$ $\frac{5}{5}$	A $\flat$
B $\flat$ $\frac{5}{5}$	D $\sharp$
E $\frac{6}{6}$	B $\flat$
$*T_5$ (2)	

Example 19: Straus, “*Webern, String Quartet, op. 5, no. 5, mm. 1–6.*”

describes the transformation; displacement, meanwhile, adds all the intervals in semitones together, regardless of the unifying operation. The best analytical systems open the opportunity to discover patterns and Straus's first analysis on Webern's String Quartet op. 5, no. 5 (Example 19) shows such potential. The most satisfying analytical insight regards the “middle ground” motion from the first chord to the sixth.¹⁶⁰ Straus describes it as an expansion of the T5 motions in the cello in the beginning of the passage; the overarching motion from the first to the sixth chord is $*T_5$ with an offset of “only” (2).

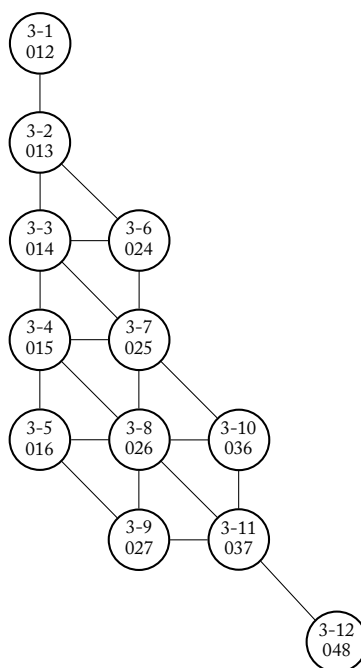
¹⁶⁰ Straus (2003, 334). Straus equates this use of the term “middleground” in a manner similar to a Schenkerian middleground, but interprets it more as larger gestures that describe the overarching motion in a succession of chords, rather than the traditional understanding of a prolongation of an *Ursatz*'s pillars.

$$\begin{array}{ccc}
 2 & \xrightarrow{11} & 1 \\
 1 & \xrightarrow{11} & 0 \\
 T & \xrightarrow{0} & T \\
 9 & \xrightarrow{11} & 8 \\
 8 & \xrightarrow{11} & 7
 \end{array}$$

$\ast T_{11}$
 (1)

Example 20: *Octopath Traveler II*, “Dark Night,” transposition between G minor and F minor.

Straus’s use of the word “only” here seems to imply that there is some minimal conception of a global understanding as to the scale of offset amounts, as opposed to the relative scales he presents in his examples. It is hard to discern how one should use this in their own analysis; still, I agree with Straus that these destinations are more useful when compared internally to a specific passage. However, can one assign a sort of narrative meaning to certain offsets, even without a relative sense of scale, considering we can still intuit a number scale comprised of integers such that $0, 1, \dots \infty$? I believe so. Returning briefly to “Dark Night” in Example 17, recall my analysis that semitones were used not only to create a dissonant affect, but also to act as the narrative centerpiece conveying that the world was recognizable but fundamentally altered. This analytical assertion can also be conveyed through an analysis of transpositional uniformity (Example 20); when the pitches of the sopranos are condensed into vertical sonorities, all of the voices map onto each other by a factor of T_{11} with the exception of the held middle voice on PC 10, resulting in an offset of (1). Much like the semitonal ubiquity in the



Example 21: Straus, “*Optimal offsets for trichords (as the map of a voice leading space)*.”

foreground, the underlying offset of (1)—without the need for a sliding scale—conveys the slight and uncanny difference between two worlds.

The other vital affordance of Straus's system is the description of the implicit voice-leading between set classes, the *non-literal* musical objects. Straus describes these relationships as making explicit the “the deep connection between harmony and voice leading in atonal music.”¹⁶¹ Essentially, one can determine how similar a certain set class is to another through “optimal offset,” a measure of the voice-leading distance any pitch class in a set class can be from any other; these are not limited to sets of the same cardinality.¹⁶² I find his representations of these relationships in “voice-leading space” to be the most intuitive (Example 21): in his map for the trichords, for example, any connection from one set class to another counts as an optimal offset of (1). One can trace the optimal offset,

¹⁶¹ Straus (2003, 341).

¹⁶² Straus (2003, 335).

instinctively, by finding the shortest distance between two set classes. He uses this system to justify the works of atonal analysis that primarily use set classes and other similarity relations: he writes that, broadly speaking, “when the offset numbers are small, it is reasonable to assert a motivic relationship; when the offsets are large, that assertion becomes harder to maintain.”¹⁶³ To augment this statement, however, when non-literal musical objects are highlighted through other musical parameters as outlined in Chapter II, this rule can be bent slightly to encourage the search for a sort of pitch similarity that may enhance the narrative.

To that end, many theorists have developed other ways to relate pitch class sets to each other beyond the standard four similarity relations introduced by Forte: R_p (both strong and weak), R_1 , R_2 , and R_0 .¹⁶⁴ In a sense, though, I extrapolate Straus's assertion about the minimum requirements necessary to relate two set classes to the analytical method, at least when applied to music (perhaps invoking Perle and Buchler in the process). As I mentioned previously, when highlighted through other textural, timbral, rhythmic, etc. means, a relationship is inherently formed that may be substantiated through pitch processes; however, the pitch justification thereof may be harder to intuit. This difficulty does not diminish these theories' effectiveness in mathematically uncovering the distance between set classes; this information is undoubtedly intriguing and useful. When applied to notions of topic, however, this relationship becomes slightly more fraught; the *experience* of the musical affect in its entirety is prioritized, pitch relationships being important aspects of that soundscape.

¹⁶³ Straus (2003, 348).

¹⁶⁴ Further information on these basic types of set class similarity can be found in Chapters V and VI, the analyses and the pedagogy section.

Similar to Straus's conception of set class "distance," for example, Dmitri Tymoczko conceives of pitch class sets to exist in a Euclidean space, wherein the distance between them is calculated literally. This necessitates the use of a "continuous pitch-class space," in which pitch classes are not discrete points on any given line. Tymoczko presents the formative example of determining the distance between a perfect fourth and major third; he does not use the dyads (C, F) and (D $\flat$, F) in a discrete space, the one in which Straus operates. In this discrete space, the distance between these two is 1 (we might consider it to be an offset of (1)). Instead, he uses Euclidean metrics, with which we may average out the distances to $1/\sqrt{2} \approx .707$.¹⁶⁵ In effect, the result is the dyad (C $\sharp$, E $\sharp$), proving the need for a continuous pitch class space. Metrics such as these permit a great deal of insight into the way we may relate sets to each other; I do not claim that there are no analytical insights that may be uncovered through these metrics. Implicit to Tymoczko's discussion, however, is the one offered also by Straus in that smaller distances correlate to higher similarity. Similarly to my extension of Straus, then, the metric with which we understand two set classes as "similar" is better understood as discrete changes in a host of parameters and my discussion of pitch in my analyses operates in similarly discrete terms.

Twelve-Tone Theories

In keeping with the enigma surrounding motivic relationships between non-literal pitch criteria, twelve-tone theory offers insight into the more rigidly defined albeit similarly mystifying auditory experience. Indeed, as Stephen Peles writes, "complexity" in the developing American musical

¹⁶⁵ Tymoczko (2008, 255).

landscape was an opening up of the number and type of relationships that could be construed with any given note in an atonal piece. That the tonic, the ultimate reference point towards which all relationships could be directed, was no longer obligatory only added to the list.¹⁶⁶ Serialism presented an opportunity to reinsert some sort of precompositional structure that could serve as the structural basis of such a free musical landscape; to others, however, it was more an affective compositional tool that could be used just as any other.¹⁶⁷ Serial media music, nevertheless, is not quite as prevalent. Despite resources such as David Neumeyer's list of a few serial film composers (including Leonard Rosenmann and Elisabeth Lutyens), the stricter parameters of serialism often lead to a sparser host of examples.¹⁶⁸

Serialism, however, neither was nor is a monolith; the myriad ways that it has been implemented points to its status as leaning more towards a compositional tool. Jack Boss writes, for instance, that George Walker's use of serialism in *Spatialis*, despite its self-characterization as a strict exercise in twelve-tone methods, his actual use of them frequently gave way to "creative impulses," in this case meaning that pitch classes are routinely missing from row counts.¹⁶⁹ Similarly, Stephen Brown notes that Shostakovich's use of twelve-tone rows was often not "structural" in the way that we might expect for the Second Viennese School of composers; instead, his rows are often only presented melodically, are often subservient to tonality, and are "not governed by serial procedures."¹⁷⁰ For these

¹⁶⁶ Peles (2008, 498–9).

¹⁶⁷ Peles (2008, 505).

¹⁶⁸ Neumeyer (1993).

¹⁶⁹ Boss (2022).

¹⁷⁰ Brown (2015, 193).



Example 22: *The Legend of Zelda: Majora's Mask*, "Boss Battle," "twelve-tone" counterpoint

reasons, the presence of /serialism/ does not inherently contribute to an atonal topic, but it in combination with other atonal *figurae* may elevate it to be an audible aspect of the musical texture.¹⁷¹

Consider, for example, "Boss Battle" from *The Legend of Zelda: Majora's Mask* (Example 22). While its status as a topically marked piece among the dissonance that pervades the game's soundtrack is somewhat questionable, its unmistakably twelve-tone execution renders it notable. One of the middle sections of "Boss Battle" presents a two-voice counterpoint with an underlying ostinato (the example omits the ostinato). Only the top voice, interestingly, forms a twelve-tone row; the bottom voice repeats several pitch classes. Even more critically, the top voice does not *complete* the row form—it is missing PC 3—but if we permit ourselves to add the PC 3 that is conveniently found underneath the final PC 9 before the ending motive (<1728>, presumably in both voices), the row is completed.

In what way should we analyze this? More importantly, what methods are the most musically relevant? On the surface it appears to conform to both Walker's and Shostakovich's usages of rows: for the former, the only implied and committed final pitch class and for the latter, its primarily melodic

¹⁷¹ Mitchell (2014, 12): examples of explicitly twelve-tone video game music are rare, even if written by composers who are fully aware of twelve-tone techniques like Jason Graves and Garry Schyman.

textural role. In keeping with the goal of this dissertation, however, analyzing the counterpoint's role as a topical object offers insight into how it should be interpreted narratively.

One may point out in their analysis, for instance, the lack of PC 3 in the primary voice's iteration of the row. Despite its seemingly melodic, non-structural use, that the row must be completed in another voice to be heard as including all twelve pitch-classes could signal the trepidation one might feel when faced with a notably powerful enemy (see below for additional parameters that convey this). In particular, the push for completion that is enhanced through these sorts of ludic scenarios is bolstered by /non-centricity/ and /chromatic saturation/; critically, these are both *figurae* that describe twelve-tone music. Might that imply, then, that /twelve-tone/-sounding music constitutes an atonal *figura* in itself? While I do indeed consider this to be the case, I believe that it must be supported by these other sub-*figurae* for full effect. One can imagine, for instance, a series of twelve major triads, the roots of which conform to a twelve-tone row; it would certainly have a /nondiatonic/ sound to it, but it is unlikely that it would be heard as atonal. For “Boss Battle,” its status as a melodic twelve-tone row is complemented through a brief lack of centricity; we can thus expect the row to complete as expected and the fact that it does not highlight an affective point of interest.

The way in which the row is partitioned is also of great interest to music theorists. In particular, it is common to consider discrete, or at least “even” partitions of the aggregate.¹⁷² This tendency makes sense; it is far more intuitive to compare the differences between partitions of similar cardinality, as they share the same properties afforded to pitch-class sets with the same property. A

¹⁷² Morris & Alegant (1988, 76).

fairly rudimentary analytical insight can be uncovered if we compare the set classes of the discrete trichordal partitions of P_4 : the first two sets, intuitively partitioned as such because of the agogically accented final pitch class, both belong to set 3-3 (014). The final two, however, deviate; they belong to (036) and (015), respectively. In a sense, this complements the way in which they are set in that the agogic accents no longer occur every three notes, similarly ruining the trichordal set classes to which they belong, representative perhaps of the breaking down of stability as the player's understanding of their new item's mechanics are tested.¹⁷³

This, however, may not represent how the row is presented; indeed, following the setting's agogic accents results in an “uneven partitioning”: $\{\{410\} \{76T\} \{E5\} \{289\} \{3\}\}$.¹⁷⁴ PC 3, obviously, must be unceremoniously shoehorned into the row, but therein lies an advantage to an uneven division; we are permitted to leave it as its own partitioned entity. Theories that discuss row partitioning (both even and uneven), however, tend to discuss the implications of it relative to another related row. Most notably, this has manifested in literature on twelve-tone “mosaics,” defined as two different rows whose a. partitions are the same cardinality¹⁷⁵ and b. partitions belong to the same

¹⁷³ Worthy of note is the relative freedom with which players eradicate bosses. In most 3D Zelda games before *The Legend of Zelda: Breath of the Wild* (2017), the boss is eliminated using the dungeon's “key item”; it is discovered within that particular dungeon, used to solve that dungeon's puzzles, culminating in a boss fight that tests the player's understanding of its capabilities in an explosive trial by combat. *Majora's Mask*, meanwhile, offers many different ways in which players can defeat bosses.

¹⁷⁴ This bracketing style is taken from Morris & Alegant (1988) and Kurth (1999); it is important the reader understand that the row is still ordered.

¹⁷⁵ Morris & Alegant (1988, 76). In more technical terms, there is a member in one row that is directly related to another row through transposition or inversion. Their much more mathematically rigorous definition is as follows: “Partitions P and Q are members of the same mosaic if for each pcset $p \in P$ there is a pcset $q \in Q$ such that $q = Kp$, where K is T_n or T_nI .” For the reader's sake, the mathematical symbol “ $\in$ ” essentially means “is a member of.”

“partition class” (the set-class that is formed in each partition). In this case, however, there is no secondary row with which we may compare P_4 ; it may be enough to note that the defining interval of the first two partitions, ic_4 (a fairly consonant interval), transitions to highlighting ic_6 (relatively dissonant), an extension of the stability-turned-depraved narrative outlined previously. Brown writes that, in Shostakovich's rows, it is common to hear “diatonic/chromatic” interplay;¹⁷⁶ taken as *figurae* (i.e., [/diatonic/]/[/chromatic/] interplay), the same principle can be applied in this case. Furthermore, observing the ending joint motive (<1728>) the interplay into ic_6 seems to act as more of a transition to this markedly more chromatic area; the two tritones are also separated by ic_1 , an interval that is shared between all three of the trichords in the passage.

It may, nevertheless, still be tempting to create a matrix for the row; although Brown resists this temptation on account of the matrix's lack of relevance, it remains a seductive idea. Are there any insights to be gained by contracting a matrix derived from a melodic row form? Although I expand on the pedagogical benefits to such an act in Chapter VI, I generally side with Brown; its status as an “aggregate melody” supersedes the necessity to force relationships where they are not warranted. As such, twelve-tone analytical methods may not necessarily need to be applied at all. Applying a contrapuntal perspective, for example, the two voices—when reduced to first-species counterpoint (i.e., the semitonal quarter notes in m. 4)—consistently form a harmonic interval of 0, 3, or 6, outlining a relatively dissonant diminished triad. This undoubtedly contributes to the lack of /triadic/ harmony in this passage, seemingly acting as a more topical figure than a narrative one.

¹⁷⁶ Brown (2015, 211).

Atonal motives that use at least one pitch, regardless of whether they are literal or abstract, convey some sense of contour. Robert Morris, to that end, writes about contour's more fundamental contribution to the listening experience, perceivable even before the concepts of specific pitches or pitch classes are internalized.¹⁷⁷ Its status as an atonal *figura*, however, is somewhat problematic; unlike other non-pitch musical parameters such as rhythm, meter, and timbre, labeling a "dissonant" or "atypical" contour may be more difficult. Indeed, mention of contour in atonal music nearly always supports a reading of pitch class structures, be it how other musical parameters disagree with a set-class interpretation at first glance¹⁷⁸ or how related contours encourages examination for related set-classes.¹⁷⁹ Many of the methods I utilize in this dissertation rely on the idea of pitch and collections in order to operate. First, consider the concept of contour classes, introduced by Michael Friedmann. Effectively, contour classes introduce the idea of "contour space," where pitches are marked and categorized by their relative heights within a given segment of music.¹⁸⁰ Assuming that /dissonance/ or /irregularity/ are valued *figurae* in creating an atonal sound, a succession within the CC that features many repeating numbers may signal centricity or adherence to some sort of fundamental sonority or collection. Importantly, Friedmann *does not* assign these topical associations to his theory; rather, he uses them to relate motives to each other, which I also intend to do. Indeed, Friedmann writes that his systems actually show "balance" in many atonal melodic structures.¹⁸¹ As

¹⁷⁷ Morris (1993, 205).

¹⁷⁸ See in particular Baker (1982, 3).

¹⁷⁹ Harper (2006).

¹⁸⁰ Friedmann (1985, 230).

¹⁸¹ Friedmann (1985, 238).

Example 23 shows two musical melodies in 4/4 time. The top melody, "Abandoned City", has a Contour Class (CC) sequence of < 5 4 5 3 4 5 0 1 6 4 >. The bottom melody, "Boss Battle", has a CC sequence of < 3 1 0 6 5 9 T 4 2 7 8 >.

Example 23: “Abandoned City” (top) vs. “Boss Battle” (bottom), melodies and CC's

mentioned previously, however, I believe that atonal musical parameters can achieve both simultaneously. To that end, *which* collection is being invoked cannot be determined merely through the CC; however, it can give provide a sense of the frequency with which certain pitches may appear. In Example 23, for example, compare the CC's [sic] of the melodies of “Abandoned City” and “Boss Battle.”¹⁸² The former repeats G fairly often, which is reflected by the repeated <5> in the CC; meanwhile, not a single CC position is repeated in the latter's melody. To reiterate, the CC in itself does not constitute evidence for a melody's adherence to any central sonic collection—much less topic evidence for atonalism—but it does allow us to treat properties like /angular/ or /irregular/ melodies as another aspect that *may* be referenced in one's understanding of a piece as sufficiently “atonal.”

Motivic patterns can also be loosely determined through Friedmann's concepts of “contour adjacency series” and “contour interval series.”¹⁸³ These are fairly intuitive terms: the former describes an ordered series of +s and –s that describe the direction from one pitch to another while the latter uses the information garnered from the CC and, with direction, provides an ordered series, with direction,

¹⁸² Friedmann (1985, 231). Friedmann uses an apostrophe when describing multiple CC's.

¹⁸³ Friedmann (1985, 226–230).

of each pitch's placement in the CC. For example, for the “Boss Battle” melodic fragment in Example 23: CAS<- , - , + , - , + , + , - , - , + , +> and CIS<-2, -1, +6, -1, +4, +1, -6, -2, +5, +1>. The CAS Vector (CASV) is an ordered pair of numbers cataloging the number of +s and -s that exist in the CAS. In this case: CASV<5, 5>. However, Friedmann's system permits critical relational insight into atonal motives, particularly by relating subsets of melodic contours.¹⁸⁴ “Boss Battle,” for instance, can be split into three CAS's: <- , ->, <- , + , + , ->, and <+ , +>. Friedmann's conception of atonal melodies as balanced and relational, as mentioned previously, is clearly on display here: the first and final segments are not only related by rhythm, but are also contour inversions of each other.¹⁸⁵ Similarly, the middle segment is an island of inversion: inverting its CAS results in its identity. This insight is not afforded when the melody is taken as is; by highlighting certain segments with agogically accented notes, we are audibly drawn to them. The reader may remember that these agogic accents were used in my twelve-tone pitch analysis of the melody, but in a way that argued that it narratively communicated a sense of disarray. With such balanced melodic structure in its obvious contour subsets, however, do the narrative insights contradict this reading? On the contrary, these relationships represent the world of Termina, where the game takes place. Its status as a strange reflection of Hyrule (the land from which the protagonist originates)—with many familiar faces that do not recognize the player character—is conveyed through the inversional relationships and the equality in the CASV.

¹⁸⁴ Friedmann (1985, 299). See Friedmann's Example 5, breaking down Schoenberg's op. 33b's fairly angular lower voice into four segments with identical CC's.

¹⁸⁵ Friedmann (1985, 238). Indeed, much like my adherence to using multiple musical parameters to highlight pitch relationships for topical purposes, Friedmann notes that his system does not account for these, but it is the analyst's intuitions of those other factors that can call attention to salient contour relationships.

phrase 1 phrase 2 phrase 3 phrase 4 phrase 5 phrase 6

Primes: <1 2 0> <2 3 0 1> <1 2 0> <1 2 0> <1 2 0> <2 3 0 1>

Sequence of pcs in primes: 5 9 1 4 10 6 9 4 5 9 10 6 8 5 7 10 11

member of 4-19 (3 pcs in common).

phrase 1: member of 4-19

All pcs in union = {1, 4, 5, 6, 7, 8, 9, 10, 11} member of 9-2 complement of {0, 2, 3}

last chord: {5, 8, 9, 11} member of 4-12 (3 pcs in common):

Example 24: Morris, “Contour-reduction analysis of Schoenberg Op. 19 No. 4.”

Additionally, the player might understand the inversion as representative of the dungeon in which the boss Twinmold is found; they must constantly flip the dungeon upside down in order to progress.

Robert Morris’s arguably most influential contribution to the field of atonal melodic contour is the idea of a “contour prime form,” effectively a measure of the contour trends of a given melody. In particular, when a relationship between contour prime sequences is found, Morris then applies pitch-class set analysis to the resulting prime pitches, providing a link between contour and set classes that may otherwise be obscured.¹⁸⁶ As Morris’s process for determining contour prime sequences is fairly long, I will summarize it here:¹⁸⁷ essentially, in any sequence of three notes (except for the first and last

¹⁸⁶ Morris (1993, 212).

¹⁸⁷ Morris (1993, 213).

notes), determine which is the highest and lowest and strike out any remainders; repeat the process until you are left with only the first, last, and highest/lowest notes. The way that Morris relates these sequences together is plainest to see in his formative example of Schoenberg's Op. 19, no. 4 (Example 24). In the six different phrases, two different CC's emerge as the most prominent: <120> and <2301>. Critically, the pitch implications of such a reduction are prioritized; when looking at the pitch classes contained within the prime segments form set 9-2 (i.e., $P1' \cup P2' \dots \cup P6' = 9-2$), the abstract complement of 3-2, what he calls the most prevalent set class in the entire piece.¹⁸⁸



Example 25: *Pokémon Diamond and Pearl* (2006), “Battle! Legendary Pokémon,” bassline

We can have fun with this too. Consider the bassline of “Battle! Legendary Pokémon” from *Pokémon Diamond and Pearl* (2006); it and its per-measure prime contour segments (and the process

¹⁸⁸ Morris (1993, 215).



Example 26: *Pokémon Diamond and Pearl* (2006), “Battle! Legendary Pokémon,” opening chords

in generating them) are represented in Example 25.¹⁸⁹ Although players are often treated to battle music in modes that are not major or minor,¹⁹⁰ this bassline is marked on account of its sheer chromaticism, a confusing whirlwind of wavering tonality with centricity on C. Immediately, we may note that the prime contour segments for each of the four measures is the same, including their CC's: they all contain CAS<+, −, +> and CC<0312>.¹⁹¹ Borrowing Morris's analytical method, combining all of the pitch classes represented by the various *maxima* and *minima* results in set 7-z18 (0145679). Comparing this to the track's opening chords (Example 26), which together form set 7-27 (0124579), a weak R_p relationship is formed, as both sets share set 6-31 (014579).¹⁹² A consistent theme for my analyses (and those presented in Chapter V) is the notion of very slight difference being used to evoke a

¹⁸⁹ This bassline is apparently notoriously difficult to transcribe; all transcriptions found online seem to disagree on some of its notes. I have transcribed all of the music in this dissertation myself: something that I have that no others seem to is a D^b on the fourth beat of the second measure. I cannot help but hear ic3 there; most other transcribers have it as a D⁴.

