

Musical Expression and Embodiment:

Fear, Threat, and Danger in the Music of *The Lord of the Rings*

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1. Introduction

Four small hobbits bearing the nefarious Ring of Power have plenty to fear along their journey, from mythological monsters and hideous Orcs to betrayal and treachery. In J.R.R. Tolkien's trilogy of books, *The Lord of the Rings*, the hobbits and their companions undertake a perilous expedition to destroy the Ring of Power, the ultimate physical manifestation of corruption and greed and the primary symbol of the evil that threatens the life and liberty of Middle Earth. One omnipresent and continuous threat pursues the hobbits: the Nazgûl. The Nazgûl, or Ringwraiths, once great lords of men, became ensnared by the evil Sauron; although their own, lesser Rings of Power extended their lives, corruption reduced these men to twisted existences as wraiths and servants, controlled by Sauron's will. From the beginning of *The Lord of the Rings*, Sauron tasks these servants, the Nazgûl, with reclaiming and returning to him the one Ring, which Frodo carries and is seeking to destroy. The Nazgûl relentlessly hunt Frodo and his companions throughout all three installments of the saga, first on horseback and later riding on flying fell beasts.

The Nazgûl pose one of the most direct threats to the protagonists' central mission, a cause enough for fear, but they are also perhaps the most important and clear symbol of fear in the narrative. Tolkien, the creator of Middle Earth and the author of the original novels, writes of the Ringwraiths that "their chief weapon was terror" (Tolkien, 1980). Their capacity for instigating fear is described in *The Return of the King* (Tolkien, 1955):

"The Nazgûl came again...like vultures that expect their fill of doomed men's flesh. Out of sight and shot they flew, and yet were ever present, and their deadly voices rent the air.

More unbearable they became, not less, at each new cry. At length even the stout-hearted would fling themselves to the ground as the hidden menace passed over them, or they would stand, letting their weapons fall from nerveless hands while into their minds a blackness came, and they thought no more of war, but only of hiding and crawling and death.”

Tolkien’s language emphasizes a direct relationship between the fear fomented by the Nazgûl and sound: the “deadly voices” becoming “more unbearable...at each new cry.” The Ringwraiths are invisible to the mortal eye—their physical form is apparent only from the black robes and masks they wear as well as the steeds upon which they ride. This invisibility adds a new level of eeriness to their terrifying screeches.

In Peter Jackson’s three-film adaptation of *The Lord of the Rings*, the addition of a soundtrack to the narrative experience provided an artistic opportunity to explore the Nazgûl’s sounds, the sounds of fear and danger, through the musical score. In crafting the music of the Nazgûl, composer Howard Shore employed various innovative techniques to represent terror, threat, and evil, many of which garner their effectiveness from our human, physiological, and embodied experiences of fear.

Research in psychology and music cognition suggests several ways in which music might portray fear. I will begin this paper with a review of the empirical literature on the acoustical features of fear-related sounds, and I will catalogue the ways in which these findings might predict the use of certain musical and compositional techniques in music that aims to portray fear and danger. The soundtrack to the film rendition of *The Lord of the Rings* gave composer Howard Shore the challenge of illustrating the fear, threat, and danger involved with the presence of the Nazgûl. Thus, in the second half of the paper, I will analyze music from scenes involving the

Nazgûl in *The Lord of the Rings* and discuss the specific ways that Shore's compositional choices in creating music for these fear-centered scenes may recruit illustrative and/or emotional capacity from the physiology of fear. I will consider to what extent the techniques employed by Shore align with the previously discussed empirical research.

I have chosen to restrict the scope of this paper to analyzing scenes from *The Fellowship of the Ring*, the first movie in the three-part trilogy, in order to focus on more detail in writing about the film and soundtrack. Of the three movies, the Ringwraiths are most involved in the first and have relatively less screen time in both the second and third movies.

