HUMANITY AND MECHANICITY IN THE MUSIC OF NINE INCH NAILS

by

PATRICK MUCHMORE

A dissertation submitted to the Graduate Faculty in Music in partial fulfillment of the requirements for the degree of Doctor of Philosophy, The City University of New York

2010

This manuscript has been read and accepted for the Graduate Faculty in Music in satisfaction of the dissertation requirement for the degree of Doctor of Philosophy.

Jonathan Pieslak

Date — Chair of Examining Committee

David Olan

Date — Executive Officer

Shaugn O'Donnell

David Olan

Mark Spicer

Supervisory Committee

THE CITY UNIVERSITY OF NEW YORK

Abstract

HUMANITY AND MECHANICITY IN THE MUSIC OF NINE INCH NAILS

by

PATRICK MUCHMORE

Adviser: Professor Shaugn O'Donnell

The primary purpose of this dissertation is to provide analyses of the first four albums, spanning 1989-1999, by the American band Nine Inch Nails: *pretty hate machine*, *broken*, *the downward spiral* and *The Fragile*. In each case an album-level general analysis is followed by close readings of a few select tracks. Many analytical approaches, both traditional and new, are used, but a particular emphasis is placed on the sound of the track itself being the primary artistic object. Stereo spatialization and sonic effects are thus treated equally to melodic, formal and harmonic structures. The analyses are held together by a consistent interrogation of "humanity" and "mechanicity" in the compositional choices made and the resulting senses of agency that such choices often create. A resulting secondary purpose of the dissertation is an attempt to begin codifying the nature of human and mechanical agency, as well as to provide some exegesis on the effect of a variety of compositional choices in the recording studio. Finally, a brief effort to categorize the Nine Inch Nails discography up to 2009 reveals a larger narrative throughout the band's career.

ACKNOWLEDGEMENTS

My thanks first and foremost to my composition adviser and first reader David Olan, a guide and an inspiration all the way from my CUNY Graduate Center application interview to my dissertation defense several years later. In courses and in private lessons he opened my ears to both the compositional and the analytical possibilities of electronic music. Neither my dissertation composition nor my dissertation analysis would exist without him, but what I have learned about composition pedagogy from him would probably fill several much longer books if I were willing to share.

Many loud and fawning thanks to my patient and inspiring analytical adviser, Shaugn O'Donnell. After first awakening me to the very *possibility* of a rock dissertation, he proceeded to introduce me to the most important writings on the topic and helped me hone an inchoate metaphorical idea into a structured and coherent analysis. Any deviance from structure or coherence is a result of my not listening to him well enough.

Thanks to Jonathan Pieslak and Mark Spicer, whose various writings were motivating, and whose questions during my defense were invaluable. I also owe unpayable debts to too many Graduate Center professors to name. I must at least mention Richard Kramer, Philip Rupprecht and Joe Straus. Dr. Kramer introduced me to the Mozart and Beethoven fragments quoted in *p41i/\/\p53$7 α*, while opening my eyes to the usefulness of metaphor. Drs. Rupprecht and Straus taught me just how revelatory musical analysis can be. It was Dr. Straus who taught me that a good analysis is no more or less than a good story. Thank you.

In addition to studying composition with Dr. Olan, I also took lessons with John Corigliano and David Del Tredici, both of whom opened my artistic vista by an order of magnitude. It was in studies with the latter that the germ for *p41i/\/\p53$7 α* was composed.

My first composition instructor was Carolyn Bremer at the University of Oklahoma, and she has left a deep and ineradicable mark on me as a composer and a teacher. Every lesson I give and note I write is stolen from her in some way. Thank you so much Carolyn.

My earliest musical studies with Dolan Bayless, Jeff and Barbara Fox, Dan Larson, Mary Lindsay and Mel Arner have left an indelible impact and are the reason I pursued music as my life. Later, at the University of Oklahoma, I had the privilege of studying cello with Greg Sauer, and the fruits of those studies positively permeate my cello concerto. If I hadn't studied with Greg, I never would have continued playing in public, and my compositional and musical life in New York City would be far bleaker.

I would be remiss if I didn't mention my three oldest friends: Robert Irons, Brian Phillips and Danny Mulligan. Robert and I discovered music together, it's impossible for me to dissociate my most formative musical experiences from him. Brian introduced me to Radiohead's *OK Computer*—for which he automatically gains placement in these pages—but he also introduced me to the joy that can be had from even the most cursory analysis in our many musical discussions. Danny let me play crappy guitar with him in a garage band that would have been better without me. If he hadn't, I would constantly forget that Cream's "White Room" begins in 5/4 time. All three of these friends continue to shape my thinking about music, and I owe them eternal gratitude.

Thanks also to my sister Shannon Muchmore, more friend than sibling, for being my first pupil. Admittedly, the art of making a good mix tape is not a skill she particularly needed in later life, but her game willingness to patiently allow me to discourse at length is much appreciated. If I've given a fraction as much to her life as she has to mine, then I'm happy.

Without my mother and father Terry and Tom Muchmore, I wouldn't exist. Less literally, they have shaped and guided me in innumerable ways. They encouraged my music,

bought me my cello, endured my practicing, survived my early attempts at composition and sent me to college. Dad inspired my love of computers and electronics and once made a last-minute run to the music store in order to fix a dead effect pedal so that I could close out the ninth-grade talent show with a god-awful rendition of "Smells Like Teen Spirit." Mom gave me bottomless encouragement and I can still picture her holding a red pen and a dot matrix printout of one of my school papers, teaching me how to be a better writer. To the extent that I can write at all, it's thanks to her.

Of course, I owe a massive debt to Trent Reznor, whose music continues to be a profound influence. A friend gave me a badly dubbed tape of *pretty hate machine* on the playground two decades ago, and it still ranks, in retrospect, as one of the most consequential musical moments of my life. I've never met or corresponded with Reznor—and I chose to pursue a different compositional language than he did—but I hear him in vast amounts of my own work. His music certainly influenced my abiding, and to many of my teachers vexing, love of distortion in every flavor. I hope that none of the following analyses are offensive in any way, and that they will be seen in the same passionate and respectful light with which they were conceived.

And finally, both of these works, along with anything else worthwhile I've done in my life, are dedicated to my wife, Jenny. Whether calming an existential crisis during my comprehensive exams, thoroughly proofreading while shuffling paper and being jostled on the subway, or just being a better friend than I can ever hope to deserve, she has been an utterly necessary, integral part of my life. I love you Jenny, and I will continue to try, and most likely fail, to pay you back forever. It would be an enormous help for me if you could be just slightly less wonderful for a couple of years, thanks.

Every mistake is mine, every good bit theirs. To all of you, my most heartfelt gratitude.

CONTENTS

FIGURES

EXAMPLES

Chapter 1 – Tiny Little Dot…

just then a tiny little dot caught my eye
it was just about too small to see.
but i watched it way too long
and that dot was pulling me down

i was up above it.
now i'm down in it.
-"down in it," *pretty hate machine* – track 3

If one could somehow visualize, in rapid succession, every Nine Inch Nails concert from their first performance as an opening act for Skinny Puppy in 1988 to the recent "final" concert in 2009, only two elements would remain static. The personnel would oscillate haphazardly, making a blur of virtually every instrumentalist and obscuring even how many people share the stage. The set list would shift wildly of course, but more importantly, even the staples of the repertoire would mutate both stylistically and structurally. Stage design would fluctuate between simplicity and grandiosity; venue would shift along the continuum between tiny clubs and massive amphitheaters. The only constants would be Trent Reznor and the presence of huge conglomerations of machinery dwarfing his human frame.

A similar blurred halo surrounding Reznor and machines would be found in a time-lapse view of Nine Inch Nails in the recording studio. In spite of the many important contributions from guest musicians, co-producers and sound engineers, the vast majority of the instrumental performances, sequencer programs and sonic manipulations on all twenty-seven studio releases are his. In effect, Nine Inch Nails *is* Trent Reznor. This is especially true of the four albums that are the focus of this study: *pretty hate*

machine (1989), *broken* (1992), *the downward spiral* (1994) and *The Fragile* (1999).[1] In fact, during the recording and mixing of these albums, Reznor and the machines would often be entirely alone. To be sure, the specific identities of the devices would flicker continuously; but the sheer profusion of synthesizers, cables, effect boxes, knobs, sequencers and computers surrounding him would be largely invariant.

Neither the solitary driving force behind the band nor the virtual omnipresence of electronics in the music are unique to Nine Inch Nails. Indeed, some solo artists are even more cloistered, and many bands feature electronics exclusively. However, the degree to which an abstraction of the human/machine dichotomy evinced in the imagery above absolutely *permeates* the music itself is more nearly unique. It is certainly, at the very least, ripe for analytical exploration.

I – Event v. Action

The analyses of the following chapters will be anchored by repeated investigations of competing human and mechanical agencies in the music. This will generally involve ascribing a sense of "action" to such otherwise inert elements as harmonic progression, motivic and modal construction, formal structure and newer compositional options such as stereophonic spatialization and sonic effects. Although I didn't adopt specific techniques from Fred Maus's essay "Music as Drama," it served as an important inspiration and is worth quoting at some length:

[1] Beginning with *[With_Teeth]*, which is only briefly discussed in the final chapter, Renzor seems to have become increasingly open to performative and compositional collaboration—especially on *Ghosts I-IV*, which is primarily a collection of instrumental group improvisations. This is by no means a clear-cut distinction, but the increased focus on interaction with others and the resultant infusion of human agency are one reason for my decision to group the albums named in the main text into a distinct Nine Inch Nails "era."

> The related notions of action, behavior, intention, agent, and so on, figure in a scheme or explanation or interpretation that applies to human beings (also, more controversially or problematically, to some animals and to sophisticated machines, for instance, chess-playing computers). The scheme works by identifying certain *events* as *actions* and offering a distinctive kind of *explanation* for those events. The explanations ascribe sets of psychological states to an agent, states that make the action appear reasonable to the agent and that cause the action. The explanatory psychological states can be divided roughly into epistemic states (beliefs and the like) and motivational states (desires and the like).[2]

The narrative, or quasi-narrative, structure of my analyses derives almost entirely from an investigation of potential for just such an agential hearing of both human and electronic musical events. This aspect of the analyses will necessarily be somewhat subjective, but the potential for alternate hearings doesn't demolish the overall project. Indeed, the complexity of these works easily allow the coexistence of variant, and sometimes even contradictory, interpretations of objective compositional choices. It isn't a fault of this analytical approach, but rather an exemplification of the thematic richness of these albums and songs.

One purpose for this narrative approach, particularly in the earlier chapters, is simply to elucidate exactly what compositional choices *can* be heard as creating a sense of mechanical agency and to explore the ways that such moments are generally opposed to human agency. For example, the instrumental parts in many Nine Inch Nails tracks are rigid and repetitive—clearly the product of a drum machine or sequenced synthesizer rather than a human performer. The proliferation of such parts enhances mechanical agency. By the same token, instrumental and (especially) vocal parts with variations and imperfections are instantiations of human agency.

---

[2] Maus, p. 66.

Another purpose for this approach, however, is to investigate just how messy and interdependent these categorical agents are. The analyses in Chapter 3 and Chapter 4 in particular are concerned with the myriad ways in which Reznor mechanizes humanity and humanizes mechanicity. A simplified example of the former would be a distorting filter acting as a screen between the listener and a vocal part, and an example of the latter would be an obviously human performance on an instrument with a glaringly electronic timbre. Just what such a filter or timbre would entail will become clear in the specific examples to come.

My ultimate goal in this study, though, is not to create a single-minded exegesis of the humanity and mechanicity on these albums. Rather, I hope simply to provide a compelling analysis, using whatever disparate theoretical tools are apropos for any given musical moment. Thus, a third purpose for the narrative approach, perhaps most important, is to generate a framing device—a scaffolding that holds together the otherwise potentially confusing panoply of theoretical methods. The eclectic tactics employed will include harmonic analysis, melodic and modal analysis, embodiment theory, formal and lyrical analysis and motivic organicism as well as newer approaches discussed in the next section. I hope to ground this profusion of strategies with the running theme of a human/machine dialectic.

II – Allographic v. Autographic

Although the Maus article was an important inspiration for the structure of this dissertation, *The Poetics of Rock* by Albin J. Zak III was a primary inspiration for the entirety. In particular, Zak's insistence that the recorded track itself can be interpreted as

the primary artistic object—that the *sound* of the record is just as much a result of compositional choice as the song's structure—was the initial seed that grew into the present study. His purpose is not to deny the artistry of song-writing, but merely to reveal song-writing as only one component of the larger compositional project of creating a track. As he says:

> The work of many early rock recordists shows signs of doing with music what film had done decades before with narrative drama, namely, transforming the nature of authenticity as it traditionally had been conceived. "We didn't write songs, we wrote records," claimed Jerry Leiber and Mike Stoller. Of course Leiber and Stoller did write songs, but more importantly in their own minds, they produced the records for which the songs were only starting points. For them, as for many others, the sound of the recording represented the ultimate form of the artwork, and their compositional intention was to have a hand in shaping the sonic relationships that made up its identity. The character of their production practices and their intention to make, rather than simply to record, records forces us to think about their work in its totality. For their records are not reproductions of anything; they are "realities in themselves."[3]

Zak goes on to cite Theodore Gracyk's claim that a recorded track is an "autographic musical work," which is, in turn, a reference to Nelson Goodman's more general discussion of artistic authenticity in *Languages of Art*.[4] Goodman posits two categories of artistic media: those that are autographic, where no duplication could be seen as genuine, and those that are allographic, where any sufficiently accurate copy is. For Zak's and my analytic purposes, the significant distinction is between traditional Western "classical" music and modern rock recording. The former is allographic: as in a play, the primary compositional act is to create a set of instructions (i.e. the notated score) which can then be genuinely instantiated (as long as the rendition is sufficiently faithful) by any performer or group of performers. The latter, by contrast, is autographic: as in a film, the composer (whether individual or collective) creates the actual finished work,

[3] Zak, pp. 20-21. The internal quotes are from Pareles et al, p. 322 and Belz, p. 46 respectively.
[4] Gracyk, p. 36. Goodman, pp. 112-113.

and any new instantiation thereof (short of pure mechanical reproduction) is outright recomposition.[5] The emergence of the new autographic music art form was impossible until the invention of audio recording technology, and, as such, is a product of the twentieth-century. It is an artistic medium that shares many of its compositional elements, metaphorically, with other autographic media such as painting and sculpture.

Zak divvies the primary "sculptural" compositional elements of records into five broad and interconnected categories: musical performance, timbre, echo, ambience (or reverberation) and texture.[6] His third chapter is devoted to lengthy and helpful descriptions of all of these categories, but a brief discussion here of the first is instructive. That the specifics of a particular musical performance can be an ineradicable part of a composition is an excellent case in point of the difference between allographic and autographic music. The smallest details of improvisation, rhythmic variation, metrical "looseness" and even outright errors are compositional if they survive to the final mix. This is a sharp contrast with traditional notated music wherein performer's idiosyncrasies are purely interpretive and errors are deviations from the proper text. To be sure, the distinction is less sharp than this description indicates, and complicating examples such as recordings of live concerts or notated electronic music certainly exist.[7] The distinction

---

[5] Of course, this simple description glosses over numerous complexities and interdependencies. It also must be noted that this outlook seems to deviate rather sharply from Goodman's original use of the terms. He was exclusively concerned with issues of authenticity and forgery, and the fact that he ascribes the allographic appellation to books casts doubt on whether he would agree with Gracyk that rock records are autographic. In both cases, the artwork survives multiple copies with authenticity intact. On the other hand, the variants between multiple genuine instantiations of a book, if we include such details as font, margins and pagination, are generally more all-encompassing than those between pressings of a record. The philosophical thorniness of these issues need not distract from the overall point that in recorded music the sound itself is a result of the compositional act as much as the notes and rhythms.

[6] Zak, p. 49.

[7] A particularly intriguing complicating case is the Tom Waits album *Nighthawks at the Diner*, an album recorded in a studio that was temporarily converted into a diner complete with invited audience. The result is a record that sits somewhere in between a live album and a studio album, and thus, at least to some extent, straddles the allo/autographic divide uncomfortably.

is useful nevertheless, and musical performance, along with Zak's other four categories, will often be discussed as a compositional element in this dissertation. I will not systematically analyze all five realms in regard to every musical moment, but they will always be in the background, focusing my arguments about sonic sculpture.

Another focusing element of my analysis is discussed in Chapter 5 of *Poetics of Rock*. Zak unpacks a statement by recording engineer George Massenburg and extracts the following idea:

> Massenburg highlights the interactive nature of the relationships among individual elements and larger composites—artifacts and gestures—and points to the ongoing shifts in perspective that a record makes available through its manipulation of "four-dimensional space," which includes both vertical and narrative assemblage. Of these four dimensions, three are synchronic: the stereo soundstage (width), the configuration of the frequency spectrum (height), and the combination of elements that account for relations of prominence (depth). The fourth dimension is the progression of events, the narrative or montage.[8]

I will refer to the synchronic x-, y- and z-axes as the stereophonic, frequency and ambient axes respectively. The stereo axis can be shaped in many ways, but the manipulation of the so-called panning of a sonic channel between the left and right speakers either on the console or in software is probably the most common. The frequency axis can be handled by compositional choices as fundamental as instrumentation or pitch range in addition to the more mechanical use of filters that can augment, diminish or even eliminate portions of the overall spectrum as well as the spectral profile of any individual component. The ambient (or prominence) axis can be formed by basic volume manipulation in addition to sophisticated exploitation of reverberation, both natural and simulated. Many compositional choices can shape all three axes simultaneously. For example, the position of a microphone in relation to the thing being recorded can help place the sound

[8] Zak, p. 144. The quoted phrase is from a Massenburg quote in Ballou, p. 1158, "I mix like I'm decorating a four-dimensional 'space.'"

stereophonically (especially if it is a stereo mic), manipulate the frequency spectrum (as a result of which part of the instrument or object is being most directly recorded) and orient the sound in the foreground or background by determining how much of the room noise and reverberation is captured (mostly a result of the distance between source and mic). The environment or soundscape—similar to what Allan Moore calls the "sound-box"—of a track is defined by these axes.[9] It can be natural or artificial, disorienting or transparent, but it is always significant.

Brian Eno describes the compositional project thusly:

> If you start thinking of music as something you don't have to do in real time but something that can be built up, *like a painting*, that gives you a different way of working. You can think about it on, shall we say, the atomic level. The other level you can think at, through working with the kinds of processing equipment that studios have, is as a way of making atmospheres, landscapes, whatever you like.[10]

These perspectives work equally well for the analyst of autographic music as for the composer. When my analyses delve into these "painterly" aspects of the music, I will sometimes hypothesize the devices or processes that may have been used to create particular sonic effects. It is vital to note that these are not intended as true reconstructions, a project that would require extensive access to the original multi-tracks in addition to Reznor himself and several of his engineers, producers and performers.[11] Such a project would be fascinating, but is manifestly not the aim of this study. Indeed, a full reconstruction of the effect chain is often impossible. For example, in Chapter 3's discussion of "ruiner" from *the downward spiral*, I quote an interview with Reznor wherein he recalls what effect device his guitar was plugged into, but specifically states

---

[9] Moore, p. 104.
[10] Doerschuk, p. 51 (emphasis mine).
[11] Indeed, in many cases it would also require total recall on the parts of these actors, a certain impossibility given the often feverish experimentalism of the Nine Inch Nails studio.

that the actual settings were called up accidentally. The exact effect chain is unrecoverable, and similar incidents are essentially infinite in the world of recorded music. The existence of such undocumented specifics obviates the sin of unproven hypothesis.

I hope that the very *process* of constructing these hypotheses is illustrative of this relatively new analytical space and its possibilities. In other words, it is generally my intention (with some important exceptions) to occupy the interpretive mindset of a listener without access to any material beyond the canonical text itself. Thus, I can describe the sculptural and thematic effects of various specific compositional choices in the studio, while leaving implicit the possibility of other pathways to the same or similar effect. As with the allographic analytical methods employed in this study, the ultimate goal of these autographic explorations is simply compelling analysis along a particular narrative arc.

III – Humanity v. Mechanicity

The following three chapters are chronologically-ordered analyses of the first four Nine Inch Nails albums. Chapter 2 investigates both *pretty hate machine* and *broken*, while Chapters 3 and 4 cover *the downward spiral* and *The Fragile* respectively. Within each chapter, I will begin with two sections that address important large-scale ideas that span the entire album or albums in question, and in the second half I will focus on only a few individual tracks and provide a detailed close-reading of each. In this way I can discuss both global organizing principles as well as specific compositional decisions.

Ordering the dissertation chronologically in this way creates an implicit argument that these four albums form a coherent group in the Nine Inch Nails catalog, a particular era in Trent Reznor's career. Although I would like to avoid such an entirely clear-cut distinction, it is at least a somewhat viable proposition. These four albums were released between the years of 1989 and 1999. The next studio album in the discography is *[With_Teeth]*, released in 2005 after a six-year hiatus. This significant downtime demands at least some acknowledgment of the division. However, the six-year interruption is only marginally more than the five-year gap between *the downward spiral* and *The Fragile*. Even though the longer six-year hiatus is also less consistently filled with minor releases and performances, this fact still renders the argument relatively weak if left to stand alone. It can be bolstered somewhat by looking at thematic resonance, as all four albums grapple with the human/machine dichotomy in fundamentally the same way. The lyrics tend to be highly emotional and subjective, for the most part sung by a narrator alternating between rage, alienation and psychic pain while often surrounded by electronic chaos. At the end of all four albums the human agent is, to varying degrees, subjugated or even obliterated by the forces of mechanicity. Subsequent albums certainly deal with humanity and mechanicity as well, but the tone does shift, as will be discussed in Chapter 5. In particular, *[With_Teeth]* functions as something of a transitional album in its thematic tenor, and as such, merits a brief analysis, which I will provide in the final chapter as well.

There is another thematic element which is more consistently shared throughout the entire Nine Inch Nails catalog to date: that of the piano as a proxy for humanity. To some extent, any acoustic instrument, which is necessarily more directly associated with

its human performer (or at least far less likely to be controlled mechanically), can execute this role.[12] In Reznor's output, however, the piano inhabits this role most naturally since it was his first instrument. He began playing as a five-year-old, and biographer Martin Huxley says he "showed serious potential as a classical piano prodigy," which brings biographical significance to the association.[13] The use of piano as a humane agent, sometimes twisted and weakened, will be a recurrent theme in the following chapters.

I began this chapter with a visual metaphor: the looming presence of amorphous machinery surrounding Reznor's fragile humanity. A far more ominous visualization can be found in one of the early Nine Inch Nails music videos, which was made for a song entitled "happiness in slavery" from *broken*. In it, masochistic performance artist Bob Flanagan straps himself, naked and vulnerable, into a machine in the middle of a dark and apparently sacred room. The machine proceeds to torture him mercilessly for most of the song's length, until it ultimately tears him asunder and grinds the body into paste. The final image of the video is Trent Reznor entering the room, apparently preparing to submit himself to the same suicidal sacrifice. This is a decidedly unsubtle allegory for the overall artistic thrust of Nine Inch Nails, as well as the narrative underlying the following analyses. Humanity, utterly unable to cope with its own creations, submits itself willingly to ritualistic destruction by the same. Oblivion is the goal, and the horror.

---

[12] Mechanical player pianos and MIDI-controllable pianos such as Yamaha's Disklavier offer a fascinating tension between humanity and mechanicity, which has been exploited by composers such as Conlon Nancarrow, George Antheil and Kyle Gann.

[13] Huxley, p. 10.

Chapter 2 – Frostbitten in Hell

Heaven's just a rumor she'll dispel,
as she walks me through the nicest parts of hell
-"sanctified," *pretty hate machine* - track 4

I – Background

The cover of Nine Inch Nails' 1989 first album *pretty hate machine* has an image of what appears to be a human ribcage, but is in fact a stretched and colorized photo of turbine blades.[1] It is a perfect visual metaphor for the central overriding theme of Trent Reznor's Nine Inch Nails career: the intersection of the human and the mechanical. The initial tracking for the record occurred during the off-hours at Right Track Studios in Cleveland, where he had a day job as a janitor. Reznor recalls, "I kicked into complete work mode. It was complete isolation every day."[2] When it came time for the mixing process, financed by his new label, TVT Records, his isolation was replaced by sometimes contentious work with four credited co-producers: Flood, Adrian Sherwood, John Fryer and Keith LeBlanc. Reznor developed an immediate distaste for production collaboration and would turn increasingly to self-production in subsequent releases. When promotional copies were sent to radio stations, they were accompanied by a bio sheet that described the album as "a seed of humanity in a barren industrial landscape."[3]

Reznor performs all the instrumental parts on *pretty hate machine*, but when the time came to tour, a live band had to be formed, and the songs underwent a steady

---

[1] *pretty hate machine* is Halo 2 in Reznor's numbering. Halos 1-4 are all specifically related to it. The true nature of the cover subject is from Udo, p. 76. The cover is by Gary Talpas of Föhn Design.
[2] Cross, p. 14.
[3] Cross, p. 24.

evolution as a result.[4] The songs became far more aggressive and guitar-oriented than their album incarnations, and the band came to be known for their violent performances. At around the same time, Reznor had an angry falling-out with his label, and refused to record a follow-up album. In fact, he *was* working on a new record, but in secret, by registering studio time under a false name. Three tracks thus recorded were co-produced by Flood—"wish," "last" and "gave up"—the remaining five were entirely self-produced. The album wasn't released until Interscope Records bought out the Nine Inch Nails contract in 1992. It is an EP called *broken*, and, although the vast majority of the music is performed or programmed by Reznor, the sound is nevertheless informed both by the more aggressive style of the live band and Reznor's frustration with his first label's restrictions.[5] Its almost unremittingly seething energy was described by Peter Kane of *Q* magazine as "some sort of landmark in the bleak wastes of industrial metal. From the opening 'pinion,' beats are hammered home with the gleeful force of a dentist's drill while layers of rabid guitars and Reznor's spiteful voice pile on the nihilistic agony all the way through to 'happiness in slavery' and 'gave up.'"[6]

I will begin with an examination of the different soundworlds of the two albums: first through a look at their differing use of instruments and space, then through a look at their opposing harmonic arrangements and principles of song structure. This will be

---

[4] This band included Chris Vrenna, who would continue to work with Reznor for many years as both drummer and recording engineer.

[5] *broken* is Halo 5. This EP has six tracks as well as two bonus tracks that were originally released on a separate mini-CD within the packaging. On a later release, the bonus tracks were "hidden" on the same CD as the EP at tracks 98 and 99 after 91 tracks of one-second silence. Since these bonus tracks are covers (one of an Adam Ant tune, and the other of a Pigface song co-written by Reznor), I will only be dealing with the six songs on the EP proper for this investigation. *broken* is linked with Halo 6, a remix album named *fixed*.

[6] Udo, p. 102.

followed by a close reading of three contiguous tracks from *pretty hate machine* and one track from *broken*.

II – Fire and Ice: Instrumentation and Spatialization

The cover of *pretty hate machine* is filled with blues and violets. These colors from the cool end of the spectrum contrast sharply with the reds, oranges and yellows of the flames on the cover of *broken*, and the contrast persists analogically in the soundworlds of the records. The former generally casts isolated humanity, almost always represented by the human voice, in opposition to a coldly mechanical environment, while the latter continually enmeshes humanity within searing mechanicity through mixing and electronic effects.

The coldness of the first album was deliberate. In a 1996 interview with SPIN magazine, Reznor said:

> *pretty hate machine* was about juxtaposing human imperfections against very rigid, sterile, cold arrangements. You can't just have icy vocals over icy music. If the music is very precise, make a vocal tape that's less perfect, so you've got this meshing of man versus machine.[7]

The iciness he refers to is in part a result of the E-mu Emax SE, an 8-bit sampler and additive synthesizer used throughout the record.[8] The low bit-depth attenuates the sonic information of any recorded samples. This, combined with the relatively primitive state of additive synthesis at the time (subtractive synthesis is much older and far less computationally complex), leads to coldly crunchy digital sounds only partially ameliorated by the analog filters. The timbres tend to have accentuated high frequency

---

[7] Huxley, p. 42.

[8] Technically, the Emax was advertised as a 12-bit sampler, but this only referred to its playback engine. The samples themselves were stored in 8-bit form, which has far more effect on the audible digitization of the sound.

distortion and relatively strong lower-mid frequency foundations, but very little of the low and middle frequencies that our ears interpret as "warmth." This effect is deliberately exacerbated by the equalization choices made throughout the album, and can be heard clearly, for example, during the openings of "head like a hole" and "terrible lie." The only acoustic instrument on the album is the piano in "something i can never have." This marks the first of many instances in the Nine Inch Nails catalog where the piano is used as a tragic instrumental stand-in for the human agent, though none cast it in sharper relief than this. This song establishes the instrument's metaphoric meaning, which will be bent and stretched throughout subsequent albums.

Although immediately after the release of his first record Reznor claimed he vastly preferred the keyboard to the guitar as a compositional tool, his process reversed itself for *broken*.[9] As he described, "[it] will be much more guitar-oriented. It's going to be a lot more live and a lot more raw and harder—a lot uglier."[10] As an analog electronic instrument, the guitar can provide a much fuller harmonic spectrum to work with than the digital sampler, and Reznor exploits this throughout with dense layering of differently-equalized copies of the guitar parts. An excellent example can be heard in the guitar sounds on "gave up," particularly at 1:07 and similar sections ("smashed up my sanity"). The left channel carries a copy that is hi-pass-filtered to bring out the noise elements of the massive distortion, and the right channel has a low-pass-filtered copy that emphasizes the low and mid foundations of the sound. The composite aural image is a wash of snarling distortion and thick, obdurate harmony.

---

[9] "Right from the beginning I was composing on computer and sequencer. I can't imagine composing on, say, a guitar or a conventional instrument. The idea is foreign to me." Udo, p. 64.
[10] Udo, p. 92.

In addition to its timbral heat, the performing and writing on guitar brings, at least for Reznor, an added unpredictability and humanity. As he told *Keyboard* magazine:

> The great thing about guitar as an instrument is its expression. It's much more expressive than playing a keyboard. Unquestionably, the controller/input device of strings is a lot more expressive and accidental and uncontrollable. When you can take that, and process it in a computer environment, you still get some of those key elements of randomness.[11]

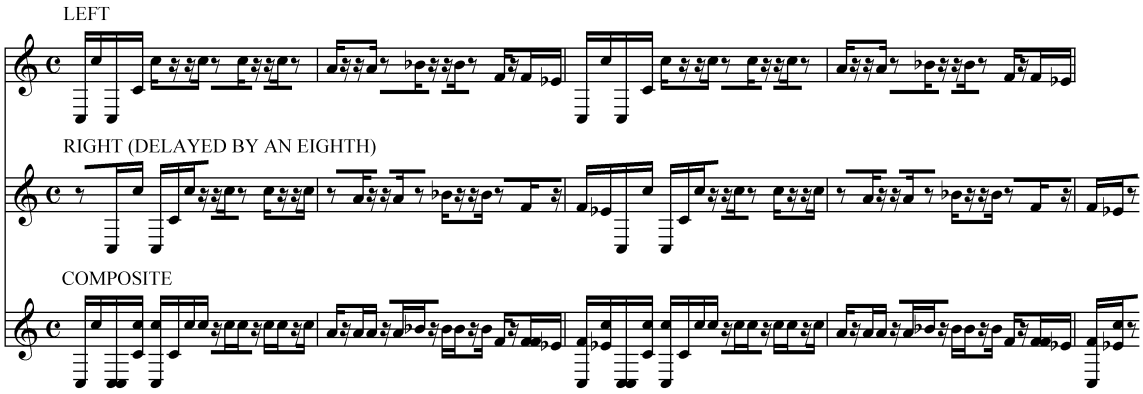
Although the relative degrees of expressiveness and unpredictability between the guitar and keyboard are debatable and probably differ from person to person, the *types* of randomness that aggressive performances on the two instruments generate differ objectively. The most common mistakes on keyboard instruments involve the striking of adjacent keys, resulting in coldly inert chromatic and diatonic clusters. On the guitar, one is far more likely to strike adjacent *strings* and hence generate more spaced-out additional notes—often open or partially muted strings—which generally sound like new, dissonant chord tones. In addition, accidental harmonics and other percussive string and pick sounds will be audible, especially when the guitar is distorted. These aspects of accidental expression on the two instruments suit their respective albums well.

The hollow equalization of *pretty hate machine* is mirrored by an equally sparse use of the stereophonic space. Most elements are either in the center or fully in the left or right speaker. The center often gets particularly claustrophobic, with many instruments and sound effects vying for the same space. Reverb is generally used sparingly and tends to be localized to the immediate area around the source rather than diffused throughout the image. Several examples will be discussed in the close readings, but a particularly distinctive one can be found in the introduction and first verse of the final track, "ringfinger." The opening synthesizer accompaniment sounds like a single part on first

[11] Cross, p. 32.

listening, but in actuality is distinct copies of the same syncopated line: one placed entirely in the left speaker, and one delayed by an eighth note and placed in the right.

Example 2-1 – "ringfinger" synth line, split into component parts (0:00)



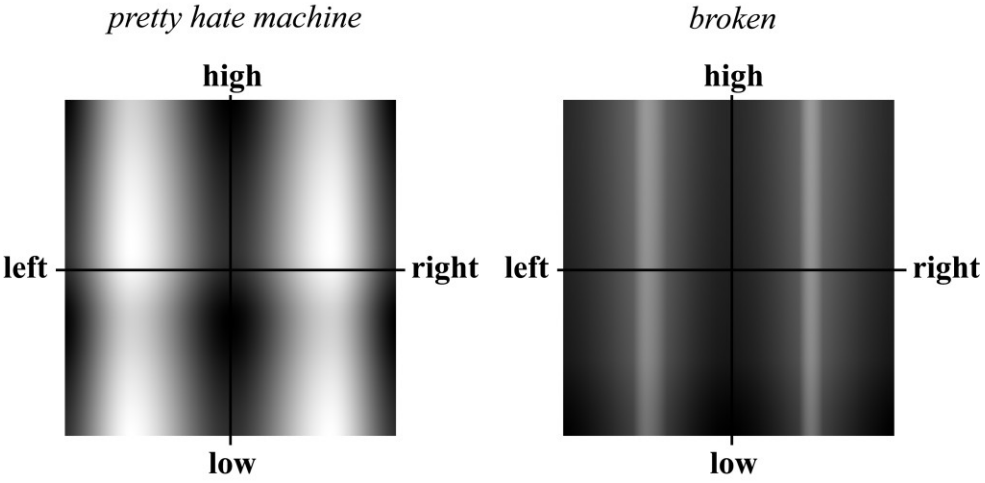
The exact copying process highlights the mechanical cut-and-paste that created it. At first it seems that these components enclose a void in the center, forcing the listener to strain to hear it filled. Closer listening reveals a ghostly shadow of the left synth line, now delayed by a full beat and sharply filtered or flanged such that it gains a steely edge. It is so far back in the mix, that it serves more to emphasize the central vacuum than to fill it. When the voice enters, it is panned directly in the center, as is its narrowly-focused reverb, which provides lonely depth but very little breadth or leeway to the human agent.

Just as the frequency space is more filled out on *broken*, so too is the stereo image. The close reading of "gave up" will serve as a primary example, but a brief look at "last" will also be instructive. During the opening and first verse (0:00-0:33) the drums occupy a slightly wider space than they did on *pretty hate machine*, and they leave a hole for the vocals to occupy. The massive guitars are double-tracked and panned away from each other, though neither is fully hard right or left. The stereo space then further expands for the pre-chorus at 0:33, as the guitars move further out and the image is littered with ambient noise and hard-panned extra vocal lines. The complexity of the

sonic space culminates in the song's apotheosis at 2:50 and continues through the end. Every element is given its own space in which to seethe, and the field is full throughout the left-right spectrum. The following track, "help me i am in hell," continues this sense of relative expanse, including some small but important examples of sounds that gradually traverse the stereo image rather than simply leaping from side to side. A particularly noticeable example occurs in a hissing sound that moves from right to left beginning at around 1:00.

The differences between the frequency and stereo axes of the two albums are roughly summarized in Fig. 2-1:

Figure 2-1 – Graphic Representation of Axes (the darker the area, the more common its use)[12]



The cold expanses are only intermittently explored on the first record, while virtually every part of the second pulses with life. The difference even exists in the background-foreground axis. For example, some elements are made to leap out of the texture quite unnaturally on *broken* by using "improper" phase cancellation between speakers, most

[12] This is only a general illustration, not an actual spectral analysis.

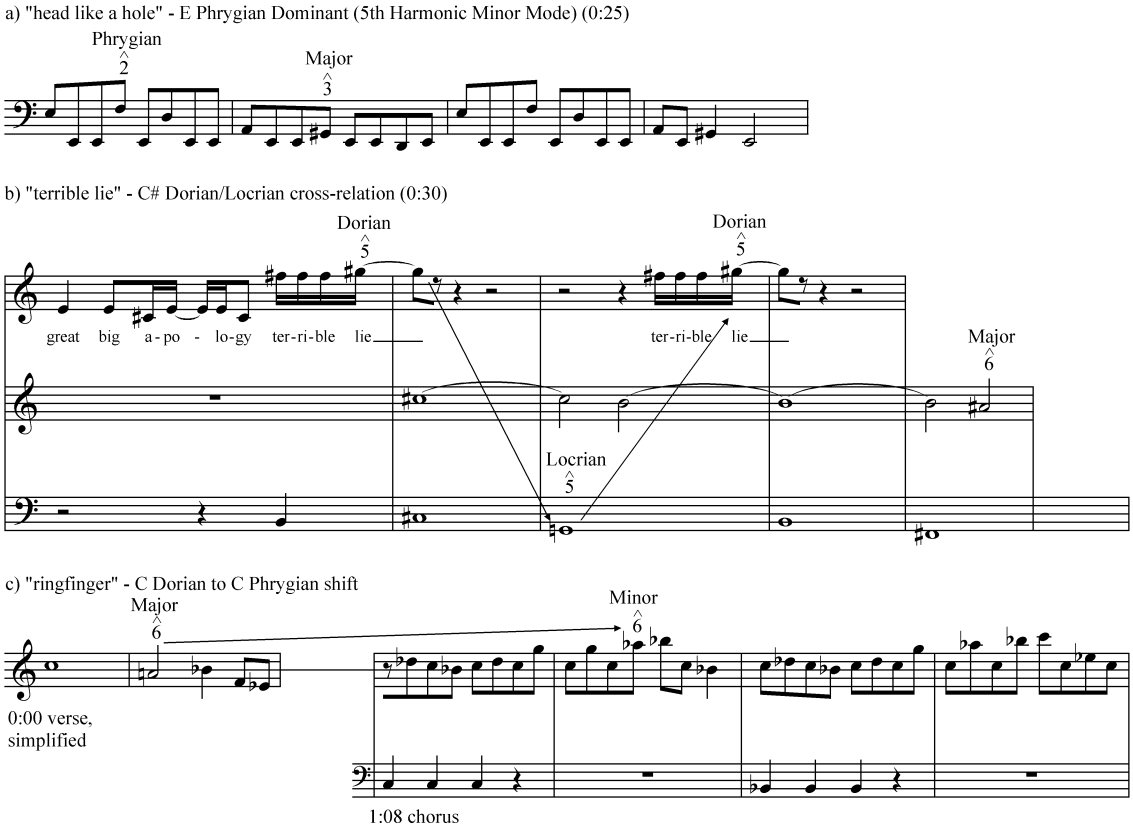
strikingly with the snare drum on most of "happiness in slavery."[13] What is most significant, however, is that despite their differences, both are recognizably constructed spaces. The human agent is either isolated/imprisoned by stark boundaries as in *pretty hate machine*, or swallowed and made almost gleefully complicit in the swirling devastation of *broken*.