¹⁹⁰ 8-bit Music Theory (2022). This video is entitled, “The PHRYGIAN Mode Feels THREATENING” and depicts Cloud Strife from *Final Fantasy VII* (1997) and, more importantly, Generation 1 Pikachu, the mascot of the Pokémon franchise.

¹⁹¹ Morris (1993, 214). Note Morris's use of the word “phrase” to denote his different segmentations of Schoenberg Op. 19, no. 4; while each measure is not so much a phrase in the same sense, the return to the clear pitch center at its lowest register denotes to me a sort of phrasal reset.

¹⁹² Weak R_p is defined by two set classes of *n* cardinality sharing a subset of *n*−1 cardinality.

sense of conflict; indeed, here we see a link between the initial wonder of encountering a legendary creature and the ludic internalization of its strength as the player struggles to defeat or capture it.¹⁹³

Three of the four measures' pitch class sets (when understood as abstract motives, see Footnote 77 for additional details) also form relational bonds with 7-z18. The first and third measures also share 6-31 with it, and the second measure presents an R_2 relationship; the fourth and sixth positions of their interval vectors are different but do not interchange. Put simply, the dedication to an atonal sound world through various connective links is clear—this is exemplified by the pitch class set generated by the fourth measure. Its notably more diatonic set class, set 5-23 (02357), seems extremely isolated from the rest of the piece: it neither contains either of the set classes of the opening chords (4-26 and 4-27) nor is itself a subset of 6-31, the otherwise unifying hexachord for the rest of the piece. In other words, it feels like diatonicity is purposefully shunned from the musical texture; the grandiosity of the encounter supersedes all notions of plain understanding.

Transformational Theories

Potentially elevating the abstractness of pitch-class sets even more, transformational theories broadly serve to depict topographies of the pieces of music in question. In other words, although they may convey a sense of linear time, transformational representations more often schematize the main

¹⁹³ Interestingly, these opening chords also seem to invoke a somewhat tonal sound, especially considering the clear centrality on C. Read this way, the progression— $V^7/iv-iv^7-i$ —enhances the chromaticism of the bassline's introduction. More fascinating still (and unfortunately irrelevant to a discussion of contour) is the implications of a voice-leading analysis, as discussed in a prior section. All of the voices transpose by T_8 , with the exception of the “alto,” resulting in a transformation of $*T_8$ with an offset of (1), yet again highlighting the notion of subtle changes being the most insidious.

pitch processes of a work into interconnected webs that are solely interested in recurring shapes and patterns. This type of representation may seem counterintuitive to the experience of playing a video game or following of a narrative; however, transformational networks are extremely particular about direction (i.e., transformational arrows) and the extent to which various transformations can be traced back to a unifying point of genesis. Only occasional formalism is necessary for this dissertation; I assume the reader is aware of the basics of generating graphs and networks, the formation of a GIS (S, IVLS, int), and interpreting the isomorphism between those structures.¹⁹⁴ I do not intend to add new types of spaces to the field's conception of transformational theory; rather, preexisting applications of it are more than suitable for defending this dissertation's thesis that narrative can be ascertained through changes in atonal pitch structures.

The reader is most likely familiar with transformational theory's application to “neo-Riemannian” analysis, a fundamentally triadic theory that describes chromaticism in root motion and chord quality (major or minor, specifically). Its underpinnings from theorists such as David Lewin and Richard Cohn, originally described chromatic triadic chord progressions from the late 19th-century.¹⁹⁵ In particular, Cohn's earlier writings on the topic concern “uncanny” triadic pairings, preliminarily placing an affective weight on nondiatonic chord successions. For instance, Cohn directly ties Sigmund Freud's definition of uncanny—“the distinction between imagination and reality is effaced, as when something that we have hitherto regarded as imaginary appears before us in reality”¹⁹⁶—with triadic

¹⁹⁴ Lewin (2007, 196).

¹⁹⁵ Cohn (2004; 2011); Lewin (1987).

¹⁹⁶ Freud (1919, 244).

movement to the hexatonic pole, essentially a 3-11 trichordal collection of pitch classes in the hexatonic collection (6-20) that avoids the other potential trichordal grouping of the remaining pitch classes.¹⁹⁷ Cohn especially notes the effect of the progression's "tonal indeterminacy,"¹⁹⁸ wherein a sense of tonal home is unable to be determined: the difficulty in hearing the progression as relatively static allows it to be heard as particularly marked against other markers of tonality.

Neo-Riemannian theory has since been thoroughly formalized. Although the theoretical underpinnings of a *Tonnetz* come from Euler's original dual-interval version, among others, its modern torus shape is derived from a thirds-based, equal tempered version that loops onto itself. The torus is not relegated to pitch classes alone—Leah Frederick's recent work on diatonic voice-leading transformations places trichords themselves on a torus¹⁹⁹—however, Neo-Riemannian theory tends to track the distance of nondiatonic chord changes through moves along the torus. The thirds-based torus, however, may underplay otherwise diatonic-sounding progressions;²⁰⁰ this can be addressed through a more direct linking between two chords through their roots. Julian Hook's system of *uniform triadic transformations* (UTTs) conceives of triads (Δ) as an ordered pair (r, σ) wherein r represents the pitch-class that denotes the triad's root, and σ refers to the triad's quality. A UTT, then, transforms one triad onto another with an ordered triple that incorporates the change in quality (+ if the quality is preserved and – if the quality changes) and two transposition levels: the first is utilized if the initial chord is major and the second is used if the initial chord is minor. C major (0, +) going to A

¹⁹⁷ Cohn (1996, 18).

¹⁹⁸ Cohn (2004, 320).

¹⁹⁹ Frederick (2023, 43).

²⁰⁰ Hook (2002, 59).

minor (9, -), for example, would use the transformation $\langle -, 9, 3 \rangle$: the quality of the chord changes, begins major, and moves to a root whose ordered pitch class interval is nine away from the first root.²⁰¹ Hook's formalism ensures that UTTs that do not have familiar or standard transformational pairs still have analytical meaning, provided they belong to the same subgroup; John Roeder and Scott Cook use the group $K(1,11)$, for instance, to show that functional dominant relationships still persist within a unified harmonic system that otherwise progresses nonfunctionally when perceived linearly.²⁰²

When applied “cinematically,” however, the group- and space-oriented formalism of these triadic transformations is often abandoned, in a sense. As mentioned in Cohn's work prior, the distinct character of a progression may become marked or recognizable in late Romantic-era music. Scott Murphy generates, for example, a set of forty-eight “tonal-triadic progression classes” that serve less as chronological chordal progressions and more as distinct progressions that carry a certain intrinsic weight.²⁰³ In these progressions, a certain element of tonicization is still present, contrary to Cohn's earlier writings on the topic.²⁰⁴ Lehman's book on filmic harmony also presents a case for altering the theoretical roots of transformational theory: much like Murphy, his interest in the short-spanning, slightly more immediate effect of the chromatic chord succession supersedes a “bird's-eye view” of the total harmonic structure.²⁰⁵ Critically, however, there is no reason to consider the two approaches completely antithetical to each other; generally speaking (to atonal theory at large), *a transformation*

²⁰¹ Hook (2002, 64–5).

²⁰² Roeder & Cook (2006, 63–6). $K(1,11)$ essentially transposes roots by the same amount when the mode is preserved ($\langle +, n, n^*1 \rangle$) but differently when the mode is not preserved ($\langle -, n, n^*1+11 \rangle$).

²⁰³ For more information on the learned associated meaning of certain progressions, I suggest Heine (2018, 121) for the four progression types he identifies in *Star Wars*: Magic, Hero, Vader, and Palpatine.

²⁰⁴ Murphy (2014, 485).

²⁰⁵ Lehmann (2018, 74–5).

can elicit its atonal affect and provide structural narrative weight simultaneously, the core of “affect–effect” dualism. Lehmann frequently references interval cycles in his analyses; in his analysis of “Good to Go” from *Contact* (1997), for example, the immediate emotional effect of a root progression of T–3 is listed as undoubtedly impactful but that the interval cycle “backs up” near the end points to careful consideration of how overarching structures support narratives just as much as the affect-setting power of local progressions.²⁰⁶

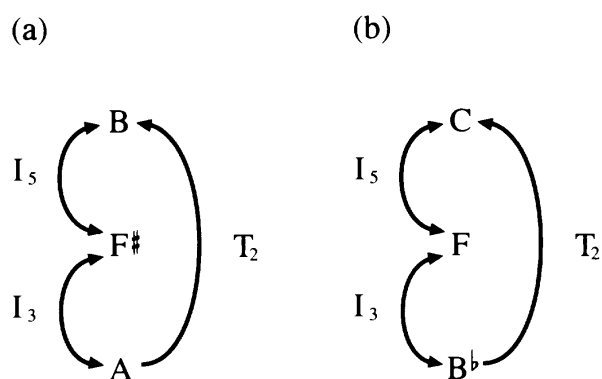
Consider the key relationships of “Dark Night” (Example 17): understood in primarily linear terms, the key areas (which do not themselves feature progressions) are Gm–Fm–Bbm–Cm with a progression list as follows: START–(LR)²–LR–(RL)²; START–<+, 2, 10>–<+, 7, 5>–<+, 10, 2>. Using Murphy's principle of local tonicization,²⁰⁷ the distance between the first and last pairs of chords are undoubtedly striking, though it is important to note two things: a) the roots of all the key areas conform to G minor at large and b) the second progression is a root-progression inversion of the first. The unification of changing tonics complements my previous reading about melodic semitonal chromaticism quite well; although unrest exists on a smaller level, the threat of the night's eternity looms over the player as the roots all belong to one diatonic system and the oscillation between T_{–2} and T₊₂ root progressions implies a never-ending cycle.

Clearly, however, transformational theory is not limited to merely triadic structures and their uncanny progressions. Lewin's generalizable theory can work with all manner of pitch contents, particularly of atonal harmonic structures. The atonal transformational theory on which this

²⁰⁶ Lehmann (2018, 161–2).

²⁰⁷ Murphy (2014, 485).

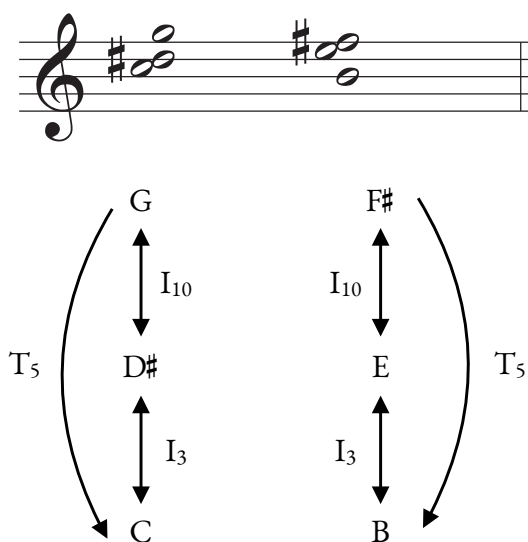
dissertation will focus is Klumpenhouwer networks, though how other transformational systems can be used to track narratives will be explored in Chapter IV.



Example 27: Lewin, Figure 3

Lewin defines Klumpenhouwer's main contribution to a transformational understanding of pitch content as allowing transpositional *and* inversional relationships in a network, permitting for chordal networks that—with their isomorphic graphs—feature “strong isography”: the nodes and arrows of the graphs of two different chords are still the same, including the transpositional levels.²⁰⁸ His formative example compares the opening chord of Schoenberg's Op. 19, no. 6 with one that appears later (Example 27): in this case, [A, F#, B] and [B^b, F, C] map onto each other exactly, not only with the nodes and arrows, but also with I₅, I₃, and T₂. This contrasts with “network isomorphism,” where the nodes and arrows remain, but the exact transformations are not identical. Although this may seem abstract and “summary-like,” Murphy and Lehman's affect–effect dualism may be invoked here; the relationship between dissonant sonorities is understood first through their dissonance, but secondarily through its effect on the progression of the piece. To look ahead briefly to Chapter V, the

²⁰⁸ Lewin (1990, 84).



Example 28: *The Legend of Zelda: Spirit Tracks*, “Fighting Cole and Malladus,” opening K-net

opening chords of “Fighting Cole and Malladus” from *The Legend of Zelda: Spirit Tracks* (2009)

(Example 28) features two trichords: (037) and (027). In Chapter VI, I will make an argument that together, they form 6-z19 (013478) with tonal implications because of the imbricated (037) trichords, but it is worth noting that the trichords themselves are strongly isographic with each other, perhaps hinting that although the battle will be fierce, Zelda’s soul will eventually reunite with her body with the enemy’s defeat.

Various other atonal analytical methods will be employed throughout the analyses: beat-class set theory, for example, makes an appearance at the end of the same analysis as the one above. Essentially, by establishing a 0–11 rhythmic grid, certain accents or repeated rhythmic cells can be interpreted and related in the same way as pitch set classes. These most often appear in literature about

Steve Reich's minimalist music (particularly in how he uses phasing),²⁰⁹ though its origins come from Milton Babbitt.²¹⁰

However, as we progress further into analysis, it is vital to remember that an elucidated atonal construct achieves *both* an affective and effective purpose. The narrative meaning I ascribe onto the pitch structures is highlighted by other musical parameters that firmly mark them as signifiers of a dissonant topic. Through pitch-class set analysis, twelve-tone theories, contour theories, and transformational theories (and others not utilized directly in this dissertation), focusing on discrete pitch when presented with the opportunity bolsters the timbral and affective analytical insights made by ludomusicology scholars through a more complete understanding of the totality of parameters that construct the audiovisual space.

²⁰⁹ Cohn (1992); Roeder (2003); Peck (2021).

²¹⁰ Babbitt (1962).

Chapter IV: Ludic Atonal Narrative and Motivic Motion

“Perhaps some day I’ll crawl back home, beaten, defeated. But not as long as I can make stories out of my heartbreak, beauty out of sorrow.”

—Sylvia Plath

Stories as Motion

The way in which we interpret change and patterns is one of humanity’s greatest strengths, but also one of its most glaring vulnerabilities. So often do we fixate on patterns and their causes, assigning idiosyncratic narrative value to every change, that the interpretations themselves constitute their own works of art. Indeed, the criticisms of the various atonal theories and practices summarized in the previous chapter seem to be cut from the same critical cloth; if the relationships cannot be heard, perhaps the analyst has strayed too far from the proverbial designated path. However, in addition to the defense of such systems I offered in Chapter III—that audibility can be spurred by an abstract definition of motive—I also contend that particularly involved analyses are not inherently flawed, methodologically speaking. In fact, provided they maintain internal consistency, the idiosyncrasies that such analyses illuminate are boons to understanding the endlessly varied perspectives of the communal human experience.²¹¹ In particular, this chapter is an exploration of the analytical value that is afforded by idiosyncratic graphical representations of motion and the personal factors that both construct and define them.

²¹¹ See, in particular, studies on disability in music theory. Straus (2011), for example, refers to a sort of “theoretical listen[er]” who is invoked during an analysis; I believe analyses that center on an individual’s experience are just as valid. See also Straus (2018), Maler (2024), etc.

Jean-Jacques Nattiez's semiotic system accommodates such multitudinous perspectives by splitting our interaction with any artwork into three dimensions.²¹² The trace dimension describes the artwork as it is, devoid of the creator's or observer's frames of reference. The poietic dimension comprises, meanwhile, the creators' intents and experiences and how they influenced the artwork. This implies, paradoxically, that the creator is only a storyteller insofar as they technically told the story; the story, in a sense, becomes the storyteller. Therefore, the esthetic dimension, the perspectives of the experiencer, refers to the cross-legged children on the carpet. Their conceptions of dissonance (as well as the creators') and their ability to weave into their own narratives—influenced by a video game's own narrative—are the central focus of this dissertation. Moreover, both the analyst and the casual listener rely on the same elements from the trace in their interpretations; additionally, it is entirely possible that their emotional reactions to those elements are similar. What changes, however, is *how* they react to them and how they influence their overall understanding of the trace and its narrative.

Associating such insights with a narrative certainly aids in the absorption of a complicated argument's analytical core. More importantly, however, it marries the notions of musical *motion* and musical *expression*; how an analyst chooses to represent that motion will be similarly personalized. To that end, this chapter's central focus is on elucidating ways in which such expressive motions have been interpreted as pieces of a larger expository narrative, summarizing how such processes have been formalized and generalized in music theory.

²¹² Nattiez (1990, 10–16).

Change as Motion

Musical motion is, for the purposes of this dissertation, equivalent to motivic-transformational motion and progression. Other authors have conceived of musical motion in a more literal sense: Steve Larson's musical forces together serve as one such instance. The primary three—melodic gravity, melodic magnetism, and musical inertia—are metaphorical representations of physical action, applied to melodies in a tonal setting.²¹³ For example, we may possibly invoke musical inertia (perhaps the most relevant to this chapter due to its inherent link to kinetic energy), “the tendency of a pattern of motion to continue in the same fashion,” applied to a non-literal motivic network instead of literal one.²¹⁴ Larson himself notes that this concept has been tangentially applied in other theories of music for quite some time, particularly in theories that relate to melodic contour: the strength of the inertia is typically local, used as a sort of justification or refutation of some other force.²¹⁵



Example 29: [9E002] conforming to tonal forces (left) and flouting tonal forces (right)

This difference, arguably, distances my notion of musical motion from Larson's; while both he and I refer to sounding, represented pitches, Larson does not extrapolate them into non-literal motives. For example, Example 29 depicts two different orderings of [9E002]. The first follows more or less what might be expected with Larson's tonal understanding of motion and forces (motion, of course,

²¹³ Larson (2012, 82).

²¹⁴ Larson (2012, 96).

²¹⁵ Larson (2012, 104), for example, suggests that the melodic beginning of $\hat{5}-\hat{4}$ will somewhat naturally move to $\hat{3}$, as expected from melodic gravity and the inertia pressing the melody to move in the same direction by a similar interval.

inherently necessitating some sort of kinetic force): the D, through magnetism and gravity returns to the more “stable” C before falling with continued inertia to A. The second, however, flouts many of these expectations: virtually no gravity is exhibited as the ending contour only ascends, there are no stable notes to which to return. Perhaps the property of inertia may be applied; Larson does write that forces that conflict may be otherwise selectively employed based on context.²¹⁶ Compared to the set-theoretical relationship between the two, however, the forces break down when pertained to a non-literal context. Secondly, Larson's conception of motion is contingent on “tendency”;²¹⁷ because the metaphorical connection to the physical world is prioritized, his observations come from a similarly physical edict: that objects in motion stay in motion and objects at rest stay at rest.

It would be dismissive, however, to suggest that Larson's theories have no utility for this dissertation's thesis. In fact, if Larson's theory of inertia breaks down when applied to non-literal (pitch) motives,²¹⁸ it seems only fair to redefine his concepts in terms of non-literal motives. For example, non-literal motivic inertia contributes to a narrative understanding of a piece by extending the temporal scope of any one significant motive. Similarly, recall my reference to Stephen Brown's dual-interval space in the previous chapter: in it, I write, “motion in a DIS is, in a sense, predicated on a linear temporality... we can indeed interpret intervallic motion in a space as narrative motion in a diegetic storyline.” When arbitrated, our sense of motivic inertia carries our analytic and aural desire to follow recognizable pitch configurations.

²¹⁶ Larson (2012, 104).

²¹⁷ Larson (2012, 100).

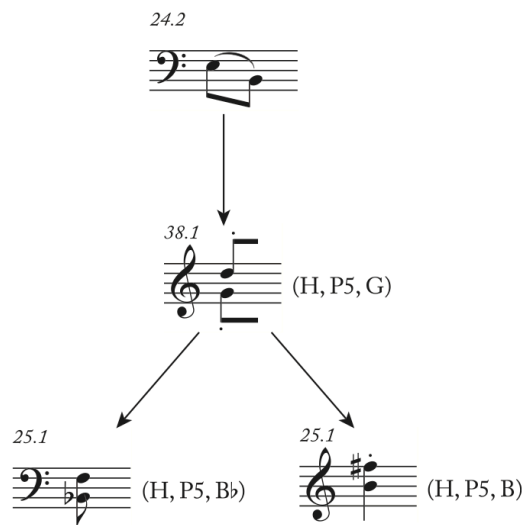
²¹⁸ Larson (2012, 196) conducts an analysis of Akiyoshi's “I Ain't Gonna Ask No More” in which he refers to a sense of musical surprise derived from the inertia of a motive's polyrhythmic setting (i.e., motives repeat) and the more innate desire for stability.

Gravity and magnetism seem to also have potential non-literal corollaries; however, they are more in conflict with Larson's notion of "tendency" to a greater degree than inertia. For instance, while there may be great narrative weight to a (0136) tetrachord undergoing several minute changes then returning to its original form (see Chapter V), thereby evoking a sort of non-literal magnetism, it would be perhaps fallacious to assume that weight is derived from the *tendency* of tetrachords to return to their original forms. Instead, it may be useful to suggest that the theories of set-class similarity, etc., discussed in Chapter III are predicated on a general preference for motivic closeness in a non-literal motive's ontology. This is distinct, however, from labeling two motives' closeness as expected from the composer, and I will refrain from claiming that the motion from one non-literal motive to another is narratively significant based on expectation alone.

Expectation, however, does imply culturally prominent reactions to certain musical figures, something that I posited as being integral for the internalization of dissonance as topical. For instance, Larson cites Paul von Hippel's cross-cultural investigation on the expected intervallic motion after a changing pitch.²¹⁹ Due to gravity and inertia, a motion downwards was most frequently followed by another downwards motion, pointing to a significant cultural component as the basis for his theory. For this reason, I remain sympathetic to Larson's desired outcomes. Both he and I depend on common reactions to standard pitch relationships (in my case, by way of topic); however, Larson treats those relationships as the objects of investigation themselves, while I treat them as the framework for other more narrative insights.

²¹⁹ Larson (2012, 105); von Hippel (2002).

