“A Kind of Construction in Light and Shade”: An Analytical Dialogue with Recording Studio Aesthetics in Two Songs by Led Zeppelin”

by

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Abstract

"A Kind of Construction in Light and Shade": An Analytical Dialogue with Recording Studio Aesthetics in Two Songs by Led Zeppelin"

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This dissertation examines how the sound of a recording contributes meaning to the song, working in conjunction with the song's lyrics, harmonic and rhythmic structures, album artwork, and within its cultural context. Two songs by the rock group Led Zeppelin, "When the Levee Breaks" and "Stairway to Heaven," are taken as analytical examples in which special attention is paid to the acoustic properties of the recordings, that is, where the instruments are situated within the stereo sound field; how they are timbrally manipulated with effects such as reverb, echo, distortion, and chorus; their relative levels of prominence; and how these factors interact to create meaning in the song.

The intent is to bring into relief the complex and myriad ways that recording studio aesthetics shape both our perception of, and appreciation for, two of the most prominent songs in this group's rich repertoire. By considering the recorded sound among the other factors that comprise these analyses, I also seek to demonstrate the value of parameters other than pitch and rhythm in analyses of this repertoire in particular.

This project requires extremely close listening to the recordings in order to discern how various studio effects are employed in the context of each song's particular aesthetics. I take as my methodological departure point Albin Zak's

book, *The Poetics of Rock*, in which are found analyses of studio production techniques in various rock songs, and Susan Fast's book, *In the Houses of the Holy*, in which many facets of Led Zeppelin's music are examined, including semiotics and the relationship between timbre and text.

Acknowledgments

Many people helped me in a variety of ways, not all of which may be obvious to them, as I worked on this project. First, I'd like to thank my dissertation advisor, Professor Shaugn O'Donnell, for providing me an example, through his own expertise, of what professional rock scholarship is like. Similarly, Professor Mark Spicer shared with me not only his thoroughly impressive knowledge of pop and rock music, but also a remarkably generous portion of his time. The promptness with which he annotated and returned my lengthy drafts will serve as a model for me in my career.

I am especially indebted to Professor David Olan, my dissertation composition advisor and our department's Executive Officer, for his valuable feedback in helping me temper some of my "high falutin" language, his kind and wise mentoring during the course of my studies, and, most importantly, for accepting me into the Ph.D. program with a tuition fellowship, which enabled me to recommence my studies after a hiatus. I would also like to thank Professor Jonathan Pieslak, who, in the short span of a month as the final member of my defense committee, engaged himself so thoughtfully and thoroughly with my essay. His insights will serve me long after the degree.

Were it not for Professor Joseph Straus's "Current Trends in Music Theory" course at the CUNY Graduate Center, I would not have been introduced to popular music analysis. Though he was not on my committee, his profound commitment to being both a damned good teacher as well as a mensch was a constant source of support during my studies and during my research.

I simply cannot depart this institution without thanking Peg Rivers, our Assistant Program Officer. Peg, we students know what you have done for us. From the bottoms of our hearts, thank you.

Ultimately, no one is more responsible for my completing this project than my wife, Yvonne Liu, who encouraged me to return to school and endured with me all the substantial emotional and economic hardships inherent in that decision. During those painful moments of self-doubt along the way, she inspired me to see the beauty in the call to teach.

Finally, I'd like to thank Soji for the countless hours she sat with me as I typed away into the night. She is a rescued cat, and she rescued me, in turn, from many lonely evenings.

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INTRODUCTION

> [Robert Plant] has a strange voice. He sings more tones than words and lets the tones and intensity stand in for the songs' contents.[1] (Swedish Daily News reporter, 1969)

This essay begins with the belief that musical meaning in popular music is inherently bound to the *sounds* of its performance, and does not take for granted that meaning lies solely, or even primarily, in pitch and rhythmic structures (harmony, melody, motive, etc.). The kind of analysis that emerged from the former paradigm and the judgments that went along with it were particularly suited to a visual-centric approach to music, with its frozen view of the music-as-score that afforded the careful and paced reflection requisite for the taxonomy of an essentially ephemeral art.

The hegemony of the visual paradigm in music analysis has been challenged on many fronts over the past few decades. One of the most potent catalysts in the emergence of these new perspectives has been recording technology and, more recently, the digitization of music. Music analysts today can easily audition music at will in order to base their analyses not on a written score, but on the music in its quintessential medium as sound. In the following two analyses that comprise the body of this dissertation, I will open a dialogue between analytical techniques that arose from traditional score-based analysis and newer techniques that are based on the sound of the musical recording. Through my adoption of stereo spatialization diagrams, waveform graphs and

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[1] Robert Godwin, *Led Zeppelin: The Press Reports* (Ontario: CG Publishing, Inc., 2003), 40.

spectral images, I am advocating a hearing-based approach to rock music analysis—not as a replacement for score analysis, but as a valuable complement to it.

This perspective grew out of my encounter with Albin Zak's book, *The Poetics of Rock: Cutting Tracks, Making Records*, in which are found analyses of studio production techniques in a wide variety of rock songs. Unlike traditional analyses in which harmony and rhythm are primarily studied in conjunction with the lyrics in order to describe a song's emotive qualities (such as, for example, in Walter Everett's well-known studies of the Beatles' music[2]), Zak describes how integral the recording studio process is to the meaning of pop and rock music. Recording studio effects such as reverb and delay are able to convey emotive qualities that, it can be argued, play a uniquely prominent role in the construction of meaning in pop and rock music genres, given their heavy reliance on these effects. While the overriding aesthetic in classical music recording is generally to recreate great live performances, popular music involves a much more active

[2] A few examples of Walter Everett's analyses can be found in his "Text-Painting in the Foreground and Middleground of Paul McCartney's Beatle Song 'She's Leaving Home': A Musical Study of Psychological Conflict," *In Theory Only* 9 (1985): 5-13; "Fantastic Remembrance in John Lennon's 'Strawberry Fields Forever' and 'Julia'," *Musical Quarterly* 72 (1986): 360-85; "The Beatles as Composers: The Genesis of Abbey Road, Side Two" in *Concert Music, Rock and Jazz Since 1945: Essays and Analytical Studies*, eds. E. Marvin and R. Hermann (Rochester, NY: Rochester University Press, 1995), 172-228; *The Beatles as Musicians:* Revolver *Through the* Anthology (New York: Oxford University Press, 1999).

placement of instruments in the stereo field (panning) and a freer use of effects and equalization to alter their timbres.[3]

The sound of a particular song is a result of the circumstances both of its production and re-production; where and how it was recorded shape one part of the aural experience, while the equipment used to play the song on the listener's end shapes the other part. When albums are engineered, all the links in this chain are taken into consideration, right down to whether a mix should favor a consumer's car speakers or home stereo system. These production decisions are also known as "production values." The interaction of these production values and a listener's reception constitutes a system of "recording studio aesthetics." In other words, engineers and producers make decisions based on a variety of factors including their own ideas of what sounds good or what their consumers will like, and these value systems bear directly upon the sound of the recording.

To say that people listen to music in varied and creative ways is self-evident. It is equally true of the way in which producers and engineers shape the music. In the following analyses, I seek to account for some of the myriad ways these songs create meaning for the listener, by elucidating my responses to the music along with the musical devices that I believe are responsible for those responses. These observations are then placed in the service of a sonic narrative—a kind of story told through sound that will be explained shortly. There are three parts, then, to my research: first, articulating my responses to the

[3] This situation may be changing, as classical recordings are likewise relying more and more on recording studio technology to shape their sound.

music; second, identifying and trying to explain the sonic causes of those responses; and third, seeing how they fit into the sonic narrative. My approach is largely hermeneutical, save for the second part, during which sonic events themselves are described.

Like all music analysis, the theorist must subjectively determine which sounds (or pitch structures) warrant discussion, which leads me to one important caveat: this essay makes no claim as to the *intentionality* behind the sounds; whether the engineer or performers consciously intended, or were even aware of, the particular effects is not the focus here. I can only attest to their presence and effect on my own listening experience. One exception would be the chaotic ending in "When the Levee Breaks," which is referenced by Page in interviews and evidences a carefully choreographed mixing scenario. On the other hand, in the first bridge of "Stairway to Heaven," when the keyboard drops to a lower register just as Plant sings "And it makes me wonder," the poignant parallel between depth of feeling and depth of pitch space may be an example of an intuitive decision, rather than something that was consciously planned.

In the two songs I have analyzed, "Stairway to Heaven" and "When the Levee Breaks," the premise is that the recording and production process leaves a mark that is audible, interpretable, and integral in the listener's experience. During the course of analysis, the uses of timbre, musical space and amplitude were treated analytically as equally valid to pitch and rhythm. In addition to Albin Zak's above-mentioned book, similar discussions of rock music analysis can be found in Robert Walser's, *Running With the Devil*: *Power, Gender, and Madness*

in Heavy Metal Music, and Steve Waksman's *Instruments of Desire: The Electric Guitar and the Shaping of Musical Experience*, among others. Particularly noteworthy is Susan Fast's *In the Houses of the Holy*, as the only academic book to my knowledge dedicated solely to Led Zeppelin. Finally, Serge Lacasse's dissertation, "Listen To My Voice," should be mentioned for its intriguing systematic study of the perception of different vocal effects, which may represent the future of this area of popular music analysis.[4]

Methodology

To avoid lengthy descriptions of relatively simple sound relations, I have created a series of diagrams called "sonic snapshots" to help convey my hearing of the mix at a given instance in the song. In these snapshots, instruments are located in a left-middle-right stereo field, with the more audible instruments listed in a larger font size and above the less audible ones. The snapshot duration is indicated below the diagram. **Figure 1** below is a sample snapshot representing a balance of instruments in the mix from 30 seconds to 1 minute into a song.

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[4] Albin J. Zak III, *The Poetics of Rock: Cutting Tracks, Making Records* (Berkeley: University of California Press, 2001); Robert Walser, *Running with the Devil: Power, Gender, and Madness in Heavy Metal Music* (Hanover, N.H.: University Press of New England, 1993); Steven Michael Waksman, *Instruments of Desire: The Electric Guitar and the Shaping of Musical Experience* (Cambridge, MA: Harvard University Press, 1999); Susan Fast**,** *In the Houses of the Holy: Led Zeppelin and the Power of Rock Music* (New York: Oxford University Press, 2001); Serge Lacasse, "'Listen to My Voice': The Evocative Power of Voice in Recorded Rock Music and Other Forms of Vocal Expression" (Ph.D. diss., The University of Liverpool, 2000).

From the snapshot we can see that the voice is most prominent in the center of the stereo field, the drums are most prominent in the right channel, and the rhythm guitar is most prominent in the left channel, while the bass is heard less conspicuously "across the field."

L	M	R
Rhythm Guitar	Voice	Drums
Bass Guitar	Bass Guitar	Bass Guitar

Figure 1: (0:30-1:00)

According to **Figure 1**, the voice is heard *only* in the center, while the rhythm guitar and drums are heard *only* in the left and right channels, respectively. In actuality, different instruments would likely be heard in varying degrees throughout the stereo field, resulting in a more complex snapshot, such as in **Figure 2** below.[5]

L	M	R
Rhythm Guitar	Voice	Drums
Voice / Bass Guitar	Rhythm Guitar / Drums	Voice / Bass Guitar
Drums	Bass Guitar	Rhythm Guitar

Figure 2: (0:30-1:00)

In **Figure 2** we can see that the rhythm guitar becomes weaker, dropping a rung and diminishing in size as we cross from the left channel to the right channel. The same thing happens to the drums in the reverse direction. We also

[5] Occasionally, instruments are panned completely to one side, and thus are wholly inaudible in the opposite channel. This is referred to as being panned "hard" right or left.

notice that instruments can share a rung, such as the voice and bass guitar in the left channel, which indicates they are “equally loud” during the specified time. The more instruments that are involved, the more complicated and difficult it becomes to diagram a mix. It is further complicated by the subjectivity of deciding what is most audible, and the impossibility for readers to reproduce the exact listening environment under which these analyses were made. These obstacles notwithstanding, snapshots can serve as a useful visual reference in following patterns of movement or prominence in a song mix. Because the analysis of recorded music calls into play a number of variables unique to the medium, I must address these before proceeding.

Song Versions

The analyses in this essay were based on recordings from Led Zeppelin’s 1990 boxed set, which was remastered from the original tapes. Whenever a song is remixed or remastered, it is qualitatively changed; while the pitches and rhythms generally remain the same (barring serious editing), their sound may be dramatically different. Formerly inaudible tracks may become prominent, or vice versa. Though not the case here, sometimes entirely new parts are added to the existing tracks. Timbral processes may be applied that have the cumulative effect of either diminishing a song’s impact or vivifying it. While there is something appealingly purist about using the original LPs as the basis of my research, I chose the CD box set for a few practical reasons: first, the constant replaying of musical passages required for my analyses would have placed undue wear and

tear on an aging and fragile LP collection; secondly, most people today will likely have easier access to CD versions of Zeppelin's songs than LP versions; and finally, the differences between the LP versions and the remixed box set I used are not significant enough to hinder the aural observations in this essay.

Audio Equipment

Besides the song version, the audio equipment one uses is critical in the kind of listening experience one has. The same CD played on two different stereo systems can sound dramatically different. Everything from the quality of the circuitry inside the CD player to the quality of the speaker cables can play an audible role in the communication of musical information. Choices such as whether to listen through headphones or through external speakers can make the difference between hearing and not hearing a sonic event. Because this essay is based on close listening, and, in my experience, headphones are generally better at conveying sonic details than standard speakers, I chose to audition the songs through a pair of headphones in the accessible under-$100 range. At the same time, I observed that most if not all of my observations can be heard easily through a typical, mid-sized home stereo system.

Audio Formats

Just a brief word is necessary about audio formats, in particular, mp3. Mp3 compression is essentially a means of reducing the size of an audio file by excising the less audible of two or more simultaneously sounding events. The resulting mp3 file can be as small as $1/10^{th}$ the size of the original CD audio file. Once a file is compressed, the excised information cannot be recovered. Fortunately, for pleasure listening, the difference between CD and mp3 quality is minimal, due to the effectiveness of the algorithmic compression scheme, which mimics patterns of human hearing. For close listening, however, or when listening on higher fidelity equipment, the differences become more noticeable. It is likely that some of my observations, particularly the subtler ones, will become more difficult to hear if one is listening to an mp3 file of the song, rather than a CD. The same can be said if one is listening through poor quality audio equipment such as some compact systems. For this reason, I recommend listening to a CD (or LP) on at least a mid-range stereo system if one is serious about close listening to commercial music.

There is a lively and ongoing debate about whether vinyl LPs provide even higher fidelity than CDs, since during the process of digitization, information is necessarily lost as analog sound waves are converted into the segmented digital "bits" found on a CD. I will refrain here from entering that debate and merely state that either medium would be sufficient to follow the discussion below.

Led Zeppelin

The quote in the title of my dissertation ("A Kind of Construction in Light and Shade") comes from guitarist Jimmy Page of Led Zeppelin—a band he founded, produced, and led with a unique vision from 1968 until the band's dissolution in 1980. He used the terms "light" and "shade" to describe the marriage of acoustic and electric sounds that ultimately came to define the band's sound and helped give rise to a new genre of music, heavy metal, with Led Zeppelin as one of its figureheads. Just as electronic music became the apotheosis of a burgeoning interest in the technological manipulation of sound in the 1950s, so, too, was electronic technology intimately and inextricably bound to the nascent heavy metal sound of Led Zeppelin, and rock music in general.

In the recording studio, the band went to great lengths to integrate this technology into their inherited blues tradition. Because Page was already an adept studio musician both from his pre-Zeppelin days as a highly sought-after session player and from his role as guitarist for the Yardbirds, he had already formed a clear idea of the kind of sound he wanted from Led Zeppelin. The group's entire debut album was recorded in thirty hours, which Page partly attributes to the fact that "I knew exactly what I wanted to do in every respect. I knew where all the guitars were going to go and how it was going to sound—everything."[6]

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[6] Brad Tolinski, "We're Not Worthy! The Exclusive Interview with Jimmy Page," *Guitar World* (May 1993): 46.

Page's reference to "how it was going to sound" indicates that he was thinking not only as a songwriter, but also as a producer. In "'A Magic Science': Rock Music as a Recording Art," Paul Clarke states that recording technology led to "new forms of *creative* art…in which the capturing of performances (on disc or tape or in digital coding) becomes not an end in itself but a gathering of raw material which can then be treated in various ways: speeded up, slowed down, chopped about, mixed, distorted and so on, as part of a process of considered composition."[7] Given Page's prior experience, it is not surprising that Led Zeppelin developed a reputation for experimenting in the recording studio, which afforded a host of novel ways of manipulating sound. This was part of a general growing interest in using recording studio technology as a compositional tool. Taking the recording studio to be a place where compositional decisions were realized not only by performers, but also by engineers and producers, this essay will open a dialogue between traditional musical analysis and "recording studio aesthetics," which, as explained above, refers to all the values underlying the complex process of recording, mixing, and mastering a song and their reception by the listener.

Along with the change in the use of recording studio technology came an elevation in the status of engineers and producers from "technicians" to "artists," which is evidenced today by the prominence of producer credits on commercial recordings, especially in musical genres that are overtly dependent upon technological manipulation, such as dance music, techno, and rap, with their

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[7] Paul Clarke, "'A Magic Science': Rock Music as a Recording Art," *Popular Music* 3 (1983): 195.

complex uses of sampling and effects. It is in this light that I will consider recording studio aesthetics in the songs.

Some of the sonic aspects of recording studio technology that will be explored are the use of spatialization, through movements of instruments in the stereo soundfield; timbre, through the application of distortion, reverb, chorus, and other effects (explained below) that modify the sound quality of an instrument; texture, through the overlapping of parts; dynamics, through precisely timed fade-ins, fade-outs, and other alterations to the volume of a recorded track; and tempo, through adjustments to the playing speed of a track. Space, volume, timbre, texture, and even time itself thus serve as compositional tools in Led Zeppelin's music, and though they were not the first to experiment with recording studio technology, the kind of sound they achieved was highly influential in much of the rock music that followed.

Classical Influences

> When you hear the melodic structures of what classical musicians put together and you compare it to that of a rock 'n' roll record, there's a hell of a long way rock 'n' roll has to go.[8] (Jimmy Page)

Another important factor in Led Zeppelin's sound was the reverence Page had for classical music. His interest was at the early end of a growing trend among heavy metal guitarists to look toward classical music for inspiration.

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[8] "The Durable Led Zeppelin: A conversation with Jimmy Page and Robert Plant," *Rolling Stone* (March 13, 1975) accessed at: http://www.rollingstone.com/news/story/17448380/cover_story_the_durable_led_zeppelin/6

Connected to this was the band's anti-commercialism, as they sought to keep as much artistic control in their own hands and out of the hands of their record label. It should not be overlooked that this artistic control also had a financial component. For example, Page personally delivered the master tapes for the band's first album directly to the record company after having paid for the recording costs out of his own pocket. In so doing, he not only retained the power to choose his own recording engineer, but he also avoided the more expensive recuperative studio costs that the record company would have deducted from the band's album sales. This anti-commercialism plays an important part in deciphering the layers of meaning in "Stairway to Heaven," as discussed in chapter 2. With the help of their manager and former professional wrestler, Peter Grant, they were able to extract favorable terms in their recording contracts and eventually form their own record label, Swan Song Records, through which to release their albums, which, of course, contributed to their freedom to experiment with their own sound. Ironically, the band was accused by some of being overly commercial at the same time that they were trying to project the opposite impression.

Their music was intended to be "serious" music in the same regard the term was often applied (justly or not) to classical music, and many of their songs emulated the longer structures of classical music, which demanded a greater attention span than popular music. In this respect, Led Zeppelin shared a "classical" aesthetic with other late 60s and early 70s rock groups that arose in Britain, such as Yes, Emerson, Lake & Palmer, King Crimson, and others. Page

described the group's recordings as "just frameworks for our stage performances, when we really stretch out."[9] The band also preferred listeners who could appreciate songs that "take a bit of listening"—as is often asserted with classical music.[10] Drummer John Bonham proudly noted during one interview, "Now the kids are looking more, looking harder, much more interested, more aware…completely involved in a number."[11] Demanding this kind of serious engagement turns out to be a critical component in developing a kind of esoteric aura to songs like "Stairway to Heaven."

Page further seemed to view himself more as a rock composer/performer than as a songwriter/guitarist, adopting classical playing techniques such as using a violin bow to emit sounds from his electric guitar in a throwback to Paganini-esque virtuosity, such as in the song, "Dazed and Confused."[12] He insisted this was "not just a gimmick," but rather a means of employing "legitimate bowing techniques…[to] gain new scope and depth."[13] Walser points out that rock guitarists generally viewed such novel performance practices as genuine extensions of the instrument's capabilities, and Page's earnestness was

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[9] Godwin, *Led Zeppelin: The Press Reports*, 72.

[10] Ibid., 73-4.

[11] Ibid., 115.

[12] Robert Walser explores in detail the complex phenomenon of classical music appropriations in heavy metal music in his, "Eruptions: Heavy Metal Appropriations of Classical Virtuosity," *Popular Music* 11.3 (Oct. 1992): 263-308. Susan Fast also discusses this issue in her book, *In the Houses of the Holy*, 52.

[13] Godwin, *Led Zeppelin: The Press Reports*, 101.

certainly mirrored by later rock guitarists like Eddie Van Halen, who popularized the two-handed tapping technique in the 1980s.

On the business side, when negotiating the band's first record deal with Atlantic Records, Page specifically requested to be signed to the parent company and not the rock subsidiary, Atco, because, he said, "I didn't want to be lumped in with those people [other rock groups], I wanted to be associated with something more classic."[14] Though he was likely referring to classic jazz or R&B (the bulk of Atlantic's then catalogue), Page clearly made an effort early on to ally the band with what he viewed as a more prestigious "classic" tradition, which likely carried a certain appeal to their fans as well.

Most germane to this discussion, Page's high esteem for classical music was also influential in his use of acoustic and electric sounds, and he attributed his unique playing style to "the fact that I was listening to folk, classical and Indian music in addition to the blues and rock."[15] His use of a Theremin further helped to define the band as experimental or avant-garde.[16] This ongoing dialogue with classical music (and its associated anti-commercialism), along with the growing possibilities in music technology, opened the door to epic-length songs, extreme and abrupt changes in timbre and texture within a song, the *defamiliarizing* of instruments and sounds, and a general conceptualization of space and time as experimental parameters.

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[14] Tolinski, "We're Not Worthy! The Exclusive Interview with Jimmy Page," 46.

[15] Ibid.

[16] A Theremin was used in the song "Whole Lotta Love."

Use of Technology

Music technology enabled Led Zeppelin to imbue their songs with an additional dramatic sonic element, what I term a "sonic narrative." Just as lyrics and functional harmonic progressions can tell a kind of story (think of the common description of a I-V-I progression as "leaving home" and "returning home"), so, too, can the recording and production process exhibit narrative-like features. By "narrative," I mean the ability to convey a story or dramatic directionality, much in the same way Nicholas Cook describes the classical sonata as a kind of "conventionalized 'plot'," only rather than being strictly a product of harmonic and melodic considerations, a sonic narrative is primarily the result of timbral effects and the mixing process.[17]

The central question of this essay is, "What role does recording studio technology play in the creation of meaning in rock music?" One manifestation of recording studio technology in Led Zeppelin's repertoire was the incorporation of novel sounds in their songs, i.e., sounds that were not easily identified with their means of production. This applied to both vocal and instrumental parts. Surprisingly, even the most familiar of sounds, such as the human voice, can become strangely dissociated from its own "human-ness" when its timbre or another of its sonic qualities is altered. Such examples abound in the two songs I have analyzed, with one notable case occurring in "When the Levee Breaks,"

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[17] Nicholas Cook, *Music, Imagination, Culture* (Oxford: Clarendon Press, 1990), 44.

where Plant's voice, mid-scream, is faded into the mix and only gradually becomes recognizable as a human voice.

Another effect used in "When the Levee Breaks" was to record an instrument with an echo effect and then reverse the tape so that the echo preceded the original sound.[18] Page claimed to have invented this technique, the muffled effect of which is reminiscent of underwater sounds—highly evocative in the context of a textual narrative about a levee breaking.[19] Such effects are not merely interesting in their own unfamiliarity, but also in how they can be construed as pertinent to the song's sonic and textual narratives. It is this multi-faceted approach that particularly interests me and to which I devote much of the analysis.

Recording studio technology affected not only the content of Led Zeppelin's songs, but also their form, and it would be remiss to omit the role of technology in any thorough discussion of either of the two songs' forms.[20] One much remarked characteristic of the songs is their length. Unlike the bulk of commercial pop songs restrained to the three-minute attention span of radio listeners, Led Zeppelin's songs regularly surpassed that limit, often doubling it.

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[18] Echo is an effect that repeats an initial sound and whose repetitions are heard as distinct from the initial sound (as contrasted with a reverb effect, whose multiple repetitions of an initial sound follow so closely to the initial sound so as to prolong it).

[19] Though difficult to verify, it is nonetheless interesting to note Page's claim, given his role as the band's producer.

[20] Mark Spicer explores in detail some of the compositional procedures and forms that arose as a result of the emergence of recording technology in his article, "(Ac)cumulative Form in Pop-Rock Music," *Twentieth-Century Music* 1.1 (2004): 29–64.

The two songs analyzed here, “When the Levee Breaks” and “Stairway to Heaven,” last approximately 7 and 8 minutes respectively. As will be demonstrated in the analyses, factors such as spatialization or timbral effects work alongside changes in texture and harmony to demarcate song sections while providing interest and musical momentum.

For example, in “When the Levee Breaks,” each new verse was timbrally affected, adding an element of variation to repeated verses. Page referred to this use of technology somewhat cryptically in an interview, when he said, “[The] thing I like about ‘Levee’ is that something new is added to every verse.”[21] In this case, we will hear that the alteration of Robert Plant’s vocal timbre helps to define the already formalized verse structure of the song. At the end of the song, however, the manipulation of the stereo channels during the second chorus will serve to distinguish that section as a large-scale goal of the song, above and beyond its formal structure in relation to the verse. In this latter regard, then, the use of technology generates the form, rather than merely helping to define it.

In “Stairway to Heaven,” we will hear how a shift from acoustic to electric and back to acoustic sounds serves as an impetus and provides the overarching shape of the song. While these shifts generally correspond with the occurrence of new verses, the absence of a proper chorus in the song lends more weight to the role of technology as a generator of the song’s formal structure. In considering technology’s role in these songs, the prospect of multiple forms

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[21] Brad Tolinski, “We’re Not Worthy! The Exclusive Interview with Jimmy Page,” 58.

arises: a text-derived arrangement of verses and bridges, and a timbre-derived arrangement of acoustic and electric sounds. An awareness of these choices is central to understanding these songs.

To some, Led Zeppelin's experimentation with musical form was seen as heresy, evidenced by statements such as, "Heavy Metal perverted the well-made, beginning-middle-end structure into more a series of loosely connected 'episodes,' than a coherency of 'song.'"[22] What may appear as "loosely connected" by traditional analytical criteria (pitch and rhythm) turn out, in fact, to be "convincingly connected" in the context of the song's sonic narrative. Such criticisms are, no doubt, especially stinging to Led Zeppelin, as one of the originators of the heavy metal genre. The band's reception in the mainstream media would make for a fascinating study itself and runs the whole gamut from unrestrained praise to the worst of all possible criticism: complete disregard.[23]

Chapter Contents

Besides the introduction and conclusion, this dissertation consists of two chapters devoted to extensive analyses of two of Led Zeppelin's most well-known songs: "When the Levee Breaks" and "Stairway to Heaven." These songs were selected not only because they in many ways epitomize the music of

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[22] Elizabeth Jane Wall Hinds, "The Devil Sings the Blues: Heavy Metal, Gothic Fiction, and 'Postmodern' discourse," *Journal of Popular Culture* 26.3 (Winter 1992): 154.

[23] An excellent resource for such a study can be found in Godwin's aforecited book, *Led Zeppelin: The Press Reports*.

Led Zeppelin, but also because their several and deep levels of meaning make them amenable to the kind of multi-faceted approach adopted herein.

In “When the Levee Breaks” the sonic narrative takes the form of a story of the Mississippi River gradually breaching the levee and flooding the protagonist’s home, forcing him to leave for Chicago. This narrative is portrayed through gradually intensifying timbral and spatial changes to the vocal and instrumental tracks, all of which contribute to a sonic portrayal of the flood.

The sonic narrative in “Stairway to Heaven,” on the other hand, is a story of ascending the “stairway,” which is portrayed through the gradual filling in of frequency and pitch space. Part of this narrative involves moving from a feeling of isolation and separation from nature before the ascent to a sense of community and unity with nature after the ascent, which is conveyed through spatialization, the use of reverb effects, and multi-tracked textures.

Further, this essay accepts the proposition that directional gestures can convey embodied meanings, in addition to whatever meanings are communicated through harmonic structures, external associations, etc. As such, in the “Stairway to Heaven” chapter my analysis relies on interpretations of gesture and direction, especially in understanding the guitar solo, where ascending and descending melodic motions are taken to be fundamental units of musical meaning conveying “ascent” and “descent” in the sonic narrative.

I view this thesis as part of a growing effort to expand musicologists’ arsenal of tools and scope of interest by considering the characteristics of the recording process in music analysis. The following chapters thus draw upon both

traditional methods of analysis including harmonic, rhythmic, and textual analysis, as well as newer methods that consider timbre, spatialization, tempo, multi-track recording, musical agency, and musical signification (semiotics). These last two (agency and semiotics) are broached only inasmuch as they contribute to the central idea of each analysis and are not pursued for their own sake as independent methodologies, i.e., there is no pretense here to be a complete analysis of agency or semiotics in these songs. A thorough consideration of either would yield a wholly different kind of analysis—one that is both tangential to recording studio aesthetics and beyond the scope of this essay. Rather, my goal is for an interdependency to emerge in which the heterogeneous analytical methods inform each other to comprise an analysis whose whole is greater than the sum of its parts.

The heterogeneity of the methods can be seen to have its drawbacks, or more aptly, its trade-offs. Instead of focusing in depth on a single approach, whether that of agency or recording studio aesthetics, multiple approaches were instead placed in the service of a sonic narrative. My twofold purpose in doing this was, first, to acknowledge that this essay is a subjective account of my own hearing of the songs— how I assemble meaning from different relevant corners of my experience—and secondly, to advocate an inclusive methodology of popular music analysis that takes into account the role of the recording studio in the creation of musical meaning.

CHAPTER 1
NARRATIVE USES OF TIMBRE AND SPACE IN "WHEN THE LEVEE BREAKS"

Background and Approach

In "When the Levee Breaks," (henceforth WtLB) an adaptation of the blues song by Kansas Joe McCoy and Memphis Minnie, a deceptively simple drone-like harmonic and rhythmic accompaniment forms the backdrop for a sonic "breaking of the levee" that seems to grow more and more chaotic as the song draws to a close. Though many have remarked about the song's turbulent ending, no one has, to my knowledge, analyzed precisely what happens sonically to create that impression.

Besides the textual story of the levee breaking, there is a "sonic text" in which the breaking levee wreaks havoc upon both the *sound* and *location* of the instruments as well as the voice, which become progressively more affected during the course of the song. These effects are accomplished through deftly coordinated fade-ins and fade-outs, spatial placements, and timbral manipulations that serve to disorient the listener, much like the protagonist who is "tryin' to find" his way home, but doesn't know which way to go; all he knows is he's "got to move." Distinctions between instruments, and even between voice and instrument, are intentionally blurred as instruments and voice are transformed, sometimes into each other, other times into unexpected—grotesque, even—images of themselves. Adding to the sense of disorientation and urgency are subtle changes in tempo at key positions in the song's narrative.

What emerges from the agglomeration of these techniques is an impression of shared agency both among instruments and between electronic instruments and humanly produced sounds. In the former case, a dialogue of sorts emerges between two main characters in this sonic text: the harmonica, a traditional instrument belonging to the older blues tradition, and the electric guitar, the newer instrument and vehicle of the story's contemporary retelling, as each vies with the singer's voice to tell its version of the story. These characters embody several dichotomies. First, they present the clashing musical sound worlds of acoustic versus electric, which is a central theme in Led Zeppelin's music. Secondly, they signify the historical transition from "old blues" to "new blues" through their idiomatic sounds and successive appearances. Finally, they bring to our attention the impact of modernity in the form of electronic technology on the human-like agents in the song and, vicariously, on us.

In his article, "Does the Song Remain the Same? Questions of Authorship and Identification in the Music of Led Zeppelin," Dave Headlam explores the relationship between Kansas Joe and Memphis Minnie's original "Levee Breaks" and Led Zeppelin's adaptation of the song. He describes Zeppelin's song as a combination of "the pounding drums, overdriven guitar sounds, and backward echo effects of rock with the moaning vocals, harmonica, and text of an old blues."[24] It should be mentioned that these sounds and effects only came to represent experimental rock music through their invention and adoption by

[24] Dave Headlam, "Does the Song Remain the Same? Questions of Authorship and Identification in the Music of Led Zeppelin," in *Concert Music, Rock, and Jazz since 1945: Essays and Analytical Studies*, eds. Elizabeth West Marvin and Richard Hermann (New York: University of Rochester Press, 1995), 356.

groups such as Led Zeppelin. For Headlam, the harmonica and slide guitar both "invoke" the blues idiom. Here, the two instruments' roles will be examined as protagonists engaged with the voice in a struggle to tell the story of the levee breaking. As a result of that struggle, both instruments and the voice undergo timbral transformations and become fractured in the process, using various studio effects. Despite their internecine struggles, the harmonica, slide guitar, and voice all share the role of "protagonist," while the antagonistic forces of the river, represented by the droning electric rhythm guitar and the drums, march ever closer. From this struggle, one gets the sense that the instruments are acting autonomously in their battle for our attention. In this regard, one can say that they are acting with *agency*, that they are *co-agents* with the singer's voice.

This battle takes on greater dimensions, as well, if one considers the instruments to be representatives of larger musical traditions; for example, the harmonica as a representative of the older acoustic blues tradition, and the electric slide guitar as a representative of the newer blues tradition (a contemporary analogue of the originally acoustic slide guitar). The interplay of the instruments during the course of the song then becomes symbolic of a historic interplay between old blues and new blues. A dialogue emerges between the two blues with surprisingly destructive consequences for both—all this with the backdrop of an impending natural disaster. Fortunately, the outcome can be interpreted as not altogether hopeless, as will be discussed shortly.

These temporal, timbral and spatial effects, because they are employed at important junctures, act as formal markers as well. Such markers are particularly

important in WtLB, for the listener is not otherwise provided with predictable formal cues for the song's sections, given the monotony of the rhythmic background. Entrances of instruments or the voice, and their accompanying timbral and textural changes, become paramount. Further, returning sections are altered in duration and timbre, creating a sense of varied repetition. I believe this is a critical basis for the oft-heard description of Led Zeppelin's songs as "journeys." In her book *In the Houses of the Holy*, Susan Fast writes, "The musicians and audience [are] taken on a sonic journey in which they experience an openness toward musical form and timbre."[25] The returning section aspect of conventional song form is undercut by the sonic experimentation, resulting in a new formal model that relies on timbre at least as much as it does on the predictability of repeated sections and goal-oriented harmonic motion.[26]

I will first examine the structure of the lyrics to establish the narrative framework of the song. For an overview of the song's form, see the Songmap in **Appendix A**. Then, I will discuss the unique timbral characteristics of the drum introduction and how it epitomizes and sets the course for the rest of the song. Next, I will look at the somewhat elusive formal structure of the song before moving into discussions of agency that arise from the plethora of studio

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[25] Fast, *In the Houses of the Holy,* 47.

[26] For relevant discussions of issues surrounding the relationship between technology and its effects on musical form, see Dave Headlam's article, "Does the Song Remain the Same? (cited in footnote 23); Mark Spicer's "(Ac)cumulative Form in Pop-Rock Music" (cited in footnote 20); and Albin J. Zak, III's "Bob Dylan and Jimi Hendrix: Juxtaposition and Transformation 'All Along the Watchtower'," *Journal of the American Musicological Society* 57.3 (Fall, 2004): 599.

techniques. Finally, I will reflect on the consequences of the meeting between old blues and new blues.

The Written Text: Narrative Aspects

The lyrics to WtLB are a personal recounting of the pain and horror of the Great Mississippi Flood of 1927.[27] (See **Appendix B** for the lyrics.) The breaking of the levee can also be taken as a metaphor for the breaking up of a relationship.[28] While not a narrative in the strictest sense, the lyrics do evidence a basic chronology that proceeds from pre- to post-breaking of the levee. It is clear from the opening lyrics that the levee is still intact: "If it keeps on rainin', levee's goin' to break." This phrase acts as a warning and sets an ominous tone for the song. By mid-song, it appears the protagonist has realized that the levee will inevitably break. This realization is expressed in the futility of the line, "Cryin' won't help ya, prayin' won't do ya no good." The fourth verse shows the protagonist in his most anguished state, as he reflects on his family and home as if they were already lost. In the following outro, we get a sense—though not explicitly stated—that the levee has been breached, for the protagonist has

[27] On its website, The Public Broadcasting Service states that the flood affected an area of 27,000 square miles, killing up to 1,000 people and leaving 1,000,000 people homeless, mostly African-Americans, who had been laborers on the plantations. Adding insult to injury, the black laborers were tagged and forced at gunpoint by the National Guard to repair the levee and protect the property of their plantation owners. http://www.pbs.org/wgbh/amex/flood/tguide/index.html (accessed June, 2006).

[28] Interestingly, the stanza from the original lyrics that most clearly suggested this metaphorical understanding ("I had a woman, she wouldn't do for me…I'm goin' back to my used-to-be") was omitted by the band.

decided he's "goin' to Chicago."[29] We'd been warned earlier that "when the levee breaks…you got to move," and so it is safe to presume the broken levee has now made our "mountain man leave his home."

The chronology of the lyrics can be understood as a tripartite structure, which is partly a psychological narrative, and partly an action narrative: first, the narrator-protagonist *fears* the levee will break; second, he *realizes* the levee will break; and finally, he must move, for the levee has broken. Supporting this structure, two of the three formal breaks in the song (where all instruments and voice come to a halt) occur just before the first two said divisions. The third break is more rhetorical than formal, occurring at the very end of the song, while a distorted, sustained note on the slide guitar links the end of the outro with the final flourish of the rhythm guitar.[30] In addition, there is an incomplete break preceding the first chorus in which the drums drop out while the guitar continues playing. This sets up an expectation for the drums to drop out before the second (and final) chorus, which signals the breaking of the levee. This does not occur,

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[29] By "outro," I mean a counterpart to the introduction at the close of the song such that both intro and outro act as formal sections framing the song. The outro in WtLB begins at 5'57 with the lyrics, "I'm goin' to Chicago."