2. Musical Fear

The colloquial use of the word “fear” covers a large range of phenomenologically diverse experiences. A sense of foreboding contrasts physiologically, neurologically, and qualitatively with a wash of unbridled terror, though the word “fear” may be used to describe both. Since ancient Greece, writers have pointed to a critical distinction between anxiety and fear. Feelings of ‘fear’ focus on a particular, concrete, and immediate external threat; ‘anxiety’ refers to a response to a vague threat, one that is not imminent, and may be imagined. Fear and anxiety share many characteristics, including heightened arousal, negative affect, tension, and physiological sensations. Fear can be paired reasonably with an imminent object of danger whereas the object of danger of anxiety is in some way uncertain, absent, or imagined (LeDoux, 2015). However, this distinction is not made as carefully in the vernacular.

It is generally accepted that fear can be expressed in art and music, although research does not commonly refine the category of fear, neglecting to probe the distinctions between fear and anxiety and distinctions among different levels of arousal. Empirical literature in music cognition

has usually taken “fear” as one coherent category; however, the emotion of fear is a wide-ranging, multi-dimensional spectrum of physiological and emotional responses. I believe that more nuanced approaches are called for in the study of fear in the arts, particularly music.

A consideration of the distinction between a defensive physiological state and the feeling of fear could benefit research in musically-expressed and musically-evoked fear. On Joseph LeDoux’s account (2015), a defensive survival circuit detects a threat, triggering defensive actions and releasing chemical signals that increase arousal and get the body vigilant and ready for danger. This process is separate from the feeling of fear—the feeling of fear arises from the cognitive interpretation of the defensive motivational state that has been created by the detection of a threat.

This distinction should be considered seriously in an account of fear evoked by fiction. What follows from this model is that acoustic stimuli of any kind, whether they be environmental or musical, may activate defensive survival circuits. This could result in any number of consequent feelings, including fear and relief, depending on the cognitive interpretation. Different stimuli may be more or less cognitively penetrable, and the level of penetrability is probably dependent on a number of complexly related factors, some of these highly individual.

Prior to reviewing the empirical literature related to musical fear and danger, I will address the questions of music’s capacities to express and to evoke fear. Theories of fear expression in music most frequently call on Spencer’s Law, which posits a relationship among physiology, voice, and emotional expression: emotions influence physiology, and these consequent physiological changes are evident in speech, singing, and by extension, instrumental music. Later, I will review empirical evidence consistent with this law and consider its influence on compositional practice by applying the resulting concepts in my analysis of the soundtrack music.

Art does more than merely express or illustrate emotion—it often evokes emotions in the audience. Researchers Marcel Zentner, Didier Granjean, and Klaus Scherer (2008) reported several studies investigating which emotions are most and least frequently evoked by music. Although fear and anger were found to be often *perceived* in music, they were rarely reported to be *evoked* by music. These studies yielded a model of musically-evoked emotion, the Geneva Emotional Music Scale, or GEMS, which includes wonder, transcendence, tenderness, nostalgia, peacefulness, power, joyful activation, tension, and sadness.

The GEMS category of “tension” includes sub-categories of emotion plausibly connected to fear: agitated, tense, nervous, impatient, irritated. In one sense, the GEMS seems somewhat intuitive and resonant with our cultural practice of music listening. Music can energize us, or leave us feeling sad, and we might listen to music for either one of these purposes, but what kind of music is there that actually aims to make us feel afraid? What would we be afraid *of*? The researchers address the relative infrequency of evoked negative emotions:

“...the perceptions of negative emotional characteristics do not readily translate into felt negative emotion because the listener in most music-listening contexts is safely removed from threats, dangers, or the possibility of losses” (Zentner et al., 2008).

While it is true that we generally listen to music in environments in which we are safe from danger, this proposed explanation does not account for examples of art that unequivocally have the potential to evoke fear in spite of the lack of an immediate, present threat. In particular, movies often evoke fear, yet the viewer in most movie-watching contexts is also removed from actual danger and knows that what is happening on screen is not actually happening. One response to this objection might be that film has referential content while music does not—we actually see

something specific to be afraid of in a movie, like a crazed man with an axe, whereas in music, how would we know what to be afraid of?