Assuming atonality and dissonance are married, then, we may investigate ways in which the *pitches* that compose that union behave, rather than the analytical groupings that segment them. James Bennett's study on motivic networks provides an intriguing look into the ways atonal motives are transformed and categorized. Using "trees," Bennett organizes motivic collections through his version of "associative lineages" (from Hanninen) and "phylogenetic patterns," essentially a more biological view of motive that is contingent on the notion of evolutionary trees.²²⁰ In alignment with this project's objectives, Bennett writes, "I suggest extending [associative lineages] to any motivic or thematic practice that is highly variational in nature";²²¹ much like for Larson, we may think of extending this theory to non-literal motives as well. More importantly, we can retain Bennett's conception of his branching trees as unidirectional, continuous "motions" along a defined path.²²²



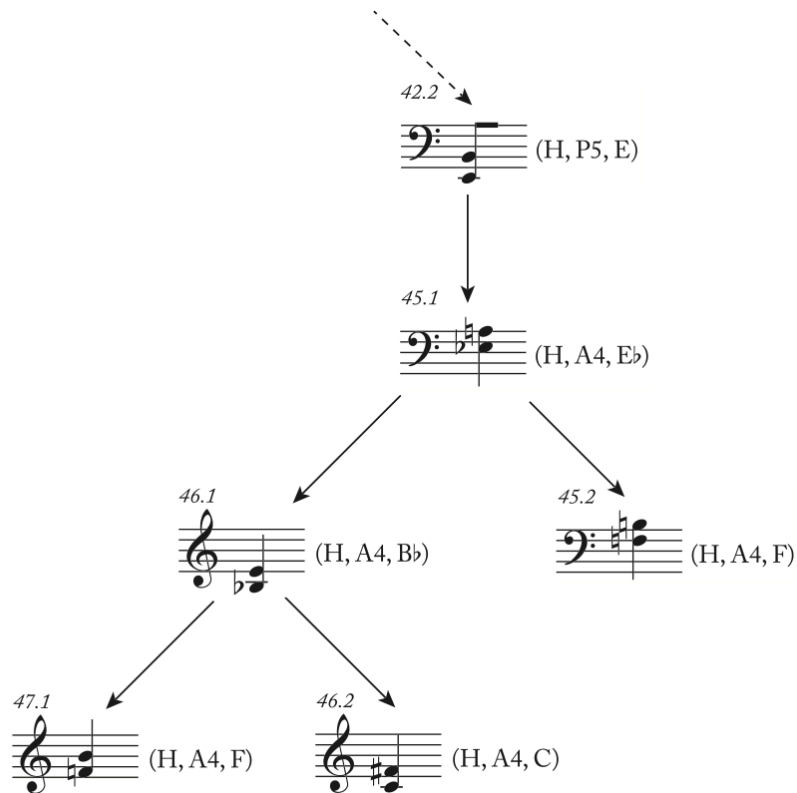
Example 30: Bennett, "G/D as *harmonic root*"

²²⁰ Hanninen (2009); Eldredge & Cracraft (1980)

²²¹ Bennett (2023, 10).

²²² Bennett does not explicitly define movements on any given tree as "motions"; however, it is undeniable that movement along the bifurcating paths is a central tenet to his theory.

For instance, Example 30 reproduces Bennett's Example 17. From 24.2 to 38.1 (denoting measure number and beat, respectively), a melodic $-P4$ interval from E to B is “transformed” into a harmonic P5 on G (hence his notation). The M3/m3 root motion is being applied as an appeal to the third-motions analyzed to be central to the melody's development.²²³ Notably, however, the E–B motive is treated as something of an “ancestor” to G/D; ²²⁴ in this case, the relationship is intuitive due to the inversive relationship between the two. The motion is, interestingly, not parsimonious as the bifurcation into 25.1 is (the left side represents something played by the left hand and vice versa). That



Example 31: Bennett, “*The H/A4 subtree*”

²²³ The root motion breaks the temporal continuity that would otherwise be prioritized for narrative purposes; however, I interpret this more as a referential interceding step rather than a direct transformation from one version of the motive to another. See Bennett (2023, 13–14) for his justifications.

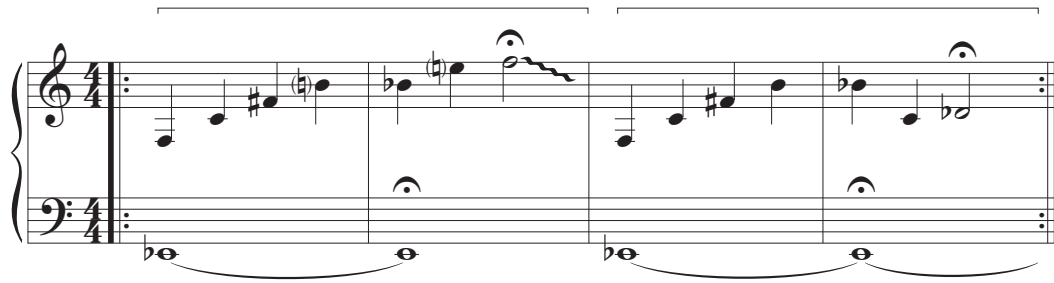
²²⁴ Bennett (2023, 14).

is to say, two parameters are being changed (melodic/harmonic and root) during the branching, suggesting that the provisions of ancestry and associative lineage supersede those of conditional parsimony.²²⁵

A similar phenomenon can be observed in his Example 18, reproduced as Example 31 above. Yet again, conditional parsimony is maintained once the motive is converted from a P5 to an unambiguously different A4 (the two are not inversion of each other this time). That intervallic alteration, however, serves as a defining motivic change in addition to the “root’s” (in this case, simply referring to the lower note) modification. This time, an arguably even more important condition has been altered, yet Bennett still feels comfortable using an arrow to connect the two; in this case, he considers the motivic lineage (as derived from the process of intervallic shortening he outlines) to be more important than maintaining parsimony. As a result, while I do not intend to treat video game narratives similarly as lineages, I do consider this evidence to the idea that non-literal motivic progressions, moving primarily in temporal unidirectionality, may rely on connecting forms of each other that are *sufficiently* close (as self-defined by each analyst). Narrative significance, therefore, may override direct mathematical relationships, circumventing the need to fall neatly into one analytic label.

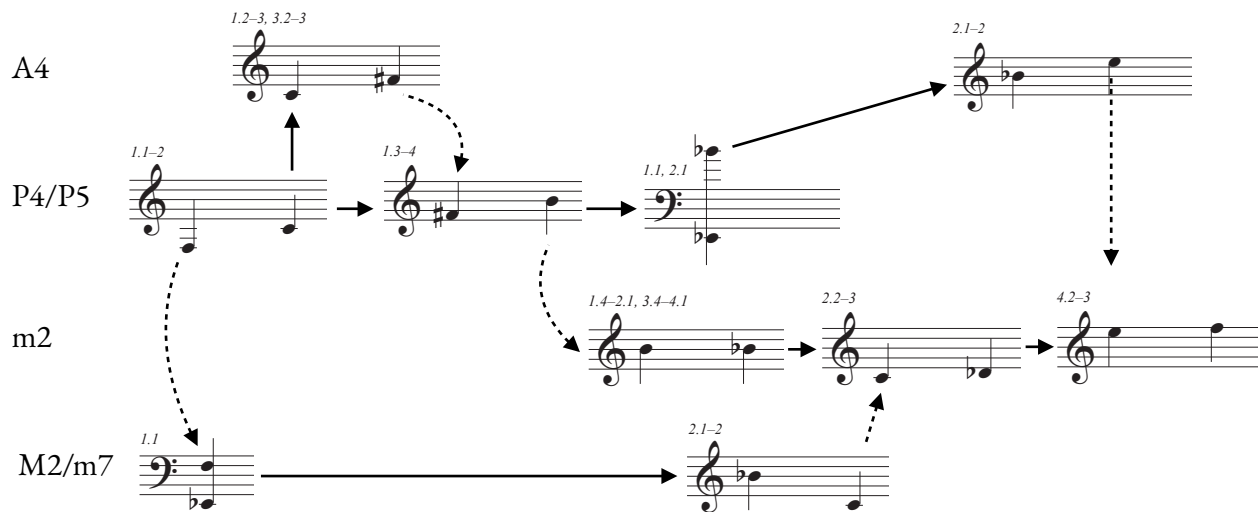
Example 32 depicts a reduction of “Deep Within Team Galactic HQ” from *Pokémon Diamond and Pearl* (2006). The player has just located the three captured Lake Guardian Pokémon, stolen by Team Galactic to summon one of two Legendary Pokémon, Dialga or Palkia. The room’s

²²⁵ I’d be remiss to not mention the marked similarity Bennett’s trees have with Karen Collins’s visual representations of video game narratives. Using (coincidentally) a “branching” or “bulging tree approach [emphasis mine],” she notes that the unpredictable nature of player actions in a ludic space necessitates a conception of ludic narrative that is fairly malleable, so to speak. The same core principle applies to a video game’s music as well. See Collins (2008, 142–7).



Example 32: *Pokémon Diamond and Pearl* (2006), “Deep Within Team Galactic HQ”

aura is cybernetic,²²⁶ as Team Galactic had to forcibly extract the Red Chain that would summon Dialga or Palkia; similarly, the atmosphere is dark and unsettling, as this act of evil is the penultimate event prior to the game’s climax. Using Bennett’s system as an underpinning, we can extract two



Example 33: “Deep Within Team Galactic HQ,” mock motivic tree

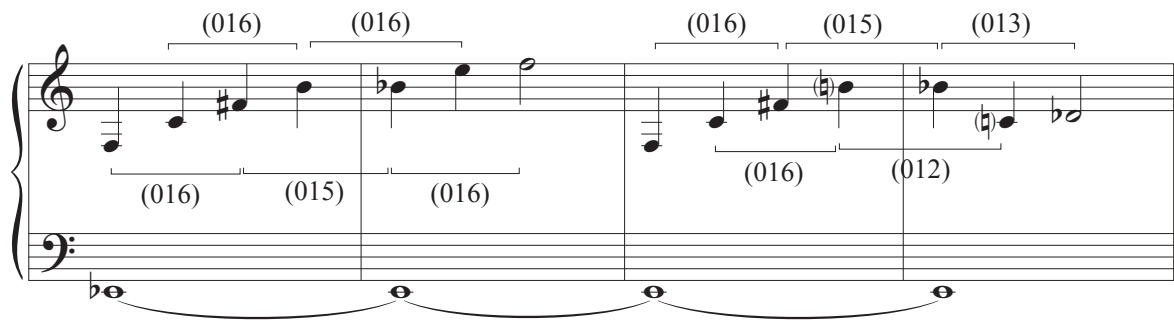
²²⁶ This cybernetic affect is established in part by semi-pitched technological blips in the background of the musical texture. “Fighting Cole and Malladus,” analyzed in Chapter V, also features this textural accompaniment. Is reducing these blips to the status of mere gesture antithetical to the dissertation’s values? On the contrary, recall that I prioritize audibility in my analyses; the blips play at such a speed and register to the point where their dissonance is indeed intuited as a gestalt, as opposed to a textural “voice.” However, to preemptively combat the idea that I am merely avoiding having to transcribe such pitches, I have included the pitches of the “...Galactic HQ” blips, up until the first melodic gesture, in the Appendix.

distinct, yet similar analyses from the primary melody of “Deep Within Team Galactic HQ,” depending on our reliance on literal or non-literal motives. Example 33 shows a mock motivic tree for the intervals contained within the track; in lieu of a left and right hand to facilitate branching, I opt to use the branches to depict significant intervallic changes. I also flip the gestures in my measure numbering. This may seem at odds with Bennett’s methodology, especially considering that intervallic changes existed freely on the same branches in his trees; however, this example illustrates the analytical benefit of using progressive arrows and branches to express competing yet coexisting narrative frictions.

For example, like Bennett, my tree largely subscribes to a temporally linear reading, flipping the order of the two gestures; like Bennett, I also opt to use aural information from prior musical segments to serve as a musical ancestor. In this case, I utilize E $\flat$ from the “beginning” to aid in the P5 harmonic interval created by it and the B $\flat$ in the melody to form the central dyad. The tree, thus, results in the following interpretation: much like the Red Chain required to capture and restrain Dialga or Palkia, the melody is constructed from a dichotomy of two entities that exist on a different plane of existence.

The first melodic interval establishes an ic5 dichotomy (perfect fourths vs. perfect fifths) and the first harmonic interval established adds subtle dissonance suggesting an ic2 dichotomy (minor sevenths vs. major seconds). The tension is increased as both strains forcibly jut off into the new versions of the initial intervallic motives; the ic5 dichotomy is ripped into an ic6 strain and the ic2 dissonance is constrained into an ic1 strain. Interestingly, both the ic5/ic6 superdichotomy and the ic1/ic2 superdichotomy refuse consistent interval sizes; the ic6 and ic1 remain the same, but P5/P4 and

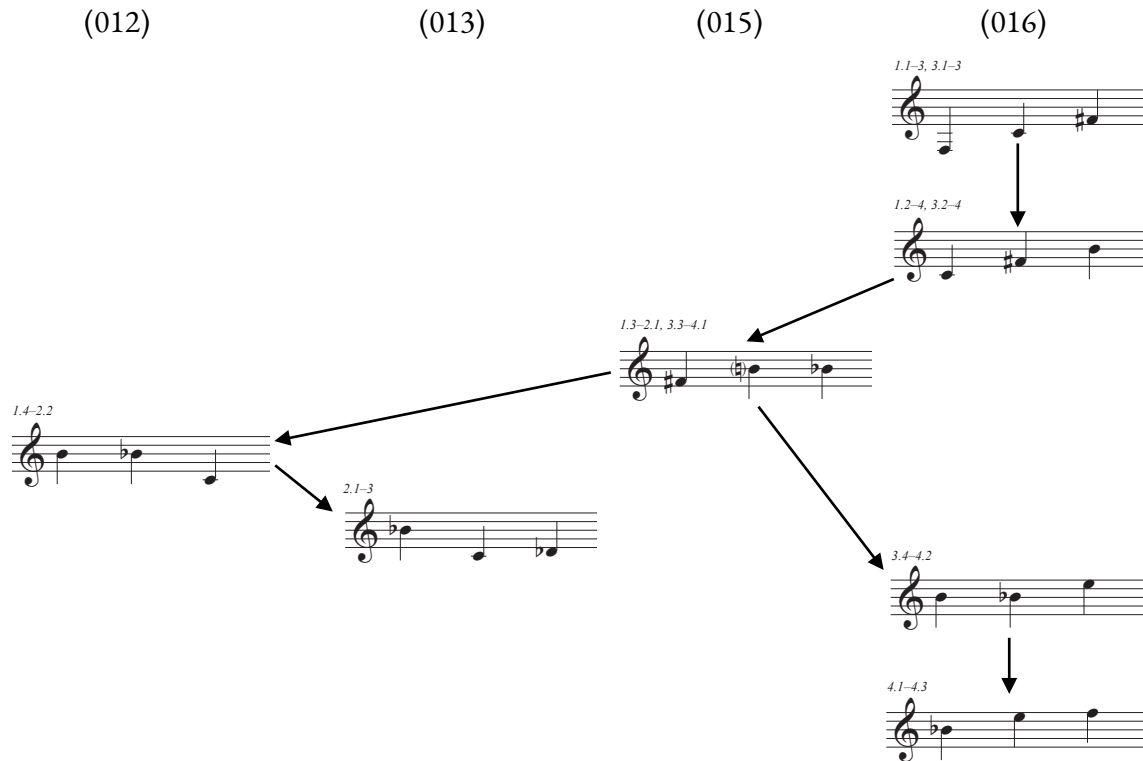
M2/m7s do not. Motivically, the force of the Red Chain's extraction from the Lake Guardians is felt gradually and painfully; at the end of each branch, the initial sonorities are, as such, now in their alternate, inconsistent strain. Indeed, the benefit to using Bennett's approach as opposed to a merely a transformational one is that while Lewin's systems are generally temporally agnostic, we can interpret change as a linear process, thereby letting the *effects* of the transformations aurally shine.



Example 34: “Deep Within Team Galactic HQ,” trichordal imbrication

Of course, that only accounts for the literal motives contained within the melody. I argued that non-literal motives may also benefit from temporally-defined transformations with parsimonious parametric changes. For the case of “Deep Within Team Galactic HQ,” imbricated non-literal trichords with minute intervallic changes augment the tension of the narrative situation in a manner similar to that of the literal motivic tree (Example 34). Comparing the set classes of both halves of the melodies would unsurprisingly result in an R_p relationship, as the only note between the two of them is the penultimate one;²²⁷ using imbricated trichords not only permits the more minute application of non-literal motives but conjures a mental picture of a chain constructed through wicked means. The

²²⁷ The relationship is, definitionally, of strong R_p —this in itself could point to the idea of “ripping apart,” though it’s better treated as a summary.



Example 35: “Deep Within Team Galactic HQ,” imbricated trichord non-literal motivic tree

resulting tree, built upon the presence of an abstract semitone is depicted in Example 35, with branches determined by the non-semitone interval contained within each trichord.

Both phrases begin with the same opener, two imbricated (016) trichords before moving to (015), one horizontal position left to the column of (016)s. In the second phrase, the (015) branches off into (012) and (013); in the first phrase, the (015) reverts to (016). Organized by the condition of intervallic structure, the second phrase clearly exhibits more motion, as though the Lake Guardians are fighting back against their capture: (012), despite being the most chromatically dissonant trichord, moves a great distance before being somewhat wrangled into the (016) column through (013), which in this case represents Team Galactic’s attempts to suppress them. When the first phrase begins, the slight (015) resistance (only 1 semitone as opposed to 4 semitones) reverts to (016) conformity, as

though the Lake Guardians' fight was quashed. The (015) present in both phrases may seem odd; however, it invokes the Guardians' resistance in *both* phrases, instead of just the second. The intervallic disparity in the first phrase, therefore, exists to depict the weakening of their resistance, while the second treats it as a catalyst for further opposition, locked in a cycle of pain and strife.

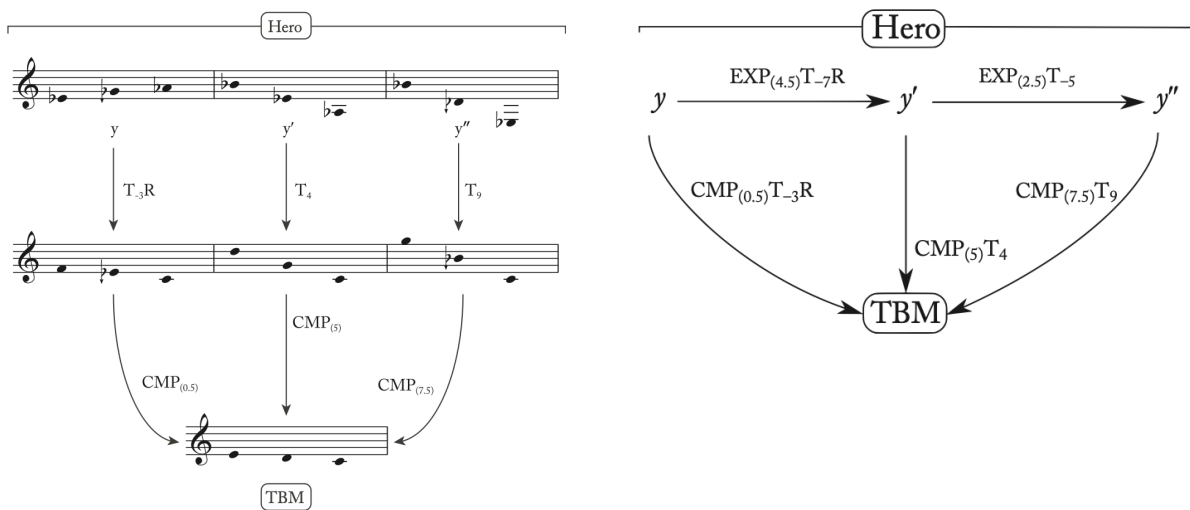
This analysis may raise a possible point of contention: how are these trees different from comparing the similarity relationship between set-classes? The answer lies in the narrative element: these slight alterations to Bennett's graphical and viscerally *visual* system have an inherent sense of motion that mere set-class similarity calculations do not probe. Of course, analysts that prefer set-class analysis certainly utilize hermeneutic structures to explain the effects of their analysis. Indeed, many scholars note that the diachronic nature of motivic succession is paramount to its interpretation;²²⁸ synchronic and order-agnostic taxonomies fail to capture the intricacies of the development.²²⁹ However, the trees and their associated branches permit an analyst to consistently group motives by parameter as proof of their analysis's audibility and amenability to the narrative, permitting a sense of relative distance as put forward through motivic motion.

James Donaldson uses another amended version of transformational graphs and networks to relate motives to each other, this time incorporating topics, styles, and genres. The relationship between pitch and topic he suggests can be made explicit: the pitches that compose a *topic* can act as transformational nodes.²³⁰ Example 36 reproduces Donaldson's Examples 4 and 5. The former depicts

²²⁸ See Gopinath (2022), in particular, for an in-depth investigation on how to use hermeneutics to promote the immediate comprehensibility of a post-tonal analysis, using Ruth Crawford's music as a focal point.

²²⁹ See, in particular, Dalhaus (1984), Frisch (1984), Haimo (1997).

²³⁰ Donaldson (2021, 155).



Example 36: Donaldson, *Hero to Three Blind Mice (TBM) transformational network & Hero to TBM further abstracted*

a progression from a three-note Hero topic to a Three Blind Mice topic through the transformations EXP (expansion) and CMP (compression); the latter simplifies the former by composing the transformations and only using the motives' generic labels. For the sake of the reader, the motivic label y denotes the motive's first form; Donaldson associates it with the Hero topic (generic topic, not as defined by Mirka, et al.) due to its centrality on E^b and the use of its natural harmonics in subsequent motives.²³¹ y' and y'' , the motives that progress to the right, are also three-note Hero motives that are connected to the y through EXP and CMP. Conversely, Three Blind Mice (TBM) is identified as a topic due to its centrality on C, evoking a nursery rhyme,²³² its descending contour, and equally spaced notes; therefore, the *topics* of Hero and TBM are connected through their pitch content.

²³¹ Donaldson (2021, 157–8).

²³² Donaldson (2021, 159).



Example 37: *Pokémon Mystery Dungeon* opening motives and themes

Applying this framework to this dissertation may seem fruitless due to the focus on an atonal topic at large;²³³ however, my commitment to video games that *primarily* operate with a tonal harmonic language permits a network of motivic topics between tonal and atonal idioms. That is, pitch motives in tonal and atonal contexts can be linked through their topical associations. For instance, all of the games in the *Pokémon Mystery Dungeon* franchise are unified by various shared opening themes, often heard in their title screens (Example 37), played in different orders depending on the game. Their specific topical associations also change with each game's title; for the *Explorers* games, one could ascribe an affect of “adventure” to them, while in the *Rescue Team* games, they might be linked to a sense of “heroism.” In all cases, however, teamwork and friendship are at the narrative forefront.²³⁴ For *Gates to Infinity* (2013), the third installment in the franchise, those associations are combined, as the game involves all of expeditiousness, bravery, and friendship: the game's plot revolves around the player being transformed into a Pokémon after being shown a vision of the fleeing Munna

²³³ Donaldson (2021, 170). Donaldson alludes to topics *within* a post-tonal harmonic idiom; meanwhile, I treat the idiom as being a topic of some sort in itself.

²³⁴ See 8-bit Music Theory (2020) for a leitmotif-oriented analysis of *Mystery Dungeon*'s themes.

as she runs from the ferocious-looking Hydreigon. While saving Munna is a significant part of the story, much of the game's early progression, however, is centered on a grand expedition to the Great Glacier. As such, when used in *Gates to Infinity*, the motives communicate the positive associations of a “hero's expedition.” Of course, the partner Pokémon the player first befriends after their metamorphosis serves as their primary companion throughout the story as well.

When the player meets Munna, however, it is revealed that she has deceived the player; she, in fact, is a henchman of the true villains. As the player approaches the seemingly injured Munna for the first time, the lights are dimmed, and Munna's henchmen leap out of the shadows with intent to

The musical score for "Hiding in the Shadows" is written for three instruments: crotales, vibraphone, and bells. The key signature has one flat (B-flat), and the time signature is 4/4. The score is divided into two systems, each containing three staves. The first system includes a 'delay' instruction and a dynamic marking of 'p' (piano). The second system includes a dynamic marking of 'f' (forte). The music features a repeating eighth-note pattern in the crotales and vibraphone, and a more complex, syncopated pattern in the bells. The piece concludes with a double bar line and repeat signs.