III – Structure: Harmonic and Formal

The harmonic world of *pretty hate machine* is almost exclusively modal, but the tracks are often enlivened with various pitch conflicts that generally conform to one of three types. For illustration, here are three important moments from three different songs:

[13] This is the reason for the somewhat mysterious warning in the *broken* liner notes, "Caution: Not for use with mono devices." The snare sound in question, for instance, completely disappears in several sections when played back in mono.

Example 2-2 – The 3 Forms of Major/Minor Conflict in *pretty hate machine*

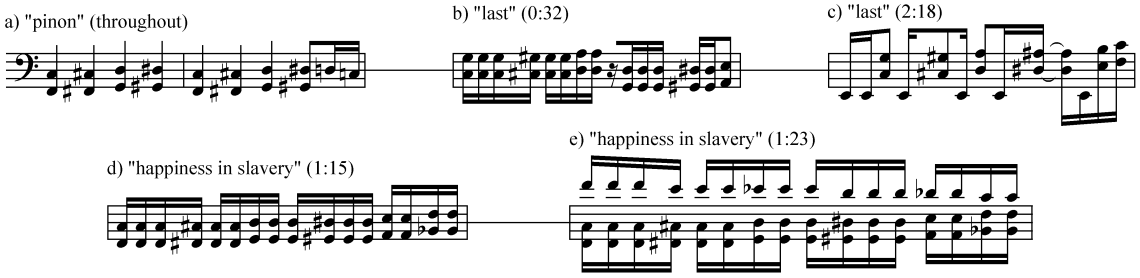


Ex. 2-2a shows the first pitch event on the entire album, and it immediately frames an important scalar structure found throughout, wherein modes of the harmonic or melodic minor are used. These modes generally have one scale degree that contradicts the major or minor tendencies of the rest of the scale. In this case, the bass riff is in E Phrygian Dominant (the fifth mode of the harmonic minor), which has the striking, minor-tinged reverse-leading tone of E Phrygian, with a surprisingly bright $\hat{4}$-$\sharp\hat{3}$ resolution in the second and fourth bar. Both the plagal implications of the resolution and the mixture of minor and major elements are characteristic of the album (and, indeed, many later albums). Another illustration of this type of major/minor mixture can be seen in the bottom two staves of Ex. 2-2b. This time the music is in the second harmonic minor mode on C♯, in which the sixth scale degree is major in spite of an otherwise Locrian

character. In these situations, the heptatonic pitch collection is consistent, so there is no modal conflict; the significance for my analysis lies in the coexistence of darker minor intervals and brighter major ones that is intrinsic to such modes.[14] Also in Ex. 2-2b, we see the second form of pitch conflict: direct cross relations between two different modal interpretations of a single scale degree. As already stated, the instrumental parts are in C♯ Locrian, but the vocals consistently stress G♯, which clashes directly with the G♮ (the defining ♭$\hat{5}$ of Locrian) in the bass. The third example showcases a far more traditional modal shift, where the harmonic relations change between sections. In this case, the verse synth line discussed above (see Ex. 2-1 for the unsimplified version) is in C Dorian, but its characteristically major $\hat{6}$ falls to A♭ for the choruses, which are cast in C Phrygian.

Modal areas exist on *broken*, but these diatonic moments are either eclipsed by omnipresent chromaticism or reduced to simpler pentatonic structures. Chromatic-scale subsets abound:

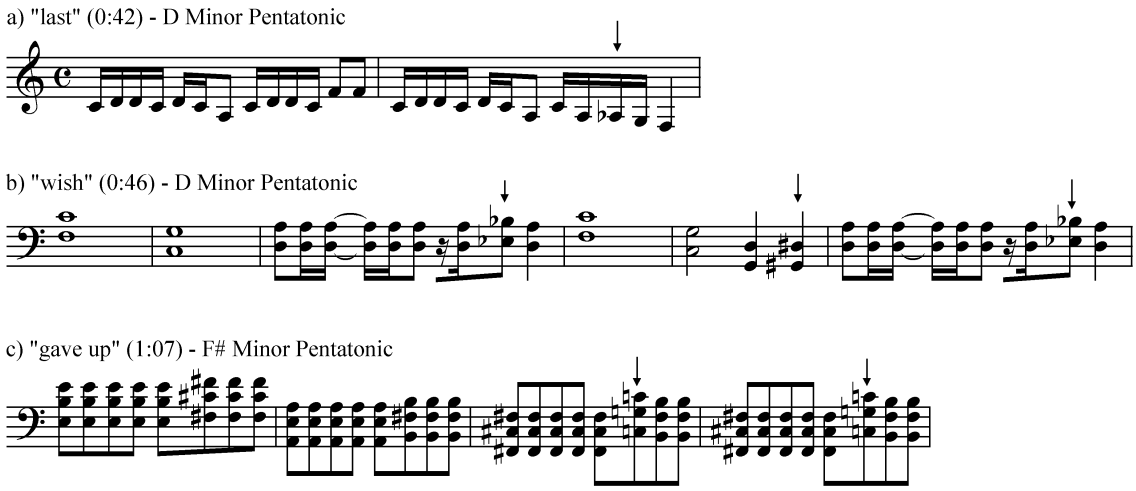
Example 2-3 – Important *broken* Chromatic Moments



[14] The only diatonic mode that features such coexistence between $\hat{3}$ and $\hat{6}$ is Dorian, which contains a minor $\hat{3}$ with a major $\hat{6}$. In the other diatonic modes, they are either both major (possibly with the intensifying major degrees of ♯$\hat{7}$ and ♯$\hat{4}$), or both minor (possibly with the intensifying minor degrees of ♭$\hat{2}$ and ♭$\hat{5}$). Most *pretty hate machine* major/minor conflicts of this first type involve conflations of an intensifying minor degree with either a major $\hat{3}$ or a major $\hat{6}$ or both. This is not to negate the impact of potential augmented and diminished scalar intervals or increased minor seconds, all of which can often be found in these harmonic and melodic minor modes as well.

Ex. 2-3a is the first pitched event on the album, and establishes the soundworld of chromatic inflection that will permeate every song to some degree. The other examples need no particular comment save to point out that these power chords and chromatic scales are exactly the sort of harmonic structures one would expect in an album largely composed on guitar.[15] This is also true of the areas that focus almost exclusively on pentatonic collections, some of which are shown in Ex. 2-4.

Example 2-4 – Important *broken* Pentatonic Moments

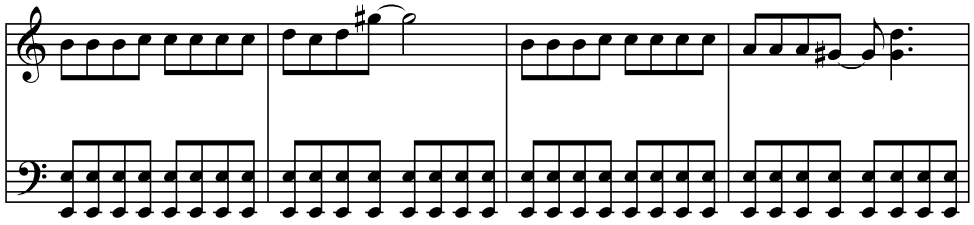


Each of these examples has notes (marked by arrows) extraneous to the dominant pitch collection, all of which function as chromatic embellishments rather than distinct scale degrees. In each case the duration is too brief and the metrical position is too weak to be heard as structural. This is even true of the E♭ power chords in Ex. 2-4b—which might, in another context, be seen as ♭$\hat{2}$s that would force an overall Phrygian reading—because chromatic embellishment has been so firmly established elsewhere on the album. The riffs and motives in Exx. 2-3 and 2-4 help create a far more frenzied tonal atmosphere than the relative instrumental austerity of *pretty hate machine*.

[15] It is also interesting, though tangential to the discussion at hand, to note that Exx. 2-3d and e have every possible chromatic pitch except B♮, which will play an important role in the upcoming bridge.

The only song on *broken* that lies fully in a modal world—the fifth melodic minor mode on E—is the instrumental "help me i am in hell" (track 4, see Ex. 2-5). As a result it seems to hearken back to the colder and often calmer textures of the earlier album.

Example 2-5 – "help me i am in hell" (0:00) – Fifth Melodic Minor Mode on E



In this mode, a major $\hat{3}$ coexists with a minor $\hat{6}$. It is the G♯ $\hat{3}$ that has a surprising feel, especially since it is consistently accented and paired with a D, causing a dissonant tritone. In the "gave up" close reading below, we will see a section with the same mode, but in a different context such that minor $\hat{6}$ sounds novel rather than the major $\hat{3}$.

The final point of comparison I wish to discuss is the different approach to formal structure between the two records. With only a few exceptions, both albums have songs that generally adhere to standard contrasting verse-chorus form. However, on *pretty hate machine* the instrumental accompaniment sometimes contradicts the structure implied by the vocals. By way of illustration—as well as transition into the upcoming close reading—Ex. 2-6 transcribes and labels the various instrumental parts of "down in it," and the adjacent Fig. 2-2 maps their use against the overlying structure.

Example 2-6 – The primary and secondary elements of "down in it"

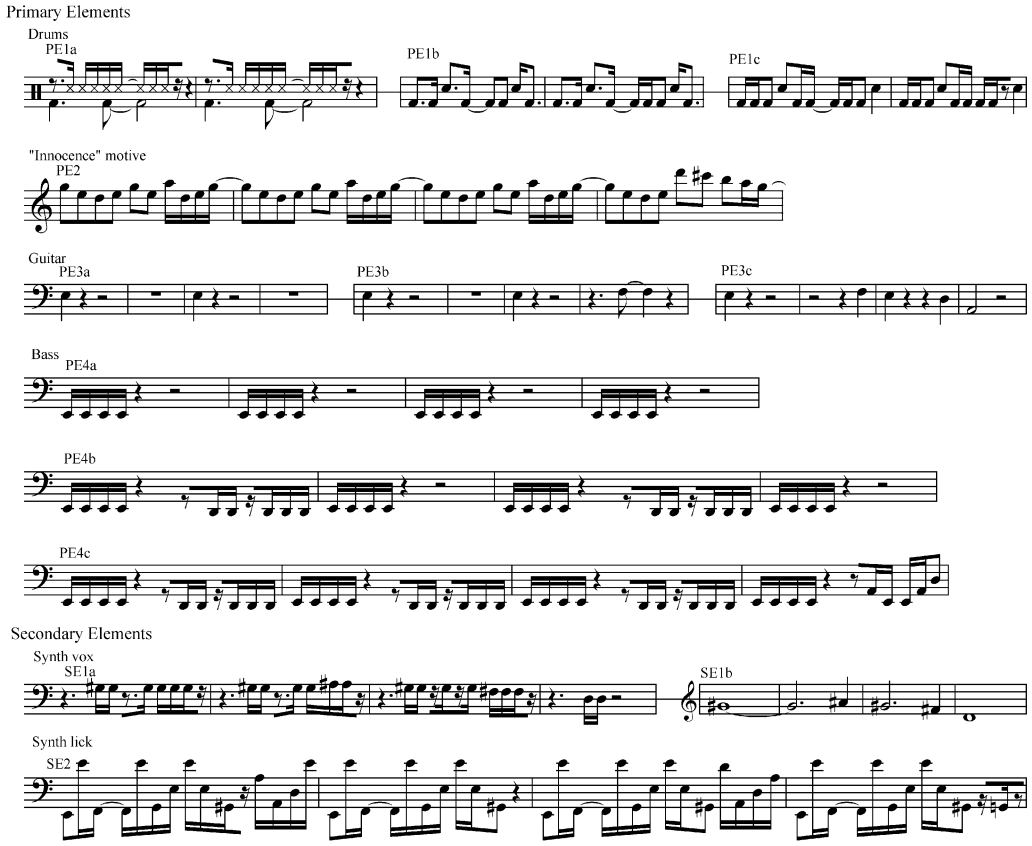
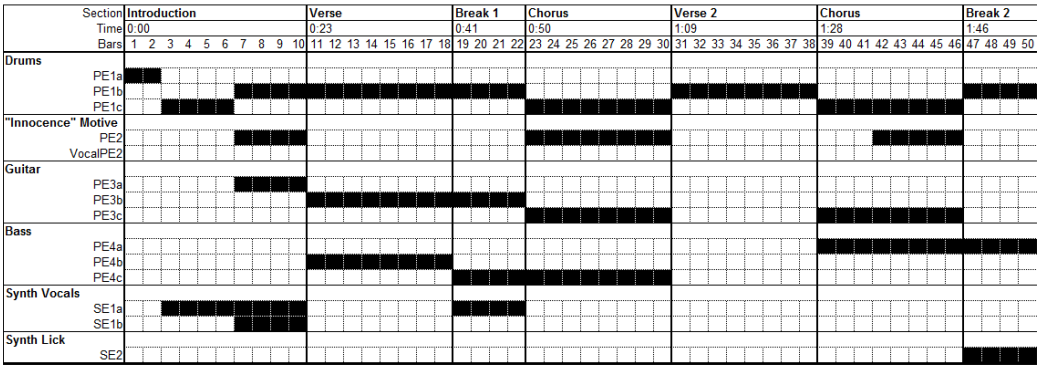
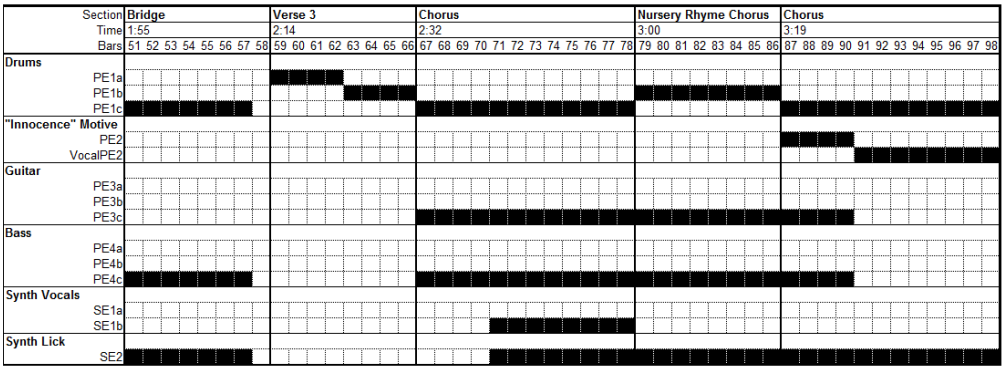


Figure 2-2 – Form Graph of "down in it"





The instrumental form is largely modular, with various elements that are often switched on and off without regard to the verse-chorus structure.[16] For instance, the constituent modules of each successive verse are radically different, and, more significantly, they are shuffled differently in each chorus as well. Several elements cross sectional boundaries, and even more appear and disappear in between them. The listener is forced to notice the mechanics of the structural cut-and-paste in a way that doesn't happen when formal conventions are followed in all parts. Unlike the more traditional organic structures in *broken*—where the human and machine are generally linked—this is a cold assembly-line process that happens without regard to the vocal line. The human agent is essentially irrelevant.

IV – Obsidian and Steam: Close Readings

The following analysis looks at three contiguous tracks from *pretty hate machine* and one from *broken* that contrast in both color and narrative, but also reveal deeper similarities.

Close Reading #2-1 – Conveyor Down to Cocytus – *pretty hate machine* tracks 3-5, "down in it," "sanctified" and "something i can never have"

Bounded on both sides with rare moments of silence, the triptych of tracks 3, 4 and 5 form a continuous aural chunk of *pretty hate machine*, and can be read as a mini-narrative within the arc of the entire album. "down in it" details (albeit in past tense) an almost prelapsarian time of innocence for the narrator: "i was up above it / now i'm

[16] Modular structure has an interesting analog with the process of sampling, which is also more prevalent on *pretty hate machine* than *broken*. It should be noted that the version of "down in it" on *pretty hate machine* is actually an Adrian Sherwood remix of Reznor's preferred version, and thus some of the compositional decisions are his. On other halos, this album version is referred to as "down in it (skin)."

down in it." A subsequent sexual awakening in "sanctified" is complicated by an incumbent fanatical devotion to the object of the narrator's obsessions, as expressed in the lines:

> if she says come inside i'll come inside for her
> if she says give it all i'll give everything to her
> i am justified
> i am purified
> i am sanctified
> inside you

Although the verb tenses of this song vary, there are many future and subjunctive formulations. Finally, "something i can never have" seems to issue up from the depths mourning a non-specific betrayal:

> in this place it seems like such a shame
> though it all looks different now, i know it's still the same
> everywhere i look you're all i see
> just a fading fucking reminder of who i used to be.

These lyrics wistfully refer to events in the past, but are tellingly set in a stark present tense without any subjunctive inflections to hint at the possibility of a better future. We are seeing the fall of humanity into a cold and sterile state of mechanicity writ small in the story of a single failed relationship. This descent is often echoed, though sometimes subtly subverted, by the musical setting.

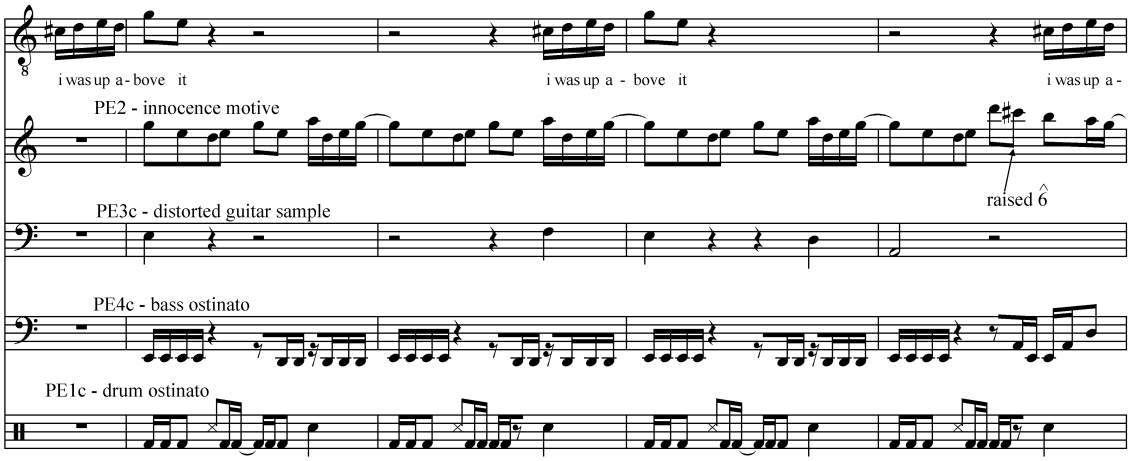
PITCH DESCENT

All three songs deal with the major/minor modal ambiguities discussed earlier. Both "down in it" and "sanctified" have most foreground instrumental elements cast in E Phrygian, with numerous contradictions—especially of $\hat{3}$ and $\hat{6}$—in the vocals and the ambient sounds. A literal descent, in the form of a massive pitch slide, brings us down to

the world of C major/minor in "something i can never have," which generally has the major $\hat{3}$ and minor $\hat{6}$ characteristic of the fifth melodic minor mode.

The large-scale form of the first song was discussed above, and the overall modularity of the track gives rise, during the introduction and first verse, to a fragmented variant of what Mark Spicer has dubbed "accumulative form."[17] The elements which will comprise the musical backdrop are introduced separately—and often in more spaced-out, simplified forms—until finally coming together for the chorus at 0:50:

Example 2-7 – The four primary instrumental elements and vocals, first chorus (0:50)



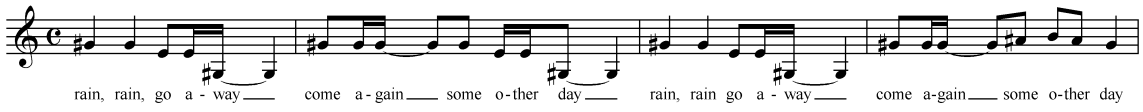
The secondary elements introduced in the opening six bars will be discussed later, but the fundamental modal backdrop of this song, the second melodic minor mode on E, is most firmly established here. This mode is almost the same as E Phrygian, except that the characteristic lowered $\hat{2}$ and $\hat{3}$ coexist with a major $\hat{6}$ (a relationship which will be reversed in the third song, "something i can never have"). $\hat{6}$ is most clearly represented by a single passing-tone at the end of PE2, the otherwise pentatonic synth line, although it seems also to be present with less definition in the vocal line's anacruses. PE3 and 4,

[17] see Spicer, pp. 32 & 33. The fragmentation stems from the modularity of the introduction; as new elements accumulate, the old elements often disappear. Thus, although the listener accumulates knowledge of the constituent parts of the musical background, actual aural accumulation is more piecemeal.

the distorted guitar and bass lines respectively, lay down a firm Phrygian foundation with the roots of a repeating i-♭vii-i in the bass and a full hypermeasure i-♭II-♭vii-iv in the guitar.

A brief discussion of the PE2 motive is warranted (see previous Ex. 2-7). The pentatonic and simplistic nature of this melody helps to create the sense of child-like innocence alluded to at the beginning of this discussion. Many children's songs use pentatonic scales, and the playfully syncopated elision between each measure further adds to the effect.[18] However, just as the past-tense lyrics of this song do, the sneeringly nasal, warbly nature of the synthesizer patch lends a sardonic edge that undercuts any sense that the innocence remains. This sense of warped, mocking youth is made even more explicit near the final bars of the song, at 3:27, when the same PE2 melody is transplanted into a severely distorted human voice sung on repeated "Nyah, nyah"s, the traditional syllable of childhood taunts. Humanity is being mechanized, and the cold process of disillusionment is shown to be complicit. The connection between the melody and childhood is underlined, because we've already been primed with an actual nursery rhyme in a preceding section starting at 3:00 sung by the same distorted shadow-voice. The pitch of this rhyme is appropriately obscured by portamento, but roughly follows the outline shown in Ex. 2-8:

Example 2-8 – "down in it" nursery rhyme (3:00)

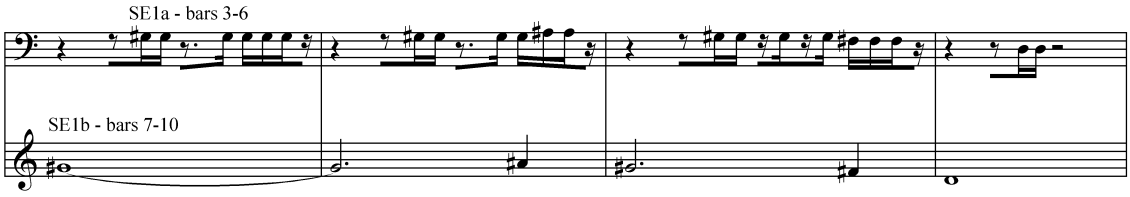


[18] "Land of the Silver Birch" and "Pop Goes the Weasel" are two of many hundreds of pentatonic children's song examples.

The alien pitches of G♯ and A♯, two of the clearest notes in the passage, connect the distorted human voice with other modally contradictory elements throughout the song, and these bear further discussion.

The relative modal clarity implied above is sharply undercut throughout "down in it," and, as part of the accumulative form, the opening six bars present the main aspects of pitch conflict. The thudding bass drum of what is most likely a Roland 808 (PE1a in Ex. 2-6) dominates the first two bars of "down in it," and although the pitch of any percussion sound is complex, G♯ is most prominent. The next 4 measures introduce a stuttering version of the main secondary element of the song (SE1a, see below) also featuring G♯ as well as F♯ and A♯: raised, major versions of the third, second and fourth scale degrees respectively. A smoother, more long-winded version of this element (SE1b) follows at 0:14, simultaneous with the introduction of PE2 already discussed, and thus creating a direct cross relation between G and G♯.

Example 2-9 – Secondary Element #1 (SE1a&b), stuttered and smooth

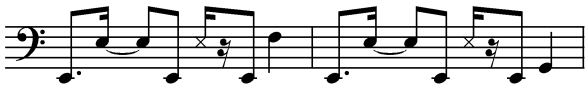


In both cases, these elements are presented in a much icier form of mechanized humanity than the distorted voice discussed earlier: synthesized choral patches which allow only the merest hint of human formants to filter the electronic sound. The fragmented nature of SE1a is particularly striking. Both versions, along with assorted ambient F♯s, recur throughout "down in it" providing a backdrop that clashes significantly with the harmonic content of the foreground. The conflict between G and G♯ (minor and major $\hat{3}$)

will be especially important as we proceed through the triptych.[19] It is significant that these elements, which will ultimately prove to be more in the background and of the "wrong" mode, are introduced before any of the primary melodic elements.[20] That these cold motives involve pitches that are brighter than the prevailing mode, and hence seem to reflect a better time, adds to the devastation. The past tense is once again underlined; the sounds of corrupted and mechanized innocence are present before any other material.

The modal story of "sanctified" is similar, but the components which present the major-based world of F♯, G♯ and A♯ are far more foregrounded. Indeed, the world of the second melodic minor mode has essentially split into two coincident harmonic worlds: E Phrygian and E Mixolydian. In fact, only a single primary element conforms to the pitches of E Phrygian, but it is a virtually omnipresent, foundational bass line.

Example 2-10 – "sanctified" bass line



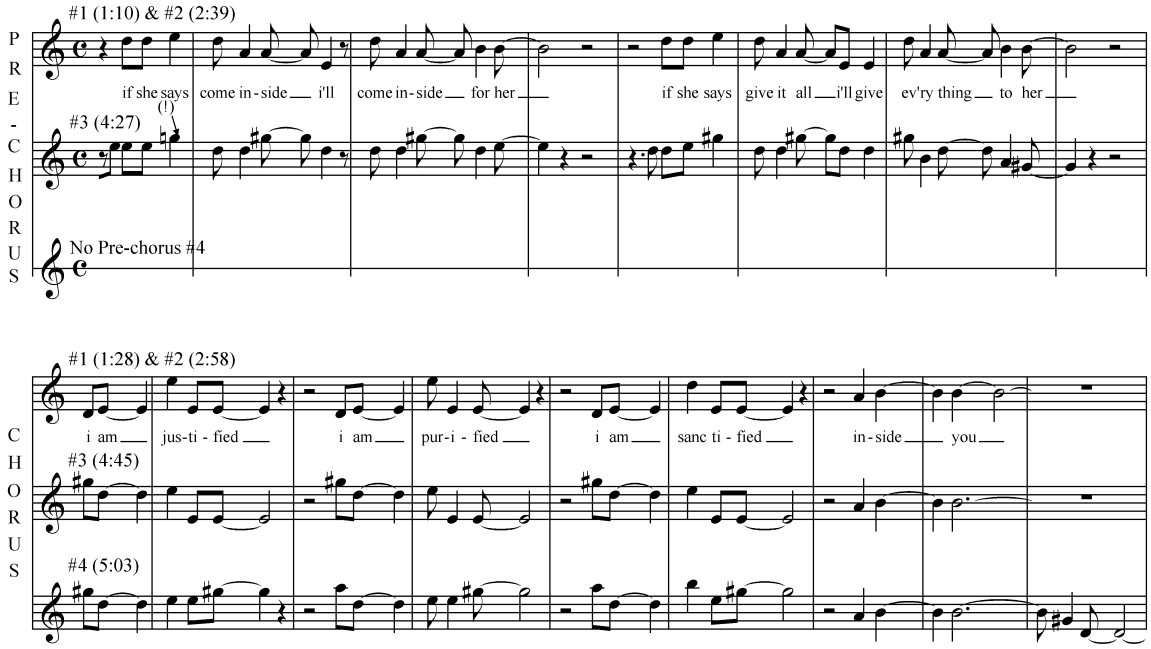
The occasional Mixolydian elements of "down in it" have, in "sanctified," risen significantly in status, illustrating the ostensibly more hopeful tone of this song's future- and subjunctive-tense lyrics. The vocals, which generally conformed to the largely Phrygian soundworld in "down in it" when they weren't unpitched (see, for example, during the chorus above in Ex. 2-7), are almost entirely pitched and Mixolydian in "sanctified," with a particular emphasis on G♯. This is especially significant in the pre-choruses and choruses, where this major $\hat{3}$ can be seen emerging across the course of the piece:

---

[19] Although I haven't discussed SE2 from Ex. 2-6, it's worth noting that it contains both these notes in close succession.

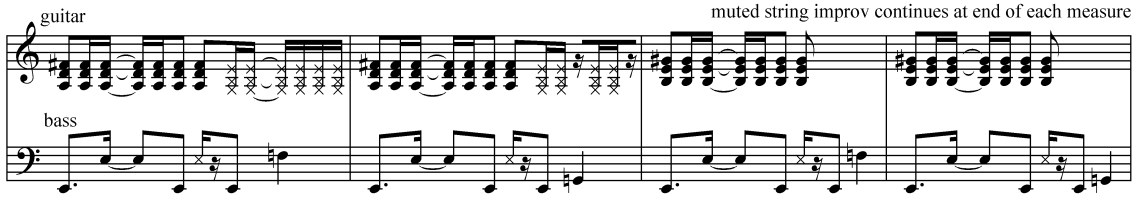
[20] Indeed, the contour of SE1b (CSEG <2310>) seems to openly mock the upcoming PE3c contour. Direct comparison is easiest to make in Ex. 2-6 above.

Example 2-11 – The pre-choruses and choruses of "sanctified"



An even stronger modal clash exists between the omnipresent bass line and the distorted guitar chords during the pre-choruses:

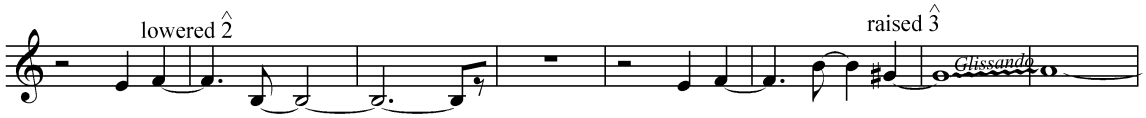
Example 2-12 – Pre-chorus guitar and bass (e.g. 1:11)



The bright ♭VII and I major chords have their thirds in the highest voice, creating a direct cross-relation with the only two non-tonic pitches in the bass. Unlike the previous song, where modally contrasting secondary elements were distinctly inhuman, this part has some humanistic qualities, particularly in the nature of its performance. The rhythm and repetitions are fairly fluid, emphasizing a degree of human improvisation; and the clicking, muted-string sixteenth notes emphasize the picking of the performer and remind the listener of the presence behind the instrument. Nevertheless, the element is mixed well into the background and the fairly warm distortion is chilled by midcut filtering.

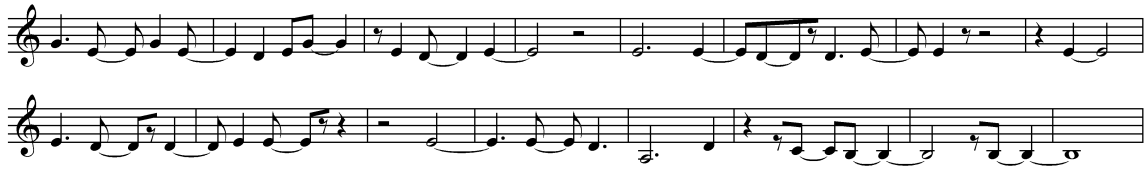
Another important presentation of G♯ appears at the beginning of "sanctified," and provides a connection with "down in it:"

Example 2-13 – "sanctified" Introductory Synth Solo (0:03)



This line, which is in the fifth harmonic minor mode, presents aspects of both the Phrygian and the Mixolydian interpretations, and thus, in a sense, contradicts both of them. As in "down in it," this line that contradicts the modal underpinnings of the song appears before any of the primary elements of "sanctified," and involves a mechanized-human synth patch. Later a timbral echo of this passage is heard:

Example 2-14 – "sanctified" Gregorian chant sample (3:18) – rhythm is approximate, and notated in the tempo and meter of "sanctified," rather than its own sense of time



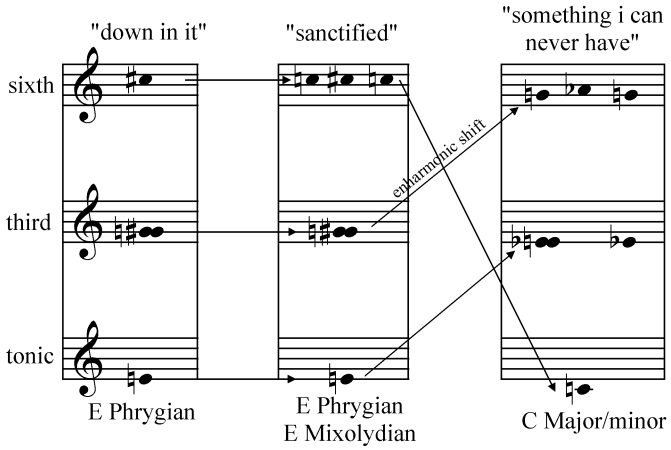
This moment is thematically complex, as the persistent G♮s contradict both the synth vocal of Ex. 2-13 and the human vocal throughout. At the same time, although the choral timbre echoes the preceding synthesizer patches of both songs, this passage is an actual sample of Gregorian chant, and hence human in origin. Adding even more confusion, this humanity is undermined by the cut-and-paste nature of the sample process itself, as highlighted by the performatively impossible rhythmic disjunction. The humans are isolated from their proper context and stitched poorly into an electronic environment that ignores them utterly until they are absorbed into the surrounding reverberant wash.[21]

[21] It is interesting to note that simultaneous with this sample, a lengthy monologue is sampled from the movie *Midnight Express* (1978). The protagonist of the film, much like the narrator in "sanctified," spends a good deal of time wishing to be rescued by a beloved woman, in spite of a harsh reality.

In the previous song of the triptych, what would have been a Phrygian modality was modified by a major $\hat{6}$ C♯ (a result of the second melodic minor mode). In "sanctified," representatives of the sixth scale degree are even rarer, appearing only twice, and in both cases the C♯ is followed immediately by the minor $\hat{6}$ C♮. The first occurrence is during the Gregorian chant sample just discussed and is quite subtle. First a metallic C♮ is heard between 3:21 and 3:27, then a synthesized C♯ fades in from 3:43-3:49 and is immediately followed by another metallic C♮ that stops with the return of the main vocals. The second occurrence is in the powerful downward guitar/synthesizer slide which serves as the transition between this song and the next. The slide begins by absorbing the final note of the human vocals (see end of chorus #4 in Ex. 2-11) into the electronic timbre, then bends down to a C♯ at around the point the final drums disappear. This C♯ falls one final time to C♮ even as "something i can never have" begins, in which that minor $\hat{6}$ becomes a new tonic. This is the point where the "descent" narrative alluded to above becomes literal, both in the very sound of the massive glissando and in the final collapse of the sixth scale degree.

The key change between the first two songs and the final one holds several interesting connections which are illustrated in Ex. 2-15:

Example 2-15 – The paths of the first, third and sixth scale degrees

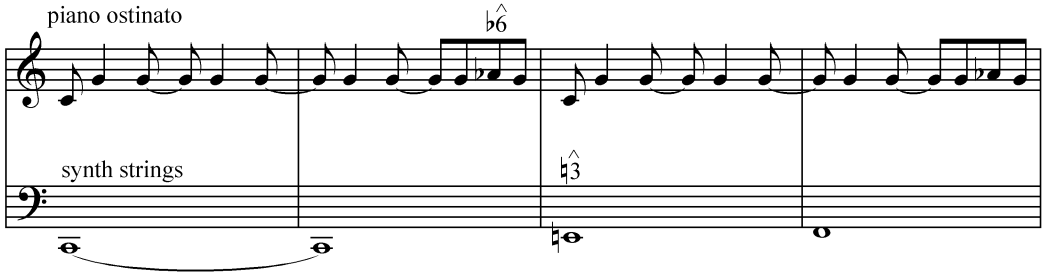


The roles of the scale degrees remain constant—$\hat{6}$ wavers between variants, $\hat{3}$ is sharply split and $\hat{1}$ is stable—but the actual pitches trade functions in the transition between the second and third songs. C♯ is a constant component of the first song and wavers during the second until falling permanently to its lowered position in the third, at which point it also shifts its role and becomes the foundational tonic. The lowered and raised $\hat{3}$s (G♮/G♯) are in constant conflict throughout the first two songs, often even appearing simultaneously, only to be re-imagined enharmonically as G and A♭ in the new tonal regime. As with the new tonic, the lower pitch of the pair is promoted to a more stable scale position, in this case $\hat{5}$. The G♯/A♭ has been relegated to a mere ♭$\hat{6}$ neighbor note in the omnipresent piano ostinato, constantly falling back down to G♮. Finally, the E, which has functioned as a stable tonic throughout "down in it" and "sanctified," is shifted to a role as major $\hat{3}$ and its stability is shattered by conflict with the minor E♭. This falling of what had been the foundation will be the nadir of the metaphoric descent.