First, recall LeDoux's model, which separates the activation of defense circuits and consequent defensive motivational state from feelings of fear. From this distinction, it follows that specific referential content is not necessary for feelings of fear; the only necessary component is a stimulus that activates a defense circuit. A crazed man with an axe will make noises that will give us information about the threat. Perhaps we hear from his loud footsteps and low voice that he is a very large man or from his screaming that he is crazed. We might hear the footsteps and screaming getting louder, indicating that he is coming closer. These acoustic cues activate defensive circuits, creating tension in the body, and perhaps cause us to feel fear, as they provide information about a real and present threat.

Earlier, I introduced Spencer's Law, which suggests that one way that music expresses fear is by mimicking the types of vocal expressions that are consequences of physiological changes produced by fear. In parallel, I propose that music can suggest that a scenario should be feared, and may directly evoke fear by employing acoustical cues that are associated with threat, aggression, and danger. In a real-life context, the sounds produced by the crazed axe-man need not be combined with the visual to evoke fear. Sounds without corresponding visual stimuli may evoke equal or perhaps even more fear, since we are at more of a disadvantage when we cannot see what is threatening us.

In everyday life, people can become scared as a result of a sound stimulus that is not attributable to a specific visual stimulus. As apparent from cinematic experiences, stimuli that are known to be fictional may evoke fear. From these premises, I submit that it is also possible for

sounds alone to evoke fear in the context of fictive stimuli, that is, even when we know the stimuli aren't actually threatening us.

If an audience hears the approaching, guttural sounds of an axe-man in a movie while watching a family settling in at the dinner table, they will understand that there is an imminent threat to the family and may even feel fear or foreboding in response to the sounds heard alone (no threatening visual stimuli has been presented). Based on the sounds alone, without a corresponding visual threat, they may feel fear, even though they well know that what is happening in the movie is not real and that they are not in real danger. If sound is capable of evoking fear even when matched with a benign visual (the family sitting down to dinner), why would music not be capable of the same?

Return to the family settling in at the dinner table. Imagine that we don't hear any axe-man sound effects at all; instead, a cheerful melody accompanies the scene. Suddenly the melody turns minor, or becomes distorted. Maybe we hear a pulsating drum beat that starts to accelerate (like the footsteps) accompanied by chords in the low brass (indicating a large threat). The visual gives us no indication that anything is wrong, the family continues laughing and arguing—but we, the audience might start to feel anxiety and tension, suspecting that something bad is about to happen to the family, even without hearing actual footsteps and yelling.

Applying LeDoux's model to this example, acoustical cues from the music activate a defensive circuit, creating a state of heightened arousal and tension. Cognitive penetrability of certain stimuli may vary greatly from person to person, based on associations and memories. If there is high cognitive penetrability, the audience member will not feel fear, but they may notice the tension, which will then be interpreted and reported simply as "tension," as we have seen in the GEMS model. If there is low cognitive penetrability and/or the stimulus is cognitively

interpreted as a personally relevant threat, however, the audience member will report that they feel “fear” or “foreboding” or any other type of emotion related to fear.¹

In recognizing the lack of a particular “fear” category in the GEMS model, Zentner, Grandjean, and Scherer bring up horror movie soundtracks, but ultimately dismiss their importance:

“Because in the thriller or horror movie, the content of the narrative and the music are hopelessly confounded, it is impossible to know whether the music acts as producer, as amplifier, or as neither. In addition, the wide diffusion of sounds accompanying thrillers may easily have led to fearful reactions occurring, not because of the sounds themselves, but because of a learned association.”