Example 38: *Pokémon Mystery Dungeon: Gates to Infinity* (2013), “Hiding in the Shadows”

murder the player. Before the reveal, the unsettling “Hiding in the Shadows” (Example 38) plays during the team’s conversation with Munna, an emotional inversion of the satisfaction a player might feel by accomplishing one of the game’s supposedly overarching goals. Thus, the thematic associations of heroism, intrepidity, and friendship are similarly flipped.

$(027) = (027) \overset{\text{MIDSHFT1}}{<} (037)(037)(037)$

$(0136) \overset{\text{MIDSHFT1}}{<} (0246)$

$(02357) \overset{\text{MIDSHFT-1}^*}{\approx} (01237) \text{Rp} (01267)$

Example 39: “Hiding in the Shadows,” trichordal (top), tetrachordal (middle), and pentachordal (bottom), set streams; M (main themes) vs. H (“Hiding in the Shadows”)

As such, Example 39 depicts various set-class relationships with their use in the tonal main themes (M) and atonal setting (H, for “Hiding in the Shadows”), grouped by cardinality (trichord, tetrachord, and pentachord). Compared to their use in M, when elaborated in H, their respective set classes are altered by increasing the internal set class elements by one, while retaining the outer bounds;

we may call this function MIDSHFT_n , where n is the factor by which the internal elements move. For the case of “Hiding in the Shadows,” its main motives (027) M and (0136) M are MIDSHFT_1 relative to the set classes found in the main themes. Additionally (although less mathematically rigorously), (02357) M is an imprecise MIDSHFT_{-1} when transforming into its H counterparts. In this case, although 2 and 3 contract properly with the -1 factor, 5 contracts to 3 by a factor of -2 .²³⁵

For the top and middle examples, the expansion of internal intervals is both a transformation in the mathematical sense as well as the physical sense, almost as though the defined, stalwart values of the heroic adventurer are being interrogated. One can imagine it like the vocal rise in pitch when asking a question. Contrastingly, the contraction of intervals in the bottom example emulates the tightening of the chest felt during a bout of anxiety; its imprecise transformation may also signify the uneven or quickened breathing commonly associated with such a predicament.

I maintain Donaldson's overarching thesis that motives can be associated with certain topics through their pitch structures, then altered through transformational means to achieve new associations. However, my analysis differs in two key ways: a) I am not directly linking two topics and b) I do not presuppose that certain set classes or pitch configurations are consistently associated with certain topics. For the former, I find more analytical insights in the *transformation* rather than the destinations. For the latter, I consider the set classes merely an additional mechanism through which the motives can themselves be related; put simply, the objects being transformed are fundamentally the

²³⁵ The use of fuzzy transformations between musical and numerical elements is common in music theory; I raise Straus (2003), Quinn (1997), and Robison (1995) as quintessential examples. Borrowing Straus's notation, we may think of such a compression as $\text{MIDSHFT}_{-1}(1)$, where (1) designates the offset of the transformation.

motives, not the set classes. As Byron Almén notes, “narrative and topic are distinct signficatory domains”;²³⁶ as such, the static motives have idiosyncratic topics that are then transformed (that is, narrativized) into other sonorities that are heard in relation to the original referential motive.

For this reason, this cross-track analysis resembles the leitmotivic analyses conducted on various media; scholarship in this realm tends to treat significant orchestrational or intervallic changes as narratively charged. Indeed, leitmotivic analyses also exhibit motion (a timbral or topical change, for instance, may result in another parsimonious parametric branch); however, studies on such matters often trace the leitmotivic referent throughout an entire work (or game), even if only used as a calling card.²³⁷ My analysis of “Hiding in the Shadows,” meanwhile, may utilize an overarching leitmotif as its base, but is more interested in a *specific* topical change in a single, surprisingly dissonant track. As such, I differentiate my study from ludic leitmotivic scholarship at large, as I am not as concerned with the more complete narratives that may be elucidated through *multiple* topical motions throughout a game.

Of course, the generally creepy affect of “Hiding in the Shadows” is caused by more than just an intervallic shift; indeed, other musical parameters (such as timbre, in this case) help justify the narrative reading that may be elucidated from its pitch structures. For instance, the (027) M is non-literally equivalent to the (027) H, showing a certain retention of heroism. This heroism, however, is starkly undercut by the way in which it is harmonized: a subtle, wispy bell-like instrument that obscures exact 12TET pitches. The recurring delay of the vibraphone also emphasizes the (0246), its

²³⁶ Almén (2004, 38).

²³⁷ See, for instance, Anatone (2023) for an in-depth analysis of Terra’s theme is employed in different contexts over the course of *Final Fantasy VI* (1994) to convey changes in her allegiance and relationships to other characters.

whole-tone ambiguity enhanced by its rhythmic repetition with an unclear sense that the instrument was “struck” again. Undoubtedly, the glissando that dominates the texture starting in m. 3 also places this track in a firmly unsettling space; although I decline to attach it to any specific pitch motive or transformation, its destabilization of a modicum of centrality, coupled with its relative sustain (compared to the other instruments), renders it a gestural, affective force of evil in direct competition with the attempted heroism.²³⁸

Immersion as Motion

Do any of these narrative transformations beget a change in ludic interaction? That is to say, how do these changes change the way players interact with the game? In a word, indirectly. As I repeated several times in this dissertation, atonal music can communicate a variety of emotions. However, when applied to discomforting situations, atonality's utility comes from a combination of its inherent acoustic and culturally topical dissonances, fused to evoke a semiotic and physiological sense of unease. Game designers are distinctly aware that our surrogate bodies transfer their desires and reactions to our real-world ones.²³⁹ When survival or comfort are jeopardized, as such, those existential fears translate back onto players.²⁴⁰ Designers have capitalized on this connection by tweaking gameplay elements in ways that intensify or simulate the fear of the on-screen scenario. For instance, survival horror games often use “clumsy” controls to impart upon the player the same sense of panic as

²³⁸ Buchler (2019). Gestural refers to non-tonal pitches that are best interpreted as ornamental, not a part of some larger set complex. Here, it does not refer to a musical gambit that evokes a particular emotional affect.

²³⁹ Lahti (2003, 163).

²⁴⁰ Perron (2009, 138).

the on-screen avatar;²⁴¹ incomprehensible, harsh music often accompanies sequences of high-intensity danger to further disorient them. Additionally, the mere threat of a startling jumpscare can influence the way a player interacts with the game's mechanics.²⁴² In effect, they encourage a physical response from the player by controlling how they interact with the narrative. Music and the subtle thematic developments thereof effectively do the same by constructing idiosyncratic narratives that run parallel to the ludic one. Should both the music and gameplay agree on their affective goals—and they often do—the result is an experience that prompts the player to match their movements to match the narrative; we feel the motivic transformations just as we would the imprecise and clumsy press of the A button.

²⁴¹ Roux-Girard (2009, 150).

²⁴² Villarreal (2020); Van Vught and Schott (2012).

Chapter V: Analyses

The Insidious 1

Throughout this dissertation, I have shown many ways to analyze atonal VGM with many different techniques. As I begin this chapter, I want to make clear that I do not intend to merely replicate that methodological compendium in my case studies. The previous chapters, rather serve as review-analysis hybrids that include smaller-scale analyses as demonstrations of techniques' efficacy. This chapter's case studies, then, comprise a more focused analysis that may use elements of those previous chapters but are not obligated to. Put simply, I focus on a few more basic analytical concepts to illustrate a single point: literal and non-literal semitones or singular units of offset (depending on the analytical method) communicate a latent sense of unease that is generated through otherwise audible musical figures due to their relative closeness to more familiar musical constructs.

Pokémon Mystery Dungeon: Explorers of Sky

Humph. Up to now, I've had to chase after you. But now, all that's required is for you to come to me. How deliciously convenient.

–Dusknoir

Pokémon Mystery Dungeon: Explorers of Sky (2009) is well-regarded as one of the most impactful stories the franchise has ever produced. Players control a team of two Pokémon and journey to become the greatest explorers of all time, only to come across an evil plot to plunge the world into eternal darkness; the evil Grovyle has traveled back in time to ensure that the planet undergoes “paralysis,” wherein time has completely halted, society has collapsed, and the sun never rises. In order

to stop him, the team befriends the famous explorer Dusknor to protect the Time Gears—mystical items that facilitate the flow of time in the areas in which they’re placed—from Grovyle’s schemes. By the middle of the game, they have succeeded: Grovyle has been captured and the guardians that protect the Time Gears are safe.

Just before Grovyle is sent back to the future through the Dimensional Hole, however, Dusknor grabs the team and pulls them into the portal, into the paralyzed future. Here, the team learns that Dusknor was deceiving them; in fact, Grovyle was trying to *prevent* the planet’s paralysis from occurring by placing the Time Gears in their proper spots in the crumbling Temporal Tower. Dusknor, meanwhile, was actually the top henchman of Dialga, the god of time, whose crazed degeneration caused the collapse of Temporal Tower, resulting in the planet’s paralysis. As Grovyle and the team join forces to aid Grovyle in his quest, Dusknor serves as the team’s primary antagonist; he and his endless supply of Sableye underlings pursue the team relentlessly until they finally meet in battle. Just a few dungeons away from saving the world, the team has no other choice but to fight this former ally, now an agent of darkness.

The aptly named track, “Battle Against Dusknor,” plays during this fight. Although much of *Explorer of Sky’s* soundtrack makes liberal use of non-functional harmonies, “Battle” stands out as the only track that makes use of a markedly post-tonal idiom. Indeed, the trepidation of facing an enemy—and a former ally—that very clearly wants you dead, with world-ending stakes, is foregrounded. Thus, the negative topical implications of atonal music rear their heads once more; however, through set classes and voice leading, not only can we identify how this anxiety manifests itself in “Battle,” but also

track how it turns into a stalwart resolve in both the characters and the player. Throughout, I reemphasize my desire to trace narratives and focus on the musical figures that I believe facilitate that; I am not interested, in accordance with Buchler, necessarily in segmenting the entirety of the track to diligently force every pitch into set-complexes, lest I end up contradictorily detracting from my point that composers often make significant relationships audible, albeit oftentimes subtle.

Locating a Musical Protagonist

The musical score for Example 40 is presented in two systems. The first system features a treble clef staff with a melody of eighth notes, marked 'sim.' (simile), and a bass clef staff with a sustained chord. The second system shows the same melody in the treble clef and a new melody in the bass clef, marked '+delay (.)'. The bass clef melody consists of a series of chords, with the first chord being a parallel 3-5 trichord.

Example 40: “Battle Against Dusknoir,” introduction

The track’s introduction (Example 40) I would say very plainly introduces us to the track’s primary non-literal agent; after a measure of eerily high strings, parallel 3-5 trichords are played in the melody. Such a persistent configuration calls our attention to the trichord’s inherently dissonant

properties: a minor second and a tritone.²⁴³ Indeed, such repetition harkens to Straus's analysis of Schoenberg's op. 11, no. 2, in which he personifies offsets in uniformity, balance, and smoothness with "a sense of the difficulty of the voyage";²⁴⁴ ironically, the maximal presence of all three criteria (presumably, the "easiest" voyage) correlates with an equal amount of *discomfort* in "Battle." As such, it would seem as though (016) is going to be our primary agent. In consideration of the notion of "insistence," however, I also add the repeated high C6s in the violin to the [923] trichord; it seems to be the primary chord from which the others ([701] and [E45]) deviate. Set 4-13 (0136), as a result, becomes our actual introductory sonority; a significant part of my analysis will revolve around its development like the Hero's Journey, a gradual replacement of discomfort with confidence.

The suspenseful, somewhat orchestrationally understated way this principal set is set supports the narrative and ludic function of the track. Speaking specifically about rock music, Nicole Biamonte writes that "rock introductions begin with a thin instrumental texture that is gradually thickened over the course of the section: a buildup introduction... [t]he overall effect of introductions is anticipatory, creating the expectation of a more complete section that includes the vocal entry to follow."²⁴⁵ Atonal music, too, often presents a principal idea in a texturally clear manner, so that future sections may elaborate upon it with more lavish orchestrations. Recall: the player is not only fearful of Dusknoir on a narrative level but also a *gameplay* level; Dusknoir is accompanied by six of his Sableye minions and the player must take at least a couple of turns to ascertain what strategies will work best against him and

²⁴³ I reiterate here that my observations regarding "attention," etc. are relevant insofar as they contribute to a markedly dissonant or unsettling ludic situation/environment. In this case, the repeated 3-5 trichords in parallel motion very quickly solidify the affect of not only the rest of the music, but the *fight* as well.

²⁴⁴ Straus (2003, 343).

²⁴⁵ Biamonte (2018, 197).

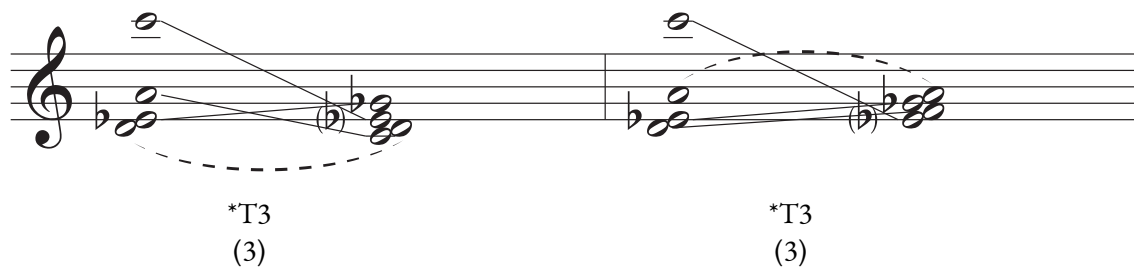
his small army. Therefore, not only does the affect with which the 4-13 is introduced map onto the player, but the set *itself* does as well; because the player already identifies with the characters, a tripartite level of musical-narrative understanding is achieved.

Undergoing Change

The musical score is presented in three systems. Each system consists of two staves: a top staff for the bassoon (treble clef, 13/4 time signature) and a bottom staff for the piano accompaniment (treble clef, 4/4 time signature). The bassoon staff contains a melodic line with various notes, rests, and ornaments. The piano accompaniment staff contains a repeating ostinato pattern marked with a double bar line and a slash. The first system shows the initial entry of the bassoon solo. The second system shows the continuation of the solo and the ostinato. The third system shows the final measures of the section, including a triplet in the bassoon staff.

Example 41: “Battle Against Dusknor,” B section, bassoon solo and ostinato

The next section (Example 41) features a bassoon solo with two parts: one with an ostensible pitch center of C and one on E $\flat$. Both sections contain an ostinato that progresses up the scale to the minor third then leaps to the tritone of the pitch center (<0, 2, 3, 6> and <3, 5, 6, 9>). The ostinato is important, again, on account of its insistence: it still features a (now broken) minor second between the second and third positions and a tritone between the first and fourth positions, but the internal intervals have changed; consolidated, they form a 4-12 tetrachord, (0236). Critically, 4-12 forms a weak R_p relationship with 4-13,²⁴⁶ and this connection serves as the catalyst for the upcoming transformations. In short, R_p chains audibly represent change in the psyche of the characters, depicting the growth of the deuteragonists throughout the game *as well as* their relationship with Dusknor.



Example 42: “Battle Against Dusknor,” B section, ostinato voice-leading offsets

Although R_p is a fairly intuitive way to consider this change, analyzing it as a reduction in voice leading uniformity may also reveal unique insights (Example 42). Of course, any insights derived from Straus’s method comes from the same musical fact, that [2, 3, 9, 0] and <0, 2, 3, 6> are very similar collections with heavy dissonance; however, the specific pitch classes chosen may offer some more specific connections not afforded by the generalization of pitch class sets. By collapsing the <0, 2,

²⁴⁶ I use the term “weak R_p” as a *descriptor* of the analytical relationship shared between the two sets, rather than a description of its poignancy.

3, 6> into a vertical sonority, most pitch classes in 4-13 map onto 4-12 via T3, except the remaining PC 2s. As mathematically expected, the 4-13 pitch classes map onto the second 4-12 (<3, 5, 6, 9>) via T3 as well, this time leaving the two PC 9s behind. The operational label, then, from the 4-13 “main actor” to both instances of the 4-12 ostinato is *T3 (3), where 3 is the total offset relative to the main transpositional operation (in this case, 2 maps onto 2 and 9 maps onto 9 via T0 and 0 is an unordered pitch class interval of 3 away from 3, T3). T3, also reflecting the transposition of <0, 2, 3, 6> to <3, 5, 6, 9>, perhaps suggests a change into another, more chaotic scene; the inherent malice, however, is insidiously retained, the stacking of minor thirds strengthening the tritone's dissonant invocation.

The bassoon part itself undergoes a transition as well, albeit a more general one. In the first ten measures of the excerpt, there are significantly more semitones, while the remaining portion of the solo uses larger leaps. In accordance with the narrative that I am defending, subtle changes are happening; dissonance has most certainly not vanished, but its strong foothold is slowly weakening.

Indeed, these changes introduce tumult to an already unsettling track; the affect of this second section is far more driving and split into more independent, contrapuntal sections (bassoon melody, ostinato, timpani-like bass, percussion, brass figures). The set class and voice leading relationships I discuss are notable and supported in large part due to this change in affect, almost as though the composer(s) are inviting the subconscious understanding of subtle pitch changes *because* of the very explicit changes in musical mood.

The C section (Example 43) takes the core process of subtle change and greatly amplifies it, saturating the entire texture with near-identical genetic copies of the original 4-13 (Example 44). The

Example 43: “Battle Against Dusknor,” C section, motives labeled

Motive	Location	Set Class	Forte Name	Significance
α	mm. 1–4	(0136)	4-13	Set reiterated from the introduction
A	mm. 4–5	(0136)	4-13	Identical with (0136)
B	mm. 4–5	(0146)	4-z29	R_p , (016) with (0136)
C	mm. 5–6	(0156)	4-8	R_p , (016) with (0136)
D	mm. 5–6	(0148)	4-19	R_p , (014) with 4-z29
E	mm. 6–7	(0126)	4-5	R_p , (016) with (0136)
F	mm. 6–7	(0236)	4-12	R_p , (036) with (0136)
G	m. 7	(0167)	4-7	R_p , (016) <i>twice</i> with (0136)
H	m. 8	(0135)	4-11	R_p , (013) with (0136)
I	mm. 2–3	(013569)	6-z28	Superset of (0136)
J	mm. 6–8	(014579)	6-31	R_p , (02458) with (013569)

Example 44: “Battle Against Dusknor,” C section, motive table

first six notes of the melody (Motive α) harken back to the introduction in two ways: the first—and likely more noticeable—way is by supporting it in parallel motion; secondly, the notes in the melody ([2, 3, 5, 8]), once again, conform to 4-13. In total, these similarities aurally set up the beginning of the C section to remind the listener from where the changes derived so that subsequent changes to it are more palpable. They are simultaneously reminded of the context in which it was first presented; “recall how timid you were when we began,” the piece almost seems to say; “things are about to change.”

Recalling Gassi once again, atonal relationships are often made clearer through other musical parameters. Although Gassi discusses instrumentation, affect, and timbre at great length, rhythm and gesture (what he calls “motivic cells” (132)) remain core aspects to his theory;²⁴⁷ “Battle” repeats rhythmic gestures of ♩ with different pitches to draw attention to underlying theme of change. This repeated rhythmic gesture can be identified in Motives A–F, the set classes of which are in the table above. R_p again serves as a useful analytical tool that emphasizes the gradual change suggested by the narrative. As I will demonstrate below, as the piece will ultimately move to tonality, this change represents the struggle but also a move towards victory. Note that Motives A–F feature differing levels of relation to the nexus set: while most of them have a direct weak R_p relationship with (0136), Motive D, for instance, instead features an R_p relationship with Motive B, effectively forming a sort of “ R_p chain.” This term effectively describes weak R_p relationships that are formed from other significant pitch class sets with yet another R_p relationship, culminating in a “second dimension” of change.²⁴⁸

²⁴⁷ See in particular Gassi’s analysis of “The Forbidden Zone” from *Planet of the Apes*. Each musical gesture consists of a short-short-long configuration, calling attention to the melody’s adherence to a twelve-tone matrix, but does not make the relationship explicit.

²⁴⁸ See Boss (2019, 287) for similar chains involving similar small set classes with changing shared intervals in Schoenberg’s “Mondestrunken.”

Although they do not feature the same rhythmic pattern, Motives G and H are rhythmically distinct enough to my ears to form discrete interpretive cells. As such, they also form weak R_p relationships with the nexus set, a sort of summary of the change that the music and characters have undergone. On a local level, in particular, Motive G consists of two instances of (016) within itself; if we consider it the first in a pair,²⁴⁹ then Motive H's relatively lower adherence to the nexus set (only containing one instance of (016)) is representative of the change underwent throughout the C section. Indeed; perhaps a more explicit relationship could have been formed if Motive G was only related to 4-13 by R_p *once* and Motive H formed no such relationship at all. The high dissonance of 4-7 transitioning into the relatively low dissonant 4-11, however, is particularly audible through its setting; (0167)'s contour really emphasizes the semitones and tritones ($\langle -6, -1, -6 \rangle$) while (0135)'s contour, despite retaining some slight semitonicity, is far more open ($\langle +2, +8, -1 \rangle$).

A similar relationship—one of effective summary—can be found between Motives I and J. Motive I, heard in the first half of the section consists of an arpeggiated diminished and augmented triads. Very much like the “opening” of intervallic settings between Motives G and H, the two halves of Motive I suggest the importance of intervals as the section progresses. Additionally, although Motive I is a superset of the nexus set 4-13, such is not the case with Motive J; however, much like the second-dimension relationships explored in Motive D, Motive J instead forms an R_p relationship with Motive I, the made explicit through an elevated register.

²⁴⁹ Also worthy of note is that (016), the subset that is shared in the R_p relationship, is the original dissonant trichord played in parallel motion in the Introduction (Section A). Its double-inclusion in 4-7 may hint with even more certainty that it stands as the beginning of the story summary.

The Affect and Effect of Tonality



Example 46: “Battle Against Dusknoir,” E section

the reader to notice my use of key signature in this section; because the first cell is played in the tonic key and the second cell in a clear subdominant, I consider Section E to have fully completed the transition into tonality. Additionally, this fifths-motion from a G# minor to C# minor ostinato acts as the more tonal version of the previous, more tonally ambiguous C-centric to E $\flat$ -centric motion from the B section, reinforcing the idea that atonality has progressed into a braver, more confident tonality. In effect, beyond the core criteria of set class,²⁵⁰ the motivic tree transforms from *harmonic idiom* to *harmonic idiom*; that is to say, topical *figurae* can themselves be conceived as transformational criteria, assuming the motivically ancestral roots are fundamentally retained (and permitted to be non-literal).