"something i can never have" has yet another example of the non-diatonic modes we have seen throughout *pretty hate machine*, in this case the fifth melodic minor mode on C, which has a major third (E♮) and a minor sixth (A♭)—ironically the two pitches

classes (E and G♯) which defined the hopeful world of E Mixolydian before. This modal world is strictly maintained in the instrumental and verse passages, as exemplified by the omnipresent piano ostinato paired with the nearly constant synthesized string bass line shown in Ex. 2-16.[22]

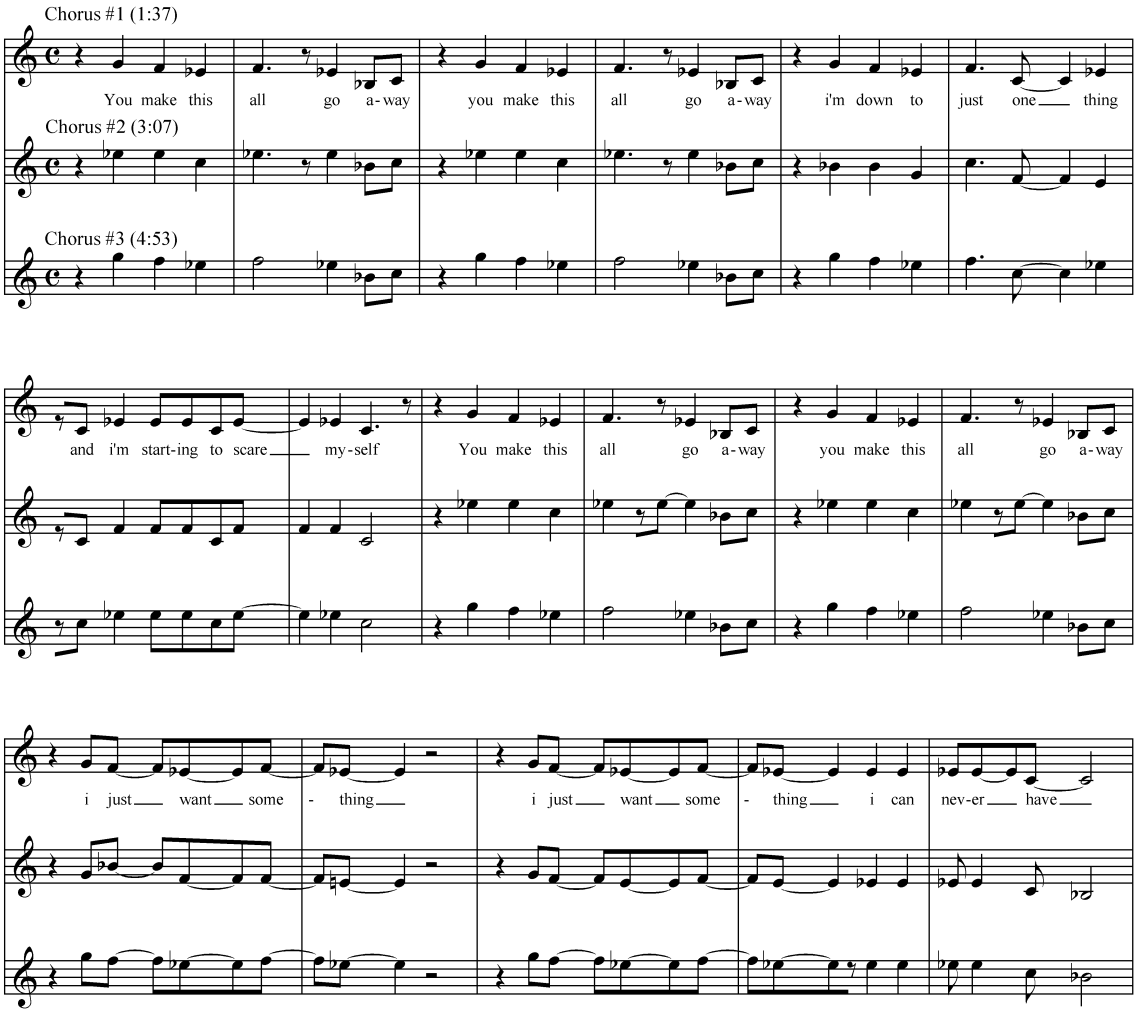
Example 2-16 – Piano ostinato and synthesized accompaniment



The verse vocals and occasional piano solos conform to this. Indeed, just before the bass entrance, even the feedback at the end of the transitional pitch slide is a wailing presentation of $\hat{4}$-$\hat{3}$ (F-E♮). However, the vocals in the three choruses at 1:37-2:14, 3:07-3:42 and 4:53-5:41 firmly contradict the major E♮s with E♭s, particularly in the second chorus:

[22] Actually, according to Alan Cross, what sounds like synthesized strings are bass guitar samples from an album by This Mortal Coil provided by co-producer John Fryer. They have been slowed down substantially and then run through an Akai S900 with the cutoff frequency of the low-pass filter low enough to remove the sense of attack. Cross, p. 22. The process has rendered the connection so obscure as to be impossible to verify by ear.

Example 2-17 – The three chorus vocals

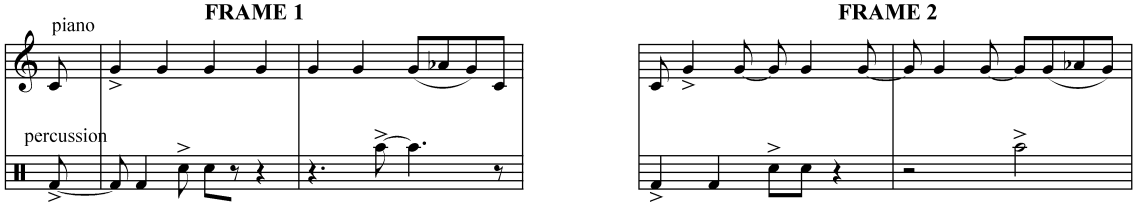


Ironically, these moments of final pitch-class descent are presented by a vocal part which desperately rises in tessitura with each iteration, culminating in the most despairingly emotional, and therefore human, vocal performance on the entire album. The narrator rhetorically separates himself from the inhuman elements surrounding him only to confirm his destruction at a more fundamental level.

The alienation of the human element and the concomitant modal conflicts are mirrored rhythmically by the lonely piano ostinato. In essence, “something i can never

have" exists in two 4/4 metric frames at once, shifted by an eighth note.[23] The first frame is most consistently presented by the piano ostinato, and the second by the chorus vocals (see Ex. 2-17 above) and heavy chorus percussion. The piano and percussion are juxtaposed using both frames in Ex. 2-18:

Example 2-18 – Piano ostinato and chorus percussion in two shifted metric frames (e.g. 1:37)

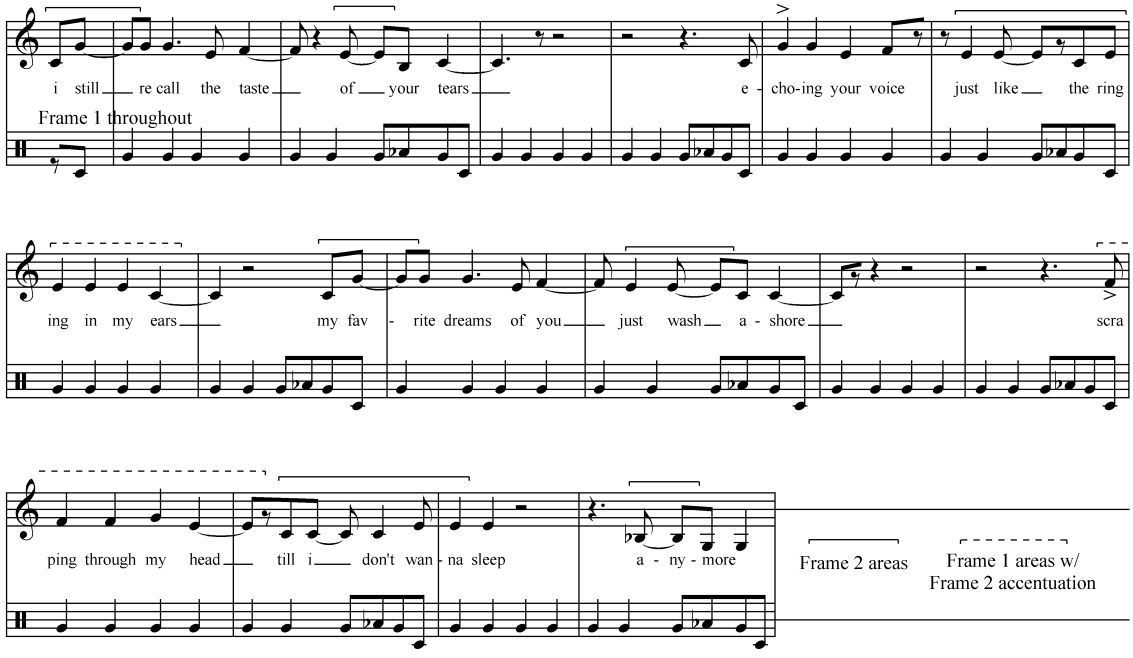


The sheer volume and power of the percussion and chorus vocals ultimately force a reading of frame 2 as dominant, but the frame 1 ostinato never leaves the texture for the full six minutes of the song, blurring the edges of the rhythmic feel.[24] The string bass line conforms to the dominant frame 2, but the fuzziness of its attack renders it far less obvious. Meanwhile, the piano solos and verse vocals tend to vacillate fluidly between the frames as, for example, in the first verse:

[23] This is "displacement dissonance" in the terminology of Harald Krebs's *Metrical Dissonance in the Music of Robert Schumann*, but I am generally following Mark Butler's argument in *Unlocking the Groove* that neither metric position needs to be heard as primary while the other is "antimetrical." See Butler's Chapter 4 in particular for a discussion of similarly displaced meters in electronic dance music. In Krebs's notation, what I am calling frame 1 has a stable piano part and a displaced drum part with D16-1 dissonance (♪=1) while frame 2 has a stable drum part and a displaced piano with D16+1 dissonance (♪=1).

[24] This offset metric framing is even maintained in a live acoustic recording that can be found on track one of the Halo 17 bonus CD, entitled *Still*. It's particularly striking because, as can be seen in the video of this recording at http://www.youtube.com/watch?v=UEW8riKU_tE, Reznor performs the frame 1 piano part with the right hand while playing the frame 2 bass line with the left and singing the frame-shifting vocals.

Example 2-19 – Verse 1 vocal frame-shifting, with frame 1 barring (0:44)



Note that the first three lyrical lines all begin with an eighth-note C pickup leaping to a G quarter-note exactly like the piano line. The first and third time are shifted away from the piano while the second time conforms. Note also the linguistically incorrect emphasis on the second syllable of "echoing," which serves to underline the frame 1 orientation of the phrase "echoing your voice." The E-E♭ shift discussed above is underlined when the E♭-heavy choruses eradicate the metric ambiguity of the verses, and the constant rhythmic disjunction echoes the longing lyrics about the past cast in an arid present tense.

In the final measures of the song, the bass finally moves to new pitches, coming to rest on a tonicized A♭. The implication, since a minor $\hat{6}$ is again becoming tonic and anchoring what was a minor third into a $\hat{5}$, is that the process of descent is continuing. Additionally, the A♭ is the same pitch-class as the 808 bass drum at the very beginning of "down in it," bringing the entire triptych full circle. This sense of hollow resolution is undercut when a barely perceptible F slides under the texture even as the song fades away, rendering the fall metaphorically eternal.

ENVIRONMENT AND MECHANICS

Even as the pitch world is descending through a series of pitch shifts and bends, the ambience of the three tracks becomes increasingly reverberant, causing the music to recede into the distance. The spatialization echoes this building expansiveness, beginning with a claustrophobic packing into an almost-mono center and ending cavernously hollow.

Like many songs on *pretty hate machine*, "down in it" has very little ambience and treats the stereophonic field in a harshly regimented fashion. Virtually all of the music is packed into the center of the spectrum, and the rest (particularly some ambient electronic "chattering" and the SE2 synth solo at 1:46) carom manically between extreme left and right. The claustrophobic effect of this spatialization is especially powerful in its impact on the three kinds of vocals in the song. The majority of the vocals, including those in the verses and the main part in the choruses, are presented in a highly compressed fashion with some hi-pass filtering, further adding to the smothered effect. Throughout the song and particularly in the choruses, a second voice, heavily distorted and even more compressed and filtered, seems to sardonically comment on the main voice. This shadow singer is separated from its source timbrally, but is in almost the exact same place stereophonically. Both these representatives of humanity are mediated by electronic intercession, and their placement conflates them further. It is particularly striking when the distorted shadow seems to be swallowed by the also-centered guitar samples, figuratively bringing the human down into the electronic muck. By contrast, the third type of vocal, during the bridge from 1:55 to 2:14, is not mechanically altered with filters or distortion, and is given greater power through double tracking—appropriate for

the lyrics "i used to be so big and strong." However, the spatialization is again constrictive. With both vocal tracks in essentially the same position the human is given very little additional agency, and the differences in performance, especially at the end of the bridge, sound more like a fracturing psyche than an emboldened narrator.

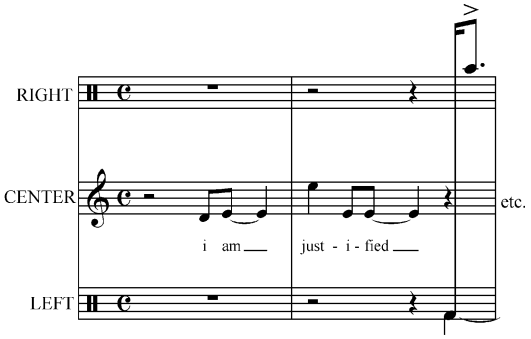
Most of this activity is presented in an unremittingly dry manner, and the few moments of actual ambience serve more to confuse than to expand. Throughout, the snare drum (and no other part of the kit) has an ambient image panned fully to the right: a metallic, disconcerting ringing that is highly exposed.[25] At 2:11, when all but the vocals drop out of the texture for a few seconds, some reverb and delay suddenly appear and capture the sound, only to disappear when the music resumes. During the choruses, sampled crowd noise is used almost as a percussion instrument. It is obvious that the crowd recording is in a large space like an arena, but the samples are chopped and rhythmically distributed into sharp bursts of sound. Both the humanity and the natural reverb are sliced and assimilated. The result of these manipulations is the sense of an impossible, mechanically-contrived space where sounds that occupy the same location can nevertheless have different ambient properties.

This inherent artificiality begins to dissolve with "sanctified," which has a far more ambient soundscape for most of the instruments and vocals, and a slightly less compressed stereo space. For the first time, some important elements are placed in intermediate left or right positions, such as the distant guitar chords during the pre-choruses (1:11) which are somewhat left of center (intriguingly, the muted-string clicks in between the chords bounce from extreme left to right, further attenuating their

[25] Much like the other panned sounds, this too is balanced in the opposite speaker with a soft tom rhythm that can be heard, barely, at 1:24.

humanizing effect discussed above). Other examples include a sample of movie dialog (discussed previously in footnote 21) that is mostly on the left side, and the final pitch slide, which fills the sound image but is localized to the right. Nevertheless, many elements disrupt this more natural world, including the opening tom pattern capriciously bouncing from left to right and the impossibly dry bass guitar ostinato. More subtly, the vocals and their reverberant image are confined to the same center position, creating a paradoxical conflation of openness and constriction. The most discombobulating example is also, appropriately, the most mechanistic. During the choruses (e.g. 1:29) each assertion by the narrator—"i am justified," "i am purified," etc.—is jarringly answered by a percussive blast which, along with its cousin in the next song, is one of the most literally industrial sounds on the album:

Example 2-20 – Industrial bolting around "sanctified" human agent

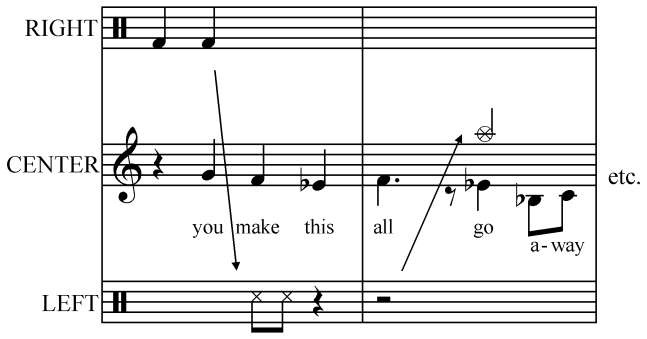


The bass sound is entirely in the left speaker and hugely reverberant while the static it seems to trigger is on the right and completely dry. It is as if the human agent is being bolted into place, flanked along the stereo axis from left to right, the frequency axis from low to high and the ambient axis from back to front.

At the bottom of the transitional glissando's descent there is the ambient world of "something i can never have," a truly cavernous, freezing space in which all elements are more or less enclosed. The stereo image, though still more centrally compressed than

later records, has loosened further. In particular, the ambient image of the vocals now floods the left half of the stereo field, finally separated from the source. The only sounds that jump across the stereo extremes are the explosive industrial "drums" during the choruses (see Ex. 2-21). The effect is of a massive robotic beast, exhaling for the first three beats, and inhaling on the last two.

Example 2-21 – Industrial agent during "something i can never have" chorus



As in "sanctified," the singer is bracketed on both sides, but with the third sound the center is invaded as well, its hissing inhalation seemingly taking its air from the human agent's magnified sibilance. This sense of industrial life resolves what would otherwise be a contradiction of the descent narrative. On the surface, humanity began far more mechanized at the top of the slide and seemed to gain independence across the course of the triptych, and yet the sense of agency has grown more desperate and impotent. The mechanicity is now revealed as an inherent corruption of the human which has slowly been liberated and given its own agency, suffocating the narrator by sucking the life from him as it imprisons him. It is the soul of the mechanicity that pervades all Nine Inch Nails albums.

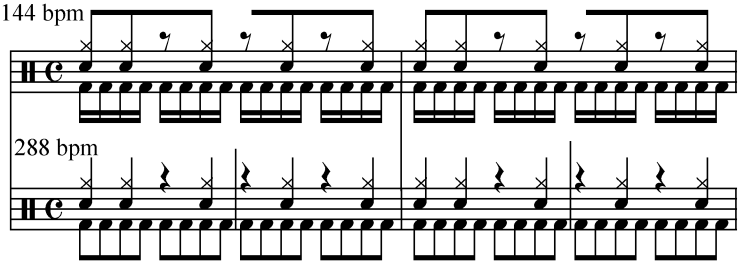
Close Reading #2-2 – "Open my eyes and wake up in flames…" – *broken* track 6, "gave up"

"gave up" begins with synth drones and a naked presentation of the drum part much like the triptych discussed above, but the differences are instructive. First, the droning F♯ is the tonic of "gave up," unlike the modally disruptive and unstable scale degrees at the beginnings of "down in it" and "sanctified." Second, all three *pretty hate machine* pieces were at roughly 104 bpm, while this song is cast at a blistering 144 bpm, and, for reasons to be discussed shortly, feels even faster than that. Finally, even with the sparse instrumentation of the opening bars, a far more open and diffuse spatialization is immediately apparent with the drone and its ambience spread across the sound image, a few blasts of sound mostly in the left speaker and the drum set spread across at least 30% of the center space. In particular, the sense of an actual double-bass drum kit is maintained by placing the first and third sixteenth note of each beat somewhat to the left and the second and fourth to the right.[26] In just a few bars, many important differences discussed earlier between the two albums are highlighted: *broken* is generally more direct in its harmonic presentation (although we shall see that "gave up" belies this fact somewhat), fierier in its tempos and more enveloping in its use of space. These differences facilitate a new narrative wherein incendiary, out-of-control mechanical processes absorb humanity and ultimately shatter.

This drum pattern, which is present throughout the vast majority of the track, merits closer attention. It is a simple modification of a blast beat with constant sixteenth-notes on the bass drums and snare/cymbal hits on the off-beats (see top line of Ex. 2-22).

[26] The liner notes indicate that there are some "extra real drums" on "gave up" performed by Chris Vrenna, but it isn't clear which parts of the track contain these. Although it is possible that this opening drum pattern is an actual double-bass drum kit, it seems unlikely given the tight quantization and the electronic timbre. However, the ambiguity of its status is a testament to the more natural spatialization.

Example 2-22 – "gave up" opening drum pattern, two interpretations (0:14)



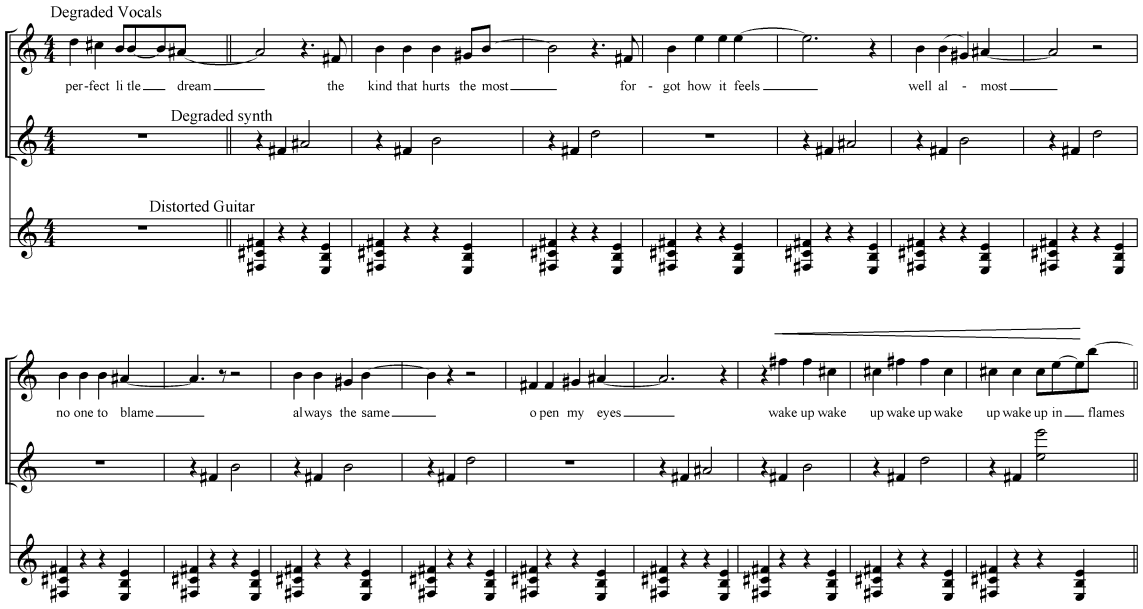
The overall feel, confirmed when the guitar enters at 0:28 (see Ex. 2-23 below), is shown in the upper line of Ex. 2-22, but accented offbeat snare hits always contain a latent possibility for interpretation as a standard rock backbeat at twice the tempo. The ubiquity of the backbeat in rock already creates this sense to some degree, and it is aided by the presence of heavy backbeat patterns in the two most recent tracks on the album that have drums: "last" and "happiness in slavery." The latter immediately precedes this song. The only other song with drums on the EP proper is "wish," and it shares a similar blast-beat style with "gave up." The result is a frantic energy, empowered by the pulsing bass drums and agitated by two mildly contradictory metric frames: one stable but blindingly fast, the other slower (relatively) but energized with pumping syncopation. Unlike the frame shifting in "something i can never have"—an actual disjunction between parts that was alienating and cold—this shift is purely one of perspective and applies to all parts equally. The *active* metric conflict of the former paradoxically forces *passivity* on the listener, who must simply follow the shifting rhythmic focus of the parts. In this piece, the listener *actively* shifts their perception of the passively mutable frame, more or less at will, engaging themselves with the manic energy.

As we have seen, *broken* as a whole focuses more on chromatic and pentatonic structures than the diatonic concerns of mode we saw in *pretty hate machine*. However, "gave up" is somewhat atypical in its chorus complexes and affords comparisons with the

songs of the previous close reading. Much like "something i can never have," it shifts between a major feel in the verses and a minor feel in the choruses—in this case the fifth melodic minor mode and the minor Pentatonic on F♯ respectively (see Exx. 2-23 & 24 below). Unlike the first album however, the major/minor conflicts within each key area (such as the ♭$\hat{6}$ in the verse and a nearly omnipresent B♯/C♮ in the chorus) are generally treated as chromatic ornamentations rather than flat-out contradictions. This reading is reinforced by the chromatic acclimation the listener has experienced across the previous five tracks.

As has been discussed, "gave up" shares its verse modality with the instrumental "help me i am in hell," destroying the latter's sense of calm repose with speed and heavy mechanization. Ex. 2-23 shows the verse 1 vocal line and the concomitant harmonic background:

Example 2-23 – "gave up" first verse (0:25 – 0:54)

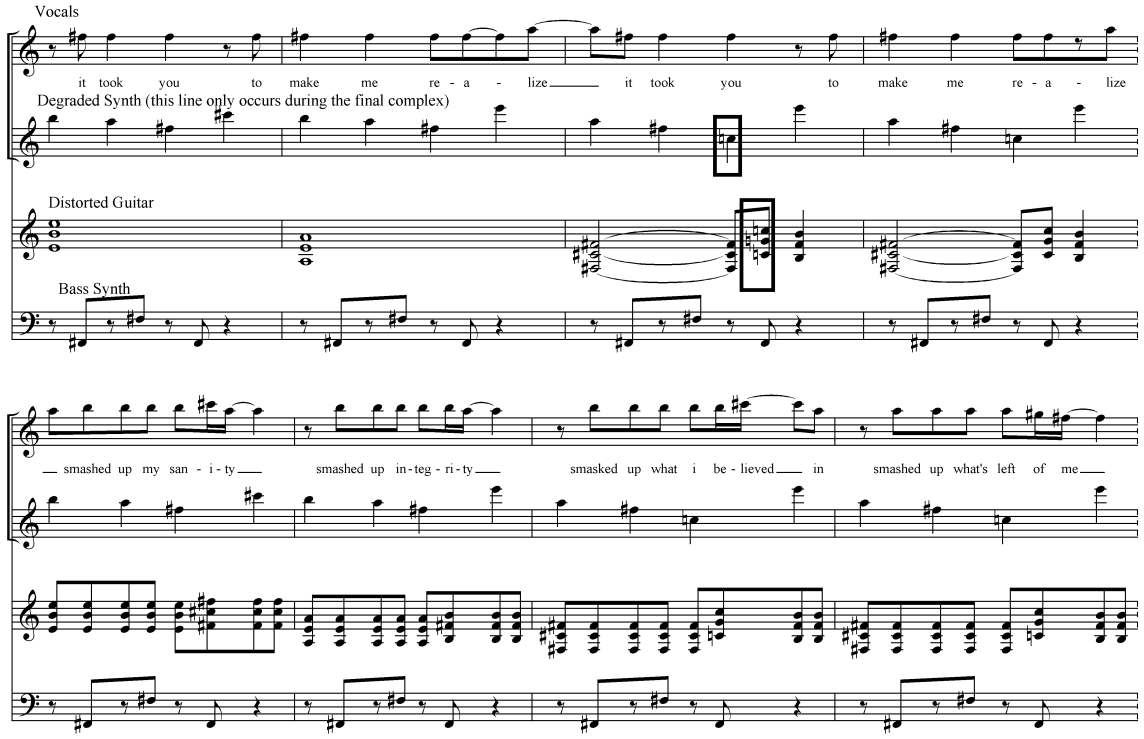


It should be noted that the degraded synthesizer line is not nearly as clear as its notation in the example, as it has an even more extreme version of the degraded vocal effect

discussed in detail below, and portions of it are completely inaudible in its varied appearances. However, there is always some presentation of the ♯$\hat{3}$-$\hat{4}$-♭$\hat{6}$-♭$\hat{7}$ ascent. The ♭$\hat{6}$ D♮ functions as a chromatic incomplete neighbor of the more stable C♯ $\hat{5}$, particularly at the very beginning of the vocal line. Its minor quality foreshadows the upcoming shift to F♯ Minor Pentatonic. The preponderance of A♯s in the section (especially as resolutions of $\hat{4}$-♯$\hat{3}$ motions) lend a fragile wistfulness to the atmosphere.

This emotional state is summarily abolished in the chorus complex:

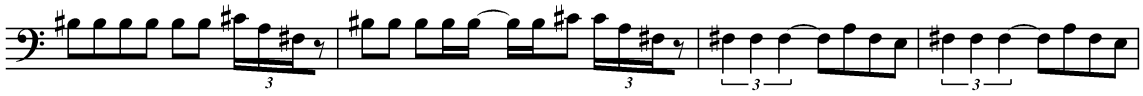
Example 2-24 – First 4 bars of pre-chorus and chorus respectively (0:54-1:21, 2:00-2:28 and 2:54-end)



The only exception to the F♯ Pentatonic soundworld lies in the recurring ♭$\hat{5}$ C♮ embellishments in the guitar accompaniment (and, later, in the outro synth line), which function purely as chromatic alterations leading to iv. The same pitch, enharmonically re-imagined as ♯$\hat{4}$, acts as a needling dissonance in the synthesizer solo following the first

chorus (see Ex. 2-25). Here its function reverses direction, resolving up to C♯ rather than down to B.

Example 2-25 – "gave up" synthesizer solo (1:20)



C♯ has thus been chromatically encircled by the D in the verse and the C♮/B♯s surrounding the chorus. The stability of the most stable non-tonic scale degree is constantly undermined by these embellishments, presaging the eventual collapse of the entire song.

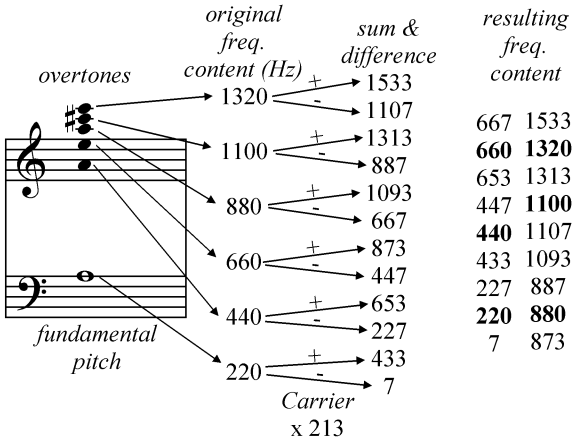
The dismissal of the major aspects of the fifth melodic minor mode in the verses is made complete when a bridge section cast in an unmitigated F♯ Minor Pentatonic replaces the third verse at 2:27. The stark mantra "i tried / i gave up" responds to the verse lyrics "covered with hope and vaseline / still cannot fix this broken machine." The latter seems to refer to a redemptive process that is failing, but ongoing; underlined by two $\hat{4}$-$\sharp\hat{3}$ resolutions followed by an unresolved $\hat{4}$ at the end. The bridge, on the other hand, is firmly in the harmonic world of the nihilistic choruses. All hope for the restoration of a nascent humanity is lost.

The treatment of the vocals over the course of the track follows the primary narrative of fragmentation leading to outright destruction. The voice enters at 0:25, and already has a harshly degraded, fragile timbre that is ripe for the shattering it will endure across the course of the track. The effect is almost certainly ring modulation or some related process, and a closer look is warranted.[27] Ring modulation is a special case of

[27] Other possible effects include a very fast tremolo (which, for reasons that will be explained, is ultimately the same as ring modulation), frequency modulation or frequency shifting. Although the technical details of these last two are different from ring modulation, their metaphoric implications are quite similar. For the following discussion, I'm indebted to my Sarah Lawrence College student Tom Tierney for many a late-night bull session on the virtues of ring modulation.

amplitude modulation, an effect wherein the height, i.e. volume, of a waveform is manipulated by an unrelated waveform, which is usually a sine wave and is referred to as a carrier.[28] If the carrier is at a sub-audio frequency (i.e. below the range of human hearing) the result is simply a tremolo effect, where the signal ebbs and swells in volume. However, when the carrier is at audio frequencies, complex sidebands, meaning additional frequencies, are created (see Fig. 2-3, which deals with an arbitrary source and carrier frequency for the purposes of illustration).[29]

Figure 2-3 – Fracturing of a single pitch via ring modulation (all frequencies measured in Hz)



The spectrum of virtually any pitched sound is actually made up of a theoretically infinite number of partials or overtones, the first several of which are represented in Fig. 2-3 above. In other words, the combination of the frequencies in the figure results in a sound that the listener's ear interprets as a single pitch, in this case A220, and the relative volumes of these partials determine the timbre. In essence, the source sound is multiplied by the carrier wave, meaning that the frequency of the carrier is both added and subtracted from each partial of the source, resulting in the bifurcation of each component

[28] Technically, this reverses the proper terminology. The simple wave that manipulates the amplitude of the other is the modulating waveform and the sound being modified is the carrier. However, most ring modulator units such as the moogerfooger MF-102 switch the terms and I'm adopting their conventions.
[29] In order to be ring modulation rather than straight amplitude modulation, the carrier signal must be removed from the output, but for our purposes the distinction is unimportant.

of the sound into two new frequencies. These sum and difference tones are often microtonal and can't usually be resolved into a single pitch, so complex chaotic timbres result, as in Fig. 2-3 where dense dissonance is created (this splitting of the frequency space into microtonal splinters could be seen as an intensification of the chromatic nature of the album as a whole). In this manner, each individual pitch of the vocals is literally torn apart by the modulation; a silent intercessionary is compounding and deforming the very components which define the sound of the human voice. In reality, the multiplicity of frequencies is even higher than that shown in the figure, especially on plosive and sibilant consonants which already have highly complex spectra.

Therefore, when the carrier is at audio and near-audio frequencies, the vertical dimension of the individual vocal pitches is fractured and destabilized. Furthermore, in the case of the "gave up" vocals, the horizontal dimension is also cut up, because the carrier seems to be set at a position on the very threshold of audio and sub-audio, resulting in an inconsistent ring-modulating effect combined with a fast but recognizable tremolo beating. Finally, in this instance, the effected sound is then mixed back with the original signal so that the source pitch structure remains relatively clear. The agent is being forced through a sieve of electronic manipulation; this is mechanized humanity.

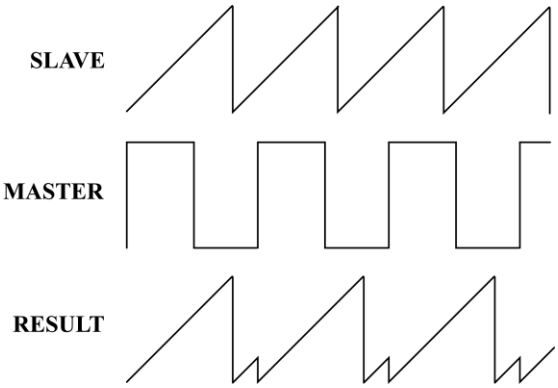
The first verse vocal part remains in the center of the stereo image, but, as if propelled by the schizophrenic effect just discussed, it splits into two for the double-tracked chorus complex at 0:54 and the copies are panned hard-left and -right (this is in sharp contrast with the double-tracked vocals in "down in it," which were practically on top of each other). Reznor seems to piece himself back together for the second verse, but the vocals now have significant reverb and delay added, especially noticeable after the

line "of the trust" at 1:46. These ambient effects bounce from speaker to speaker, becoming thoroughly disconcerting by the end of the verse ("i hate myself for what i've become"). With the second chorus complex, the double-tracking returns and never goes away again. There is also a subtle addition of slapback delay on the right copy while the left remains dry, further differentiating them. The bifurcated effect is intensified in the bridge (2:27) where the performance of the two panned takes begins to differ substantially, especially in the far more whispering texture of the right copy. Finally, during the final push to the end of the track, more and more overdubbed voices proliferate until the song itself ruptures from the pressure.

Just as there is mechanized humanity in the vocals, there is humanized mechanicity in the 1:20 synth solo—panned in the center just like the initial vocals—shown above in Ex. 2-25. The rhythm shown in that transcription is an approximation, and varies even further in the subsequent four measures. Any time a performance contains improvisatory or variable elements, it gains human agency. As we've seen, this sort of performance is exceedingly rare in the über-quantized instrumental world of *pretty hate machine*, but this particular solo rises to a level of humanity largely unmatched even on *broken*. This is aided by a striking timbral variability in the patch itself, most likely caused by hard syncing. In this process, a "master" waveform determines the ultimate pitch of the patch, by forcing a "slave" waveform to restart its cycle at the master frequency rather than its own (see Fig. 2-4).[30]

[30] The mechanical master/slave metaphor is explored lyrically in "happiness in slavery," a fun but entirely coincidental connection. The following figure is mine, but was inspired by Fig. 6 in Reid, p. 146.

Figure 2-4 – Hard Sync Process



The result is that although changing the frequency of the master changes the pitch, changing the frequency of the *slave* varies the shape of the waveform, sometimes wildly, and thus varies the spectral content (i.e. timbre) of the sound instead of its pitch. In this patch, it sounds like the slave frequency (and hence the timbre) is being controlled by velocity, i.e. how hard the performer strikes the synthesizer keys. This allows even further human control of the sounds emitted; every note will have a different sound quality. This is a distinctly mechanical way to simulate an ostensibly more "human" sound, and the aural result is often referred to as "tearing" or "ripping."[31] Indeed, the tones throughout the solo often sound like they're being shredded, linking them to the ring-modulated vocals as well as the trajectory of the track as a whole.

The unhinged climax of "gave up," and thus the album, occurs with the entrance of the squalling blasts of noise which interrupt the bridge at 2:55. Here, the dialectic of the mechanized human and the humanized machine is combined into a visceral, fiery synthesis. The layers of the dominant sound are impossible to parse fully—the origin of the pitch bending between F♯ and G♯ (the only instance of this last pitch in the entire

[31] For example, see http://www.propellerheads.se/substance/discovering-reason/index.cfm?fuseaction=get_article&article=part20.

song) seems to morph freely between furiously tremolo-picked guitars, wailing synths and a distorted human scream. In particular, what is almost certainly Reznor screaming can be heard closing out the sound of the second blast at approximately 3:00. Two differently-timed performances of this inchoate howling are panned to the left and right, mirroring the panned double-tracking of the chorus vocals and thus furthering the illusion that the human agent has been either transformed into or swallowed by this hybrid entity. In the previous close reading, we saw an increasing separation of human and machine as the former became increasingly subjugated by the latter. Here, there is outright fusion.

A few months after the release of *broken*, Reznor released a remixed companion album named *fixed*. Its cover is the same fiery image as its cousin, but with the colors inverted so that blacks and whites interchange, and the yellows and oranges become blues and purples reminiscent of the color scheme on *pretty hate machine*. This is appropriate, since the heated materials of *broken* are being remixed into cold soundscapes reminiscent of the first Nine Inch Nails record. On several of the tracks the human element is all but completely erased and only sterile rearrangements of the instruments remain. The final track, entitled "screaming slave," modifies the source virtually out of existence, leaving only the sound of a hellish industrial factory. The remix of "gave up" by Peter Christopherson and Danny Hyde of Coil (track 1) takes the human vocals from the chorus, cuts them into tiny slices, and redistributes them more or less randomly across a rigidly quantized rhythmic matrix. This is the frozen version of the shattering climax of the original; the aftermath of its annihilation. The alternate narratives of the first two albums are revealed to be merely different vantage points of the same process of

dehumanization. The machine may be coldly implacable or explosively uncontrollable. The human is always overrun.

i don't know what i am i don't know where i've been
human junk just words and so much skin
stick my hands thru the cage of this endless routine
just some flesh caught in this big broken machine
-"happiness in slavery," *broken* - track 5

Chapter 3 – Mechanical Putrefaction on *the downward spiral*

all pain disappears it's the nature of my circuitry
drowns out all i hear there's no escape from this my new consciousness
the me that you know used to have feelings
but the blood has stopped pumping and he's left to decay
the me that you know is now made up of wires
and even when i'm right with you i'm so far away
-"the becoming," track 7

I – Background

Recording for *the downward spiral* began on July 4, 1992, after Reznor had finally completely dissociated himself from TVT Records.[1] The creative freedom he felt at his new Interscope home was bolstered powerfully by a much higher budget than either of the preceding albums. For the first time in his career, he no longer needed to schedule recording around a day job, and Reznor was able to use the money to build his own private studio in Los Angeles. The creative possibilities of a private studio and virtually unlimited time in which to work manifested in Reznor's most complex and dense release up to that point. When it was finally released in June 1994, the album garnered both critical and popular acclaim.[2]

On *the downward spiral* the frozen soundscapes of *pretty hate machine* and the searing fury of *broken* are forced to coexist, sometimes alternating from track to track, often painfully juxtaposed in a single song. A new aural style also emerges, as sounds of

---

[1] *the downward spiral* is Halo 8 in Reznor's numbering. Halos 7-10 and 12 are the explicitly *downward spiral*-related releases. In addition, two new versions of Halo 8 (the album itself) were released in November of 2004—a Deluxe Edition (Halo 8 DE) and a DVD-Audio Edition (Halo 8 DVD-A) which both feature a 5.1 Surround Sound remix of the album supervised by Reznor. Although I am using the original stereo release as the primary text, I will occasionally refer to the 5.1 mix from the video track of the DVD-A version.

[2] The album debuted at No. 2 on the Billboard 200. Although reviews were certainly not universally positive, the May 9, 1994 review by Jon Pareles in *The New York Times* and the May 1994 review by Jonathan Gold in *Rolling Stone* are typical. In 2003, *Rolling Stone* ranked *the downward spiral* as #200 of the top five hundred albums of all time.

decay and pestilence permeate the album and provide a unifying sonic effect. As Reznor points out, "this album focuses on decay, and I chose to use a lot more organic sounds, from real instruments to swarms of bees."[3] Organic sounds are a necessity, for decay is an organic affliction. Meanwhile mechanical agency continues inexorably, as the human rots around it. *the downward spiral* is rife with such moments of mechanistic ascendancy, culminating in the complete effacement of humanity.