I believe the researchers overlook the importance of this example and too readily dismiss the possibility that music can evoke fear. It is not necessarily the case that the narrative and the music are “hopelessly confounded”—well-designed empirical studies should be able to tease them apart. Furthermore, potential fear-evoking musical techniques are not employed just in thrillers, but to some extent in any movie soundtrack, especially in action and adventure films.

Zentner et. al. were specifically looking for emotions that are most *frequently* evoked by music in common music-listening contexts, and it may be true that fear does not have a prominent enough role as a musically-evoked emotion in most music listening contexts to earn a spot on a list of the most frequently evoked emotions, especially if fear-evoking music is mostly created

¹ A few examples of situations in which an audience member might feel actual fear, to clarify. 1. A startling, surprising loud sound, a stimulus that is not cognitively penetrable. This example suggests that a full account of fear response to fiction should consider Systems 1 and 2 (Kahneman’s model). 2. A person who believes what is happening in the fiction is actually happening in real life, perhaps a young child...or an adult on mind-altering drugs. 3. A person whose life experiences and memories have built cognitive impenetrability for a stimulus...by this, I suggest that someone who in real life feels fear when walking down long, dark hallways is more likely to feel fear when watching a movie in which someone is walking down a long, dark hallway when compared to an individual who does not consider this scary in real life.

under the aegis of film music. Evoking fear in listeners does not seem to be a common goal of composers outside of the movie soundtrack world, particularly not for the types of music studied in creating the GEMS model. One of the studies included classical, jazz, pop/rock, Latin American, and techno. Other genres were included in a study carried out at a music festival— “a relatively broad array of musical genres with classical music of various periods (Renaissance to contemporary) occupying a large place” (Zentner et al. 2008). The authors do not mention the inclusion of film music at any point. Because soundtrack music did not play a prominent role in the design of the studies, a consideration of fear as a frequently evoked musical emotion within certain genres, particularly film soundtrack, is not precluded. Music may have the capacity to evoke fear, but this may not be utilized in mainstream genres. As mentioned earlier, I believe that more careful operationalization of fear, specifically, considering different types of fear, can benefit this type of research and clarify the capacities and limitations of music in evoking fear.

In my review of the relevant empirical literature on the acoustic features of fear-related sounds, I will consider two broad categories of fear-related musical techniques. The first category encompasses ways in which music might express or communicate fear, primarily by mimicking the human voice when affected by physiological changes associated with fear. The second category of techniques I discuss are means of portraying threat, danger, and aggression in music, primarily by mimicking the acoustic properties of potential threats in nature. If music can evoke fear, techniques from either category might be employed to do so, directly by mimicking threat—the listener hears a threat and feels afraid—or indirectly, by mimicking vocal expression of fear—the listener hears a human expression of fear, which acts as emotional contagion; if someone near us is afraid, there may be a threat present that is also threatening to us, and so we would have good adaptive reason to feel fear.

In the next section, I will review empirical literature in music perception, speech prosody, animal ethology, and evolutionary psychology that suggests ways in which music might express or evoke fear-related emotion, either by mimicking the acoustics of fear or by mimicking the acoustics of threat.

3.1 The Sounds of Fear

Despite disagreement about whether fear is evoked by music, fear has been one of the most commonly studied music-related emotions. In a literature review on musical expression of emotion, Juslin and Laukka (2003) identified five categories of emotion that have been researched most often in both musical and vocal expression: anger, fear, happiness, sadness, and tenderness. Acoustic cues may give us information about the emotional state of the individual producing a sound.

Spencer's Law posits a relationship among physiology, voice, and emotional expression: emotions influence physiology, and these consequent physiological changes are evident in speech, singing, and by extension, instrumental music. For example, fear is associated with increased adrenaline and peripheral acetylcholine. The flood of these hormones increases muscle reactivity so that muscles can react extra-quickly in response to danger—this causes physical trembling, which can be heard in the voice (Huron 2015).