4-13’s transformation from an atonal configuration into a tonal setting is ludicly and narratively fitting. With regard to gameplay, the player slowly becomes more comfortable with the

²⁵⁰ Bennett (2023, 10); Hanninen (2012, 159).

fight's mechanics, understanding how to confront the group, and (by this point) slowly reducing the number of adversaries over time. Narratively, the group undergoes something similar. Although somewhat resolute at the start of the battle, a sense of trepidation is evident (Grovy's final word before the fight is a simple, "Urgh..."; however, the dialogue present after the fight is far more confident and victorious (Grovy now says: "Humph. Your Sableye ran off. You just have no luck attracting reliable allies."). Of course, the kindred relationship between narrative and gameplay has been defined and explored countless times; the effect of music has been explored countless times moreover. However, I add specificity to the discussion of atonal affect's contributions to this relationship; with it, we can understand how atonal pitch relationships can lead to immersive scenarios in the same way as tonal relationships do.

A reasonable point of contention to my analysis regards the differing ways that I measure and define changes throughout the track. For example, although I claim that the significance of (0136)'s change is due to the dissonant introductory aether in which it was constructed *and* its recurrence in the resolute, tonal final section, I also claim that Motive J and the melody in Section D are significant because of a *lack* of (0136)'s presence. I keep, however, the core conceit of change as well as the dedication to observing other musical parameters in mind. For instance, the repeated rhythmic content of Motives A–F are not notable on their own; however, I use it to justify the related, *changing* pitch content of the recurring motives. I also considered the harmonically transitory nature of Section D to be representative of the major change I saw in the story and gameplay; therefore, the absence of any reference to the dissonant nexus set enhances the effect of that new idiom. The subsequent return of

(0136) in a tonal context presents, then, a sort of Hegelian synthesis wherein dissonance is the thesis and tonality is the antithesis.

Insidious (1) as Offset

Set classes do not reveal the whole story, however. Recall that a core emotional tenet of this track is the anticipatory buildup to facing a central antagonist who's bested you many times before. Thus, if the relationship between two objects were to be placed on a continuum from maximally similar to maximally dissimilar, I prefer to generally conceive of anticipation as a slight change; maximally dissimilar may suggest outright horror, while the congruence between two congruent musical figures could be construed as emotionally “consonant.” For this reason, I value R_p so highly in my set-class analyses; however, this is not the only way anticipation and fear can be represented through motivic transformation.

Example 47 reproduces my transcription of the track's C section (the section that extensively used close R_p relationships already), now with critical attack points marked in sets of four, as they were in the previous iteration of this analysis. Examples 48–50, meanwhile depict the various voice-leading relationships between each set: each example depicts local transpositional (uniformity) graphs between each timepoints and more global inversional (balance) graphs that connect the motives' spans. In Example 48, for instance, although the top voice (used for Motive α) seems to reestablish (0136) before initiating the various R_p chains, we see that the way in which the beginning of it is harmonized deviates from such a strong reading: the bottom voice exists essentially to ruin the idea that this in any way

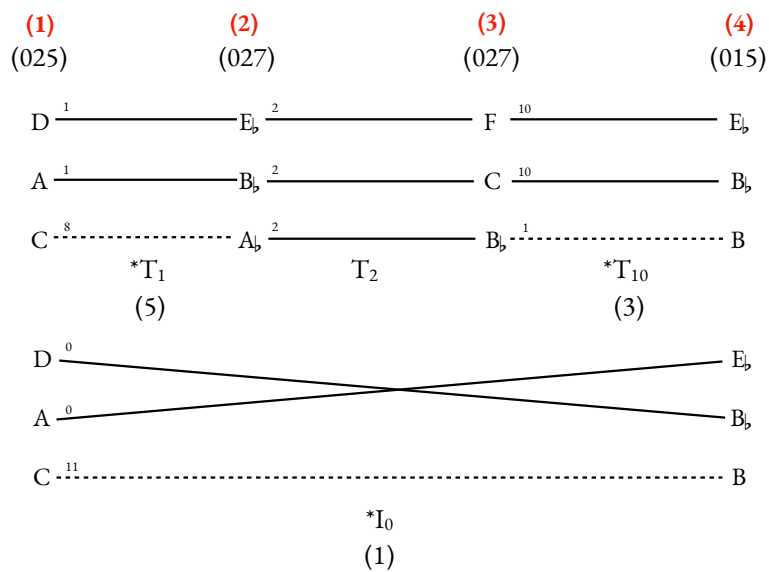
highlights (0136)'s protagonistic and heroic qualities. Although the following transpositional graphs are reduced to only two voices thereafter, they produce similar analytical information as the set-class analyses but incorporate a more literal-motivic secondary approach.

The musical score is for the C section of 'Battle Against Dusknor'. It is written for piano in 2/4 time. The first system contains four measures. Measures 1 and 2 have two voices each, with timepoints (1) and (2) in the first measure, and (3) and (4) in the second. Measure 3 has a single voice with timepoint (5) and a triplet of eighth notes. Measure 4 has two voices with timepoints (6) and (7). The second system also contains four measures. Measure 5 has two voices with timepoints (8) and (9). Measure 6 has two voices with timepoints (10) and (11). Measure 7 has a single voice with timepoint (12) and a triplet of eighth notes. Measure 8 has two voices. The key signature has one flat (B-flat).

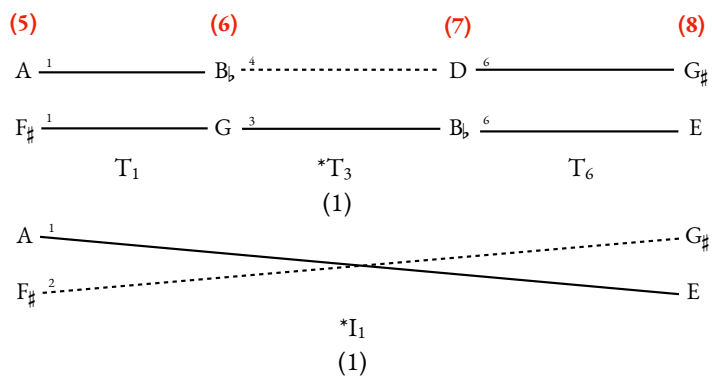
Example 47: “Battle Against Dusknor,” C section, timepoints marked

More importantly, all three instances share a global *balance* offset of (1)—even despite the change in the number of active voices—suggesting a marginally off-kilter affect reminiscent of only slight dizziness. Indeed, Straus writes that balance measurements can elucidate the extent to which the voice-leading between pitches is “symmetrical”;²⁵¹ the *motion* from one near-symmetrical voice-leading transformation to another (the progression is $I_0 \rightarrow I_1 \rightarrow I_8$) with a constant askew offset evokes slight discomfort, analogous to tipsiness or the feeling of being alone in your dark house despite knowing that there is no danger. Once again, the two-voice, consistently tetrachordal nature of the motive's setting suggests a latent relationship to the listener; voice-leading analyses permit insight into how the darkness within non-literal motives may be conveyed literally as well.

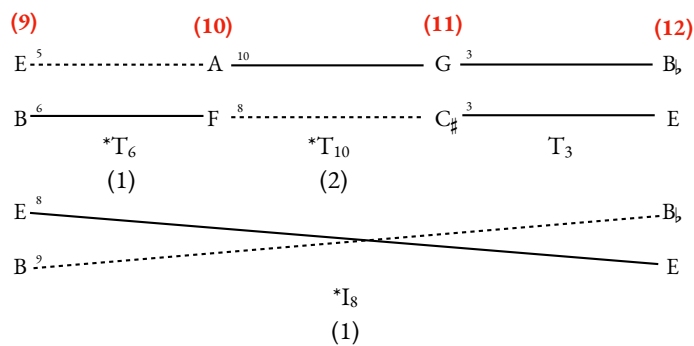
²⁵¹ Straus (2003, 318).



Example 48: “Battle Against Dusknoir,” C section, timepoints 1–4, voice-leading offsets



Example 49: “Battle Against Dusknoir,” C section, timepoints 5–8, voice-leading offsets



Example 50: “Battle Against Dusknoir,” C section, timepoints 9–12, voice-leading offsets

Battle Against Darkrai

This track, however, underscores yet another fight sequence within *Explorers of Sky*: the true final battle against the evil Pokémon Darkrai. Throughout the entire adventure, the protagonist has been faced with a lingering question: why were they turned into a Pokémon? Indeed, the protagonist is not natively a Pokémon; instead, they are a human who teamed up with Grovyle to repair Temporal Tower. On their journey back in time, however, a freak accident occurred and the two are split, resulting in the protagonist ending up with amnesia and a completely new body, one of the Pokémon the game determines the player to be at the beginning of the game. A fair bit of time after the team restores the Tower, Darkrai eventually appears and reveals to the protagonist that he is the cause of their transformation, as he interfered with the initial time travel process, all with the intent to preserve the dark, cold world of the future; in fact, Darkrai was the catalyst for Temporal Tower's degradation. The team and their new partner, Cresselia, travel to Dark Crater to defeat him and, upon doing so, inflict on Darkrai the same fate that befell the player: Darkrai is condemned to wander the Pokémon world with total amnesia, presumably without any remaining desire to plunge the world into darkness ever again.

Both battles, against Dusknor and Darkrai, are narratively similar in addition to being musically identical. Both are preceded by a significant amount of narrative buildup and are fought against significant adversaries that served as primary antagonists in that point of the journey. Because both battles use the same track, should we then ascribe the exact same musical narrative to both battles? Or, in consideration of the difference in the specific story details, do we similarly permit a different

explanation for its various atonal musical elements? Does a change in our interpretation of the musical contents delegitimize the original analysis in any way? In short, I do not believe the original analysis is delegitimized, nor do I think its use in the final battle against Darkrai is beholden to the same interpretation. I call attention to three factors to support the conclusion: the importance of affect in the track's interpretation, the specificity and audibility of the significant atonal figures, and the totality of the ludic experience.

The affect that is established by the notably atonal harmonic language is of utmost importance; in particular, its status as a noticeable, marked change is vital. As noted previously, this track serves as one of the only notable examples of truly atonal musical language amidst a soundtrack of creative non-functional harmonies.²⁵² Once more, atonal music in a more tonal context becomes especially significant. The emotional valence afforded by that musical language is capitalized upon from the very beginning through the orchestration: the high-register, semitonal violin and the parallel dissonant trichords, voiced in a way that similarly highlights the semitonal portion of 3-5's interval vector. The eeriness, trepidation, and fear communicated in the track's use in the fight against Dusknor is something intrinsic to the track when heard in that context because I intrinsically associate certain relationships with a narrative meaning; however, those emotions as afforded by the track's affect are fine-tuned and shaped by its use in another part of the story. The general affect of the track is determined by the specific combination of atonal topical *figurae* (the trace), but our reaction to it changes based on our interpretation of it (the esthetic). In other words, my analysis of its use in the

²⁵² For another example, I point the reader to the later sections in "Deep Dark Crater," the music that plays in the area before the final battle against Darkrai.

Dusknoir fight does not presuppose its eeriness based on atonality alone; therefore, its use in the Darkrai fight draws similar conclusions but on its own specific placement in the narrative.

Indeed, it would be improper to assume that the emotional reaction to the track's use in the Darkrai fight would be the same as it was for the Dusknoir fight. Although the result of two separate analyses would be *musically* similar on account of the retention of the significant atonal relationships, my association of those relationships with specific narrative markers for Dusknoir would be incompatible with the story context for Darkrai's fight. In short, switching the analysis's context radically changes its implications; changing the context is not frivolous. Of course, general narrative trends may be the same—fear and uncertainty gradually becoming confidence is perhaps one of the most common storytelling devices in history—but its differing context alters its narrative associations and we how understand them idiosyncratically. For instance, the C section's focus on change may be identical for analyses of Dusknoir and Darkrai's battles in that my set class significance chart would apply to both; however, while it may represent a change in our feelings about Dusknoir for the former, for the latter it may represent the protagonist's change into a Pokémon for the latter.

The Legend of Zelda: Spirit Tracks

“You again... The Demon King’s return is night, you know. Yet, here you are, making a nuisance of yourselves! You insolent little fools! It’s time you received the punishment you deserve! Your majesty! Your resurrection is complete! Please use your power to destroy these two!”

—Chancellor Cole

The Demon King Malladus glares menacingly at Princess Zelda, whose body now serves as the vessel for his evil soul. As the Demon Train begins to chug along the tracks once more, Zelda, now contained within a suit of Phantom Armor, stands beside her trusted knight, Link, declaring that her body is hers and that they will triumph over Malladus. His henchman, Cole, shrilly laughs at her bold assertion, and as the battle against the two of them begins, the most unique track in the entirety of the game begins to play, aptly named, “Fighting Cole and Malladus.”

This (admittedly fairly corny) description depicts the stakes of the penultimate boss fight in *The Legend of Zelda: Spirit Tracks* (2009). In an evil plot to revive Malladus, Princess Zelda’s body is separated from her soul to serve as a proper vessel, one with blood from the royal family. To retrieve it and defeat Malladus, Link and Zelda must travel to all parts of the kingdom of Hyrule by train to restore the “Spirit Tracks,” railroad tracks that acted as a seal to bind Malladus. When their efforts are thwarted nonetheless and Malladus is revived, the duo have no choice but to confront Malladus head-on and destroy him once and for all.

While Link and Zelda have defeated many dangerous foes by this point, their confrontation with Malladus and Cole on the Demon Train stands as the first time that they have faced Malladus directly. The duo, and by extension the player, feels a mix of determination and fear as they prepare to

finally battle the being that served as the catalyst for an entire journey, an emotional mix that benefitted from a harsh juxtaposition of atonality amidst an otherwise tonal musical idiom. In addition to the wonderfully unique and dark setpiece for the battle, “Fighting Cole and Malladus,” the piece that plays as the duos clash, infuses a heroic, climactic final battle with elements of a disorienting post-tonality.

The affect that “Fighting Cole and Malladus” exudes, however, is remarkable on account of how it masks tonality and other transformational consonances behind an atonal musical surface. Zelda and Link undoubtedly feel a sense of resolve and partnership, but that resolve is backed by many, many hours of dungeon crawling, lost health, puzzles, and train rides across the realm. My analysis of “Fighting Cole and Malladus” capitalizes on these memories through pitch class sets and centric collections that form a similar arc to that of the rest of the game: starting from loss, then experiencing growth, concluding with meeting adversity face-to-face. In so doing, the track emulates a trepidatious determination, much like “Dusknoir”. The entirety of their journey is exhibited equally in musical tumult as much as narrative and ludic tumult, experienced all the way until the end of the battle when Zelda finally retrieves her body from the clutches of evil.

Obscuring Tonality: 6-z19 and the Opening

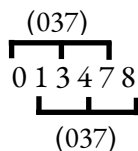
The track’s opening (shown in Example 51) is only heard once, as it is not repeated when it loops, but it serves as a rich preamble to the adversity that will manifest as the track progresses, containing various supposedly tonal *figurae* before obscuring them with atonal dissonance. Despite appearing to present a sonic world that might suggest centricity on F by virtue of the low bass note and

Moderato ♩ = 70 *8va* -----

Example 51: “Fighting Cole and Malladus,” mm. 1–2

a stable fifth above in the tubular bells, the opening immediately obfuscates any sense of tonal security.

The dyad is, for instance, scored alongside three pairs of voices that move by half-step in the middle register: <0, E>, <3, 4>, and <7, 6>. Altogether, these six pitch classes form set 6-z19, (013478).



Example 52: Two embedded instances of 3-11 in 6-z19

The vertical sonorities produced by this specific voice-leading mask two layers of tonality through two embedded 3-11 trichords contained within the hexachord (Example 52). Almost as though in reference to this relationship, the first vertical sonority is indeed vaguely tonal, a 3-11 set of its own. Although a sense of latent tonality may have been clearer if all the voices were led to another 3-11 trichord to maintain triadic structure, the first vertical 3-11 processes instead to 3-9 (027). The layers of tonality inherent to 6-z19 are therefore obscured (Example 53); even despite existing in what



Example 53: “Fighting Cole and Malladus,” 3-11 voice-led to 3-9

seems like some sort of tonal opening, the quintal feeling of 3-9 relative to 3-11 detracts from an understanding of the opening as purely tonal. Recall Example 28 from Chapter III as well: the strong-isography exhibited between the two trichords inextricably links 3-11 and 3-9, confirming the hidden tonal relationship amidst atonal voice-leading relationships by binding atonal and tonal *figurae*. Put simply the connection between different idioms—alongside the pitches and timbral differences that compose them—mirrors Zelda’s humanity that stands as central to the conflict that drives the story.²⁵³

The highest layer, represented in the Lead part, contains an extra layer of tonal concealment. Pitch classes <T, 2, 4, 8> are played in order, forming a subset of 6-z34, the whole-tone collection (4-25). This subset directly competes against the clear appeal to some sort of F tonality heard in the bass and the bell, creating a friction between something diatonic and recognizable versus something whole-tone and alien (relatively speaking). The tonally ambiguous 6-z19 rests in the middle of the texture, serving as the midpoint between these two extremes. In effect, three different aural streams—vaguely centric, whole-tone, and ambiguously atonal—simulate the flood of emotions the player and the deuteragonists feel at the beginning of the battle as they seek to return to stability while knowingly confronting a force that threatens not only Zelda but the world at large. However, as the piece

²⁵³ Zelda and Link are not, in the game’s lore, “humans”; rather, they are *Hylians* that have similar physical features to elves (e.g., pointed ears). For the purposes of this analysis, however, I will refer to their “humanity” due to their closeness in appearance to humans.

progresses, the heroes find that this initial statement of bastardized tonality is still drenched in trepidation that must be triumphed over if they are to succeed.

Section One: "Your Majesty! Your Resurrection is Complete!"

An intense and shocking appeal to the antagonistic (or actively threatening) mode of the mechanistic topic opens the first true section.²⁵⁴ Pitch-class sets set briefly aside, the driving rhythm intended to represent the Demon Train is slightly off-kilter, set in a compound meter of 12/8+1/4, distorting the otherwise regular and steady quadruple compound meter that might accompany a typical mechanistic encounter. Futuristic blips that further highlight this bizarre, distorted, mechanistic affect pock the aural background before the main melody enters in m. 7.²⁵⁵ Together, these two elements, before the melody is even presented, create a sonic world in which the player is near-totally disoriented. As such, I discourage a pitch-based analysis of either of these sonic layers; they serve more to temporally (rhythmically) and timbrally destabilize the player's sense of the battle at hand.

This initial discombobulation is supported through the fight's mechanics as well: although the player has controlled Zelda in the Phantom Armor many times, only once before have they done so in a boss battle, and never in the intense manner now expected of them in this scenario. The player, with nowhere else to send Zelda, commands her to move forward, but with trepidation: "surely it can't be this easy," they ask themselves. Indeed, Malladus begins to shoot an incessant laser on Zelda's armor;

²⁵⁴ See Bradford (2020) and Atkinson (2017) for further explanation on the various modes and applications of the mechanistic topic in video game music.

²⁵⁵ Ziegenhagel (2023) further explores of the role of timbre in a track's surprisingly unsettling affect.

while she can easily withstand it, Link cannot, and the player realizes that this fight is far more defensive than any other fight they have encountered in the game, turning the typical progression of most boss fights on its head.

Finally, the melody enters in m. 7. In addition to being initially rather rhythmically free (hence the stemless notation in my transcription; see Appendix), it abandons the previous section's already tenuous grasp on a tonal framework. When divided into four melodic fragments—mm. 7–10, mm. 11–14, mm. 15–17, and mm. 18–22—each can be condensed into their own pitch-class set, shown in Example 54.

Section	Measures	Ordered Pitch Classes (Top Voice)	PC Set (Top Voice)	Ordered Pitch Classes (Bottom Voice)	PC Set (Bottom Voice)
1	7–10	<8, 9, 6, 5, 4, 1, 2, 3>	(01234578)	<5, 6, 0, E, T, 7, 8, 9>	(01234567)
2	11–14	<0, 1, T, 9, 8, 5, 6, 0>	(0134578)	<8, 9, 4, 3, 2, E, 0, 6>	(0124578T)
3	15–17	(E) <T, 2, 5, 6, 0, E>	(012478)	N/A	N/A
4	18–22	<T, 2, 5, 6, 0, 1> (<2, 3, 4, 5, 6, 7>)	(014568)	N/A	N/A

Example 54: “Fighting Cole and Malladus,” ordered pitch classes and PC sets of lead, mm. 7–22

I consider this textural stratification fruitful; the timbre of the doubled lead is distinct enough from the background material to render it sonically independent. Additionally, although condensing a melodic line that may carry with it the implication of it being phenomenologically singular unit, there are many factors that hint at such a judgment being analytically viable: (1) its clear segmentation into the four melodic sections through the use of agogic accent, (2) each segment's use of large leaps that actively hide a condensed, chromatic hearing, and (3) the accentuation and repetition of the opening's half step motion after many of those leaps. In particular, the third factor is critical because it allows 6-

Example 55 shows two melodic fragments. Fragment 1 (top) has a Lead staff with notes and a Perc. staff with a double bar line and a '2' above it. Fragment 2 (bottom) has a Lead staff with notes and a Perc. staff with a double bar line and a '2' above it. PC intervals are labeled above and below the notes.

Example 55: “Fighting Cole and Malladus,” melodic fragments 1 and 2, PC intervals labeled

z19—and the set of each condensed fragment—to be defined in terms of *internal half-step chromaticism*, effectively another consistent offset of 1.

For example, Section 3’s melodic fragment forms 6-z17 (012478), which forms a weak R_p relationship with 6-z19 through set 5-22, only observable when considering both the internal set class relationships alongside the written pitch relationships. 6-z19 is, for the sake of illustration, effectively a series of three half steps separated by some interval; while 6-z17 does match this profile, it does only through half-isolated half step groups between members (78) and (012). Additionally, the consecutive voice-leading choices of <5, 6> and <0, E> harken back to the 6-z19’s structural semitones. With these two perspectives combined, one can feel the atonal struggle to grasp one’s tonal humanity as symbolized by 6-z19’s overlapping structural triads.

Semitonal motion acting as a nefarious, dehumanizing force manifests both non-literally and literally through a clear pattern of some number of half steps followed by a leap in both the upper and lower voices of the previous melodic fragments (Example 55). Relative to Section 3, the only difference

is that there are now more members in each set; as such, I consider the third melodic section to be the most "distilled" version of those initial statements; I hear the hexachordal relationship to 6-z19 as the "goal" of Section One and melodic fragments 1 and 2 are related in that they reference the internal structure of 6-z19 through the use of the half steps in the musical foreground. That is to say, although melodic sections 1 and 2 do not share cardinality with 6-z19 or 6-z17, the way that those sets' internal structures are represented musically—dissonant semitones masking a tonal interior, the major third, minor third, and perfect fifth leaps that compose the triad—representing turmoil that must be understood by way of simplification (i.e., matching cardinalities) before confronting directly.

The musical notation for Example 56 consists of three staves. The top staff is labeled 'Lead' and contains a melodic line with interval class labels (ic3, ic3, ic6, ic6, ic6, ic6, ic6, ic6) and two star symbols above the first two notes. The middle staff is labeled 'Perc.' and contains a percussion line with two '2' symbols above the notes. The bottom staff is labeled 'Lead' and contains a melodic line with interval class labels (ic4, ic4, ic6, ic6, ic6, ic6, ic6, ic6) and two star symbols above the first two notes. The notation includes various musical symbols such as treble clefs, sharps, flats, and accidentals.