I will begin with a discussion of conceptual and timbral issues throughout the album, followed by an examination of the role of a recurring motive that spans several songs. I will conclude with detailed close readings of two individual tracks that illustrate specific methods Reznor uses to express the human/mechanical dichotomy within the putrefying soundworld of *the downward spiral.*

II – Conceptual and Timbral Decay

It is difficult to quantify what can *sound* like disease and decay, but there are some recurring sounds and effects that play key roles. Firstly, a disturbing effect is applied to the vocals and instrumental lines on several occasions that causes the sound to "warble" as if it were about to disintegrate. This will be discussed further below. Secondly, as Reznor mentioned in the quote above, insectile noises recur throughout the album, in both literal samples and mechanical recreations.[4] The psychological association of insects with decay is a powerful one, and it is enhanced by video imagery surrounding the album. In particular, the music video for "closer" is full of cockroaches

[3] Huxley, p. 111.
[4] Reznor's studio helpmate, Chris Vrenna, offers the following story: "But there was other kinds of sampling too. Trent one day wanted bees. You want what? 'I want bees.' 'Okay.' So I found bee samples, swarms of bees, and the sounds of buzzing. Off I went." Udo, p. 114.

and rotting meat, and the live video for "hurt" features time-lapse footage of a decaying fox carcass, complete with maggots. The most common insect noises used on the album are those of buzzing hives and colonies (bringing a further sense of dehumanization through evocation of the complete loss of individual identity) and often any sustained aharmonic sounds with semi-random fluctuations conjure this association.[5] Sounds of static and digital artifacts abound, and evoke a sense of the decay of sound quality as well as a hint of droning insects.

Such insectile digital artifacting first occurs in the background of the very opening of the album. These random blips are generated as a direct result of digitization, in effect aurally "zooming-in" on what had been analog silence. The inherent edges of a digital soundwave (determined by the sample rate, which, in the case of a CD is 44.1 kHz), normally inaudible to the listener, can be brought out through severe digital time-stretching or simply increasing the volume of nearly-silent analog noise. It is, in effect, void made audible—an eerie manifestation of the artificiality of the recording process and the mechanical decay that will pervade the album. It is a common byproduct of digital manipulation in hard-disk recording, a studio method of which this album is a pioneering example.[6] It is also a method which makes severe distortions of the sounds more readily available, including some sonic machinations which are otherwise impossible.

The foreground during this opening sequence is a sample from the George Lucas film *THX-1138* in which a man is being beaten and tortured by a robot. The

---

[5] In this case, I'm using "aharmonic" to specifically mean sounds with prominent non-harmonic partials. Though an identifiable pitch (or pitch complex) can often be distinguished, it is made harsh and complex by these partials.

[6] Udo, p. 124.

"drumbeats," which accelerate until becoming the beat of "mr self destruct," are the actual sounds created by sound designer Walter Murch for the robots' weapons in the movie. Thus, before the first song even begins, the inevitable destruction of humanity by the forces of mechanicity is set in motion.

"mr self destruct," which begins at 0:24, is dominated by a heavily-quantized sixteenth-note pulse reminiscent of a vast machine, which surrounds and pummels the vocal line. The main singing during all the verses and the quiet interlude is completely clean and dry, that is without effects or reverb. This creates a sense that the voice is unrelated to the tumult around it; that it doesn't belong to the same virtual space as the rest of the song. This entirely unmechanized humanity is exceedingly rare on *the downward spiral*, and illustrates a baseline humanity against which the rest of the album's human manifestations will be gauged. The lines sung by the main voice in the center of the stereophonic space detail various malign influences—"i am the sex that you provide…i speak religion's message clear…i am the high you can't sustain…i am the bullet in the gun"—while distorted and mangled versions of the voice constantly reiterate the phrase "and i control you" from the sides of the stereo spectrum. Indeed, on the 5.1 surround sound remix of the album released in November 2004, this multiplicity of distorted voices is even further distanced from the main voice, alternately emanating from many disembodied locations including, primarily, the rear speakers. The implication is clear: already humanity (or rather, a vestige of humanity—the voice) is being subjugated by the forces of mechanicity, dismembered and thrust into the violent swirling around the human agent. The effect used most commonly on these outside voices is a particularly savage distortion wherein the equalization highlights the upper

partials, similar to that used and already discussed in the context of *broken*. Here, the lower partials are even more attenuated, increasing the emphasis on the noise created by the effect at the expense of the fundamental of the (human) sound.

The other effect most prominently used on some instantiations of the "i will control you" line was mentioned above and will become increasingly important as the album progresses.[7] It is an intensification of the ring-modulation effect that was used on the voice in *broken*'s "gave up" and it creates a destabilizing warble. This warbling effect will be used in many different varieties on *the downward spiral* to create a sense of aural decay to complement the insectile buzzings already discussed. In "mr self destruct," the artificiality of the sound is particularly significant as a dehumanizing effect, especially because, unlike distortion, it is an effect that is far more difficult to approximate naturally with the human voice, and thus feels more like an imposition that threatens to dissolve human agency.

After the first verse, the upper-partial distortion infects the main vocal line for the chorus (0:43, and later, at 1:24 and 3:03), and is also used on the newly-entering guitar line. This causes the voice to blend substantially with the guitars, pre-figuring its disappearance at the end of the track and, as we will see, the end of the entire album. The voice is still in the center of the stereo space, allowing a direct comparison to the clean openness of the verse vocals. Since it is possible for a human to naturally distort the voice, particularly when yelling or screaming, it is as if the human agent's own rage is being subverted and amplified by mechanical agency.

At 1:45, after the second incarnation of the chorus, the soundworld abruptly changes and a soft, ostensibly calmer, section begins. Any sense of respite is belied

[7] In particular, the disturbingly decayed vocals in the verses of "heresy."

however, by the continued presence of disembodied voices and the emergence of insect sounds in the background. There are two kinds of voices: a whispering phrase and one using the same hipass distortion effect discussed above. Whispering is essentially a natural version of hipass equalizing, emphasizing the sounds of breath and noise. This gives added significance to the whispered phrase "you let me do this to you," and the "i am an insect" response is therefore the mechanized version of the same equalizing effect. These voices swarm around the central agent along with the semi-random insect/guitar sounds in the background that will emerge into total dominance by the end of the track. The main vocal line finally reenters, again without effect or ambience, and the lyrics are no more than further verse iterations. The disembodied "and i control you" voices are absent, or, rather, are temporarily replaced by the voices described above. At 2:43, the relentless, chugging beats of the rest of the song abruptly return and the voice continues. The "and i control you" voices return in even greater urgency and multiplicity, now including digital pitch-shifts that raise them well above a comfortable male vocal range, causing further warbling and decay.

The final chorus (3:03) is doubled in length, and significant noise is added to the repeat (3:24). The added sounds include a return of the guitar/insect loop from the quiet section's background, more drums, and likely many other effects which can't be distinguished from one another, but the most present addition is simply mid- to high-frequency white noise. This noise covers the same frequency spectrum as the hipass distortion on the vocals and guitars, and by the final line of the chorus, it has practically

swallowed all human sound.[8] The pulse of the track then abruptly stops, and the insectile guitar loops leap into dominance for a full forty-five seconds.

These buzzing, apparently random, guitar sounds loop obviously every 3 seconds or so and are clearly cobbled together from multiple performances, further distancing them from any sense of human origin. These sounds come from a few days of session work with Adrian Belew of King Crimson. Although Reznor had Belew play on several songs, the intent was never to have recognizable guitar work from the sessions, but to add new potential sounds to the album's palette. "We basically told Adrian, 'Just play whatever you want and we'll piece it together however we see fit. Maybe stuff from one song will fit into another.'"[9] This is one of only two recognizable moments on the album of Belew's contributions, and even here it has been mutilated beyond any recognition as a human performance.[10] It is instead an aural manifestation of decay and spiraling. The 5.1 remix further emphasizes this as the loops continuously circle around the listener.

In fact, there are very few moments on *the downward spiral* where instruments other than the human voice are performed with any sense of humanity, i.e. with a sense of breadth, expression, and variability. The vast majority of instrumental textures are either wholly machine-generated (synthesizers programmed by a sequencer) or heavily machine-edited (looped, quantized, etc.). Even the drums are largely machine generated, although the cold drum-machine timbres of *pretty hate machine* are rarely used. Instead,

---

[8] A nearly identical effect occurs dramatically at the end of "eraser." Here, significantly, the voice starts out in unison with the humanistic piano (at 3:30), then is jarringly juxtaposed with hipass distorted guitars for the second half of the lyric (3:53) until it is effaced completely.

[9] Huxley, p. 107.

[10] The other Belew performance is a noisy, ring-modulated solo during "the becoming" beginning at 3:25, and sounds more like a machine coming to pieces than a guitar solo.

human performances on drum sets are sampled, then chopped-up and looped into the drum patterns of the final songs. Reznor elaborates:

> On *downward spiral*, I got to explore making an electronic record that doesn't sound electronic for some parts of it. We did things with drums that I don't know if anyone has really done. We sampled drums in stereo with stereo mics and discovered if you play them on keyboard it sounds like you're sitting behind the drums for real. On 'march of the pigs,' 'eraser' and those songs, there's no live drums, but it alluded to being real because it didn't sound like a machine. No way someone could play that like that. It further added a kind of mindfuck to it.[11]

Reznor is correct that the use of sampled live drums rids the lines of some of their electronic, machine-like qualities. But one can't underestimate the dehumanizing effect of this practice either. Reznor is creating a sound somewhere in between the sterility of *pretty hate machine* with its drum machines and the later album *[With_Teeth]* and its regular use of human drum set performance—here some sense of human performance exists, but it is constantly filtered into inhuman possibilities of extreme regularity and impossible combinations. The result is far more unsettling than either extreme: humanity retrofitted with machine parts and shorn of its natural variability.

There are only four entirely clear human instrumental performances on *the downward spiral*. Significantly, these all occur during the first half of the album before humanity is completely eclipsed, and each one is steeped in irony, alternately affected, clichéd, and flamboyant:

- the drum solo during the end of "piggy" (2:50)
- the quiet piano break on "march of the pigs" (1:16 and 2:29)
- the guitar solo on "ruiner" (3:00)
- the campfire sing-a-long acoustic guitar strums on "the becoming" (2:47 and 4:27)

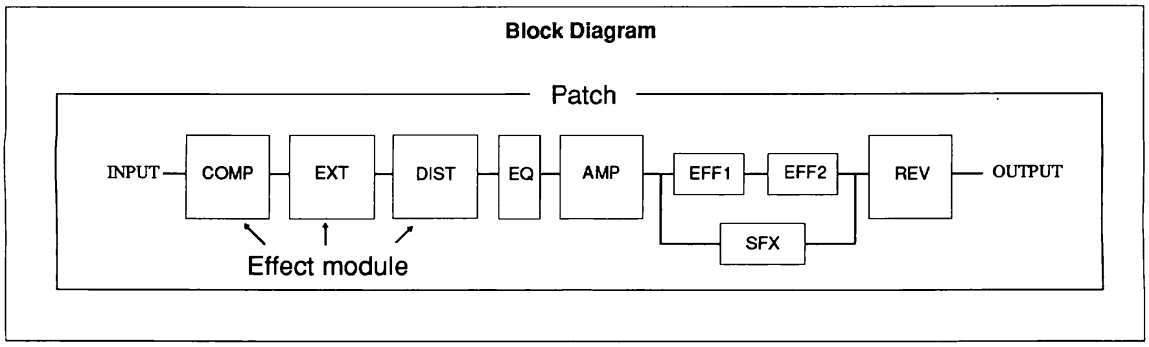
[11] Huxley, p. 119.

The significance of such ironic human moments will be discussed below during the "march of the pigs" discussion, but the "ruiner" guitar solo in particular deserves further comment. Although the rhetoric and general timbre of the solo has all the trappings of a classic 70s fuzzbox solo, the guitar is in fact being electronically manipulated almost out of existence. When asked by *Guitar World* magazine how he achieved the nasty effect, he replied:

> Ah yes, the great, Pink Floyd-esque, Seventies-sounding section of the song. That's just a preset on the Zoom [9030]. I think I accidentally called up the wrong patch. I'm not a soloist. I was just laughing when I was playing with this ridiculous sound, recording into the computer saying like, "This is so cheesy," you know? I later realized that I basically tried to play a "Comfortably Numb"-type solo with this sound. I played the song for Chris [Vrenna], our drummer, and I was thinking, "He's going to start laughing. It's silly." But he goes, "Man, that guitar section was fucking great."[12]

Reznor's description of the solo certainly underlines the irony of the moment, but does little to illuminate the components of what is obviously a long series of effects. Figure 3-1 shows the general setup of the ZOOM 9030 effects chain.

Figure 3-1 – ZOOM 9030 Effects Chain[13]



There are essentially seven steps in this chain, each with a plethora of settings, but only a few of them are relevant to this discussion.[14] The first step in the chain contains a

[12] Di Perna, p. 21.
[13] ZOOM 9030 Manual, p. 6.
[14] It is reasonable to assume that the effects stem exclusively from the ZOOM 9030 unit since the guitar solo sounds identical on "ruiner (demo)" off of *the downward spiral: deluxe edition*'s second CD (Halo 8

possibility of either a compressor or a limiter (which is, essentially, a more severe compressor). The general "boxiness" of the sound—the near total lack of dynamic contrast—indicates that a very high compression depth setting was in the preset. This results in a distinct cooling of the human expression in the performance since expression is to a large degree based on constant and sophisticated manipulation of dynamic contrast. Thus, though we can hear the timbral and rhythmic aspects of expressive playing, it is through a distancing layer of extreme dynamic compression—human agency corralled within acceptable parameters by the machine. The compressor unit also has what the manual calls a "bright switch," which emphasizes high partials and very well may have been turned on.[15] This is a possibility because, much like other distortion effects already discussed, this guitar solo is equalized so as to severely attenuate the fundamental frequencies and emphasize the noise partials of the sound. The aural result of this effect has been discussed already, and there are many points in the chain wherein the effect could be applied, including an Enhancer (ENH) in the EQ step and a coloration setting in the step 5 Amp Simulator. This last is described in the manual as a "dry sound with emphasis of the high frequencies," and seems a likely candidate given Reznor's indications that the ZOOM 9030 was primarily used as an amp simulator, and the exceedingly dry tone of the solo itself.[16]

The last aspect of the effect chain relevant to this discussion lies in step 6. Note in Figure 3-1 above that this place can either be taken by two separate effects modules or

---

DE-2). Although many sounds are clearly treated with post-production effects between the demo and the actual song, the guitar solo is identical.

[15] ZOOM Manual, p. 22.

[16] The quote in the beginning of the sentence is ibid, p. 25. "I took the direct out of the Marshall into the Zoom 9030, employing just the speaker simulator on that. I really like the sound of the speaker simulator on the Zoom, but I don't like the preamp section. It sounds like what it is: a little box," Di Perna, p. 21. Note Reznor's own reference to the boxiness of the ZOOM effects.

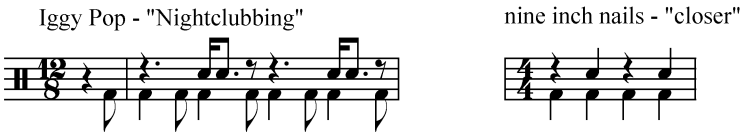
by a single, more specialized effect module. Either pathway contains an effect which would create the metallic edge that can be heard in the "ruiner" solo, both of which involve ring modulation. The EFF1 step includes an effect called Metallic (MET) which "creates a metallic sound by introducing an irregular series of harmonics, made by applying Amplitude Modulation (ring modulation) of an oscillator to the direct sound," and the SFX step contains an effect called the Picking Modulator (PIC) which "applies ring modulation to each sound that has a sharply picked attack."[17] Either is possible, though the latter (along with compression) would help explain the clear audibility of the pick sounds in the solo. The mechanizing effect of metallic, ring-modulated coloration applied to a human performance is obvious, and is made all the more disturbing when the clear sound of pick attacks is serving to further *connect* us to the human performing (these attacks are particularly discernible at the beginning of the solo and during the final tremolo glissando). The solo's human expression is limited through dynamic compression, its foundation is eradicated by hi-pass equalization, and its organic warmth is neutralized by metallic intrusions.

This last image—organic matter controlled by and fused with mechanical contrivance—is made literal in the video for the album's second single, "closer." The opening drumbeat of the song is accompanied visually by a heart embedded with mechanical implements and a steam release valve, forced to beat in time by a machine.[18] The drum beat is rigidly 4/4, and sounds determinedly mechanical. In *The Making of Pretty Hate Machine & The Downward Spiral*, Alan Cross explains, "The fat bass-and-snare sound was lifted directly from the introduction of Iggy Pop's 'Nightclubbing' from

[17] ZOOM Manual, pp. 28 & 35.
[18] The idea of a mechanically-manufactured heart is also referenced later in the video, by a sign with a drawing of a heart next to a copyright notice.

his 1977 album *The Idiot*. After mangling it a bit with the computer and outboard gear, the samples were loaded into a Roland R-70 in order to give it that mechanical, drum machine feel."[19] The "mangling" is quite substantial and serves to remove any vestiges of humanity from the already disaffected original. Ex. 3-1 shows the beat patterns of both "Nightclubbing" and "closer:"

Example 3-1 – Original Pattern vs. "closer" mangling



Most notably, the shuffle anacrusis before each bass drum hit has been completely cut, and the loose double hit on the snare (which may just be a particularly loud slapback effect) has been eliminated as well. The beat is completely emasculated, and all sense of swagger is gone. Much like the heart from the beginning of the video, an aural impression of a steam release valve has been added to the drum beat by removing the impact of the drum stick on the snare hits and compressing the remainder into a tight hissing sound. Furthermore, all of the (copious) ambience in the "Nightclubbing" original has been leeched away, thrusting the castrated beat pattern into a dry space at the forefront of the track. Finally, an obviously electronic hi-hat sixteenth-note beat is added once the verse begins, rigidly quantized and metronomic.

The central lyric of this song, "i want to fuck you like an animal," points to a different kind of humanity loss: through the suppression of reason and the magnification of raw emotions. However, the most animalistic textures in the track are also highly metallic and quantized, pointing to a more reptilian, cold-blooded animality. Indeed,

[19] Cross, p. 49.

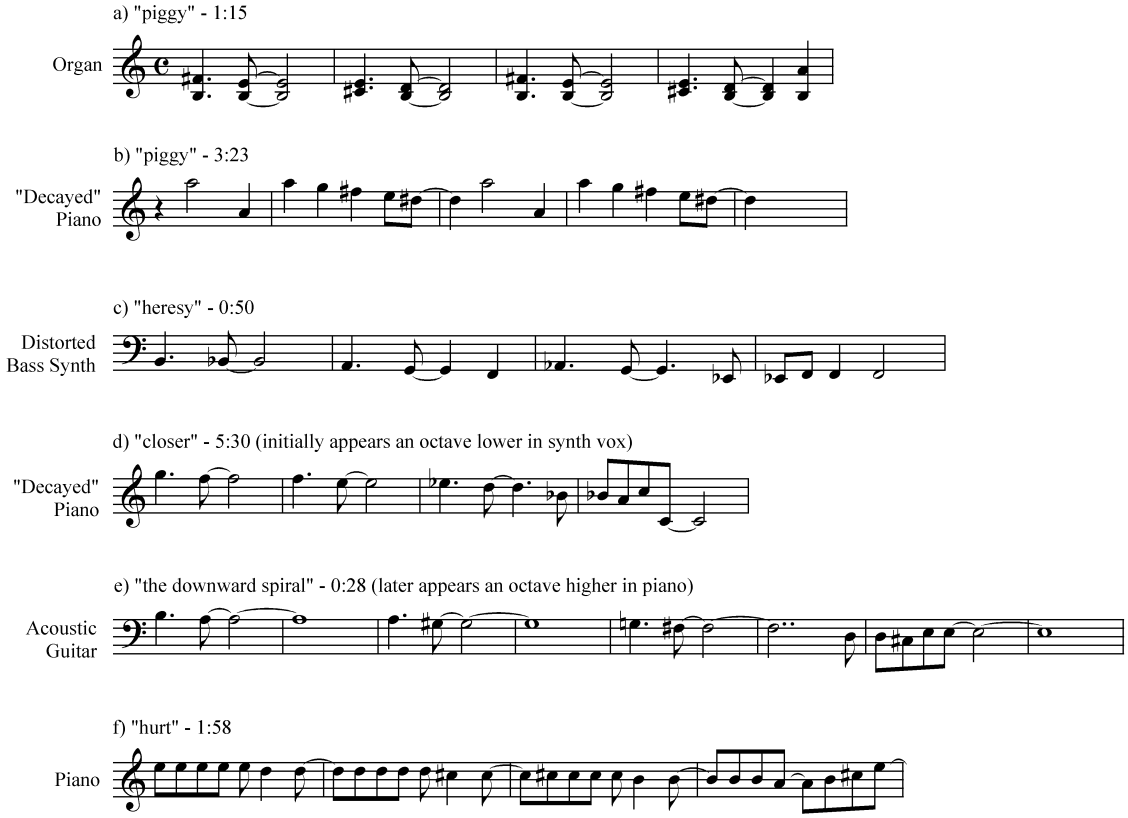
there are several lyrical references to the lizard brain on *the downward spiral*, most notably on the song “reptile:”

> she spreads herself wide open to let the insects in
> she leaves a trail of honey to show me where she’s been
> she has the blood of reptile just underneath her skin

III – The *downward spiral* Motive

Reptilian lyrical references are not the only idea in “closer” which occurs elsewhere on the album. Most significantly, the motive at the end of the track, which is shown in Ex. 3-2d, occurs at several points on the album, and is always representative of a battered or decayed remnant of human agency.

Example 3-2 – Appearances of *downward spiral* Motive[20]



Like all incarnations of this motive, the "closer" version spans a descending fifth and proceeds stepwise (with, in this case, a brief ornamentation at the bottom), and, like all but two incarnations, moves specifically from $\hat{5}$ to $\hat{1}$. The song itself is constantly shifting between C-major and -minor modalities, and this instance of the motive dutifully presents both forms of the third scale degree. The significance of this major/minor duality will be discussed below. This version first appears at 5:30 in the background played on a synthesized vocal patch—the height of mechanized humanity—and then shifts to a thin, detuned piano sound once the rest of the texture drops out. The "humanity" of acoustic piano has already been discussed; here, Reznor applies an effect

[20] All transcriptions are mine, though aided by the anonymous submitters of the Online Guitar Archive: http://www.olga.net. I am particularly indebted to ArachosiA from the echoingthesound.org internet discussion forum for pointing out the "heresy" example to me.

similar to the many warbly effects mentioned above, and lends a frail and decayed quality to the agency. The effect is most likely achieved through extreme pitch-shifting or sampling of the original sound, lending a sense that the instrument has been harshly treated. The stereo space has been filled with echoes, pre-echoes, and reversals of the piano line creating an atmosphere of swirling mechanical fragmentation and uncertainty.

The version of the motive which appears in "the downward spiral" (the title track, Ex. 3-2e above) is a direct transposition and augmentation of the "closer" iteration, and is one of the calmest, and longest, phrases on the entire album. Although heavy reverb and delay disembody the acoustic guitar line, careful listening reveals that this is another rare moment of human instrumental performance—string and fret noises are clearly audible and the length of the phrase, as opposed to the fragmented loops that comprise the vast majority of the album, contribute to the line's humanity. Unlike all previous incarnations of the motive, there are no decaying or distorting effects added, mechanicity is resigned to the ominously circling industrial and insectile noises in the sides of the stereo field. This oasis is abruptly shattered at 2:32, when distorted drums and guitar, disconcertingly muffled, and the sound of human screaming enter the soundworld.[21] At this point, the motive's instrumentation shifts from clean acoustic guitar to a warbly piano, though the extreme ambience remains unchanged. The whispered vocals, a disturbing third-person account of a suicide, are mechanized through ring modulation to a degree beyond that of any other vocals on *the downward spiral*. Respite is shattered, paving the way for the quiet hopelessness of the final track.

[21] Human screams such as this have been incorporated into the musical textures on a number of *the downward spiral* tracks—including "piggy," "heresy," "eraser," and "the becoming"—amounting to a disturbing subjugation of the human by the mechanics of repetition, looping, and textural saturation.

This final track, "hurt," will be discussed in detail below, but a few words about the motive's appearance therein are in order (see Ex. 3-2f above). Note the pulsing rhythms which have been added to the statement, a subtle mechanization of the clean, human piano line. As will be discussed below, this section of "hurt" is in a tenuous A Mixolydian, creating an idealized but ultimately unreal soundworld. Note that any major/minor confusion has been removed from this incarnation of the motive and that the descent to $\hat{1}$ is offset by a quick ascending line back to $\hat{5}$, thus heightening this version's optimistic otherworldliness.

The first three appearances of the motive are in "piggy" (see Exx. 3-2a and b above) and "heresy" (Ex. 3-2c), and all three are prototypes of the more stable incarnations already discussed. The initial appearance is highly abstracted, part of the accompanimental harmonies of the second verse. This version does involve a span of a fifth and a stepwise (though partially simultaneous) descent, but it is unambiguously minor and is presented harmonically rather than linearly. The Ex. 3-2b version of the motive is linear like the later iterations, but it is the only version to span a diminished rather than a perfect fifth, and it is the only version which doesn't move from $\hat{5}$ to $\hat{1}$. Instead, the line descends from $\hat{7}$ to $\sharp\hat{3}$ in this track's B Aeolian/Phrygian modality. Here one can see a precursor to the major/minor duality of later motive incarnations, both in this motive's opposition to the Ex. 3-2a version in the same track and to the general modality of the entire song. The decayed timbre of the "closer" incarnation is very similar to the warbled piano of this second version, and was cleverly foreshadowed by the extreme vibrato on the organ in the initial version.

The version on the subsequent track, "heresy," is even closer to the later incarnations already discussed. This is the first time that both the major and minor version of $\hat{3}$ are presented within a single statement (A/A♭), and is also the first appearance of the final resolution figure (♭$\hat{7}$-$\hat{1}$) characteristic of both Exx. 3-2d and e. However, like Ex. 3-2b, the motive spans a tritone rather than the perfect fifth of later motives. This F-B augmented fourth is an inversion of the B-F diminished fifth that will play a significant role in my close reading of "hurt" below.

IV – Magnification of Decay: Close Readings

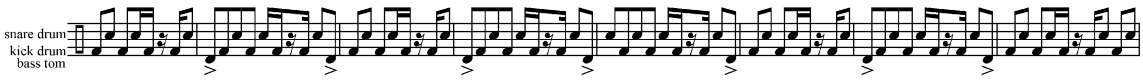
I will now turn to a close analysis of two *downward spiral* tracks which approach the human/machine dialectic as mirror images of each other: "march of the pigs" and "hurt."

Close Reading #3-1 – Machinery on the March – track 4, "march of the pigs"

In "march of the pigs," the fourth track from the album, Reznor distorts the concept of a march—already one of the most mechanistic forms of human music—into a structure and soundworld that ultimately effaces all sense of humanity within it.

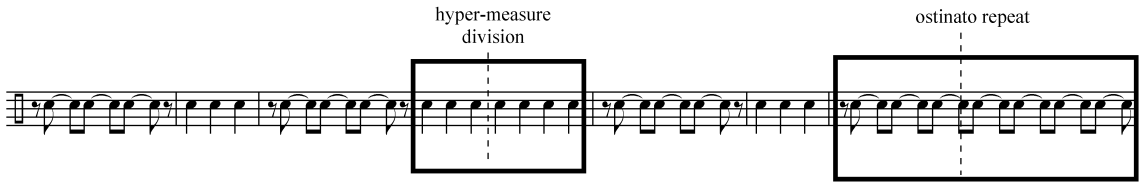
With the idea of "march" already imparted by the title, the opening drum pattern fulfills expectations of regularity and heavy metric accentuation. However, the sense of symmetric cohesion is only skin deep. If one attempts to force a regular quarter-note background to the pattern—and the title surely suggests such a nominal backdrop—the heavy kick drum hits alternate between downbeat and offbeat emphases.

Example 3-3 – Opening Drum Pattern with regular quarter-note pulse (0:00)[22]



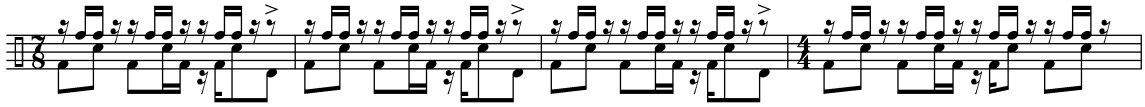
The near-regularity of the snare part (buttressed by the hi-hat) is particularly disruptive, especially—paradoxically enough—during its most regular moments. The snare part is isolated in Example 3-4, and the boxed portions emphasize points where seven contiguous regular quarter-notes occur. It is important to note that these islands of relative regularity contradict the formal structure by overlapping between the two 14.5 quarter-note hypermeasures implied by the bass drum and kick ostinato as well as, later, that of the synth bass.

Example 3-4 – Snare Drum Regularity



This stumbling march rhythm is of course best represented using asymmetric time signatures: three measures of 7/8 followed by a single 4/4.

Example 3-5 – Opening Drum Pattern (0:00)

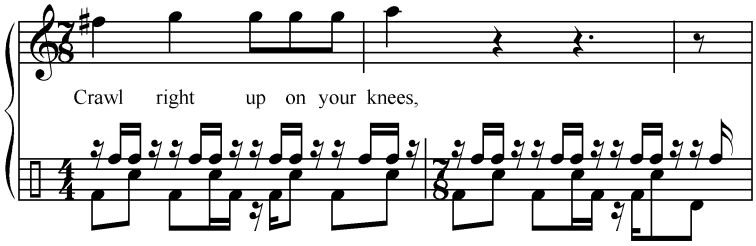


The mechanistic imagery of lockstep marching is further dehumanized by this painful metric truncation, and even the irregularity of 7/8 is further complicated by the occasional 4/4 insertion. Indeed, once the voice has entered, the vocal rhythm implies a continuing 7/8 accentuation even during the 4/4 measures, furthering the impression that the

[22] I have witnessed fans at Nine Inch Nails concerts nodding their heads ("head-banging") in precisely this quarter-note normalized way in spite of the way the beat seems to shift from downbeat to offbeat continuously.

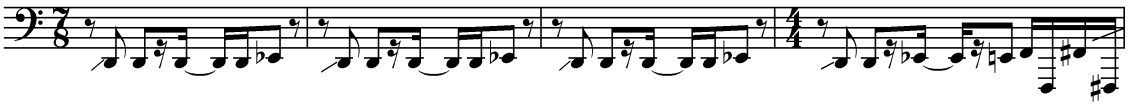
theoretically "normal" 4/4 is the aberration rather than the reverse.[23]

Example 3-6 – Vocal Line 7/8 vs. Drum Pattern 4/4 (0:30)[24]



The position and nature of the long beat in each 7/8 is also obscured by the kick drum's avoidance of the third beat and the accented, new timbre of the bass tom on the last eighth. In fact, an emphasis on the sixteenth-notes on either side of the third beat without any occurrence on the actual beat itself will characterize the rhythmic profile of all instruments throughout every 7/8 measure.[25] This is certainly the case in the bass synth part which enters at 0:13, and is shown in Ex. 3-7.

Example 3-7 – Bass Synth Opening Line (0:13)



The clear repetition of the motivic cell solidifies the limping 7/8 meter, and the 14.5 quarter-note hypermeasure is clarified by the chromatic ascent at the end of the 4/4 measure. The pitch is not as clear as the transcription portrays, heavy distortion blurs the

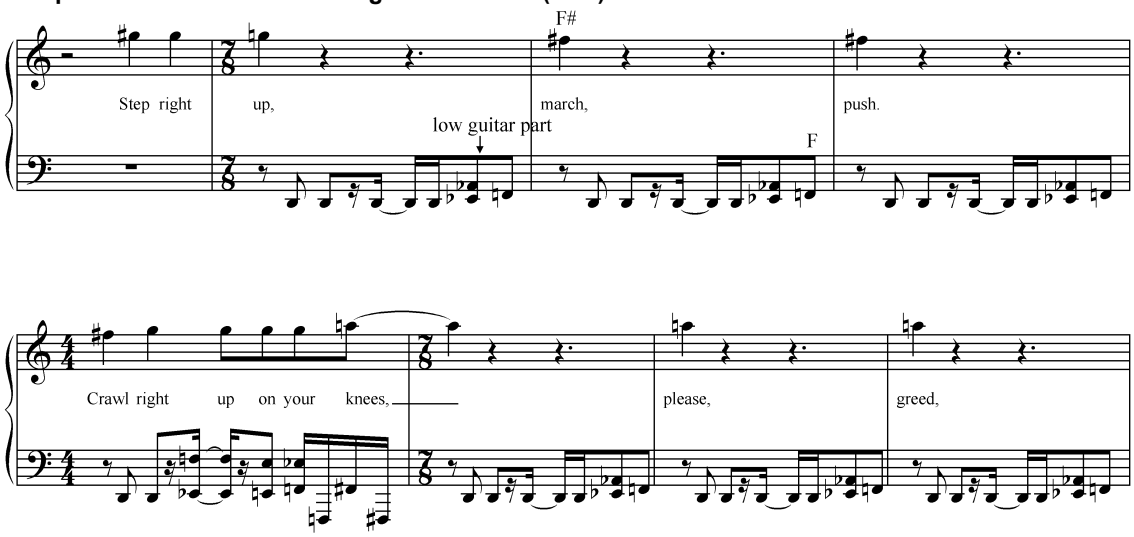
[23] A similar effect is achieved by Pink Floyd in the song "Money" from *Dark Side of the Moon*. Here, the meter of most of the song is 7/4, such that later moments of 4/4 feel more like an acceleration rather than a normalization. Though there is almost certainly no direct connection between the songs, it is, perhaps, indicative of Reznor's inspiration by Pink Floyd's Roger Waters, which he has professed on several occasions. (I'm indebted to my advisor, Shaugn O'Donnell, for pointing out this connection)

[24] All "march of the pigs" transcriptions are mine, but I was heavily helped and influenced by Gorenberg, pp. 103-107.

[25] I am indebted to Paul Falcone, one of my students at the City College of New York, for bringing this fact to my attention.

pitch definition of all but the D and E♭.[26] These two pitches establish D as tonic, and the lowered supertonic implies either D Phrygian or Locrian. When the guitar part enters at 0:26, the A♭ on the sixth eighth note of each 7/8 measure invokes the diminished dominant of the Locrian mode. However, the vocal part, which enters with an anacrusis into the same bar, focuses on D Mixolydian, emphasizing F♯ and A♮ repeatedly.

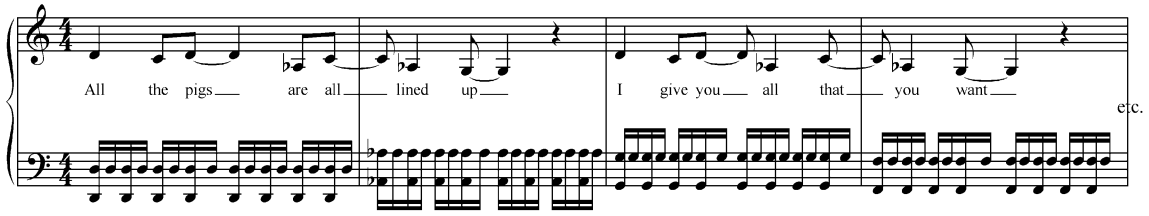
Example 3-8 – Modal Clash During First Section (0:26)



Thus, the human element of the music is harmonically disassociated from—indeed in opposition to—the electronic texture around it. This harmonic dichotomy continues throughout the piece creating a parallel narrative to the human/machine dialectic. For instance, the next section of the piece—beginning at 0:52—presents the temporary triumph of Locrian (and mechanicity), as both voice and instruments present pitches of that mode exclusively through to the formal irruption at 1:17.

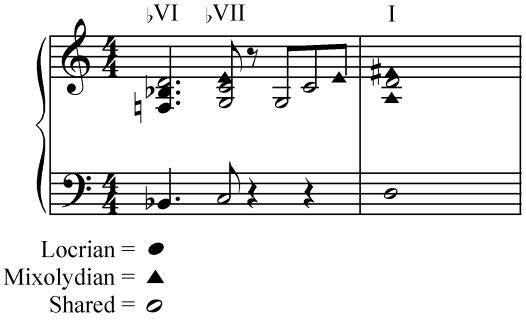
[26] Distorted bass lines are fairly common in Reznor's music, and they tend to destabilize the music's pitch-to-noise ratio to a more significant degree than treble distortion. The proliferation of dissonant mid-range partials that such distortion creates obscures the clarity of the alto and treble instruments and serves to dirty the pitch spectrum of the entire track.

Example 3-9 – Locrian Dominance in Second Section (1:06)



At 1:17, all electronic instruments disappear, leaving only the vocals with a harmonic accompaniment in the piano. The chords in the piano (again, often allied with human agency) are a variant of a very common (even clichéd) rock cadence: ♭VI-♭VII-I.[27] These three chords do not reside entirely in either Locrian or Mixolydian (or, indeed, any diatonic mode); the (unlikely) Locrian form of this cadence is ♭VI-♭vii-i^{o} and the Mixolydian is vi-♭VII-I. Ex. 3-10 illustrates the modal content of the chords.

Example 3-10 – Modal Breakdown of Third Section Chords (1:17)



A Locrian dominance with only one common tone shifts through an ambiguous (though ultimately Mixolydian) chord to a Mixolydian dominance with the same common tone as the first. The cross relation between the Locrian F♮ in the first chord and the Mixolydian F♯ in the last is particularly suggestive of the conflict.

---

[27] This use of root-position major triads on every scale degree (Category 3 harmony in the terminology of Everett, 2004) is largely unique to the world of rock music (though quite rare in the music of Nine Inch Nails), and results in modal situations wherein the roots of chords outline a particular mode even though the upper members of the harmonies often contradict it. See the above-mentioned Everett article for a discussion of this and other harmonic structures in Rock. The modal breakdown provided in the following example would be meaningless if Locrian and Mixolydian hadn't already been well established in the rest of the track.

Thus, the three main sections of the piece can be characterized both by their modal content and their human/mechanical stance, which, as stated above, tend to parallel each other. In the first section, 0:00-0:52 and 1:25-2:04, human agency rages against the electronics surrounding it—expressing the dichotomy harmonically with a clashing Mixolydian bent against the inexorable, stumbling Locrian march. The vocals in the second section (0:53-1:17 and 2:05-2:29) are down more than an octave in pitch and have resigned to the same harmonic world as the mechanics. The cleanly recorded acoustic piano of the third section (1:18-1:24 and 2:30-2:50), complete with rubato, seems to join with the voice rather than oppose it, yielding a section, albeit brief, ostensibly dedicated to humanity and achieving Mixolydian purity in the process.