[30] For those unfamiliar with timbral effects, distortion most commonly refers to a state in which an input signal is amplified up to, or beyond, the physical limit of the tube or transistor's capacity to conduct the current, resulting in an output signal that is no longer a linear (or exact) copy of the input signal. This case represents one among several different kinds of distortion. For the purpose of this discussion, we can take distortion to be an effect that degrades the quality of a sound signal. The manner and degree to which the signal is degraded can result in an endless variety of distortions, from mildly scratchy sounds to siren-like screeches.

however. Instead, the drum beat continues into the second chorus, giving the impression of an “attacca” arrival, i.e., the levee breaks sooner than expected.

The lyrics also can also be divided into three sections based on the narrative tense of their stanzas: the first two stanzas (verses 1 and 2) are told in the first person narrative form; the second two stanzas (the chorus and verse 3) are told in the second person; and the final two stanzas (verse 4 and the outro) return to the first person. (The second chorus has no lyrics and is therefore excluded from consideration here, though it is present in the lyric analysis diagram.) **Figure 1.1** is a diagram of the above-mentioned psychological/action narrative of WtLB showing both the shifts in tense evidenced in the lyrics and the breaks that occur in relation to that narrative.

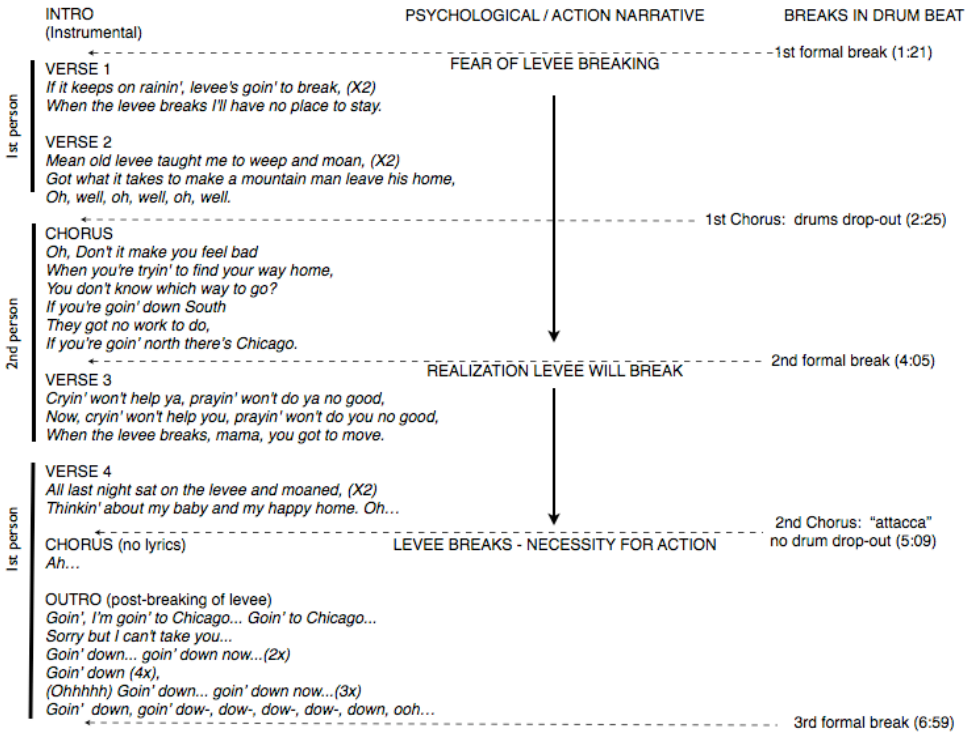

Figure 1.1: Suggested chronological progression in lyrics to WtLB

While these different ways of understanding the structure of the lyrics do not—need not—align in all respects, they do share an essentially tripartite division. Further, the first two narrative divisions, and the breaks that precede them, mark the beginnings of each of the song's two pairs of verse-groups. The third narrative division precedes the outro section that signals the breaking of the levee, and it seems poetically appropriate to have the last formal break punctuate the outro section, as a culminating rhetorical disruption, sealing the fate of the protagonist.

Most importantly, the lyrics provide a framework that helps to explain the various sounds that are encountered during the course of the song. There are correlations between the psychological state of the protagonist as expressed in the lyrics and how the singer's vocal timbre is electronically manipulated, as well as between the narrative account of the breaking of the levee and the physical movement of the instruments in the stereo field. At the singer's moments of greatest anguish, his voice becomes the most distorted and electronically altered. The closer we get to the levee breaking, the more extreme the timbral effects become. When the levee breaks and presumably floods his home, the instruments are shifted around the stereo field to reflect his disorientation in the midst of the catastrophe. This is musically portrayed by positioning Robert Plant's voice in the center of the stereo field, while the instruments on his left and right switch sides with dizzying frequency. Page was especially proud of this device; he said, "One of my favorite mixes is at the end of 'When The Levee Breaks,' when everything starts moving around except for the voice, which stays

stationary."[31] In a more subtle analogy, I would suggest that the psychological/emotional states of the singer correspond to changes in his vocal timbre, while the external world, the action of the flood, enacts changes in the mixing and spatialization of the instruments.

The Sonic Text

The Drum Introduction

The song begins with a two-bar introduction in which the drums play a very insistent, but not rushed, 4/4 pattern with heavily accented first and third beats. While the drums' rhythmic pattern is relatively simple, their sound is very complex timbrally. In fact, the opening few seconds of this drum introduction have gained such currency, by virtue of their distinguishing timbre, as to become one of the most sampled drum parts ever—second only to James Brown's "Funky Drummer."[32] How this timbre was achieved and the effect it has on our perceptions are worth exploring further.

"When the Levee Breaks," along with the rest of Led Zeppelin IV, was recorded at Headley Grange, an 18th-century manor situated in rural Hampshire, England. The unique sound of the drums was the result of a highly unorthodox recording setup in which the drum kit was placed in a stone stairwell with room

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[31] Tolinski, "We're Not Worthy! The Exclusive Interview with Jimmy Page," 58.

[32] Andy Fyfe, *When the Levee Breaks: The Making of Led Zeppelin IV* (Chicago: A Cappella Books, 2003), 85.

microphones suspended three floors overhead.[33] This choice of a recording space stands in sharp contrast to the typically confined space of a recording studio, where closely placed microphones would be situated within inches of each individual drum head.[34] In fact, Jimmy Page said he was trying to avoid the sound of conventionally recorded drums.

> When I was playing sessions, I noticed that the engineers would always place the bass drum mic right next to the head…I discovered that if you move [the] mic away from the drums, the sound would have room to breathe, hence a bigger drum sound. I kept exploring and expanding that approach, to the point that we were actually placing mics in hallways, which is how we got the sound on "When The Levee Breaks." That was purely in the search for ambience and getting the best out of the drums.[35]

The result of the expanded distance between the sound source (the drums) and the microphone was that the drums appear to be coming from a space that is somehow distant and indistinct. Also, the stone walls of the recording environment had a significant impact upon the sound. Because stone is, acoustically speaking, a highly non-absorbent material, the sound waves were reflected within the stairwell with a greater intensity than if the walls were composed of a more absorbent material, which would have mitigated some of the reverberating sound waves. The net effect of the drum and mic positioning was the creation of an exaggerated sense of space along with an intense echo effect.

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[33] Ibid, p. 84.

[34] Some typical microphone setups are described in David Miles Huber and Robert E. Runstein, *Modern Recording Techniques*, 4th Ed. (Boston: Focal Press, 1997), 135-40.

[35] Tolinski, “We’re Not Worthy! The Exclusive Interview with Jimmy Page,” 58.

In addition to the positioning of the drums and microphones, the type of microphone used also played an important role in the quality of the sound. Microphone selection is a highly personal and discriminating process, and is generally meant to afford a “clean” sound, by which is meant that the different components of the drum set would be heard distinctly, in order to complement, rather than interfere, with each other. In a traditional setup, the acoustic properties of the drums would dictate the choice of microphones; the low frequency-producing kick drum would be paired with a specially adapted kick-drum mic that could handle the intense sound pressure levels, while the high frequency-producing snare drum would receive a mic with a more sensitive sound capturing apparatus. Once the individual drums have been paired with microphones, a stereo pair of “room” mics is often placed directly above the drum kit, in order to capture the cumulative sound of the drums as they interact with the natural acoustic properties of the space. In the mixing process, the multiple signal levels of the individual drums would be balanced (“mixed”) with the signals captured from the room microphones to suit the taste of engineer, producer, and artists. It is easy to see how a typical drum kit could require a large assortment of microphones to record it.

In WtLB, the bypassing of individual drum microphones in favor of a simple stereo pair of room microphones had a significant effect on the sound of the drums, for room microphones are only meant to capture an instrument and a space together; the focus in “When the Levee Breaks” was therefore not the details of the individual drums’ timbres, but the sound of the space they occupy,

their sonic "shadow." It is a fitting analogy that, just as army engineers had corralled the pre-1927 Mississippi river into a single channel of earthen ridges, so, too, did Led Zeppelin "corral" the metaphorical river, in the form of drum beats, into a simple stereo pair of mics. The result is an inseparable blending of the percussive sounds of the drums along with their own echoes in the stairwell, essentially muddying their sound and blurring their distinctness. **Figure 1.2** illustrates how the echo effect also alters our perception of the drums' rhythmic pattern, as echoed repetitions of drum hits blend with actual drum hits. These effects, then, are not merely qualitative in nature, but quantitative as well.

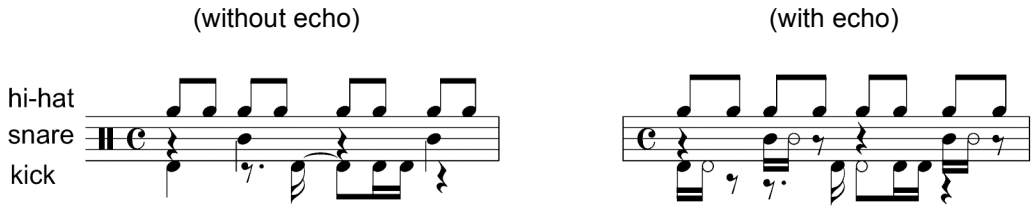

Figure 1.2: Drum rhythms before and after addition of echo. Hollow noteheads are echoes.

This drum sound was the result of much thought and planning—what Andy Fyfe called Jimmy Page's "master plan for the track, which he set out to make sound as ominous as possible."[36] Ironically, the de-emphasis of the individuality of the drums' timbres resulted in one of the most unique drum sounds ever recorded. It is also worth mentioning that the instrumental tracks for the song were apparently recorded at a faster speed than the voice, and later

[36] Fyfe, *When the Levee Breaks*, 85.

slowed down to match the voice.[37] The non-uniform recording speeds imbue the music with a certain sluggishness or uneasiness.

Another important aspect of the drums' timbre is the flanger effect, which is most noticeable on the hi-hat cymbal.[38] This wave-like effect periodically alters the "fuzziness" of the cymbal strikes, making them sound as if they are getting further, then closer, every few seconds. It is easiest to hear this "near/far-ness" when the left speaker is isolated during the intro and into the first few bars of the harmonica's entrance. The near/far effect complements the left/right panning of the music in the stereo field, providing a four-dimensional space in which the listener can experience the breaking of the levee. It also acts as an ominous signal that the waters could very well leap out of the speaker *toward* the listener. In fact, the waters do leap out at 1:35 just after Plant reiterates that the "levee's goin' to break."

More than a mere introduction, the sound of the recorded drum part provides an added level of meaning to the dramatic world of the text. The drum recording setup in "When the Levee Breaks" turns the recording aesthetic on its head, aiming for an overall sound in which none of the components are perceived as separate. Rather, they are blended into a chaotic "wash" of sound waves, emulating the waves of the Mississippi River alluded to in the text. Such

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[37] Chuck Eddy, "The Making of Led Zeppelin's Zoso," *Rolling Stone* (May 15, 1997): 74.

[38] Flanger is an effect that adds to an input signal a very slightly delayed copy of itself. The delay is so slight (below 20ms) that no echo is apparent. The delay time is modulated by a waveform (sine, triangle, etc.) introduced through a low frequency oscillator, which results in a sweeping, muffled effect.

recording techniques are appropriate in the context of a song that discusses being inundated with water and, metaphorically, with emotion, as they threaten to disorient and even envelop the listener.

The introduction serves another purpose as well; it acts as a timbral immersion into a world that is clearly not that from which we are listening—the drums in no way sound "live" or natural. Instead, they sound far away, unreal. The unnaturally exaggerated spatial "distance" in the recording also serves as a metaphor for temporal distance, signaling to us that we are being told a story—perhaps one that happened a long time ago and has been repeated (by earlier blues artists). The created space in the drum introduction becomes not a mere blues parodying effect, but rather a timbral "frame" within which there are no pretensions to authenticity; this is a story of a story, so to speak. Old blues is being filtered through a new blues lens.

Stereo Placement and Prominence

Once the story begins, many additional factors come into play to add dimension to the breaking of the levee. Quite often, these factors take the form of subtle effects that grow in salience as the piece grows in familiarity. Jimmy Page, who produced the song, said "'When the Levee Breaks' is probably the most subtle [track on the album]…as far as the production goes because each 12 bars has something new about it, though at first it might not be apparent."[39] Close listening reveals definite changes in the timbres of both the instruments and the

[39] Dave Schulps, "Jimmy Page Tells His Story," *Trouser Press* 23, November, 1977, 20.

voice as the song-story progresses. In addition, the instruments and voice are constantly shifted around in the listening field. These panning changes dramatically increase in frequency at the end of the song, as a metaphoric manifestation of the chaos that ensues, following the breaking of the levee. The solo drum introduction can be diagrammed as follows in **Figure 1.3**:

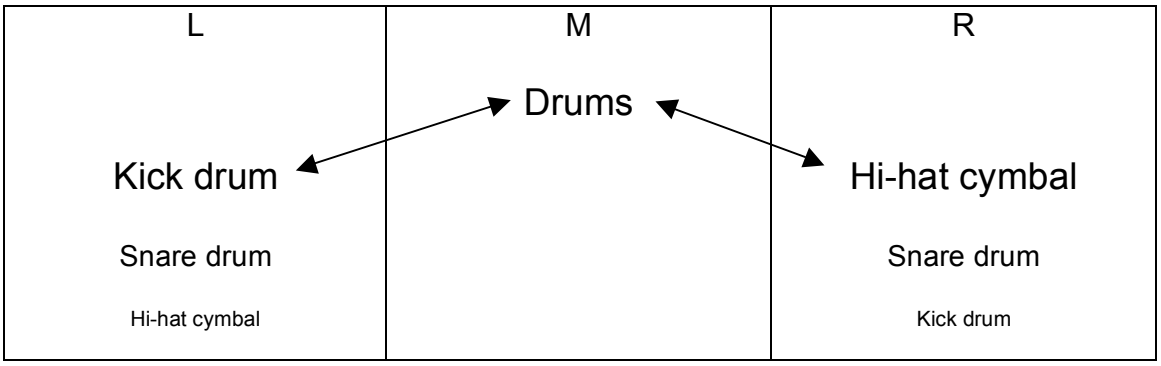

Figure 1.3: (0:00-0:06) Solo drum introduction

At the top left of the diagram, we can see that this "snapshot" represents a set of circumstances whose duration is the first six seconds of the track time. From this, we can see that the drums are heard in the center of the stereo field, while the arrows indicate placement and prominence of various components of the drum set. There is a marked emphasis of the low frequencies in the left channel and high frequencies in the right channel. The result is that the instruments with lower frequencies such as the kick drum and snare drum are more prominent in the left channel, while the cymbal and the punchy middle frequencies of the snare drum are more prominent on the right side. The "centeredness" of the drums is our cumulative impression of this balancing of low and high frequencies.

We get from this balance a sense of stasis, but also of great potential energy, for though there is a sense of equilibrium, the sonic image is flanked by opposing forces on either side: low vs. high; resonating wood (left) vs. crashing metal (right); inverted instrumental prominence. The balance is a fragile one, and as the song progresses—and the force of the waters is felt against the levee—balance is lost as nature inevitably overruns the man-made artifice.

Issues of Form

One of the most salient features of WtLB is the dogged insistence of the rhythm guitar and drum parts, which seem to drone on beneath all that is happening, with few exceptions. The constancy of the rhythm section permits us to draw our attention to other elements in the song such as the timbral and emotive qualities of Robert Plant's voice and the harmonica, or the electric guitar parts that are overdubbed and affected in a variety of ways. The gestures and timbres of these instruments stand in relief against the apparently consistent rhythmic backdrop.

Our impression of consistency, however, is illusory, and masks a highly unpredictable and unsettling scene in which the breaking of the levee is played out. The two instruments that contribute to this unsettling effect at the opening are the rhythm guitar and the harmonica, each of which has its own way of disorienting our sense of formal structure. The consistency of the drumming pattern also masks slight variations in tempo that occur just before and after the choruses, as can be seen in **Figure 1.4**. The tempo picks up at 2:39, though the

acceleration becomes most noticeable only at 3:08, due to the isolation of the drum and rhythm guitar parts back in their familiar context of the opening introduction. The tempo then slows down again from 3:11–22, so that the arrival of the next chorus at 5:48 can again be accelerated to the slightly quicker tempo, making it sound energized, like the first chorus. During the outro, the tempo feels particularly fluid, with slight accelerations and decelerations. This can be heard from 6:21-33, where the tempo seems to slow down slightly.

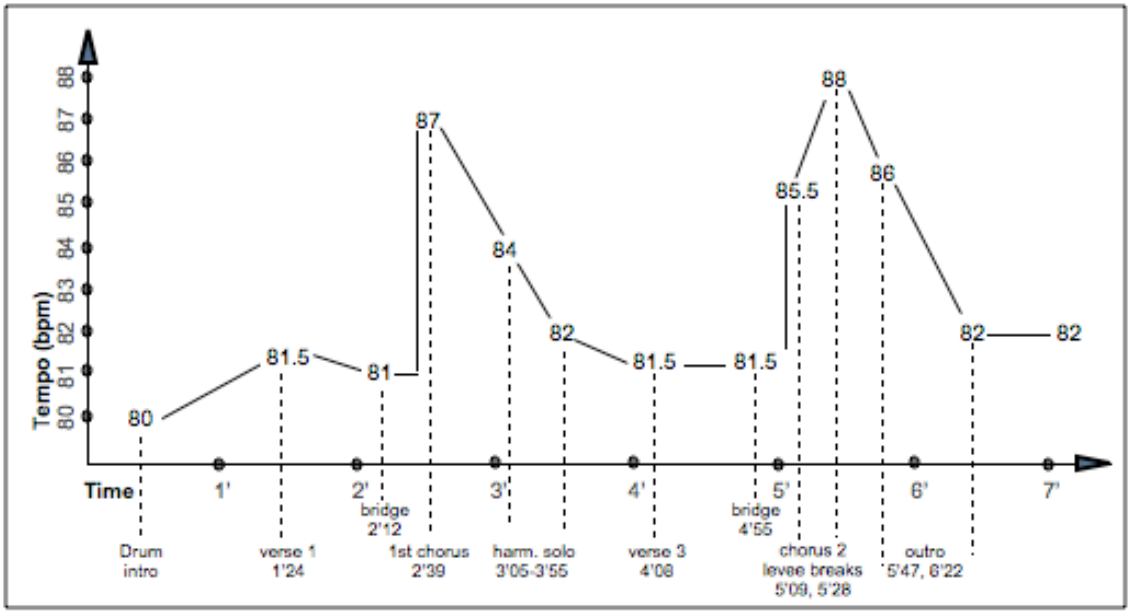

Figure 1.4: Tempo map in "When the Levee Breaks." Tempos are the best approximation possible, given the inconstant rates throughout the song. Note that the tempo is fastest during the choruses, after which the pace gradually slows.

Unpredictability in the Rhythm Guitar's Turnarounds

The opening rhythm guitar riff, shown in **Figure 1.5a**, essentially consists of a descending m3 that occasionally "resets" itself by ascending a P4 (from C to

F), which functions as a kind of abbreviated blues "turnaround."[40] This P4-leap occurs at the end of the measure and serves to strengthen the downbeat of the next bar. It therefore helps the listener to rhythmically define the beginnings of larger metrical groups as hypermetric downbeats. The two-bar drum introduction in 4/4 time creates the expectation of two-, and consequently, four-bar hypermeter during the harmonica solo. Because the rhythm guitar and drums enter in the third bar—making the prior two bars sound "introductory"—one tends to initiate a hypermetric hearing from their entrance, and not from the very beginning of the song. Subsequent 2-bar and 4-bar hypermetric groups are further strengthened as the rhythm guitar's turnarounds occur just before hypermetric downbeats at mm.4, 6, 8, 10 and 12. Measure 12, however, marks the last coincident occurrence of the turnaround and a hypermetric downbeat (until the end of the harmonica's solo at m.20). After that, whether one tries to hear two- or four-bar units, the turnarounds occur in between, rather than just before, hypermetric downbeats, thus destabilizing our sense of larger metrical units. This irregular metric scheme is illustrated in **Figure 1.5b** (below).

[40] A turnaround in blues music generally refers to the ending portion of a musical phrase that acts as a segue from one verse to the next, using harmonic and/or rhythmic variation to provide interest. Though atypical, the figure on the last two beats of the bar in **Figure 1.5a** functions similarly to a turnaround by breaking up the otherwise monotonous riff with a new interval (P4) and faster rhythms.

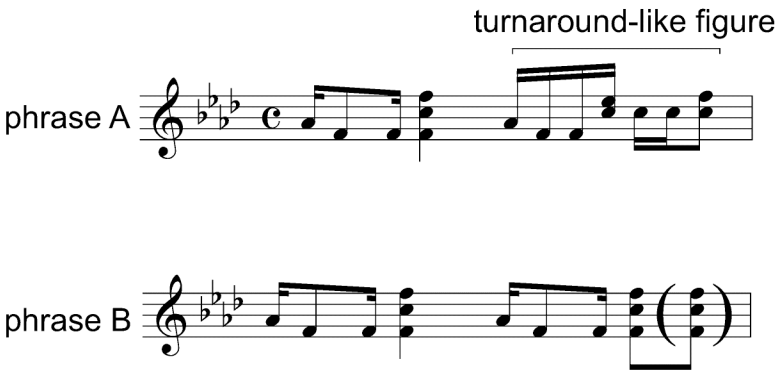

Figure 1.5a: Rhythm guitar riff in WtLB. Phrase A contains the turnaround; Phrase B is played in bars where there is no turnaround. (The last chord is occasionally articulated twice.)

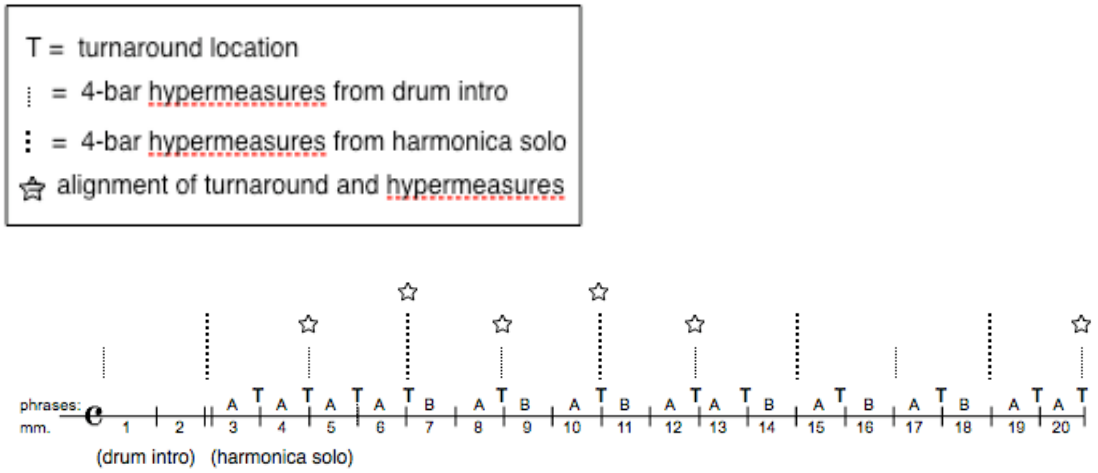

Figure 1.5b: Correspondence of turnaround and hypermeter in WtLB. Toward the end of the section, the turnaround and hypermeter—regardless of which one is posited and from where one tries to begin hearing it—cease to be aligned. (See Key)

Furthermore, if one posits a four-bar hypermeter from m.3, then the bridge (m.21) sounds like it arrives "early," i.e., in the middle of a hypermetric unit. On the other hand, hearing a four-bar hypermeter from m.1 is problematic because of the strong feeling of a structural downbeat created by the entrance of the guitar and drums in m.3. One can say, then, that an extended (four-bar) hypermeter is suppressed in the opening section of the song, in favor of shorter

(two-bar) groupings, the effect of which is destabilizing. This phenomenon is akin to Robert Walser's observation that "although most metal is in 4/4 time, the rhythmic framework is organized more basically around a pulse than a meter."[41] Once the hypermetric anchor is lifted at m.12, the listener is left in an ambivalent state with regard to the hypermeter, floating on the groove of the drums and the rhythm guitar. The effect is subtle, yet powerful; one feels carried away by the rhythms, more receptive to other changes such as in texture or timbre that may lie ahead.

These disorienting effects serve two purposes: first, they counter the monotony of the drum beat by introducing uncertainty into the music; second, they subtly bring the listener closer to the mental state of the song's protagonist—a rhythmic metaphor for the uncertainty he must feel as the river approaches.

Suppressed Hypermeter in the Harmonica Solo

Further challenging our hypermetric orientation at the opening is the harmonica's extended eighteen-bar solo during the introduction—far beyond when we expect the first verse to begin. This serves both rhetorical and functional purposes. First, it introduces us to the urgency and suffering that we anticipate hearing about in the story; they are inherent in the tone of the playing and the nature of the gestures, which mimic wailing human cries and broken,

[41] Robert Walser, *Running With The Devil*, 49.

choppy sobs, and are only exacerbated by the extended period during which this carries on.

Secondly, it is by virtue of the harmonica's insistence that we are further compelled to suspend a hypermetric hearing of the introduction, not only because our expectations of the singer's entrance are continually subverted, but also because the harmonica's phrases seem to float freely above the drum beat, with only occasional regard to hypermetric downbeats, as shown in **Figure 1.6**.

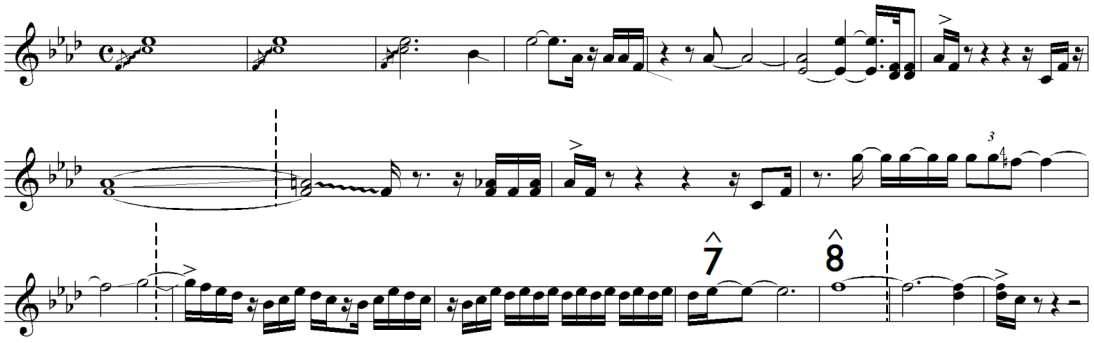

Figure 1.6: (0:07–1:07) First harmonica solo in "When the Levee Breaks." Dotted lines indicate hypermetric divisions. Smaller noteheads indicate less prominent, yet audible, tones.

This prepares us to hear the remainder of the song more flexibly with regard to its formal structure. Indeed, the form requires this of us as we cruise through irregularities such as seven-bar verses (the first two verses, "If it keeps on raining…" and "mean ol' levee…"), and abbreviated 4/4 bars where the drumming drops out and the downbeat of the following bar occurs earlier than it should be, based on the established tempo of the drums (at 1:21, 4:05, and 6:59). These breaks in the song's momentum are discussed above in the lyrics section and illustrated in **Figure 1.1**.

Formal ambiguity and irregularity, then, are important aspects of WtLB. Despite the easily recognizable two-bar introduction in 4/4 time at the song's opening, it becomes difficult early on to hear those bars as parts of regular hypermetric groups, for reasons explained above. The oft-described regularity and consistency of the rhythm part at the opening of WtLB is only a red herring; when explored further, the introduction reveals itself to be highly unstable and unpredictable. If these qualities can be taken to represent the unpredictability inherent in nature and, more specifically, in the threatening river, then one can say that the "seeds of disaster" are present early on in the otherwise unassuming opening.

Piecing Together the Sonic Narrative

Issues of Agency

An important element in the narrative of WtLB is the character of the harmonica's phrases, which seem more "representational" than melodic. That is, rather than hearing the harmonica's notes as a melody, I hear them as gestures that seem to be mimicking the wails of a person, one who is suffering through the crisis of the levee breaking. The emotive quality of the instrument here lies more in the characteristics of these gestures, their shape (ascents, descents and bends), speed (fast flurries and sustained notes), and timbre (breathiness and scratchiness), than in the actual pitch content in relation to a perceived tonic. This is not to say that pitch is unimportant, just that it is secondary to these other

factors in this regard. The harmonica, then, takes on the persona of a protagonist who is suffering through the breaking of the levee. This is well in the tradition of harmonica performance practice.[42] Here, the harmonica depicts the feelings that the singer will soon describe. What is new in this music, however, is that, using recording studio technology, the depictive role of the voice is elevated in status such that it can convey two parallel stories: one which is *told* in the lyrics, and another which is *heard* in the changing qualities of its timbre. In short, the voice is instrument-like in this song. One consequence of this is that the other instruments are better able to challenge the voice's authority as the sole narrator of the story, i.e., the instrumentalization of the voice acts as a catalyst for the ascending agency of the other instruments.

The role of the harmonica as agent of the singer is further supported by its placement in the song mix. During the harmonica solo after the two-bar drum introduction, the instruments are positioned in the stereo field with the harmonica panned hard left and the rhythm guitar panned hard right. This placement is illustrated in **Figure 1.7** (below).

L	M	R
Harmonica	Drums	Guitar
Drums	(Harmonica – Guitar)	Drums
(Guitar)		(Harmonica)

[42] Michael S Licht, "Harmonica Magic: Virtuoso Display in American Folk Music," *Ethnomusicology* 24.2 (1980): 211–21. Licht describes how players would carry on a "conversation" with their harmonica, which would play the role of a person, often a child, due to its higher pitch and "imperfect" pronunciation.

Figure 1.7: (0:08–0:20) In the snapshot, we can see that in the left channel the harmonica is the loudest, followed by the drums and the guitar, while in the right channel, the guitar is most prominent, followed by the drums and the harmonica.

These areas are so strictly defined as the two instruments' unique spaces that each one is virtually inaudible on the opposite side. Acting as a mediating—or perhaps all-encompassing—force, the drums occupy the center.

As illustrated in the transcription in **Figure 1.6**, the harmonica solo ends on a sustained final plea moving from scale degree ♭7 up to the tonic, punctuated with one last outburst, like a dying breath, before disappearing from the mix at 1:05. After 18 bars, during which it was the primary occupant of the left channel, the harmonica's absence is palpable. We sense a void in the stereo field as we wonder whether the harmonica will re-enter, defying our expectation yet again, as it had repeatedly done earlier.

Instead of hearing another harmonica entrance, we hear the bridge, dominated by the chorused sound of the rhythm guitar, whose space had already been defined in the right channel, and remains so during the bridge.[43] There is no change in the mix to remedy the empty space in the left channel. Only when the voice enters with the first verse (1:24) is the space satisfactorily occupied. In fact, the voice *takes over* the former space of the harmonica in such a way as to assume its role, lending it a voice, so to speak—or, more accurately, words. This

[43] For those unfamiliar with chorus, it is an effect that adds slightly delayed and pitch-modulated repetitions of an input signal to itself. The delay is modulated by the introduction of a low frequency oscillator that generates a waveform (sine wave, triangle wave, etc.) whose shape guides both the degree of the delay and the consequent speeding up or slowing down of the pitch. Chorus serves to thicken the texture of a sound, and can make a single instrument sound like multiple instruments.

establishes a sense of co-identity between the harmonica and the voice, one that is passed back and forth during the course of the song in a variety of manners.

This identity-exchange is further reinforced by how the two instruments' timbres are similarly affected with a heavy dose of reverb making them both sound as if inside a large chamber. (Engineers describe this sound as "wet.") They can thus be perceived as sharing, or emanating from, the same space. In his dissertation on vocal "staging," Lacasse observed that "the virtual environment created by reverberation acts…as a kind of theatrical *rampe*…listeners on one side, the artist on the other. When this limit is overstepped…there is a feeling of invasion, intrusion, or of extreme intimacy."[44] In the same line of reasoning, it is suggested here that two instruments that share similar reverberant environments can thus be heard as somehow intimately connected. Further, Plant's voice comes across as very trebly and slightly distorted, particularly on the "s" sounds. The relative lack of mid- and low-range frequencies makes his voice sound even more harmonica-like. These sonic effects constitute a kinship between the two instruments, a timbral "passing of the baton," as both harmonica and voice recount to us the story of the levee. Just as Plant's voice is "instrumentalized," so, too, is the harmonica "humanized" as a co-agent in the telling of the story. Once the harmonica has ceded its space to the voice, the instruments and voice are situated in the stereo field for the first two verses as illustrated in **Figure 1.8** (below).

[44] Serge Lacasse, "'Listen to My Voice'," 240.

L	M	R
(Harmonica)→Voice Drums (Rhythm Guitar)	Voice Drums-Rhythm Guitar	Rhythm Guitar Drums Voice

Figure 1.8: (1:24–2:12) "If it keeps on rainin'…" The arrow indicates that the harmonica has ceded its space to the voice, which sounds centered, but with an emphasis to the left as a result. This is also reflected in the Panning Overview diagram in Appendix C.

When the voice drops out after the two verses, just as with the harmonica earlier, the void in the left channel is left unresolved through the ensuing bridge and beginning of the chorus, until the entrance of the slide guitar riff at 2:32. Just before its entrance, we can hear how the solo rhythm guitar, affected with chorus and heavily compressed, is panned with an emphasis to the right at the beginning of the chorus (2:26), apparently reserving the left channel for the slide guitar. This is illustrated in **Figure 1.9**.

L	M	R
Rhythm Guitar	Rhythm Guitar	Rhythm Guitar

Figure 1.9: (2:26–2:32) The rhythm guitar's volume is balanced in favor of the right channel.

When the slide guitar ushers in the first chorus, it and the rhythm guitar are panned hard left and right, respectively, such that, just as with the harmonica and voice earlier, they are virtually absent in the opposing channels. The drums are, as before, audible across the entire stereo field and sound centered, almost

by default, because both left and right sides have strongly present occupants. This scenario is illustrated in **Figure 1.10**.

L	M	R
(Voice) → Slide Guitar Drums	Drums Slide guitar-Rhythm Guitar	Rhythm Guitar Drums

Figure 1.10: (2:33–2:38) The arrow indicates that the voice has ceded its space to the slide guitar.

The positioning of the slide guitar in the left channel makes it "heir" in the agency-exchange that has been occurring on that side, first from the harmonica to the voice, and now from the voice to the slide guitar. Breaking from the prior pattern, this time when the voice enters (2:38), the slide guitar does not exit and cede its space to the singer, but instead holds its ground in the left channel, remaining as an accompanying contrapuntal co-singer. Because the voice must now share its space with the slide guitar, it enters in the center, flanked on its left by the slide guitar and on its right by the rhythm guitar, and supported beneath by the drums. Though the voice and drums can be heard on both sides, they are weak there, buried by the occupants of those spaces. The slide and rhythm guitars, however, can only be heard on their respective sides and are thus subordinate to the voice and drums in the stereo space they occupy. This complex sonic landscape is illustrated in **Figure 1.11** (below).

L	M	R
Slide Guitar	Voice	Rhythm Guitar
Voice	Drums	Voice
Drums	Slide guitar-Rhythm Guitar	drums

Figure 1.11: (2:38–2:58) First Chorus: "Oh, Don't it make you feel bad…"

It is also important to note that the singer's entrance in the chorus is both preceded, and followed, by the slide guitar. That the voice must share not only its *space* but also its *time* with the slide guitar has the effect of diminishing its role, or perhaps placing it on a more equal footing with the other instrument. Its traditional role as sole agent of the narrative is being challenged.

In the above case, where the voice does not take over the space of the prior solo instrument, there are other ways that its co-agency is established. One way is by adopting the musical gestures of the prior instrument. **Figure 1.12** is a transcription of both the slide guitar riff and Plant's vocal part during the first chorus. The slide guitar riff is a series of stepwise descending m3 glissandos followed by leaps back up to the starting pitch. The stepwise movement of the guitar riff is minimized due to the use of the slide, and it is the contour, the gesture, that takes precedence. In addition, the use of a slide not only recalls the blues idiom, but also brings the guitar one step closer to human vocal reproduction, with its non-specific pitch increments—and closer to the idiomatic bent notes of the harmonica.

When Plant begins singing in the first chorus, he does so from the same pitch and in the same register as the last note of the slide guitar riff (indicated by the dotted line in **Figure 1.12**). Further emphasizing their common identity, the voice adopts the distorted tone of the guitar, particularly on the same pitch that was distorted with a slight tremolo in the slide guitar riff. This distortion is accomplished not only by Plant's obvious extreme vocal effort, but also by the fact that his vocal levels have purposely been allowed to exceed the distortion threshold level of the recording equipment. In other words, his loudness has been amplified "beyond the limit," in order to produce the grainy sound of feedback that signals to the listener the raw intensity of an electric guitar. This combination of two distortions, one natural and the other artificial, lends his voice a mechanical air, making it easier for us to hear him as if he had one foot in the natural world and one in the synthetic world, partially objectifying him into an instrument—something Waksman described as "the disturbance of the boundary between voice and guitar, and the manner in which Plant's voice is effectively denaturalized."[45] To that end, Plant vocalizes with filled-in m3 gestures similar to those of the slide guitar at 2:52 (linked in dotted boxes in **Figure 1.12** below).

[45] Waksman, *Instruments of Desire*, 274.