Unfortunately, Juslin and Laukka's literature review does not distinguish different levels or intensity of fear; their criteria for inclusion in the category of fear is quite broad, which reflects the lack of definitional agreement among researchers.² The authors suggest that a lack of

² Under the emotion category of fear, studies using the following words were included: afraid, angst, angstlich, anxiety, anxious, fear, fearful, fear of death, fear-pain, fear-terror-horror, frightened, nervousness, panic, paura, peur, protection, scared, schreck, terror, worry. In addition to the concerning phenomenal and conceptual gap between worry and panic, the ways in which some words including protection relate is unclear.

distinction between “mild fear” and “panic fear” may be one source of inconsistency in the results of the review regarding the expression of fear.

The general trends Juslin and Laukka observe in studies of fear expression in speech and music offer several possibilities for consideration in analysis. They conclude that studies in vocal expression and music performance suggest that fear is expressed and communicated by fast tempo, low sound level (except in panic fear), much sound level variability, little high-frequency energy, high pitch level, little pitch variability, rising pitch contour, and microstructural irregularity. Many of these factors align with what might be expected of the results of adrenaline on the voice, most clearly faster tempo and higher/rising pitch (resulting from increased tension in the vocal cords). Microstructural irregularities refer to irregularities in frequency, intensity, and duration—I interpret this as a quality of instability, and I suggest that it might be an artefact of the trembling, as described earlier from Huron’s work.

3.2 Screaming and Other Non-Linear Sounds

Another clear-cut expression of fear is the scream, from which we might also extrapolate expressive features to music. The scream may have several different survival benefits and may communicate to either the attacker, outside observers, or both. Most directly, it may serve as a means of scaring or intimidating an attacker, and could possibly increase the screamer’s own readiness for action through arousal. A scream may warn kin that danger is near, giving near relations a better chance of survival—an indirect evolutionary advantage. Finally, in some species as in humans, the scream may catch the attention of sympathetic others, who may come to help fend off the attacker or rescued the attacked.

The scream is a sound that expresses fear; however, it is also a sound that *evokes* fear—think of the “blood-curdling” scream. The scream can be used as an aggressive tactic, to instill fear, which is the effect of the Ringwraiths in *The Lord of the Rings*—or if you prefer a less fictional example, consider fighting scenarios in which the aggressors scream or yell, as when charging into battle.

Consider also reasons why we might evolve to feel fear at the sound of another person’s scream. If someone near us is in danger, that is good reason for us to experience the arousal associated with fear, to be ready to defend ourselves from nearby danger. In other words, on hearing a scream, we become aware of the fearful emotional state of someone nearby and of a potential threat.

Acoustic features of the scream suggest that it may indeed be primarily meant to grab the attention of observers. Screams are particularly difficult to ignore or to predict, and a team of researchers led by Luc Arnal (2015) found that as predicted, screams contain energy in the region between 30 and 150Hz in the modulation power spectrum, a region that was previously thought not to play a role in human communication. Arnal et. al., theorized that in order to be maximally effective for communication, the human scream should be acoustically distinct. Though speech features like loudness and heightened pitch can contribute to communicating fear, these features are also used in the expression of other emotions as well and are not distinctive enough. The energy in this region, previously unresearched, produces the percept of roughness, generally considered to sound unpleasant and gritty. The researchers also found that this scream-specific roughness is found in manmade alarm systems, suggesting that society has discovered the effectiveness of this acoustic property even though it had not previously been explicitly described.

In a series of perceptual follow-up experiments, the team found that the “rougher” the scream, the stronger the experienced fear was. Increased roughness also contributed to subjects’ faster appraisal of threat and increased aptitude at localization of sound. The researchers conclude that their findings “support the view that roughness, as featured in screams, improves the efficiency of warning signals, possibly targeting sub-cortical neural circuits that promote the survival of the individual and speed up the reaction to danger.”