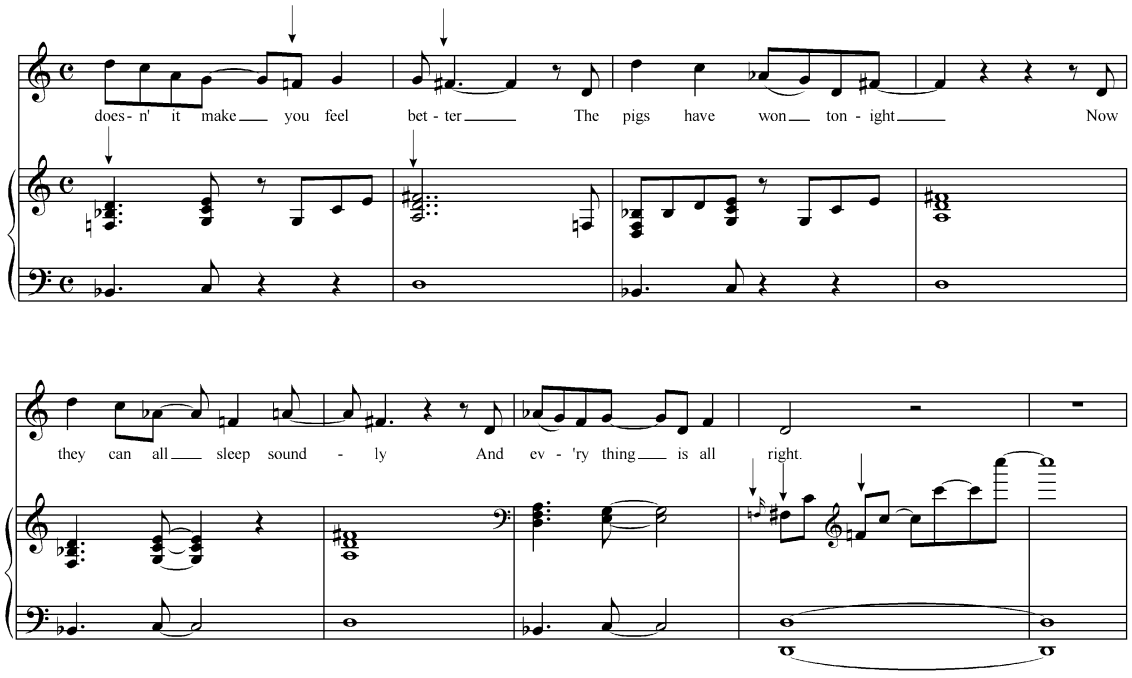
I would like to return to the earlier discussion about metric stability, now in regard to the rhythm of the second section. The metric asymmetry, mixed meters, and occasional polymeter (as illustrated above in Ex. 3-6) of the first section completely fall away for the second section, which is cast entirely in an unproblematic 4/4. All syncopation in the instruments also disappears and the drums are reduced to plodding, inexorable quarter notes. The emergence of regular meter, however, does nothing to diminish the dominance of inhuman agency. Although the 7/8 rhythm fulfilled a sense of malevolence, forcing unnatural motion upon the protagonist, it at least contained some degree of variability. The music is now composed entirely of constant, heavily-quantized sixteenth notes combined with mechanical pulsations, conjuring an image of a conveyor belt pulling pigs inevitably to the slaughter. Only some of the pulsing mechanical noises run counter to the hegemonic rhythm, and these are isolated far to the right side of the stereophonic space (general issues of spatialization will be discussed below). The right-

side pulses are essentially a copy of the lockstep machinery sounds that are panned to the left, except that the right is at a slightly faster tempo. This rhythmic distortion adds tension to the regularity of the meter and increases the sense of agency independent of human control (since the resultant polyrhythms are, for all intents and purposes, arrhythmic). The sense of resignation and conformity conveyed by this section of the work is underlined by the lyrics: "all the pigs are all lined up / i give you all that you want / take the skin and peel it back / now doesn't it make you feel better?"

Of course the last line quoted above is in fact the lyric for the third section of the piece, where the electronics are suddenly replaced by an acoustic piano. Earlier, I described this section as *ostensibly* dedicated to humanity, meaning that the surface effect of the rubato rhythms and timbral change (combined with the reemergence of the Mixolydian mode) expresses human agency. As one of the four moments of clear human performance mentioned in the introduction, the alleged humanity is seemingly quite strong. However, like all such moments of human performance on the album, this reading of the third section is undercut by the savage irony of the moment. The "skin" of mechanical noise has been "peeled back," leaving only vacant sentimentality and cliché.[28] The major-chord simplicity of the progression, as well as its triviality, has already been discussed above. At the end of "march of the pigs," this section returns, greatly expanded.

[28] It's worth noting that both versions of the third section on the 5.1 remix of the album are entirely relegated to the rear speakers, enhancing their separation from the rest of the track.

Example 3-11 – Final Section 2:28



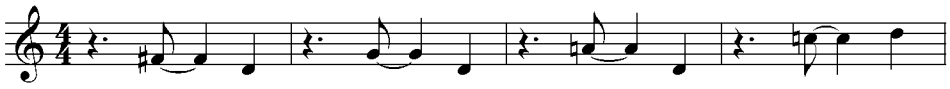
The un-quantized rubato is even freer, and the four repetitions of the ♭VI-♭VII-I progression are all different—a sharp contrast to the sequenced ostinati of the rest of the work. The vocal line is rife with exaggerated blue notes (often hinting at the A♭s and F♮s of Locrian) as is the final piano tag on an arpeggiated D7♯9.[29] The clash in this final bar between the F♯ of the expected D-major chord and the interjected F♮ recalls the cross relation inherent between D Mixolydian and D Locrian that has harmonically characterized the human/mechanical dichotomy throughout.

In the live performances recorded for both the *closure* VHS and the *And All That Could Have Been* DVD, the band adds a newly-composed final instrumental section after this piano tag (at 2:59 on *And All That Could Have Been*), and it adds an epilogue to the

[29] Although this is the standard jazz designation for this harmony—and its out-of-character jazziness certainly adds to the irony of the moment—the chord could also be heard as a D7 chord with both major and minor thirds.

narrative established by the studio version.[30] Here the vocal part is reduced to occasional shouts and exclamations, and, for the only time in the entire work, melody is performed by the electronics. A synthesizer plays the line transcribed in Ex. 3-12 over a simplified 4/4 version of the ostinati of the first-section march.

Example 3-12 – Live Performance on *And All That Could Have Been* (2:59)



This melody is cast entirely in D Mixolydian. Thus, both the rhetorical nature and the harmonic quality of humanity are replaced entirely by mechanicity.

Returning to the studio version on the original album, the stereophonic spatialization of this track is largely compressed in the center, with the instrumental electronic parts encompassing the vocals; a general sense of claustrophobia results from the infrequent use of panning. The opening trap set part and the subsequent bass line are centered, with the drums spread somewhat across the space. When the voice enters, it is completely in the center, and the new guitar part rapidly pans between the left and the right speakers. The relative expanse of the drums, the multi-directionality of the low-frequency bass, and the panning guitar create the impression that the human vocals are completely encased within an electronic swarm of noise and rhythm. The only part of the voice to deviate from the center is the sudden, distorted interjection at 0:37 (and, during the repeat of this section, at 1:50) which is entirely in the right speaker. Rather than signaling a sudden freedom for the voice, this brief shift seems more like an assimilation of the voice by the mechanical accompaniment similar to many lines discussed above in

[30]c*losure* is Halo 12 and is a live video released during the *downward spiral* era. *and all that could have been* is Halo 17, and is a concert video and live album released in support of *the fragile*. However, it contains many performances of *the downward spiral* tracks as well, and has far greater fidelity than *closure*. As such, I will be referring to it for the purposes of this discussion.

"mr self destruct." This is largely due to the extreme mechanization of the voice created by the distortion, but the overlap between the main, centered voice and the interjection also evokes the sense of an "other" interrupting the primary melodic flow. The only other objects moved to the outer extremities were discussed to an extent above. The two copies of the mechanical pulsations during the second section are panned hard-left and hard-right, with the version in the right speaker slightly faster than the version in the left. The disorientation caused by the tempo offset between the two speakers is considerable, and the rhythmic coherence of the vocals in between the two manifestations is compromised as a result. The pulses on either side of the voice threaten to tear it apart.

"march of the pigs" dramatically demonstrates the collision between mechanicity and humanity, all sense of human agency is repeatedly battered, subjugated, and even assimilated by the relentless mechanical onslaught surrounding it. In the next close reading, malevolent agency will subtly invade the last track of the album, as opposed to its raging dominance in this song.

Close Reading #3-2 – The Externalization of Corruption – track 14, "hurt"

"hurt" emerges suddenly out of a soundscape of white noise and electronic wind. Ultimately, it fades backs into this world of mechanized nothingness (reminiscent of the background static at the beginning of the album), but in between we have what is in many ways the most human of all the tracks on the album. The vocal is sung and recorded so as to emphasize a fragile, yearning humanity, and—for the majority of the song—the accompaniment is comprised of acoustic, clean instruments.[31] Slowly, however, more and more distorted accompaniment enters the soundworld, as if the white noise of the

[31] In particular, the vocals are close-miked so as to emphasize breath and lip noises.

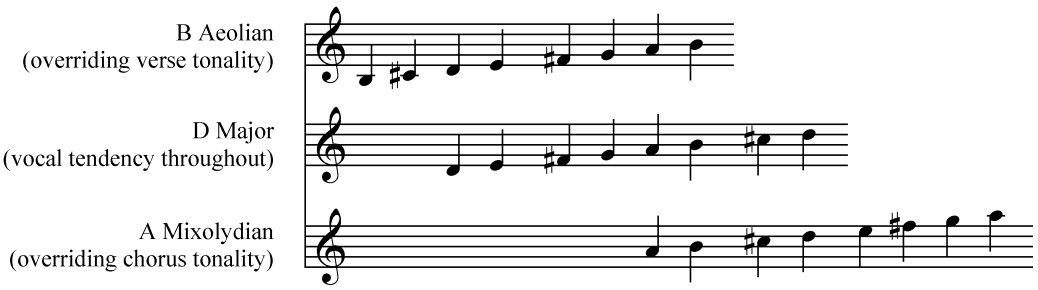
opening is shedding its neutrality and infecting the body of the track. Although humanity is never destroyed from within—certainly a common occurrence in the rest of the album—it is increasingly eclipsed by mechanicity until ultimately displaced entirely. In many ways, "hurt" functions as a negative image of "march of the pigs." Whereas the latter portrays humanity railing against swarms of mechanicity, this track *features* humanity, until insidious mechanical elements corrupt the soundworld from the background and overtake the texture. Humanity is not destroyed or subsumed as it has been on the rest of the album, it is instead shown to be, in the end, irrelevant—powerless against the corruption inherent to the world around it. This philosophic inversion between the two tracks is underlined by other less abstract, more inherently musical mirrorings.

The F/F♯ pitch dichotomy present throughout "march" continues in "hurt," although reversed, in that F is now the dissonant intruder rather than F♯. Several instances of this clash will be discussed in the ensuing analysis, but note in particular that the first pitch in the vocal line is F♯ sung against a B-F♮ tritone in the guitar. The sickly power of this clash can be viscerally felt in contrast to Johnny Cash's brilliant cover of this song on his album *American IV: The Man Comes Around*, wherein Cash has removed all instances of the F♮.

Whereas the central harmonic conflict of "march of the pigs" is an acerbic, jarring confluence of modalities with the same tonic but wildly divergent pitch collections, the conflict in "hurt" is a gentle, ambiguous flow between modes with the same pitch content but differing tonal centers. The verses (0:22-1:10 and 2:23-3:23) are both firmly in the world of B Aeolian while the pre-choruses and choruses (1:10-2:23 and 3:22-4:31),

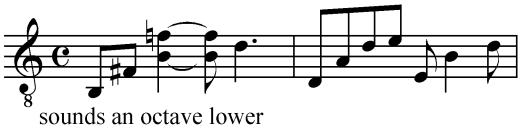
though slightly less focused, center on A Mixolydian. Meanwhile, throughout the piece, the vocal line sustains an insecure reliance on the tonal world of D Major. The three gently opposing modes are shown in Ex. 3-13:

Example 3-13 – The Three Modes of "hurt"



The verses of "hurt" are almost exclusively comprised of solo acoustic guitar and Reznor's voice. As is often the case in NIN, the clean acoustic guitar bolsters human agency—at least on the surface—and the seeming unity of agency is underlined by their sudden simultaneous entrance. The guitar presents the same arpeggiated two-bar Aeolian pattern repeatedly: i | ♭IIIadd9-iv7. Although the figuration varies slightly with each iteration (a significant strengthening of the line's "humanity," to be discussed further below), the main idea can be shown with a representative two-bar segment as in Ex. 3-14:

Example 3-14 – Opening Guitar Accompaniment[32]



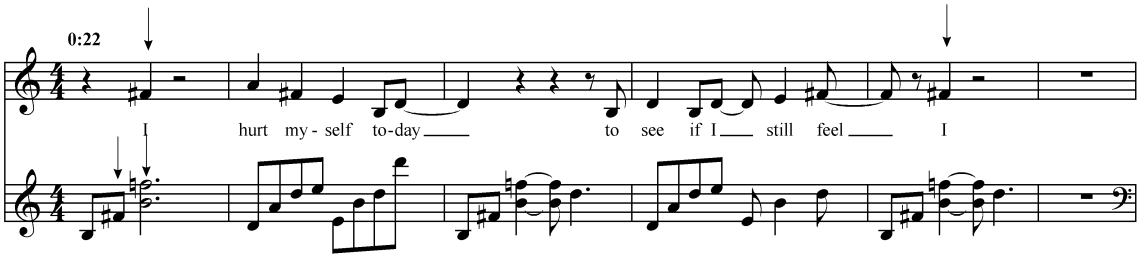
With the exception of the remarkable F♮ (the "sour" note discussed above) the five pitches in the pattern belong to B Aeolian. In fact, throughout both verses the voice and guitar combined present only these pitches of the diatonic collection, never using G or C♯ (except, possibly, for a single G passing tone in the voice of bar 13). It is only through

[32] All transcriptions of "hurt" are mine, though I was heavily influenced by Jeff Jacobson's transcription of the marginally different remix "hurt (quiet)" off of Halo 10 (*further down the spiral*). Jacobson, pp. 101-105.

incorporation of the notes of the pre-chorus and chorus that the modal designation of Aeolian is possible, but the designation is reasonable. The Phrygian lowered second scale degree which C♮ would create is exceptional and therefore problematic to claim as an implied tone, and G♯ would necessarily create an augmented 2nd between $\hat{3}$ and $\hat{4}$, also an exceptional circumstance which would require explicit presentation.

It is significant that none of these chords have thirds in them, leaving the chord qualities to be implied by the surrounding harmonies. The added sterility and stability of the open fifths (emphasized by the parallel motion) not only accentuate the piquancy of the tritones on the second beat of the first measures, but also create an atmosphere of stark reality in the B-Aeolian accompaniment. This stands in contrast to the relative warmth of the vocal line's D Major with an emphasis on the third (i.e. the F♯ discussed above, see Ex. 3-15), its tonal role as the relative major of B further creating a sense of detachment "above" reality.

Example 3-15 – Opening Bars of "hurt"



That the voice is coming from a world somehow separate from the reality of the accompaniment is supported by the lyrics, wherein the narrator hurts himself and then "focus[es] on the pain / the only thing that's real." However, the oft-recurring Bs in the

vocal line render the sense of D Major tenuous, emphasizing the fragility of the bubble of unreality in which the narrator has placed himself.[33]

As noted above, most iterations of the two-bar guitar pattern are at least slightly varied from Ex. 3-14. Though this variance further emphasizes the potential humanity of the accompaniment, the brevity of the pattern subtly undercuts the relative breadth of the four-bar vocal line. The sense of truncation, however slight, betrayed by the guitar's two-bar hypermeasure (especially as opposed to the four-bar hypermeasure of the voice and most other sections in the track) foreshadows the ultimate destruction of the humanity in "hurt." Mechanicity is always emphasized by single-minded patterns, and the shorter the period between reiterations, the more obvious any such pattern becomes. This truncated pattern will ultimately give way, by the piece's end, to a single-note pattern consisting of nothing more than a droning pitch constantly pulsing in quarter notes.

The truncated phrase structure is not the only element of intrinsic corruption in the guitar accompaniment that subtly foreshadows the triumph of mechanicity. Although the general timbre of the part is strongly reminiscent of acoustic guitar, the sound is nevertheless a synthesizer patch being operated by a keyboard controller. Although it is difficult to quantify the timbral distinctions, the relative simplicity of the harmonic spectrum of the sound and the unsophisticated, overly-long decay of each pitch are strong indicators. Another indication lies in the way each occurrence of a specific pitch sounds timbrally identical in spite of obvious variations in the volume and timing of each iteration. Furthermore, the nature of the part and the way in which the pitches are

[33] The use of $\hat{6}$ as a proto-leading tone in place of any form of $\hat{7}$ is common in pop/rock music, especially those songs which derive from folk traditions. Therefore, the B♮s don't necessarily contradict a D-Major identification, they merely destabilize it in the context of the guitar's B Aeolian pattern.

connected reveals a distinctly keyboard-centric performance that would be difficult to replicate exactly on a real guitar. Indeed, in the live performance of "hurt" shown in its music video the accompaniment is played on a keyboard using piano sounds. In the Halo 12 concert video *closure*, the accompaniment is completely re-composed by David Bowie's guitarist Reeves Gabrels, and when "hurt" is performed on *And All That Could Have Been*, the guitarist, Robin Finck, alters the line, though only slightly, in order to make it playable.[34] In other words, although the performance—in its variance of timing and presentation—is distinctly human, the intervening sound production between the (keyboard) performance and the (synthesized guitar) aural result belies the ultimate mechanicity behind the sound.

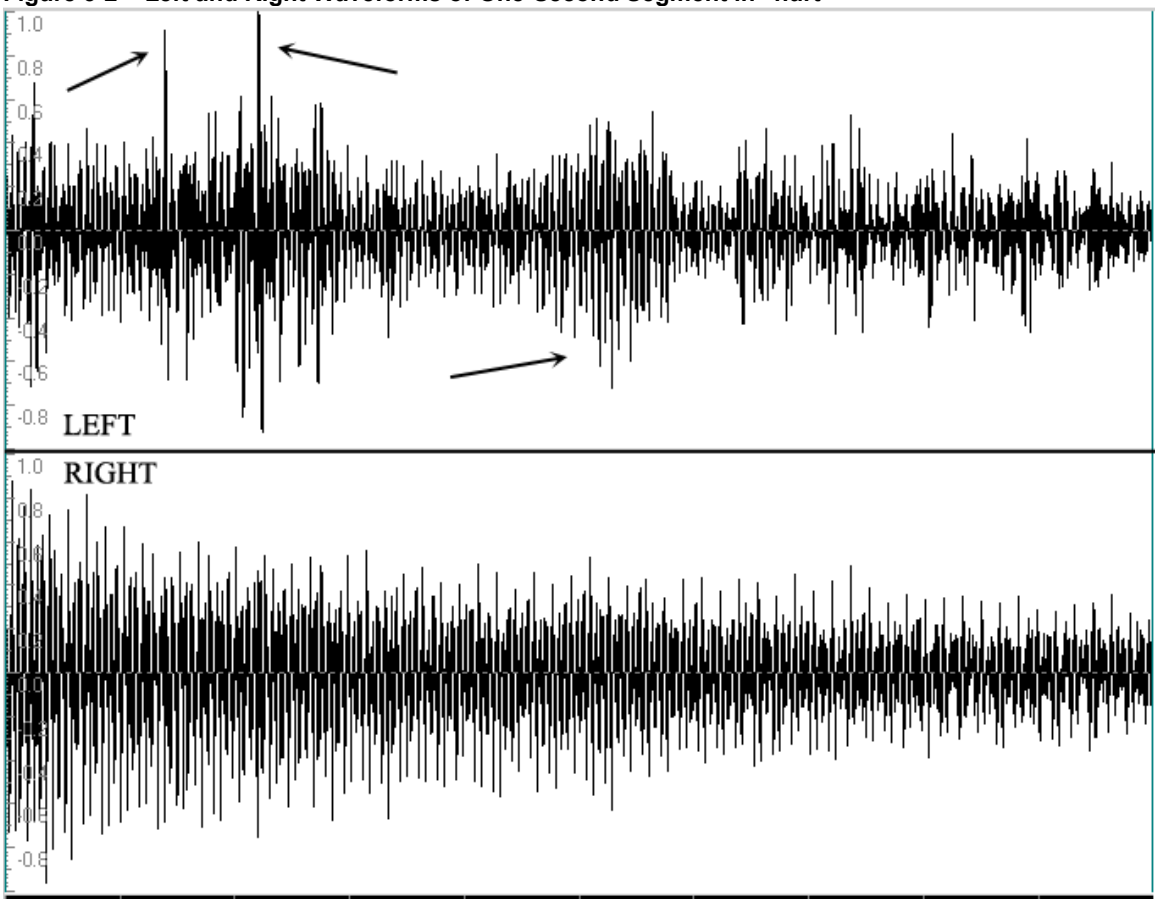
A careful listening to the stereophonic separation reveals yet another element of hidden corruption in the guitar, stemming directly from the electronic noise in the background. This noise, which opens the track and is the only sound for over 20 seconds, is initially almost completely confined to the left side of the stereo space (with a very quiet but nevertheless significant ambience in the right side). In fact, it is constrained to this space throughout the first half of the song until beginning to spread into the right side for the second verse. Ultimately, it will spread itself throughout the entire background until the final 20 seconds mirror the opening by presenting the noise alone again, now far louder and no longer spatially constrained. Until this ultimate victory however, the electronic wash of sound also insidiously propagates itself into the foreground texture

[34] Gabrel's presence comes about because, although most of *closure* shows footage from NIN's own "Self-Destruct Tour," the footage for "hurt" is taken from David Bowie's "Outside" tour wherein Bowie and Reznor performed the song as a duet with the backing of Bowie's band. In Finck's rendition, it is specifically the lower B of the diminished fifths on the second beats that are removed, as are all occurrences of the high D, such as at the end of the second bar in Ex. 3-15 above. The playing of this note on guitar would necessitate significant string and fret noise (and, most likely, a glissando), none of which are evident in the studio version.

through the effect of distortion (an effect which is essentially no more than the addition of varying degrees of noise into a pure sound). Later in the track—particularly in the second chorus—guitar sounds will be quite powerfully distorted, but during the opening verse, the acoustic guitar sound, as has been discussed above, is entirely clean.

Beneath the surface however, distorted corruption already lurks. Although the dominant guitar sound heard in the verses of "hurt" is pure with a slight warbliness, it is actually a composite of two copies of the same audio: a pure recording presented in the right speaker (where the electronic noise is absent and the voice is most strongly present) and a fractured, distorted recording presented in the left (along with the noise). Figure 3-2 shows a comparison of the two sounds with visual representations of the left and right waveforms of a tiny chunk of the first tritone. Note the sharp jumps during this pitch decay on the corrupted left side (on top) versus the relatively smooth tapering on the right. A severe attenuation of the initial attack can be seen at the beginning of the left side, but as the guitar sounds die away, several amplitude *surges* can be seen, particularly at the locations indicated by arrows. Additionally, one can see a hidden pulse in the corruption, foreshadowing the victory of stark regularity at the expense of humanity.

Figure 3-2 – Left and Right Waveforms of One-Second Segment in "hurt"[35]

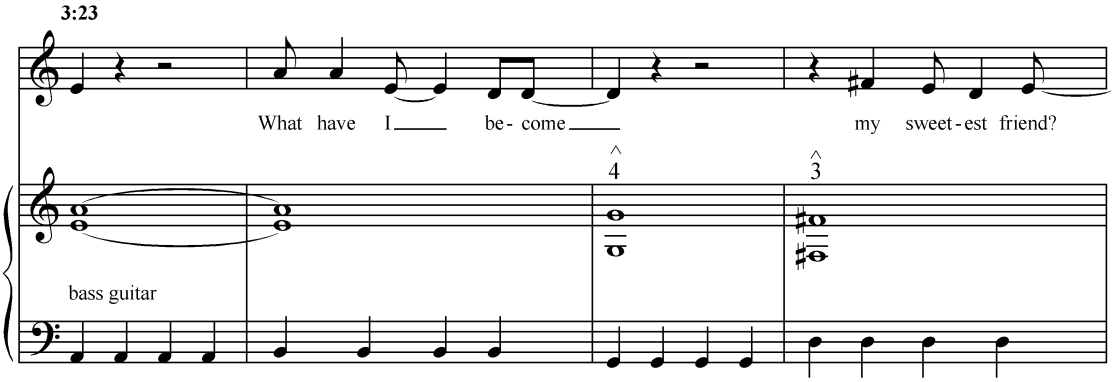


Thus the guitar, in spite of its surface humanity, serves as the gateway through which the electronic corruption and white noise of the background soundscape will infect the entire texture.

If the B Aeolian of the verse creates a sense of dispassionate reality beneath the D Major of the vocals, then the emerging A Mixolydian of the pre-chorus and chorus—the dominant of the voice's mode—represents an overreaching into a fantasy world of greater possibility but greater dissociation from reality.

[35] These waveform images were made using the excellent shareware program, GoldWave—http://www.goldwave.com.

Example 3-16 – 4-bar Hypermeasure of Pre-Chorus



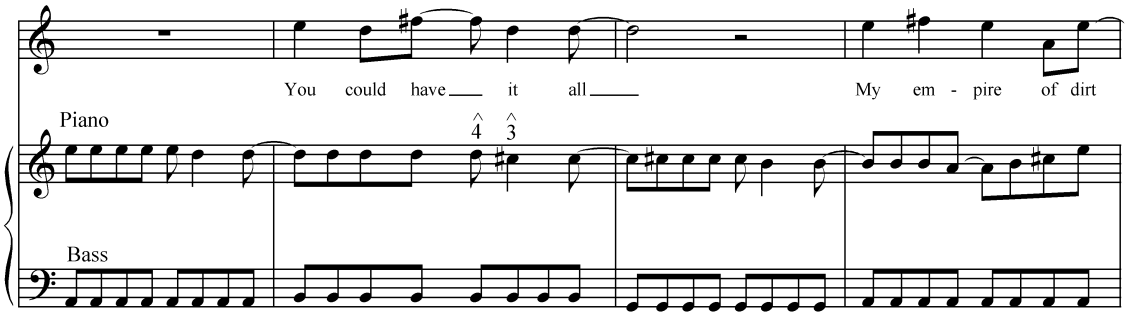
Example 3-16 shows the pre-chorus, which occupies an ambiguous tonal world that effects a transition from the B Aeolian of the verse while also temporarily giving strength to the vocal line's D Major. When the pre-chorus first enters, at 1:10, it is possible to hear the first bar's A chord as ♭VII to the next bar's i in B Aeolian. This hearing is strengthened eight bars later (which is the location of the example above) when the voice enters on the second measure of the pattern, lending some credence to the B in the bass of the second bar as the structural/harmonic beginning of the pre-chorus.[36] However, this interpretation is destabilized by the held A and E in the harmony above the B bass (which emphasize the potential for the reading of A as tonic) and the strong sense of resolution with the D Major harmony in the fourth bar of every pattern iteration (emphasizing a potential D Major reading).

Indeed, the four-chord progression of A-A/B-G-D allows A Mixolydian and D Major to coexist, with the former indicating a I-I/add9-♭VII-IV-(I) functional reading and the latter indicating a V-V/add9-IV-I reading. Both interpretations are reasonable, though perhaps the D-Major reading indicates a slightly more common progression (Note in particular the inherent $\hat{4}$-$\hat{3}$ resolution of the IV-I in the D Major reading, which will

[36] This could also be read as a hyper-metric version of the vocal entrance on the second beat of the first bar of the track.

gain significance as the section continues). When the track moves into the similar-sounding chorus, however, the dual reading is rendered untenable by a slight change in the progression.

Example 3-17 – Chorus 4-bar Pattern (1:58)



The harmonic filler of the harmonium part has been removed, and the D in the bass of the fourth bar has been replaced by another A, thus not only doubling the instances of the A-Mixolydian tonic, but also eliminating the only tonic of a D-Major reading. The resulting chord progression is unambiguously A Mixolydian: I-ii-♭VII-I. As the harmonic world advances totally into the dominant realm of fantasy, the voice seems swept along as it leaps an octave higher and the lyrics switch to the second person, sung with a passionate wistfulness. The addition of a pre-echo expands the ambient territory of the voice and bolsters the fantasy of the section with its increased expansiveness (more on this effect below).

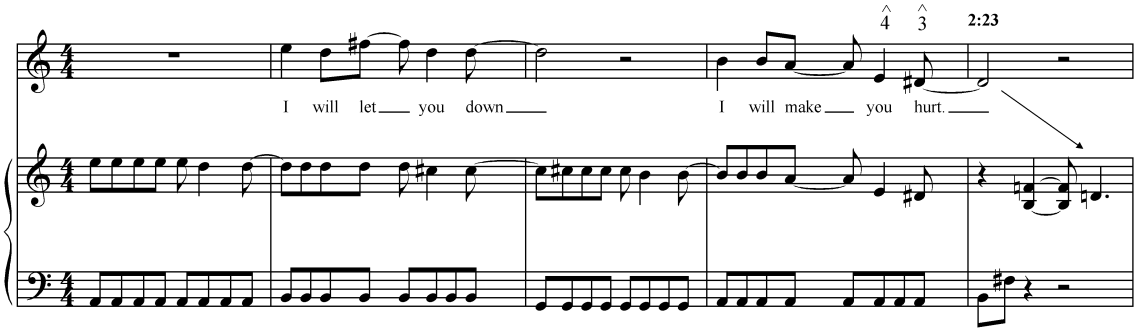
The instrumentation of the chorus also hints at a lost, more human world with the addition of the piano melody, shown in Ex. 3-17 above. In addition to adding human agency and giving the album's final appearance of the *downward spiral* motive as discussed in Section III above, the piano also solidifies the A-Mixolydian key area and provides the only C♯s of the entire track. Significantly these C♯s are the resolution of a $\hat{4}$-$\hat{3}$ motion in the motive, referring back to the G-F♯ $\hat{4}$-$\hat{3}$ motion in the pre-chorus. Indeed,

this melodic connection, reminiscent of a plagal 4-3 suspension, defines the soundworld of hopefulness that pervades these two sections until it is subverted at the end of the first chorus (see below).

Although the music tends to support human agency on the surface, there are several elements in the first chorus that foreshadow the mechanical rebirth in the second and the untenability of the fantasy world in general. First and foremost, the instrumental accompaniment no longer contains any variation from iteration to iteration. Even the piano, an echo of human agency, is shoved far back in the mix and presents the *downward spiral* motive in the least varied, most rhythmically-pulsing form of the entire album (see the earlier motivic discussion). Second, the pre-echo effect on the voice in the chorus exerts a powerful subconscious mechanical agency. Although the immediate aural effect of the pre-echo merely adds wistful ambience to the line, the fact that the echo *precedes* the source is profoundly unsettling. Whether consciously or not, we are aware that the human agent has been placed into an impossible place, an electronically-created environment. The effect is even more disconcerting since it's *close* to reality; we all can experience echo in everyday life, but we are always the instigators of the sound. Here it is disembodied—the machine knows all of the human agent's thoughts and saturates the environment with them even before the protagonist can proclaim them himself. Furthermore, the pre-echo is confined almost entirely to the left speaker, thus emanating from the omnipresent morass of mechanicity already discussed. The artificiality threatens to engulf the human voice even as it seems to be at the height of agency.

Finally, the lyrics, though sung with passion and directed toward a benevolent Other, seethe with self-loathing. “you could have it all / my empire of dirt” betrays the extreme contempt the narrator holds for his own life that even the Other can’t ameliorate. There may indeed be hope for some, but it is far too late for him—he can only cause further pain—“i will make you hurt.” Immediately upon this last realization, indeed, on the word “hurt,” the expansive sound world of the first chorus is summarily replaced by the verse. Thus, the A-Mixolydian modal world is relegated in its entirety to a large-scale ♭VII of reality’s B Aeolian, and the piano and voice are made unwitting participants in its demise. As the voice drops back into its original octave at the end of the chorus, it joins the piano in unison and presents a final $\hat{4}$-$\hat{3}$ resolution, but in this instance the resolution is E-D♯ over the final move into B.

Example 3-18 – End of First Chorus (2:10)

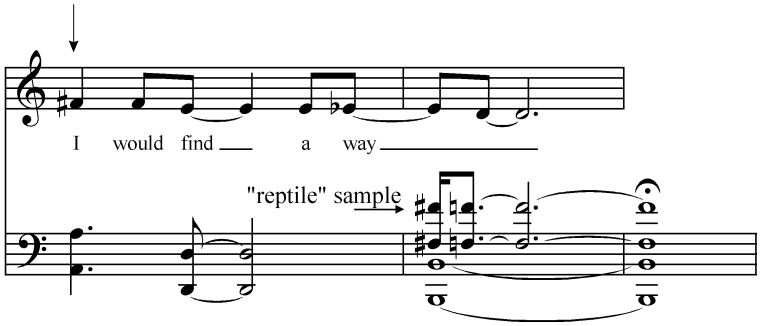


Hence even as the voice tries to capture the optimism of the chorus soundworld, it ushers in the return to the verse. D♯, of course, belongs to none of the three modes in the track, and this is its only occurrence. Not only does it destabilize the A-Mixolydian modality of the chorus with a tritone above the tonic, but also, more significantly, it completely contradicts what has been the inviolable D Major of the vocal line thus far. In the context of reality’s B-Aeolian modality, however, it is merely an aberrant major third—a last shred of hope—which is immediately “corrected” before the end of the first bar.

As this second verse continues, the track's first unambiguously mechanical element emerges in the background of the texture. At around 3:05, a heavily distorted guitar sound enters, playing strict B quarter notes (the tonic of the verse). The exceptionally fuzzy timbre of this particular distortion effect emphasizes its connection to the airy white noise that has been present in the left speaker since before the song began and which even now is invading the right speaker as well. This intrusion into the *musical* texture, though relegated far into the background of the mix, heralds the forthcoming distorted-guitar texture and the inexorably pulsing pattern of the final chorus.

This distorted interruption quickly fades back into nothing as the pre-chorus returns, but on the first beat of the chorus it slams into the foreground, this time pulsing the new tonic, A. Therefore, the mechanistic pounding has emphasized the tonic of both modes presented against the voice, while never giving tonal support to the already shaky D Major of the vocal line. The distortion is now the most prominent part of the texture, almost entirely drowning out the delicate piano motive and threatening to unhinge the rest of the music. Throughout this final chorus, more A octaves are added and the stereo spectrum is filled with them. The oppressive pounding continues into a final section, during which a final glimpse of the delicate sound world of the earlier sections briefly reemerges (for the line "a million miles away"), but the mechanical distortion immediately washes back into the foreground. The final lyrics of the entire album are "if i could start again / a million miles away / i would keep myself / i would find a way." It is appropriate that the brief ebb in mechanicity should coincide with the first half of this line, and it is positively devastating when the latter half is rendered nearly inaudible by an apocalyptic blast of raw, distorted guitar.

Example 3-19 – Final Bars of "hurt"



The three notes played during this massive death knell are A, D, and B; a quick progression from the soundworld of possibility, briefly touching on the world of humanity, and ending with a powerful minute-long long blast of the B of reality. This final alliance between the modality of reality and the seething power of electronic sound intones a solemn message: at the bottom of the spiral we discover that even *pure* humanity cannot prevail over the inexorable triumph of the mechanical.

At the same time as the final B, a highly mechanized synthesizer hit enters (actually a transposed sample from "reptile"), intoning a final statement of the F♯/F dichotomy that pervaded both "march of the pigs" and "hurt." This final connection between the two tracks highlights the fact that, though the mechanical processes in the two songs may be inverted, the outcome is the same, and this holds true for the entire album. *the downward spiral* dramatically demonstrates a collision between mechanicity and humanity even beyond that of the previous albums. All sense of human agency is repeatedly battered, subjugated, and assimilated by the relentless mechanical onslaught surrounding it. The thick layering and novel sound collages Reznor was able to create given the freedoms of a private studio and nearly limitless time restraints, blur the distinctions of noise and pitch with gangrenous distortion and often combine purely mechanical sound with instrumental sound to such an extent that they fuse into a single

entity. The decayed remnants of humanity seethe with the omnipresent mechanical corruption until the album returns to the hissing white noise and static of the void.

lose me
hate me
smash me
erase me
-“eraser,” track 11

Chapter 4 – Things Fall Apart

lick around divine debris
taste the wealth of hate in me
shedding skin succumb defeat
this machine is obsolete
-"Somewhat Damaged," Left CD - track 1

I – Background

After an unusually long gestation period, Nine Inch Nails finally released *The Fragile* in September of 1999, more than five years after *the downward spiral*.[1] It debuted at #1 on the *Billboard* top 10 and was generally very well-received critically, but it immediately fell off the chart in the second week and was ultimately something of a commercial disappointment.[2] Instrumentally, Reznor largely returned to guitar for this album, in addition to many other string instruments (including ukulele and others largely unfamiliar to him). *The Fragile* is long, spanning two discs and 1 hour and 44 minutes of music, and covers a far more varied collection of genre styles and sonic textures.

Reznor has said: "I knew this record was going to be about systems failing, about things falling apart," and this is certainly borne out across the course of the album.[3] However, the labeling of the two discs as "Left" and "Right"—instead of something implying order such as 1 and 2 or A and B—invites an interpretation of them as alternate narratives; dealing with the same themes but arriving at different conclusions. In the Left disc, human connection seems to perform a saving or at least consoling role for the

---

[1] *The Fragile* is Halo 14 in Reznor's numbering. Halos 13-17 are all specifically related to *The Fragile*. Halo 16 is a remix album similar in its relationship to the main album as *fixed* is to *broken* and *further down the spiral* is to *the downward spiral*. It is entitled *things falling apart* and includes several outtakes from the *Fragile* sessions.
[2] Such statements are of course highly relative. In January 2000, the RIAA gave double platinum certification to the album. Although some negative criticism certainly exists, the 1999 review in *Spin* and its subsequent ranking as the same magazine's 1999 Album of the Year are representative.
[3] Pecorelli, p. 76.

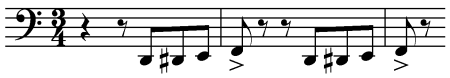
narrator, while on the Right it seems to be a willing collaborator, or even instigator of the narrator's destruction. This distinction is anything but clear, and the tension between *The Fragile* as a single expressive act or two parallel structures will be returned to in the following investigation.

I will begin with an examination of the unique soundworld of the album, followed by a detailed analysis of its motivic structure. I will conclude with close readings of the two intimately related tracks that are the final non-instrumental songs on each disc, and which function in many ways as divergent explorations of the same basic theme.

II – Mere Anarchy: Fragility and Mutability

The first sound on *The Fragile* is an acoustic guitar, the instrument second only to the piano in Reznor's music in its humanistic overtones. Initially, it is surrounded by void, sounding a 4-note motive that is exceptionally simple, yet, both rhythmically and motivically, holds the germ from which the soundworld of the entire album will spawn. The emphasis on every fourth eighth-note and the almost clichéd climb to tonic—a chromatic variation of *sol-la-ti-do*, really—leads the listener to hear the line as transcribed in Ex. 4-1.