Example 56: "Fighting Cole and Malladus," Melodic fragments 1 and 2, interval classes of different melodic timepoints, anomalous non-ic6 starred

The only other interval present is ic6, decidedly distinct from ic1 and ic3/4. Beyond merely an appeal to affective dissonance, we may notice that the first two vertical intervals of melodic fragments 1 and 2 are not tritones as are the rest of the intervals, instead being doubled a minor third and major third below, respectively (Example 56), the same triadic intervals that are used melodically—the second fragment is also a minor third above the first. To balance such tonal references, the track utilizes ic6 in

lens (Example 58), two more important insights are gleaned. First, the last transpositional interval moves from T_1 to T_6 ; indeed, the difference in interval is audibly palpable, clueing the listener further into the dichotomy of dissonances, in this case between tritones and semitones. Secondly, the transition from both melodic fragments' initial intervals to the harmonic ic6s, when calculated in voice-leading terms, reveals an offset *difference* of (1): melodic fragment 1's transition to ic6 produces an offset of (3) and melodic fragment 2 produces an offset of (2); the difference *between* these two is (1). The fragments' similarity in rhythmic placement and equivalency in contour (see more below) prompt the listener to relate them; the *effects* of voice leading graphs being nearly identical except for a minuscule offset intensifies the melodies' already unsettling *affect* through its timbre and rhythmic freedom.



Example 59: “Fighting Cole and Malladus,” melodic fragments 1 and 2, gestural transfer between voices

While the vertical interval classes do not seem to form any significant relationship themselves (there are, for example, no set classes that have the interval vector $\langle 001101 \rangle$), a more surface analysis may reveal other insights, as their identical contours invite more literal interpretations. For instance, the top voice of melodic section 1 is found in the bottom voice of melodic section 2 and the end of section 1 in the bottom voice. Likewise, the bottom voice of melodic section 1 is found at the very end of Melodic fragment 2 in the top voice (Example 59). These gestural transfers signify to me a solidification on the importance of the half-step figure. In the same way Forte distinguishes between weak R_p and strong R_p on the basis of sharing pitch vs. pitch class content, I posit that the composers

are showing the importance of the half-step in the generation of central set classes by repeating not only intervallic, but also explicit pitch content.

Melodic fragment 4 concludes the A section with a lead melody that forms 6-16 (014568) before moving onto a chromatic line that ascends to a high G.²⁵⁶ 6-16 relates to 6-z19 by R_p (5-20 and 5-21²⁵⁷), but more importantly, the two form an R_2 relationship; the second and third members of their interval vectors are different, but do not commute, forming a similarity relationship that was not present between 6-z17 and 6-z19.²⁵⁸ As the melodic set classes progress, the similarities between the sets becomes more pronounced, in addition to their very near-sounding musical settings: the first two sections lack a shared cardinality, the third matches cardinality and is related to 6-z19 by R_p , and the fourth adds to that third section the property of being related to 6-z19 by R_2 , mirroring the way the player must approach Malladus. They must move in a straight line towards him; as the player gets closer to Zelda's humanity, so too does the music. This culminates in a return to true tonality, a clear V chord in C minor, heard in m. 22.



Example 60: "Fighting Cole and Malladus," melodic fragments 3 and 4, ic1 intervals with harmonic

Section 1's musical foreground also features textural anomalies that highlight semitones. Half steps are reinforced by the background strings by forming various ic1 relationships, both melodically

²⁵⁶ I consider a hexachordal reading of melodic fragment 4 appropriate, despite the continuation into a chromatic ascent because of the repetition of the motive. Melodic fragment 3 forms CAS <+, -, +, +, -> while melodic fragment 4 forms CAS <+, -, +, +, +>, also using the mostly the same pitches.

²⁵⁷ Intriguingly, but not very useful analytically, both of these pentachords form Kh relationships with 6-z19 individually as well.

²⁵⁸ The interval vector of 6-z19 is <313431>; the interval vector of 6-16 is <322431>.

and harmonically (Example 60). These half steps in both the foreground and background continue on into the chromatic ascent that ends the first section; however, it is cleverly revealed that this chromatic ascent was a way to establish something new: answer for the question in the form of a $V/V-V-i$ progression that leads to tonality amidst the atonal soundscape (Example 61): perhaps the player is ready to reclaim Zelda's humanity again after all.

Example 61: "Fighting Cole and Malladus," end of Section 1, transition, $V/V-V$ progression in C minor

Section Two: "This is It, Link!"

If tonality represents the ultimate good in the game's plot—and Zelda's humanity, by extension—then rescuing Zelda's body from Malladus's clutches can be seen as a triumph over its antithesis. As such, when an unambiguous tonality is set up in mm. 21–22 and finally established in m. 23 (contrary to the vague tonality of the introduction), the determination of the duo and the player is revitalized, as the goal comes back into view. Additionally, the more comfortable tonal language matches the player's experience as well: after the bizarre, unique mechanics of the fight are introduced, the player begins to comprehend the goal and can more knowledgeably interact with it. Indeed, mm. 23–30 are mostly diatonic in C minor, with the latter half briefly outlining $E\flat$ minor (Neo-

Riemannian RP) before returning to the original key. In effect, 6-z19's rather obfuscated relationship to tonality is brought out into the spotlight, if only for a little bit, as elements of post-tonality return in m. 31.

For example, condensing the first two statements of the lead, the resulting set class is (013578), or 6-z26. This set shares a marked similarity to 6-z19, being related by weak R_p through the pentachord 5-20, (01568). Despite this, however, their interval vectors are very different: $\langle 232341 \rangle$ compared to $\langle 313431 \rangle$; they only share the final tritone entry. Forte does not have a name for this relationship; however, it is notable that the member that both sets share is the *tritone*, an acknowledgment of the inherent dissonance in the specific presentation of tonality in the opening as well as the harmonic intervals and anomalous melodic intervals present in the first and second melodic fragments of Section 1. Although tonality—a return to normality—is the ultimate goal, it cannot be achieved or maintained without adversity. Malladus himself stands as that dissonance and despite the new sense of tonality, subtle, yet pervasive dissonances of the setting are reintroduced after the key change, communicating a sense of progression, yes, but not yet success.

R_0 , a measure of maximal dissimilarity between two set classes on account of no interval vector elements being shared, finds a relevant place in the lead's next two melodic fragments, however: they produce the sets 6-32, (024579); and 5-6, (01256), respectively.²⁵⁹ Perhaps comparing sets of two different cardinalities renders the claim of an R_0 relationship tentative at best; in that case, an R_0 relationship is still formed using only the first five presented notes of the former fragment (see Example

²⁵⁹ The interval of 6-32 is $\langle 143250 \rangle$; the interval vector of 5-6 is $\langle 311221 \rangle$.



Example 62: “Fighting Cole and Malladus,” two lead fragments with distinguished ordered pitch classes

62). Doing this results instead in a comparison of sets 5-23, (02357) and 5-6, which are also “related” by R_0 ; perhaps the pitch class 7 in the first fragment is something of a decorative tone in an effort to more easily divide the octave pitch class 2s. As the track prepares to loop, elements of atonality and minimal offset are reinserted to maximize the tension; in this case, an intriguing web of “similarity” is created wherein there exist levels of similarity between different musical elements: the pitches are maximally dissimilar (R_0), the contours are only somewhat dissimilar (the cardinalities of contour prime forms are different by one elements) and the rhythms are identical.

This inconsistent dissimilarity is capitalized upon even further with the lead’s next fragment, the intervals of which present more semitones and tritones and fewer consonant intervals. Taking the first six of its pitch classes yields 6-32, or (024579)—a diatonic major hexachord—which forms a proper same-cardinality R_0 relationship with 6-z19; is the player losing grip on their advantage? Despite the seemingly faltering headway, however, what’s striking about this hexachord is the two ways that it still adheres to tonality: 1. it contains six of the seven pitch classes of the diatonic set, 7-35, and 2. it contains four instances of 3-11, compared to 6-z19’s two instances. The tonal order is being reinforced despite Malladus’s evil influence; indeed, Malladus is intending to eradicate the world and its tonal references, but the heroes begin to overwhelm that evil with their determination, represented by additional diatonicism and tonality that begin to triumph over even the dubiously stated tonality at the



Example 63: “Fighting Cole and Malladus,” m. 38, triadic and chromatic juxtaposition before the retransition

beginning. Crucially, 6-32 lacks the tritone that was prominent in all triadic references in previous sets, a narrative analog to the conquest over adversity that the heroes begin to exhibit.

Observing the third and fourth beats of m. 38 effectively gives us a narrative summary of the unfolding battle: the first three pitch classes form 3-11, the triad, while the second three form a dissonant set, 3-4, or (015) (Example 63). The triad reestablishes tonality as the ultimate goal of the track set up by 6-z19 and expanded upon through 6-32. Alongside the rising tension in the harmonic filler that is ascending by half steps, the end of the track's melodic section ends in something of a mystery; indeed, we know that goodness is in the process of winning by the end, but a slight hint of doubt still exists, represented by the chromaticism that minutely interrupts the otherwise heroic diatonicism and tonality present in the ending section before the retransition to the beginning of the track.

This rising tension is exacerbated by the changing accents of the bass drum. Together, when layered on top of each other, these accents form a normal beat pattern, as it is a combination of coming on timepoints 1, 3, and 5 of any given measure. As established near the end of Chapter III, authors such as John Roeder have conducted analyses stemming from the ideas of Richard Cohn and Milton Babbitt using the term “beat class set,” rhythmic analogs to pitch class sets that are divided into a similarly twelve-point space. While their analyses investigate beat class sets that are typically measure-

long and transform from that original form, I contend that beat-class sets can be formed from an overarching view as well.

Example 64: “Fighting Cole and Malladus,” mm. 31, 33, 35, 36, and 37; rhythmic accents in bass drum overlaid

Taking all of the 12/8 measures as a rhythmic grid and overlaying all of them on top of each other (Example 64), we are left with attacks on timepoints 0, 2, 4, 8, and T. Condensing them into their own beat-class set yields (02468), a “whole-tone” subset. I consider this to be, in addition to a gestural increase in intensity, a reference to the whole-tone sector of the track's introduction, heard in the lead. I claimed that the whole-tone sound served as a foil to the F tonality and I hear it serving a similar function in the track's conclusion: the tension against diatonicism before the retransition is not

only represented through chromaticism, but also through an otherworldly whole-tone “sonority,” recontextualized through rhythmic processes.

"You Won't Escape This Time, Malladus!"



Example 65: Link firing an Arrow of Light into the Malladus, restrained by Zelda

As Link commands Zelda, now finally at the far end of the train, to grab onto Malladus, restraining him, he releases an arrow from the Bow of Light into his chest (Example 65). Malladus's spirit is released from Zelda's body and in a final race to claim it, the power of Zelda's ancestors gives her spirit the final push to return to its rightful place. The battle is not over, however; in one final desperate attempt to wreak havoc on Hyrule, Malladus brutally sacrifices Cole's body—unstable as it

is, it would give him enough time to do irreparable damage to the kingdom. One final battle ensues with Link and Zelda teaming up one final time to rid the world of the Demon King.

The fight with Malladus on the train, then, functions as an effective preamble to the final encounter on account of its post-tonal language that serves to inject elements of uncertainty into the narrative of the battle. Although most players will be aware of the extreme change in affect between this track and many others in the game, the subtle motive that contributes to a larger “musical idea” morphs and is subjected to different musical *figurae*, showing true dedication to making specific references that support the narrative at hand. An in-depth analysis of these musical methods, particularly with a focus on *near*-identical musical groupings, elucidates specific reasons as to how tonality and atonality can coexist, even when it seems like atonality has the aural and textural upper hand.

Pokémon Diamond, Pearl, and Platinum

You know, people've been talking about the ghost Pokémon of the Old Chateau. I've been hearing rumors about sinister shadows, too. I should check it out myself, but going in there is... Well, you know, being that I'm a Gym Leader, I'm always busy. So, since I'm so busy, I can't go in. It's not because I'm s-scared!

–Gym Leader Gardenia

The mainline Pokémon video games—despite their outward appearance as fun, child-friendly game with cute creatures to train, evolve, and befriend—are no strangers to intensely creepy or even downright horrific setpieces. In *Pokémon X and Y* (2013), for instance, players can ascend to the top floor of a building in the bustling Lumiose City. Upon doing so, the cheery music stops and a presumed “ghost girl” appears behind the protagonist, whispers “No, you’re not the one...” before floating past you without the typical walk animation (the main indicator that the figure is a ghost). The music in Lavender Town from *Pokémon Red and Blue* (1996) is also heralded as the epitome of creepiness, accompanying a small city in that houses deceased Pokémon. These scenes and locations always spark intrigue and, at times, fear that is appropriate for the younger audiences for whom the games were created.

One such location is the Old Chateau, located on Route 205 of *Pokémon Diamond Version* and *Pearl Version* (2006)—henceforth *Diamond*, *Pearl*, and *Platinum*—an abandoned mansion in the depths of a dark, heavily wooded forest. Additionally mystifying is its lack of plot relevance to the games at large; it accentuates the Chateau’s status as an inexplicable, incomprehensible entity. Within it, players can find several unsettling things: a painting with red eyes that stare at the player until they walk up close to it, two ghosts of a little girl and a butler that—much like the ghost girl in Lumiose

City—lack walking animations, and an old note book with old broken text that reads “Som...hing so pecu...r shou... make off ...ith the mot...” Should the player investigate one such “mot...” (motor) they are met with the legendary poltergeist Pokémon Rotom (which is admittedly quite cute), perhaps the entity that haunts the house.

The music that plays within the Chateau is played various other times throughout the game,²⁶⁰ but is most likely to be encountered in this area first. Much like “Battle Against Dusknoir,” it stands out as an extremely marked example of atonality within a mostly tonal soundtrack; as the games are primarily bright and fun experiences, most of the soundtrack is energetic and tonal. Indeed, there are some examples of notably chromatic tracks—the “Legendary” battle theme is one such instance (Example 25)²⁶¹—but “Old Chateau” sounds more explicitly like the atonal “topic” established in Chapter 2. Its chamber music-style instrumentation/orchestration, emphasis on vertical dissonances, and harmonically divorced melodies position “Chateau” as a primarily atonal piece. Indeed, its tonal allusions (see *Section 2* below) challenge this assertion, but in this case, they seem to lean more into horror topics on account of the creepy timbres and frequent meter changes, those that combine well with dissonance or other atonal conventions.

“Old Chateau,” as such, contains four major sections, each of which will be discussed in a different segment of this portion of the chapter. The first utilizes a tightly woven net of set class

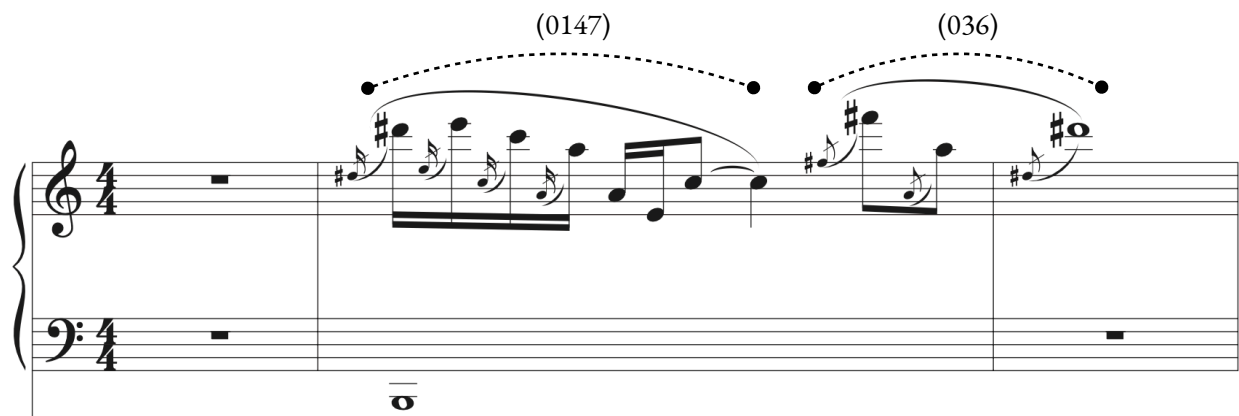
²⁶⁰ The piece also plays in “Turnback Cave,” Giratina’s home in the Sinnoh region. In the original games (before *Pokémon Brilliant Diamond* and *Shining Pearl*), some of the soundfonts were missing; this was corrected in the remake versions. As such, I refrain from discussing the music’s use in the Cave due to the complex, unanswerable question of poesis.

²⁶¹ Coincidentally, this chromatic “Legendary” track also plays when the player finds Rotom within the Old Chateau itself, perhaps an intensifier of the dissonance already present.

complexes. The second is founded on a fundamentally tonal underpinning but is made uncanny with a dissonant melody. The third obscures the tonal setting of the second section by combining its winding melody with the dissonance of the first section. The final section acts as more of a coda with clear centrality but is elaborated upon with disquietingly chromatic set classes.

Unlike “Battle Against Dusknoir,” “Old Chateau” lacks a proper narrative to track in that the story is not made explicit. It, however, still represents the visuals and ludic experience of being within the Chateau—that is, the trepidation thereof—and the haunting entities within it. This analysis will show how each of the four sections communicates a different part of the Chateau that together create and maintain a memorable audiovisual image, forged from the novelty of the gameplay, visuals, and music.

Section One



Example 66: “Old Chateau,” Section 1, opening gesture

The first section (mm. 1–10 in my transcription, Example 66) can be thought of as a main gesture in the piano and a secondary gesture in the orchestra, both repeated thrice, with various

interspersed transitions. The first piano gesture can be split into its first three beats and then the next five. This segmentation is intuitive; the first portion is composed of faster rhythmic units and the second has the longer notes. Doing so results in the sets (0147) and (036), respectively, the latter of which is non-literally embedded within the former. An analysis of each gesture, as such, hinges on the audibility of subsets; for instance, the second beat of the first gesture emphasizes (037) as opposed to (036). Compare this to the second iteration of the piano's motive: (0147) and (036) can be intuited yet again,²⁶² but this time the second beat comprises (036), audibly flaunting its status as a more dissonant subset of 4-18. Instead, the eighth notes act as a sort of referential tail, a subset of the original (0147), before the first transition; in essence, the opening gestures juggle which R_p -related trichords are emphasized. Unlike the first gesture's second beat outlining 3-11, the second gesture's second beat is noticeably more dissonant; the addition of one more sixteenth note is additional sonic proof of the degeneration of the initial motive.

The musical score for Example 67 is presented in a grand staff with a treble and bass clef. The time signature is 4/4. The first measure contains a complex melodic line in the right hand, starting with a grace note (E6) and followed by a series of sixteenth and thirty-second notes. The bass line in the first measure is a single note (Bb6). Above the first measure, a dotted line connects three points labeled (0147), (036), and (014). The second measure shows a continuation of the melody in the right hand, with a note marked '+delay (♩)'. The bass line in the second measure is a single note.

Example 67: "Old Chateau," Section 1, second gesture

²⁶² The E6 and Eb6 grace notes before the motive begins proper are audible events; however, I consider this to be no more than ornamentation to a more salient set (Buchler 2019). Refer to Chapter 3 for more information.

Labeling the eighth notes in the second gesture (Example 67) as 3-3 may seem like an erroneous way to interpret these two gestures: shouldn't like rhythmic events be treated alike? On the contrary, the core element of the analysis remains the same; that is, the shift from (0147) to (036). In other words, rhythm is useful in identifying how one may segment each individual gesture (e.g., the second gesture seems to be embedded within the (0147)), but the way in which those segments are related—in this case, by set class—remains the same. In fact, the difference in segmentation is analytically relevant: in the third gesture, both the (0147) and (036) can be interpreted as confined to the faster notes once again, but the notes begin to meld together even more than in the second gesture, the barrier between the two is pushed together further and further, in spite of the similar rhythmic content. Additionally, the eighth note tail in the first and second gestures is absent in the third (Example 68), instead replaced with a transitional figure to Section 2.

The image shows a musical score for a piano piece, specifically a third gesture from Section 1 of "Old Chateau." The notation is in treble and bass clefs. Above the staff, there are two set class labels: (0147) and (036). Dotted lines connect these labels to specific notes in the melody. The (0147) label is connected to a group of notes, and the (036) label is connected to a group of notes that appear to be a continuation or a related segment. The notes are primarily eighth and sixteenth notes, with some rests. The bass line has a few notes, including a half note and a quarter note.

Example 68: "Old Chateau," Section 1, third gesture

The main piano gestures not only subtly change rhythmic profiles; they also minutely change contour profiles. Assuming the first gesture sets up a sort of sonic expectation, the second is fairly close to meeting that expectation with two exceptions: the added sixteenth note in the second beat that causes an extra “–” in the contour vector and the final eighth notes which have an inverted contour relative to the first. The former exception, because the added note is the same pitch class as the one that would preserve the contour, can be interpreted as an embellishment to the fundamentally same contour. The latter exception, however, signals to the audience further corruption of the gesture; indeed, in the third gesture, the sixteenth-note portion of the motive changes contour completely, transforming from $\langle +, -, -, -, -, + \rangle$ to $\langle -, -, +, -, -, + \rangle$. Yes, the second beat maintains the same contour as the second beat in the first gesture, but the beginning, which has thus far remained untouched, is radically altered. Of course, the eighth-note portion’s omission is representative of further change still.

The orchestra part also plays a repeating gesture in conjunction with the piano. Although they can always be condensed into (0134), the first two instances follow a $\text{♩} \text{♪} \text{♪} \text{♩}$ pattern, while the third gesture omits the whole note, conforming to the consolidation of gestural material heard in the piano’s motives. (0134) is related to (0147) by R_p , as both share (014), the same set class heard in the tail of the second piano motive. In this case, however, the relationship is that of *strong* R_p rather than weak R_p through G, B $\flat$, and C $\sharp$.²⁶³ This, to my ears, links the gestures in a stronger manner to the piano motives

²⁶³ Forte (1973, 50). Strong R_p describes a relationship wherein the subset of $n-1$ shared between two sets of n cardinality is composed of the same pitch classes in both.

relative to a weak R_p relationship. As such, it too feels as though it is thrown off-kilter when the piano's bass note in m. 8 is played one beat later than normal.

Section 1 does not merely communicate a completely different affect and tone than what is expected from a *Pokémon* game; it also posits the theme of subtle, uncanny changes despite a relatively firm structure. Indeed, haunted houses carry with them the subtle, “Gothic” horror of slight familiarity,²⁶⁴ a setting that has served as the basis for countless media—ludic and otherwise—exploited once again in the Old Chateau.²⁶⁵ By presenting a sort of compound gesture with defined features at the outset (in this case, the set classes, contours, and rhythmic segments) and changing them in minute ways throughout the course of the section, the player intuitively feels a similar uncanniness about their environment. Section 1 is effectively a fourth-dimensional representation of those subtle changes, be it ghosts that have the appearance of humans or a decrepit, lifeless abode that has the appearance of a home.

Section 1 features two sections that might be considered transitional: one from mm. 5–7 (the set of three dotted half notes) and one from mm. 9–10 that leads into Section 2. For the former, I hear the chromatic walkup as an embellishing extension of the (014) tail from the second piano gesture. The second transition seems to play off the (014) tail: when condensing m. 9 into its per-beat set classes, (0347) and (0167) are formed, two set classes that are weakly related to (0147) by R_p , but only

²⁶⁴ van Elferen (2012). See for extended discussions on “Gothic horror,” which she describes as, “exceed[ing] itself only subtly and sparsely, leaving the terror it expresses implicit, [while] the horror soundtrack dances on the grave of excess as blood gushes from its fortissimo stingers.”