Considering that acoustic features of the scream have so much potency to evoke fear, it might be useful to consider the possibility of these acoustic features being co-opted for expression of fear in music. Arnal et. al. attempt to connect their observations of roughness to Helmholtz’s 19th-century theory of dissonance, suggesting that the evidence from their study supports a possible biological origin of dissonance. The researchers analyzed the modulatory power spectra of different musical intervals and found that dissonant intervals generate stronger modulations in the lower half of the roughness region. Unfortunately, details of this experiment are not given. In a commentary on the study, Belin and Zatorre (2015) opine that “the situation for music is perhaps subtler than this analysis suggests...music may exploit the mechanism signaling alarm, but in a controlled and artistically meaningful way.” However, Belin and Zatorre do not muse on the specific ways in which roughness might be used to enhance arousal or affect in music. Roughness is perceptible in notes that are out of tune; one possible use of this feature in music may be found in notation for out of sync intonation or extended techniques.

Caitlyn Trevor (2017) sampled the audio of scenes from scary and non-scary scenes in horror movies and calculated the modulatory power spectrum using Arnal’s method. Sound excerpts from scary scenes showed higher magnitudes of temporal modulations in the roughness range as identified by Arnal et al.

The scream is one example of a broader category of sounds that may contribute to creating a musical atmosphere of fear: non-linear sounds. Sounds are considered non-linear when the output pushes the system past its limits—the sound is “too loud” for the normal range of the system, like a scream. Stereos can produce non-linear sounds if they are turned up too loud. Blumstein, Davitian, and Kaye (2010) observe that these types of sounds are commonly produced when animals are under stress and suggest an adaptive hypothesis. They propose that the harshness and unpredictability of nonlinear sounds makes them particularly evocative and difficult to habituate to. Blumstein et al. found evidence supporting the hypothesis that film soundtracks make use of nonlinear sounds to manipulate affective response.

The authors suggest several ways in which composers can make use of musical techniques that produce or mimic nonlinear sounds. Natural possibilities that “modify harmonic spectrum and perceived roughness” include overblowing brass and woodwind instruments, stopped French horn, and certain combinations of bow location and strength, as well as the use of inharmonic percussion instruments including some gongs and cymbals. Additionally, they suggest several composition techniques that mimic nonlinear sounds, including “frequency-based effects...such as the use of harmonic dissonance, trills, vibrato and sudden pitch change, and amplitude-based effects, such as *tremolo* string bowing, flutter-tonguing wind instruments, or sudden amplitude change...” The techniques in these lists are suggestive for research both in musical analysis and music perception, offering a number of hypotheses to be tested.

Indeed, Blumstein, Bryant, and Kaye (2012) found evidence consistent with the claim that musical mimicry of nonlinear sound increases arousal and negative valence. The researchers manipulated relatively “neutral” stimuli by adding noise, simulated electronic distortion, abrupt

frequency upshifts, or abrupt frequency downshifts; as predicted, these manipulations increased ratings of arousal and of negative valence.

2.3 The Sounds of Danger

The acoustic features considered thus far have exemplified ways to *express* or *communicate* the emotion of fear directly, a situation in which music may ape the physiological effects of fear on speech for expressive purposes. It is possible that music may also *evoke* fear or anxiety (or at the least, communicate that characters have reason to feel fear or anxiety) specifically by expressing threat or aggression. That is, music might create a sense of fear by employing acoustic landmarks of threatening or dangerous sounds.

Following implications of theories in animal ethology, music perception studies have been conducted to investigate what causes listeners to perceive sound and music as more or less threatening or aggressive. The sound-size model plays an integral role in this approach: in evolutionary history, we would expect to find threat coming particularly from larger animals. Thus, relative appearance of size for an animal may communicate information. In the animal kingdom, appearing larger is associated with threat (think of a cat with arched back, hair standing on end), while appearing smaller is associated with submission (think particularly of my cat, who when faced with threat tends to flatten out completely on the floor like a pancake). These indications of threat and submission extend beyond the visual modality, as observed by Eugene Morton; larger masses vibrate at lower volumes, thus, relatively low-pitched calls communicate threat or aggression while relatively high-pitched vocalizations communicate affinity or submission (as cited in Huron 2015).