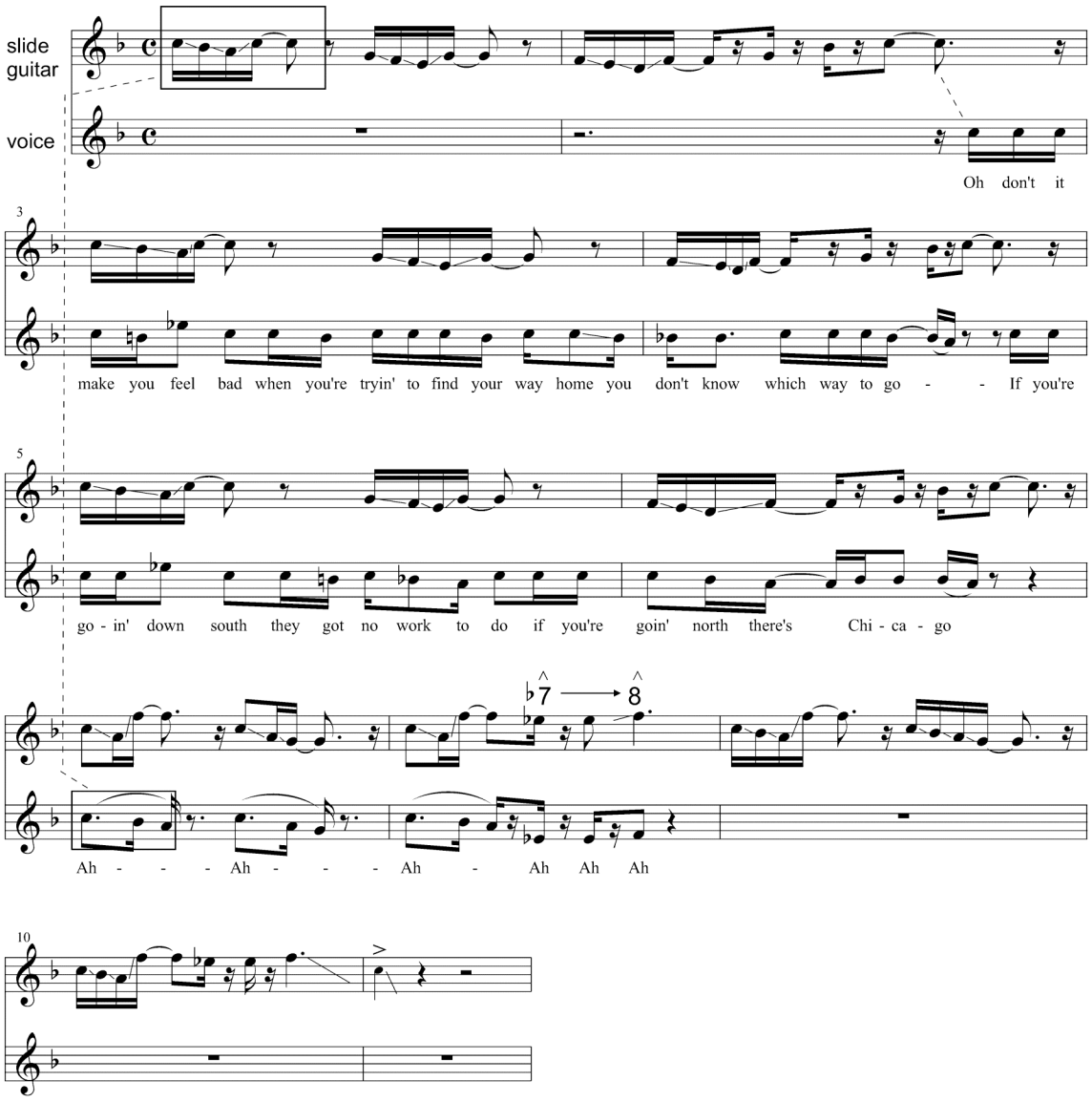

Figure 1.12: (2:38–2:58) First Chorus: "Oh, Don't it make you feel bad…" Similar starting pitch, melodic material, and cadences establish co-agency between not only the slide guitar and the voice, but between those two instruments and the harmonica.

Recalling the scale degree ♭7-8 cadence that closed the harmonica's first solo, both the voice and the slide guitar simultaneously use the same cadence to close off the vocal phrase in the chorus (indicated by scale degree numbers in **Figure 1.12**). By means not only of similar timbral effects, then, but also similar melodic material, Plant, in effect, "becomes" the slide guitar, while at the same

time, a shared agency is reinforced among all three “singers” (harmonica, voice, slide guitar) via a common cadential motive.

The above-described scenario in **Figure 1.12** is one of the most intense moments in the whole song, not only because of the sheer volume and complexity of the texture, but also because of the added potency created by our hearing several “singers” (or “agents,” if you will) simultaneously. The accumulated energy is so intense, in fact, that its discharge becomes urgent, resulting in a long downward, distorted glissando figure in the slide guitar that sweeps across the stereo field from left to right, catapulting us back to the music of the beginning at 3:06 into the song (more than enough time to contain a complete song). The urgency of this “release of pressure” is apparently so cataclysmic that the tail end of the glissando is rearticulated in the right channel as a kind of “aftershock” (see the final bar of **Figure 1.12**). For the time being, the pressing waters have receded, the levee has held, and though we have not yet had to move, we are more worried, more threatened.

The Chorus as a Sonic, Harmonic, and Motivic Arrival

The chorus in WtLB represents an anomaly and is worth exploring in more detail. Typically, a song’s texture is thinner during the verse (so it’s easier to hear the singer) and thicker during the chorus, which is usually set-up as a harmonic goal of motion. Here, however, the chorus constitutes a diminished texture coming from the verse, and is ushered in with only a solo rhythm guitar. Though the guitar’s chorus effect does serve to thicken the timbre of the instrument, this

only partly compensates for the thinner texture. In addition, the drum beat, heretofore the most stable rhythmic and spatial element of the song, drops out for the first two bars.

Also significant is the fact that the bridge's ♭VI- ♭VII-(i/I) progression already lands conclusively on the tonic harmony, stealing any sense of tonic arrival from the following chorus. Nonetheless, the chorus's arrival does seem satisfying, but for reasons other than might be expected. The transition from the bridge into the chorus is transcribed in **Figure 1.13** (below). During the bridge, the rhythm guitar happens to leave off the third of the tonic chord (hence its dual representation above as minor/major). The bass articulates the m3 of the triad, but only in an alternating pattern between scale degrees 1 and 3, and eventually lands on scale degree 1, not 3, with the final guitar tonic chord—significantly leaving the chord's major/minor quality open-ended.

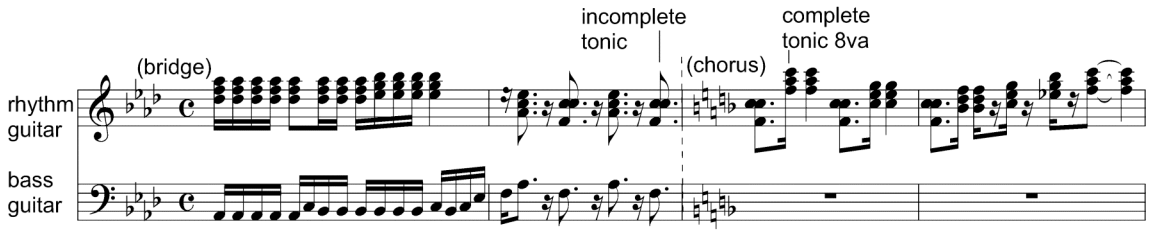

Figure 1.13: (2:12–2:26) Bridge-Chorus transition: The Chorus provides a conclusive major tonic tonality following the bridge's open tonic chords.

As shown in **Figure 1.13**, the chorus enters with the same incomplete chord that ended the bridge, only it now moves to a complete tonic major chord an octave higher. As a gesture of completion, the openness of the bridge's tonic chord in the lower register is alternated with the fullness of the chorus's complete

triads in the upper register. At the same time, the presence of the ♭7-8 cadential motive, as roots of the final two chords in **Figure 1.13**, links the rhythm guitar to the prior soloists, namely the harmonica, voice, and slide guitar.

In summary, the beginning of the chorus evidences two independent, yet analogous, filling-in techniques: the filling in of the incomplete tonic chord from the bridge; and the extension and subsequent filling-in of registral space initiated by the guitar's jump to a higher octave. It also articulates the same cadential motive found in the earlier solo instruments. Together, these techniques create a sense of cohesion that acts as a surrogate for the more traditional means of connecting verses and choruses using harmonic function. In a repertoire rife with apparent disjunctions and ruptures, they serve to create continuity among the various sections.

The Beginning of "The End": A "False Recapitulation" Mid-song

As stated above, all the characters in this narrative undergo timbral changes that can be understood as a result of both the breaking of the levee, as well as of the clashing of two different sound worlds: old blues/acoustic vs. new blues/electric, represented by the harmonica and electric guitar, respectively. These changes become readily apparent during the harmonica's second solo and in verses 3 and 4. The end of the slide guitar's solo in the first chorus marks the mid-point in the song's formal structure, dividing the song into two halves, each of which contains an intro/outro, two verses, two bridges, and one chorus. **Figure 1.14** illustrates how, after the slide guitar closes out the chorus, its exit

from the left channel is immediately replaced by the harmonica's second solo, which occupies the left channel until 3:56, at which point it drops out. It sounds as if the slide guitar hurriedly evacuates the left channel, and sweeps past the right channel on its way out, in order to make way for the harmonica, which is asserting itself more aggressively in this second half.

L	M	R
(Slide Guitar)→ Harmonica	Drums	Rhythm Guitar
Drums	Slide guitar-Rhythm	Drums
Bass	Guitar	(Harmonica)

Figure 1.14: (3:05–3:56) The arrow indicates that the slide guitar cedes its space to the harmonica. This fleeing to the opposite side of the stereo field is also illustrated in the Panning Overview.

When we hear the harmonica's second solo after the chorus, we recall its first solo from the introduction. In this way, the second solo signals a kind of re-commencement or recapitulation. Despite our ostensible return to the beginning, however, we are sonically cued that this is not the beginning, that the situation is more dire than before, as the timbre of the guitar and harmonica, the kinds of musical gestures played by the harmonica, and even the tempo have been altered to become more ominous in character. The tempo is now slightly, almost imperceptibly, quicker. (Refer to the tempo chart in **Figure 1.4**) The effect of such a subtle increase in tempo, as opposed to an overt change, creates an almost subconscious, rather than conscious, sense of urgency. The mere surreptitiousness of the technique is already unsettling. Further, the rhythm guitar is now more forward in the right channel, it is more heavily chorused, or at least

its proximity to us creates that impression. It's metallic twanginess, the higher frequencies in particular, are more penetrating and obtrusive than at the beginning (compare 0:07 to 3:06).

The harmonica's second solo is not only affected with reverb, as before, but an echo effect has also been added, compounding our sense of its otherworldliness and significantly altering its character such that it is, at times, indistinguishable from an electric guitar. Another result of compounded reverb and echo effects is the sustain of the instrument is prolonged, as its own echoes serve to bridge the once silent gaps between its phrases. It is as if the harmonica, in its battle for our attention, momentarily borrows its adversary's "voice." This can be heard from 3:15–3:19.

Flaunting its newly acquired powers of prolongation, the harmonica's melodic phrases are now even more hauntingly drawn-out than before. The contrast is striking between its brief, choppy phrases at the beginning (0:06–0:20) and its lengthy "moans" upon its return (3:06–3:21). Perhaps to cue the listener to these changes in affect—or to remind the listener that, despite these changes, the acting agent is still the same as before, the harmonica begins its second solo on the last two pitches of its prior solo, though an octave lower. (See the end of **Figure 1.6** and the beginning of **Figure 1.15**.) This motivic link creates a sense of continuity, yet at the same time, highlights the timbral changes that the instrument has undergone. It also subtly disorients our sense of harmonic function, by inverting the prior function of the motive as "cadential" to become the opening here.

In addition, the extended melodic figures, combined with the reverb and echo effects, lead to a kind of “melodic distortion” in which the echoes of past phrases begin cascading into the beginnings of new phrases, creating a tumultuous wash of melodic fragments. This is readily heard from 3:30–3:41. These changes in tempo, timbre, and function serve as disorienting devices, and lend more substance to the ominous progression of the song, as we witness the transformative effect they have on the harmonica.

Also noteworthy is the changed contour of the second solo, which moves generally from low to high, unlike the beginning solo, which moved in more varied directions. Ironically, just as some aspects of its voice are being manipulated by forces beyond its control (such as tempo and timbre), the harmonica musters the agency to consolidate its fragmented pleas heard at the beginning into a more unified upward cry, reinforcing a sense of desperation as it climbs from E4 to G5. The arch-like structure of the harmonica’s second solo is visible in the transcription in **Figure 1.15**.

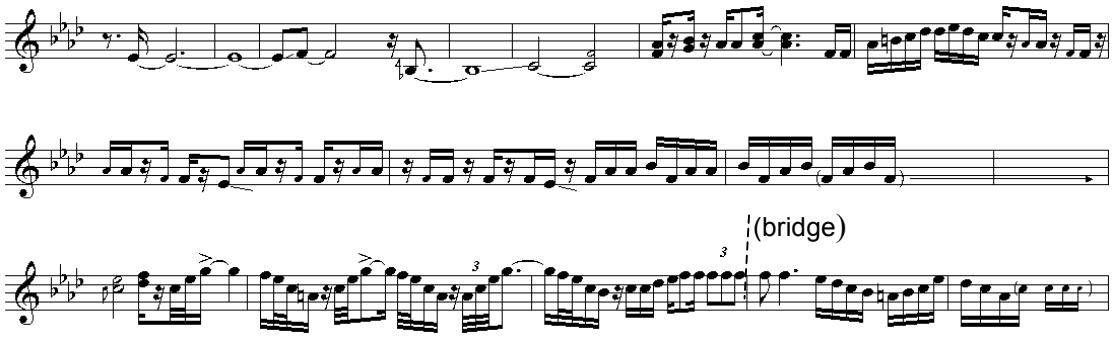

Figure 1.15: (3:05–3:56) Second Harmonica solo: The harmonica’s solo is now more arch-like than before and spills over into the bridge. Notes in parentheses are echoes.

Sounding even more desperate the second time around, the harmonica's solo refuses to end with the section, as it had in the first solo, and instead trespasses more than a complete measure into the bridge before breaking off mid-phrase at 3:56. When the harmonica finally exits, the void in the left channel persists through the bridge until the voice enters with the third verse at 4:08, again assuming the harmonica's space.

Timbral Changes in the Rhythm Section ("The River")

In the third bridge (3:51–4:07), the rhythm guitar and drums are likewise altered to sound different than in the first. They are more present and forward in the mix; their textures thickened by a more extreme degree of chorus. The drum's timbral changes between the two bridges are most audible when focusing on the cymbals; their crashes are now brighter, more resonant, and more sustained than before, as can be heard when comparing their timbres at 1:07 and 3:53. These effects tend to bring out their harshness, making them sound like explosions, as we are reminded of the waters beating against the ever-weakening levee.

In the guitar, these changes are most noticeable when listening for the overlaid tracks in both bridges. In the first bridge, it is fairly easy to discern one slide guitar track and one strummed guitar track (the chorus effect is most audible in the strummed part). In the second bridge, however, the degree of chorus is so heavy, that the two parts are virtually indistinguishable.

In terms of texture, the cumulative effect of these timbral changes is that the rhythm guitar and drums seem to merge into a single "instrument" (or agent). These changes are, no doubt, behind observations such as Davis's that "boundaries defining and separating instruments and voice begin to dissolve into a vortex."[46] They may also help to explain why the two instruments are sometimes described as jointly representing the waters of the river, what Erik Davis calls "the relentless undertow."[47] Our perception of the rhythm guitar and drums as a single agent is strengthened at the end of the first and third bridges, when both instruments are struck together and left to resonate as a single fading "chord" (listen to 1:21–1:24 and 4:04–4:08). It is also interesting to note that both the rhythm guitar and the drums have become "wetter" (via reverb) and "muddier" (via echo). Robert Walser discussed a "dialectic of freedom and control" in the rhythms of heavy metal music to describe how certain instruments can pull away from, or realign with, the rhythm section in a song.[48] Here, the incessant pounding of the rhythm section along with its prominent and stable center placement does not bode well for the song's protagonists, who are tossed about in the stereo channels while it proceeds with reckless indifference.

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[46] Erik Davis, *33 1/3* [symbols from Led Zeppelin IV] (New York: Continuum Books, 2005), 163.

[47] Ibid.

[48] Walser, *Running With The Devil*, 49.

As the River Approaches, the Singer Sinks

A comparison of the vocal parts at 1:23 and 4:08 reveals how, as the instrumental tracks (“the river”) become more forceful, explosive, and present in the mix, Plant’s vocal tracks begin to recede into the mix and become more distorted and disfigured (becoming enveloped by the river). The difference is subtle, at first, but envelopment of the voice becomes abundantly clear at the end of the song (from 5:22 on), where even Plant’s screams get buried and resurface amidst the chaos, as if lunging out of the water for breath.

Whereas in the first two verses, the voice had been positioned slightly left of center, in order to take over the space of the harmonica’s first solo, in the third and fourth verses, it is more centered, and does not try to take over the space left by the harmonica’s second solo. The reason for this becomes clear when the harmonica begins interjecting melodic fragments (at 4:17) in the left channel, during Plant’s singing. The harmonica is now refusing to cede its space to the voice, as it continues interjecting throughout both the third and fourth verses, threatening the voice’s space on that side. Even in the center, where the voice is strongest, it must, nonetheless, compete for its space with the drums and rhythm guitar, which have grown stronger in volume and more present overall in the mix.

Further emphasizing the desperation and helplessness of the lyrics in the third verse, “Cryin' won't help ya, prayin' won't do ya no good…”, Plant’s voice is timbrally altered by the presence of a buzzing distortion. In this case, the distortion does not serve to make the vocal track more prominent in the mix, as is the case with the slide guitar, when the compounding of overtones serves to add

power to the instrument. Rather, it gives us the sense that the voice has lost some of its potency, due to the absence of certain middle and low frequencies. The deteriorating quality of this effect appropriately corresponds to the weakness being expressed in the lyrics, and further contributes to the eventual subsumption of the voice into the mix. **Figure 1.16** illustrates this scenario.

L	M	R
~~Voice~~ Harmonica-Drums Bass Guitar (Rhythm Guitar)	~~Voice~~-Rhythm Guitar- Drums Harmonica Bass Guitar	Rhythm Guitar- Drums Voice Bass Guitar

Figure 1.16: (4:08–4:34) Third Verse: "Cryin' won't help ya…" The strike-through indicates that the voice has diminished in power due to a buzzing distortion.

The fourth verse, "All last night, I sat on the levee and moaned…" (4:35), is, yet again, timbrally altered to sound distinctly different from the prior verse. The voice appears to be even more estranged and non-corporeal. This is particularly noticeable whenever Plant articulates "S" sounds, whose electric hisses ring like a snake. Also, when he sings the word "moaned," at the end of the first two phrases, his voice fades off with an eerie flutter. The bitter melancholy of the lyrics, "Thinkin' 'bout my baby and my happy home," is transformed into a wailing cry that is enhanced by the disintegrating timbre of his voice. Here, the timbral effect helps to alter the tone of the lyrics from a sense of passive resignation to an agonizing plea.

The diminishing stature of the voice, in timbre and prominence, during the third and fourth verses is diagrammed below (beginning from **Figure 1.17**) in how

there are more instruments at the front of the mix. That is, there are fewer clear soloists; pairs of instruments are now sharing the same stereo space as well as the same volume level. In the left channel, moving from the third to fourth verse, one can hear the harmonica ascend to the same, or nearly the same, level as the voice, challenging its status as lead communicator and reminding us, once again, of their shared agency. This can be heard from 4:32–4:35. In the right channel, the voice has already been subjugated to the rhythm guitar (the "river"). These techniques serve to make everything sound mixed up or washed together. As the role of the voice is threatened *spatially*—as he faces the river's onslaught—his fear and sense of doom are made manifest through his submersion into the mix.

L	M	R
Harmonica-~~Voice~~	Drums-~~Voice~~-Rhythm Guitar	Rhythm Guitar
Drums	Harmonica	Voice-Drums
Bass Guitar	Bass Guitar	Bass Guitar
(Rhythm guitar)		

Figure 1.17: (4:35–4:54) Fourth Verse: "All last night…" The double strike-through indicates that the voice's timbre has been further affected and diminished in power from the prior verse.

At the end of the third verse, as another indication of our (vocal) protagonist's weakening state, it is the harmonica that carries on into the bridge, while the voice fades away (4:48–5:03). During the fourth verse, the character of the harmonica's gestures further reinforces its ascending agency. The harmonica not only sounds more proximate to the listener, but also plays more often and interrupts the singer more frequently as the song progresses. One hears virtually no interruptions in the first two verses, in contrast to nearly constant playing with

the singer by the fourth verse. Each of the protagonists grabs at precious seconds to tell us a version of the story, vying with each other for our attention.

The fourth and final bridge which follows (4:55–5:08) is saturated with the timbre of cymbal crashes, representing the crashing waters against the levee, and though it had been present from the start, we have, by now, become acutely aware of the flanging effect added to the drums that makes their timbres slowly alternate between muffled and crisp, sounding now near (crisp), now far (muffled). The effect is particularly noticeable from 4:58–5:09. The waves of the flanger add depth to the mix and can be heard as analogous to waves of water. Observations such as, "I don't know what a levee is but it has the sound of surf to it and so does the song," are proof enough of the potency of the effect.[49]

The Second Chorus: The Levee Breaks

Unlike the first chorus, the second one is excised of its two-bar rhythm guitar solo, and is, instead, set in motion with a huge cymbal crash and the wailing slide guitar (5:09), signaling calamity. Further, the waves of the flanging effect—the alternating crisp and muffled timbres—are timed such that the beginning of the chorus is aligned with the crisp peak of the flanging wave, making the instruments sound incredibly forward in the mix, as if on the crest of a wave.

This chorus is perhaps the most intense moment in the song, due, in part, to all the high frequencies, and it is also, I will argue, the section during which the

[49] Album review quoted in Godwin, *Led Zeppelin: The Press Reports*, 207.

levee breaks. During the chorus, the percussiveness of the music is most explosive, including a two-beat run of thirty-second notes (the sonic "breaking" of the levee). Due to the extreme congregation of high frequencies, the drums, particularly the snare drum and cymbals (representing the crashing waves) sound closest and most threatening to the listener than at any other point during the song's seven minute course. Their presence signals the descent of the singer, who, for the first time, is no longer audible in the front of the mix; he has been enveloped by the waves of the river and, consequently, by the (sound) waves of the other instruments in the mix. **Figure 1.18 (**below) reflects the voice's drop in prominence. He acknowledges as much when he repeatedly sings "Goin' down," with the *double-entendre* of going to Chicago and/or underwater. (Here, the studio effects create a *triple-entendre*: going down in prominence in the mix.)

L	M	R
Slide Guitar	Slide Guitar-Rhythm Guitar	Rhythm Guitar
Drums	Voice-Drums	Drums
Voice	Bass Guitar	Voice
Bass Guitar		Bass Guitar
(Rhythm guitar)		(Slide guitar)

Figure 1.18: (5:08–5:47) "Ah (repeated)…" The voice is no longer at the front of the mix, but is buried beneath other instruments. Instruments in parentheses are barely audible.

Adding an element of surprise to the levee breaking, the second chorus arrives without the break in the drumming that had introduced the first chorus—a kind of attacca arrival. Instead, the slide guitar enters immediately in an impatient

manner, as if in response to the impending disaster, not to mention the threat from the harmonica's ascending agency. Further intensifying the breaking of the levee (the run of thirty-second notes), the bass refrains from joining in the chorus until just after the thirty-second note run leading into the third bar. The combination of the high frequencies from the drum crashes and the low frequencies from the bass's entrance serves to make this moment a culminating point in the song, and the huge frequency space that is opened up is a metaphor for the opening (read: breaking) of the levee. Here, timbre helps to define it.

Post-Breaking of the Levee: The Outro

Once the levee has been breached, the lyrics change as well. There are no more verses to speak of, no more warnings to issue—all is confounded. Plant mostly vocalizes on "Ah" as he bemoans his demise, and later utters futile repetitions of "Goin' down". We hear, once again, a return to the opening rhythmic droning, with even more processed sounds, including backwards echoes of the harmonica and slide guitar. As can be seen in **Figure 1.4**, we are now at the fastest tempo of the song. The guitar's timbre is accordingly more distorted and trebly, as can be heard when comparing the right channel at 0:08 and 5:48. At 5:48, the harmonica, which was only intermittently heard during the earlier sections, is now nearly constantly playing, but can only articulate fragmented bits of echo and resonance that resemble gurgling underwater sounds, while Plant expresses his resignation that he, "the mountain man," must now "leave his home" and go to Chicago.

As the waters of the levee begin to flood the plains, the chaos that ensues is reflected in a variety of disorienting and transforming effects that are applied to the "post-break" phrases and utterances with a heretofore unheard of frequency. Within a single phrase, for example, words approach and recede into the mix. One example is the phrase, "Goin…I'm goin' to Chicago" (5:47–5:56). The first word of the phrase, "Goin,'" (at 5:50) is distant, while the following words of the phrase (from 5:53) are forward and affected such that the "sh" sound of "Chicago" is highly resonant and reverberant. The next repetition of "Goin' to Chicago" (at 5:57) is, however, immediately withdrawn into the mix—leaving only the resonant hiss of the "sh" sound of "Chicago." The stereo placements for the above-described phrases are shown below in **Figures 1.19a-b** (following).

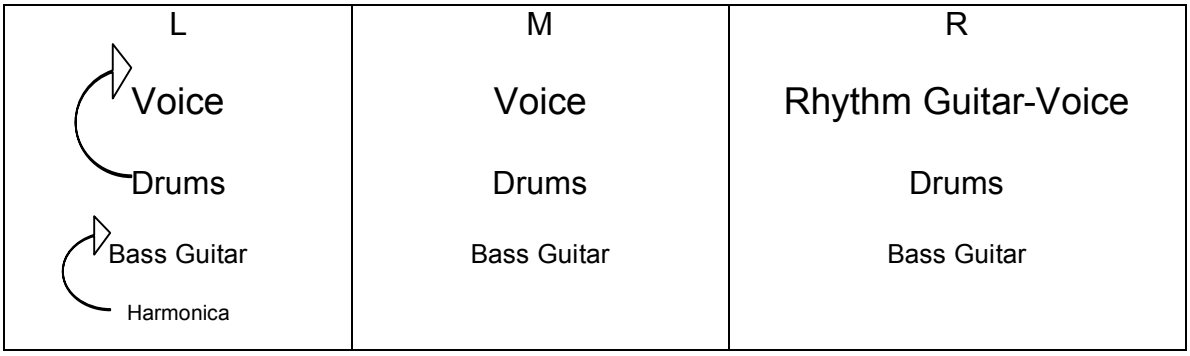


Figure 1.19a: (5:47–5:56) "Goin…Goin to Chicago" The voice will be overtaken by the drums in the left channel at 5:57. Another arrow indicates the harmonica will also grow in prominence.

L	M	R
Drums	Drums	Rhythm Guitar
Voice ◄►Harmonica	Voice	Drums
Bass Guitar	Bass Guitar	Voice
		Bass Guitar

Figure 1.19b: (5:57–6:01) "Goin to Chicago" The two-headed arrow indicates a battle for agency between the voice and the harmonica. Note how the voice in this phrase sounds further back, and is more extremely affected than in the preceding phrase in Figure 1.19a.

As Plant finishes singing the word "Chicago" (at 5:59), the harmonica that had been "gurgling" softly in the mix now emerges just as the voice fades to the back of the mix, giving the impression that the former has momentarily transformed into the latter, or its role has been usurped by it. These quick aural illusions occur in several places and suggest a shared or competitive agency between the two instruments participating in the exchange.

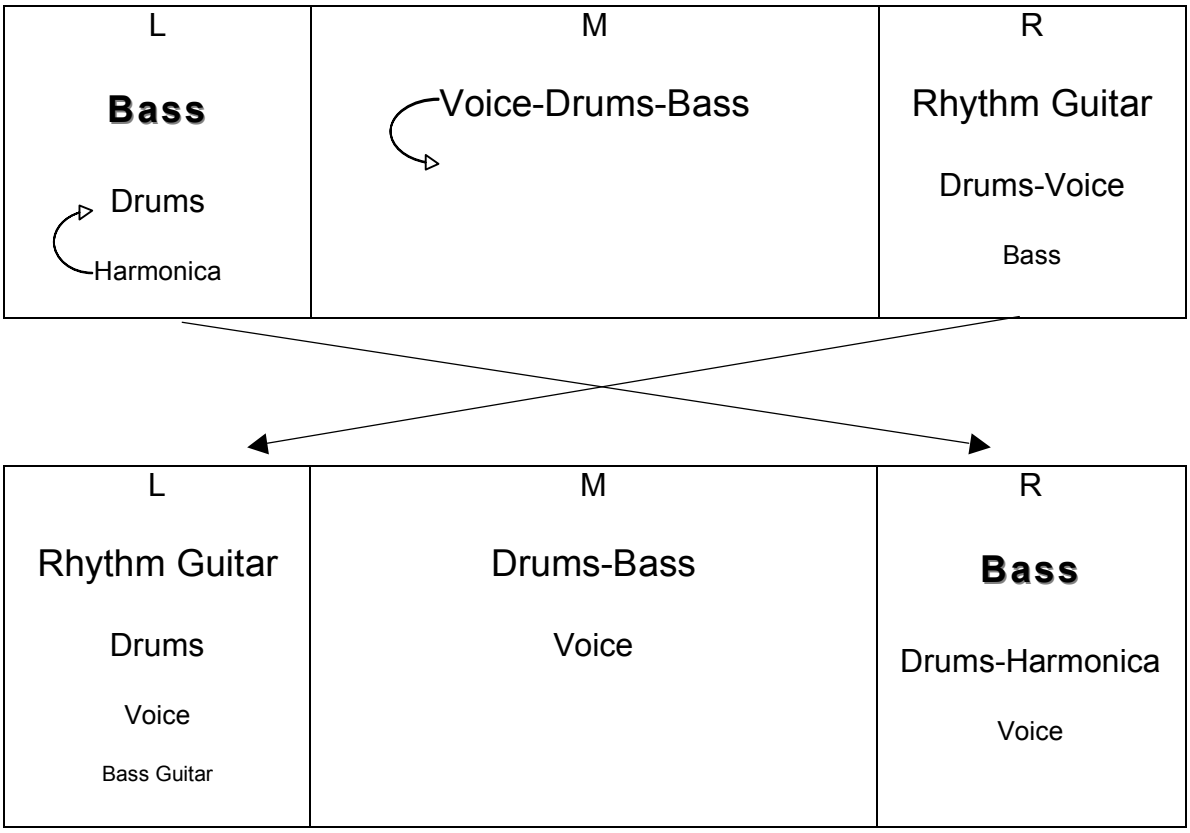
The following phrase, "Sorry, but I can't take you" (6:01) initiates a series of spatial changes in the mix that make it abundantly clear something catastrophic is happening. This phrase signals the first (and only) instance of the vocal track being temporally separated from its own echo far enough for the two to sound as two separate tracks. This fragmentation is yet another method of illustrating the protagonist's demise. Even more ominous is the bass, which is suddenly doubled an octave lower, giving it added force, and creating a muffling effect due to an extreme frequency imbalance heavily in favor of the lower frequencies. Both the singer and the "ground beneath his feet," then, are split as a result of the cataclysm. Interestingly, though both are doubled, the bass seems

to gain power while the voice seems to lose it, which is why they are represented differently in **Figure 1.20**.

L	M	R
Bass	Voice/Voice	Rhythm Guitar
Voice-Drums	Drums	Drums-Voice
harmonica	Bass	Bass

Figure 1.20: (6:01–6:05) "Sorry, but I can't take you" The slash indicates the voice is doubled ("split into two"), and the bold-shadow font indicates the bass is doubled 8vb.

By the end of the word "you," the voice's doubling disappears as quickly as it appeared. As Plant then sings "goin' down," a series of extreme shifts in the stereo field is initiated during which the left and right channels are repeatedly swapped, as if rocking on high waves. The dramatic nature of these exchanges during the last minute of the song is illustrated in **Appendix D**. The panning for the first six minutes of the song is shown in **Appendix C** (to serve as a comparison to **Appendix D**.) We hear only fragmented sounds of instruments as they and the voice are tossed around the stereo space—a metaphor for their plunging below, and reaching above, the water's surface—in their ongoing struggle, against each other and against time, to tell their story. Their timbres are distorted and their "cries" are mixed with their own reversed echoes as they are enveloped in the chaos of the broken levee. **Figures 1.21a-b** (below) detail an exchange between the voice and the harmonica.



Figures 1.21a-b: (6:04–6:15) "…Goin' down…" Curved arrows in the upper box indicate the voice will fall in prominence as the harmonica ascends in prominence. Arrows between boxes indicate that the instruments in the left and right channels will simultaneously swap sides.

At 6:15, an interesting confluence occurs between the harmonica, electric guitar, and voice, which summarizes, in a sense, their shared identity (agency) throughout the song. The harmonica, as it moves from the right to left channel, appears to recede into the mix as it passes across the center. This momentarily tricks the listener into thinking it will disappear (until it reemerges on the opposite side). Fast on its heels, however, a thunderous drum roll masks both the harmonica's exit, along with the simultaneous entrance of a backwards slide guitar echo. The net effect is the apparent replacement of the harmonica with—or its transformation into—the slide guitar's backwards echo. This aural trick is encouraged through the backwards echo's similar clipped blues motives to those

the harmonica had been playing, and furthers the metaphorical transition from harmonica/old blues to electric guitar/new blues. The transition is, sonically, anything but smooth, which is telling both in the context of the song, as well as in the course of history, which is neither smooth, nor linear.

Further adding to the complexity of this sonic event at 6:15, the voice, which had been repeatedly singing “Goin’ down,” is submerged by the drum roll (the “waters”). Immediately afterwards, at an almost imperceptible volume, the distorted scream of Plant’s voice emerges from beneath “the waves” and fades right into the front of the mix. As the primary force in the song, the drums act a catalyst in both the literal and metaphorical mixing of the instruments and instrumental roles. This aural effect is diagramed in **Figure 1.22.**

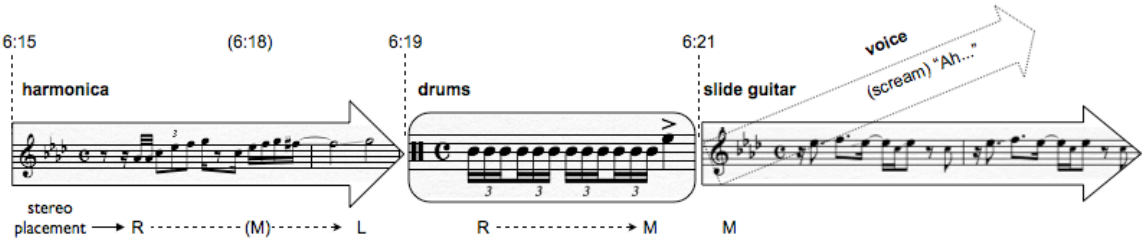
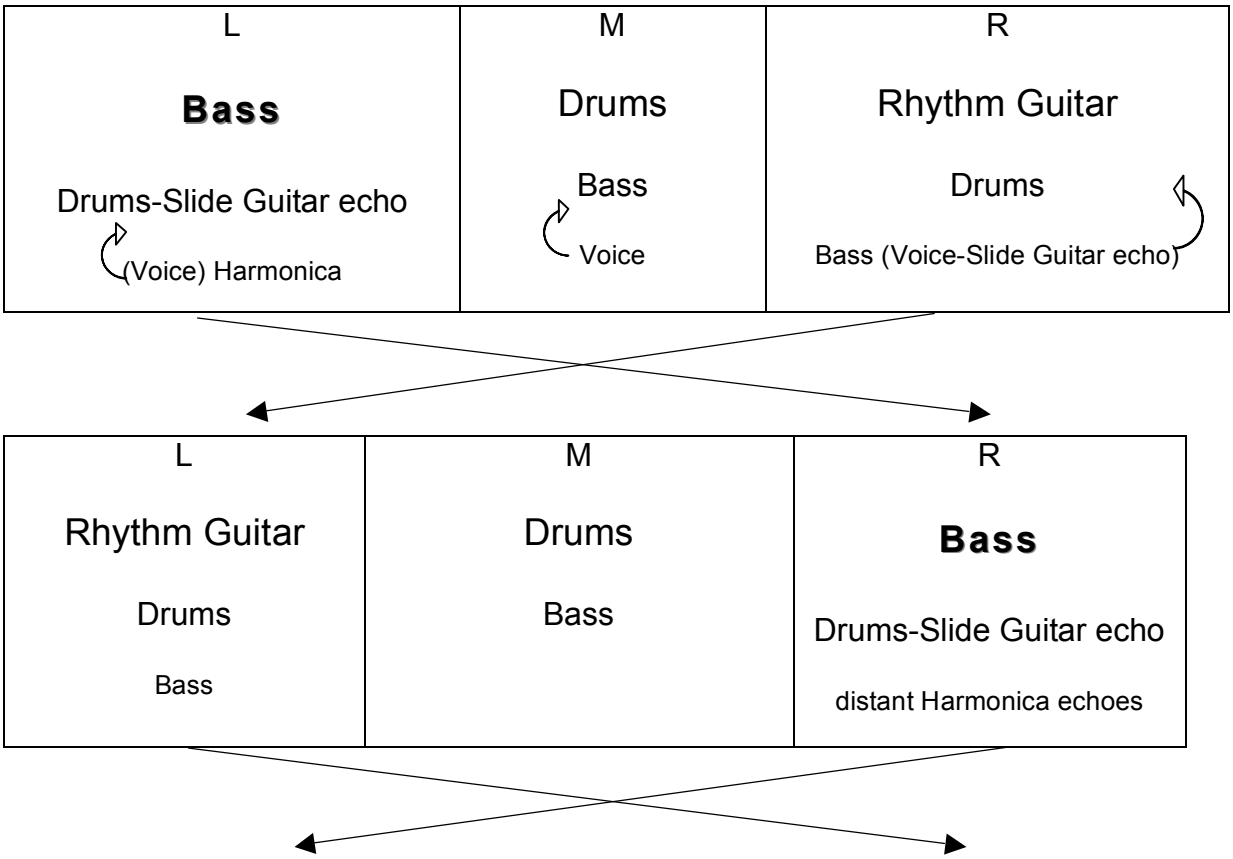


Figure 1.22: (6:15–6:26) The harmonica is “transformed” into the slide guitar via the masking effect of the drum roll, which also covers a low volume scream that grows in prominence.