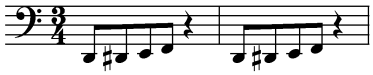
Example 4-1 – Perceived opening acoustic guitar pattern, "Somewhat Damaged" (0:00)



The initial drum entrance at 0:21 begins to disrupt this metric clarity, especially since it continually shifts its length and the metric placement of its first note. Additionally, a soft plucked string sound in the right speaker that had been rhythmically aligned with the guitar, shifts a beat and a half later so that it begins with the guitar's last note and ends

with the first. The listener's sense of meter is probably still aligned with the example above, but just barely. When a quantized, mechanical synth pulsation appears in the bass at 0:49, and, especially, once the song proper begins with an unambiguous drum pattern at 0:59, the initial metric perception is revealed to be entirely wrong. Though the guitar would still sound like Ex. 4-1 in isolation, the mechanically enforced meter of the actual song is as shown in the following example:

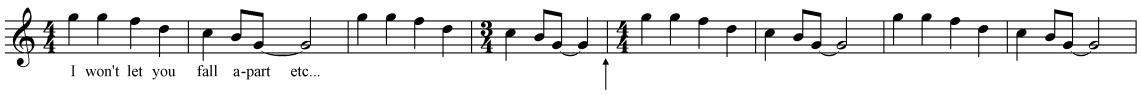
Example 4-2 – Shifted metric status of initial riff, "Somewhat Damaged" (0:59)[4]



The shift is more profound than a simple rhythmic slide. The implied tonic of the guitar line was F, but the new downbeat and the synth pedal tones enforce D as tonic, a function it will hold throughout the track. This isn't a shift as much as an outright break; the listener is made to viserally apprehend the fragile, disjointed nature of the soundscape. When the riff returns in distorted form at 2:06, the first note is initially left off, as if the guitar is briefly attempting to resurrect the original metric feel before falling back in line.

There are similar moments of metric fracture later in the album. For instance, the first chorus of "The Fragile" inexplicably omits a beat between the second and third phrase:

Example 4-3 – First Chorus, "The Fragile" (0:57)



The lost moment never recurs in any subsequent choruses, it is simply an enigmatic crack in the metric surface. Later, on the instrumental "La Mer," a placid piano line in 3/4 is suddenly besieged by a strong drum pattern in an unconditional 4/4. The two meters

[4] This is an example of what Mark Butler calls "turning the beat around." For more discussion see the passage beginning on p. 141 of *Unlocking the Groove*.

simply coexist; neither seems to be affected by the other.[5] Later still, on the final track of the album, there are some moments which defy metric categorization entirely, one of which will be discussed later.

These moments of metric fragility are echoed audibly in the many effects, synth patches and filters that are used to make instruments and vocals sound discontinuous or delicate, and together they shape the sonic signature of the album. To be sure, the soundworld of *The Fragile* also often alternates between or combines the icy sounds of *pretty hate machine*, the fiery anger of *broken*, and the decaying quality of *the downward spiral*. However, it is these new sounds that evince an aura of fracture and disintegration, which, though related to the sounds of decay featured in the previous album, are entirely without the incumbent organic overtones. An important example of such sounds is the rampant use of extreme digital distortion such as that used on the guitar solo in "The Wretched" at 3:10, the opening riff of "Pilgrimage," the 3:28 guitar solo of "The Mark Has Been Made," and the inciting sonic event of "The Big Come Down."[6] These are only a few of the many digitally distorted sounds, which contrast with traditionally distorted sounds in that the tops and bottoms of the waveform are sliced off entirely instead of being mildly flattened.[7] This can very quickly approach the harshness of a

---

[5] This kind of metric superimposition creates what Krebs calls "metrical dissonance" (Krebs, 1999). In this case, the metrical ratio is three against four (or what Krebs classifies as G4/3, 𝅗𝅥=1) which means that the downbeats line up every four 3/4 measures or every three 4/4 measures. The initial drum entrance at 1:21 is a full 4/4 measure plus an anacrusis prior to such a downbeat alignment, further heightening the sense of disconnect. For a discussion of similar, though more complex, metrical dissonance in a metal context, see Pieslak, pp. 220-223.

[6] These should not be confused with just any "digital distortion" effect, of which many if not most are simply attempts to replicate traditional or semi-traditional analog distortions.

[7] So-called "bitcrusher" effects are quite similar except that sharp corners are added to the waveform through a drastic lowering of the sampling frequency and/or bit-depth rather than a cutting off of out-of-limits data. Both effects are used on *The Fragile*, and are unique to digital recording and mixing methods.

pure square wave, and is a deeply mechanistic effect that can substantially break down the pitch definition and timbral stamp of a sound.

There are many equally significant moments of digital micro-manipulation of sound that are created more idiosyncratically and are more directly discontinuous in their effect. One of the most striking is the vocal treatment during the verses of "Starfuckers, Inc." The glitchy effect was likely created by harshly cobbling together multiple disparate takes of the vocal line, and allowing several microsecond edits to get "stuck," creating a rigid and unnatural stutter before some words. Even more unsettling are the moments when this stuttering somehow happens in the middle or at the end of words, such as can be heard at the end of the line "My god comes in a wrapper of cellophane" during the first verse. The mechanization of humanity that results from this process is obvious, but it also serves to remind the listener of the artificiality of the constructed compositional process itself. The vast majority of vocal and performed instrumental moments on studio records *are* patchworks of multiple takes, albeit often with the aim of creating an idealized perfect performance rather than the deranged disorder heard here.

Similar digital manipulation pervades the album. At 1:52 in "Complication," the entire song stutters like the "Starfuckers, Inc." vocals, in a sudden, clumsy transition into an unrelated texture. Another song stutter, much fainter, occurs at 2:33 on "We're In This Together"—a sonic detail that probably remains unnoticed for the first several listenings. An earlier instance occurs at the end of the rising melody beginning at 2:15 during "The Wretched," and it more or less negates the ambiguous sentiment of the lyrics:

> and in the end
> we still pretend

> the time we spend
> not knowing when
> you're finally free
> and you could be

The passionate vocal builds to a climactic high note, only to be digitally dissolved on the word "be." These discontinuities come to a head at the end of the album with the stunningly mangled conclusion of "Underneath It All"—to be discussed in detail below—which serves to break the album entirely; the final instrumental track functions more as an ambivalent contemplation of the wreckage than a proper conclusion.

These overt mechanizations are complemented by more ambiguous dehumanizing choices. The profusion of instrumentals on *The Fragile*, about 30% of the tracks, is unique up to this point in the Nine Inch Nails catalog.[8] The resulting decreased presence of Reznor's vocals is dehumanizing enough, but the use of non-verbal human sounds in these instrumentals effectively converts humanity into a mere addition to the sonic palette rather than an individual, embattled agency. Note in particular the dense and almost impossibly long vocal texture at 2:10 in "Just Like You Imagined," which builds in volume to the point of digitally distorted fracture. In the same song, the human proxy of the piano, heretofore emblematic of genuine human emotion, is subverted in a brilliantly unhinged performance by Bowie-collaborator Mike Garson. This largely atonal, spiky solo style returns at 2:27 in "Ripe (with Decay)," and in both cases seems largely disconnected from the proceedings. Particularly in light of the previous albums, the piano's stylistic shift to disjointed virtuosity is devastating.

All of the effects discussed so far help create a more machine-like soundscape, but the record itself actually has many elements, including electronic ones, that are made

[8] And remains so to date with the exception of 2006's *Ghosts I-IV* (Halo 26), a two-disc collection composed entirely of brief instrumentals.

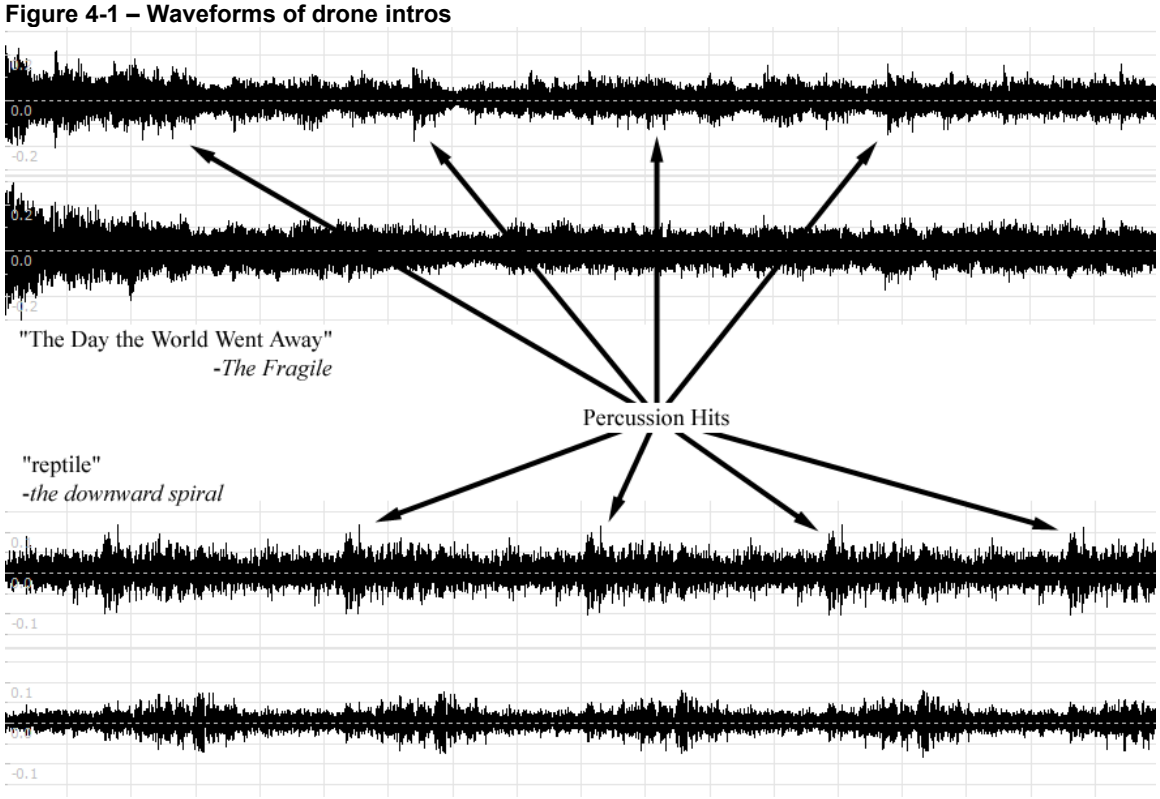
to sound more organic than any on previous records. This sense is often created by instilling a degree of mutability either in the sounds themselves or in the structures holding them together. When asked about his creative latitude during the recording of *The Fragile*, programmer and sound designer Keith Hillebrandt said:

> As far as the more tonal things, like drones and samples that you could transpose and actually play melodically, Trent kind of gave me an idea of things he was interested in hearing. Things that would complement the ideas that he was coming up with. He was really interested in sounds that evolved, that sounded more alive. Not just simple two-second loops. Things that were ten to 20 seconds long that had a development stage. He was looking for things that had a kind of organic nature in and of themselves, so he could drop them into tracks or use them as segues between pieces. He wanted things that would create an evolving feel, as opposed to an obvious three-second loop.[9]

An excellent illustration of the difference between these "evolving drones" (as Hillebrandt calls them) and the more mechanical drones of earlier albums can be seen in Fig. 4-1. It shows the waveform of the first 18 seconds of "The Day the World Went Away," from this album, and "reptile," from *the downward spiral*—both of which are drones that include some regular percussive hits.

[9]Rule, p. 40.

Figure 4-1 – Waveforms of drone intros



The regular looping of the *downward spiral* excerpt is immediately evident, and contrasts sharply with the variability of the *Fragile* excerpt. In the latter, not only is the nature of the drone surrounding each drum hit different, but the hits themselves are substantially altered in each instance. A related example is also illustrative: the synthesizer ostinato throughout *pretty hate machine*'s "ringfinger" (discussed in Chapter 2) can be compared to the one throughout "Complication." Whereas the former is cold and static, the latter is alive with timbral variation, created by filters with dynamically shifting cutoff frequencies and resonance settings.[10] The effect of these constant variations and evolving

[10] This is undoubtedly also behind many of the evolving drones, and, for that matter, most sounds on the album. The effect of a cutoff frequency shift varies between filter types (e.g. hipass, lopass, bandpass, etc.) but generally creates a sense of vertical movement within the spectrum of a sound. The resonance settings (sometimes called Q settings) affect the sharpness of the filter around the cutoff frequency, and with especially dramatic values can essentially allow filters to produce their own pitches. In this way, not only are the dynamic filters on *The Fragile* enlivening, but they themselves can sometimes come alive as semi-independent entities.

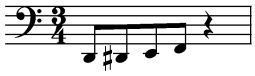
drones is not necessarily humanizing; in fact it often simply gives the impression of enhanced mechanical agency, evolving even as humans devolve.

Perhaps the most important example of mutability and progression in the album is the organicist use of motivic deconstruction and modulation throughout the record—a topic which deserves its own section.

III – Vexed to Nightmare: Motivic Evolution

Just as the opening acoustic guitar line introduced the idea of fragility both timbrally and metrically, so too does it mark the introduction of the motivic *idée fixe* of *The Fragile*, and hence, as we shall see, the idea of mutability.

Example 4-4 – Initial Motive, "Somewhat Damaged" (0:00)

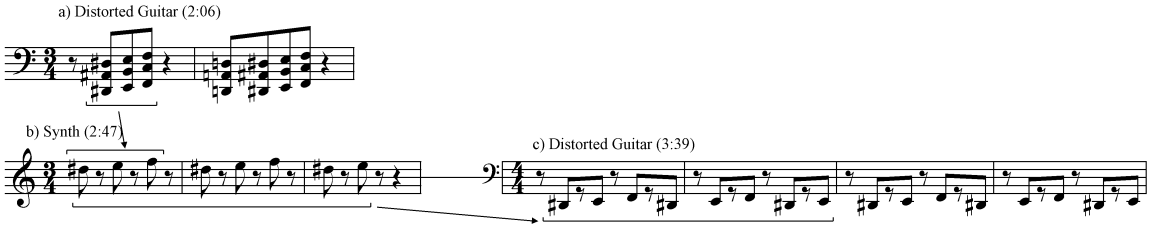


This upward chromatic line rising a minor third is the seed, in some form, of virtually every riff, motive and melody on the album. This is the very definition of organicism—a term with obvious resonances in the present study—and the story of the evolution of this motive forms a primary narrative of *The Fragile* as a whole. A full chronological accounting of this evolution is beyond the scope of this discussion, but a detailed look at the first several tracks is instructive.

The first variant of the motive consists of a simple doubling at the fifth when the first section material returns in distorted power chords at 2:06. As discussed earlier, the reentrance omits the very first note. The fractured metric implications of this deletion are joined by motivic implications in that this 3-note truncated form of the motive propagates

into an independent textural position in a synth line at 2:47 and, later in the guitar, at 3:39:

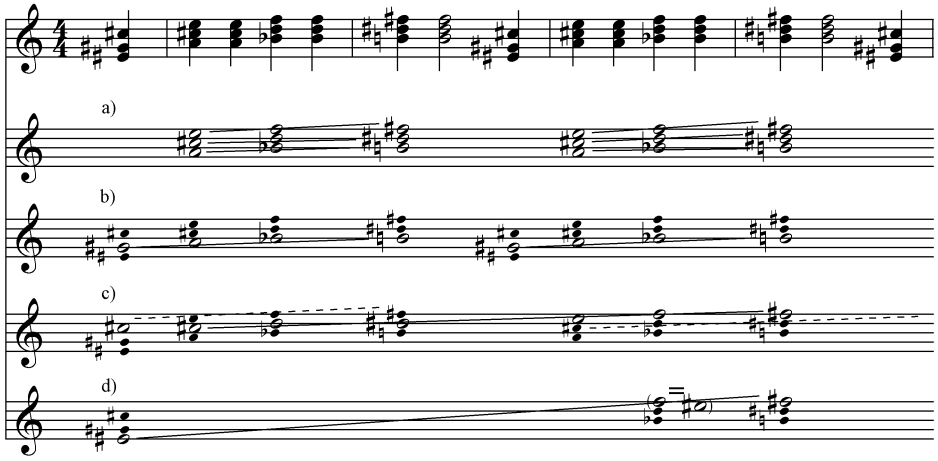
Example 4-5 – 3-note Motive Propagation, "Somewhat Damaged"



The re-infection of the original instrumental timbre by this truncated variant sheds light on another metric instability that complements the one discussed above. The synthesizer line shown in Ex. 4-5b cuts short on the third beat of every third measure, and we are made to feel this absence viscerally in its first occurrence when a rare moment of absolute silence coincides with the breach. It is only when the line returns after the shift to 4/4 (shown in Ex. 4-5c) that we hear it in its proper metric milieu without elision, but there is now a tension between it and the barline. Thus we see that metric instability evolves across the course of the song along with the motive, although instability itself—fragility—is ineradicable.

The next track, "The Day the World Went Away," contains a number of melodic and motivic ideas whose significance will only become clear in retrospect, but one of the most exposed elements, again on acoustic guitar, showcases another mutation of the rising chromatic line. The part can first be heard in the background at 1:52, but it is easiest heard when it is played in isolation from 2:22-2:52:

Example 4-6 – Acoustic Guitar Interlude, "The Day the World Went Away" (2:22)[11]



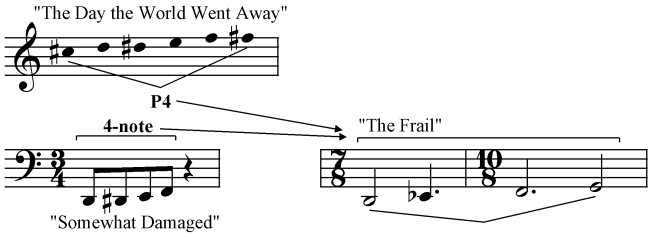
In addition to the obvious, stacked statements of the 3-note motive in the chromatic chord progression A-B♭-B♮ (see Ex. 4-6a), the inversion of the pickup C♯ triad allows an unbroken 4-note chromatic statement from G♯ to B (Ex. 4-6b). This hearing is emphasized either by the performance or the mixing. As the line repeats several times, the gradual deceleration and obvious strumming remind us of the human performance behind it, but the repetition also births a subtle overlapping motivic loop continually spiraling up from the inner voice to the upper voice. This line, illustrated in Ex. 4-6c, is C♯-D-D♯-E-F-F♯, and is the first indication that the motive can expand as well as contract. Once again, the inversion of the anacrusis chord helps bring this line out. The top note is C♯, a common tone with the subsequent A chord, which emphasizes the inner voice while simultaneously clearing the registral space for the bridge into the upper voice. Finally, the inversion makes E♯ (or F) the lowest note in the passage, a compound half-step below the highest note, F♯ (Ex. 4-6d).

The intervallic scope of the Ex. 4-6c variant is a perfect fourth, and this has larger organic repercussions in the next track, an instrumental entitled "The Frail." The bass

[11] This line is transcribed according to its own metric implications, which differs slightly from the track as a whole.

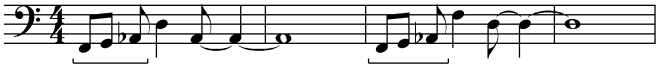
line throughout the track (shown in Ex. 4-7) spans this range, but has only four notes; a quality it shares—in addition to its initial pitches—with the original seed in "Somewhat Damaged." The fast chromatic line has become slow and diatonic.

Example 4-7 – Derivation of "The Frail" bass line



This variant, especially in the 3-note form discussed next, will be particularly prolific throughout the remainder of the album. Once again, an important new mutation is presented by a "human" instrument, this time the all-important piano. As we will see, the piano will introduce two even more significant motivic developments later. For now, it continues as a bassline, slightly varied, in "The Wretched."

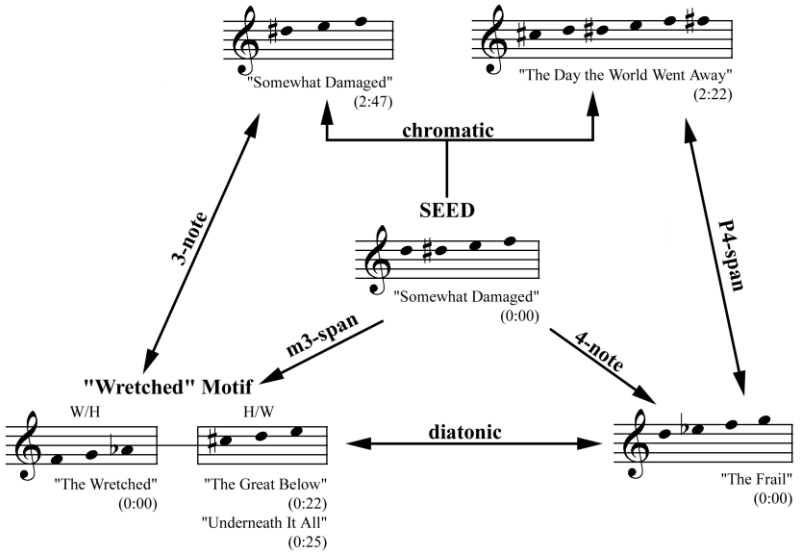
Example 4-8 – "The Wretched" bass line (0:13)



I will refer to the bracketed motif in the example as the "wretched variant," which recurs throughout *The Fragile* in both whole-step/half-step and half-step/whole-step forms.[12] It could be interpreted as a diatonic variant of the 3-note chromatic incarnation discussed above, but its intervallic expanse of a minor third and its rhythmic profile stem from the initial seed motive. Notably, these are exactly the characteristics removed from the seed in creating the bass line of the preceding track. This type of complex interrelationship between motives is summarized in the following diagram:

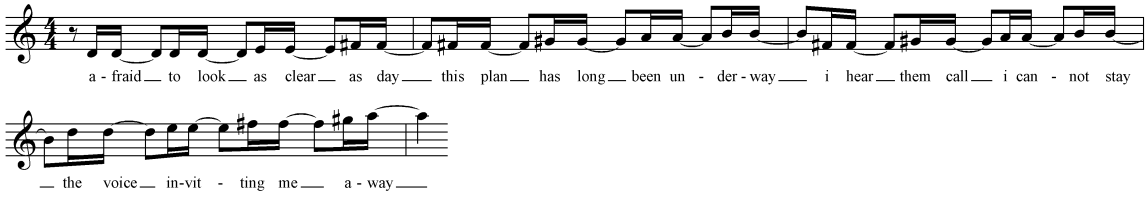
[12] It will be particularly significant in the discussion of "The Great Below" and "Underneath It All," the tracks which are the final non-instrumentals of their respective discs and are the subjects of the close readings in Part IV.

Figure 4-2 – Motivic web derived from seed



Later in "The Wretched," the human agent finally directly interacts with the motivic development. First, a brief excerpt of a vocal melody emerges at 0:42 presenting the H/W wretched variant. This passage returns in extended form at 2:16, but is again frustrated before reaching culmination (this is the moment of digital dissolve discussed earlier). It isn't until several tracks later, at 2:10 during "Even Deeper," that this melody, expanded even further, finally reaches a proper conclusion in a passage that is one of the most powerful on the album:

Example 4-9 – Rising Motive Apotheosis, "Even Deeper" (2:10)



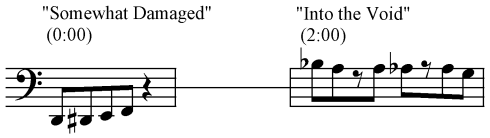
The only half-step in the passage is between G♯ and A in the middle and at the end. The preponderance of whole steps makes any natural segmentation of this line a new variant of the motive, but this seems beside the point. The seed has morphed and expanded to a

place where *direction itself* has become motive, and this entire melody functions as a massive two-and-a-half octave expansion of the rising motif.

Just a little later in "Even Deeper," a background vocal line begins, and it is characterized by a sharply falling profile (see Ex. 4-11g below). For that matter, the abortive attempts at this melody earlier in "The Wretched" were accompanied by falling guitar motives as well (Exx. 4-11b and c respectively). In fact, an entire family of downward motives, similar in interconnectedness to the upward family already discussed, begins emerging about halfway through the Left disc and will come to dominate the musical fabric by the middle of the Right, eclipsing the upward motives entirely. Indeed, the previously discussed rising vocal line is the last grand statement of upward motion, and rising motivic variants will cease to be anything other than transient or compromised elements after the synthesized brass line in "Pilgrimage," the following track.

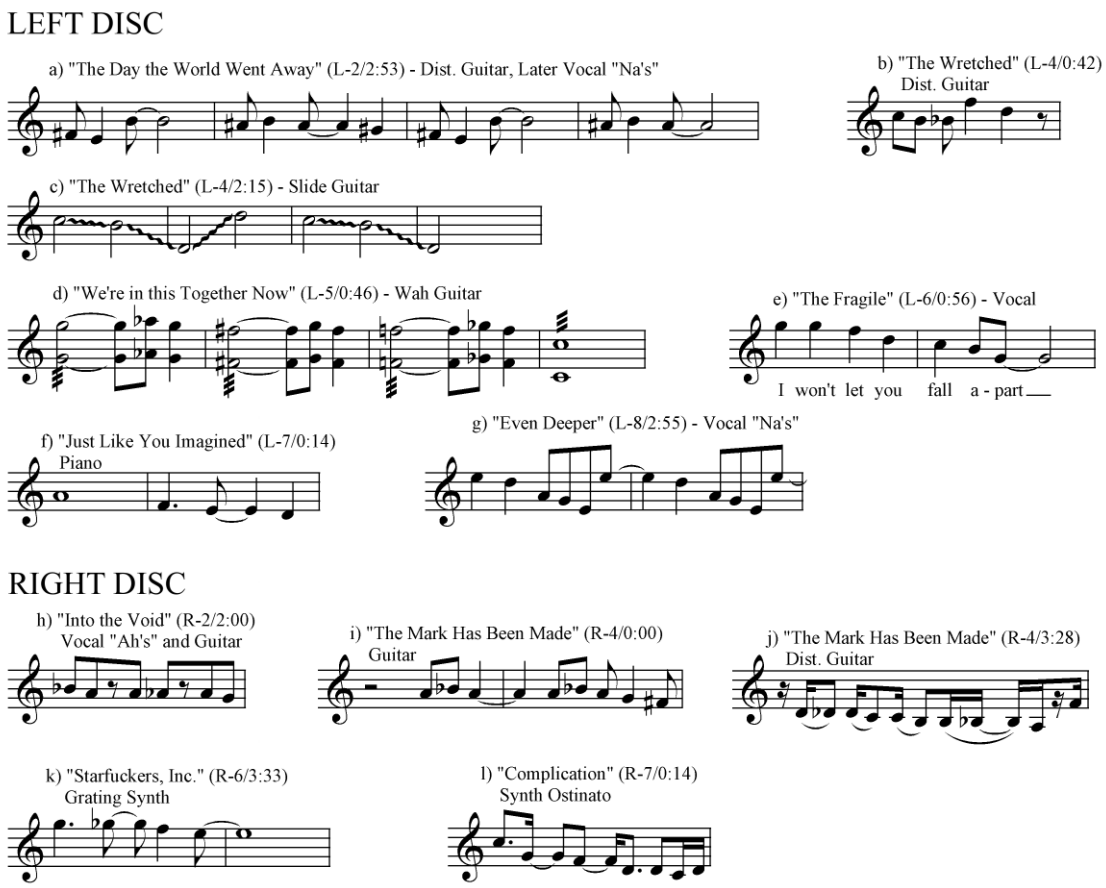
To some extent, the evolution of the falling mutation proceeds, appropriately, in a manner largely opposite that of the earlier motive—vaguely directional phrases coalesce and contract until reaching a compact, chromatic 4-note form in the second track of the Right disc. This instance in "Into the Void" is an exact intervallic retrograde or inversion of the original seed motive:

Example 4-10 – Seed motive and its inversional mutation



Ex. 4-11 chronologically summarizes some of the most important instantiations of the falling species.

Example 4-11 – Significant downward motives on *The Fragile*[13]

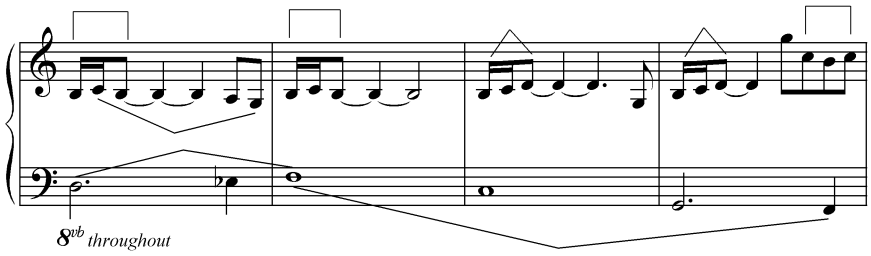


The apparent profusion of downward motives on the Left disc is misleading. Other than Exx. 4-11a and e, these passages are either relatively brief, obscure, or both. Even with Ex. 4-11a, the downward portion is obscured by the length of the A♯-B neighboring motion and the phrase repeat in the middle of the downward gesture. The examples on the Right disc are largely either prominent, lengthy, or both. In particular, note that Exx. 4-11h and k are retrogrades of the seed motive. Ex. 4-11l, from "Complication," is a particularly striking ostinato that forms the backbone of a track that is as much *about* downward motion as the melody in Ex. 4-9 above was about upward motion.

[13] As always, all transcriptions are mine, but I was aided in the "We're In This Together" transcription by Aledort and Brown, pp. 142-146.

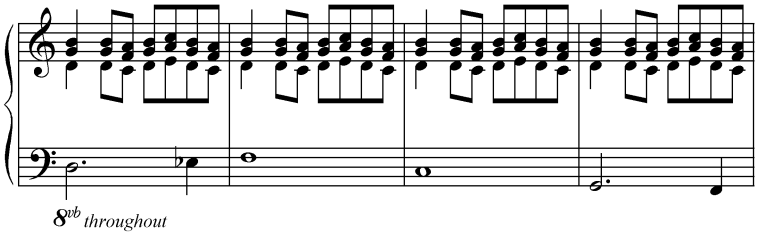
The "Complication" downward motive is prefigured much earlier on the album, in the fifth track of the Left disc, entitled "We're In This Together." This track performs an important transitional role in the evolution of the seed motive from rising to falling; primarily, yet again, in a piano passage near the end of the song.

Example 4-12 – Piano solo, "We're In This Together" (5:49)



Several motivic variants coexist in this 4-bar phrase—the upward and downward variants are marked with angle brackets which point in the appropriate direction. The downward motive in the bass is an exact transposition of the "Complication" line, while the other falling line and all of the rising lines are members or inversions of the 3- and 4-note wretched variants. Any proper evolutionary path needs transitional forms, and the square brackets in Ex. 4-12 highlight some of the earliest neighboring figures that fill this role. Their motivic status is confirmed in the next part of the piano solo, wherein the B-C-B upper neighbor is linked with a B-A-B lower neighbor and three diatonic triads simply oscillate up and down:

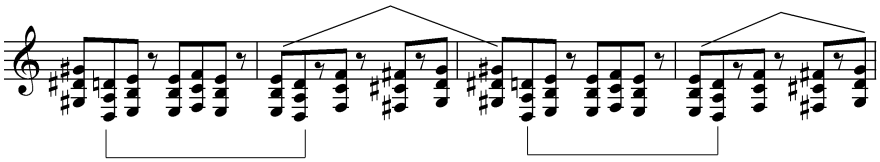
Example 4-13 – Neighbor Motive, "We're In This Together" (6:28, downstems added 6:46)



This motive is particularly important later on the Left disc, in "La Mer," and early on the Right disc in the passages of "Into the Void" that are re-orchestrations of "La

Mer." Just as the original motive and its inversion came to instantiate upward and downward motion, this motive instantiates the only remaining option, stasis, which aptly characterizes the pedal point drones common to many tracks on the Right disc. The neighbor family of motives is as copious on *The Fragile* as that of the rising and falling variants, but, appropriately, is nowhere near as diverse. They occur most commonly as isolated neighbor figures like in the beginning of the "We're in This Together" piano solo or Exx. 4-11a, d, i and l above. They are also inherent in the numerous emphasized pitch bends throughout the album. One other particularly significant instance of this motivic variant can be heard in the main riff of "No, You Don't" (see Ex. 4-14), a track near the end of the Left disc.

Example 4-14 – "No, You Don't" Main Riff (0:31)



The riff is characterized by upper and lower neighbors around E, but also contains an important instance of the initial rising seed motive. However, at the end of the track, the line is savagely cut-off right before the upward part of the phrase, leaving only the neighboring components. At the same time, extreme digital distortion is added such that pitch definition practically disintegrates, imposing another level of stasis. This abrupt motivic amputation heralds the fact that neighboring figures and static lines will dominate the join between the Left and Right discs, mediating between the dwindling upward lines and the emerging downward ones.

However, the motivic evolution is not nearly as straightforward as this implies. Fig. 4-3 summarizes the directions of primary motivic elements and the important transient elements of the album.

Figure 4-3 – *The Fragile* Motivic Map

Transient Elements	↑	↑~↓	↓	↑↓	↑~↓	↓↑	↑~↓	↓	~↓	↑	↑	↑↓	~	↑	↑	~	↑↓	~↓	~↓	↓	↓	↑~↓	↑~↓
Primary Elements	↑	~	↑	↑	↑	↑↓	↑	~↑	↑↓	~	~	~	~	~↓	~↓	↓	~	~↓	↓	~	~	~	~
Track #	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11
Disc	**Left**												**Right**										

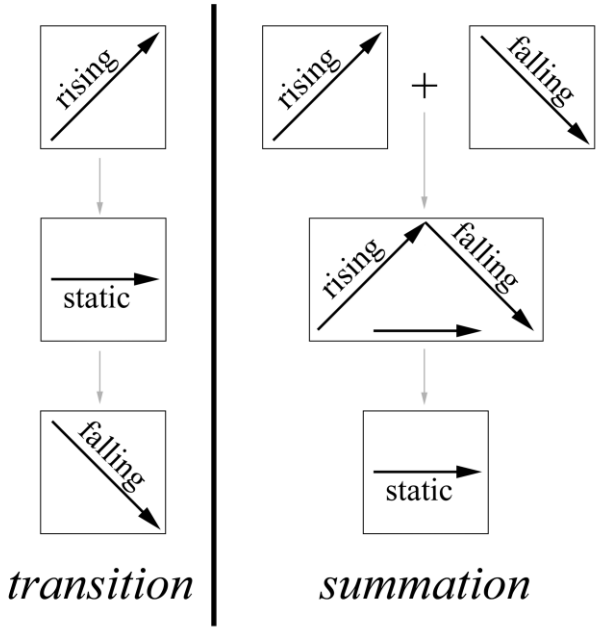
↑ = rising motives
↓ = falling motives
~ = neighboring or simply static motives

Of course, this map is extremely generalized and, necessarily, somewhat subjective, and a number of interesting details are omitted. For instance, "The Fragile," track 6 on the Left disc, is marked with primary elements ↑↓ and transient elements ↓↑ in an attempt to indicate the fact that the vocal line of the verses has many significant upward motives while the bass line moves downward and that the song's choruses reverse this relationship. This foreshadows similar, more significant, directional cancellations that will be discussed below, and it could be argued that it should be labeled ~.

Some distinctions could certainly be debated, but the overall course of the evolution is clear, and it sheds little light on, in fact deepens, the question of *The Fragile* as either a single narrative spanning two discs or dual single-disc narratives running in parallel. The continuous narrative hypothesis is supported by the general trends already discussed, where the neighboring motive functions as a transition between discs and hence between directions. However, the return to static primacy at the end of the album subverts an expected final dominance of falling motion, which essentially peaks too early, on "Complication." Though this preponderance of stasis at the end of both discs complicates the single narrative, it supports a reading of two narratives. In this

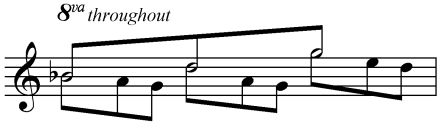
interpretation, the motivic arc of both discs is from a directional seed motive (upward at track 1, 0:00 on the Left; downward at track 2, 2:00 on the Right) expanding and mutating while conflicting with its retrograde and finally collapsing into stasis. In essence, the tension lies between two different organic interpretations of the role of equilibrium illustrated in Fig. 4-4: transition or summation.

Figure 4-4 – Competing evolutionary interpretations



The conjunction of two mildly conflicting narrations has a motivic counterpoint in the numerous imbrications of one motivic type within another. For instance, the already discussed "Complication" motive (Ex. 4-11l) has an (un-notated) rapid upward portamento before every note of the downward line. The opposite overlap occurs at the very end of the exotic piano solo in "Ripe (with Decay)" near the end of the album:

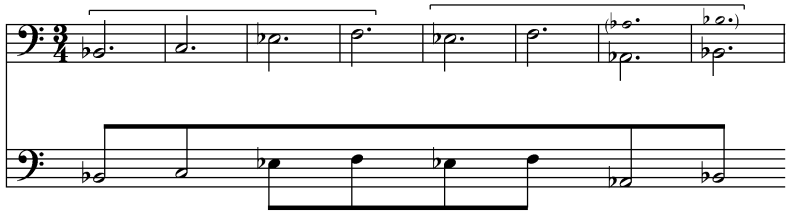
Example 4-15 – Embedded motives during last second of "Ripe (with Decay)" piano solo (2:57)



Similar embedding justifies the otherwise perhaps controversial description in Fig. 4-3 above of "La Mer," "The Great Below" and "Underneath It All" as primarily static. I will now turn to a brief discussion of this by way of transition into the subsequent close readings.

The main bass line of "La Mer" is transcribed and schematized in Ex. 4-16.

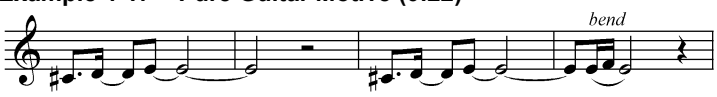
Example 4-16 – "La Mer" bass line and imbrications (0:00)



The top line transcription reveals a perfect-fifth-spanning upward motive and its sequential restatement a perfect fourth higher. The choice of a P4 transposition creates a neighbor motive between E♭ and F which bridges the initial statement and its answer (shown with downstems on the bottom line). Additionally, the minor third leap between C and E♭ in the first upward motive implies a similar continuation between F and A♭ in the answer (indicated by the small parenthetical notes). Instead, A♭ and B♭ occur an octave lower, thus emphasizing a double-neighbor figure in the first and last notes of the line (illustrated with upstems in the schematic). The rising motion on the surface is profoundly undercut by this overriding stasis.