²⁶⁵ Games such as *DreadOut* (2014) and *Slender: The Arrival* (2013) take the concept of a haunted house to the extreme by presenting the player with very real scares; however, the home settings in those games are used to build suspense before those scares occur.

the first by (014). Labeling these sets of measures, therefore, as two transitions dichotomizes them, isolating yet another subtle change that contributes to the uncanniness of the Old Chateau.

Section Two

Section 2 differs from Section 1 by introducing several tonal markers, *figurae* and conventions that, in combination, create a marked contrast to the hitherto atonal harmonic language. In particular, this section features an unmistakable pedal tonic on E, copious chord configurations which naturally include E, and agogic accents in the atonal melody that stress chord tones of E minor. It would be reasonable to interpret Section 2 as being in E minor with the occasional chromatic chord. However, the melody—aside from its agogic conformity—maintains the decidedly more atonal conventions of Section 1, creating an atmosphere of uncanniness that more closely resembles van Elferen's.²⁶⁶ In effect, the vertical appeal to tonality and the horizontal retention of atonality introduce into “Chateau” an unreliable sense of safety to be constantly doubted.²⁶⁷

If the vertical sonorities do largely conform to tonality, to what extent might we use set classes to analyze them? Indeed, chords are convenient packages of pitch classes that have been used by many analysts as critical components of their analyses; in his analysis of George Walker's Piano Sonata No. 1, Jack Boss (2022), for example, identifies many tonal references—many of which conform to key

²⁶⁶ van Elferen (2012, 50). See, for instance, her description of the music in *The Nanny*: “The stark contrast between atonal sharpness and the familiar tonality in the harp's soft timbre expresses the conflict between Nanny's internal turmoil and her outward appearance as a caring motherly figure.”

²⁶⁷ Ziegenhagel (forthcoming) too explores uncanny tonality within horror video game soundtracks, citing the intense friction between setting and sonic markers in the formation of the uncomfortable affect.

The musical score for piano (Pno.) in 4/4 time consists of four measures. Above the staff, there is a '+delay (♩)' marking and a dashed line labeled '8va'. The chords and their set classes are: Em (037), C7/E (0258), Em (037), and E7 (0369). The notation includes treble and bass staves with various chord symbols and set class numbers in parentheses.

Example 69: “Old Chateau,” Section 2, repeated chords

structures—amidst an otherwise atonal framework.²⁶⁸ In “Chateau’s” case, the piano plays three chords in this section (Example 69): understood tonally, they can be classified as Em, C7/E, and E⁷. The set classes of these chords are (037), (0258), and (0369), respectively.

A narrative purpose for these sets could be construed: (0258) and (0369), for instance, both form weak R_p relationships with (0147), a principal actor in Section 1, through set 3-10, (036). (036) also happens to be the secondary actor in the first gesture of Section 1; (036) and (037) are themselves, too, related by R_p through the dyad of (03). The cardinality offset as present in Section 1 is, in a sense, elaborated: two sets in a single-cardinality super/subset complex themselves form R_p relationships (inherently a single-offset relationship) with other sets, forming a sort of cardinality- R_p web. A reasonable narrative analysis of these relationships could read this tonal section as simultaneously implementing tonal *figurae* while maintaining loyalty to the set complexes present in the more atonal section, emulating the visual humanity of the floating ghosts while highlighting their lifelessness.

²⁶⁸ Boss (2022). See Maler (2018, 78–92), too, for extended discussions of *Dialoghi* by Dallapiccola, many chords of which are treated as cross-partitions that comprise “salient parameters” for the construction of the post-tonal phrase.

In contrast, a more tonal, yet equally plausible analysis would simply note that all of the chords—regardless of their adherence to the “key” of E minor—contain E in their construction, clear adherence to Section 2’s newfound *figura* of centrality. The uncanniness in this reading stems from the ostensible compliance to the new tonal center, but with a clear disdain for tonal function or key. The C7 chord in m. 12, for instance, feels somewhat like a Gr⁺⁶ in E minor, but merely resolves back to the “tonic triad,” defying the mandates of the tonal suggestions.²⁶⁹ The E°7 chord also has a somewhat tonal explanation: heard as a ct°7 chord to the tonic, it could potentially express an intense bit of chromaticism not commonly afforded in more tonal styles. Once again, the friction between adherence to centrality and a mockery of its tonal implications results in Section 2’s unsettling affect and a distant relationship to corporeal humanity.

In spite of the seemingly gargantuan difference in premises from which these analyses stem, I see no reason to separate them; on the contrary, they complement each other’s conclusions perfectly. I envision them as existing on equidistant points on a tonal-atonal spectrum; the former analysis is 2 parts atonal and 1 part tonal while the latter analysis is 2 parts tonal and 1 part atonal. These two separate analyses—especially because they point to the same conclusion—combine to form a larger, more multifaceted analysis that considers both the tonal and atonal implications of the Section.

Section 2’s melody can be effectively split into two parts, as I have done in my transcription (Example 70) by moving it from the bottom staff of the Orchestra to the top. The melody presents a

²⁶⁹ Literature on the conventions of the augmented sixth sonority suggest significantly more liberal use cases. Tchaikovsky (1871, 98), for instance, labels them as “inversions of certain chords resolving to the tonic triad, having the second scale degree lowered.” The more conventional resolution to the dominant, however, is being invoked in this chapter on account of its association with more tonal *figurae*.



Example 70: “Old Chateau,” Section 2, eerie melody, mm. 14–20 (note: alto clef, not tenor)

dichotomy that closely mirrors that of the piano; the beginning more liberally embraces chromaticism and a lack of centricity while the latter portion leans towards tonal conformity, while maintaining an unmistakable hint of atonal chromaticism. Critically, I heavily invoke Buchler 2020 in my analysis; although it is undeniably tempting to place every note in a set or voice-leading relationship of some kind. More importantly, however, the notes I choose to not attach to some sort of set complex, what we may consider “gestural” notes, still fulfill a purpose: an *affective* reminder of the track's atonal properties. In essence, the melody's intrigue stems from a difficulty in parsing its affective and effective pitches; nonetheless, I intend to justify my differentiations between the two as the analysis progresses.

For instance, Example 70 also circles all the notes in the first phrase that I would consider “staple pitches”; the others are not, mostly due to their shortness or aural subservience to other surrounding pitches. Indeed, my analysis may spark a few initial questions, such as why the sixteenth notes in m. 14 are considered staple if the overall intended motion is a register transfer from Bb3 to Bb2 (in the top voice): are the sixteenth notes not gestural enough? I contend that although they are quick,

they are essential to establishing the chromaticism of the passage amongst its diatonicity both literally (via pitch) and non-literally (via collection). Additionally, one may question why those opening sixteenth notes and those at the beginning of m. 16 are considered staple while the sixteenth notes at the end of m. 16 are not. To this, I respond that the $\langle A, E\flat \rangle$ segment are subservient to the following G, as are the $\langle E, B \rangle$ that precede the $D\sharp$ in m. 17.

Provided the above explanations are sufficient, most of the first phrase's pitches may be condensed into an $OCT_{1,2}$ subset, 7-31 (0134679). The exception is the final pitch, $D\sharp$, which prevents the passage from entirely conforming to $OCT_{1,2}$. Compliance with the octatonic collection, therefore, becomes the central concern of this passage. Not only does it non-literally assimilate the supposedly diatonic chords into an octatonic framework (3-11, 4-27, and 4-28 are all subsets of 8-28, albeit only individually), but it puts the $D\sharp$'s relative noncompliance into narrative perspective: much like the third gesture of Section 1, lack of full conformity pushes change. Additionally, its *minute* lack of conformity elicits the haunted mansion's uncanniness; in this case, the slight deviations are both literal and non-literal.

Similarly, the second phrase—assuming all of the notes are “staple”—exhibits slight lack of collective conformity in multiple different ways. Firstly, when the notes in the phrase are condensed,



Example 71: “Old Chateau,” Section 2, eerie melody, mm. 17–20, chromatic descent

9-2 (012345679) is generated; if the G were a G $\sharp$ instead, then an unmistakably chromatic 9-1 (012345678) would be constructed. Much like the D $\sharp$ in the octatonic phrase, a one-note difference muddles an otherwise clear subscription to an archetypal referential collection. Secondly, the phrase clearly exhibits a largely tonal idea in that the tonic moves down by step to the dominant (Example 71); however, this tonal interpretation is at odds with both the octatonicity of the previous phrase *as well as* the aforementioned near-chromaticism to which it would otherwise conform. Individual minute differences in different interpretive dimensions, as such, together exacerbate the sense that something is subtly discordant in the Old Chateau.

Sections Three and Four

The musical score for Example 72, "Old Chateau," Section 3, piano, measures 21-26, is written for piano in 3/4 time. The right hand (treble clef) plays chords and single notes, while the left hand (bass clef) plays a steady eighth-note accompaniment. The key signature has one sharp (F#). The score shows a progression of chords and single notes in the right hand, with the left hand providing a rhythmic foundation.

Example 72: "Old Chateau," Section 3, piano, mm. 21–26

Section 3 primarily intensifies the already tenuous relationship between tonality and chromaticism in its changes to the accompanying piano part (Example 72). The left hand,²⁷⁰ having previously repeated the "tonic" of E, now hammers the proverbial "dominant" of B before moving to F $\sharp$, almost as though in a manner that explicitly reverses the fifths root progression towards a more

²⁷⁰ It is worth clarifying that the use of "left" or "right" hand refer merely to the standard top/bottom staff split in piano music, rather than a description of the manner in which the music is performed (it isn't).

stable sonority.²⁷¹ Additionally, the right-hand chords drift further away from a diatonic support of the already-tenuous key center. The affect, in other words, is clear: a decrease in tonality and an increase in atonality—as understood by our ability to compare the two idioms and their common topical associations—create an unmistakably spookier sound. The analytical effect of these changes, however, remains unclear.

Measure:	21	22	23	24–25	26
RH only	(048)	(06)	(026)	(037)	(016)
RH+LH	(0258)	(06)	(0236)	(0147)	(016)

Example 73: “Old Chateau,” Section 3, piano chord set classes

Example 73 shows a chart of all of the piano's chords both with and without the low note in the bass, starting with the B “dominant.” When observing the RH+LH combination, a loose narrative pattern forms wherein the set class's subset relationship to diatonicity (in this case, 7-35) is obfuscated as the piece progresses, challenging and interrogating each measure's diatonic conformity. (06) is the last “chord” that enjoys a subset relationship with 7-35 as the segment begins (thesis), but even that relationship is tenuous on account of its low cardinality. The sonority in mm. 24–25, the only sonority that lasts for more than one measure, then introduces a key dichotomy: the (037) B $\flat$ major triad—serving as an ironic final bastion of tonal structure despite its root a tritone away from E—clashes wildly with the B in the left hand *as well as* its superset sonority's lack of diatonic conformity

²⁷¹ Of course, Schenkerian theory operates under the idea that deviations from a fundamental *Naturklang* (particularly through a root-position dominant and predominant) are indeed the expected forward progression in a musical dialectic; however, “Old Chateau” does not meet the criteria for interpreting the piece as an elaboration of a single tonic in the first place. See Dunsby & Stopford (1981) for more information for the conditions of semiotically Schenkerian readings.

(antithesis), the resulting struggle lasting two arduous measures before relenting to dissonance again in m. 26. Introducing a distinctly atonal Viennese trichord acts as a confusing Hegelian synthesis: (016)'s sonic dissonance is coupled with the non-literal knowledge that it returns to serving as a diatonic subset. Furthermore, that the (0147) sonority that serves as (037)'s adversary is the initial sonority of the track in Section 1 points to a confirmation of (0147)'s dissonantly antagonistic role.



Example 74: “Old Chateau,” Section 3, melody, chromatic notes circled

Section 3 also makes use of a fairly literal affect-effect dualism through dissonant semitones that obscure an actually tonal melody (Example 74), limiting whatever placating effects it might have otherwise had. Indeed, most of the melody's pitches are native to B minor (including both the subtonic and the leading tone), the previously established “dominant”; the only notes that deviate from this framework are semitonal incomplete neighbors that, alongside the piano's increasing levels of dissonance, obfuscate its adherence to diatonicity or tonality.

This semitone-as-dissonance framework continues into the fourth and final section of the piece, wherein a repeated piano motive (and accompanying leftover melodic pitch from Section 3) descend twice by half-step (Example 75). The eerie sendoff feels also somewhat like a sick joke: the classic $\hat{3}-\hat{2}-\hat{1}$ Schenkerian descent that would typically support a fundamentally tonal *Ursatz* is

27 *8va*-----

Pno.

Orch.

Perc.

29 *(8va)*-----

Pno.

Orch.

Perc.

Example 75: “Old Château,” Section 4

2 $\flat 2(?)$ 1

Example 76: “Old Château,” Section 4, hypothetical semitonal *Urlinie*

“atonalized,” as the the root of the predominant (F#, as mentioned previously), does indeed descend back down to E (the tonic), but through a means we have established as being, at its core, dissonant (Example 76).²⁷² Additionally, each note in this supposed dissonant *Urlinie* is harmonized by a piano motive that condenses into (012458), a superset of our initial (0147), firmly rooting us in an atonal harmonic idiom. And what better way to punctuate such a dissatisfactory conclusion to the tonal-atonal altercation than a final (016) Viennese trichord in m. 31, repeating the ending to Section 3, confirming the triumph of dissonance—a haunting reminder that the ghosts truly run the Chateau.

Working with the Game

In essence, hermeneutic interpretations of affect-effect dualism permit a musical representation of uncanniness as it relates to spirits and the dead. As Isabella van Elferen notes, narration is itself a phantasmic, imprecise exercise; using music—a quintessentially inexplicit artistic medium—to describe it seems like an impossibly difficult exercise.²⁷³ However, through a combination of literal and non-literal motives, in addition to the other musical parameters that highlight them, the analyst works *with* the original artwork to construct a narrative that they may use to understand their experience better. For instance, noticing the use of semitones in a melody with a centricity on B is rudimentary; however, the analyst, by tracking them throughout the work, identifies ways in which the game’s narrative/affect and their own experiential narrative overlap.

²⁷² See Baker (1990), Pearsall (1991), Straus (1987) for formative discussions on the idea of prolongation and voice-leading models for post-tonal music. Baker and Forte (1988), in particular, are useful for their “Schenkerian” representations of dissonant music.

²⁷³ van Elferen (2012, 16).

When a small child floats across the floor without her walking animation, our experience as gamers immediately latches onto the uncanniness of such a visual—something is clearly wrong with that occurrence.²⁷⁴ We search for musical uncanniness, therefore, to reinforce our uncanny experience; this dissertation asserts that analyzing the atonal pitches beyond merely an acknowledgement of their dissonance can allow for such enhanced experiences. In my analyses, I have shown that close deviations between two musical figures elicit both literal and non-literal senses of uncanniness, evil, and insidiousness. I only encourage similar work towards other ludic atonal patterns so that we may better understand music's role in both shared and personal experiences.

²⁷⁴ See van Elferen (2016, 36–37) for a detailed discussion on how our learned experience plays into our experience in a video game environment.

Chapter VI: Ludic Atonal Pedagogy

“What’s miraculous about a spider’s web?” said Mrs. Arable. ‘I don’t see why you say a web is a miracle—it’s just a web.’

‘Ever try to spin one?’ asked Dr. Dorian. Mrs. Arable shifted uneasily in her chair.

‘No,’ she replied. ‘But I can crochet a doily and I can knit a sock.’

‘Sure,’ said the doctor. ‘But somebody taught you, didn’t they?’

‘My mother taught me.’

‘Well, who taught a spider? A young spider knows how to spin a web without any instructions from anybody. Don’t you regard that as a miracle?’”

—E. B. White, *Charlotte’s Web*

Canon and Classical

The final three chapters of the fourth edition of Stephen Laitz’s 2016 textbook, *The Complete Musician*, concern “Twentieth- and Twenty-First-Century” musical practices: chromatic pitch-class collections, non-centric atonality, and the twelve-tone method. The musical examples used to explain these techniques, however, are drawn exclusively from a primarily standard classical canon. In this case, most of the examples are taken from works by Arnold Schoenberg, Anton Webern, and Alban Berg. Other canonical works by Béla Bartók, Igor Stravinsky, and others are given occasional mention.

Likewise, the eighth edition of Stefan Kostka, Dorothy Payne, and Byron Almén’s 2017 textbook, *Tonal Harmony*, features a short section on post-tonality. When describing pitch class sets, the book opens with Schoenberg’s *Drei Klavierstücke*, op. 11, no. 1, and the section discussing the twelve-tone method primarily draws examples from Webern, Berg, and Ross Lee Finney. Though future editions of these texts have addressed some of these patterns, a survey of these and other textbooks that concern post-tonal music reinforces that not-so-startling revelation: the composers whom we choose to epitomize post-tonality are canonical, crucially, *writing in the classical idiom*.

This sentiment is but a portion of an issue most recognizably articulated in Philip Ewell's "Music Theory and the White Racial Frame" that criticizes not only the theories students learn in their studies, but also the theorists and composers who created and utilized them. A significant way that the White Racial Frame is perpetuated is through the repertoire used in the classroom; music theory teachers, to combat this, should take care to spotlight composers, genres, and works that are underrepresented. Although true for all aspects of the theory curriculum, the canon's vice-like grip on the teaching of post-tonal music has—compared with the teaching of tonal music—been slower to introduce such radical changes.

Cora Palfy and Eric Gilson (2018) have elucidated a "hidden curriculum" in music theory teaching, referring to ideas that are "implicitly taught" simply through the way that the course is structured.²⁷⁵ For music theorists, this hidden curriculum imparts the idea that male, often White composers of Western art music are more important for the development of music throughout history. In their article, "The Hidden Curriculum in the Music Theory Classroom," Palfy and Gilson advocate for pedagogical deemphasis of Western Art Music, what they term the W.A.M. canon. In doing so, music teachers allow students from different musical backgrounds to share ideas and prevent classical music from being understood as the impetus for all musical innovation.²⁷⁶

Despite the article primarily referencing tonal composers, it confirms that *genre* is yet another critical factor in the persistence of the pedagogical canon. For example, even though students in their

²⁷⁵ Palfy & Gilson (2018, 81).

²⁷⁶ See Lumsden (2018) for a discussion on what she terms "homophily," the student engagement fostered by sharing something in common with the example.

study were able to list many different composers in a variety of genres, when asked which were more musically influential, their answers aligned more with the W.A.M. canon.²⁷⁷ This chapter, as a brief aside from those previous—will show that video game music, with its inherent consumer-oriented musical style, contains a variety of musical examples that can help us begin to dismantle the hidden curriculum in the post-tonal classroom through its embrace of narrative structure.

Post-Tonal Theory as a Narrative Key

Several scholars have reconsidered post-tonal theory's strong foothold in the music theory core. Michael Buchler (2020) and Michael Schiano (1999), amongst others, describe various reasons as to why the teaching of post-tonal concepts to the extent we have thus far may be unhelpful. They cite (a) the sheer amount of focus we place on niche analytical methods, (b) their application to a highly specific repertoire, and (c) the difficulty in making rich, musically meaningful analyses with specialized tools.

Although there are many discussions regarding the merits and methodology of pitch-class sets, such as the support for Perle's "common-sense experience,"²⁷⁸ Buchler has two primary concerns with hyper-focusing on teaching sets.²⁷⁹ First, it inadvertently promotes a preference for "organic unity," such as in the concept of set complexes.²⁸⁰ This idea has historical merit, perhaps more suited towards a history core, but has since become one of many analytical values in modern music-theoretical

²⁷⁷ Palfy & Gilson (2018, 88).

²⁷⁸ Perle (1990, 151).

²⁷⁹ See Fleming & Grant (2020) for a discussion on the importance of including a historical framework to post-tonal concepts in an effort to connect them to pre-existing knowledge.

²⁸⁰ Buchler (2020, 226).

investigations. Second, concentrating on sets does not account for the many ways musical structure was defined in other music of the time, limiting our repertoire choices in the classroom. To these ends, Buchler's class on "Twentieth-Century Styles" includes, but does not "emphasize," pitch-class set theory in an effort to increase the diversity of the composers and styles.²⁸¹ Indeed, a wider variety of stylistic mediums should be represented, but a diversity in musical repertoire can still be achieved through the teaching of sets, so long as they are treated as but one tool for analytical reduction upon which narrative analysis can be applied.

Michael Schiano (1999) shares similar concerns with the teaching of set classes; he criticizes the way that it is used as a pedagogical tool primarily due to (a) its application to a limited repertoire and (b) its use of concise but ultimately not valuable language without supplementary analysis.²⁸² He provides the example, "4-11 is a subset of set 5-3" as one such statement that lacks meaning without additional discussion, a notion with which I wholeheartedly agree. The final sentence of his article summarizes my beliefs succinctly: "By making the investigation of set structure practical, set theory encourages students to think of their musical language in a logical, demystified way."²⁸³ Certain harmonic idioms have been used as topic and sound in many different historical genres, particularly in realms beyond art music.²⁸⁴ As such, a terrific way to get students to understand post-tonal theory's pragmatic value and fulfill Schiano's goals is to apply it to more explicitly narrative-based genres.

²⁸¹ Buchler (2020, 231).

²⁸² Schiano (1999, 64).

²⁸³ Schiano (1999, 85–6).

²⁸⁴ See Johnson (2017) for an in-depth examination of the reverse: tonality as topic amidst an otherwise modernist harmonic framework.

Post-tonal analytical methods still remain valuable insofar as they teach students *a* way that has been used to describe music in the past. Robert Wason (2018) criticized the deemphasis of historical context in the undergraduate theory curriculum, stemming from the acknowledgment that those concepts are subjective ways that humans have attempted to model and interpret sound throughout history.²⁸⁵ In effect, the concepts we teach students are themselves historical concepts and set theory *itself* remains a prominent aspect of twentieth-century music analysis in as broad a curriculum as we have created. I value this perspective as the historical significance of set theory, twelve-tone theory, and others to Western music theory warrants their inclusion in the music theory core, alongside other ways of interpreting twentieth-century music and its techniques.

Of course, one of the biggest problems regarding teaching post-tonal theory is engaging students in both the concepts and musical examples, a goal that is often hindered by what might be considered a "hard switch" in analytical method.²⁸⁶ Many curricula build upon themselves through pitch, to scales, to counterpoint, to voice-leading, to harmony, to chromaticism (or some other related order); suddenly, however, these notes become numbers and groups of notes that are abstractly related by overarching structures that are themselves composed of numbers.

Neal Endicott (2020) recognizes such an issue, identifying two challenges in post-tonal music's standard inclusion in the undergraduate theory core:

1. Its lateness in the curriculum makes our coverage of it relatively brief.²⁸⁷

²⁸⁵ Wason (2018, 151).

²⁸⁶ See Kleppinger (2010) for an anecdote where a student asked with "great trepidation, 'is that the music with all the math in it?'"

²⁸⁷ Endicott (2020, 115).

2. Students might be unfamiliar with or have stylistic predispositions against the idiom.²⁸⁸

For the latter, he provides many ways in which fundamental topics, such as intervals, pitch identification, and asymmetrical meter, may be addressed through various post-tonal composers and works.²⁸⁹ The former issue of addressing students' lack of familiarity with the repertoire is, however, the largest barrier to student engagement in the post-tonal classroom. Endicott's method of connecting with students through the repertoire stems from a similar value to mine, though I place a heavier emphasis on other genres to accomplish it. The importance of a generic shift is a notion that has been addressed in many articles on curricular reform, particularly with pop music in articles from scholars such as Osborn (2018), de Clercq (2019), and Covach (2020).²⁹⁰ In total, they share two common points: 1. Because popular music is so recognizable to most students, it should be integrated into the undergraduate curriculum to more easily connect with them ²⁹¹ and 2. applying classical techniques may be inherently unfit to describe popular music, thus their application to the genre must be reconsidered.²⁹²

²⁸⁸ Endicott (2020, 110).