It is significant that the event above takes place just as the instruments are crossing each other in the middle of the stereo field; when the frequencies, the timbral field, are momentarily reduced to a slush that sounds like crashing waves. The timbral and spatial shifts actually enable the brightness of the harmonica to cut through the mix as it hands its agency over to the electric guitar. This can be heard from 6:17–6:27. A striking feature of the voice’s fade-in above is the sonic

contradiction between the intensity of the screaming voice and the extremely soft volume from which it fades in. It is a different effect from a voice that gets louder of its own effort—which represents a growing intensity, for here, the intensity is present from the start, despite the initially soft volume. Also noteworthy is the materialization of the slide guitar's echo as a separate voice, so completely disassociated from the slide guitar that produced it, that it appears on the opposite side of the mix at times, and is moved between the channels independently as well.

Figures 1.23a–d (following) pick up from where **Figures 1.21a–b** leave off, providing a more comprehensive picture of the event in **Figure 1.22**, while continuing to show the chaotic spatialization and agency exchanges that take place after the levee breaks.



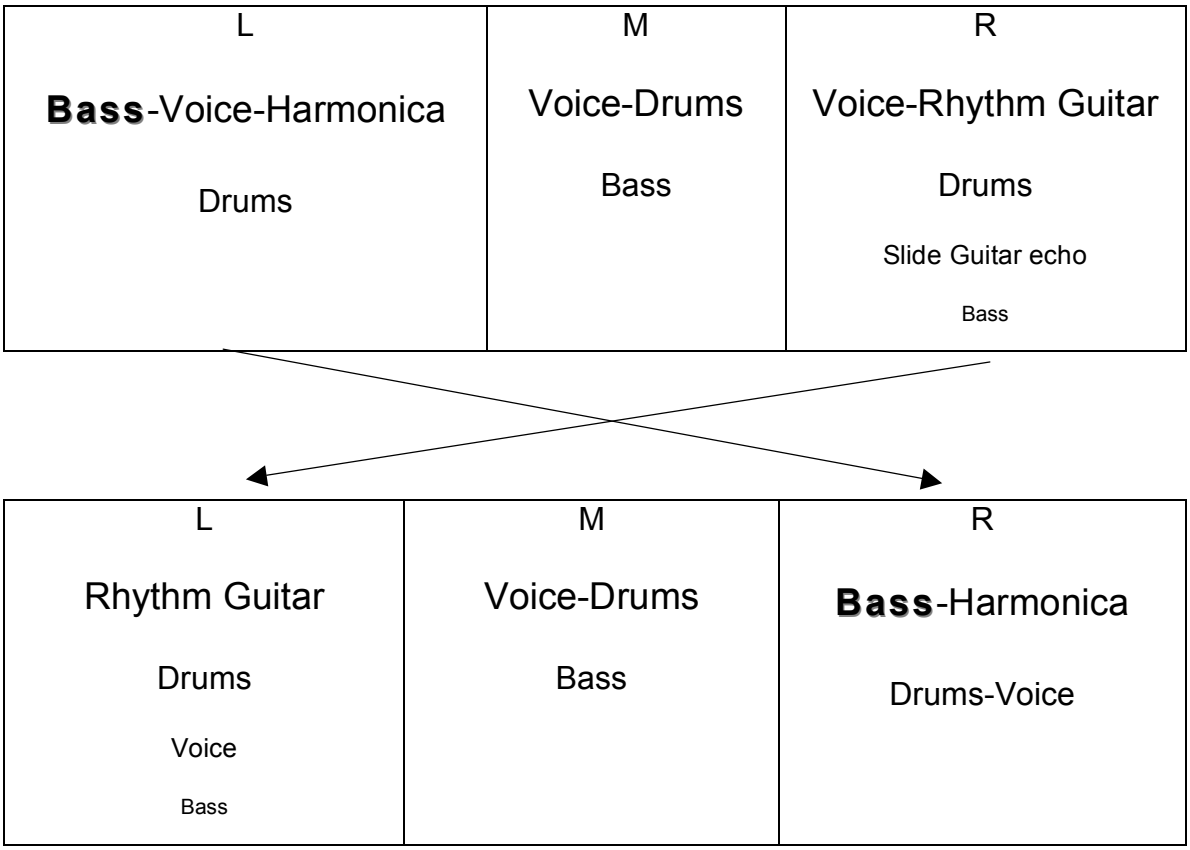
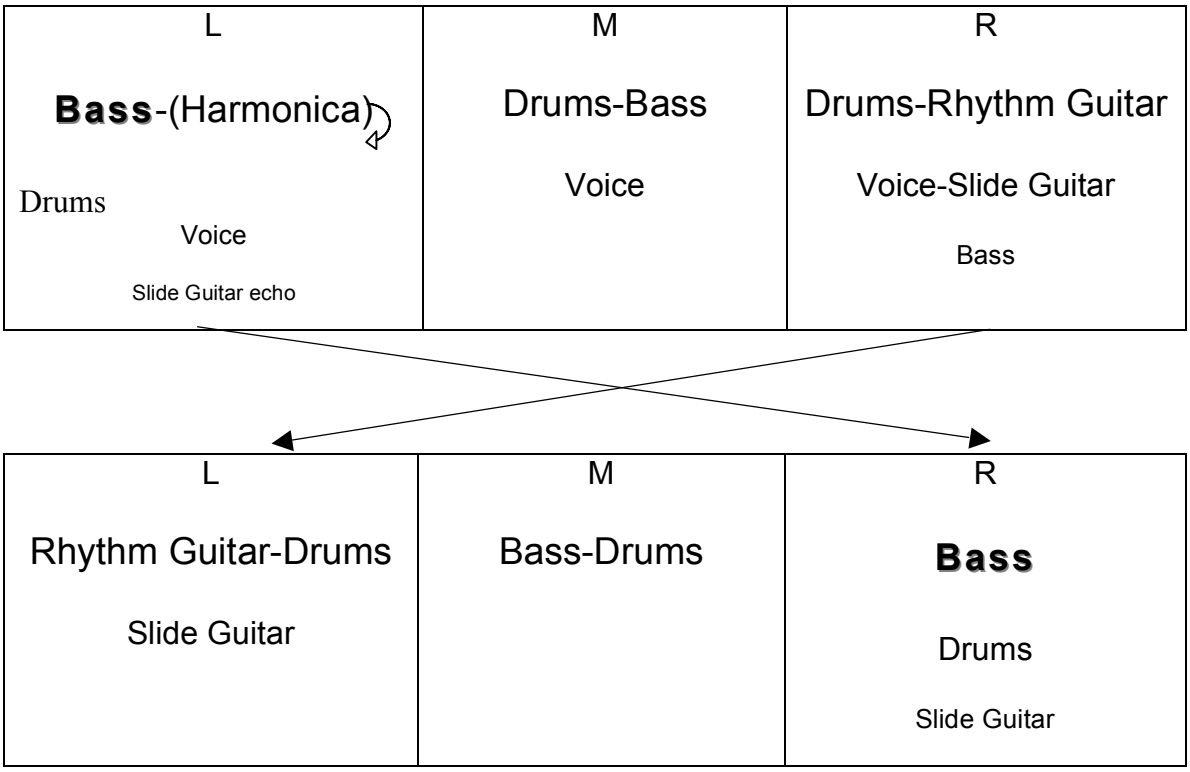


Figure 1.23a–d: (6:19–6:49) From Figures a to b, the screaming voice fades in from the "distance" before momentarily dropping out of the mix. As the voice fades out, the slide guitar echo gets louder. Figure b (6:28) is a snapshot after the voice has disappeared and the slide guitar has ascended. Figures c (6:36) and d (6:43) highlight the rapidity of the spatial shifts taking place.

From 6:50–54, the harmonica, too, sinks into (the waves of) the mix. Perhaps sensing its own demise, it ascends on an upward pentatonic melody and holds its final highest pitch, like a final plea, which is immediately "transformed" at 6:55 into the slide guitar, via the precisely synchronized switching of channels and cross-fading of the two instruments. As the former descends, the latter ascends in prominence. Such cross-fades can be understood as technological metaphors for transfers of agency. **Figures 1.24a**–**b** (below) illustrate this scenario.



Figures 1.24a–b: (6:50) In Figure a, the curved arrow indicates the harmonica will decrease in prominence, ultimately to disappear from the mix for good. Figure b shows how the rhythm guitar, by switching to the left channel just as the harmonica fades out, assumes the former occupant's prominent left channel space, and agency.

In WtLB, the instruments are engaged to close out the emotive pleas of the song rather than the singer (as in "Stairway to Heaven"). In this case, it is understandable, since the singer has presumably succumbed to the events of the narrative. Also, the distinction between voice and instrument has intentionally been blurred all along, rendering the singer less central to the story—at least to the sonic narrative.

From **Figure 1.24b** (above), we see that the rhythm guitar ultimately settles in the left channel at the end of the song—noteworthy, since it is the opposite side from where it began when the series of channel exchanges was initiated at 6:04, and where it had been situated for the entire duration of the song up to that point. The river has indeed moved beyond its bounds.

As noted above, when the harmonica drops out at 6:55 in the left channel, the slide guitar immediately fades back into the mix, assuming the harmonica's space, only this time—perhaps because the slide guitar is the "final agent" in the song's long narrative—it is heard on both sides. It quickly returns, however, to the left side (the stage of choice for all the song's agents) before its final "descent" via a distorted glissando down the neck of the guitar. The resonance of the slide guitar's exit is heard in the center and right channel and is depicted in **Figure 1.25**. That the drums drop out mid measure at 6:58 only emphasizes the abruptness of the song's cutoff, as if something has occurred that interfered with the song's natural conclusion.

L	M	R
Slide Guitar	echo / reverb	echo / reverb

Figure 1.25: (6:59) The final slide guitar's echo and reverberation fill the remaining channels.

Though the slide guitar is the song's final agent, it does not get the final word; that honor goes to the rhythm guitar ("the river"), which plays a brief flourish encapsulating the same ostinato-like figure heard throughout the song, only at a more rapid rate, and affected with the highest degree of echo and reverb thus far (or at least its isolation gives that impression).

The drums and rhythm guitar, which play synchronized throughout the song, represent two aspects of the waters of the river: the drums' nearly constant pounding represents the constancy of the waters, while the guitar's irregular hypermeter represents their unpredictability. As a final gesture, the rhythm guitar sweeps conclusively to the left channel, washing away all our plaintive, left-

channel narrators, leaving only their resonance in the form of echoes. In the end, the protagonist and his agents have left, and only the waters remain, triumphantly occupying the vast, reverberant (read: wet) space that was once home. **Figure 1.26** illustrates this final, vacant soundscape.

L	M	R
Rhythm Guitar	echo / reverb	echo / reverb

Figure 1.26: (7:04) The rhythm guitar (the "river") closes out the song and the story.

There are, in fact, several stories here. The ostensible one in the text, the breaking of the levee, is supported in subtle and not-so-subtle ways, sonically, by two other stories: first, the breaking of the levee as portrayed through the timbral, temporal, and spatial effects; second, the story of past-meets-present, old blues meets new blues. We can see that not only is the breaking of the levee a catastrophic event, but so is the symbolic clash of different periods and genres, as instruments and agents get transformed, or worse, shattered, in the process. Ultimately, the story of the old blues won't go down without a fight, which is good, for both stories deserve to be told.

CHAPTER 2
THE SONIC AND THE MYTHIC: "STAIRWAY TO HEAVEN"

Background and Approach

> The fourth album should be our best, and if it isn't, well, we might as well give up and retire with red faces.[50] (Jimmy Page)

Since its release on *Led Zeppelin IV* in November 1971, the song "Stairway to Heaven" (henceforth, StH) has attained mythic status. More people have pondered its meaning and requested it on air than any other song in American radio history.[51] It has been discussed in countless articles, websites, and books, and more recently, in the aforementioned published academic studies such as Robert Walser's *Running with the Devil: Power, Gender, and Madness in Heavy Metal Music* (1993), Steve Waksman's *Instruments of Desire: The Electric Guitar and the Shaping of Musical Experience* (1999), and Susan Fast's *In The Houses of the Holy: Led Zeppelin and the Power of Rock Music* (2001). Most recently, Erik Davis's insightful *33 1/3* [*symbols from LZ IV*] (2005), though not published as an academic study, probed with great aplomb not only StH, but also the entire album on which it appeared.

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[50] Godwin, *Led Zeppelin: The Press Reports*, 160.

[51] In Chris Welch, *Led Zeppelin: Dazed and Confused* (New York: Thunder's Mouth Press, 2005), 65. There is, by now, unanimous agreement that it is the most requested song on American radio. It is also omnipresent in the "Number One" slots in "Best Of" lists, web forums, and on various websites worldwide. Even if this weren't true, the fact that StH has its own "supportive" myths, such as those concerning its popularity, further confirms its mythical status.

In his seminal book, Walser refers to StH as one of the "founding documents" in the tradition of mysticism in heavy metal music.[52] He believes that part of the song's success and enduring quality lies in its ability to combine "contradictory sensibilities without reconciling them." These "powerful ideologies" are, according to Walser, "on the one hand, a folk/pastoral/mystical sensibility; on the other, desire/aggression/physicality." They are summed up as the "sensitive" versus the "aggressive." Walser reviews the many symbols found in the lyrics that evoke a sense of mystery (a lady, the piper, etc.) and utopia ("the tune will come to you at last," "a new day will dawn," etc.), among others. Though the symbols have a cultural import, they are generic enough to allow the listener to interpret them in a personal way.

Waksman's 1998 dissertation followed on the heels of Walser's book and was published the following year by Harvard University Press. His tack was different, however; he was primarily concerned with the role of the guitar in rock music's historical complex of social, cultural, and gendered meanings. One of the central suppositions of Waksman's argument was that the electric guitar served as a tool "to invest the body of the [usually male] performer with meaning" in a kind of "technologically extended physical presence," which led to the "apotheosis of the guitarist."[53] He further expounded upon the "acoustic/electric divide" as "one of the boundaries [in addition to cultural and racial] Led Zeppelin

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[52] Walser, *Running With The Devil*, 158.

[53] Waksman, *Instruments of Desire*, 6, 257, and 274, respectively.

worked to transgress."[54] Through this lens, StH was described as a journey whose "transcendent guitar solo drives the piece to its final passage."[55] In his dissertation, Waksman concurs with critic Chuck Eddy's description of the song as constructed like a "stairway, with four steps: on every subsequent one, the music gets louder, and you can either turn the volume higher or turn the radio off. If you vote 'yeah,' to reach the top step, the altar, you will do anything."[56] The use of the words "transcendent" and "altar" in Eddy's and, by default, Waksman's descriptions of the song is both purposeful and revealing, for despite critical attempts to parse the song, there is a habitual fallback onto the jargon of ritual and mythology, which can appear at best self-referential; at worst, it can obscure the meanings one is trying to elucidate by diverting attention to the *effect* of the music, rather than the sonic *cause* that evokes such a reaction.

Though essentially in agreement with Waksman's notion of the "guitar hero," Fast takes issue with any one-sided reading of the gender issue in Led Zeppelin's music that places women in a powerless position. Rather, she argues that the music can be empowering to both genders. Building on Walser's observations, Fast categorizes certain of Led Zeppelin's songs as "mythic," placing StH at the top of her list. She says of these songs that they deserve "close analytical attention in order to determine how the mythological has been

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[54] Ibid., 260.

[55] Ibid., 303.

[56] Eddy quoted in Waksman, *Instruments of Desire*, 303.

created through the use of sound"[57]—the central aim of this chapter. One of her main contentions is that, despite the presence of mythic elements in StH, there is no coherent mythic narrative, only "parts of stories that remind us of the mythic/epic while telling no myth in particular."[58] This is reminiscent of Walser's observation that "mystical metal draws upon the power of religious traditions without obeisance to any."[59] Fast expounds upon Walser's pastoral/aggressive dichotomy, associating the recorders at the opening with the pastoral side, and the fanfare-like guitar chords in the break (at 5:33) with the more aggressive side.

In his book about *LZ IV*, Davis discusses StH's placement at the end of side one on the album. He hears the entire fourth album as a "single journey through a changing landscape of moonlight, hedgerows, and trembling mountains."[60] For Davis, then, the journey is not—or not only—"intrasong," but "intersong," unified through repeated references to a "lady," whether she be the temptress in "Black Dog," the more idealized "Queen of Light" in "Battle of Evermore," or the lady who "shines white light" in StH. (He notes that *LZ IV* happens to contain the group's only song with a female vocalist as a possible musical manifestation of the aforementioned "lady.")[61] This "holistic" view is not a

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[57] Fast, *In the Houses of the Holy*, 60.

[58] Ibid., 60.

[59] Walser, *Running With The Devil*, 154.

[60] Erik Davis, *33 1/3*, 76.

[61] English folk singer-songwriter Sandy Denny sang with Plant in "The Battle of Evermore."

new approach to listening to and thinking about rock albums. In *The Poetics of Rock*, Albin Zak describes how songs on rock albums are not necessarily individual entities, but can also share a synergistic relationship with each other—something already known to music consumers.[62] In other words, songs sometimes constitute "movements" of a larger work, or of an entire album, commonly referred to as a "concept album."[63]

The colonialist quest for Waksman, then, is transformed in Davis's book into a kind of erotico-spiritual quest, and StH's place on the album is significant: it is the "culmination of an alchemical drama," in which the fourth song of the fourth album by a quartet, invoking the four elements, lasting 2x4 minutes, begins "squarely" with four phrases of four bars each. While these observations are for the most part true, the significance of the number 4 is never fully explained.[64] Davis notes that at the end of StH, the instruments play in unison, reflecting the

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[62] Albin J. Zak, III, *The Poetics of Rock*, 42.

[63] Barron and Inglis adopt a definition of concept albums as "unified by a theme, which can be instrumental, compositional, narrative or lyrical." (Lee Barron and Ian Inglis, "'We're not in Kansas any more': music, myth and narrative structure in *The Dark Side of the Moon*," in '*Speak to Me': The Legacy of Pink Floyd's* The Dark Side of the Moon, ed. Russell Reising (Ashgate Publishing: Aldershot, UK, 2005), 60. A composition-based example can be found in Shaugn O'Donnell's "On the path: tracing tonal coherence in *The Dark Side of the Moon*" (in '*Speak to Me': The Legacy of Pink Floyd's* The Dark Side of the Moon, Russell Reising, ed., Ashgate Publishing: Aldershot, UK, 2005), 87. For a narrative-based example, see the discussion in Allan F. Moore, *The Beatles:* Sgt. Pepper's Lonely Hearts Club Band (Cambridge: Cambridge University Press, 1997), 64.

[64] Led Zeppelin actually recorded nine studio albums, but the last one, *Coda*, was released in 1982 after the group had disbanded. Davis also mentions Chuck Eddy's "four steps" theory, but adds a fifth step as the "quintessence" of the four elements.

"nondual nature of reality," as reflected in Plant's lyrics, "when all are one and one is all." He also recalls Walser's and Waksman's notions of the acoustic vs. electric dichotomy that exists in the song—and in much of Led Zeppelin's repertoire—when he states that the move from acoustic to electric reflects both temporal and spatial moves: the pastoral to the urban, and the past to the present. For Davis, StH "integrates the traditionalism of the acoustic into the propulsive domain of electric pop."[65]

One of the goals of this chapter is to use the sounds encountered during the song as a springboard to access the song's many possible meanings. This task is none the easier, given music theory's limited vocabulary for describing timbre. Theorist and composer Robert Cogan put it thus: "Musicians have historically been unable to describe, analyze, or understand sounds. We analyze pitches frequently, rhythms occasionally, sounds almost never."[66]

Over the years, several critical and insightful ears have turned toward StH. Their writings share several common themes: the presence of an acoustic/electric dichotomy; a journey culminating in some sort of transcendental experience; equivocating lyrics; a sense of power that is perceptible, yet at the same time, difficult to explain in objective terms; and a story that is told "with sound more than words."[67] In this chapter I will explore the sonic qualities from

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[65] Davis, *33 1/3,* 113.

[66] Robert Cogan, "The Art-Science of Music after Two Millennia" in *Concert Music, Rock, and Jazz since 1945: Essays and Analytical Studies*, Elizabeth West Marvin and Richard Hermann, eds. (Rochester, NY: University of Rochester Press, 1995), 37.

which these authors' observations were derived: that is, how the production of the song changes during the important junctures from acoustic to electric; which instruments take prominence during the song's several sections; and what happens timbrally over the course of the song that might shed some light on a narrative to which many have alluded. If StH is indeed a narrative journey, then who are the protagonists, where are the starting point and destination, and how is the journey sonically and symbolically portrayed? Acknowledging that music's affective power lies in the subjective realm, perhaps we can come to a better understanding of its evocative power through a formalized study of the sounds we encounter.

My response to Fast and Walser will be to agree and disagree at the same time; while it is true that StH provides only allusions to prior myths, I will argue that these meaningful fragments function in conjunction with musical and sonic constructs in order to create a new myth with its own moral "lessons," much in the same way samples of past songs are used to create a new composition. So, in effect, we are not merely reminded of specific myths or "myth" as a category; instead, we become, upon listening, witnesses to the birth of a new myth that arises like a Phoenix from the ashes of myths only half-forgotten. This explains why the song doesn't need to subscribe to any of the religious traditions from whose mythological symbols it borrows (as Walser noted); its purpose is not merely to align itself with existing ideologies, but rather, I will argue, to forge a

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[67] Ibid., 139.

new one. Interestingly, it does so in an uncannily similar manner to certain traditional principles of folkloric epico-musical presentation.

In “The Singing of Albanian Heroic Poetry,” Wolf Dietrich writes, “The epic singer always begins with an instrumental prelude on the lahuta [a 10th century lute-like instrument]…during the ‘prelude’ a certain dramatic tension is conveyed to the audience, a certain sense of expectation to hear of heroes and their deeds.”[68] Another writer, Margaret Beissinger, describes Romanian oral epic performance as beginning with an “instrumental introduction, followed by vocal sections (each of which is comprised of one or more musical strophes) and subsequent instrumental interludes,” culminating in an “instrumental ‘finale’ (often dance music unrelated to the song)” that is “performed by all of the musicians.”[69]

While this is not to assert a direct link between the two, it is noteworthy that StH’s form mirrors the above descriptions, beginning with a slow introduction that sets the mood along with our expectations, continuing through several verse-bridge pairs, and ending with an upbeat finale that engages the whole band as a unit. The long chain of seemingly endless alternating verses and bridges that forms the bulk of the song also likely has its roots in ancient mythic structure. Repetitive musical structures were amenable to the recitation of extensive epic poetry and, at the same time, freed the reciter’s mind from performing complex

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[68] Wolf Dietrich, “The Singing of Albanian Heroic Poetry,” in *The Oral Epic: Performance and Music*, ed. Karl Reichl (Berlin: VWB, Verlag für Wissenschaft und Bildung, 2000), 90.

[69] Margaret Beissinger, "Creativity in Performance: Words and Music in Balkan and Old French Epic," in *The Oral Epic: Performance and Music*, 102.

musical patterns as accompaniment. Regarding old French epics, J.A. Westrup writes that their "constant repetition…has something of the character of primitive incantation, a form of magic."[70] Dietrich agrees with Westrup that "musical 'monotony' and repetition also perhaps ultimately relate to ancient ritual contexts and meanings."[71] This is likely related to Levi-Straus's assertion that "the structure of a myth "seeps to the surface…through the repetition process."[72] The clever blending of monotony with directionality is the unique genius of StH and will become evident in the discussion below.

The obvious similarities between these practices and StH's form suggest at least one kind of archetypal epico-mythic form, which helps to explain not only our familiarity with StH's images, but most importantly, its tremendous power over time. Though the mythical symbols appear incoherent, the song has been an indisputably effective vehicle for the communication of morals.[73] I will first address the album artwork and the lyrics, to help contextualize my analysis of the sonic text. There are three "texts," then, to consider: the visual text (artwork and symbols), the written text (lyrics), and the sonic text (recording).

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[70] Quoted in Beissinger, "Creativity in Performance: Words and Music in Balkan and Old French Epic," 97.

[71] Ibid.

[72] Claude Levi-Strauss, "The Structural Study of Myth," *Journal of American Folklore* 68 (1955): 428–44.

[73] Fast's book, *In the Houses of the Holy*, provides many examples of Led Zeppelin fans' interpretations of their songs. The pervasiveness of StH's messages can be seen in numerous websites dedicated to unraveling the meanings in the song, including religious websites responding to it (see: http://www.leaderu.com/orgs/probe/docs/stairway.html).

In order to get a fuller understanding of the mythologizing of StH, I will examine both the objective and interpretive aspects of this tri-text, using one of Walser's quotes both as a précis of my introduction and a launching pad for my analysis:

> Metal appropriations are rarely parody or pastiche; they are usually a reanimation, a reclamation of signs that can be turned to new uses…metal musicians adapt classical signs for their own purposes…to have real meanings in the present.[74] (Robert Walser)

The Visual Text

The Original LP Artwork

Consumers of *LZ IV* were introduced to the music via the album artwork, which prepared one for the acoustic/electric musical dichotomy with a depiction of a rural/urban visual dichotomy symbolized by an old country man on one side of the folded album jacket and an urban backdrop on the other (**see Appendix E**). The artwork on the album was noteworthy in its own right, for it contained no text at all; the name of the group, album title, song titles—even a copyright notice—were conspicuously absent.[75] Consumers of *LZ IV* thus became the bearers of

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[74] Walser, *Running With The Devil*, 104.

[75] Needless to say, this decision engaged the band in a heated battle with their record company, which saw the move as professional suicide at the zenith of the band's popularity. Ultimately, the band got its way. Ironically, so did the record label, as *LZ IV* became the band's best-selling album, and one of the top selling U.S. albums of all time. The album remains so, as of this writing, based on the RIAA website: http://www.riaa.com/gp/bestsellers/topalbums.asp

esoteric knowledge, which served to mythologize StH as a rite to be performed, through its consumption.

After pulling out the record sleeve, one finally found a track list, recording credits, and four unexplained archaic looking symbols (**see Appendix E**) that many presumed represented the band members**.** Page said the idea behind the use of symbols was to make the album and artists "totally anonymous."[76] In an uncanny premonition of the song's future popularity, only the lyrics to "Stairway to Heaven" were printed. Page was very specific even about the printed typeface of the lyrics, which was an elaborate, calligraphic style reminiscent of a pre-printing press (i.e., pre-industrial) era. He contracted an artist to create an entire alphabet based on a few letters he came across in "an old arts and crafts magazine."[77] The archaic typeface, mysterious symbols, and lack of attribution all fed StH's pretension as a kind of mythological or archaeological "discovery." The sole presence of StH's lyrics turned the song into a focal point for the album, and elevated the importance of the text. Consumers could reasonably expect the song and album artwork to comment on each other in some way.

Shortly after the album's release, Page set about explaining some of the symbols. Of the old man on the LP cover carrying a cord of wood, Page said that he is "in harmony with nature. He takes from nature and he goes back to the land. It's a natural cycle—it's right."[78] The old man is actually depicted in a picture

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[76] Dave Schulps, "Jimmy Page Tells His Story," 20.

[77] Tolinski, "We're Not Worthy! The Exclusive Interview with Jimmy Page," 46.

[78] Godwin, *Led Zeppelin: The Press Reports*, 224.

that is hanging on a dilapidated wall with tattered leaf-pattern wallpaper. Some of the leaves in the wallpaper appear to be real leaves, and are peeling off the wall—subtle signs of the destruction, and perhaps resurgence, of nature. When the album jacket is fully extended, one can see that the wall is only partly intact, with much of the room exposed to the outside, beyond which, in the distance, is a row of old brick chimneyed houses and a towering concrete building. Page goes on to say that the old man's "cottage gets pulled down and they put him in these urban slums…terrible places."[79] He viewed the unfolded album jacket as a chronology moving from the past (front cover-right side) to the present (back cover-left side): "We then came up with the idea of having the picture—the man with the sticks—represent the old way on a demolished building, with the new way coming up behind it."[80] That the man is in a picture suggests he has, in fact, already been replaced by the "new way" of urbanization. The images on the album are not merely freestanding symbols, then, but comprise a narrative as well—one that will be played out sonically, as well as visually.

The inside sleeve depicts the Tarot figure of a hermit holding a lantern at the top of a hill, which, according to Page, is the "light of truth and enlightenment" being shown to a "young man at the foot of the hill."[81] Significantly, the man must scale the hill—he must engage with nature—in order to achieve his spiritual goals.

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[79] Ibid.

[80] Tolinski, "We're Not Worthy! The Exclusive Interview with Jimmy Page," 46.

[81] Godwin, *Led Zeppelin: The Press Reports*, 224.

The point of the above is to establish that the images on *LZ IV* clearly came from a particular point of view, which could then serve as the moral of the StH myth. Among the moral messages were the dangers of industrialization and its impact on the natural way of life. The images also espoused attaining enlightenment through occult, rather than materialistic, means, as portrayed by the hermit figure from the Tarot on the inside sleeve. Further, there is a progression to the artwork; the outside covers seem to depict a complex of problems (displacement, industrialization, materialism, the "unnatural" way), while the inside covers show their solution (self knowledge, enlightenment, anti-materialism, engagement with/acknowledgement of nature). The viewing order of the album artwork becomes, itself, a kind of kinetic journey toward "truth" or "rightness" as one delves deeper into the album package. The logical final step in this physical progression occurs when one enters the "innermost chamber" of the package (the record sleeve) to view the lyrics and consume the music on the record itself, which will provide its own sonic representation of the journey to enlightenment.

The Written Text: Myth and Mist

> Everybody in the band is going through some changes. There are changes in the playing and in the lyrics. Robert is really getting involved in his lyric writing. [82] (Jimmy Page)

Like the album artwork, StH's lyrics are awash in symbols. Further, they do not appear to form a coherent narrative (see **Appendix F**). The symbols are drawn from a variety of sources and periods, such as the utopian naturo-mythic images of a tree, a brook, and a songbird that have become icons passed down since biblical conceptions of the Garden of Eden, or "rings of smoke through the trees" that hearkens back to Saruman's destruction of nature in J.R.R. Tolkien's *The Lord of the Rings* (something Plant was reading at the time of his writing the lyrics).[83] The quasi-intelligibility of the lyrics not only made possible several interpretations, broadening the song's appeal, but also lent the song an air of impenetrability, adding to its mystique and *mythologization.*[84] Page understood that an open text could serve as a vehicle to a diverse listening audience, citing StH as the song that clarified for him Plant's role as the group's lyricist: "There's a

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[82] Godwin, *Led Zeppelin: The Press Reports,* 160–61.

[83] According to drummer, John Bonham, in Chuck Eddy, "The making of Led Zeppelin's Zoso," 74.

[84] Barron and Inglis discuss how a reader's involvement with a text's multiple meanings form one of the more "general patterns of myth circulation" in "'We're not in Kansas any more'," 62.

lot of ambiguity implied in that number that wasn't present before. I was really relieved because it gave me the opportunity to just get on with the music."[85]

Also important in the mythologizing of StH is the notion that it was somehow created spontaneously, as if divinely inspired. At different times, Page has claimed that Plant "came in with sixty percent of the lyrics off the cuff," or even as much as "three-quarters" of the lyrics during their first StH songwriting session together, which is reminiscent of the myth of Pope Gregory writing out Gregorian chants while a dove with the Holy Spirit sung the tunes into his ear.[86]

Essential to StH's longevity is its message of transcendence that arrives in the final section and is musically bolstered by the song's most powerful episode. Much of StH's universal appeal can be encapsulated in the line, "When all are one and one is all," which is both vague yet, at the same time, remarkably similar to any number of religious tenets. Given our common basis for understanding "oneness" as a divine value or a state of enlightenment, StH's aspiring to "oneness" certainly casts a wide spiritual net. Perhaps that is also why Led Zeppelin's records have been referred to as "liberation theology in vinyl."[87]

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[85] Schulps, "Jimmy Page Tells His Story," 20.

[86] Welch, *Led Zeppelin: Dazed and Confused*, 65, and Schulps, "Jimmy Page Tells His Story," respectively.

[87] Walser, *Running With The Devil*, 154.

The Sonic Text

Form and Instrumentation

> My vocation is more in composition really than in anything else…Orchestrating the guitar like an army, a guitar army…I'm talking about actual orchestration in the same way you'd orchestrate a classical piece of music.[88] (Jimmy Page)

StH's form, its overall musical shape, is defined primarily by instrumentation and texture, rather than key area, though harmony does play a role in the narrative process. In StH, we are dealing not only with combinations of acoustic and electric instruments, but also with *technologically mediated* instruments, such as the thicker sound of an electric guitar with added chorus and echo effects, or the overdubbing of a single instrument to sound like multiple instruments—an "army" of instruments, even.

Many listeners have remarked on the song's instrumental buildup, which was made possible due to the emerging multi-track technology in pop and rock music.[89] Fast attributes to it a sense of growth over the course of the song. She differs with Walser's view that the song combines "contradictory sensibilities [acoustic/sensitive and electric/aggressive] without reconciling them,"[90] and

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[88] Godwin, *Led Zeppelin: The Press Reports,* 403.

[89] For some interesting analyses and discussion of the relationship between multi-track technology and song form in pop and rock music, see Mark Spicer, "(Ac)cumulative Form in Pop-Rock Music," *Twentieth Century Music* 1.1 (March, 2004): 29-64.

[90] Walser, *Running With The Devil*, 158.

instead hears a linear progression from the acoustic (past) towards the electric (present).[91] Such a linear instrumental hearing is debatable, for while StH undoubtedly evinces a build up of instrumental forces, it ends with a reduction to an a cappella tag. Further, the instruments added along the way are not always electric, such as the drums, while the keyboard—an unambiguous representative of the "technological present"—drops out during the break. **Figure 2.1** (below) is an illustration of the instrumental changes that take place during StH represented as steps of a stairway.

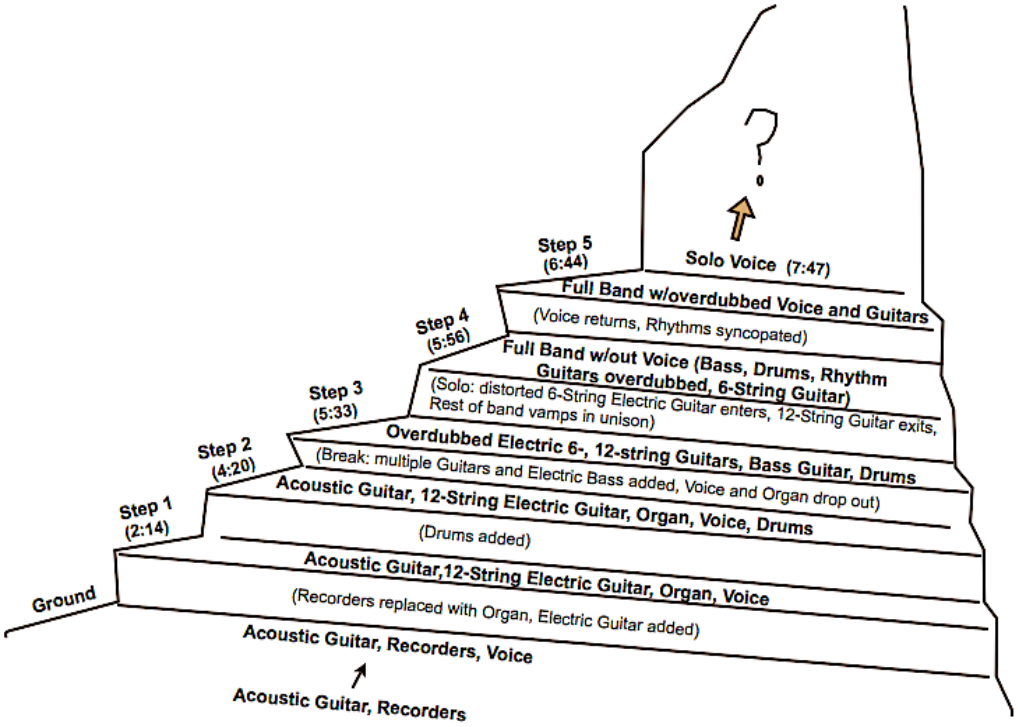

Figure 2.1: StH Instrumentation diagram - Each step indicates when a change in instrumentation occurs. Step fronts describe the changes, while step tops list all active instruments at that point.

[91] Fast, *In the Houses of the Holy*, 69.

Rather than linearly progressing, these electric instruments—and technologically mediated acoustic instruments, such as the overdubbed voice—take on symbolic meaning in the context of StH's sonic narrative. If StH does move from the pastoral (past) toward the electric (present), it can also be said to return to the pastoral. This would symbolize a return to, or yearning for, nature, which agrees with Page's statements about the album's cover art.

Fast does acknowledge the song's a cappella ending, but she feels the return is not a "literal" one, that a transformation has taken place that prevents an actual return. A transformation does indeed occur, but it occurs on the sonic level in relation to the song's two *agent-storytellers*, the voice and guitar, as will be shown below. One benefit of this close-listening methodology, then, is that it offers an opportunity to support general musical impressions with specific sonic events. The sonic narrative of StH does not depend so much on whether we are in "the past" or "the present" at the end of the song as on what meanings are communicated through the sounds. Here, Zak's discussion of Henry Louis Gates, Jr.'s notion of "signifying" (redirecting attention "from the semantic to the rhetorical level" and moving meaning from a linguistic to an associative realm[92]) is relevant, for one can say that Plant's unadorned voice at the end of StH *signifies* a desire to be rid of artifice and to be reunited with nature. In this regard, the sound of his voice takes on a level of significance at least tantamount to the meaning of the lyrics. This desire to get back to nature serves as the moral of the Stairway to Heaven myth.

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[92] Albin J. Zak, III, "Bob Dylan and Jimi Hendrix: Juxtaposition and Transformation 'All Along the Watchtower'," (606).

As sonic counterparts to the lyric narrative, the timbres and created space of StH's acoustic introduction work in conjunction with its harmonic structure to create a somber portrayal of our neglect of the natural world. This message grows in urgency as the instrumental texture thickens and electric sounds gradually overpower and banish the opening acoustic sounds, culminating in a heroic effort by the electric guitar to ascend (in pitch, literally) the "stairway" in order to acquire wisdom, like the man on the LP sleeve. As the song progresses, we hear several dimensions of "space" (frequency, pitch, and amplitude) being filled in—fullness being a sonic metaphor for the utopian state "when all are one and one is all." The listener is finally led up the stairway toward this utopian state of fullness and unity, expressed in the penultimate homophonic section of the song that coincides with peaks of fullness in the three above-mentioned spatial dimensions. StH's stark a cappella ending not only reiterates the introduction's sense of lament, but also helps to frame the mythic narrative by placing the listener back in an intimate setting as in the opening.

In addition to instrumentation, Fast also discusses StH's textural progression from counterpoint toward homophony, referring, no doubt, to the recorders at the song's opening and the syncopated rhythms played by the band toward the end. The song begins and ends in solo textures (solo acoustic guitar and solo voice). Further, a homophonic texture occurs in the break, well before the finale. The complete textural progression of StH is actually rather complex. **Figure 2.2** (below) is a chart of StH's changes in texture over time along a left/right stereo field axis.