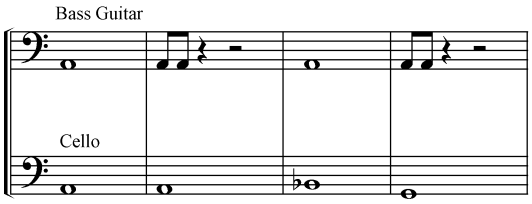
A similar situation exists in the next track, "The Great Below." An important phrase in the song is illustrated in Ex. 4-17:

Example 4-17 – Pure Guitar Motive (0:22)



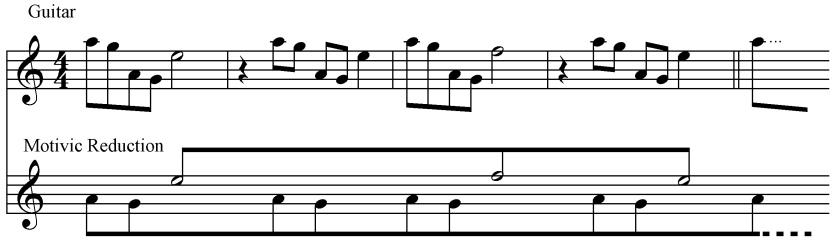
This is a clear-cut instance of the wretched motif, but the guitar has a subtle half-step pitch bend at the end of each phrase that introduces a brief upper neighbor motive. With the *double* neighbor motive (A-B♭-G-A, shown in Ex. 4-18 below) of the coinciding bass line, it is clear that the overriding stasis of "La Mer" still holds sway. This generalized stasis is made literal during the final section of the song (3:09), when this bass line returns (now played by cello).[14] In addition to the original double-neighbor bass motif, there is a bass guitar intoning A every measure:

Example 4-18 – New Bass Complex (3:09)



A new guitar part also enters the texture at this point (see Ex. 4-19), and while it's outwardly more active and wide-ranging, it ultimately exhibits an even more fundamentally static profile than its earlier counterpart.[15] It is at root just two elaborately interlocking neighbor motives: one that is open-ended across the 4-bar phrase divisions (A-G-A-G-A-…) and one that is closed (E-F-E).

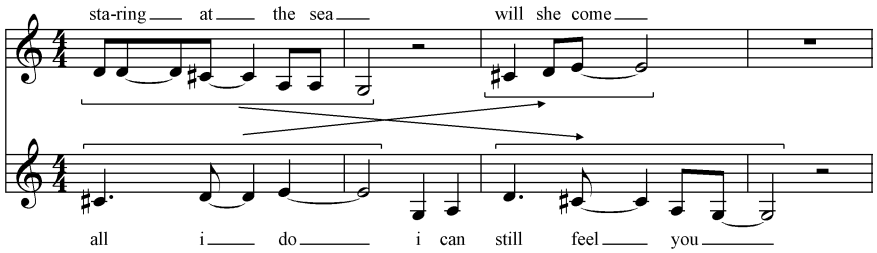
Example 4-19 – Concluding Guitar Line and Motivic Reduction (3:09)



[14] It is worth noting that the natural cello timbre contrasts sharply with the harshly degraded treatment of the violin earlier in the song, which will be discussed in Close Reading #4-1.
[15] It is tangential, but intriguing, to compare this calm guitar line, which is played by Adrian Belew, with the sonic chaos made out of Belew's guitar work on *the downward spiral*.

The main vocal melodies at the beginning of the final non-instrumental tracks of each disc—"The Great Below" and "Underneath It All"—are shared with their antecedent and consequent switched.

Example 4-20 – Initial vocal melodies, "The Great Below" and "Underneath It All"



At the end of the Left disc, the voice falls, then rises; at the end of the Right the voice rises then falls. In both tracks, the direction of the consequent's motive partially cancels out the direction of that of the antecedent, but we can now see that in a more abstract sense this internal cancelling is matched by a large scale contradiction between these similarly placed songs. Of course, this is far from the only parallel between "The Great Below" and "Underneath It All." As we shall see, virtually everything about these two tracks mirrors and contradicts one another.

As if to summarize this discussion of directional motivic evolution, there is a powerful visual metaphor on the live performance of "The Great Below" recorded on the *And All That Could Have Been* DVD.[16] During the buildup to the climax of the song, the video playing behind Reznor—shot by video artist Bill Viola—switches to a slow-motion capture of a diving man. The camera remains locked on the person, however, such that his falling appears to be static, frozen in a dark void.[17] Then, at the moment of the song's climax, a water line suddenly appears above the man's feet and we realize that the video

[16] Halo 17.
[17] Viola's commentary on the DVD discusses the extreme difficulty of the camera work and the set preparation necessary to create this sense of stasis.

is actually upside-down, the image has been an illustration of ascension all along. This brief video perfectly encapsulates all the motions, ambiguities, illusions and contradictions of *The Fragile*'s complex motivic substrate.

IV – The Falcon and the Falconer: Close Readings

The following analysis explores "The Great Below," the final track of the first, or Left, disc, and "Underneath It All," its counterpart (barring an instrumental coda) on the Right disc. Similarities between these tracks have already been discussed, but the analysis will reveal important divergences and deeper parallels.

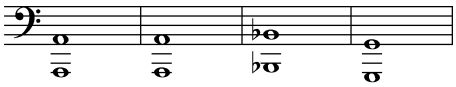
Close Reading #4-1 – The Widening Gyre – Left CD, track 12, "The Great Below"

"The Great Below" is both the climax and the liquefaction of *The Fragile*'s Left disc. In both arc and tone, it is similar to "hurt" from *the downward spiral*, but the sonic atmosphere is generally more tense, and the conclusion is somewhat more hopeful. In fact, both songs conclude with the erasure of the human agent, but the imagery in "The Great Below" is of the narrator slipping away into deep water as opposed to the violent effacement at the end of "hurt." Although both obviously have dark undertones, the nature of this track's presentation is acquiescent, and, as we shall see, subtly defiant.

The distinctive spatialization in this track is sculpted so that most of the primary musical elements are stacked in the center, almost in the manner of a mono recording, while various ambient sounds and effects occupy the edges of the stereo field. As the track builds toward its conclusion, more and more foreground elements will come unmoored from the central pillar and shift dynamically from left to right. The first sound

of "The Great Below" is a drone carried over from the preceding track that will persist throughout most of the song. The sound is in both speakers—framing the sonic space—with different dynamic filters on each copy evoking a haze in the environment. Almost immediately, the center is filled with the bass line shown in Ex. 4-21:

Example 4-21 – Bass Line (0:02)

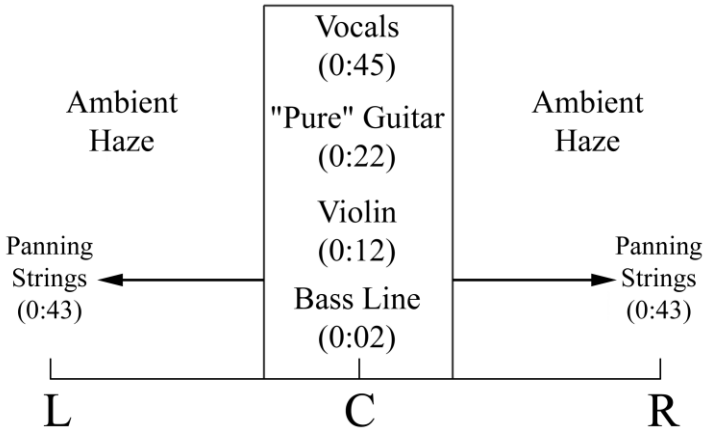


Though the timbre is clearly synthesized, the patch has an attack envelope reminiscent of bowed string instruments. This allows it to blend somewhat when, on the next four-note iteration, a violin joins an octave higher. The new line melds timbrally into the center space and would alleviate the synthesized artificiality, but the violin has a rough aural discontinuity that gives it a scabrous, insectile quality. This is another example of this album's digital micro-manipulation and sonic fragility already discussed, and it gives the line a decaying quality suggesting that the sound could rot to pieces at any time. It's a sound that wouldn't have been out of place on *the downward spiral*.

The unnaturalness of these components makes the purity of the acoustic guitar at 0:22 (discussed earlier in Ex. 4-17) all the more striking. Indeed, this is one of the most delicate and humane instrumental sounds on the album, and its presence in the center lends stability to the instrumental column and prepares the texture for the vocal entrance at 0:45. A new instrumental part is introduced simultaneously with the vocals, and it is the first active sonic component which isn't centrally located. This synthesized string patch uses a number of differently timed delays to generate a composite rhythm that bounces between the left and right side of the stereo space (a similar, but more complex

implementation of this effect will be discussed in detail later). This entrance completes the basic aural landscape of "The Great Below," which is illustrated in Fig. 4-5:

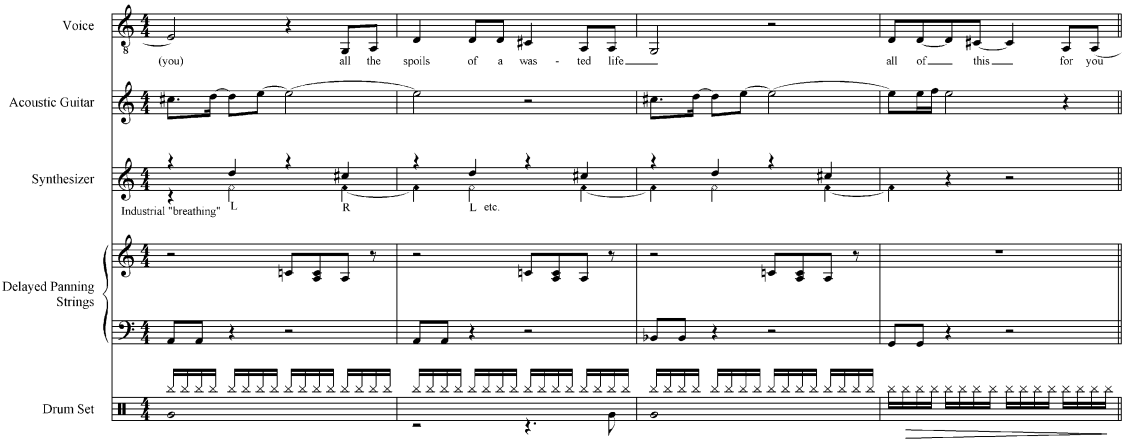
Figure 4-5 – "The Great Below" Spatialization (0:00-3:09)



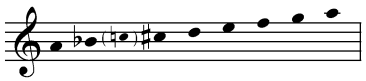
The human agent stands upon the columnar edifice, while mechanical detritus ebb and flow around the margins. The stability of the central construction erodes across the course of the track, as does the human agency represented by the vocals and, to a lesser extent, the acoustic guitar.

Ex. 4-22 shows a phrase from the end of the first verse in full score. The panning string line is simplified, but shows the full pitch content of the part.

Example 4-22 – End of First Verse Transcription (1:14)



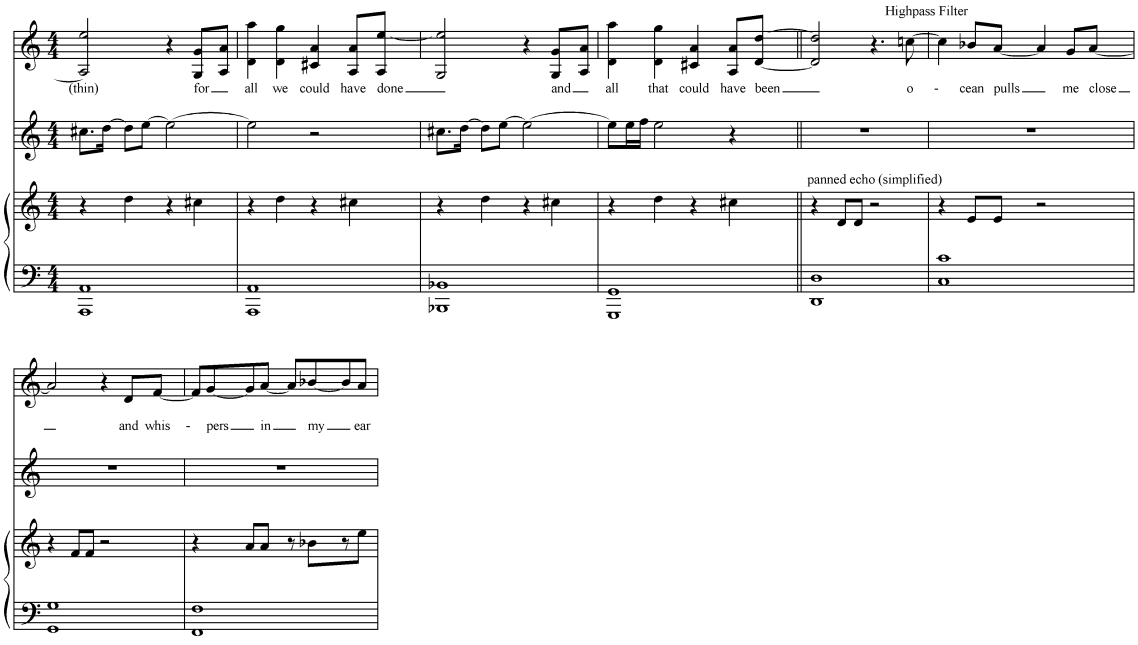
Example 4-23 – Initial Pitch Content



The mode of the beginning (and end) of "The Great Below" is A Phrygian Dominant, the fifth mode of the harmonic minor. As discussed in regard to *broken* this mode combines the major coloration of ♯$\hat{3}$ with the minor and super-minor functions of ♭$\hat{6}$ and ♭$\hat{2}$, and this helps to establish the wistful emotional atmosphere of the track. However, there is a constant pull toward fully-minor A Phrygian due to the constant ♭$\hat{3}$ C♮ in the bouncing string line. This pitch functions as a blue note in the first half of the song, but emerges into the foreground when the mode changes to D Aeolian at 2:07 during the buildup to the climax.

At that moment, D, which had been functioning as $\hat{4}$ resolving to the major $\hat{3}$ C♯, suddenly becomes tonic—a shift initiated, significantly, by the voice.

Example 4-24 – Modal Transition (1:56)

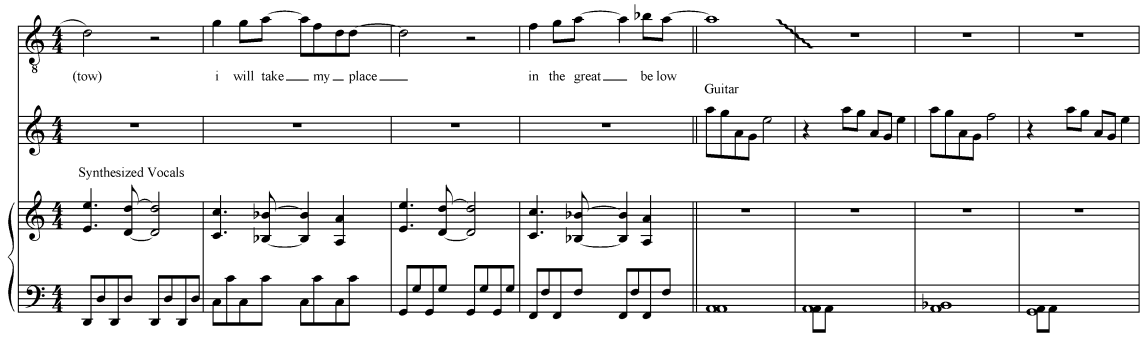


This is significant in part because it is a rare moment of human agency actively shaping the formal contours of a track, but also because the vocal line never seems to fully embrace the new tonality it initiates. If the pitch content of the surrounding context is ignored, the vocals could easily be heard as a straightforward explication of A Phrygian,

alternating between $\hat{7}$-$\hat{1}$ and $\flat\hat{2}$-$\hat{1}$ resolutions on A. It's as if the instrumental backdrop is exaggerating the directions of the human agent, rebelling while maintaining the outward appearance of compliance. This is analogous to a special quality of the echo in the concurrent string line (labeled "panned echo" in the example) which will be discussed below.

During the drive to the mode change, as can be seen in Ex. 4-24, the voice—previously presented without artificial studio manipulation—splits into an overdubbed harmony (1:45). As always, the impossibility of a vocalist singing along with themselves highlights the artificiality of the studio construction. After the shift to D Aeolian, this particular synthetic construction disappears, but a hipass filter insinuates itself between the agent and the listener, and deemphasizes the fundamental of the pitch's overtone series. We've heard this effect before, but it has generally been used to enhance the distortion of instrumental parts. Here, it serves to dilute the natural timbre of the vocalist. At 2:50, the filtering screen drops away as Reznor's voice becomes impassioned and he moves into the same register as the earlier upper harmony line, but without the anemic falsetto. Simultaneously, this regained humanity is partially offset by the sudden entrance of synthesized (or highly manipulated) voices on a new melodic line. Finally, at the height of the track's climax ("I will take my place/in the great below," 3:09), the perfervid vocal is able to wrench the tonality back to A.

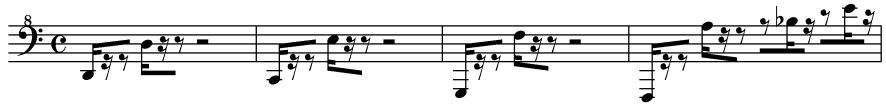
Example 4-25 – Climax (2:59)



A subtle ambience and echo is added to the voice for the last high note, heightening the epic nature of its ascent.[18] This tonal shift is a tremendous assertion of agency, but the effort is exhausting, and humanity soon dissolves into the æther.

The panning synthesized string line which undergirds the D Aeolian section, at 2:06, propagates throughout the stereo space in a multi-part delay pattern that engenders complex rhythmic and panning results. The actual melodic line being played or programmed by Reznor is almost certainly the one shown in Ex. 4-26:

Example 4-26 – Actual Synth String Line (2:06)



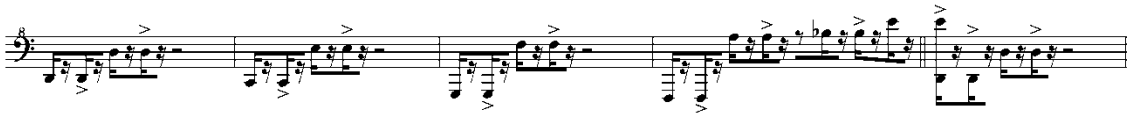
The falling motive is far harder to hear since it follows the bass line, but its sharper punctuation and dynamic panning allow it to occasionally emerge from the texture. This simple line, already compound in its melodic structure, is further compounded and distributed between the left and right speakers through a sophisticated, three-stage digital delay process.

The first stage is a single-feedback delay offset by two sixteenth notes, and output with either a wet/dry ratio weighted significantly to the wet side or a delay level of

[18] On the live recording of *And All that Could Have Been*, this echo effect is greatly enhanced.

greater than 100%, such that the echoing response is louder than the initial signal.[19] This results in the following syncopated rhythm:

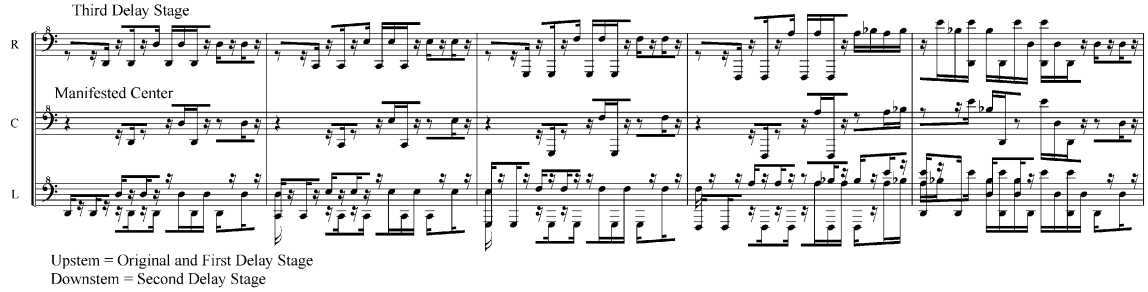
Example 4-27 – First Delay Stage Resultant (2:06)



Both the original and this first-stage copy are placed entirely in the left speaker. It is possible that this iteration is actually the original performed or programmed part, but the overlap of the end of the loop with the first measure of the repeats (as shown in the example) and the robotic volume increase without timbral change between the first note and the second note render this a distinction without a difference. The effect is still echoic, and this is particularly unsettling when the "echo" is louder than the source. Much like the overzealous instrumental shift to D Aeolian, this echo creates a nervous environment where small causes seem to have surprisingly strong effects; an agitated ambience that magnifies and vulgarizes soft, subtle gestures and exposes them within the space.

The resultant of the second and third delay stages is shown in Ex. 4-28:

Example 4-28 – Final Sonic Resultant, Delay Stages 2 and 3 (2:06)

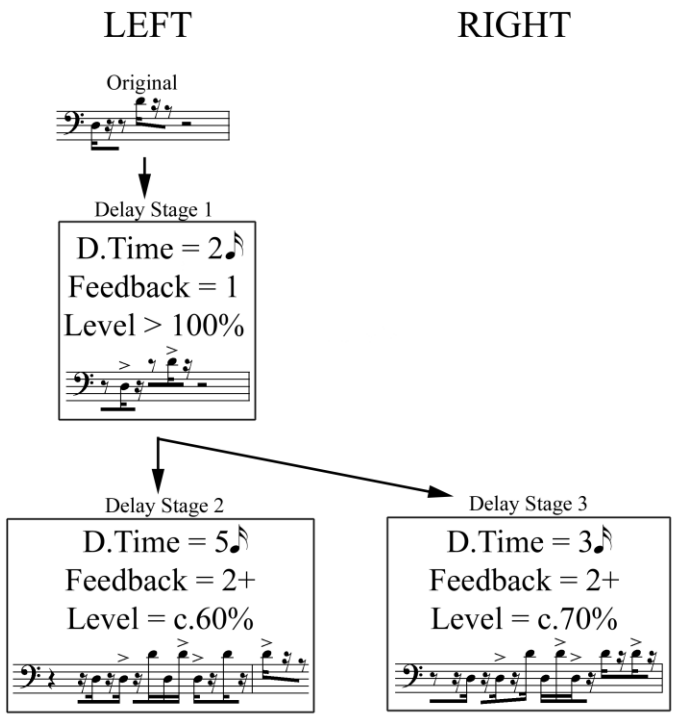


[19] I'm indebted to my Sarah Lawrence College student William Sammons for the dry/wet ratio possibility. This is, in fact, the far more common way such an effect would be created, as very few delay devices (such as the delay command in Csound, the synthesis programming language) allow levels greater than 100%.

This is a complete stereo map of the line as it sounds in the track. The original and first stages already discussed are in the bottom staff (left speaker) along with the resultant of the second delay stage (shown with downstems), which processes the output of the first stage at a delay time of five sixteenth notes. This delay is also entirely confined to the left speaker, but has a feedback setting of at least two echoes and a far more natural decay. Note that just as the first stage created an overlap between every four-bar repeat, this stage creates an overlap between every bar, instilling further momentum. At the same time, the output of the first stage is also chained into the third and final delay stage, shown in the upper staff (right speaker). The settings for this stage are similar to the second, except that the delay time is only three sixteenth notes, and the output has been placed entirely in the opposite speaker.[20] The whole melodic complex fuses into a single entity that bounces between both sides of the dense center column of bass, harmony and vocals. These delay stages are summarized in Fig. 4-6.

[20] The delay time ratio in the three delays is 2:5:3 which uses incommensurable prime numbers, thus ensuring more complex and dynamic interactions between stages.

Figure 4-6 – Summary of Delay Stages

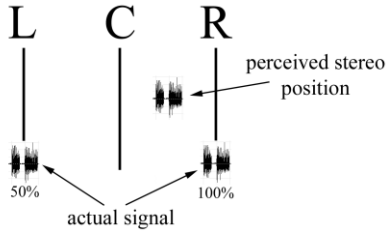


The "Manifested Center" shown on the middle staff of Ex. 4-28 above is not a separate part, but rather an accidental consequence of the left/right concatenation. In a stereophonic recording, any panning other than hard right or hard left is an aural illusion created by copying a sound into both channels. If the copy is exact enough the human ear doesn't hear two signals; it interprets the sound as singular and, if the volume is the same, as emanating from directly between the two speakers. Varying the proportion of the volumes between the two channels will seemingly shift the sound to other more or less central positions. This dual-signal process is opaque to the listener, and, significantly, to the composer as well, who generally localizes sounds using software settings or a panning knob.[21] For example, a composer may choose to place a guitar sound halfway between the center and the right of the stereo field. However, this is translated for the

[21] The word "composer" is used in the most general sense. It could be Reznor himself, or any number of collaborators such as Clouser, Lohner or Moulder, or indeed some democratic combination.

final output stage (by the software or analog circuitry) into one version of the sound in the right speaker and a replica in the left speaker at, for this particular example, half the amplitude of the right.

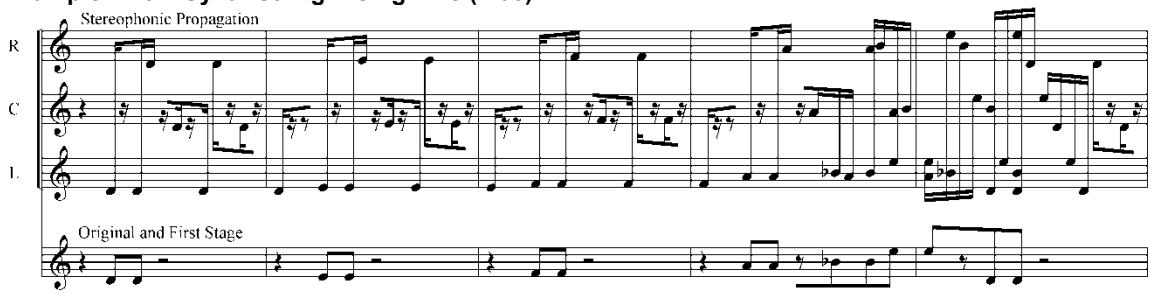
Figure 4-7 – Stereo Center Illusion



By contrast, the manifested center shown in Ex. 4-28 above is just isolated notes of the melodic complex that happen to occur simultaneously in both the left and right channels. Observe that every note shown in this center line corresponds with the same pitch in both the upper and lower staff. Whenever this happens, the notes merge and seem to pop into the center of the field—their exact placement determined by the relative volume and timing of the delays rather than primary composer choice. The result is an invasion of the otherwise sacrosanct central column.

This is perhaps easiest heard and seen by focusing only on the rising line as shown in Ex. 4-29:

Example 4-29 – Synth String Rising Line (2:06)

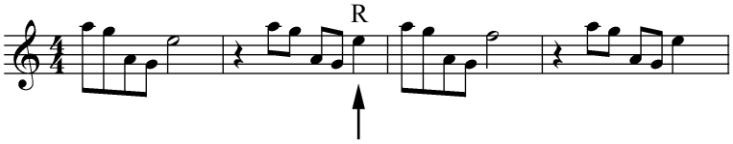


The nervousness engendered by the magnifying echo discussed earlier is exacerbated by this constant stereo shifting, but there is also a kind of meta-mechanicity now at play. The actual humans who are normally sculpting the stereo field are largely irrelevant to

the panning decisions made for this line, because those "decisions" are simply the logical outgrowth of pure mechanical process—a ghost in the machine. Certainly this is a highly abstract interpretation, but even on the surface there are multiple levels of mechanicity: an obviously artificial "string" patch is mechanically reproduced through many stages generating a complex rhythm, the logic of which bears little relationship to the prevailing meter. It then careens around the stereo space unnaturally, and what could have been a simple line is instead fractured and on the cusp of outright fragmentation. Like many sonic events in *The Fragile*, this delay stage process showcases mutability, but in this case it is flux shorn of any organicism—engineering rather than evolution.

This invasion of the center space sets off a process which culminates in the complete dissolution of the song. The guitar that begins at 3:09, the moment of climax and the tonal return to A, was discussed previously for its motivic significance (see Ex. 4-19 above). Much like its purer companion from the initial sections of the piece, this part is located in the center instrumental column, but its panning position is unsteady and it occasionally wavers toward the left and right.

Example 4-30 – Final Guitar Line (3:09)



Observe in particular that the note indicated in the example emerges inexplicably from the center right of the stereo field. This positional instability mirrors a mild timbral fragility—very much characteristic of the album as a whole—which suddenly and briefly erupts at 4:05 into a strange and idiosyncratic distortion. This outburst fatally weakens the line, which repeats only one more time at substantially reduced volume before leaving the texture entirely. When the drums join this final section at 3:51—essentially the first

drum part in the entire track—they further interrogate the primacy of stereo center, and this is particularly unsettling since it is explicitly opposite the normal function of a drum part in a rock recording. Furthermore, the integrity of the drum kit itself is questioned. The components entwine themselves around the center column, as the hi-hat cymbal weaves from left to right at a different rate than do the kick, snare and toms.

Meanwhile, the voice, drained from its exertion during the climax, devolves at 3:30 from its narrative status and simply repeats the mantra-like phrase, "I can still feel you/even so far away." This is the clearest statement of the Left disc's theme of human connection as savior; the human agent holds on to the Other, even as it's drowned in the surrounding electronic effluent. At around 4:15, the mantra is truncated so that only the second half, "even so far away," is sung. Appropriately, reverb and echo are gradually introduced to cause the voice to literally recede in the mix, and even as this happens, another voice, also Reznor's, begins fading up in the left channel. As the main voice in the center fades, this whisper gets slightly louder and the locus of human agency moves out of the position it's held since the track began. The whisper becomes ever more sibilant and slows its rhythm significantly against the track's steady meter, until, at 4:53, it dissolves like smoke across the stereo space toward the right. This is almost like a release rather than subjugation. Though it is far from a triumphant conclusion, this is the closest in the nine inch nails discography so far to a human ending. This vague sense of hope will be shattered by the Right disc, particularly in the subject of the next close reading.

Close Reading #4-2 – Blank and Pitiless Gaze – Right CD, track 10, "Underneath It All"

Although there were many strange mechanical modulations of dynamic, timbre and stereo position in "The Great Below," there was a certain organic relief in that very mutability compared to the implacable stasis of "Underneath It All." With the exception of a brief bridge, there are essentially only three musical elements in this track: a pounding, relentlessly repetitive drum pattern; a grating, two-note tritone figure (always D♯ and A) played by guitars and synthesizers; and vocals, which begin as a single line but gradually become choral. Basic forms of these three elements are shown in Ex. 4-31, and the form of the song is summarized in Fig. 4-8.

Example 4-31 – The Three Primary Elements of "Underneath It All"

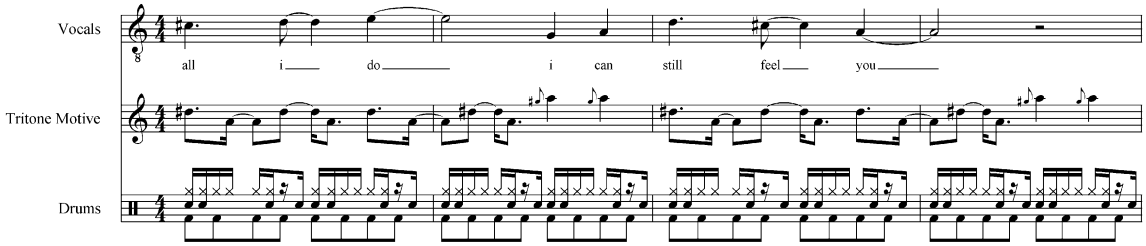
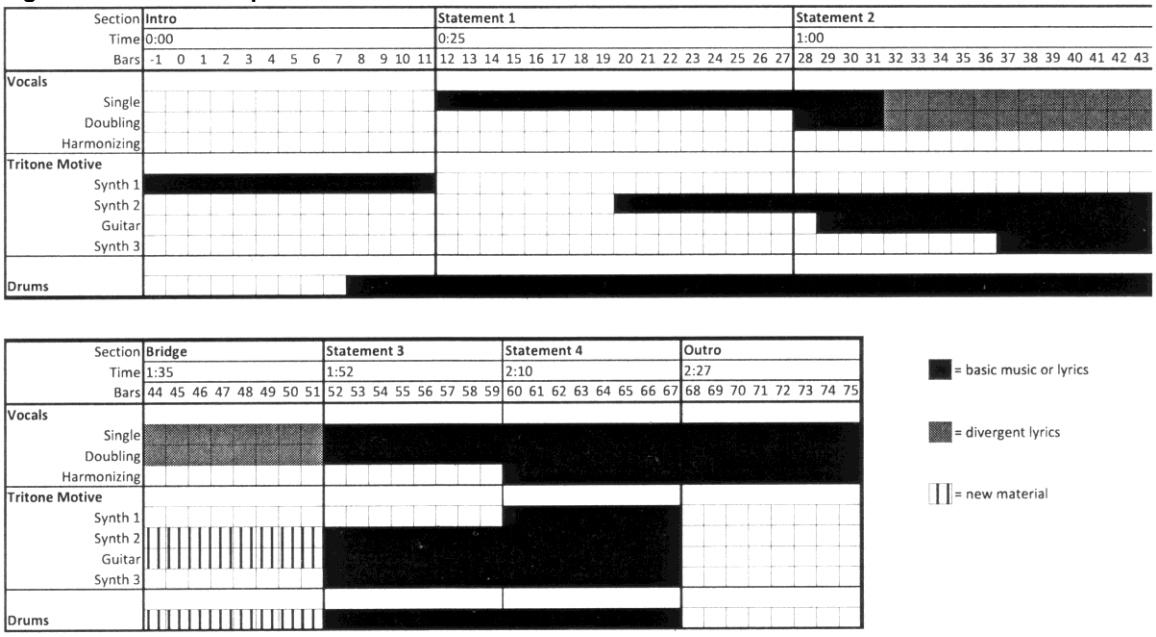


Figure 4-8 – Form Graph of "Underneath It All"



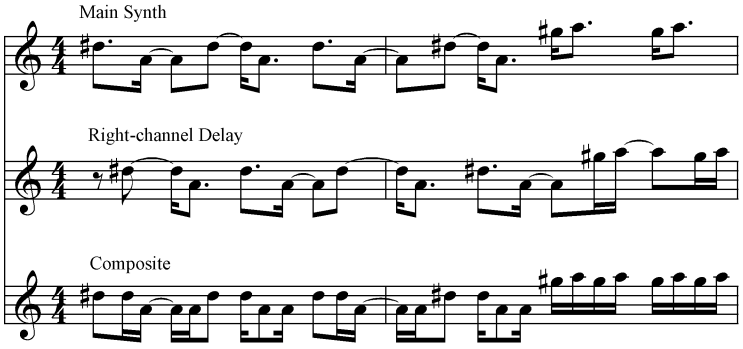
Note that the drum pattern repeats in half-bar units, the instrumental parts repeat in two-bar units, and the vocals repeat in four-bar units. The vocal part shown is just one version of the line, but all other versions are rhythmically identical, and most even have the same lyrics. Although the motivic structure of the vocals shifts from statement to statement, this is not reflected in the graph; the shaded areas represent *lyrical* divergence. The form of this track is a variant of what Mark Spicer has called "cumulative form," wherein the continuing layered introduction of new riffs drives the song to a climactic culmination.[22] Here virtually no new musical material is introduced, and new instruments and vocals simply join the existing elements. The form is cumulative in a timbral sense, and seems to drive toward a culmination that never arrives.

Like many tracks on *The Fragile*, this song begins with a brief, atmospheric intro. A sickly synth introduces the tritone line *in medias res*, which establishes an initial metric ambiguity that exacerbates an even more wrenching rhythmic conflict.[23] The main statement is in the center of the stereo space, but it is echoed at the distance of an eighth note in the right speaker. The original, delayed and composite rhythm are shown in Ex. 4-32:

[22] Spicer, pp. 29-64.

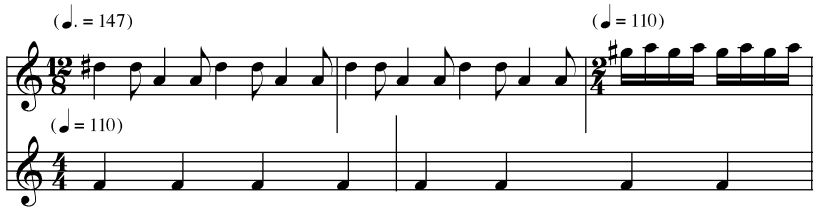
[23] The line is obviously heard initially without a sense of its eventual metric context, but in retrospect it begins on the second sixteenth-note of beat three of the first measure. Fig. 4-8 begins bar numbers with -1 and 0 in order to highlight the incomplete nature of this first phrase. Thus, the first complete statement of the tritone line begins with bar 1.

Example 4-32 – Introductory Synthesizer Tritone Line (First full statement, 0:03)



Although the quiet percussive sounds of the intro and the pounding drums of the rest of the track ultimately establish the 4/4 framework at 110 bpm (♩) shown in the example, the regular dotted-eighth unit of rhythm in the first six beats of this tritone line threatens to impose a contradictory metric frame moving at a compound 147 bpm (♩.). This sense is especially strong during the Introduction due to the compound, trochaic rhythm generated by the delay.

Example 4-33 – Metric Conflict Underlying Beat Structure and Tritone Line[24]



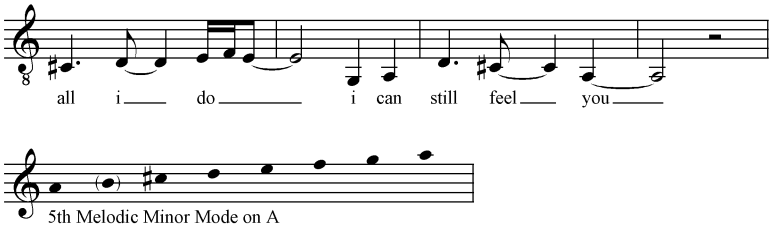
As the example shows, the tritone line normalizes to the underlying quarter-note pulse on the last two beats of every other 4/4 measure. We are left with a rhythmic pattern that is something less than absolute multi-meter, but more than mere syncopation. The tension highlights the track's overarching sense of independent entities marching irreversibly forward, and the opening guitar line (and, later, the highly similar vocal rhythms

[24] Once again, in Krebs's notation the metrical dissonance is G4/3. More specifically, this is an example of what Mark Butler (p. 158) calls an "embedded grouping dissonance," wherein the cycle of a low level metrical dissonance (G4/3 ♪=1) causes a higher-level dissonance (G4/3 ♩=1). Indeed, Butler's example on p. 159 is a virtually identical rhythmic structure. Also, see Pieslak pp. 221-223 for a discussion of the implications of truncating a metrical cycle (as the 2/4 measure in Ex. 4-33 does) in order to maintain a smaller hypermeter.

throughout the song) lends even more support to the 147-bpm 12/8 frame. However, the sheer quantized force of the unambiguously 110-bpm 4/4 drum pattern that enters at 0:16 establishes a foundation against which all else is measured.

This drum entrance is also the moment that A is first firmly established as tonic, a position that won't be challenged until the outro. The drums themselves exude an A pedal point either through a well-tuned bass drum patch or a bass synth so closely integrated with the drums as to be indistinguishable. The somewhat higher rhetorical status of A in the tritone line helps to confirm this tonic status even as the Lydian D♯ constantly interrogates its stability. Meanwhile, the vocals, which provide the only repertoire of pitches sufficient to establish mode, continually deny D♯ as a structural pitch:

Example 4-34 – Statement 1 vocal line and mode determination (0:34)

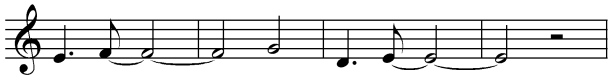


This line, the second sung phrase of the track, contains all but one scale degree, and later (rare) instances of B♮ confirm A Mixolydian ♭$\hat{6}$ (the fifth mode of the melodic minor) as the general modal context. This is essentially the same mode as "The Great Below," especially since the second scale degree is rarely expressed. As before, the mode has a clash between the major $\hat{3}$ and the distinctly minor implications of ♭$\hat{6}$, which in this case helps underline the generally stoic, denatured character of the vocals in Statements 1 and 2—a fully major color would be overly bright and a fully minor color would flirt with

pathos. In a more structural sense, the slightly enhanced tonal gravitation toward the dominant provided by minor $\hat{6}$ has greater implications than are at first evident.