²⁸⁹ Endicott (2020, 115). As an important note, many of the chosen composers are also women and composers of color, showing that the patterns I am noting about post-tonal repertoire in general have been considered by many already.

²⁹⁰ Osborn, Covach, and de Clercq, although sharing all advocating for such an integration, disagree on the extent to which such a shift should be implemented.

²⁹¹ de Clercq (2019) engages with Lavengood's (2019) description of a "modular" curriculum that permits students to select classes based on their educational needs. He notes that because there are similarities between classical and popular styles, that curricular redundancies may occur. For the purposes of this article, I choose to retain an integrated curriculum and imagine that students are aware that classical techniques are not being privileged.

²⁹² Covach (2020, 332–4) differentiates between a mild and fundamental revision of the curriculum. Because set theory is inextricably linked to classical styles, I argue that genre may present differences in the way we must undergo analysis, but we may still use other genres if we simultaneously consider those differences.

These examples offer different intriguing visions of a “de-classicalized” curriculum; however, aspects of this can be still achieved with a broadening of theoretical terms and concepts instead of their complete replacement. For example, one can teach sets in tandem with other ways of understanding twentieth-century music more generally, such as timbre or embodiment.²⁹³ The relevance of set theory is indeed historical but contributes to the broad training that undergraduate theory curricula often foster. In other words, *the tools are still useful, even if they have thus far been applied to a limited repertoire*. Though the basics of set theory and twelve-tone theory might still require a change from the previous courses, their use as a component of a more holistic introduction to twentieth-century music permits for a brief yet thorough introduction to modern idioms.

In my clear (and hopefully not overenthusiastic) excitement to label VGM a suitable method to achieve this curricular expansion, I remind myself of Cara Stroud's insightful commentary on finding the “perfect example”; despite my attempts to expand the canon with VGM, my inherent biases towards set theory might inadvertently achieve the opposite effect by pushing too strongly for examples that match set theory's core philosophy exactly. She suggests being “transparent about these choices [and] our priorities” when selecting even new repertoire for our theory classrooms.²⁹⁴ For example, the many post-tonal examples from Black composers utilize in *Expanding The Canon: Black Composers in the Music Theory Classroom* (2023) are, in addition to all being fine teaching tools, other facets of canon expansion that should not go unheeded; yet, they constitute a bias nonetheless. I hope to make

²⁹³ See Oden (2021) for a discussion on timbre and embodiment in another narratively-driven genre: film music.

²⁹⁴ Stroud (2022, 216).

my biases and values regarding the use of VGM (particularly through an exploration of narrative in the following section) clearer, specifically regarding the shift in genre from classical to media music,

To interrogate this personal bias and lead by example, this chapter focuses on a diversification of repertoire generally amenable to set theory, chosen as it is a post-tonal staple in many curricula, using VGM. In doing so, I apply Lumsden's application of "homophily" and Palfy and Gilson's deconstruction of the "hidden curriculum" by using music from a popular genre that is produced for a mass market: VGM. This approach shows how VGM composers, not just the Second Viennese School, can use post-tonality to achieve certain narrative goals. Of course (as mentioned in this dissertation's Introduction), I do not use set theory on this music to "legitimize" the music in the eyes of Western culture; rather, I hope to show that the true scope of its utility has simply thus far been neglected, promote student engagement through homophily, and unravel the idea that only Western composers were writers of "proper" post-tonal music.

Genre as a Means of Repertoire Diversity

Neither I nor Endicott are the first to note the relationship between the post-tonal repertoire we teach students and their level of engagement. Miguel A. Roig-Francolí (2017) outlines twelve different ways in which we can warm students to the music we use in the post-tonal classroom. I consider all of them are important, but I will highlight four of his points: the first, that teachers should "focus on the music and the repertoire"; the sixth, that teachers should "broaden the repertoire"; the eleventh, that teachers should promote "interpretive and generative approaches to analysis"; and the

twelfth, understanding "the importance of helping students enjoy the material and the music, and of having fun in the process of presenting it".²⁹⁵ My use of video game music attempts to appeal to all four of these points. In fact, the author himself posits that what he calls "commercial" music could be a key to achieving this.

Video game music addresses these points primarily because of its inherently *participatory narrative* that can (and should, if possible) be referenced when analyzing it.²⁹⁶ I reference the unique immersion afforded by VGM to respond to the points that I highlighted in Roig-Francolí's article:

1. A narrative cannot be properly analyzed without examining all the constituent parts; in other words, the whole piece is explored.²⁹⁷ Additionally, the visual or even tactile components (the actual *playing* of the game) of video game music could be implemented into post-tonal pedagogy, thereby allowing students to understand how the music is one component of the game's overarching goal of immersing the consumer.
2. Simply including video game music would certainly broaden the canon of pieces studied in most post-tonal classrooms.
3. Furthermore, understanding a given track's background story would aid in promoting contextual interpretations of the piece and its many features.²⁹⁸

²⁹⁵ Roig-Francolí (2017, 37).

²⁹⁶ Summers (2016, 162) cites Ben Winters's (2010) assertion that music that is normally considered non-diegetic in games might actually occupy "the same narrative space as the characters and their world."

²⁹⁷ Almén (2008, 14), rather than a "descendant" model, proposes a "sibling model" for this relationship between music and "literary" narrative, where both aspects combine to form an interpretive whole. I adopt this analytical mindset as well, as it permits more dynamic readings of video game tracks by embracing the temporal distance between immediately-occurring events in-game and overarching musical structure.

²⁹⁸ See Alegant & Sly (2004, 24) for a discussion that places student analytical abilities at the forefront when teaching post-tonal music, the "craft of analysis."

4. I would certainly hope that utilizing a media genre expressly intended for entertainment purposes would lead to fun discussions about the game's story and how it is represented in the music.

Ronald Sadoff's 2012 interview with Royal S. Brown, despite being about film pedagogy rather than video game music, supports the idea that students can track a narrative and identify something more than just a set of labels or formal structures.²⁹⁹ Many of Brown's students lacked formal music theory knowledge and were therefore introduced to concepts as they pertained to a film's plot.³⁰⁰ As Brown and Sadoff discuss the narrative force of both tonal and atonal structures, I hope to recenter aspects of non-tonal musical formalism into the teaching of media music, while retaining that dedication to narrative. Furthermore, the desire to elucidate meaning from media music is critical to Juan Pablo Fernández-Cortés (trans. Karen Cook), who notes that "musical model[s] have an educational character in both the virtual and real worlds."³⁰¹ The music can serve to imply an affect in-game, "teaching" the player the desired emotional response, as well as providing a potential tutorial of real-world concepts. Oftentimes, he also says, those two properties are linked. Through my analysis, I hope to show that the affect of the game is spurred, in part, by bountiful pedagogical merit.

The next segment of this chapter revisits "Battle Against Dusknoir," simplifying the analysis and prioritizing a narrative once the building blocks are established; as such, some of the narrative insights are repeated here. However, as pedagogy requires a base familiarity with the concepts and

²⁹⁹ Sadoff (2012, 56).

³⁰⁰ Sadoff (2012, 55).

³⁰¹ Fernández-Cortés (2021, 25).

context of the examples, I hope to also demonstrate the appropriate level of acquaintance with the narrative that is necessary through my explanations and examples.

Reevaluating “Battle Against Dusknoir”

Without context, a critical part of the *music itself* is lost. I provide this context here as I would to my students. Imagine analyzing a song by Fanny Hensel without considering its text; in the same way that excluding text would be a disservice to the song, so too would analyzing a piece of video game music without at least some of its context. After doing so, to keep the music front and center, we can listen to the piece. Luckily, as much video game music loops, the pieces themselves often end up being relatively short compared to something like a Price symphony. I would encourage pedagogues to take advantage of the brevity of these pieces and give students as much musical context as possible, as I am aware most undergraduate theory class periods are short.

Let us assume that our students know the basics of set generation and are aware of standard post-tonal operations and conversions such as the mod12 system, transposition, inversion, and pitch class vs. pitch. If so, the beginning of this piece (Example 40), serves as a wonderful pedagogical tool. At the bottom of the texture, a set of trichords move with parallel voice-leading, signaling it as a relatively important sonority. Before describing why it is important via the concept of segmentation, however, we can instruct students through the process of condensing the trichord from its actual pitches to best normal order to prime form.

Please humor my brief pedagogical fantasy: students would be instructed to find the shortest spanning interval between the three pitches placed in ascending order. Luckily there is only one best answer, [9, 2, 3]; the other possibilities yield spans of seven or eleven semitones. Instructing students to transpose this *best normal order* to zero yields [0, 5, 6] but, of course, (056) is not a proper set class. Providing students with a list of three-note sets and having them attempt to search for a (056) would both allow them to experience the thoroughness of the abstract system and the precision of the set in context. Now, going in reverse order to determine the most tightly packed interval on the left feels justified. There is, however, a pitch in this section that has been thus far neglected: the high C that repeats over the rest of the texture. Adding this pitch into the collection permits students to incrementally increase the difficulty while following the same procedures.

Ultimately, students will generate (0136) and students would be notified that they would be tracking this set's ubiquity in various forms throughout the progression of the narrative. This distinction of narrative is important: it considers the inherently plot-driven properties of media music and instills in students a yet unnamed desire to perform segmentation to track the set's progression. Such enthusiasm can be focused into the C section of the track (Example 43), where there are many easily dissectible and musical significant tetrachords strewn throughout the texture, as shown above in Example 2.

Take, for example, the top voice at the beginning of the C section. Two tetrachords can be identified through agogic accents in the third and fifth measures. Both can be condensed into set 4-13, but from here, the relationship to the central set becomes more tenuous, despite the sets sharing

cardinality. The lower voices in mm. 7 and 8, for example, are condensed into (0167) and (0135), respectively. Optionally, students may be briefly introduced to the advanced concept of R_p as the passage progresses, Forte's name for a relatively abstract relationship between two sets described by sharing a subset with a cardinality of $n-1$. In doing so, students see that (0136) is referenced in varying degrees. In the cases I just mentioned, (016) is shared between (0167) and (0136) and (013) is shared between (0135) and (0136).

During my experience implementing this line of thinking in the classroom, I framed the piece exactly as I've described it, with the narrative context and generating the primary set (0136). After this, I split the class into several groups to determine the sets laid out in the C section, giving each group two of the collections to reduce. This exercise built on the concept of segmentation I introduced in the beginning of the class. The tetrachords are still rather easily discernible amidst the contrapuntal texture through similar rhythmic profiles and repeated contours. After coming together, I called on each to give me one of the collections they analyzed until we had a list that spanned all the sets in the C section in order.

After generating this list of sets, I introduced the concept of R_p , showing students that the set classes gradually unraveled the "character" of (0136), which was established twice in the beginning of the excerpt.³⁰² I did not have time to introduce the concept of an " R_p chain," where a set that is related to (0136) by R_p is related to another set by R_p , but the third set is not related to (0136) by R_p .³⁰³ The

³⁰² Introducing R_p when students are completely familiar sets is likely unwise; sets themselves already take a long time to get used to. Luckily, these students were practiced in the basic processes.

³⁰³ For example, the (0148) set generated in the bottom voice of mm. 5–6 is not related to (0136) by R_p , but is related to the (0146) generated from the inner voice mm. 4–5 by R_p .

students, however, were still able to identify that (0136) was gradually being replaced by sets that were somewhat related to it, that (0136) was being “degraded” in some way. I asked the students what they thought this meant narratively and they were able to provide an answer that coincided with mine: the primary set, if interpreted as a sort of main character, is undergoing change and turmoil.

This was admittedly quite a risk to take; R_p and other measures of similarity are typically left to more advanced post-tonal analysis classes. I argue that introducing it, though, even in its most basic form, allowed the group to form relationships between initially unrelated sets that might have been otherwise impossible with just practice in tetrachordal set generation. Even if some teachers believe this concept is slightly too advanced for their group of students, this example provides good set-generation practice where the central set gradually becomes less important. Highlighting narrative reasons for this is, again, vital.

The narrative progression culminates in the track's E section (Example 46), where we are introduced to unambiguous tonality in G# minor. This new harmonic language is accompanied by the strongest and most forceful musical affect of the piece so far. It feels like a culmination is occurring and can also be described through set theory. After so much central-set tumult in the C section, the set that comprises the melody of the E section is, in fact, (0136) again, unambiguously proclaimed by its repetition in the subdominant key four measures later. Students might be encouraged to share their thoughts as to what this means narratively or emotionally; for me, I hear this as triumphant, where after such a disorienting deprioritization of the central set in the C section, perhaps representative of

Dusknoir himself, the tonality, affect, and reprisal of the central set in the E section feels far more determined.³⁰⁴

As a quick reminder after all this multimedia analysis, the purpose of this approach is to encourage pedagogues of music theory to look beyond the canon of post-tonal Western, classical post-tonal music to find other music that can serve similar purposes. Conversely, the implementation of extramusical narrative into the analysis is not an attempt to elevate media music above art music for post-tonal teaching purposes. I provide such an in-depth analysis of this piece to show its richness, which may be overlooked should we only consider the canon for post-tonal examples. The narrative is simply a part of the music itself and must be considered, just as one might consider in an analysis of *Pierrot Lunaire*.

Tough Decisions and Tougher Narratives

I recognize that some of those concepts and observations are only possible after a more prototypical model of post-tonal concepts are taught. Despite this, as I still advocate for the introduction of Schoenberg et al. for historical context. My analyses, however, took a considerable amount of *effort*. The effort in conducting new, canonical analyses has been examined in significant part by Ellie Hisama (2021), who outlined the ways that Babbitt and other male figures in academia fostered misogynistic and exclusive attitudes against women, resulting in a culture of “himpathy,” a

³⁰⁴ See Salamone (2020) for an introduction to “tracing,” a pedagogical technique that tracks a singular event throughout a work in an effort to promote efficiency and clarity. The above analysis promotes the former by permitting multiple reinterpretations of (016) throughout the excerpt and the latter by attaching it to a narrative structure in both tonality and atonality.

portmanteau of “him” and “sympathy” used after Kate Manne to refer to a tendency to side with male perpetrators of sexism, often stifling women’s ability to retaliate.³⁰⁵ Without a doubt, this culture not only negatively affects the number of would-be composers who could write music using these systems, but also the repertory of existing music by women that could be used in the classroom. Seeking out examples, performing analyses, and preparing lesson plans to teach these works, however, is a daunting task when the canonical composers already have so much written about their music.

In many ways, finding video game examples for post-tonal pedagogy is a much easier task as much of it was composed in a more technological age where a more international community of musicians could be built. Nonetheless, the difficulty in locating, analyzing, and teaching these works is still present, especially in a field that still largely operates under a classical canon. I beseech persistence; pop music’s appeal to a mass audience is shared by video game music and one is undeniably more likely to encounter post-tonal music in these genres as opposed to pop. It is typical, also, for video games to involve a longer and more referential narrative than pop music, aiding in the identification of a hermeneutic structure.³⁰⁶ With my analyses I have shown that apt examples most certainly exist and have the potential to fill a hole in the curriculum as it so stands.

I do not contend that video game music or music from other media should replace Schoenberg, Webern, and Berg—far from it. They are essential historical figures to reference about the development of Western post-tonality; their removal would be damagingly revisionist. I especially do not advocate for media music to replace classical music either, as there are many underrepresented

³⁰⁵ Hisama (2021, 353); Manne (2018).

³⁰⁶ Gopinath (2022).

composers to study in that idiom as it stands. In line with Palfy and Gilson's findings, however, this music and music like it are not the only ones that may benefit from set-class analysis. It is by no means an easy task to find or perform analyses on amenable examples of a hitherto unexplored repertoire, particularly when they do not match our "perfect" model; it may seem time-consuming, difficult, and (a feeling that we have all felt as teachers) thankless. Even so, I encourage other pedagogues of post-tonal theory to persevere, embrace narrative structures, and further the important work of acknowledging and counteracting the hidden curriculum in the music theory classroom.

Chapter VII: Conclusion

“There is no greater agony than bearing an untold story inside you.”

—Maya Angelou

Stories are fundamentally personal entities; the slightest change in a story's reception or telling creates a new narrative in its place. Music, as much of a story as it can be, is no different: the composer and its composition may tell, but only the listener feels. Music theory, no matter its form, is in the business of describing one's own relationship to the music, the unique and idiosyncratic synthesis between music and their own emotions. Indeed, the tools we use are forged from generalization; however, every person possesses their own plot of land upon which a common tool may be applied. Only through such a personalized excavation can one uncover the musical land's special secrets. Throughout this dissertation, I have reintroduced a variety of such tools. My analyses stand as a testament to the rigorous digging with which I engaged; the dirt on my hands and knees evidence my efforts, though the results will undoubtedly differ between every person.

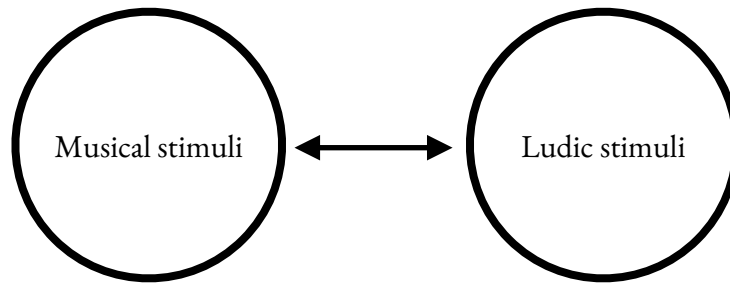
Video games and their propensity for promoting a more immersive iteration of a story intensify the feelings that I have towards my work. In more specific terms, I have described the feelings of facing my greatest foe with my best friend, standing headstrong against demons in a beautiful world, and stumbling across a haunted house with my most beloved pets. In each case, indeed, the game provided a specific story to frame my emotions, but never could it truly command them. The feeling of so suddenly being ripped away from comfort is inherently terrifying; through a multifaceted lens of musical-cultural and analytic understanding, this dissertation has, yes, presented a generalized theory to describe a range of emotions that resemble sudden fear. More than that, however, I have encouraged

the use of an oft-neglected toolkit to broaden the ways in which we often interpret our reactions to such terrifying music.

Post-tonal theory, while appearing emotionally stoic on the surface, offers insight into one's emotional psyche in a way that goes beyond a piece of music's surface traits. My commitment to showing a wide array of such analytical methods reflects my belief that any tool may be useful if it uncovers added information about one's own feelings; new tools are developed all the time with that value in mind. Chapters III and IV, as such, stand as the dissertation's primary sections, acting as a sort of proof of concept for this work's core argument, that sudden shifts to atonality from tonality—as well as patterns of post-tonal relationships such as consistent small divergences (e.g., the “Insidious 1”)—can promote a similarly ludic sense of shock or unease. In a sense, the various post-tonal analytical methods used throughout it are my shovels, ploughs, and trowels.

Only through an examination of the cultural foundation of topic, however, were Chapters III and IVs' analyses able to flourish. Because video games are inherently soundless, a heavy responsibility falls on VGM to situate the player in the location that they experience alongside the characters they control. Indeed, composers are tasked with exploiting the player's understanding of *their own* reality to construct a fabricated one. This relationship between realms necessarily binds them; ludic environments would be, in a sense, entirely incomprehensible if not for the player's ability to impart their own experiences onto them. For this reason, when video game and real-world environments are understood through shared *cultural* signifiers—in this case, through musical *figurae* and topics—players are able to more easily immerse themselves in a ludic narrative, freely engaging with its setting

and mechanics. Atonality and dissonance serve as highly marked and powerful examples of such signifiers; composers expertly manipulate players' musical biases to elicit similarly powerful emotional responses.



Example 77: Feedback loop between musical (atonal) stimuli and ludonarrative stimuli

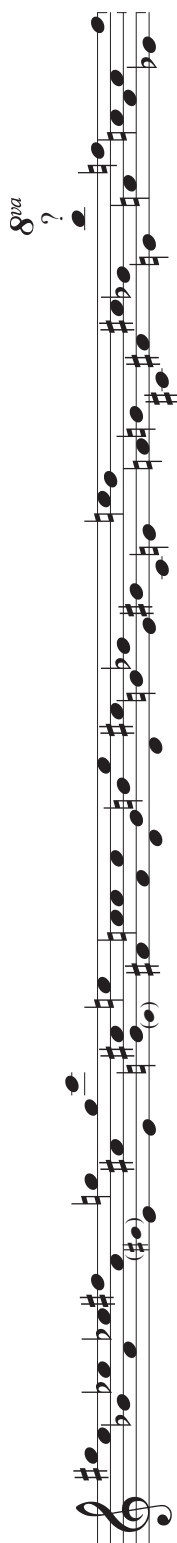
My analyses, thus, support a sort of feedback loop between the sound of dissonance and the way it manifests in the player, subtly influencing their response to the ludic situation (Example 77). The marked change to an enigmatic musical language immediately invokes their cultural understanding of threatening soundtracks, followed by an eventual engagement with the ludic goals (e.g., defeat the enemy) and environment. Over time, as players become acclimated to the dissonant sound, the repetition of atonal processes may become less impenetrable, followed by an enhanced understanding of the ludic situation, etc. In a sense, playing a game influences the understanding of musical information just as much as analysis promotes ludonarrative (or game-narrative) understanding. Such a feedback loop would be less impactful without my emphasis on soundtracks that use a change in harmonic idiom to accentuate particularly salient moments. Furthermore, the focus on tonal soundtracks that become atonal cultivates a unique form of ludic helplessness wherein a presumed sense of musical and ludic safety is suddenly stripped away.

The sharing of stories and the acceptance of their endless idiosyncrasies often fall under intense scrutiny. Without the recitation of shared experiences, those who thrive on communal experience are forced into isolation; in essence, tools for interpretation become meaningless. If nothing else, this dissertation exists as a reminder that the relationship between the individual and the collective is inextricable. Each of my analyses communicates my own experiences and stories as founded upon through shared knowledge and culture. The compositional freedom of atonality begets a similar interpretive freedom; it would be a shame if that freedom were to be stifled further.

As such, with all of this, I intend to show with all of this that everyone experiences music in a different way and one of the most important and fundamental human traits is that we get to share and discuss those differences. The way that we represent how we feel about those things can obviously vary wildly; there's no doubt that analyzing "Deep Within Team Galactic HQ," for instance, as a series of linked trichordal imbrications is relatively complex, but it couldn't be anything less than genuine. My obsession with the Insidious 1 as a mathematical representation of the uncanny is born from patterns that *I* notice and one of my favorite things about teaching and researching is inspiring other people to notice patterns of their own—to speak freely and critically about their love and passion for the music that defines them and their connection to the rest of the world. I am but one voice, but it is a voice supported by countless others, most of whom I have never even met. That, to me, is just as beautiful as the music that I shed tears to.

I urge the preservation of musical and artistic freedom in its presentation, reception, and proliferation. These stories define us: the mud and grime that coat our fingernails are proof of a life well-examined and well-lived, even if we had to fight for the privilege to show them off.

Appendix: “Deep Within Team Galactic HQ,” Electronic Blips Before the Melodic Gestures



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