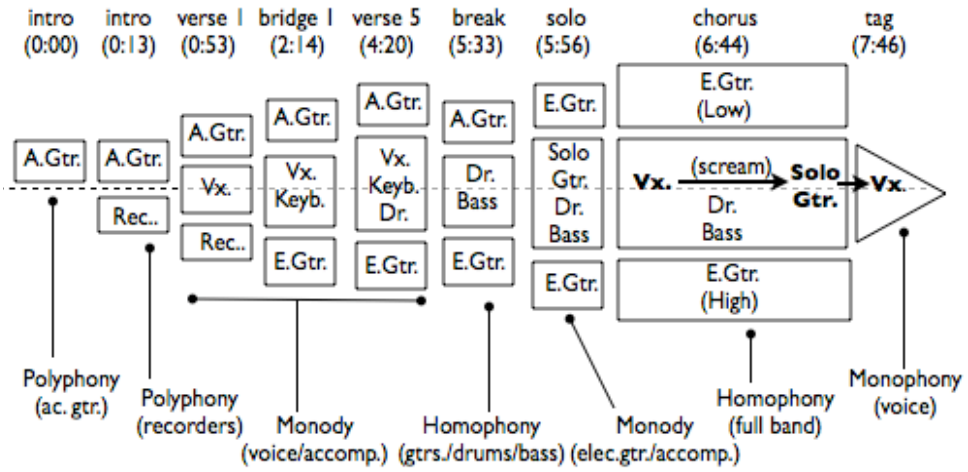

Figure 2.2: Chrono-spatial chart of textures encountered in StH. All instruments in middle boxes (intersected by dotted line) are heard in the center. There is no audible priority within boxes.

At the bottom of **Figure 2.2**, we can see the textural progression: polyphony, polyphony, monody, homophony, "monody," homophony, and back to monophony. With the exception of the solo guitar's contrapuntal polyphony, the song alternates between solo/monophonic and poly-/homophonic textures in constantly changing instrumental combinations. It is framed by two solo sections featuring the acoustic guitar and the voice, respectively. Similarly, the two inner monodic sections, albeit unequal in length, are devoted one to voice and accompaniment, and the other, to guitar and accompaniment. This chart brings to the fore a shared agency between the voice and guitar, where each is allotted its own time as the prominent "voice" in recounting the StH myth. In other words, the guitar functions as *the storyteller* during the solo; its gestures take on symbolic meaning in the sonic narrative. Such shared agency between voice and stringed instrument is also an established device in traditional epic

presentations.[93] In the finale that follows, both the guitar and the voice are doubled, resulting in their sonic "transformation," which will be discussed below. **Figure 2.3** is an overview of the voice-guitar agency roles in StH.

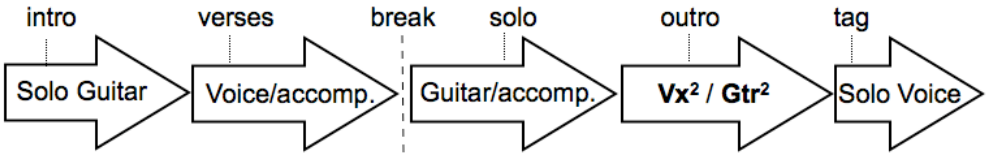

Figure 2.3: Voice-Guitar agency in StH. Both tracks are doubled in the finale, indicated by bolding and squared notation.

Issues of Form: Irregularity and the Unknown

A central feature of Led Zeppelin's music is the juxtaposed use of regular and irregular musical structures. The acoustic opening of StH comprises six musical phrases, only five of which are set with lyrics. (The sixth phrase is an instrumental segue to the bridge.) The six phrases contain four distinct musical ideas that I will label A, B, C, and A'. Plant's vocal phrases are sung in the following order: A-A-B-A-A-(tacit). The B phrase serves as a transition between verses 1 and 2, each set to a pair of A phrases. The accompaniment, however, includes a new interpolated phrase (C) after the transition, resulting in the following order: A-A-B-C-A-A'. This creates a misalignment between the voice and accompaniment, and results in an "extra" A phrase after Plant has finished singing the second verse. **Figure 2.4** is a table of the instrumental and vocal phrase correspondence, illustrating the disjunction between the vocal and

[93] Dietrich writes of the Albanian tradition that "the figures played on the *gusle* or *lahuta* are chosen to imitate a second partner in the local two-part singing style." Dietrich, "The Singing of Albanian Heroic Poetry," 90.

instrumental phrases. See **Appendix G** for an annotated transcription of this section of the song, indicating the phrase correspondence.

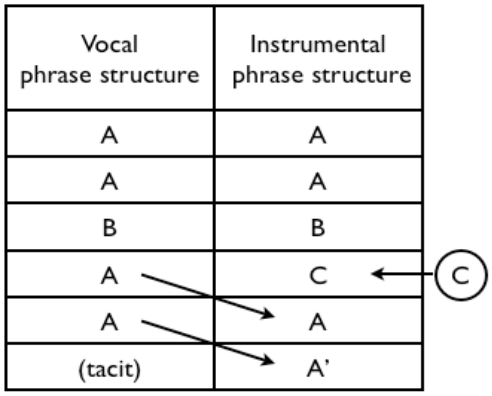

Figure 2.4: Vocal and instrumental phrase correspondence in the opening of StH. The two parts cease to correspond at the fourth phrase, where a new musical idea is inserted.

Fast describes this irregularity between the vocal and instrumental part as how "the text seems to begin anew, but the music does not."[94] The instability resulting from this disjunction represents, for her, the uncertainty one might feel at the beginning of a journey. The irregularity serves another more practical purpose as well: Because Plant finishes singing the verse when the music feels only half completed—we expect the A phrases to come in pairs—this leaves (or requires) time for another phrase before the bridge. During these few bars (mm.22–24 in **Appendix G**), Page accelerates his picking from 8th notes to 16th notes, which provides additional musical momentum just before the entrance of the electric guitar in the bridge. The switch to 16th notes also constitutes a filling-in of "temporal space" in the journey towards fullness, which is part of the sonic narrative of StH.

[94] Fast, *In the Houses of the Holy*, 63.

Piecing Together the Sonic Narrative

Creating and Using Space

StH opens with a solo acoustic steel-stringed guitar playing a contrapuntal figure in the left channel that incorporates a familiar chromatically descending lament figure in its lower voice, transcribed in **Figure 2.5**.

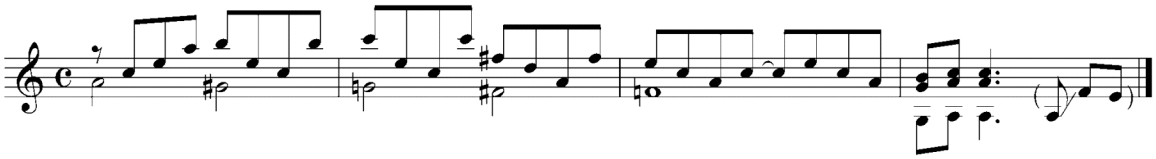

Figure 2.5: Acoustic guitar introduction to StH.

The guitar was miked so closely that one can even hear the movements of Page's hand sliding along the guitar neck as he negotiates the chord changes. In contrast, the right channel is void, other than the faintly reverberating echo of the left channel. In this way, a large space is defined for the listener, one that is not even remotely being used (read: filled). Further, the guitar's attacks in the left channel are separated from their own echoes in the right channel. The resulting impression is that this large space is an "unnatural" one, with an extremely detailed and proximate left side, yet a vague and distant right side. **Figure 2.6** (below) illustrates this opening sonic scenario.

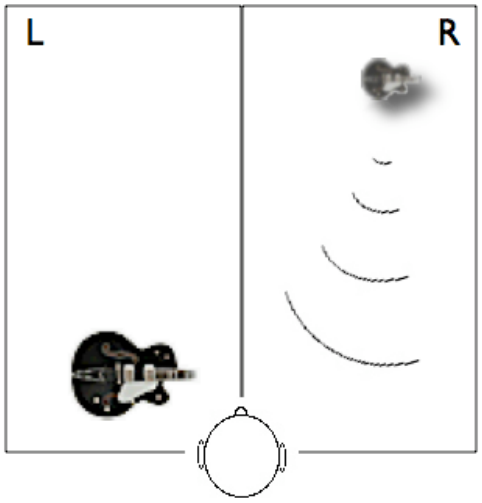

Figure 2.6: (0:00–0:09) Sonic scenario at the opening of StH in which the guitar (left channel) is separated from its own echo (right channel).

The separation of the guitar from its own echo at the opening is an apt sonic metaphor for the song's theme of alienation from our own nature ("our shadows taller than our souls"). The somber intro also sets the scene for the lady in the first verse "who's sure all that glitters is gold," i.e., who is under an illusion that appearances are reality. If there is an album-wide quest for "the Lady," as Davis asserts, then our encounter with this lady only underscores an initial tone of disappointment.

This reverberant space at the opening is not only imbued with a sense of loneliness, but also a sense of intimacy, as the listener feels like the sole occupant of the space (aside from the performer) and, therefore, the sole recipient of the musical performance. In this way, the listener is immediately immersed in a kind of ritual as the private receiver of knowledge *in the form of* music. These impressions act synchronously with the musical structures of the opening. Two things are therefore accomplished here: First, a somber mood is

established by the guitar's descending "lament" figure, the sense of isolation communicated through the reverberant space, and the unnaturalness of the guitar's *separation from itself*. Secondly, the listener is elevated to a privileged position of being "a private audience" to the performance, again, due to the emptiness of the sonic environment and to the "one-on-one" performer-listener relationship at the outset. This sonic scenario replicates one in which esoteric knowledge can be transferred; it is done in private and accompanied by ritual, the rites of which, I will show, are translated into stages as the song progresses.

At the cadence of the first phrase, a recorder is introduced in the right channel and is quickly joined by three more over-dubbed recorders to form four-part counterpoint. **Figure 2.7** is a transcription of the recorders' four-part harmony.

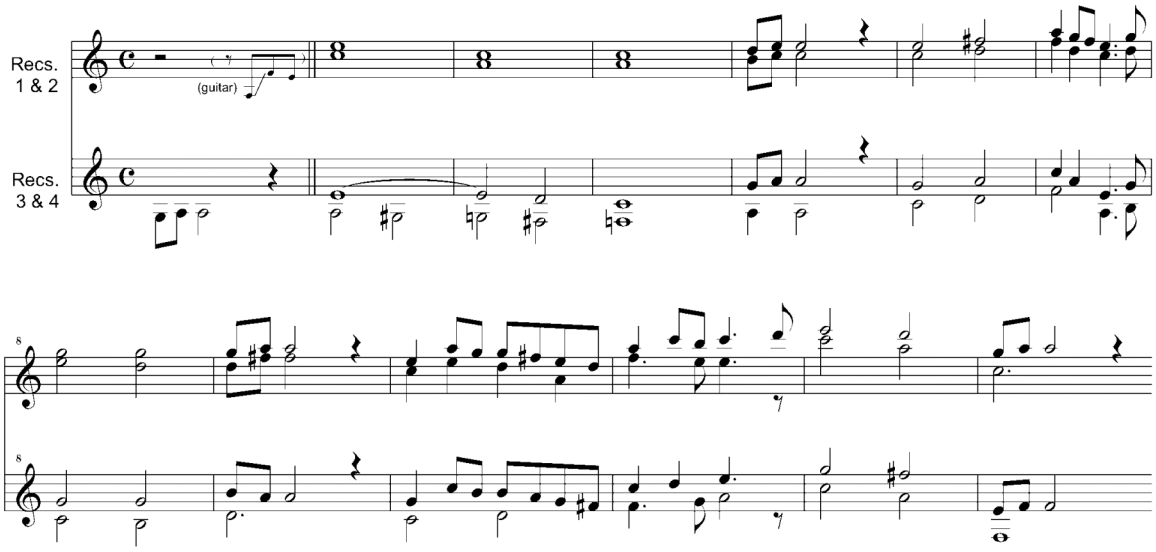

Figure 2.7: (0:10–0:52) Transcription of 4-part recorder counterpoint at opening of StH.

Like the guitar in the left channel, the recorders were close-miked and sound very near in the right channel. Their presence masks the faint reverb of

the guitar that had been audible before their entrance. Both channels now have a very present occupant, and the initial sense of empty space is replaced by the fullness of two instruments that sound directly in front of the listener. The reverberation from the guitar is still present, however, in the far background of the right channel, just as the recorders are slightly perceptible beneath the guitar in the left channel. In other words, though our attention has been drawn away from our initial perception of "emptiness," that emptiness is still there, lurking like a presence. This scenario is illustrated in **Figure 2.8**:

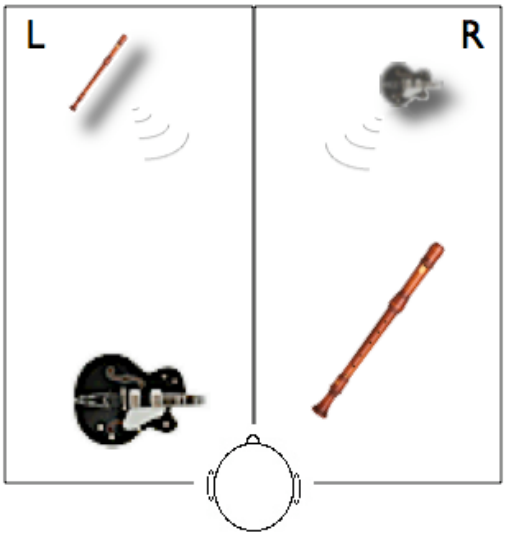

Figure 2.8: (0:10–0:52) Sonic scenario at the opening of StH in which the recorders join opposite the guitar, masking the reverberation that had been initially audible in the right channel.[95] At the same time, the distant reverberation from both instruments is faintly present in the other's channel.

The most striking thing about the opening of StH is its non-heavy metal character. The guitar is acoustic, rather than electric, there are no drums, and recorders are used. The question arises, "Why these instruments?" In light of

[95] Masking is when one sound hinders the hearing of another simultaneous sound due to differences in volume, or for timbral or acoustic reasons.

Page's statements about the "new way" tragically replacing the "old way," the instrumentation makes sense. Choosing an older instrument such as the recorder over its contemporary counterpart, the flute, reflects a desire to evoke the past as well as the mythical realm, as recorders are symbols of the pastoral, of nature, and even the supernatural.[96]

Because the recorder is simpler in design and purer in tone than the flute, it is also the more suitable instrument for "the piper" alluded to in the fourth verse of the lyrics. Significantly, it is the piper, the mythological music-maker, whose call will reveal the "right" way later in the song. The material of their construction is also symbolic; just as wood is representative of trees and nature, metal is representative of industry and technology. The recorders, functioning pan-symbolically as "the past," "the pastoral," "the pure," and "the mythical," consequently ameliorate (by masking) our sense of emptiness and loneliness created by the distant echoes of the guitar in the right channel. The message is thus: Nature is the cure for our alienation. Strengthening this impression is the fact that the recorders appear in four-part harmony; the number of voices, from classical music's perspective, required for a "complete" choir, representing the soprano, alto, tenor, and bass vocal ranges. On the acoustic guitar's (read: "humanity's") side, the single player signals lament and solitude, while on the recorders' (read: "nature's") side, the "choir" signals harmony and togetherness.

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[96] Nicholas Lander has compiled an excellent resource on the web for those interested in the recorder and its history. I give reference to his site in the form he requests: Lander, N.S. (1996-2005). Literary & Theatrical References to the Recorder. <http://www.recorderhomepage.net/index.html> accessed 2 August 2005.

It is interesting that sophisticated multi-track recording technology was used, rather than additional performers, to record the four-part harmony, which undercuts the rural/folk associations of the opening. There is also more than a little irony in portraying pastoral simplicity through the highly refined and rule-governed craft of four-part counterpoint. Here, timbre trumps texture as the recorders convey, through their sound, an impression of naturalness and simplicity, rather than of the complexity and rigidity inherent in multi-tracked four-part counterpoint. In concert, the recorder parts were realized on a synthesizer, rather than being performed by live musicians.[97] Thus, while technology, in the form of industry, may have been viewed by the band as a contra-natural force, music technology was, at the same time, integral to the band's sound, especially in their musical depictions of nature and transcendence, as we will hear later in the song.

During verse 1, Plant is accompanied first by a single recorder and then several ones in harmony. His voice is situated in the middle of the stereo field (that had been empty until now), flanked on both sides by the guitar and recorder, as illustrated in **Figure 2.9**.

L	M	R
Acoustic Guitar	Voice	Recorder

Figure 2.9: (0'53–2'00) Plant's voice is placed in the center of the stereo field, flanked on the left by the acoustic guitar and on the right by the recorder.

The voice is also very forward in the mix, like the other instruments. The three instruments together seem "bigger than life," as their sounds are so powerfully

[97] Chuck Eddy, "The making of Led Zeppelin's *Zoso,*" 74.

clear, despite the initially soft volumes, due to their close proximity to the microphones during recording. We receive at once a somewhat contradictory, yet not irreconcilable, impression of softness of volume coupled with intensity of expression. This recalls Plant's statement that "there's a physical approach to singing and then sometimes it's more pensive… The lighter things are not really light if you grasp the atmosphere and the intention."[98] The strong presence of the voice and instruments demands a more active engagement from the listener because our attention is naturally drawn to sounds that seem so close to us; it is the difference between someone who sings softly in the same room as you, or directly face-to-face.

In the first bridge, the electric guitar and organ are introduced. This marks the end of the song's solely acoustic sound until Plant's closing tag at 7:46. In terms of StH's sonic narrative, this is the end of the pre-industrial age. True to history, the transition from an acoustic sound to an electric one does not occur abruptly; it is accomplished in stages. First, the electric guitar replaces the recorders in the right channel at the first bridge (2:14) (step one in **Figure 2.13** below). The acoustic guitar remains in the left channel, as both acoustic and electric guitars play the same Am7–D Dorian progression. The first acoustic "casualty" in StH, then, is the recorders, which will not be heard again in the song, save for brief doublings at the verses' cadences. It is also noteworthy that a timbral parallel is created between the two guitars as they play the same chord progression with electric and acoustic sounds. This parallel has symbolic

[98] Godwin, *Led Zeppelin: The Press Reports*, 161.

meaning, since it occurs just as Plant sings, “Oh, it makes me wonder.” He appears to be contemplating the “two paths you can go by,” with the electric guitar on his left shoulder representing the “new way” (industrial contemporary life alienated from nature) and the acoustic guitar on his right shoulder, the “old way” (pre-industrial life rooted in nature). A snapshot of the instruments’ stereo placement during this stage of the song can be seen in **Figure 2.10.**

L	M	R
Acoustic Guitar	Voice Electric organ	Electric Guitar

Figure 2.10: (2:14–4:17) For much of the middle of the song, the instruments remain in the following locations.

The newly added electric guitar sounds as if it has a chorus effect, which gives it a thick, lush sound. At the same time, an electric keyboard enters in the middle of the stereo field beneath the voice, playing a contrapuntal monophonic bass line that occasionally leaps out of the texture (for example, 2:36-2:38). The addition of these electric instruments enlivens the song’s texture and provides an adrenaline boost to its momentum. Another consequence of their addition is the opening up of a vast pitch space in the lower register. Up to this point in the song, the lowest notes heard were the open A string on the guitar (A2) and the F (F3) of the baritone recorder. The keyboard enters on the pitch A one full octave below the guitar (A1), opening up a space in the lower register that beckons to be filled. Just as the reverberant space at the song’s opening signaled emotional emptiness or sadness that needed fulfillment, both metaphorically and acoustically, the newly opened pitch space sparks a simultaneous acoustic need for action and a metaphorical need to choose the “right” path. The added depth in

pitch space also acts as a sonic metaphor for depth of emotion associated with Plant's feeling of "wonder." The song will subsequently proceed to fill up space in several dimensions, with a boost from the drums' entrance in the fifth verse, to serve as a response to these needs—a kind of emotional fulfillment portrayed as fullness.

Space is also extended upward, as in the third verse (2:39), where Page's 12-stringed electric guitar accompaniment switches from a strummed to a plucked pattern, clarifying the guitar's doubled strings in the higher octave. The added chorus effect creates an impression of multiple instruments and thickens the texture, setting a more hopeful tone through the added electric energy that partly counters the lonely feel of the opening. The harmonic accompaniment also changes as the chromatically descending A minor lament figure from the opening is replaced by an upward arpeggiated pattern outlining the harmonies C major-G major-A minor. Despite these optimistic musical signs, a descending stepwise motion from C to A is still present in the texture's lower register, reminding us of the opening lament figure and the gravity of the song's issues, as illustrated in **Figure 2.11**.

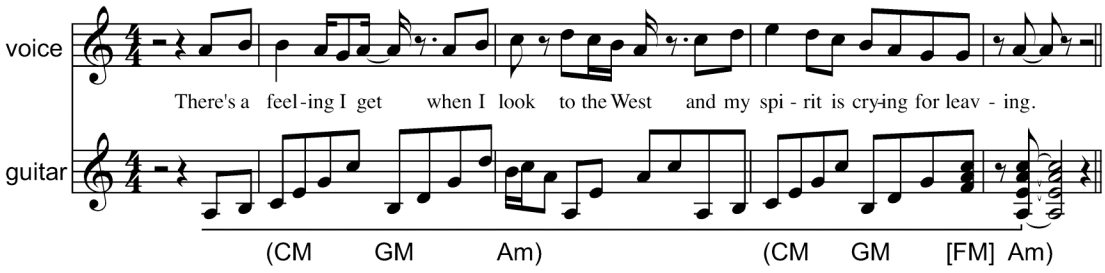

Figure 2.11: (2:39) Verse 3 - The accompaniment at verse 3 changes from a chromatic descent to a diatonic descent.

Where the Two Sides Meet: The Break

> What strikes me about "Stairway to Heaven" is that there are folk-oriented songs…and there are hard-rock songs…and "Stairway" seems to be where the two sides meet. [99] (John Paul Jones)

On the recording, Page overdubs both 6- and 12-stringed electric guitars during the break, increasing the song's power and filling more space in the right channel—by now, the designated electric domain. The unprecedented build-up of overdubbed electric guitars contribute to the break's transcendent sound. The guitars are noticeably compressed, which evens out their overall volume, minimizing the harshness of the attacks while amplifying their decaying resonance, resulting in a particularly bell-like evenness of sound. Again here, just as in the bridge (2:14), a timbral parallel is created between the acoustic guitar in the left channel and the electric guitars in the right channel. At this stage in the song, the acoustic guitar, and all that it represents, is still "holding its own" with the electric instruments, though it will eventually be forced out of the song—and out of history, like the old man on the album cover. The acoustic world is not to be forgotten, however, for the moral of the StH myth is to remember, to revive even, the past.

The break's formal role is to prepare us for the solo, where the 6-stringed electric guitar demonstrates its agency as co-author of the mythological narrative. The dramatic shift from hearing a "guitar army" during the break to a single "guitar warrior" during the solo hones the song's message from a general to an

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[99] J.D. Considine and N. Preston, "Led Zeppelin," *Rolling Stone* 587 (September 20, 1990): 56.

individual level, facilitating a more personal identification with the solo guitar's upwardly-aspiring gestures as heroic, as will be explained below.

Irregularity also plays an important role in the break, during which overdubbed guitar fanfare figures ring repeatedly to herald in the guitar solo. The final verse before the break is the most explicit appeal to heed the "piper's call" and align ourselves with the visual and textual morals of the album: to recognize the inherent value of nature. Once the appeal has been made lyrically, the song then proceeds to demonstrate sonically what a transition to the "right" way would be like. That is why the break occurs after no less than six verses; we must be prepared through a ritualistically lengthy six-and-a-half minutes of music and text before we are permitted to experience the "new day" that is about to dawn. Because the song has been, thus far, an alternation of verses and bridges without a chorus (see **Appendix H**: StH Songmap), we've been deprived of the sense of resolution or arrival that typically accompanies a chorus. This lack creates a desire, an anticipation of something new, and its long delay only strengthens the break and subsequent final section's arrival. The guitar solo's placement in between the break and the finale is felt as both a resolution, by virtue of its pick up in momentum after the non-metrical feel of the break, and a heightening the tension leading up to the finale, through its ever-ascending gestures.

The break is introduced by way of a forcefully struck D major chord that is rearticulated beneath each note of a 2-3-4-3 (E-F#-G-F#) double neighbor figure. The ascending first three notes, E-F#-G, are repeated, in a fanfare-like manner.

These fanfares hearken back to, and build upon, the D 2-3 retardations[100] heard during the bridges, thus extending the D harmony's former association with "wonder" during the bridge to now include transcendence. The break not only marks the end of the prior A minor key area, but also of the drum accompaniment, thus interrupting both rhythm and harmony. It comprises two parts, one of which is characterized by fanfare-like chords, and the other, by strummed dyads, as transcribed in **Figure 2.12**.

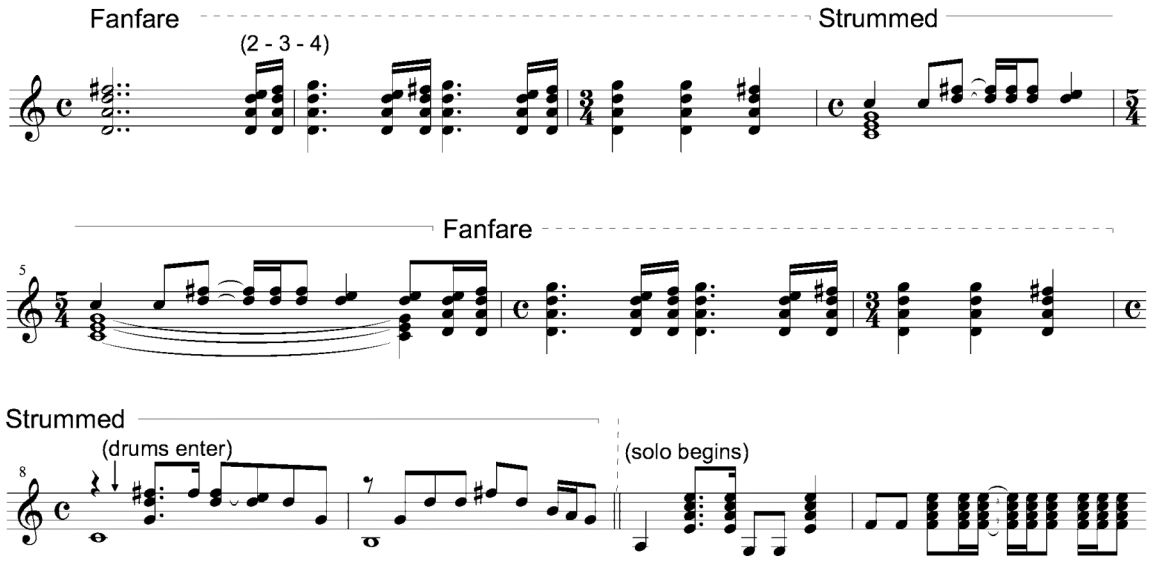

Figure 2.12: (5:33) Break and first few measures of solo Suspended chords and changing time signatures characterize the break. Though the drum cymbals crash throughout the fanfare, the drum beat does not recommence until the second strummed part, as indicated below.

The above transcription represents one possible way to hear the break. It is also possible to hear the 2-3-4 fanfare figures as occurring *on* the downbeat, rather than preceding the downbeat.[101] This latter hearing allows for a downbeat

[100] See **Figure 2.15** for a transcription of the bridge.

[101] Thanks to Mark Spicer for sharing his hearing with me.

alignment of all the fanfare figures, though the fanfare still lapses into an eventual syncopation before the solo section.

The two fanfare parts are essentially the same, though the corresponding strummed parts are somewhat different. The overall form of the break, then, can be understood as A-B-A-B'. During the first part A, the acoustic guitar's attacks in the left channel are the most prominent. Within a few seconds, however, the acoustic guitar quickly fades into the background; only the distorted crunches of its strummed attacks are audible. The electric guitar's strums also create their own distortion in the right channel. In the background, overdubbed electric guitars ring continuously, their resonance sustained well beyond the "natural" duration of an acoustic guitar.

The acoustic guitar—the sole original instrument heard in the song—is ultimately covered by the thick-textured onslaught of overdubbed electric guitars. **Figure 2.13** (below) is a diagram of the break, showing how the acoustic guitar diminishes in the left channel as the electric guitars become more prominent in the right channel, eventually occupying the central space during the solo. Before its exit, the acoustic guitar is strummed vigorously as its volume is nonetheless diminished, giving the impression that despite its best efforts, it is being overpowered.

The departure of the acoustic guitar allows for the drums to be heard more prominently on the left side—they were heard only in the distant background when the acoustic guitar was present—and more importantly, allows for the ascension of the electric guitar from the right channel to the center channel for

the solo. The electric guitar's overpowering and banishing the acoustic guitar is an apt sonic metaphor for industry's trampling nature underfoot.

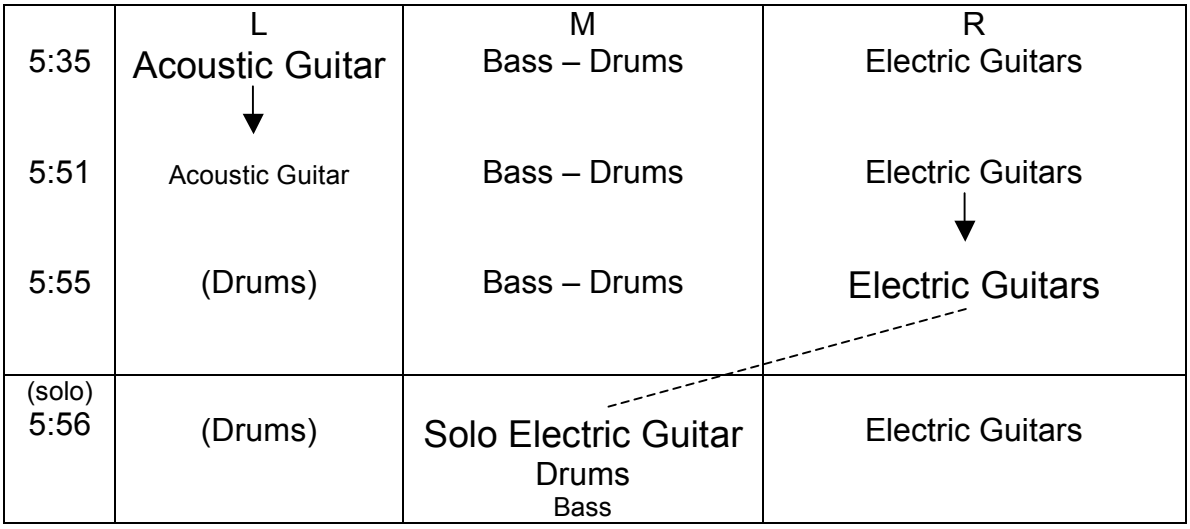

Figure 2.13: Transition to electric guitar primacy during break (5:35–5:56). The acoustic guitar diminishes in prominence in the left channel at the beginning of the break, after which the electric guitars increase in prominence in the right channel. The middle space is then taken up by the electric guitar solo.

Not only is the inclusion of a break an irregularity in the song's form, but irregularity pervades the break's structure, itself. If one has internalized the prior established tempo, one senses a slight delay between the initial struck chord and the first 2-3-4 figure, and again before the drum reenters with a consistent beat (indicated by an arrow in **Figure 2.12** above).[102] In her partial transcription of the break, Fast translates these hesitations in the performance into a metrical scheme through the addition of 8th notes, altering time signatures from 3/4 to 7/8, or 4/4 to 9/8. She relates these time signature shifts to the "hesitancies and anticipations" one might feel when undertaking a journey. Rather than hearing

[102] The hesitations, it should be noted, may also be partly attributed to the fact that the break is a musical "seam," where recorded sections with different instruments and effects were pieced together.

the break as shifting back and forth between quarter note and 8th note beats, I hear it as sounding free of the song's meter, as if one had transcended time itself within the framework of the song's reality. In this regard, the break is symbolic of "freedom attained." In "Sailing to the Sun: *Revolver's* Influence on Pink Floyd," Shaugn O'Donnell describes "metric elasticity" in certain Beatles songs (such as "She Said She Said"[103]) where triple meter was interspersed within an overall quadruple meter framework in order to accommodate the "demands of the [lyrical] content," and how this device was carried over into the music of Pink Floyd.[104]

A similar kind of "elasticity" found its way into Led Zeppelin's music as well. In the hands of Page as audio engineer, however, the device became more than a means of accommodating text; it became a musical means of conveying metric freedom as a metaphor for temporal freedom, and further, spiritual freedom. The extra-temporal feel of the break, along with its unique timbres and texture, combine to give it a transcendent, otherworldly quality. **Figure 2.14** (below) is a re-transcription of the break that takes into account these perceptions in order to represent a listener's *experience* of the break by not formalizing the hesitations that seem, after all, to be inherently "anti-formal."[105]

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[103] Thanks again to Mark Spicer for providing this example.

[104] Shaugn O'Donnell, "Sailing to the Sun: *Revolver's* Influence on Pink Floyd," in *Every Sound There Is: The Beatles'* Revolver *and the Transformation of Rock and Roll*. Ed. Russell Reising (Aldershot: Ashgate Publishing Limited, 2002), 86.

[105] Of course, for the sake of performance, a metered version may be more suitable. There is some question as to whether this section was conceived with any time signature in mind at all, for it was supposedly difficult at first for John

This re-transcription acknowledges the extra-temporal quality of the break by eliminating the meter and barlines for the series of 2-3-4-3 neighbor figures. The entrance of the first C chord and its accompanying dyads feel like a structural downbeat, however, and are therefore preceded by a barline. When the C chord is repeated (at the start of the second system), we expect a repetition of the first instance, but instead get an extended version of it as the D/E dyad is reiterated. This added dyad creates the irregular—and highly Zeppelinesque—5/4 time signature in the metered version in **Figure 2.12**, and makes the second series of fanfare chords sound unexpected (labeled as such in **Figure 2.14** below).

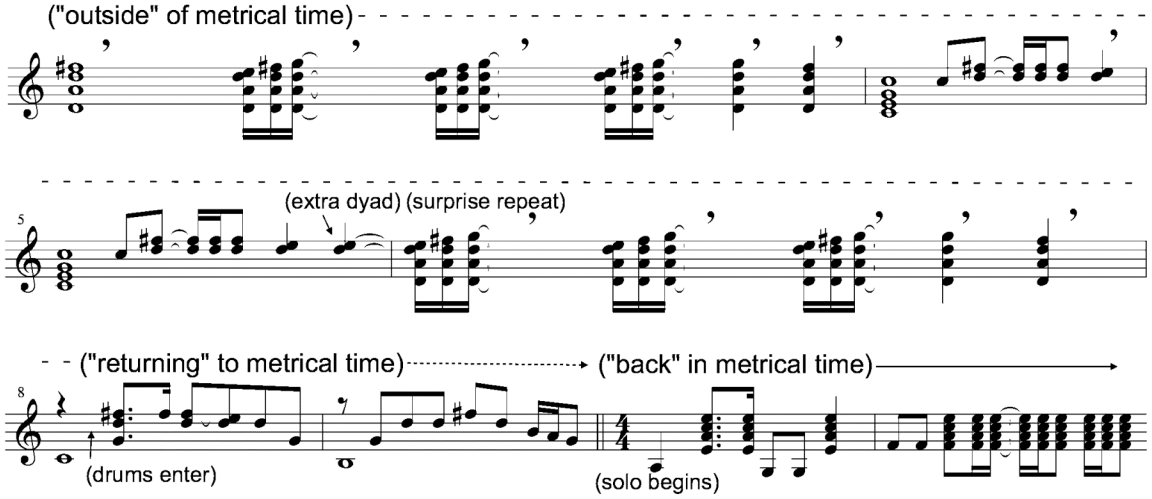

Figure 2.14: Break – Alternate transcription (5:33) The fanfare's "extra-temporal" feel is represented by a lack of time signatures and barlines until the third system, where "metrical time" returns.

Fast hears the fanfare chords as a throwback to earlier trumpet fanfares in Western culture, which Page's guitar timbre "is clearly meant to mimic."[106] Davis

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Bonham to play in synch with the pre-recorded guitar part, suggesting he may have had to take cues or to judge the time abstractly, according to Andy Fyfe, *When the Levee Breaks: The Making of Led Zeppelin IV* (Chicago: A Cappella Books, 2003), 77.

describes the suspended chords in the break as “pointing towards the heavens.”[107] Interestingly, the physical image he evokes again suggests trumpets, though he doesn’t name them outright. Certainly, the idiomatic, rapid ascending nature of the gesture is significant. Because it is not only the goal of a prior descending motion in the bass, but also the initiator of a new song section, the D major chord that introduces the break can be heard both as a deceptive cadence on IV in A minor as well as an opening fanfare for the break. Further, due to its emphatic repetitions and extended duration, the D harmony appears to vie with A minor for tonicity.[108] Despite the obvious effort expended to establish D as a tonal center, the key ultimately returns to A minor for the solo.

Texturally, the break is the lushest moment in the song; it is the first time we hear seemingly endless layers of overdubbed electric guitars ringing in a harmoniously orchestrated tapestry of sound. Indeed, Page considers his craft that of an orchestrator in the classical music sense. The multitudinous overdubbed guitars all articulating the same harmony can be heard as a metaphorical expression of unity, “when all are one.”

In terms of the sonic narrative, the break in the song’s form represents a break in our mundane way of seeing the world: a glimpse of “the way things could be.” In her book, *Sonic Self*, Naomi Cummings writes: “It is by listening to new sounds that you gain an open-mindedness to enter new worlds, and with it

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[106] Fast, *In the Houses of the Holy*, 49.

[107] Davis, *33 1/3,* 113.

the skill to negotiate the 'difference' of sounding worlds that exist apart from you. To listen, even in stillness, is to gain mobility."[109]

The break is also the place where the gentle acoustic world is left behind, and replaced with the aggressive/assertive electric world, characterized by multiple layers of overdubbed and distorted guitars, heavier drum beats, a screeching guitar solo and screaming vocal part. Just before the break, the singer drops out, leaving the bass and drums to occupy the center of the stereo field. In the chronology of the song, we are now at the point where technology has asserted its dominance over natural (acoustic) and human sounds. This is the threat confronted in the StH myth. Significantly, when the voice returns in the finale, it will not be the same; the song's mythic journey will have transformed it into a more powerful agent, portrayed sonically by its own overdubbing.

The urgency of this threat is manifest during the song through progressively accelerated bridges leading up to the break. **Figure 2.15** (below) is a transcription with waveform diagrams of StH's four bridges, showing how each successive bridge's duration is shorter than the last.[110] The thickness of the waveforms corresponds to the strength of the audio signal, and one can see that the fourth bridge is also the strongest signal, due to the presence of the drums by that point in the song. (The peaks at the end of the third bridge indicate the drums' entrance.)