Daniel Shanahan and David Huron (2014) examined the relationship between tessitura and the sociability of opera characters and found that lower tessitura is correlated with lower character sociability, suggesting that composers might use pitch height to convey socially affiliative or antagonistic connotations. Huron, Kinney, and Precoda (2006) found that relatively lower transpositions of melodies were deemed to be more threatening and more aggressive than higher transpositions, which were judged as more submissive and more polite. The authors discuss the concordance of these results with the language of orchestration treatises, which describe lower registers as “heavy, dark, and menacing” and higher registers as “soft, light, and gracious.” In a discussion of music-induced frisson, a state of high physiological arousal that can overlap with feelings of fear, Huron specifically discusses the effectiveness of infrasound, or sound that is below audibility. This sound is more felt than heard and anecdotally creates a “haunting experience.”

Huron, Kinney, & Precoda also suggest other ways in which sound and music may communicate threat or aggression. Falling contour is linked to aggression, while rising contour is linked to fear; the latter association is reflected in the results of Juslin and Laukka’s meta-analysis, which observed a connection between rising pitch contour in speech and music and fear expression. Additionally, hostility may be expressed and interpreted on the basis of the ‘toneness’ of a sound, that is, the clarity of the sound’s pitch. Sounds which evoke a clearer sense of pitch are more likely to be affiliative, whereas aperiodic sounds that are noisy and/or not clearly pitched are more likely to be aggressive. Toneness may also overlap with the previously discussed research on screaming, an aperiodic, noisy vocalization, and other non-linear sounds.

Additionally, Huron, Kinney, and Precoda suggest that loudness be added to the list of acoustic features that communicate threat. Though in one respect loudness might express a desire to communicate or to add clarity to communication, it might also express aggression: “the acoustic

power might suggest the physical power of the individual or signal the individual's willingness to engage in physical confrontation."

Loud sounds indicate that there is something near with a large amount of energy; adaptively, it is advantageous for our attention to be drawn to such sounds, as the thing producing them could be threatening. In a discussion of frisson, Huron (2012) also makes a distinction between loudness and volume. Volume, per S.S. Stevens, is defined as the size of a sound; this differs from our modern colloquial use of the word volume, which is most frequently used in place of the word amplitude. Huron relates Stevens' "volume" to the number of the sound sources; for example, the orchestra requires an entire section of violins to give body to the sound that cannot be replicated simply by amplifying a single or a few violins. Increase of the volume, mostly related to the number of sound sources, increases physiological arousal. Indeed, it seems reasonable that a sound indicating many sound sources should adaptively be interpreted as a possible threat.

Another set of features of sound that would seem to be important to attend to for detecting threat and increasing survival are features that tell us an object is approaching. Detecting an approaching object may be critical for survival; indeed, research suggests that humans have a perceptual bias for approaching sounds over receding sounds, processing approaching sounds more quickly, accurately, and easily. Dominik Bach, John Neuhoff, Walter Perrig, and Erich Seifritz (2009) investigated various responses to both approaching and receding sounds, including skin conductance response, phasic alertness, and perceptual and explicit emotional ratings. Ecologically, approaching objects provide a number of cues that provide information about the approach: interaural level differences, interaural time differences, intensity change, Doppler shift, and atmospheric filtering effects. Stimuli were presented in two different ways, with full motion cues and with intensity cues only. Indeed, compared to receding cues, approaching cues were rated

as more unpleasant, potent, arousing, and intense, and participants rated as higher the probability that these sounds signified a threat. Additionally, approaching sounds elicited greater skin conductance and phasic alertness, and participants estimated loudness change as greater than for receding sounds.