A subtle pull toward the dominant E exists throughout the song, and is especially strong during the tonally ambiguous introduction. The only melodic part during these opening lines (and the only remotely foreground part in the entire track that isn't one of the three primary elements discussed above) is a faded-in guitar line shown in Ex. 4-35.

Example 4-35 – Introductory Guitar Melody[25]



As has been mentioned, the rhythm of this line is more or less the same as that of the upcoming vocals, but the modal implication is E Phrygian. This introduces F as a reverse leading tone to E; in fact it is heard as $\flat\hat{2}$ over E before the proper beginning of the song establishes it as $\flat\hat{6}$ over A. Meanwhile, the tritone line coexists with the melody and is far less modally clear. The D♯s bisect the space between the octave As symmetrically, and are, as such, the greatest possible pitch-class interval away from A. The line therefore sounds more like an oscillation between tonal poles than an establishment of modal context. If any tonal function for this ubiquitous motive exists, it once again involves a drive to the dominant E, this time from below as a Lydian-infused $\sharp\hat{4}$. This and the $\flat\hat{6}$ F of the overall mode often gravitate toward tonicizing functions as $\sharp\hat{7}$ and $\flat\hat{2}$, thus foreshadowing the track's ultimate conclusion on E discussed below.

As has already been indicated, this song functions as a shadowy reinterpretation of the soundworld and themes of "The Great Below." This is perhaps most directly seen in the lyrical analogues. In the earlier song, the lyrics were largely narrative except for

[25] Just as in "The Great Below," this introductory guitar line contains an important statement of the "wretched variant" of the upward seed motive.

the repeated concluding mantra "I can still feel you / even so far away," discussed at the end of the last close reading. In this track, the proportions are reversed; aside from a brief narrative segment during part of Statement 2 and the Bridge, the lyrics are entirely comprised of the repeated phrase "all I do / I can still feel you." The shared clause between the two tracks, "I can still feel you," is re-contextualized, and though the phrases are similar on the surface, the sentiment is now reversed. Connection to the Other seemed to be a distant saving grace in "The Great Below," but the Other is now revealed as a malevolent figure, its constant presence a source of pain and inescapable frustration. This reading is further heightened by the only other lyrics in the song (Statement 2 and Bridge):

> all i do
> i can still feel you
> numb all through
> i can still feel you
> hear your call
> underneath it all
> kill my brain
> yet you still remain
>
> crucified
> after all i've died
> after all i've tried
> you are still inside

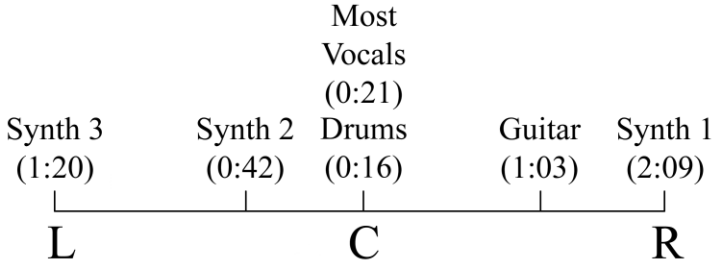
This last line is the most damning of all. The Other may in fact not be "other" at all, but rather a manifestation of the narrator's own character.

It is also worth noting the subtle way Reznor introduces new lyrics into the stream of repeated mantras. Statement 2 begins with a melodic and timbral shift when an octave doubled vocal overdub enters the texture at 1:00. However, the first lyrical phrase of this section is identical to all preceding phrases. The antecedent of the next phrase, "numb all

through," contains the first new lyrics of the song, but they rhyme very closely with "all i do." Furthermore, the consequent of this phrase returns to the original lyric, "i can still feel you," creating the sense that the shift was temporary or even illusory. The subsequent lines pull further away from the mantra, thus preparing the listener for the only new *musical* material of the song at the bridge.

The lyrical reversal between the "right" and "left" disc's conclusions is intensified by a profoundly different spatialization in the two tracks. In "The Great Below" the instrumental parts were either stacked in the center supporting the voice or surrounded the center while moving, more or less gently, across the stereophonic space. In "Underneath It All," there is a soundscape that is more reminiscent of an industrial factory than virtually any other sonic moment in the Nine Inch Nails catalog. Rather than dynamic movement or central positions subordinate to the human, and in contrast to the general mutability of the album in general, the various mechanical elements are riveted in place, each with its own stereo placement and hence imbued with enhanced agency. Fig. 4-9 illustrates these stereo placements which are consistent for all sections other than the Intro and Outro.

Figure 4-9 – Primary Elements as disposed within the stereo space (0:25-2:27)



These panning positions are inviolable, with the exception of Synth 1, which, as discussed earlier, is also present during the Introduction. There the line was centrally placed with a weak trochaic echo in the right. As Fig. 4-9 shows, when Synth 1 returns

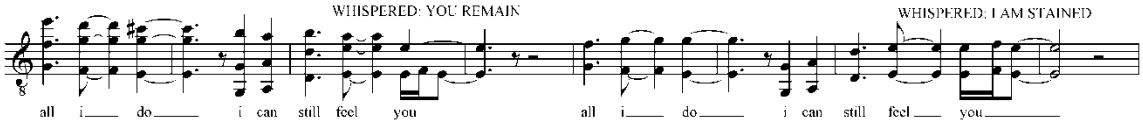
in order to augment the already extremely dense texture of Section 4, it is entirely in the right speaker—relegated to the position of its former shadow. The independent agency each instance of the tritone line gains from its respective stereo position is furthered by their separate entrances—separate both from each other and from the formal boundaries dictated by the vocals—as shown in the formal graph in Fig. 4-8 above. All but the final entrance (which corresponds with the entrance of vocal harmony that begins Statement 4) contradict the 16- and 8-bar sections established by the vocals. Most egregiously, the original statement from the very beginning of the track was made to seem as if it somehow began more than a second before the actual song. Both the human agency of "Underneath It All" and the meta-human agency of its composer seem incapable of corralling these distorted, mechanical entities.

As indicated in the spatialization figure, the vocals are almost entirely located in the center. Their initial appearance, at approximately 0:20, is as an indeterminate electronic fog that gradually coalesces into a natural human voice at the beginning of Statement 1 (0:25). Just like the lyrics, this subtly hearkens back to the ending of "The Great Below" wherein the human agent dissolved into the texture, thus creating another link between the songs. Both effects involve recognizably mechanical artifice, and in "Underneath It All" the result is a sense that the human is being jerked back into existence from its almost blissful dissolution at the end of the earlier track. After this uncanny beginning, the vocals continue with natural sonic presentation, but additional—necessarily artificial—double tracks and octave doublings of Reznor's voice gradually join in, and the sense of human identity is questioned. The continued placement of these lines in the center still lends considerable cohesion to the vocal elements, but when the

harmonic lines of Section 4 are added, this integrity is broken too, since at least one vocal line is located in the far right. This process of splitting humanity both vertically and horizontally prefigures the cataclysm to come.

By this point in the song, the texture is nearly saturated with distortion and competing motivic elements. The timbral accumulation combined with the formal acceleration begun by the eight-bar Bridge seems destined for an explosive catharsis. Then, the torrent of aggressive sound breaks off suddenly at 2:27, leaving only quiet, multi-tracked vocals, singing the parts shown in Ex. 4-36:

Example 4-36 – Final harmonized mantra statement (2:27)

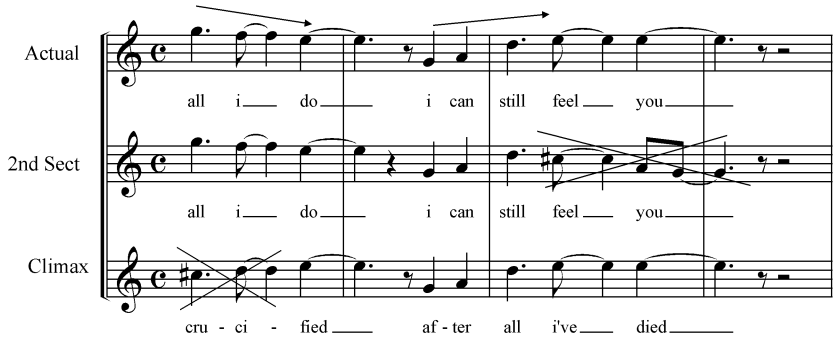


The moment is stunning for several reasons. In addition to the unexpected textural and dynamic shift, the upper harmonic line moves into an extraordinarily high falsetto register—far higher than any previous vocals and exceeded in range only by the topmost pitch of the highest synth line. Furthermore, a passage of such exposed humanity without accompaniment is unprecedented on *The Fragile*, and virtually unique in the entire Nine Inch Nails catalog (the savage mechanical treatment of said humanity will be discussed below). The initial three harmonies are also noteworthy, and deserve further discussion.

The concatenation of multiple rising, falling and neighboring variants of the central motive provide the teleological drive of the section, but the harmonic result in these initial chords is strikingly dissonant and borders on non-functionality. The first simultaneity, G-F-E, can be seen as a massively expanded and inverted instance of the motivically significant minor third, but is most immediately apprehended as a dissonant stack of sevenths without any compelling sense of root or harmonic goal. In the move to

the second chord, the middle and lower voices exchange pitches as if trying to resolve to each other simultaneously and, with the D in the upper voice, form a harmony that could be read as an unstably inverted ♭VII7 chord. This implies a move to I, but the inner voice, instead of resolving to A, remains on G—a tritone beneath the top voice. The result could be called a iii^{o} chord, but this illuminates nothing about either the subsequent chord or the ultimate goal of the passage. This goal, as foreshadowed by the introduction and the omnipresent ♭$\hat{6}$ and ♯$\hat{4}$ scale degrees, is the dominant, E. The voices are pared away until only this pitch remains. First, the top line is removed entirely, and then the middle voice joins the bottom and devolves from counterpoint into mere octave doubling. The brief harmonic flowering is revealed to be only ornamentation of the same simple linear movement that characterizes the rest of the track. Indeed, the bottom line is simply a combination of the first half of the second section vocal line and the second half of the bridge vocal line which approach E from above and below respectively:

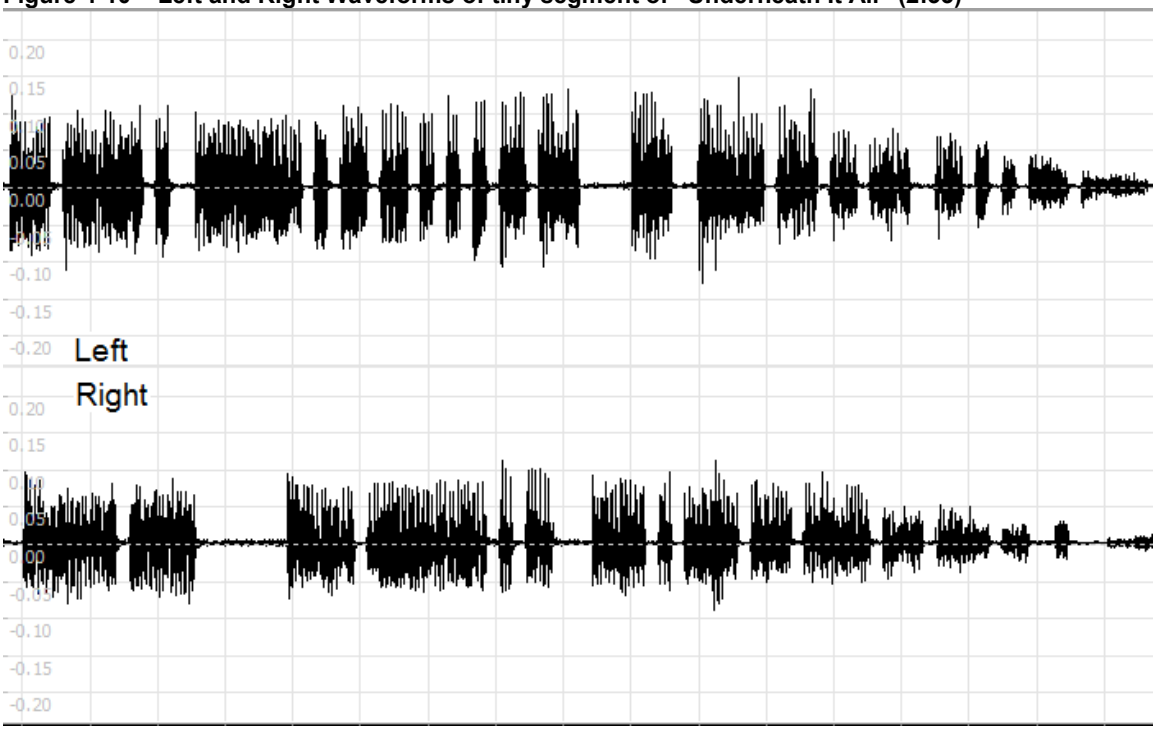
Example 4-37 – Derivation of final vocal line (ranges simplified)



Although the Lydian and Minor implications of, respectively, D♯ and F partially justify a final *linear* resolution on E, in a harmonic sense this close on the dominant is tonally inconclusive. It is a fittingly broken way to conclude the last non-instrumental song on *The Fragile*.

All of the above factors contribute to the shock of this final section, but it is surely the brutal effect shredding the texture into disjunct fragments that is the most disquieting. The apparent smooth continuity of the melody's transcription in Ex. 4-36 above belies the seething digital *discontinuity* of the recorded track. All sense of humanity gained by the removal of the mechanical instrumentation in "Underneath It All" is thoroughly effaced by this process. Fig. 4-10 shows a sonic image of a small piece of this final section in order to more closely examine the nature of the effect. This tiny excerpt shows most of the stereo waveform for the first instance of the word "you" in the lyrics.

Figure 4-10 – Left and Right Waveforms of tiny segment of "Underneath It All" (2:33)[26]



This is the apotheosis of the album's digital fragmentation effects discussed earlier, and as Fig. 4-10 shows, the sound is quite intricately manipulated. Two copies of the vocals are placed into either channel and are independently hacked into irregular bits of silence and full sound. As the greatly magnified sound image illustrates, there is no transition

[26] This representation was again produced using GoldWave.

between volume on and volume off—as if the remnants of humanity can only be heard through a digitally lacerated mesh.

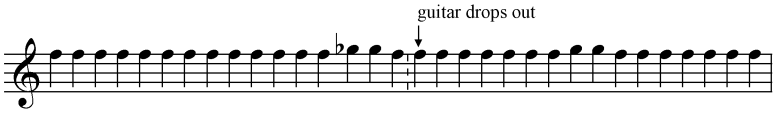
As a result of different but equally chaotic screening in the left and right channels, there are moments of mutual silence and mutual sound in addition to the more immediately noticeable stroboscopic pattern alternating between the extremes of the stereophonic space. The result is a dark mirror to the multiply-delayed synth line in "The Great Below" discussed earlier, and is a final link between the songs. In that case, the instrumental part gently bounced between speakers and only occasionally seemed to emanate from the center due to chance convergence. Here we have copies of a vocal line which, if unmangled (or even mangled identically), would unite in a single sensory event in the center. In fact, when this passage is played back at half or even quarter speed, the moments of mutually full signal in both channels do sound in the center, but at full speed this is impossible to discern in all but the most obvious moments of sibilant or plosive syllables.[27] If "The Great Below" reminded us of the fundamentally illusory nature of stereo center, then "Underneath It All" eviscerates it. The center cannot hold, and the final human moment of *The Fragile* is torn and tossed between the margins.

After the tonally ambiguous ending of "Underneath It All" on E, the final track, "Ripe (with Decay)," begins with a deep drone on E♭ that remains throughout the majority of the track. However, the final event is an enigmatic neighboring figure around F. This was the implied tonic of the humanistic acoustic guitar figure that began the album before the mechanical world imposed the tonic of D, but this is an absorption rather than a triumph of humanity.

---

[27] Note in particular that occasional slices of the beginnings of the words "do," "still" and "feel" emerge from the center as if completely disembodied from both left and right. These bright, high-frequency sounds add a sense of sparking static that enhances the already strobe-like effect.

Example 4-38 – Final event on the album, "Ripe (with Decay)" (6:22)



Although the figure initially aligns metrically in 4/4 with the otherwise unrelated funk guitar part, it has no clear metric accentuation in its own right. This becomes clear when it is isolated during the last few seconds of the album and the number of repeated Fs decreases from thirteen, to eight and finally to seven.[28] Whereas the album began with a semblance of metric clarity that was broken and replaced by electronic fiat, there was nonetheless a clear sense of reason behind it. Although cold logic is certainly a component of mechanicity when contrasted with emotional humanity, cold and precise *illogic* can be even more inhuman. People certainly engage in unreasonable behavior, but also have a strong drive to find or impose order on their surroundings. A machine simply follows its program: logical in its specifics, but indifferent to any larger meaning.

This actually describes the nature of the whole instrumental. As alluded to earlier, it is deeply apathetic in tone, and, as a conclusion, is surprisingly unrelated to the tenor of the preceding album. Various disparate elements and events enter and leave the texture, as if the flotsam and jetsam of the shattered album are washing through the sonic image. But these elements defy coherent reconstruction. The human narrative of *The Fragile*, already vague and partially fragmented, ended with the sonic tearing of "Underneath It All," but the soundworld simply continues until the irrelevant detritus just falls away.

try so hard to make the pieces all fit
smash it apart
just for the fuck of it
-"The Big Come Down," Right CD - track 9

[28] This passage is a more or less isolated instance on *The Fragile*. For an overview of contemporary theoretical approaches to such metrical ambiguity, as well as its application to metal music, see Pieslak, pp. 225-241.

Chapter 5 – …Turned Out to Be a Scab

Well the tiniest little dot caught my eye
And it turned out to be a scab
And I had this funny feeling
like I just knew it's something bad

I just couldn't leave it alone
And I kept picking at that scab
Like it was a doorway trying to seal itself shut
But I climbed through
-"Only," *[With_Teeth]* – track 8

In "down in it," the song from *pretty hate machine* that was both the first Nine Inch Nails composition and the subject of my first close reading, an enigmatic lyric occurs that was quoted at the beginning of this dissertation:

> just then a tiny little dot caught my eye
> it was just about too small to see.
> but i watched it way too long
> and that dot was pulling me down
>
> i was up above it.
> now i'm down in it.

This dot is an ambiguous symbol, but it seems to refer to some abstract enticement or distraction which captivates and then ensnares the narrator. The song "Only," from 2005's *[With_Teeth]*, refers back to this imagery in the lyric quoted in the epigraph above. The narrator describes a personal revelation: the obsessive pursuit of this painful *idée fixe* has itself been the cause for the lack of any semblance of healing. At some point, the focus on depression and rage that has characterized most of the music discussed in this study has shifted from catharsis to indulgence, and the wound remains open. This is surely a reference to the alcohol and substance abuse that Reznor had recently overcome toward the end of the six-year gap that followed *The Fragile*. On a

more abstract level, though, it also underlines the shift in perspective and style that ends one Nine Inch Nails era while shaping the next.

Indeed, *[With_Teeth]*, which shares a subjective, personal tone with the first four albums—a tone largely absent in later works—is perhaps best seen as a thematically transitional work. The conflict between humanity and mechanicity is quite similar, except that the former has a stronger-than-usual presence and its ultimate triumph, however conditional and mild, provides a compelling coda to the arc of the previous records. As such, I hope a brief analysis below of one track from the album will provide summation, conclusion and potential direction for future study. Before this analysis I will take a final look at the Nine Inch Nails discography to date, showcasing some general differences in the distribution and makeup of the later albums that further solidify the grouping I've pursued in the previous chapters. I hope that this will sow seeds for future study as well.

I – A New Path

In the first chapter I argued for one particular division of the catalog based on a lengthy hiatus between *The Fragile* and *[With_Teeth]* as well as thematic coherence, but another organization of eras is also valuable. At the time of this writing, three more albums have been released in as many years: *year zero*, *Ghosts I-IV* and *The S L I P*. Combined with those already discussed, these eight albums are the linchpins around which the remaining nineteen releases can be organized. These releases, including singles, remix albums and live albums, are perhaps best seen as constellations surrounding the studio albums, each of which defines its own era.

Figure 5-1 – Chronological Nine Inch Nails Official Release Discography[1]

Years	Halo #	Release type	Title
1989	1	Single	*down in it*
thru	**2**	**Album**	***pretty hate machine***
|	3	Single	*head like a hole*
1990	4	Single	*sin*
1992 thru	**5**	**Album**	***broken***
1993	6	Remix	*fixed*
1994	7	Single	*march of the pigs*
|	**8**	**Album**	***the downward spiral***
|	9	Single	*closer to god*
thru	10	Remix	*further down the spiral*
|	11	Single	*"The Perfect Drug" Versions*
1997	12	Live	*closure*
1999	13	Single	*The Day The World Went Away*
|	**14**	**Album**	***The Fragile***
thru	15	Single	*We're In This Together Now*
|	16	Remix	*things falling apart*
2002	17	Live	*And All That Could Have Been*
2005	18	Single	*The_Hand_That_Feeds*
|	**19**	**Album**	***[With_Teeth]***
thru	20	Single	*Only*
|	21	Single	*[Every Day Is Exactly The Same]*
2007	22	Live	*Beside You In Time*
2007	23	Single	*survivalism*
thru	**24**	**Album**	***year zero***
2007	25	Remix	*Y34RZ3R0R3M1X3D*
2008	**26**	**Album**	***Ghosts I-IV***
2008	**27**	**Album**	***The S L I P***

Obviously, this system of classification, though useful for the earlier albums, breaks down substantially in the late 2000s. In particular, there is no constellation of releases

[1] Halo 11, *"The Perfect Drug" Versions*, is singled out in this table because it does not fit comfortably into its respective era. Each track is a remix of a song that was essentially a one-off composition made for the movie *Lost Highway* by David Lynch. Furthermore, the original song isn't even included on the single, and didn't come out on an official Nine Inch Nails release until Halo 15 as a B-Side to a song from the subsequent *Fragile* era.

around either of the two most recent records, a situation largely resulting from Nine Inch Nails's severance from the promotional demands of a major label contract after the release of *year zero*. Furthermore, although definite stylistic trends for each era can be identified in this classification, at least for the earlier releases, they are guided more by biography and timing than by purely musical concerns. Still, it is a helpful way to organize the lesser releases, and reflects the terminology often used by fans.[2] It was also the model for my chapter organization, though I subsumed *broken* into the same era as *pretty hate machine*, due to its relative brevity and the scarcity of releases surrounding it. Thus, each of my chapters covered five or six releases spanning three or four years.

As will be recalled, a primary reason for my focus on the first four albums as a coherent unit was their similarity of tone. Subjectivity, bordering on solipsism, and fervent emotionality dominate, generally involving a limited first-person narrator reveling in fury or sorrow whilst surrounded by electronic chaos. These albums all concluded with suppression or outright destruction of humanity. Although the later albums share many of the sounds and concerns of the earlier ones, they tend to deviate from this description in at least one of several ways. For instance, the narrative concept album *year zero (*and to a lesser extent *The S L I P*) is lyrically far more objective in tone. The point of view shifts between multiple characters' perspectives and therefore creates a sense of a shadowy, omniscient narrator dictating the framing. In contrast to the records discussed in the preceding chapters, all of these albums except *The S L I P* conclude with calm solo piano passages. This is particularly telling since, as has been seen, the piano is used throughout the Nine Inch Nails *oeuvre* as a proxy for humanity. When asked in an

[2] See, for example, the organization of the "Halo Numbers" section of the fan-maintained Nine Inch Nails discography page on Wikipedia: http://en.wikipedia.org/wiki/Nine_Inch_Nails_discography.

interview before the release of *[With_Teeth]* about that album's liberal use of acoustic piano, Reznor said:

> That's also a direct result of the demos. Again, the intention was to replace it with something more "interesting" when we cut the tunes for real. But as some songs gestated, I tried to substitute a filtered or prepared piano, or synth, and it felt gimmicky. Especially in what's already this harsh, alien environment of distorted guitars and violent drums, there's something beautiful and honest about an unadorned piano anchoring it all. At first, I actually told myself I was copping out, and it took some thinking outside of my own head to realize piano was simply what worked.[3]

Of course, this quote applies equally well to the less omnipresent use of piano in the earlier albums that has already been discussed.

Another important distinguishing quality of the later albums is a generally more humane outlook and soundworld. In particular, *[With_Teeth]* and *Ghosts I-IV* feature far more human performers and group improvisations, which both implicitly and explicitly showcase a more hopeful environment in which interpersonal human connection is at least possible.[4] In a different interview, Reznor said, "In this case one of the early concepts was I wanted [*[With_Teeth]*] to sound played. Not like a garage band, necessarily, but with computers it's easy to fix things and make everything perfect, and sometimes you can lose an element of humanity and imperfection. And the message emotionally was to be a bit frail and unsure of yourself, so we treated things as performances."[5] Here, he is describing both a process and a result that is vitally different from almost every part of the albums I've analyzed, and it is ripe for future study.

---

[3] Fortner, p. 30.
[4] In fact, *Ghosts I-IV* is an entirely instrumental album which was performed and recorded collaboratively over the space of just a few days. This is a far cry from the obsessive and single-minded production on earlier albums, which could last for years.
[5] Moss, p. 2.

I don't want to exaggerate the differences between these eras. All of the releases are unmistakably the product of the same creative mind and talent. The various themes and emotional arcs are highly related, and even the general dichotomy of human and machine remains an important leitmotif. The shift, which will be discussed further in the analysis of "Right Where It Belongs" below, is subtle, but important. It suggests that the coldness of *pretty hate machine* and the fury of *broken*, which can certainly be found throughout the later records, can nevertheless be dealt with more objectively and thus with less personal destruction. It hints that the decaying corruption of *the downward spiral* is now, at least sometimes, reversible. It might even be possible to repair some of the failed systems and broken soundworlds of *The Fragile*. In the following short analysis, I hope to illuminate some of the path this new perspective has opened.

II – Humanity *with* Mechanicity

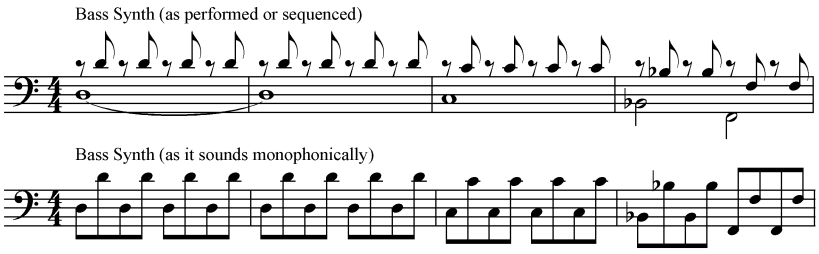
There are only four elements throughout "Right Where It Belongs," the final track on *[With_Teeth]*.[6] Human agency is maintained by the vocals and the tripping acoustic piano line and is opposed to the overtly mechanical octave-oscillations in the bass and the ubiquitous and often distracting ambient noise. In the 5.1 surround mix, all of the sound initially issues entirely from the standard left and right stereo speakers.[7] The ambient rumble, which sounds like it may be an altered recording of street noise, is stereophonically diffuse, but the other three components are clustered in the illusory center (as opposed to the actual center speaker) with the synth bass slightly to the left and

[6] Halo 19 in Reznor's numbering. Halos 18-23 all relate specifically to *[With_Teeth]*.
[7] I'm taking the 5.1 surround mix (from the DVD-video version) of *[With_Teeth]* as the primary text, but it doesn't alter the fundamental analysis. The ramifications of a surround mix are ripe for future study as well. Timings from the surround mix will have the prefix "dvd" while timings from the stereo mix will be prefixed by "cd".

the vocals slightly to the right of the piano. At dvd53:04 (cd2:04) the noise becomes high-pitched wind or white noise and moves into the true center. A little later (dvd54:02, cd3:02) the piano too becomes unmoored from the stereo format, far more dramatically, as it is added to both rear speakers bringing it out from the front stereo line into the center of the aural plane. Both the ambience and the piano maintain this spatial independence throughout the remainder of the track, culminating at the very end (dvd55:48, cd4:48) with unaccompanied piano sounding solely from the rear. Meanwhile, the synth bass and the vocal are never heard in any auxiliary speakers; rather they slowly separate further apart into the front left and right respectively. As a result, it is the human vocalist and the pulsing bass that are more or less equally foregrounded, highlighting their stark contrast. They function as virtually iconic instantiations of the Human and the Machine that have been featured throughout these albums, often in far more diluted or convoluted forms. Ignoring, for the time being, a filter in place during the first half of the track, the vocal is unadulterated and emotional while the bass provides a rigid, austere presentation of the pulse that is complemented by its sawtooth-based spectrum and mangled distortion. It is a powerful confrontation, made no less significant by the deceptively understated nature of the track itself.

The mechanical quality of the bass line is further enhanced by the likely performance method, which is unique to monophonic synthesizers, wherein a lower note is held down while upper notes are intermittently played above it. Since a monophonic synthesizer can only produce one pitch at any time, the lower held note is only heard when no other keys are being pressed (see example).

Example 5-1 – Bass Synth as played and heard (dvd51:00, cd0:00)



The sonic result is a continuous timbre that oscillates immediately from pitch to pitch—only the initial note of each pitch change has a normal attack envelope.[8] Whether this performance technique is actually being used or not, the coarse on/off timbral envelope of the individual notes can only be generated electronically, and is deeply unsettling when paired against the natural piano and vocal timbres. The division between the synthesizer and voice is particularly significant.

However, those two agents are united in one fashion: both are initially swathed behind a thick filtering screen. Indeed, the entire track is confined by its oppressive haze, which rises to the level of being a fifth element in the track. The numbing miasma is almost certainly composed of a hipass, or even a high-mid bandpass, filter that allows most of the higher-frequency spectrum to emerge while blocking middle- and low-range information entirely.[9] On the most obvious level, this is a mechanizing agent interspersed between the listener and the source, but its allegiance is unclear since it serves to reduce the potency of all three instrumental parts, including the synthesizer. In

[8] The slight portamento (or pitch bend) connecting the last eighth-note of each pitch to the first note of the subsequent pitch change is further evidence for this performance style, as this is common behavior for a monophonic synth with the portamento setting turned on. If the part were played simply as alternating eighth notes in a patch with portamento on, there would normally be continuous glissandos between each and every pitch.

[9] It seems likely that the highest frequencies in the spectrum are also being cut, which points either to a fairly wide bandpass or a combination of a hipass and a lopass filter, both with high cutoff frequencies (which amounts to the same thing). Thanks to my Sarah Lawrence College students Tom Tierney and William Sammons for being a sounding board during my ruminations on this effect.

fact, the fundamental of the bass line is so attenuated that it is often difficult to tell that successive eighth-notes are in different octaves. All three instruments are compressed spatially, dynamically and spectrally, as if emanating from a cheap, mono AM radio. Then, at dvd54:00 (cd3:00), the veil suddenly lifts, and both unfettered humanity and emboldened mechanicity are exposed to a mysterious audience that has suddenly erupted in the enveloping aural plane. The synthesizer, piano and vocal are differently affected by the emergence. The voice gains warmth and confidence, while the piano is smoothed and softened. The synth bass gains a great deal of power, and its far more robust harshness is now decidedly less integrated into the texture of the rest of the track. During the final section of the song (dvd55:07, cd4:07), the lack of integration is heightened when the voice switches to a quiet, almost soothing, falsetto in unison with the piano—a union which serves to further cement the alliance of agency between the two acoustic instruments. The opposition between the Machine and the Human has grown even more severe.

Throughout the four albums analyzed in this dissertation, such juxtapositions are exceedingly rare, and certainly never last for the length of an entire track. Songs with ruthless mechanical agency abound, such as "down in it," "gave up," "march of the pigs" and "Underneath It All," but the humanity in these tracks doesn't coexist peacefully with it. The Human is constantly mechanized, obscured, or even eviscerated, and gentleness is never more than a teasing mirage surrounded and subjugated by rage. Though less plentiful, there are definitely songs that feature human agency, such as "something i can never have," "hurt" and "The Great Below," wherein the mechanizing agents tend to be subtle and insidious, subverting the humanity rather than directly opposing it. The sense

of humanity in these songs isn't gentle so much as it is weak and ineffectual. Now, in this final track of the album that both concludes one Nine Inch Nails era while introducing the next, bare presentations of each side of the dichotomy are presented simultaneously but thoroughly disengaged from one another. Something like a détente has ensued in the eighteen-year battle that has raged from the band's inception until the release of this album, and the détente will persist, with numerous deteriorations and advances, in subsequent albums.

"Right Where It Belongs" ends simply. At dvd55:40 (cd4:40) the voice deviates in its final note from the piano and hence comes to a satisfying resolution on the tonic before dropping out entirely. The piano continues the quiet melody in the rear of the aural plane, opposite the pulsing synthesizer which then, a few seconds later, drops abruptly out of the texture as well. We are left ultimately with Reznor's human proxy, the piano—miles away from its cavernous introduction in *pretty hate machine*, still bearing the warbling sonic scars of *the downward spiral* and finally down from its amphetamine high on *The Fragile*. For the first time, human agency has, however tenuously, outlasted the machine. The swirling currents of electricity and looming technology surrounding him have dissolved, leaving only Trent Reznor and his piano. The eighteen-year battle will certainly leave a scar, but the wound may begin healing.

Wave goodbye
To what you were
The rules have changed
The lines begin to blur
-"With Teeth," *[With_Teeth]* – track 7

WORKS CITED

Aledort, Andy, and Jimmy Brown. "We're In This Together" transcription. *Guitar World* 19, no. 12 (1999): 142-146.

Ballou, Glen, ed. *Handbook for Sound Engineers: The New Audio Cyclopedia.* 2d ed. Carmel, Minn.: SAMS, 1991.

Belz, Carl. *The Story of Rock*. New York: Oxford University Press, 1969.

Butler, Mark J. *Unlocking the Groove: Rhythm, Meter, and Musical Design in Electronic Dance Music*. Bloomington and Indianapolis: Indiana University Press, 2006.

Cross, Alan. *The making of* Pretty Hate Machine *and* The Downward Spiral. Ontario: CG Publishing, Inc., 1996.

Di Perna, Alan. "Machine Head," *Guitar World* 14, no. 4 (1994): 21.

Doerschuk, Robert L. "Twelve Who Count: Brian Eno," *Keyboard* (March 2005): 24-30.

Everett, Walter. "Making Sense of Rock's Tonal Systems," *Music Theory Online* 10, no. 4 (December 2004).

Fortner, Stephen. "Process and Purity: Taming technology and un-tethering talent with the dark prince of Nine Inch Nails," *Keyboard* (September 2005): 24-30.

Goodman, Nelson. *Languages of Art: An Approach to a Theory of Symbols.* 2d ed. New York: Hackett, 1976.

Gorenberg, Steve. "March of the Pigs" transcription. *Guitar for the Practicing Musician* 11, no. 9 (1994): 103-107.

Gracyk, Theodore. *Rhythm and Noise: An Aesthetics of Rock*. Durham: Duke University Press, 1996.

Huxley, Martin. *Nine Inch Nails*. New York: St. Martin's Press, 1997.

Jacobson, Jeff. "Hurt (Quiet)" transcription. *Guitar* 12, no. 12 (1995): 101-105.

Krebs, Harald. *Metrical Dissonance in the Music of Robert Schumann*. New York: Oxford University Press, 1999.

Maus, Fred Everett. "Music as Drama," *Music Theory Spectrum* 10, 10th Anniversary Issue (Spring, 1998): 56-73.

Moore, Alan F. *Rock, The Primary Text: Developing a Musicology of Rock*. Milton Keynes, U.K.: Open University Press, 1993.

Moss, Corey. "Nine Inch Nails: The Upward Spiral," http://www.mtv.com/bands/n/nin/news_feature_050509/index.jhtml (accessed September 2009).

Pareles, John, and Patricia Romanowski, eds. *The Rolling Stone Encyclopedia of Rock & Roll*. New York: Rolling Stone Press/Summit Books, 1983.

Pecorelli, John. "Nine Inch Nails: Out of the Blue," *Alternative Press Magazine* 14, no. 134 (1999): 72-82.

Pieslak, Jonathan. "Re-casting Metal: Rhythm and Meter in the Music of Meshuggah," *Music Theory Spectrum* 29, no. 2 (2007): 219-245.

Reid, Gordon. "Synth Secrets: Synthesizing Acoustic Pianos on the Roland JX10," *Sound on Sound* (November 2002): 144-151.

Rule, Greg. "Nine Inch Nails!: The Album, the Tour…Behind the Scenes with the Biggest, Baddest Band in the Land," *Keyboard* (February 2000): 32-46.

Spicer, Mark. "(Ac)cumulative Form in Pop-Rock Music," *twentieth-century music* 1/1 (2004): 29-64.

Udo, Tommy. *Nine Inch Nails*. London: Sanctuary Publishing Limited, 2002.

Zak, Albin. *The Poetics of Rock: Cutting Tracks, Making Records*. Berkeley: University of California Press, 2001.

ZOOM Corporation. *9030 Advanced Instrument Effects Processor Operation Manual*. N.p., n.d.

RECORDINGS CITED

Cash, Johnny. *American IV: The Man Comes Around*. American Records/Universal compact disk 440 077 083-0, 2003.

Nine Inch Nails. *And All That Could Have Been*. Halo 17 CD1. nothing/Interscope Records compact disk 0694931852, 2002.

———. *And All That Could Have Been*. Halo 17 DVD. nothing/Interscope Records digital video disk 4400609659, 2002.

———. *broken*. Halo 5. nothing/Interscope/TVT Records compact disk 7 92213-2, 1992.

———. *closure*. Halo 12. nothing/Interscope Records VHS INTV2-90157-1, 1997.

———. *the downward spiral*. Halo 8. nothing/Interscope/TVT Records compact disk 7 92346-2, 1994.

———. *the downward spiral* (Surround Sound DualDisc Version). Halo 8 DVD-A. nothing/Interscope Records compact disk B0003762-82, 2004.

———. *the downward spiral Deluxe Edition*. Halo 8 DE. nothing/Interscope Records compact disk B0003739-36, 2004.

———. *fixed*. Halo 6. nothing/Island/TVT Records compact disk IMCD 8005/514 321-2, 1992.

———. *The Fragile*. Halo 14. nothing/Interscope Records compact disk 0694904732, 1999.

———. *further down the spiral*. Halo 10. nothing/Interscope/TVT Records compact disk 95811-2, 1995.

———. *Ghosts I-IV*. Halo 26. the null corporation compact disk, 2008.

———. *pretty hate machine*. Halo 2. TVT Records compact disk 2610-2, 1989.

———. *The S L I P*. Halo 27. the null corporation compact disk, 2008.

———. *Still*. Halo 17 CD2. nothing/Interscope Records compact disk 0694931842, 2002.

———. *things falling apart*. Halo 16. nothing/Interscope Records compact disk 0694907442, 2000.

———. *[With_Teeth]*. Halo 19. nothing/Interscope Records compact disk B0004553-02, 2005.

———. *[With_Teeth]* (Surround Sound DualDisc Version). Halo 19 DVD-A. nothing/Interscope Records compact disk B0004553-82, 2005.

———. *year zero*. Halo 24. leaving hope music/tvt music, inc. compact disk B0008764-02, 2007.

Pop, Iggy. *The Idiot*. RCA Records compact disk APL1-2275, 1977.