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[109] Naomi Cummings, *The Sonic Self: Musical Subjectivity and Signification* (Bloomington and Indianapolis: Indiana University Press, 2000), 130.

[110] The waveforms begin from the downbeat of the initial Am7 chord and end on the downbeat of the first measure after the bridge.

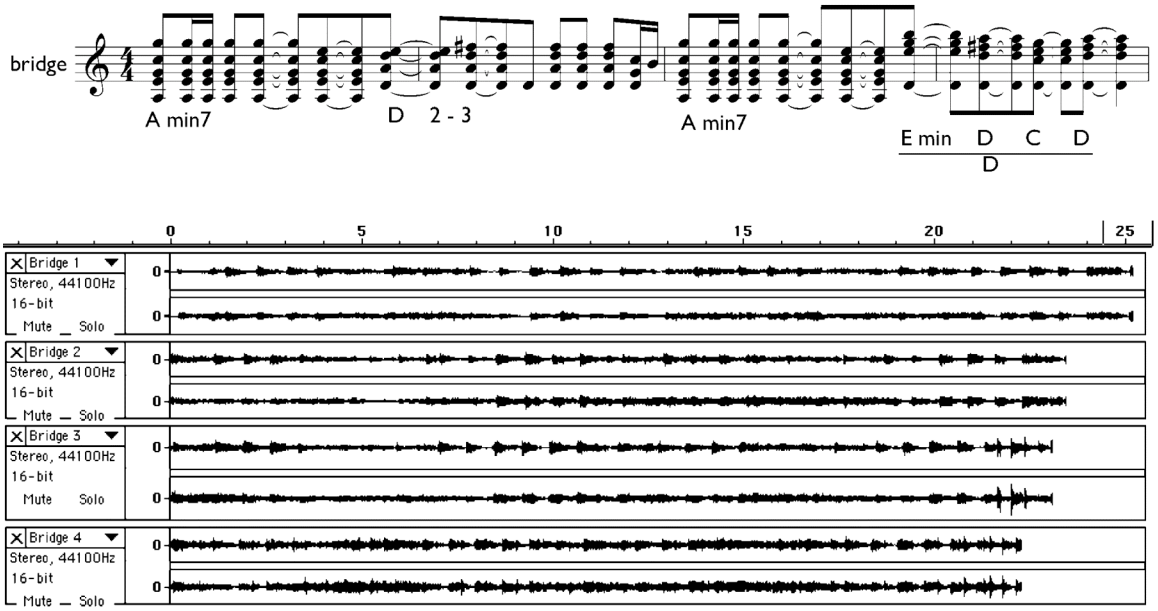

Figure 2.15: StH Bridge transcription (top) and stereo waveforms of all four occurrences of the bridge along a timeline in seconds: Bridge 1 (top waveform pair) lasts approximately 25 seconds, but by the time we near the break, Bridge 4 (bottom pair) is sped up to last only 22.5 seconds.

The sped up bridges are concordant with the song's images of "winding down the road" and "our shadows taller than our soul," which suggest not only passing time, but also a sense of urgency as it is getting late (shadows are taller later in the day). At the same time, these images of passing time and lateness suggest that we have undergone a lengthy journey during the course of the song's several verses; one during which we have grown and acquired a common wisdom ("a lady we all know").

On one hand, then, the break signals the loss of a sense of peace, as the acoustic guitar is overpowered by electric guitars. On the other hand, by shattering our sense of stability and threatening the status quo of repeated verses and bridges, it functions as a portal to a place of possibilities that was initially beyond the song's paradigm of reality. The great effort required for such a

transformation is audible in the complex texture of the break, which must have required many hours in the recording studio to overlay all the tracks. **Figure 2.16** (below) is a transcription of the discernible overdubbed guitar tracks in the break. These include: the acoustic guitar (A. Gtr.); the 12-string electric guitar (12. Gtr.); the doubled strings of the 12-string guitar (broken out onto a separate stave for clarity) (12. dbl.); another overdubbed electric 6-string guitar (E. Gtr.); and the droning pitches that ring beneath this texture (Drone). These tracks are audible enough to permit a transcription, but this is not to say that other tracks may not be present, yet too entwined into the texture to be isolated for transcription. In all likelihood, the figure is not a complete representation of the guitar tracks during the break, but it does provide a fuller picture of Page's interest in "orchestrating the guitar like an army," as quoted above, and it helps in understanding the source of our feelings of empowerment during the dramatic increase of guitar "voices" during the transition from the sound world of the verses to that of the solo and finale.

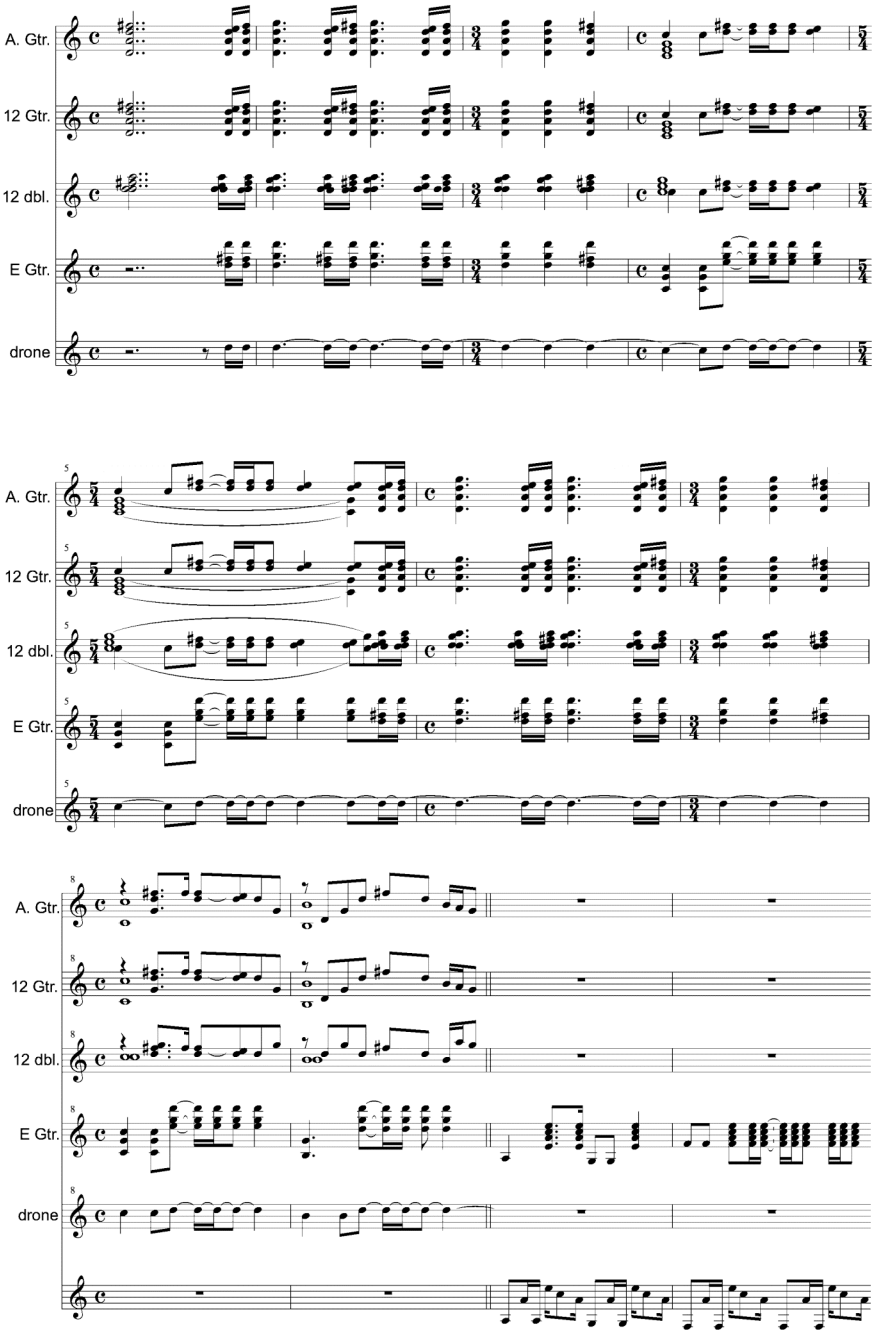

Figure 2.16: Break - Page's overdubbed "guitar army" (5:33) An acoustic guitar, a 12-string electric guitar, the 12-string guitar's doubled notes[111] (broken out onto a separate stave), an electric 6-string guitar, and droning pitches all contribute to the dense, rich texture of the break. (The double barline in the third system indicates the beginning of the solo section.)

[111] The standard electric 12-string setup is presumed, with all strings doubled an octave higher, save the B and E strings, which are doubled at pitch.

Whether or not the droning notes were independently tracked or merely an acoustic result of the ringing chords, they are crucial to the sound of the break, to its sustained energy. At times, the drones even sound like a human chorus singing "Ah." Sustained sounds were, for Page, one way of transcending the limitations of the instrument, so it makes sense that he would employ them to signal the same.[112] The guitar's transcending its physical limitations becomes a metaphor in StH for the listener transcending spiritual limitations. Put another way, the listener identifies personally, anthropomorphically, with the guitar, which becomes crucial in understanding the solo. The guitar communicates to the listener through its motions, timbre, pitch and rhythm, actions that are symbolic of aspiring to self-liberation and transformation, of ascending the stairway to heaven.

The overall sonic image of the break is a striking one, due to several apparently incongruous juxtapositions: First, the acoustic guitar's fade out despite its greatest effort at producing volume; second, the ability of the acoustic guitar to overpower the electric guitar even for a few seconds; and finally, the combined impressions of *extreme effort* embodied in the distorted strumming, along with *extreme facility* embodied in the effortlessly sustained chords ringing in the background. The sonic impression is not one of the acoustic guitar gently taking leave, but rather of its being forced out, or being impotent to continue on

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[112] He said: "I like sustain because it relates to bowed instruments and everything; this whole area that everyone's been pushing and experimenting in. When you think about it, it's mainly sustain." Godwin, *Led Zeppelin: The Press Reports*, 404. Walser also discussed the superhuman quality inherent in sustained sounds in *Running With The Devil*, 42.

past this stage of the journey. The listener, however, is privileged to proceed to a new stage in the song's ritual: the *personalization* of the journey as a guitar solo.

Drawing from the above discussion, we can now formulate a coherent explanation of what happens musically during the break and how it affects our perception of the music: constantly changing meters and slight extra-metrical hesitations subvert our sense of a regular 4/4 time signature. This, along with the unexpected harmonic shift to D major and the multiple overdubbed electric guitars—Page's chorus of angels—creates a musical depiction of otherworldliness as the place where the Stairway leads. Our glimpse of this place is limited as we are ushered back into metrical time when the drums re-enter with a consistent beat leading into the guitar solo. It is precisely this *extra-temporality* of the break that permits the ensuing "swept away" feeling one gets at the beginning of the solo, where metrical time is reinstated, and A minor, the key of "harsh reality," returns as the backdrop against which the solo guitar must struggle to ascend.

The Semiotics of Effort: Ascents and Descents

At the very heart of StH's meaning is the value attached to the idea of ascending the Stairway to Heaven. Visually and aurally, the difficulty of ascending is constantly impressed upon us, whether it be the craggy, forbidding mountainside that the climber must scale in order to receive wisdom from the hermit figure on the album's inside cover, or the numerous harmonic and melodic figures that repeatedly *try* to ascend, generally with little success. In "The

Composer's Voice," Edward Cone wrote: "We subconsciously ascribe to the music a content based on the correspondence between musical gestures and their patterns on the one hand, and isomorphically analogous experiences, inner or outer, on the other."[113] This elemental motion, ascending-descending (hereafter, U-D for up-down), is fundamental to StH's sonic narrative.

The chromatically descending lament figure of StH's opening is indicative of where we begin our journey: not merely on the ground, but locked in a cycle of *repetitively falling*. At the same time, the upper line of the lament figure ascends through a minor arpeggiation (before falling back down), so the impetus to break free is nascent within the lament figure. The contrapuntal tensile "pull" of these two lines—the ascending arpeggiation pitted against the significant ethos inherent in the descending lament figure—is a microcosm of the attempt to ascend the stairway to heaven despite a downward tendency.[114] **Figure 2.17** (below) illustrates both these components of the opening figure:

[113] Edward T. Cone, *The Composer's Voice* (Los Angeles: University of California Press, 1974),169.

[114] This is similar to how Walser likens a heavy metal guitar's pulling away from, and realignment with, a strong rhythmic pulse as a means of offering "the pleasures of escape and reintegration." Walser, *Running With The Devil*, 50.

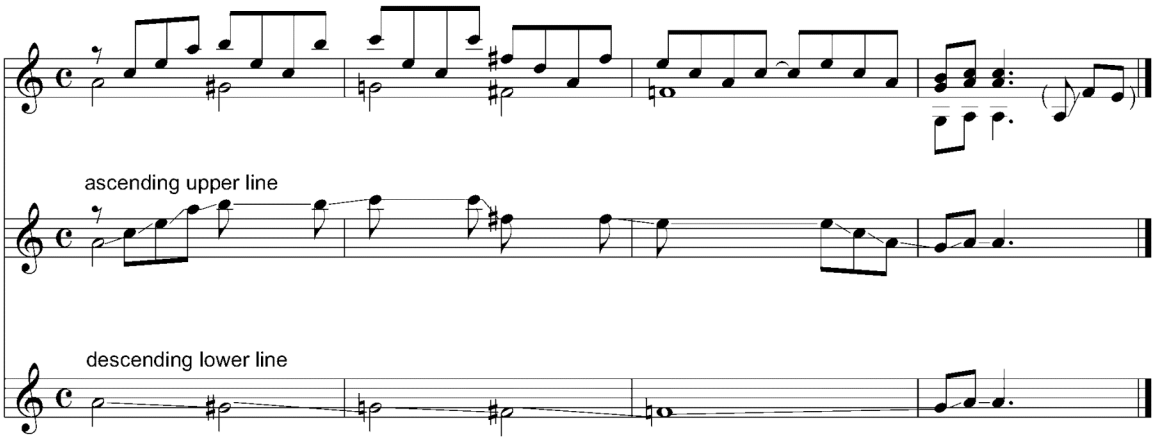

Figure 2.17: Acoustic guitar's opening lament figure (top staff) along with its ascending and descending components (2nd and 3rd staves, respectively).

The upper line's effort to break free of the downward cycle turns out to be in vain as it falls a tri-tone, symbolically, the most "negative" interval in Western music. In fact, U-D gestures permeate StH. Plant's opening melody, illustrated in **Figure 2.18** (below), is virtually solely comprised of stepwise U-D gestures that can be understood on two levels: the first consists of three U-D hills whose peaks grow ever higher, and the second contains an overarching U-D form on the pitches A-B-C-D-E-D-C-B-A.[115]

[115] While an ascent-descent shape can be considered "generic" or "archetypal," this does not preclude the shape's ability to convey symbolic meaning in the same way that other archetypal patterns function in art. In this context, it is particularly relevant since the song concerns a "stairway to heaven," implying such embodied gestures. Further, the shape is relatively unobscured and omnipresent in StH, and is not as applicable to vocal melodies of other Led Zeppelin songs such as "Whole Lotta Love," "Heartbreaker," "Fool in the Rain," "Kashmir," etc. Finally, my analysis is ultimately based on my own perceptions of this pattern in the music.

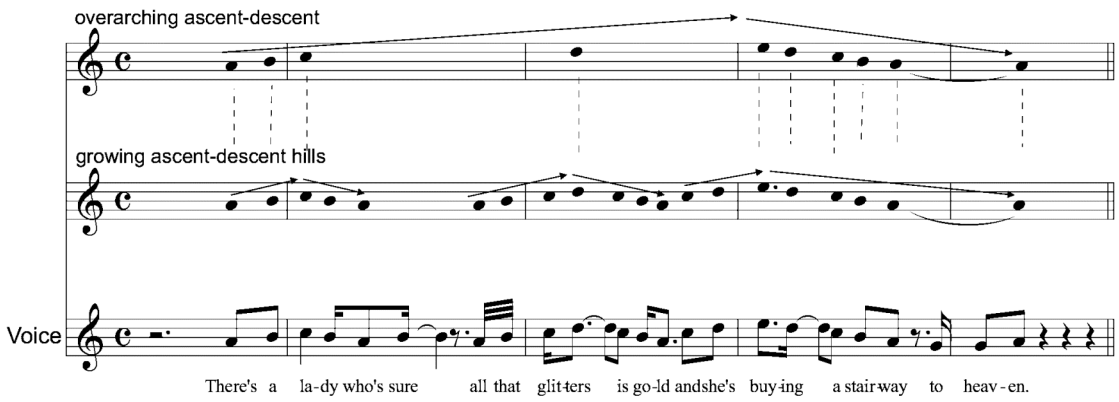

Figure 2.18: U-D shapes in the opening vocal melody of StH.

An abbreviated version of the voice's U-D pattern, now on the pitches A-B-C-B-A, serves as a transition between verses and bridges at 3:03, 3:53, 4:42, and 5:29**. Figure 2.19** is a transcription of the segue.

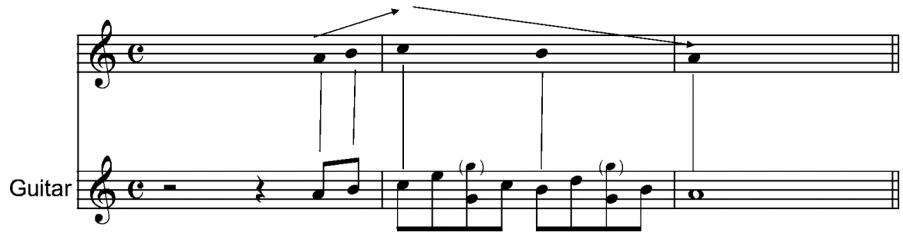

Figure 2.19: U-D segue between verses and bridges. The high Gs (smaller in parentheses) are not fingered, but ring prominently on the doubled strings of the 12-string guitar.

In the context of the song, these gestures that repeatedly ascend, then quickly descend, convey, and persistently reinforce, an impression of futility or difficulty in ascending. When we finally arrive at the break—the stage in the song (and the ritual) when we are permitted a glimpse of the ascent up the stairway to heaven—the final occurrence of the segue does something it had not been able to do the prior three times: it ascends by leaping up to the pitch D (A-B-C-B-D). Sonically, the recorded guitar parts of the tag actually do still descend to A, but a dominant overdubbed guitar track suddenly enters and strikes a D chord over the

final A of the descending pattern, superimposing an ascent over the tag's habitual descent. It is the sonic equivalent of "deus ex machina," where an outside (overdubbed) force steps in to turn the segue into a segue of a different sort, a transition from the pre-break futility and monotony to post-break possibility and novelty. This also serves one of the song's subtexts: ascending the stairway is ideally a communal, not a single-handed, effort.[116] The break thus confirms the meaning of the U-D pattern in two ways: first, the formal need for a break in the song begs the question, "a break from what?"; and second, the break's interruption during the tag identifies the tag itself (a futile U-D cycle) as a symbol of that which is being broken.

There is, likewise, an undeniable impression of "effort" communicated before and within the break as well. During the verses leading up to the break, the bass line is stuck in its own U-D pattern as its stepwise ascents from A to C are pulled back down to A. The preliminary moves up to D major during the bridges seem to weaken A minor's gravitational pull (see **Figure 2.20** below), preparing us for the break's fanfare, where D major will take on a more prominent harmonic and symbolic role.

[116] The message of communal effort will later be reinforced during the finale, where the band communicates a sense of unity through tightly performed rhythms, both straight and syncopated.

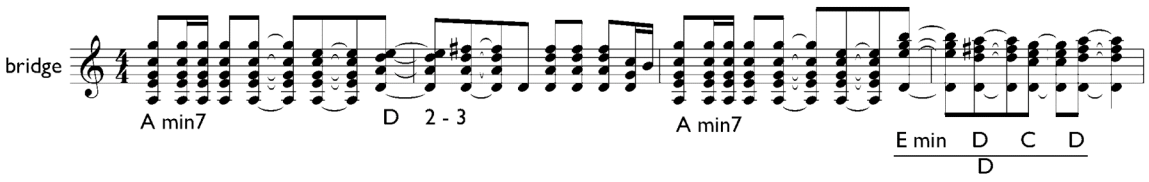

Figure 2.20: StH bridge: The leap from Am7 to the D 2-3 chord prepares us for the move to D major in the break.

Even the bridge's second effort to leap up from A m7 to a higher inversion of D major is to no avail, for it is always followed by the bass's stepwise descent from C to A when the verses return at 2:39, 3:30, 4:20, and 5:08. From a formal standpoint, these repeated sequences of verses followed by bridges constitute a series of *ascending-descending* meta-gestures, that, after the six verses and four bridges leading up to the break, establish a pattern of "futile attempts."

As mentioned above, however, that pattern is finally challenged at the break, where the bass line, instead of descending back down to A, leaps up to D. Though the ability to ascend is initially outside the paradigm of the song's reality, the efforts to ascend during the break become more assertive (read: heroic) and are materialized into prolonged non-chord tones (G over the D chord, F# over the C chord) whose subsequent pull down to chord tones signals an inability to ascend. The break's two sections can be heard as an interplay of ascending and descending forces, as the fanfare part's vigorous upward motion is met each time with the strummed part's more subdued downward-tending dyads (see **Figure 2.12** above). These gestural signs of effort continue to play an important role in the solo and finale.

The Solo

Harmonically and melodically, the guitar solo communicates a sense of the heroic, with gestures that repeatedly try to ascend the stairway. As shown above in **Figure 2.13**, the electric guitar solo is highlighted in the stereo field. Leading up to the solo, the acoustic guitar in the left channel fades out, while the 12-string electric guitar in the right channel grows in prominence. Immediately following, the 6-stringed electric guitar solo enters in the "center stage" position at the loudest volume, separated from the rest of the mix both spatially and in volume. The optimistic D major harmony of the break is forced back down to A minor in the solo. The A-G-F bass line that supports the solo is an abbreviated version of the chromatically descending line A-G#-G-F#-F(-G-A) from the song's opening, but significantly leaves off the G-A return back up to the starting pitch from before. It therefore sounds familiar, yet new. As Fast points out, the solo is a continuation of bass melodic motion that is begun in the break. She doesn't discuss, however, the harmonic implications over this bass line (illustrated in **Figure 2.21**).

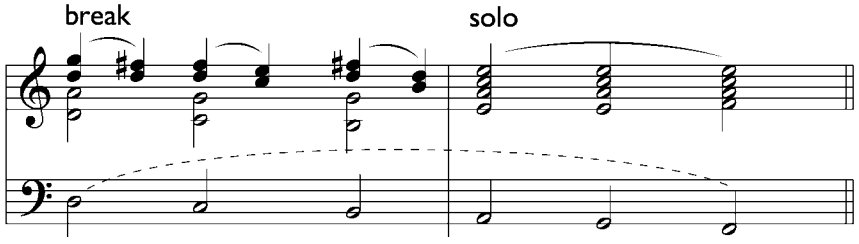

Figure 2.21: Bass/harmonic progression connecting break and solo sections.

In the fanfare section of the break, the unresolved D chord is struck several times before the G is released back down to the stable chord pitch, F#.

When the D chord immediately descends to a C chord, the now unstable F#-D dyad likewise descends to its lower, stable neighbors, E-C. In the second strummed section the bass drops yet further from C to B, apparently forcing the F#-D dyad to cascade down a third to D-B. If the break is the point at which we leave the mundane world behind, a portal into the realm of possibility, as I have asserted, then these consecutive drops serve to unsettle us by transforming "stability" into "instability" in order to test our courage to press on. They are sonic metaphors for the ritual test—a common characteristic of myth occurring at the stage where an initiate is about to enter a domain of greater maturity or understanding, i.e., adulthood. The tritone formed between F# and C in the bass (see **Figure 2.21**) heightens the level of dissonance, as if to say our sonic/mythic journey is taking us into dangerous territory. It also recalls the same tritone pitches that represented the acoustic guitar's fall at the song's opening (see **Figure 2.17**).

The A minor chord at the beginning of the solo marks the first unembellished harmony since the beginning of the break. The solo also coincides with our return to "metrical" time, as indicated in **Figure 2.14** above. Following the ambiguity of the break, the return to harmonic and metrical certainty in the solo signals a return to "the familiar"—though, importantly, not to the past.

In this section, the idea of heroic effort is manifested in the guitar's repeated upward gestures that represent attempts to ascend the stairway to

heaven.[117] The solo can be divided into 12 phrases or gestures, labeled as letters in the transcription in **Figure 2.22**.

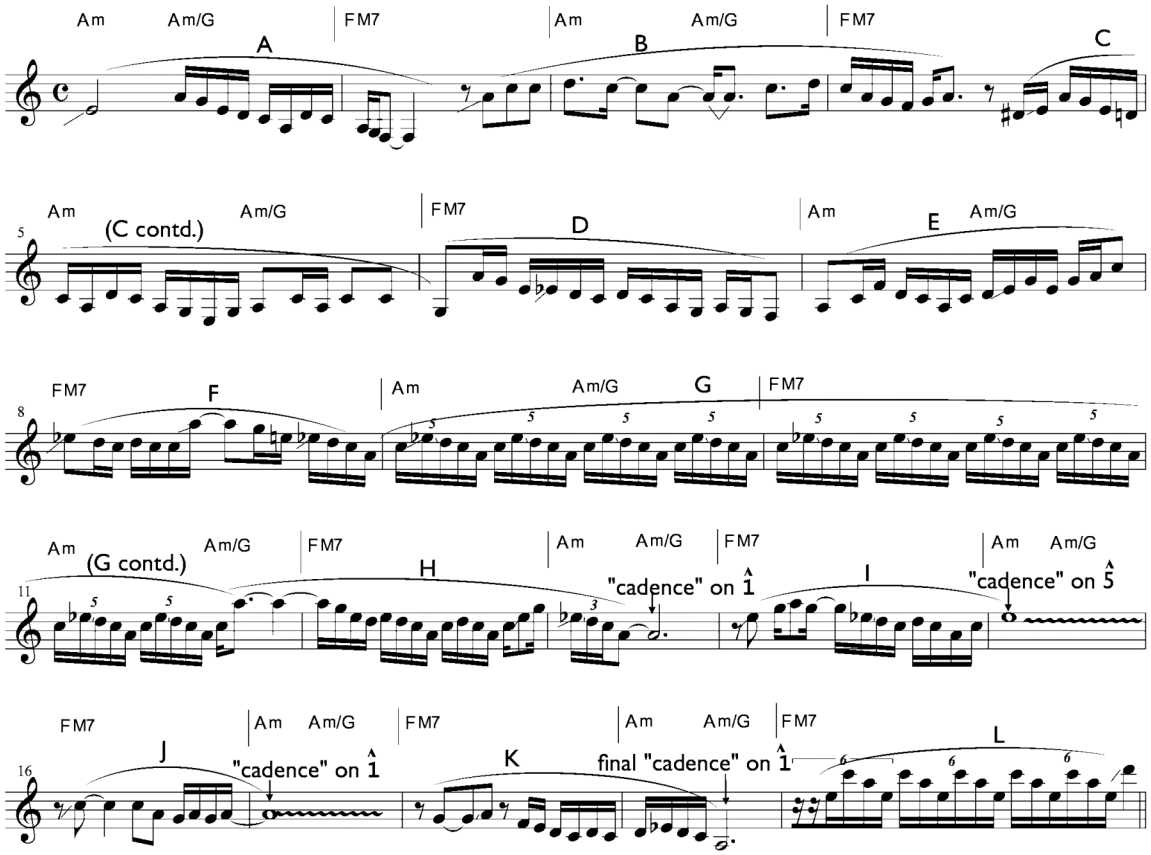

Figure 2.22: (5:56) StH Guitar solo transcription Phrases are labeled with large letters and cadence-like structures are labeled with arrows. Harmonies are indicated above.

One can hear an overall progression from low to high that culminates in the highest pitch of the song on the last note of the solo. These musical phrases, both through their embodiment of the physical gestures required to perform them and through our identifying with the agency of the guitar, communicate a sense

[117] One obvious criticism of such a hearing is the plethora of guitar solos that have similar upward-downward gestures and end on high notes. Admitting both of the above does not necessarily preclude, however, their playing a role in the song's sonic narrative. I believe these archetypal patterns convey meaning based on their context, despite their commonality. My primary concerns were: Does this solo communicate? How and what does it communicate?

of "valiant effort."[118] The perception of effort is not without its setbacks, however, as upward leaps are followed by downward tumbles, such as in phrases A and B. The accelerated, primarily downward motion in phrases C and D conveys a sense of frustration—though not without some effort in the large leap from G3 to A4 between the two phrases. Phrases E and F revert back to upwardness with a strong four-tiered push all the way to A5, the highest pitch thus far, in m.8. Phrase G's ten repeated quintuplet figures, through their pure insistence, convey raw determination, sending a message that such labors do not go unrewarded, as the repetitive cycle is finally broken to reach up to A5.

Despite these gains, the following four phrases (H-K) collectively seem to communicate "ultimate futility," as all the gains are lost in an eventual descent to A3. Each of the four phrases ends on a sustained note that serves as a melodic cadence, with an especially final-sounding lower cadence on A3 at the end of

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[118] The relationship between physical gestures and their embodiment in sound has been discussed by several music theorists and semioticians. One early explorer of this subject is Algirdas Julien Greimas, who posited some bases for embodiment in "On Meaning: Selected Writings in Semiotic Theory," trans. Paul J. Perron and Frank H. Collins, Vol. 38 of Theory and History of Literature series, (Minneapolis: University of Minnesota Press),1987 (orig. 1970 in France). Also pioneers in this area, George Lakoff and Mark Johnson discuss "embodied patterns" based on "bodily movements" in their book, *Metaphors We Live By*, (Chicago: University of Chicago Press, 1980). For a more contemporary and thorough discussion, see Naomi Cummings, *The Sonic Self: Musical Subjectivity and Signification* (Bloomington and Indianapolis: Indiana University Press, 2000).

phrase K. Our impression of futility is compounded with a sense of great pathos at the insertion of a descending tag (**Figure 2.23**) after each of the cadences.

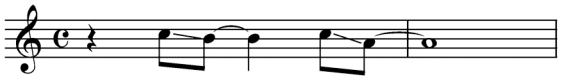

Figure 2.23: (6:25) Inserted electric guitar tag during StH solo.

The tag is of a decidedly different timbre than the solo guitar and the notes are slid to rather than picked, suggesting a "loss of footing" and rapid fall. Also, the tag sounds distant and its attacks are inaudible; one can only hear its ringing tone—like a church bell or death knell—which gives it a supernatural and fatalistic quality. Its otherworldly timbre identifies it as a *separate agent* from the guitar that is performing the solo. To borrow terms from film music theory, the tag can be heard either diegetically as a counter-force to the solo within the song's narrative, or non-diegetically, as an outside "narrator" commenting on the great forces to be overcome, even in the midst of such a Herculean effort.[119]

The surprise of the solo, however, is the ending flourish, which seems to spring up from nowhere after the solo has apparently wound down, both in intensity and pitch. The flourish includes both the fastest rhythms and highest pitches of the solo, where the guitar doesn't merely ascend into the highest register of the solo, but even *transcends* the physical limitations of the instrument to produce the shrill, final D6 by bending up to it from C#6, on the highest string

[119] In film music theory, diegetic music is music whose source is visible or implied in the reality of the film, such as when an actor turns on the radio and the both actor and viewers hear the station playing. Non-diegetic music can be understood as mood music or background music not part of the actors' reality.

at the highest fret of Page's 1958 Fender Telecaster's guitar neck.[120] Just as this gesture requires an unusual effort on the part of the performer, so, too, does it come to embody the kind of "heroic effort" demanded of the listener in order to ascend the stairway to heaven.

This effort and its message are not only communicated in *listening*, but in the numerous times guitarists learn to *perform* this solo and reproduce the effect for themselves. For guitar players, as with other instrumentalists, there is a direct relationship between the sounds of the instrument and the physical gestures required on the part of the performer to produce those sounds. The physical actions of performing the solo are *embodied in the sounds* of the instrument; higher pitches played at the top of the neck, which is also the least comfortable location on the instrument to play, communicate the most tension. There is, therefore, a physical basis for the correlation between ascending pitches and ascending tension.[121]

The Top of the Stairway: The Finale

Despite the electric guitar's ascent in the solo, something is still left unresolved. A comparison of the harmonies supporting the solo and the finale suggests a "lack

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[120] It is a common characteristic of guitar solos for there to be a flourish at the end of the solo; this is, to my mind, analogous to the flourish before a cadence in classical music. It is likely that both function similarly on a semiotic level, as well: wanting to "go out with a bang," so to speak.

[121] It is worth mentioning that associating sounds to an instrumental performance practice is just one of many ways to access meanings in music. In *The Sonic Self*, Cummings explores this issue in depth with regard to both violin performance and the voice "as a physiological mechanism."

of unity" in the solo that becomes a fully "communal effort" in the finale. As mentioned above, the A minor chord in the solo comes as a welcome, unambiguous harmony, following the suspensions in the break. As can be seen in **Figure 2.24**, though the bass during the solo descends from A-G-F, the A minor chord remains essentially unchanged above, creating the progression A minor-Am7-Fmajor7—a harmonically irresolute progression; adding the seventh to the root destabilizes the initial A chord, while stringing two seventh chords together weakens our sense of a tonic and hints at a harmonic sequence, rather than a strong arrival on the Fmajor7 chord. That the accompaniment does not follow the bass signals a "lack of unanimity" among the parts, and therein lies an unresolved feeling that is rectified in the finale, where the accompaniment switches to power chords which, by virtue of their containing both the root and fifth of the chord played by the bass, convey the unanimity between the accompaniment and the solo/vocal parts that had been lacking in the solo (see **Figure 2.24**).

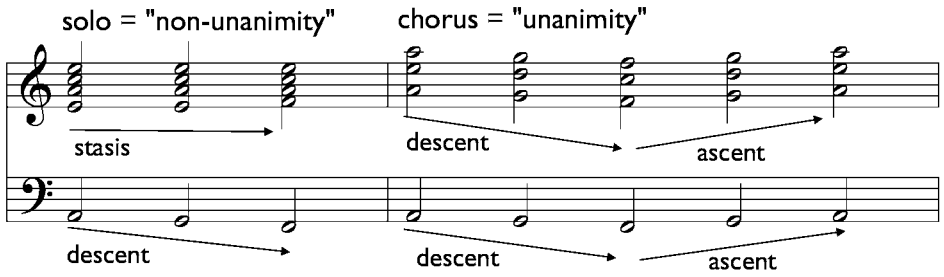

Figure 2.24: Lack of agreement between bass and harmonic accompaniment in solo section versus their agreement in the finale.

The finale's accompaniment is further strengthened by the doubled roots of the chords in the topmost register, creating a parallel line (A-G-F-G-A) at a four-octave interval and conveying a sense of assuredness that had not been

present in the solo's accompaniment. Likewise, when the band plays the syncopated rhythms together during the finale, it transmits a sense of community, of oneness. The magnitude of the words, "when all are one and one is all" (7:18) becomes clear when they are accompanied by a sudden burst of even more layered guitar sounds. The importance of the unified effect of the rhythms during the finale is also manifest in how the complete triads of the solo are replaced during the finale with power chords, which are comprised solely of octaves and fifths. Due to their incompleteness (lacking the third), power chords are easier to finger on the guitar than are full chords, especially at high speeds or under vigorous effort, which is when they are idiomatically employed. Because of this, they communicate a sense of rhythmic dominance over harmony, and their inherent rawness translates into a perception of forceful, focused energy, both of which underpin the finale.

Finally, after nearly seven minutes of music, we get to the reward of our mythic journey, the experience of transcendence as "oneness," ascending together. Here, the electric guitar (overdubbed several times), bass guitar, and drums append to the end of the solo section's A-G-F progression the ascending pitches from the introduction, resulting in the progression A-G-F-G-A. The whole band now plays in tightly locked syncopated rhythms that strongly emphasize the latter, ascending part of the progression (F-G-A) by inverting (or retrograding) the song's fundamental U-D pattern to form a D-U (down-up) pattern which symbolizes hope—itself, is an inversion of the futility conveyed by the prior U-D patterns. In other words, through reversing the order of the pattern, its

action/reaction (or behavior/result) semantics are likewise reversed such that the result is an ascent, rather than a descent. Only through this unanimous effort in the finale can both bass and accompaniment ascend together.

During this final stage of the journey, then, we are permitted or encouraged to ascend the stairway. If the opening descending guitar progression A-(G-sharp)-G-(F-sharp)-F symbolizes *lament* for our being out-of-touch with nature, then it is apt that its (abbreviated) inversion, F-G-A, symbolizes our transcendence to the "right" way of living. In other words, we have learned to see the "two meanings" discussed in the lyrics in the form of two different forms of the same pitch-class group: A-G-F / F-G-A. The reiterated syncopated F chords at the nadir of the D-A pattern constitute the song's most powerfully exemplified efforts to ascend the stairway.

Our arrival at the finale after the long sonic journey is meant to be a transformative experience, which is portrayed as timbral transformations enacted upon the song's principle agents, the voice and guitar. In my discussion of form and instrumentation above, I observed how the guitar is "given voice," like the singer, in the song's sequence of instrumental textures, and how this created a sense of co-agency between them in telling the Stairway to Heaven myth. Both the guitar and voice began the song (read: journey) as single-tracked, somber-toned characters in the midst of an unhappy situation, and both were transformed after passing through the break into loud, aggressive, powerful characters. Their shared role is reinforced in the finale by the fact that both are doubled, as mentioned earlier. Because no two performances are exactly the same, one can

hear the rhythmic micro-discrepancies between the two parts.[122] In his dissertation on vocal "staging," Serge Lacasse writes that vocal alteration likely has its roots in "ritualistic contexts," where it was used to reference "ultimate" powers.[123] He quotes Edward Lifschitz, who observes that a typical characteristic of vocal staging "is the creation of a secondary sound which accompanies the primary sound source [namely the voice]."[124] In this case, the "secondary sound" is the voice itself, appealing to a perhaps primitive notion of self-empowerment. Here, the newly empowered voice interjects lines in between repetitions of the progression, with added intensity of expression both from Plant's doubling as well as from his sheer vocal effort.

In terms of StH as a musical ritualization, this final stage can only be achieved after passing through the uncertainty of the break and struggling to ascend during the solo. In other words, we are musically "tested" before being allowed to ascend the stairway. The top of the song's pitch range at the end of the guitar solo serves as a metaphor for the top of the stairway to heaven as we "transcend into" the finale. In terms of texture, the transition from the solo to the full band in unison stage is characterized by a focused "cleaning up" of all the

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[122] The overdubs are mostly audible at the ends of vocal phrases. Hear "How everything still turns to gold" (7:05) and "The tune will come to you at last" (7:13), for example.

[123] Lacasse, "'Listen to My Voice'," 60. Vocal "staging" is defined by him as the technological enhancing of a vocal sound, presumably to produce a certain effect.

[124] Ibid.

sustained sounds that were present during the solo through the interspersing of silence in between the syncopations. This “cleaning up” is visible in **Figure 2.25**.

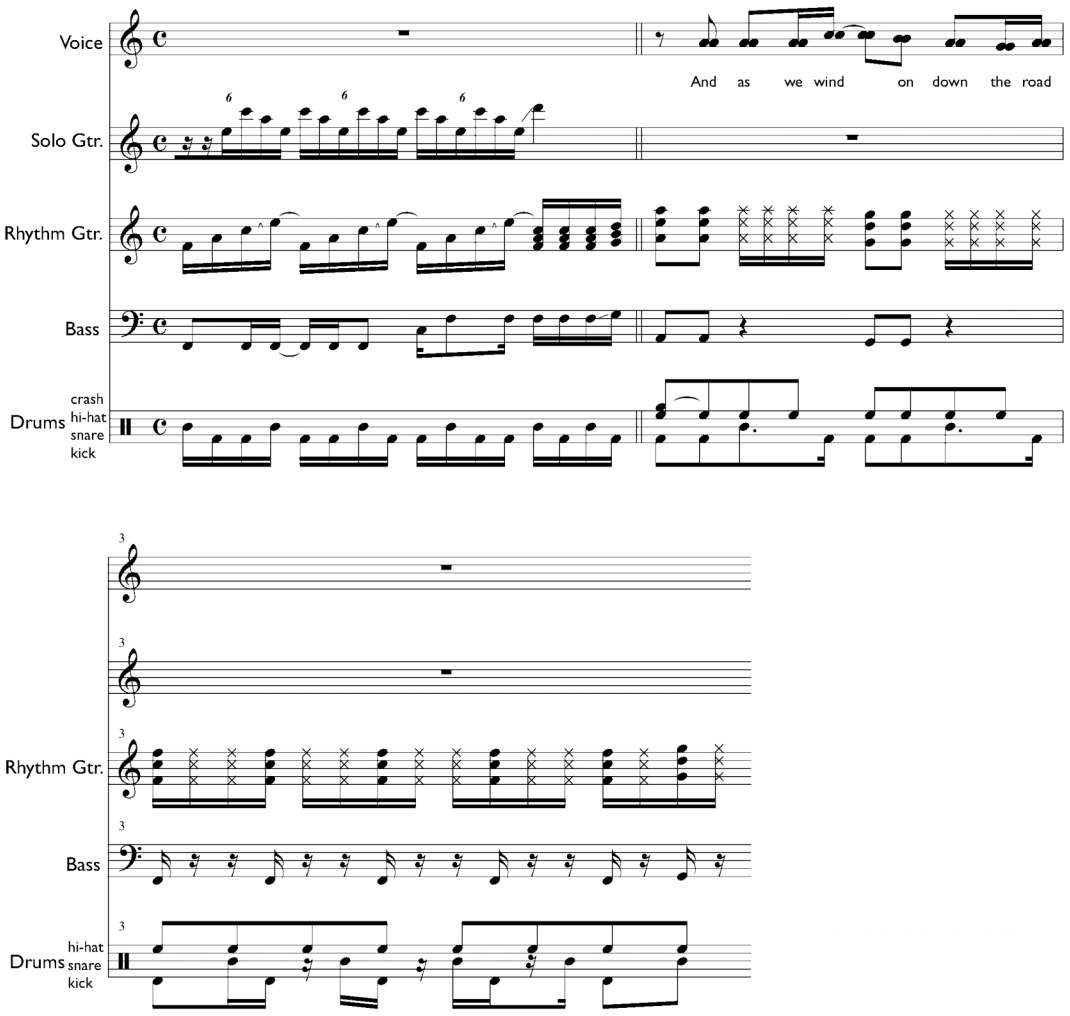

Figure 2.25: (6:42) Transition from guitar solo to finale. Doubled noteheads in voice indicate overdubbing. X-noteheads in guitar indicate muffled strumming.

The multi-layered, strummed guitar parts that had been ringing in the background during the solo are replaced by choppy, syncopated rhythms, and the silence between the syncopated attacks becomes palpable. The solo guitar’s struggles become a precursor to the kind of communal effort now expended by the entire band. The message of the sonic narrative is that we all must unite to ascend the stairway to heaven together, and the power that results from such a

common effort becomes abundantly audible to the listener. This state of unanimity does not remain until the end of the song, however; the "non-unanimous" accompanimental progression heard during the solo returns at 7:27 beneath a wailing cry by Plant. This inability to maintain the unified progression of the finale signals an inability or unreadiness on our part as listeners to reside at length in the transcendent state the finale represented.

Along with the return of the solo section's accompanimental progression, the electric guitar, now doubled, re-enters under Plant's doubled scream at the end of the phrase, "To be a rock and not to roll." Originally employed by the Beatles to create fuller-sounding vocal tracks, the guitar's adoption of this doubling technique only strengthens its role as a surrogate singer.[125] In an interesting manifestation of their shared agency, Plant's sustained scream on C5 at 7:25 is taken up by the electric guitar at 7:34 before the guitar again drops out and the same pitch is taken up once more at the voice's closing tag at 7:46. The guitar's melody seems to emerge from Plant's screaming mouth, assisting the voice just when it is too weak to go on, carrying its message, so to speak, until the voice can return to close the song. **Figure 2.26** (below) is a transcription of this exchange.

[125] Kari McDonald and Sarah Hudson Kaufman, "Tomorrow Never Knows: The Contribution of George Martin and his Production Team to the Beatles' New Sound," in *Every Sound There Is: The Beatles' Revolver and the Transformation of Rock and Roll*. Ed. Russell Reising (Aldershot: Ashgate Publishing Limited, 2002), 139.

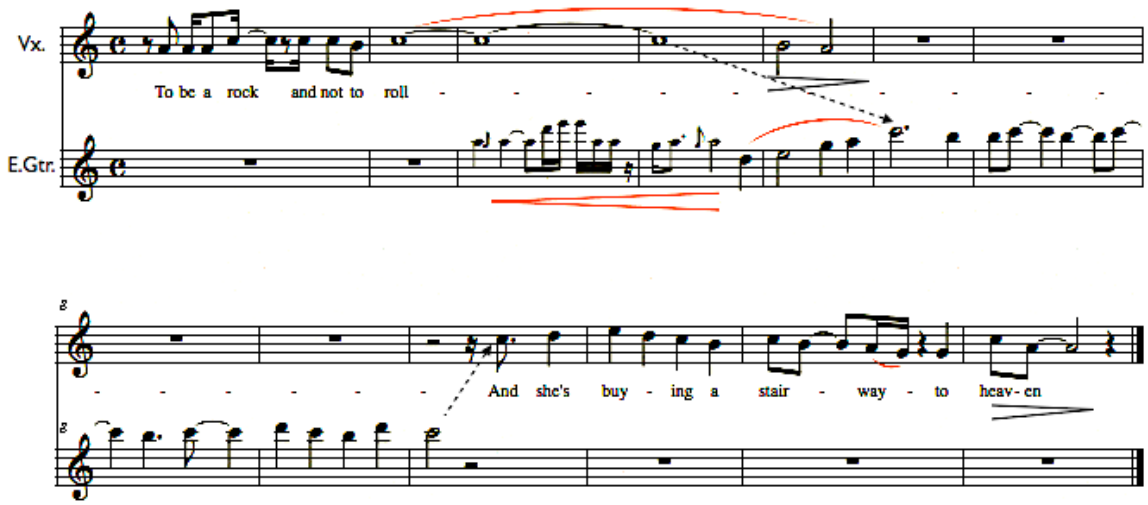

Figure 2.26: Voice-guitar agency exchange. The “transfer” pitches are connected by arrows.

The voice-guitar-voice exchange above constitutes an expanded cadence. The voice initially sings a 3-2-1 (C5-B4-A4) cadence, but the strained timbral quality with which it closes the cadence, combined with the simultaneous upsurge of the electric guitar, weaken the cadence, making it feel incomplete. When the electric guitar reaches full volume just as the voice dies out (m.5 above), it mimics the voice’s cadence, yet is apparently incapable of resolving it, instead, wavering between the pitches C6 and B5 until the voice can close the phrase on the tonic. Even the voice’s final attempt to end the song is, in part, thwarted by its own diminuendo on the word “heaven,” which gives the song an open-ended quality. Ultimately, then, the song is a story of hope, but not of success, not only because the lady is still “buying a stairway to heaven,” but also because the voice’s descent and fade out undercut the harmonic sense of closure from its landing on ˆ1.

Harmonic Signifiers

While StH can be heard as essentially residing in the key of A minor, D major and Fmajor7 chords play important oppositional roles from the outset. The four phrases in the song's introduction (0:00–0:52) cadence, respectively, on the tonic A minor (I, II), D major (III), and then Fmajor7 (IV). Fast describes how, after the third cadence on D, an open ending, one would expect the fourth phrase to harmonically close off the section by returning to the tonic. Instead, we hear a deceptive cadence on Fmajor7. Because it functions as a deceptive cadence, Fmajor7 is, by definition, a kind of alternate tonic. It shares an even more intimate role with the tonic, however, because it contains the complete tonic A minor chord and not just two of its notes (like a vi triad).

During the second verse, a second Fmajor7 cadence accompanies the words, "Cause you know sometimes words have two meanings," suggesting, according to Fast, an analogous harmonic double-entendre. Again in the third verse, an F major chord is struck just before the cadence on A minor (as shown in **Figure 2.11**), coincidentally as Plant sings of his spirit crying for "leaving." This placement lends the harmony an association with yearning to be someplace other than where the protagonist is. I would add that Fmajor7's displacing of A minor at these important junctures initiates a dialectical opposition between A minor and Fmajor7 in which the latter chord, by re-framing the A minor tonic, sheds it in a more positive, hopeful light, suggesting a way out of the cyclical nature of the chaconne-style lament figure. This opposition is also at work in the

accompanying progression during the solo, where the accompaniment moves like a pendulum between A minor and F major7.

During the finale, the F-A dialectic becomes an outright battle as F major vies with A minor for tonic supremacy during the i-VII-VI progression, the tension of which is accentuated by the reiterated syncopated F major chords as they clamor for *tonicity*. It is also noteworthy that the final harmony played by the band—a role usually reserved for the tonic—is an F major chord, as can be seen in the transcription in **Figure 2.27**.

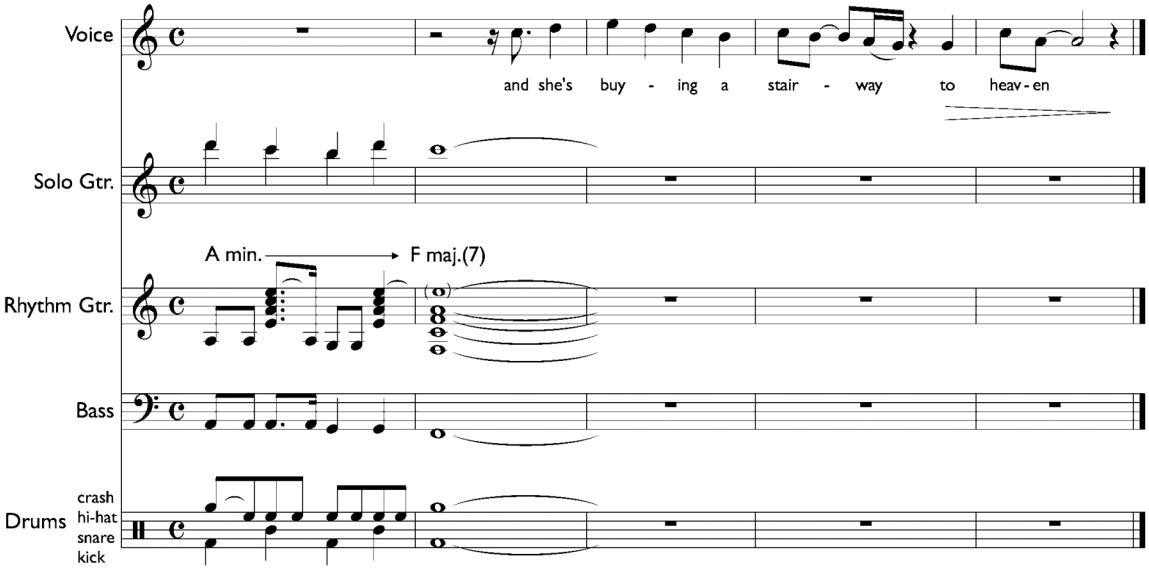

Figure 2.27: The final Fmajor(7) chord in StH. The 7th of the chord, E, is heard ringing from the prior A minor chords. Double-stemmed solo guitar notes indicate overdubbing.

Ending on F major creates an interesting disjunction; the song seems to simply grind to an unresolved halt before reaching the tonic A minor. It sounds as if F major has asserted itself as a sort of "submediant in the tonic's throne," lending it an air of inauthenticity, or incompleteness, though also making the ending sound less resolutely in a minor key, and thus, more hopeful. As discussed above, Plant's vocal part, while apparently wresting harmonic closure

from F major back to A minor, also does so irresolutely due to its fade out. Among the notes ringing in the background of the final F chord is the pitch E, recalling the Fmajor7 from the opening and allowing for the simultaneous presence of a complete A minor chord. Just as the transition from A minor to F major is incomplete, so, too, is the song a story of yet unfulfilled hopes. The harmonic journey from A minor to F major(7) accompanies the myth of the spiritual journey that takes place in the text; it is a story from hopelessness to hopefulness.

If A minor signals lament and Fmajor(7) adds an element of optimism to the song's tone, then D major, the third important harmony in the song's oppositional scheme, represents the otherworldly realm to which we, and the song, aspire but cannot inhabit. D major acts, then, as a kind of portal between what is and what is possible. The D 2-3 harmonies support our "wonder" during the bridges, while the D 2-3-4-3 fanfares support our transcending the mundane world and its downward cycles during the break. The harmonic world of StH is thus formed via three semiotic signifiers, diagrammed in **Figure 2.28**:

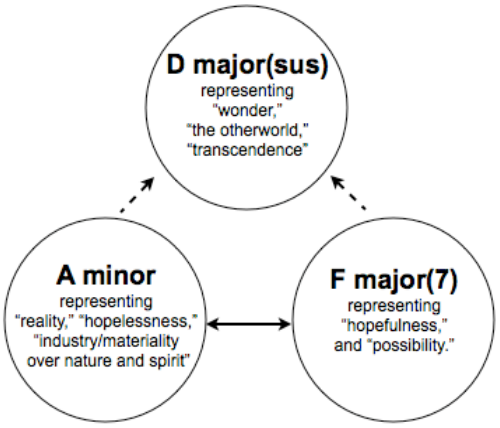

Figure 2.28: Semiotic harmonic signifiers in StH.

Further, the introduction's cadences on A minor, D major, and F major7, respectively, serve as a microcosm for the overarching harmonic progression of the piece from A minor, through the D major chords in the break, to the assertion—albeit somewhat ambivalent—of the F major harmony during the finale and at the end, as illustrated in **Figure 2.29**.

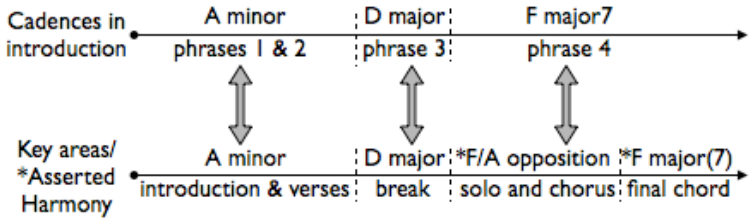

Figure 2.29: Parallel relationship between cadences in introduction and key areas/asserted harmonies in StH.

Ascending as Filling Space: Three Bird's Eye Views of the Stairway to Heaven

"Amplitudinal Space"

As can be seen from the songmap (see **Appendix H**), StH is not structured in traditionally alternating verse-chorus pairs. Rather, it is essentially a long string of verses that are connected through transitory bridges without choruses. In a traditionally structured song, the arrival of the chorus generally serves to release tension built up during the verse; this back-and-forth process of tension-release is like the motion of a cylinder that provides forward momentum in a song. Because StH contains no chorus, and only a single finale at the end of the song, tension is not permitted an outlet, and instead accrues throughout the song. The

bridges that are interspersed between verses feel more like temporary pauses in momentum, rather than releases of tension; they remain in the same key as the verses and are notably un-cathartic in their steady rhythms and their same calm tone as in the verses. As discussed above, they actually establish a pattern of *failed attempts to ascend.* The structure of the song and how it was to solve the problem of creating forward momentum were at the top of Page's mind in the earliest stages of the song's conception. He had composed a number of shorter musical sections, constantly shifting them around until the desired affect was achieved.[126] Page said of the song: "The whole idea was to have this huge crescendo."[127] It is striking how well Page's intentions were realized in an image (below) of the entire 8-minute recording. **Figure 2.30** (below) is a waveform illustration of the amplitude (volume as SPL-"sound pressure level") of StH as the song proceeds in time from left to right. The stronger the sound level, the greater the deviation from the neutral center line, i.e., the thicker the graph.

[126] Fyfe, *When the Levee Breaks*, 75.

[127] Ibid., 80.

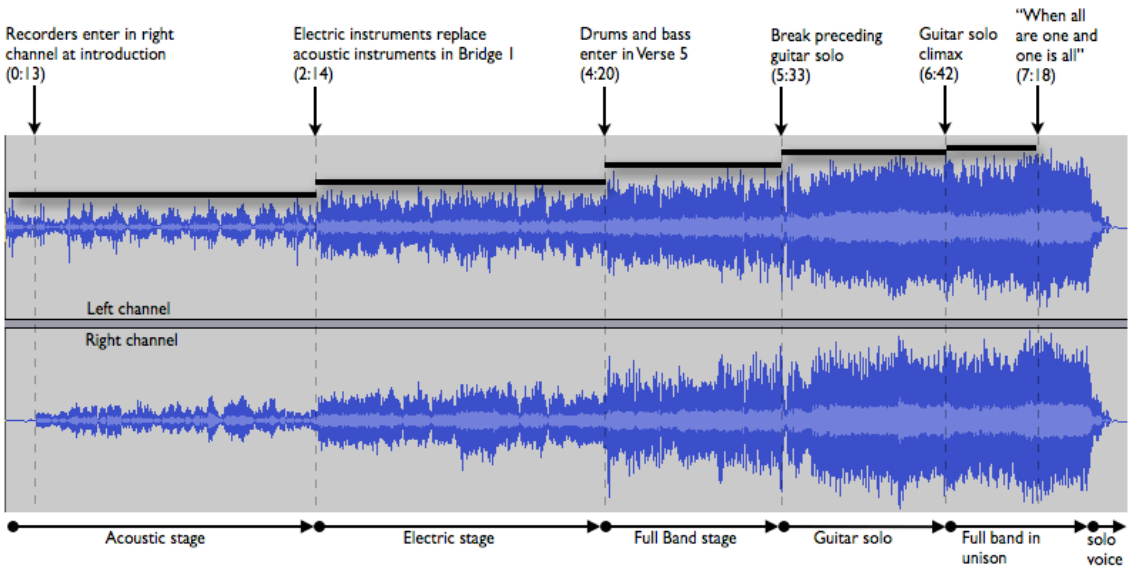

Figure 2.30 (View No.1): (0:00-8:00) StH amplitude rendering of entire song. Formal stages of the song are indicated beneath the graph, while significant formal events are indicated above.

The linear appearance of the above figure might lead one to think that the song begins softly and simply crescendos until the end. In fact, the process is much more complex because the song doesn't merely get louder; it undergoes a series of textural and instrumental changes that define the above shape and consequently the song's form. In the above figure, the major formal junctures in the song are delineated by dotted lines, with important events described above and formal divisions of the song indicated below. These form-defining places are marked either by changes in instrumentation or by changes in the recorded layers of sound and parse the song into several stages (or "steps," in keeping with the stairway analogy). The steps proceed in the following order: Acoustic stage, Electric stage, Full Band stage, Break-Guitar Solo stage, and Full Band in

Unison stage.[128] Each stage is defined by its particular timbral and acoustic qualities, in addition to different rhythms and harmonic structures. By "acoustic qualities," I mean our perception of space as created by the echo and reverb effects and by the overdubbed tracks.

The empty sound of reverberant space, and the fullness of a multi-layered instrumental texture both play a role in the sonic text's narrative of our ascent up the stairway to heaven. The acoustic progression from emptiness toward fullness—just as in the above figure's progression from softness to loudness—serves as a "blanket metaphor" for any number of progressions compatible with the narrative of the song, such as from "hopelessness toward hopefulness," "ignorance toward wisdom," "materialism toward spiritualism," "alienation from nature to union with nature," etc. In other words, these sonic progressions are acoustic versions of our ascent up the stairway to heaven, in whatever personal psychological form that "ascent" may take for us. The above amplitude graph represents one kind of "bird's eye view" of the sonic text of StH.

Pitch Space

Amplitude is not the only way to consider the sonic text of StH, of course. Another way of thinking about the use of space in StH is to consider its use of pitch space. Though it may appear crudely mechanical in this context, it nonetheless provides objective sonic information that can yield another perspective on the song's narrative. **Figure 2.31** is a diagram of the use of pitch

[128] Because of its brevity, I do not consider the solo voice that closes the song to be a stage as such, but rather a kind of closing tag.

in StH as the song proceeds in time from left to right, showing the density or scarcity of pitch occurrences and the relative pitch levels.[129]

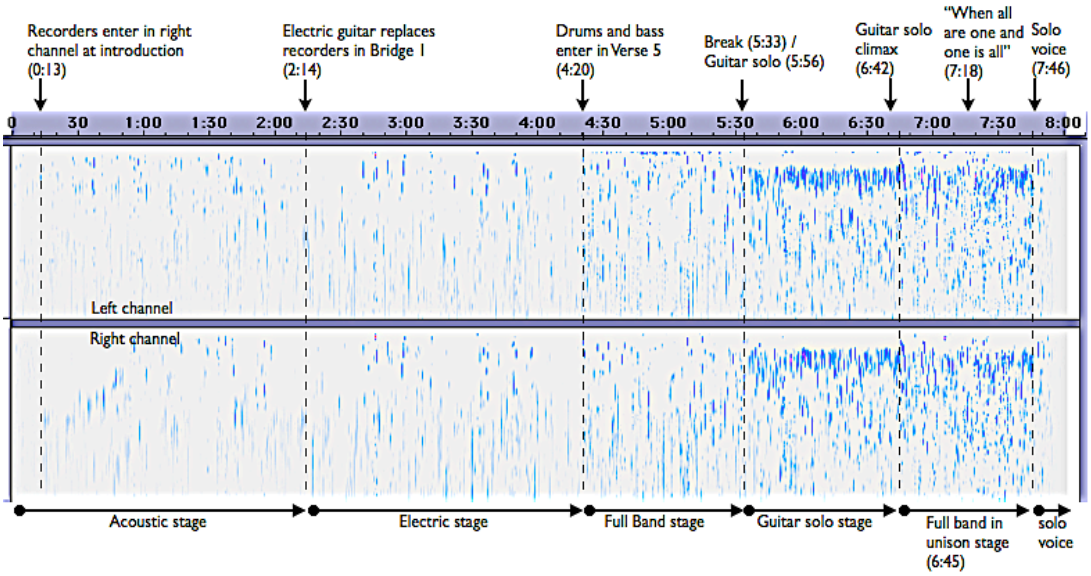

Figure 2.31 (View 2): (0:00–8:00) Graph of StH's pitch density. Formal stages of the song are indicated beneath the graph, while significant formal events are indicated above.

This figure represents the second "bird's eye view." From this figure, one notices a marked density of pitch space that begins just after 5:30 into the song, corresponding with the break (5:33). This visible density bears out audibly in the recording, as we hear numerous overdubbed guitar tracks enter at that point in the song. The pitch density, represented by a thick band at the top, becomes most extreme from around 6:00 to 6:45, corresponding to the guitar solo (5:56–6:43), which spends a good deal of time hovering in the higher realms of pitch space, before attaining to the highest pitch in the song at its climax (6:42).

There is a noticeable thinning out of the pitch density just after 6:44, coinciding with the finale, during which the texture thins as the band plays

[129] This figure was created using Audacity, an open-source digital audio editing program that uses an algorithm to chart pitch occurrences from a recording.

syncopated rhythms in unison. Despite the decrease in pitch density, the finale is nonetheless *heard* as an intensification of the song's energy. This intensification turns out to be due to several factors not visible in this chart, among which are 1) the harmonic "union" of the accompaniment with the vocal part, 2) The timbral quality of the vocal track that is doubled, 3) the import of the text, and 4) the delayed reward of the long-eluded sense of arrival, and other factors, no doubt. Our perception of the song's power, then, is not necessarily directly proportional to any single sonic parameter, whether volume, pitch density, distortion, etc. Rather, the song's meaning is a kind of congelation of simultaneous factors arising from its three texts (visual, written, and sonic), all of which, it must be added, are negotiated within a cultural context.[130]

Frequency Space

Another way to understand StH's sonic narrative of the ascent up the stairway to heaven is to examine its spectrogram, or its energy at different frequency levels over time, as illustrated in **Figure 2.32** (below).[131]

[130] While discussions of contextualizing music analysis within a cultural milieu are, for the most part, beyond the scope of this essay, I refer the reader to several writers who explore that issue in depth, including but not at all limited to: Simon Frith, Ellie Hisama, Lawrence Kramer, Susan McClary, Robert Middleton, and Philip Tagg, among others.

[131] This figure was created using the open source digital audio software editor, Audacity, which uses an algorithm to detect pitches from recorded sound.

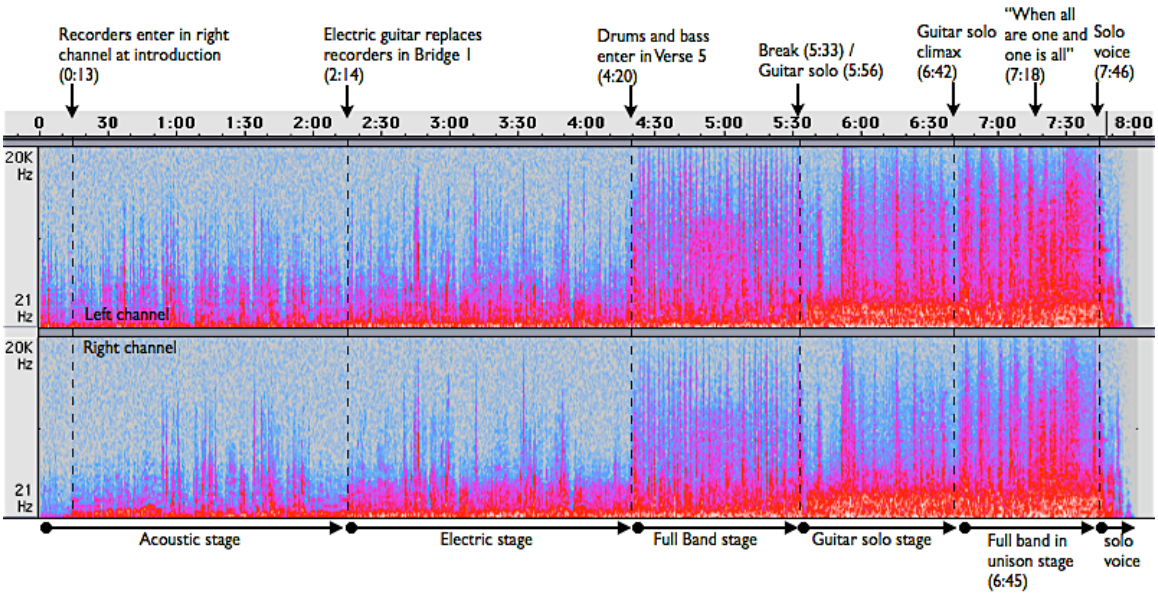

Figure 2.32 (View No.3): (0:00–8:00) Graph of StH's energy within the spectrum of normal human hearing. Formal stages of the song are indicated beneath the graph, while significant formal events are indicated above.

This figure measures the recorded song's energy in Hertz (cycles per second), through the normal human hearing range of 20Hz (low) to 20,000Hz (high). It also represents the third "bird's eye view." Unlike **Figure 2.30**, we are not measuring the accumulative volume of the song at any given point in time; nor are we measuring *occurrences* of pitches as in **Figure 2.31**. Rather, we are measuring the *energy* at various frequency levels created by the combination of the instruments' pitches, timbres, and amplitudes. Because a single played pitch exhibits energy at multiple frequencies, this graph can, in a way, be understood as a *consequence* of the prior two figures.

While this figure shares qualities with both of the earlier figures, it tends to emphasize yet different aspects of StH's form. We get some sense of the " huge crescendo" Page was talking about, though not as linearly depicted as in **Figure 2.30**. Here the most notable increase in energy occurs just before 4:30,

corresponding to verse 5 (4:20), when the drums join in to form the full band. Their entrance coincides with the introduction of the May Queen, the ancient female incarnation of nature, who awakens the natural world in springtime, and the drums' resonance visibly boosts the song's energy in this graph, filling the air with a wide range of intensity throughout the frequency spectrum.

We can differentiate in **Figure 2.32** two components: a lower frequency band that looks like a dark, thin strip with some light speckles along the bottom, and a higher frequency range illustrated by the multitudinous needle-like spikes apparently emanating from that dark strip. There is also a noticeable decrease in high frequency energy from around 5:30 to 5:50, which, counter-intuitively, coincides with the break (5:33–5:56), where we expect a boost in energy due to the multiple overdubbed tracks that enter there. (At that same point in **Figure 2.31**, for example, we see a dense band of high pitches form at the top.) The decrease in energy at those higher frequencies is most likely due to the momentary dropping out of the drums at the start of the break. The energy is rejoined, visibly and audibly, when the electric guitar solo commences. Here, we sense that the break, functioning true to its name, serves as a kind of lull before the (electrical) storm, even as it introduces a denser pitch texture through overdubbing. In this way, it is able to serve its dual, and apparently contradictory, roles of disrupting the song's momentum, yet at the same time propelling us further up the stairway to heaven.

This third view, in particular, reveals the potency of the drums, whose entrance virtually divides the song into two halves. A frequency crescendo is

visible in the latter half of the song as the thick lower band of frequencies, along with their emanating spikes, become even thicker up to Plant's closing vocal tag. In terms of the narrative, frequency space is being filled up as we approach the top of the stairway.

From these three meta-views of StH's sonic text, we can see that there is a directionality, a progression from emptiness to fullness, whether in the realm of amplitude, pitch, or frequency. These views of the song provide large-scale visual representations of its sonic structure that can complement traditional pitch-based tonal motion analyses. Their relevance as analytical tools is obviously dependent upon a recorded performance of a song. Indeed, they depend upon a *particular* performance, but are valuable in what they reveal.

The Sonic and the Mythic

If, as I have asserted, StH does not replicate a former myth, but rather creates a new myth, what exactly is that myth? Because several factors are considered in this interpretation of the song, including album art, lyrics, and music, we can say that the myth is three-in-one, as it is told through words, sound, and images. These form a potent synchronism when a listener views the album art and reads the lyrics while listening to the song. The large, colorful LP jackets promoted this kind of audio-visual experience. Today, one must often pay for the right (either in money or in information) to download album art to accompany mp3 sound files. The very commoditization of the visual aspect of the

listening experience seems relevant, somehow, to the song's wariness of industry at the expense of all else.

Visually, the myth begins as a warning of the impending destruction of nature at the hands of industrialization. The protagonist, and victim, is an old country man—a symbol of nature and the natural way of living, while the antagonists are cultural phenomena of industrialization and urbanization that appear relentlessly poised to subsume the protagonist. The second visual element of the myth is the quest for enlightenment as a dangerous, uphill endeavor. Here the protagonist is a man who symbolizes each of us as he leaves the boundaries of the city (read: society) to reach a mysterious hermit whose lantern serves as a beacon of wisdom from the top of a mountain. The visual myth, then, is the story of a dangerous journey in the hope of finding a solution to nature's plight. The written myth is the story of a lady who lives in a materialistic illusion and, sadly, fails to hear the piper's call "to reason." The sonic myth is an interplay of acoustic and electric instruments as a metaphor for the balance of nature and industry. The sonic myth's two narrators, the voice and the guitar, must enlist the listener's help in seeking a balance with each other and are each sonically transformed into more powerful agents in the process. These three components of the tri-text work in unison to mythologize the song "Stairway to Heaven" into a story of hope: hope that what is "natural" and "right" (according to Page) will not be completely replaced by what is man-made.

Finally, why the title "Stairway to Heaven"? On the surface, the phrase is an absurdity, an impossibility. It is also theoretically impossible, for heaven is not

a destination, but rather a concept of sublimity and beyond our reach. The oxymoronic notion of a stairway to heaven embodies the same message of the song in microcosm: namely, that it is futile to use material means (a “stairway”) to arrive at a spiritual goal (“heaven”).

Perhaps the earliest notion in our collective conscience of a stairway to heaven comes from the Book of Genesis, in which Jacob dreams of a ladder reaching to the heavens, upon which angels are ascending and descending. The appearance of the “stairway” in his dream was portentous, for it signaled his communion with God, who appeared by his side in the dream and promised him abundant offspring, blessings, and a sense of destiny, rooted in the now-holy place, which Jacob, upon waking, described as “the gate of heaven.” To mark the place, he used a stone: a product and symbol of the earth, of strength, and permanence. The last accompanied lyric in StH, “To be a rock and not to roll,” appeals to a deep cultural desire for permanence (in whatever way we conceive of it), while subtly, and self-referentially, playing on the genre of music that Led Zeppelin was recasting: rock n’ roll. They were—and were not—rock ‘n’ rollers. They were creating a “permanent” music by promising mythical ideas of permanence, immortality, and most importantly, hope, in their music, and their musical promise to their generation of listeners was made during a time of great change and upheaval. In a self-fulfilling prophecy, StH became the “rock” that does not roll.

CONCLUSION

> If the sonic material which constitutes popular music is not accessible, then it is not popular music.[132] (Allan Moore)

Summary

The overall aim of this dissertation is to open an analytical discussion between traditional methods of music analysis and recording studio aesthetics by providing close readings of two of Led Zeppelin's epic songs: "When the Levee Breaks" and "Stairway to Heaven." In this process, I explore a variety of approaches, with an emphasis on recording studio techniques, to obtain as complete a picture as possible of how these songs communicate meaning. In a discipline where pitch and rhythm are often the focus of analysis, they are here considered as complementary to the musical devices of the recording studio such as panning, timbre, prominence, multi-tracking, and tempo, as well as to interpretive musical issues of agency and signification (semiotics). The overriding question is: "To what affective ends do all these technological devices serve?" In response, I posit the notion of their forming "sonic narratives" that interact with the songs' lyrics and other musical and extra-musical elements (album art, significations, etc.) to tell a story—one possible story—of each song.

In "When the Levee Breaks" the sonic narrative is of the gradual breaking of the levee and flooding of the protagonist's home. Besides the singer, two other

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[132] Allan Moore, "What story should a history of popular music tell?" *Popular Music History* 1.3 (2006): 329–338.

protagonists (the harmonica and slide guitar) and one antagonist (the drums and bass rhythm section as a unit) are distinguished in the sonic narrative, all of whom are timbrally transformed during the course of the song, but in different manners. Along with the voice as the main storyteller, the remaining protagonists serve as surrogate storytellers, while the rhythm section represents the river. As the song progresses, the timbre of "the river" becomes more trebly and forward in the mix, conveying a sense of growing danger through its proximity, while increases in tempo add a sense of urgency. At the same time, the timbres of the protagonist storytellers become more distorted and disfigured, sometimes taking on characteristics of each other until, ultimately, all become fragmented as the two surrogate singers are tossed about in the stereo field at the end of the song as the voice bemoans its demise and "the river" plays through in the center channel.

In "Stairway to Heaven," the sonic narrative is a story of ascending the stairway through metaphorical progressions from emptiness to fullness and/or loneliness to community (as "oneness"). The stark sense of emptiness at the song's opening, created through the use of reverb and the close miking of the solo guitar, is contrasted with the abundant fullness portrayed at the end of the song in the realms of pitch space, frequency, and in the multi-tracked texture. Leading up to the song's finale, the idea of *trying to ascend* is conveyed through repeated ascending-descending gestures, while harmonies and key areas are heard as associated with particular affective moods.

The mystique surrounding the song also forms a significant part of the analysis, as comments by the band members are tied in with the notably arcane album art, all of which inform the sonic narrative, resulting in a powerfully integrated experience of arrival at the end of the song. It is this sense of journey and arrival in both songs, more than their lengths, that accounts for their being constantly singled out as epic songs from among the band's repertoire.

General Observations

Central to both analyses is the incorporation of recording studio aesthetics into the discussion. The sonic manifestations of the flooding river in "When the Levee Breaks" and the spiritual journey into otherworldliness and subsequent ascent in "Stairway to Heaven" are conveyed through a consideration of both traditional analysis as well as how the tracks were mixed and timbrally affected.

This approach is meant, in part, to address criticisms of formalist music theory as being unable to speak to the parameters of timbre, vocal technique, or spatialization critical to the creation of meaning in popular music. Here, diagrams specifically designed to encode those parameters are employed side-by-side with transcriptions to highlight important pitch and rhythmic relationships such as the descending lament figure in "Stairway to Heaven" or the agency exchanges between the voice and slide guitar in "When the Levee Breaks." Because several different analytical approaches are entwined in these analyses, the following **Figures** are provided as overviews of my approach in each analysis:

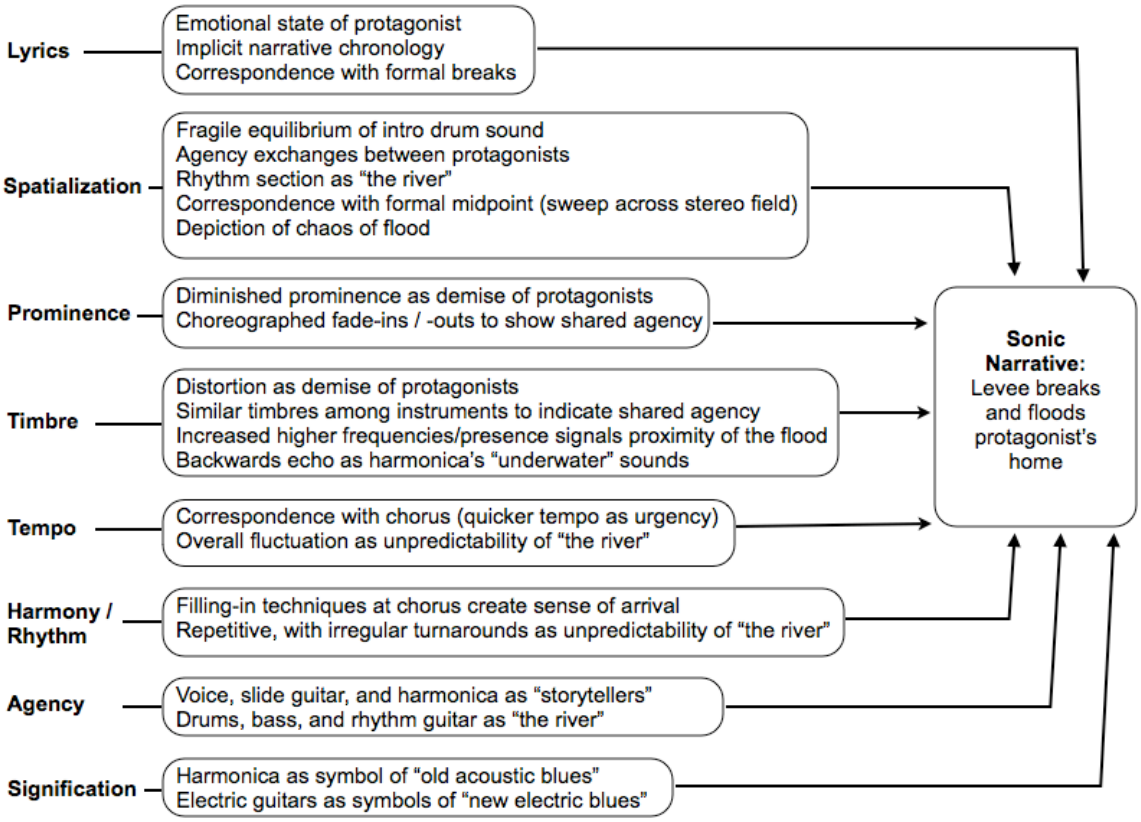

Figure 3.1: Analytical overview of "When the Levee Breaks"

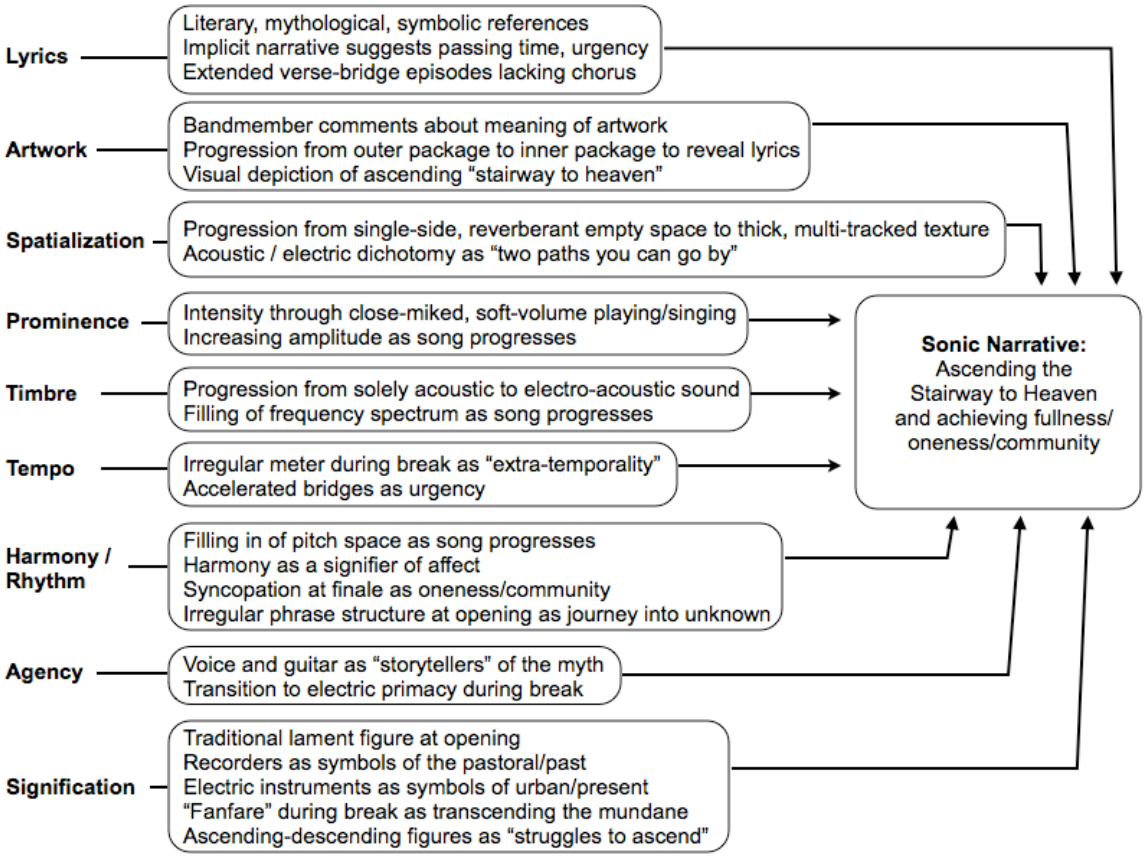

Figure 3.2: Analytical overview of "Stairway to Heaven"

As can be seen above, these analyses draw from a variety of sources and methods including recording studio aesthetics, published interviews, album art and symbolism, transcriptions, and agency, while maintaining a sound-oriented approach to the songs.

The choice of which interpretational methods to employ arose from my direct experience with the music. For example, the idea that ascending-descending figures could be taken as metaphorical portrayals of attempts to ascend the "stairway to heaven" was rooted in my own perceptions of ascending and descending as I listened to, and performed, the guitar solo in the song, which then helped to explain why I felt the ending flourish represented not only a kind of

"reaching higher," as it clearly does in pitch space, but also a "breaking free," when compared to the earlier figures that had always ended on a descent. Similarly, the arrival of the break had always signaled to me a transcendent moment in the song, which led me to explore how the acoustic guitar's sound transitions to the multi-tracked "wall" of electric guitar sounds.

What is significant is that, without relying on functional tonality, there was a way to explain musical arrivals using contour or spatialization and texture as general signifiers, and further, that these could be integrated within the context of a sonic narrative. Only afterwards did my research lead me to notions of embodiment, which are worth mentioning not only because they provide insight into my hearing, but because they represent the current state of music theory. To be fair, embodiment has long had roots in music theory. Over thirty years ago, theorists such as Edward T. Cone were probing the physicality of musical gestures:

> If music is a language at all, it is a language of gesture: of direct actions, of pauses, of startings and stoppings, of rises and falls, of tenseness and slackness, of accentuations… The gestures of music can be interpreted as symbolic of physical as well as verbal gestures.[133] (Edward T. Cone)

Likewise, in "When the Levee Breaks," I'd always felt a sense of catastrophe at the song's outro, as Plant repeatedly sang, "goin' down," and the music sounded chaotic. Through close listening, however, the cause of my perception was shown to be very specific mixing techniques and timbral effects. Interpreting the voice, harmonica and slide guitar as characters in the sonic

[133] Cone, *The Composer's Voice*, 164.

narrative arose from their timbral and spatial emphasis in the song's texture, the effect of which adds dramatic layers to the song. Ultimately, these analyses are descriptive models of hearing, with a methodological aim of associating general musical impressions with concrete musical phenomena, thus elucidating a few ways that popular music communicates meaning.

Further Research

There are abundant opportunities in Led Zeppelin's diverse body of work to explore how meaning is created through the combination of harmony, rhythm, and recording studio techniques, and while these songs are among the most popular in the group's repertoire, they are certainly not the only ones amenable to such an approach. Other epic songs by the group such as "Kashmir," "In the Light," or "Dazed and Confused" create timbral sound-worlds that are rich in associations and symbolism and, as in the above two analytical examples, they do so in different ways.

As I examine more songs in Led Zeppelin's repertoire, I will obtain a broader view of the role of recording studio aesthetics in Led Zeppelin's music, which will assist me in testing to what degree sonic narratives are applicable or useful in hearing the songs. It will no doubt be more difficult to hear such narratives in some songs than in others, which could lead to refinements in our understanding of the role of the recording studio as a compositional tool in Led Zeppelin's output. It is also likely that specific musical characteristics underlie our perceptions of certain songs as epic (like these), and further research will

hopefully enable me to better explain what *musically* makes a song "epic" besides its duration, lyrics, or simply on the basis of a general impression.

As stated earlier, issues of agency and musical semiotics are large endeavors in and of themselves, and either could have been the basis for this entire work. Fred Maus, responding in part to Cone's assertion that music is a "language of gesture," poses the dilemma, "But what if the accompaniment of a solo song were to resist unification into…[an accompanimental] persona…? The agent established by the vocal line would be surrounded by, and isolated within, a world of gestural activity without other human beings."[134] This relates to the scenario that occurs in "When the Levee Breaks," and I believe it is what compels us to hear the accompanying instruments as multiple agents co-singing the story of the breaking levee. Not only in these songs, but in many others by the group, there is a significant symbolic interplay between the voice and the other instruments. Whether one hears them as "antagonists" or "protagonists," their musical interactions contribute much meaning to the songs and will be given a close listening in future explorations of this repertoire.

A properly thorough discussion of musical semiotics, according to Philip Tagg, would require "the will to connect music as sounds to the society in which it exists…This means discovering which sounds mean what to whom in which context."[135] A semiotic analysis of a Led Zeppelin song would need to parse the

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[134] Fred Everett Maus, "Agency in Instrumental Music and Song," *College Music Symposium* 29 (2005): 35.

musical content to determine first what the musical signs were, whether they be musical figures, timbres, instruments, etc., and then what they signify. Ultimately, this would require sociological data to test the posited significations, much in the way Lacasse conducted reception tests with regard to vocal staging to test how people perceived common vocal studio effects.[136]

It is my hope that this essay can be seen as a contribution toward a better understanding of how these two important songs in Led Zeppelin's repertoire create meaning, but there is much work to be done to understand the extra-musical factors that contribute to that meaning. "It is not enough," Tagg warns, "just to establish semiotic relationships between musical signifier and signified: we also need to put musical signification into a broader—narrative, social, ideological, etc.—context to make any real sense out of it."[137]

Also under the rubric of semiotics, Zak discusses how listeners can form timbral associations between albums, something he terms "resonance." Though he asserts that such connections provide pleasure only in their recognition, it seems plausible for a timbral quality drawn from, for example, a particularly "dark"-sounding album to carry those connotations into its new context. Musicians in general, especially guitarists, regularly make use of a kind of resonance when they seek to emulate the sounds of their favorite performers by

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[135] Philip Tagg, "Introductory Notes to the Semiotics of Music," originally published as an article in *Semiotica* 66-1.3 (1987): 279-298. Accessed online at: http://www.tagg.org/articles/semiota.html

[136] See chapter 4 in Lacasse, "'Listen to My Voice'."

[137] Tagg, "Introductory Notes to the Semiotics of Music."

using similar instruments, equipment, etc. This quest for a recognizable sound quality even extends to the choice of a recording studio. A performer's "sound" becomes an aural signature as much as performance style, and there is much discussion online and in magazines of Jimmy Page's gear set-up to promote such efforts. Further analysis will need to compare the sounds encountered in these songs and on the fourth album in general, with similar sounds encountered in prior albums, both by Led Zeppelin and other groups, to determine what affects, if any, they may have in common.

Lacasse has noted that the use of the recording studio as a creative end in itself "has given rise to a wide range of aesthetic trends in sound recording that can be easily identified as indicators of particular musical styles.[138] In the two analyses here, recording studio techniques play important, yet different, roles. The stereo channel swapping heard at the end of "When the Levee Breaks" does not occur in "Stairway to Heaven," while the complex multi-layered guitar textures of "Stairway to Heaven" are not to be found in "When the Levee Breaks." It may be the case, after more songs have been analyzed, that the technique of fragmentation found at the end of "When the Levee Breaks" is a general stylistic trait. The same may be true of the acoustic-electric transitions in "Stairway to Heaven."[139]

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[138] Lacasse, "'Listen to My Voice'," 16.

[139] Significant work in this general direction has already been undertaken by Edward Macan in *Rocking the Classics: English Progressive Rock and the Counterculture* (New York: Oxford University Press, 1997).

While this is by no means an exhaustive look at Led Zeppelin's output, these individual analyses are my springboard for a more systematic look at Led Zeppelin's use of these techniques. More analyses will, additionally, contribute to our general understanding of the role of recording studio aesthetics in helping to define heavy metal and other musical styles. One test of the validity of these observations is whether or not future listeners are able to perceive them under comparable listening circumstances, and further, whether the listening circumstances are broad enough to render the observations significant with regard to the meanings listeners take from the songs. I believe they are, but further research involving human participants would better confirm this.

Closing Words

> I'm working on music to be completely, utterly a magic science.[140] (Jimi Hendrix)

Historically, a focus on pitch structures became one of the primary means of validating a composition, proving its musical worth (or worthlessness), and justifying its reception, among other things. It is not merely that "the times have changed," but that music has changed with the times. The "magic" that Hendrix was referring to above went much deeper than his choice of harmonies and rhythms; it was in his gestures, his persona, and significantly, in the sounds that he created. With regard to the latter, it was "magic" in that it was unrevealed to the listener.

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[140] Jimi Hendrix quoted in Paul Clarke, "'A Magic Science': Rock Music as a Recording Art," *Popular Music*, Vol. 3, Producers and Markets (1983): 195.

Recently, however, many have contributed toward a better understanding of how sound conveys meaning. Besides Lacasse's research into how certain timbral qualities such as distortion and reverberation may be "deeply anchored in our biology," Lakoff and Johnson's writings on metaphor and embodiment in language seem applicable to the musical realm as well, such as their observation that "more of form is more of content," which may help to explain the potency in sustained sounds.[141] In her book, *The Sonic Self*, Naomi Cummings writes, "It is by playing with the markers of 'voice' as a physiological mechanism, and movement as bodily action, that degrees of embodied passion or self-controlled distancing can be conveyed."[142]

The argument that spatialization and timbre are central to the meaning of these songs stands in apparent contrast to views expressed by some other prominent pop music theorists, such as Walter Everett, who writes, " Whereas timbre, rhythm, and form are of undeniable interest, this essay argues that pitch relationships are of central importance, forming the core of the structure, the identity, and even many of the expressive capabilities of pop-rock music."[143] In truth, pop music theory is a long way from being able to state conclusively where

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[141] George Lakoff and Mark Johnson, *Metaphors We Live By* (Chicago: University of Chicago Press, 1980) 127.

[142] Naomi Cummings, *The Sonic Self: Musical Subjectivity and Signification* (Bloomington and Indianapolis: Indiana University Press, 2000) 125.

[143] Walter Everett, "Pitch Down the Middle" in *Expression in Pop-Rock Music: Critical and Analytical Essays*, 2nd ed., ed. Walter Everett (New York: Routledge, 2008), 111.

expressiveness lies, which only underlines the importance of expanding our theoretical arsenal.

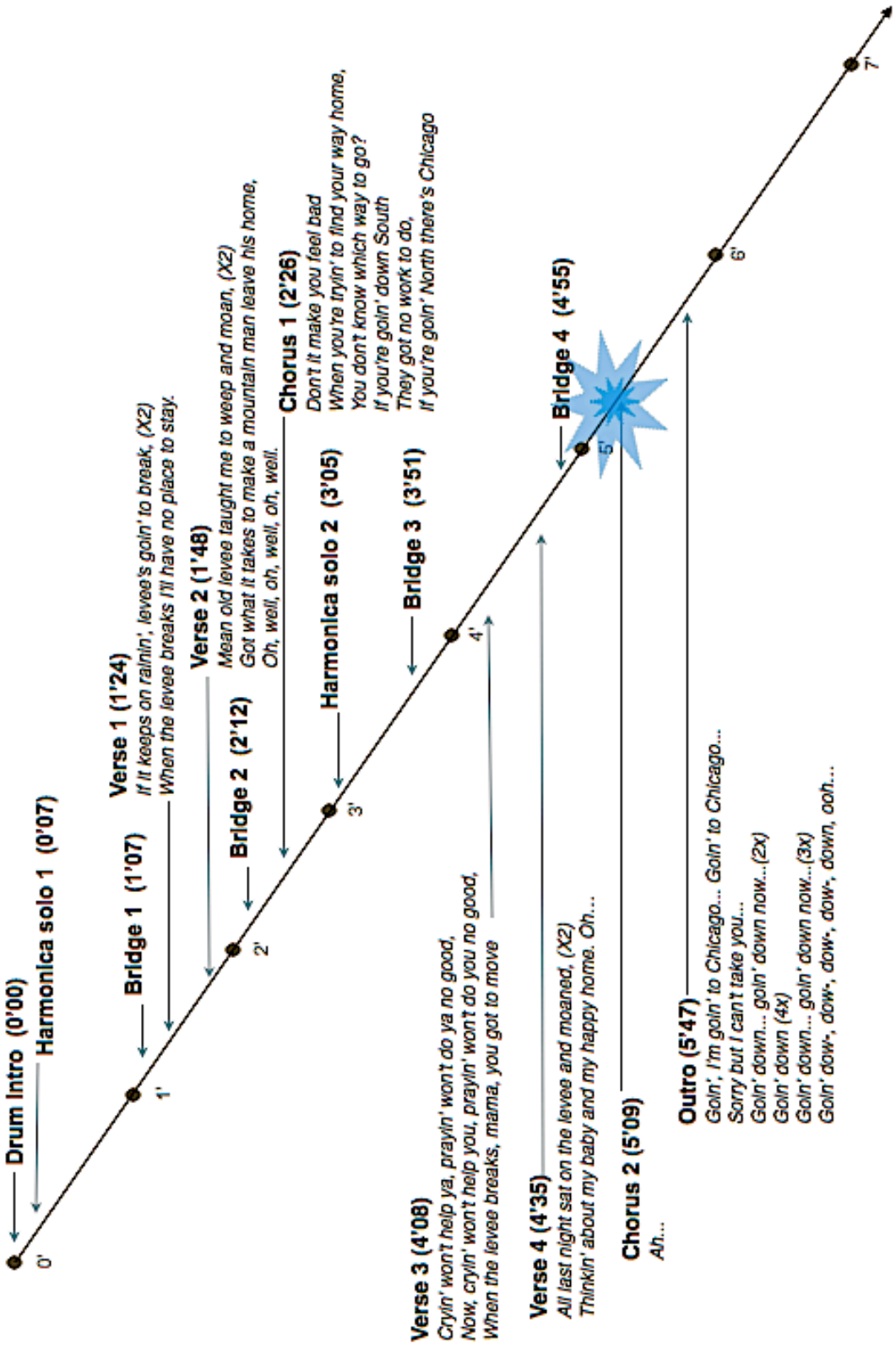
I believe these differences may also partly be attributed to the repertoires. In the case of the Beatles—one of Everett's areas of expertise—their career spanned a period during which recording studio technology was being used more and more as a compositional tool. In other words, some songs may rely more on traditional harmony for their expressiveness while others may rely more on recording studio aesthetics, potentially within the same group's output.

The above are just a few of the directions future research can take. The music of Led Zeppelin—in fact, any music that has gone through the recording studio process—with its heavy reliance upon technology during all stages of its creation, demands a consideration of recording studio aesthetics, for it is there that a whole realm of mostly unexplored meaning is created.

> Page claims that the mighty Zeppelin was designed so its music would have shadow and light. Screw that—Zeppelin lived in nothing less than Technicolor. Pagey and company didn't invent heavy metal, they turned it into an art form.[144] (Brad Tolinski)

[144] Tolinski, "We're Not Worthy! The Exclusive Interview with Jimmy Page," 48.

APPENDIX A
Songmap of "When the Levee Breaks"



APPENDIX B
Lyric Sheet for "When the Levee Breaks"
(Bonham/Jones/Page/Plant/Memphis Minnie)

INTRO
(Instrumental)

VERSE 1
If it keeps on rainin', levee's goin' to break, (X2)
When the levee breaks I'll have no place to stay.

VERSE 2
Mean old levee taught me to weep and moan, (X2)
Got what it takes to make a mountain man leave his home,
Oh, well, oh, well, oh, well.

CHORUS
Oh, Don't it make you feel bad
When you're tryin' to find your way home,
You don't know which way to go?
If you're goin' down South
They got no work to do,
If you're goin' north there's Chicago.

VERSE 3
Cryin' won't help ya, prayin' won't do ya no good,
Now, cryin' won't help you, prayin' won't do you no good,
When the levee breaks, mama, you got to move.

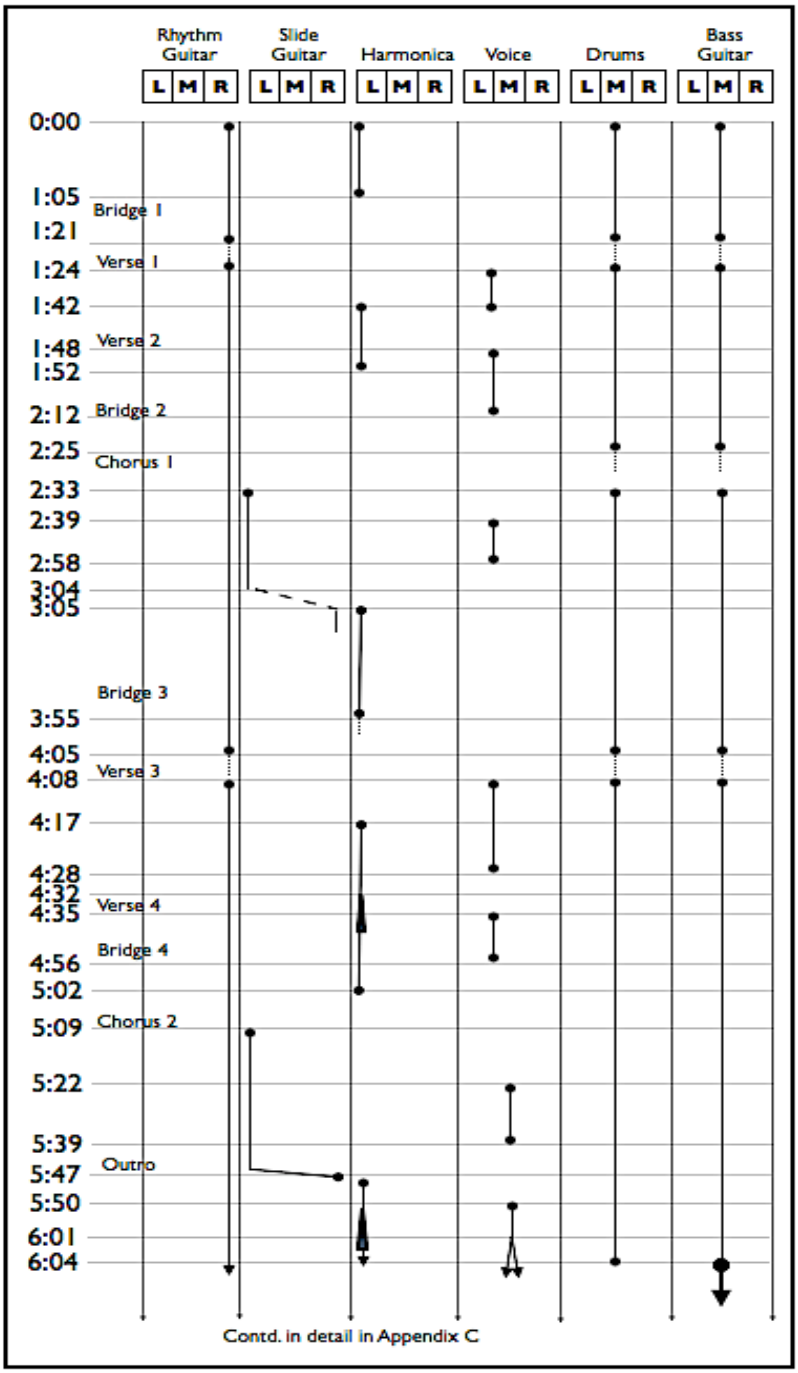
VERSE 4
All last night sat on the levee and moaned, (X2)
Thinkin' about my baby and my happy home. Oh…

CHORUS
Ah…

OUTRO
Goin', I'm goin' to Chicago... Goin' to Chicago... Sorry but I can't take you...
Goin' down... goin' down now...(2x)
Goin' down (4x)
Goin' down... goin' down now...(3x)
Goin' dow-, dow-, dow-, dow-, down, ooh…

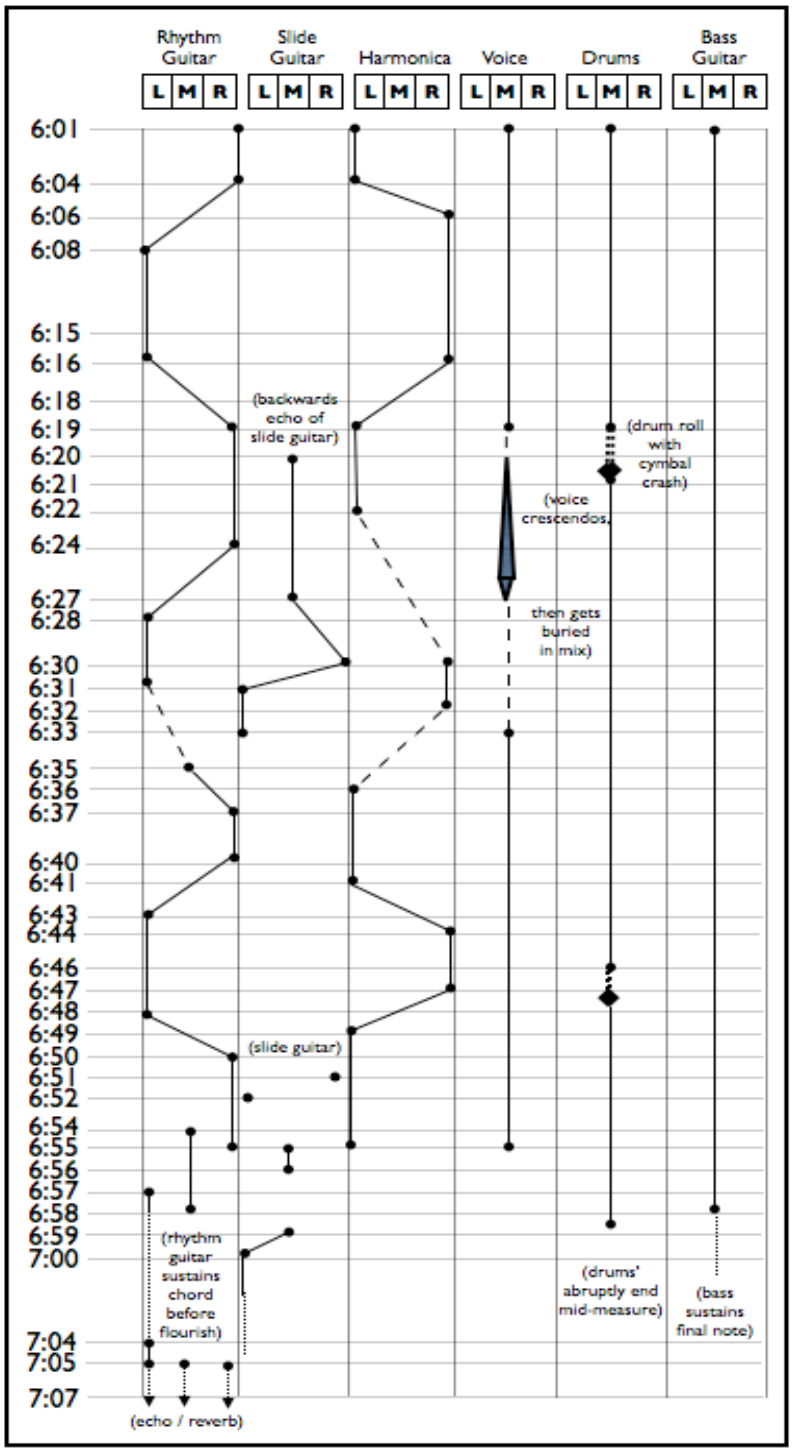
APPENDIX C
Stereo Placement (Left, Middle, Right) During the First Six Minutes of "When the Levee Breaks"

These are "cumulative" impressions, unlike the snapshot figures, which detail the degree to which each instrument is heard in all parts of the stereo field simultaneously. The forked line in the voice at 6:01 indicates a split into two voices. Thicker lines indicate prominent crescendos.



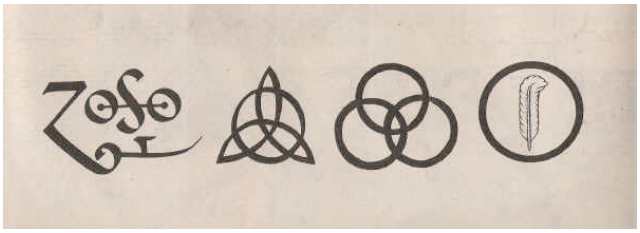
APPENDIX D
Stereo Placement During the Final Minute of "When the Levee Breaks"

Note the dramatic increase in movement across channels, as compared to the first six minutes of the song in Appendix C.



APPENDIX E
Led Zeppelin IV Album Art

Album jacket front cover (top), unfolded (middle), and four unexplained symbols on record sleeve (bottom)

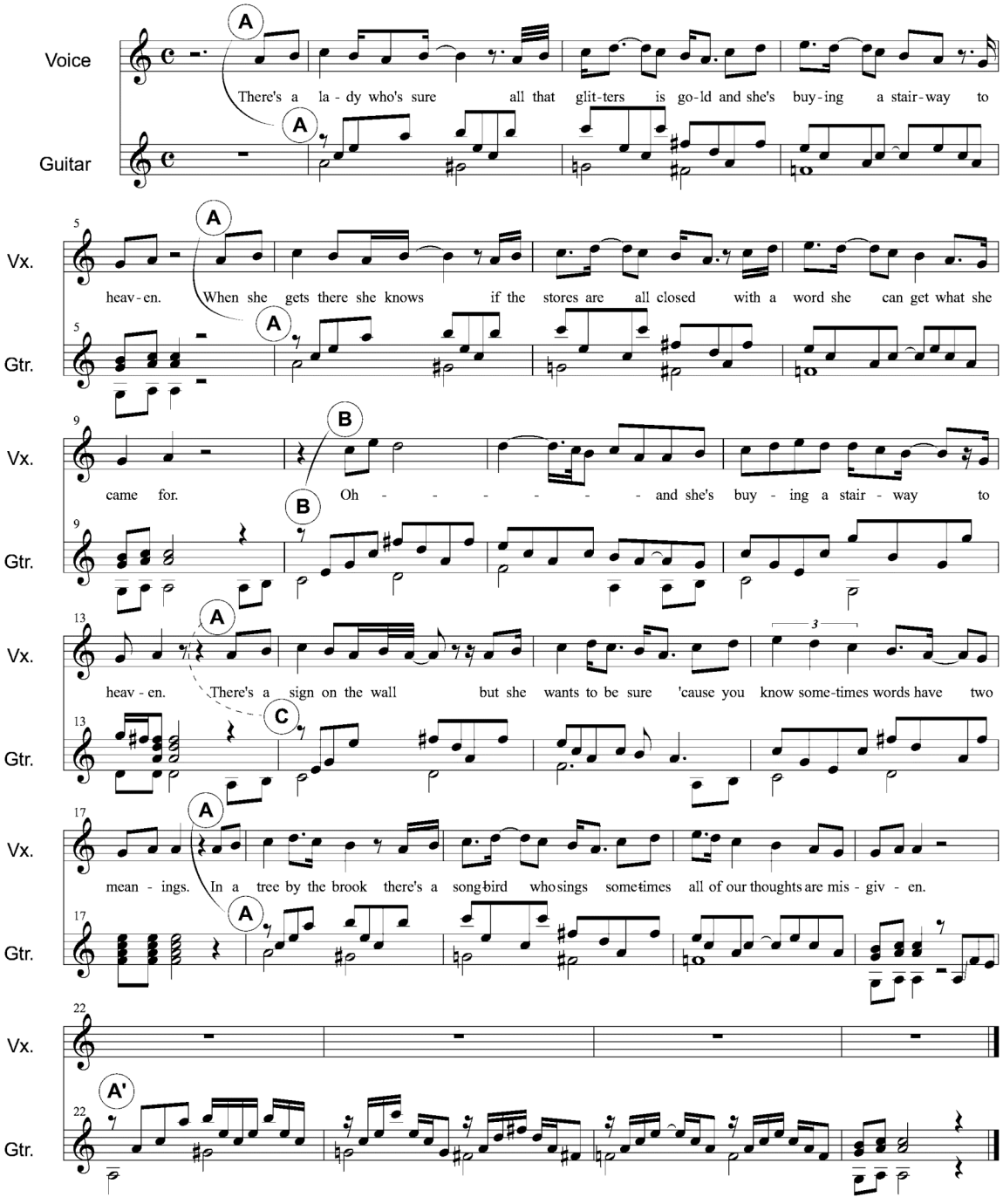


APPENDIX F
"Stairway to Heaven" Lyrics

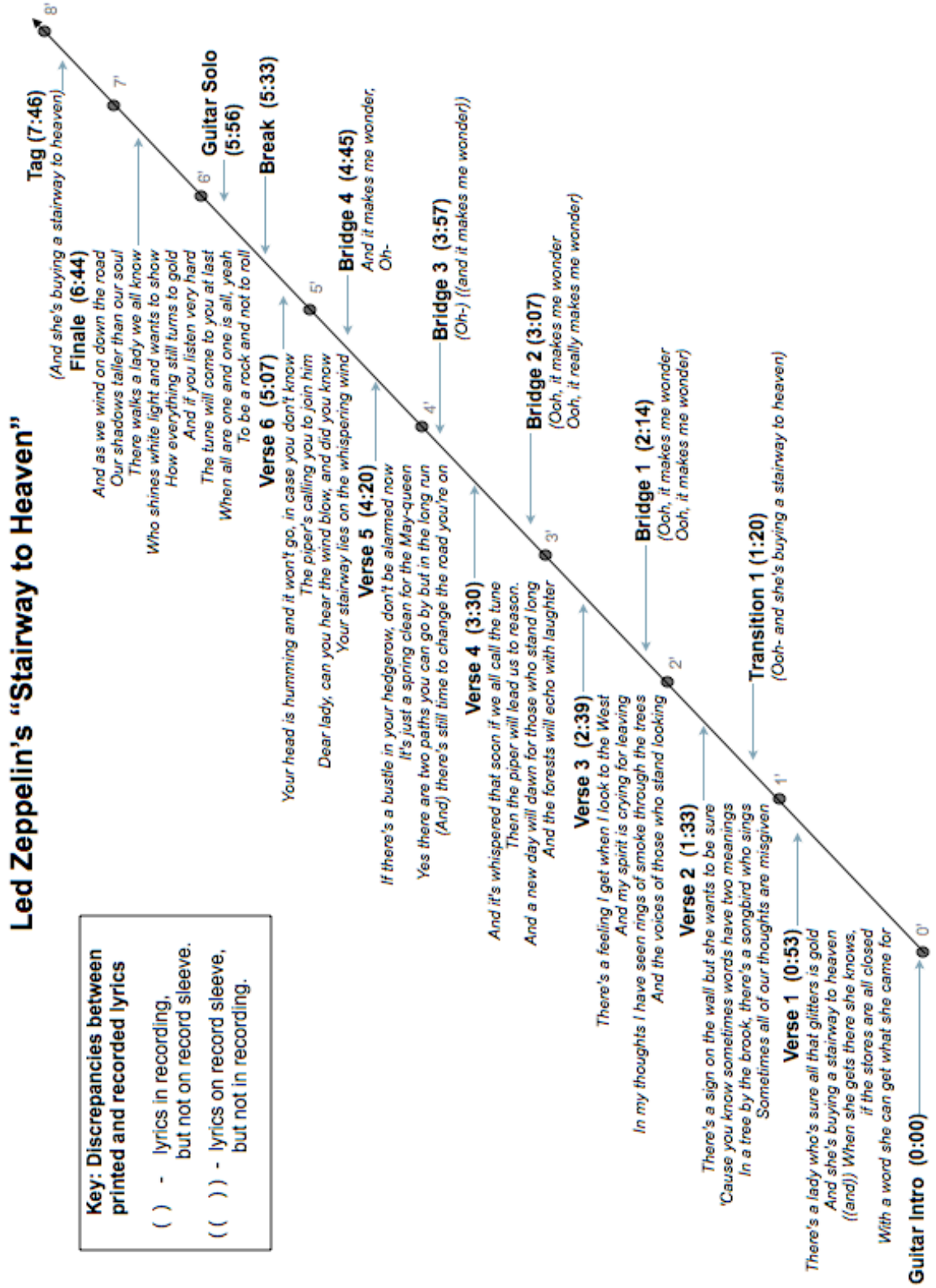
0'53	**Verse 1**	There's a lady who's sure all that glitters is gold And she's buying a stairway to heaven When she gets there she knows, if the stores are all closed With a word she can get what she came for
1'20	**Transition**	Ooh, ooh, and she's buying a stairway to heaven
1'33	**Verse 2**	There's a sign on the wall but she wants to be sure 'Cause you know sometimes words have two meanings In a tree by the brook, there's a songbird who sings
2'14	**Bridge 1**	Sometimes all of our thoughts are misgiven
2'39	**Verse 3**	Ooh, it makes me wonder (2X)
		There's a feeling I get when I look to the West And my spirit is crying for leaving In my thoughts I have seen rings of smoke through the trees
3'07	**Bridge 2**	And the voices of those who stand looking
		Ooh, it makes me wonder
3'30	**Verse 4**	Ooh, it really makes me wonder
		And it's whispered that soon if we all call the tune Then the piper will lead us to reason. And a new day will dawn for those who stand long
3'57	**Bridge 3**	And the forests will echo with laughter
4'20	**Verse 5**	[no words, except "Oh, oh"]
		If there's a bustle in your hedgerow, don't be alarmed now It's just a spring clean for the May Queen Yes, there are two paths you can go by, but in the long run
4'45	**Bridge 4**	(And) there's still time to change the road you're on
5'07	**Verse 6**	And it makes me wonder. Oh…
		Your head is humming and it won't go, in case you don't know The piper's calling you to join him Dear lady, can you hear the wind blow, and did you know Your stairway lies on the whispering wind
6'44	**Finale**	And as we wind on down the road Our shadows taller than our soul There walks a lady we all know Who shines white light and wants to show How everything still turns to gold And if you listen very hard The tune will come to you at last When all are one and one is all, yeah To be a rock and not to roll
7'46	**Tag**	And she's buying a stairway to heaven

APPENDIX G
Transcription of Opening Section of “Stairway to Heaven”

Vocals and accompaniment are misaligned at the fourth phrase.



APPENDIX H
Songmap of "Stairway to Heaven"



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