In most measures, effects were comparable between approaching sounds indicated with full motion cues and approaching sounds indicated with intensity cues only. Furthermore, intensity only-cued sounds were rated more negatively than fully-cued sounds on all aspects, though the fully-cued sounds yielded increased skin conductance. The authors argue that their results reflect that change in intensity is the dominant cue mediating perception of approaching sounds.

Extrapolating these results to musical contexts suggests the hypothesis that the use of crescendos can contribute to a sense of threat and danger and may contribute to evoking fear. The research of Bach and his colleagues is consistent with the idea that a similar level of threat can be projected mere change in intensity as with full motion cues. Following this research, I submit that a crescendo is perceptually an effective substitute for an approaching object and thus might tap into similar defense responses and feelings. In fact, music cognition research suggests that listeners are highly sensitive to crescendo and are more sensitive to crescendo than to diminuendo. Crescendos are optimal for drawing attention. In a study of dynamic markings of 14 composers, results were consistent with maximizing crescendo effect (Huron 2012). Based on the research of Bach et al and others, I would predict several factors that would cause some crescendos to be perceived as more threatening than others, including faster rates of crescendo, dynamic range spanned, and overall loudness.

Based on the premise that acoustic features can carry information about threat and danger, Thomas Schafer, David Huron, Daniel Shanahan, and Peter Sedlmeier (2015) tested the hypothesis

that music can trigger a feeling of safety. The authors predicted that because music represents “a relatively predictable pattern of auditory input,” it should provide information that the environment is stable and therefore should create a greater sense of safety as compared to silence and natural noise; study results were consistent with this prediction.³ These results suggest that it might be fruitful to consider not only how music is used in film soundtracks, but also how it is not used—the possibility that a lack of music or silence might be employed to indicate stress or danger.

Drone tones, that is, sustained high or low pitches, are used in thriller and horror movies in conjunction with building suspense and has become a signal for impending threat. Researcher Caitlyn Trevor has suggested that the capacity of drone tones to signify threat might be in part ethological, and is currently investigating whether drone tones evoke a sense of danger in contexts other than horror films (Trevor 2017, Trevor 2018).

Finally, we might expect surprising sounds to evoke fear (Huron 2012). Surprising sounds might include sudden changes in dynamics, *tessitura*, or key, or might otherwise involve sounds that are unexpected given the context.

The table below summarizes the many different acoustic cues described to this point. For each of the proposed cues, I suggest how this cue might be co-opted in musical composition. Furthermore, I specify whether this cue has been implicated in research on expressions of fear or expressions of threat and provide the relevant citations.

³ Their results also support a connection between stress and faster tempi: rhythms played faster than participants’ established “preferred” tempi were rated as causing higher levels of experienced stress and danger.

Acoustic Cue	Predicted Musical Analogue	Theorized Interpretation/Function	Citations
Fast tempo/speaking rate	Fast tempo	Fear	Juslin & Laukka, 2003; also see Schafer et al., 2015
Low sound level (except in panic fear)	Quiet dynamics...or loud dynamics	Fear	Juslin & Laukka, 2003
Lots of sound level variability	Lots of change in dynamics	Fear	Juslin & Laukka, 2003
High pitch	High tessitura	Fear	Juslin & Laukka, 2003
Little pitch variability	Narrow pitch range	Fear	Juslin & Laukka, 2003
Rising pitch contour	Rising pitch/melodic contour	Fear	Juslin & Laukka, 2003
Microstructural irregularity	Vibrato? does this category overlap with non-linear sounds?	Fear	Juslin & Laukka, 2003; Huron, 2015
Screaming	Screaming/scream-like sounds	Fear, threat	Arnal et al. 2015; Belin & Zatorre, 2015; Trevor, 2017
Non-linear sounds	Overblowing, stopped horn, bowing techniques, inharmonic percussion, dissonance, trills, vibrato, sudden pitch change, tremolo string bowing, flutter-tonguing, sudden dynamic change	Fear, threat	Blumstein, Bryant & Kaye, 2012; Blumstein, Davitian & Kaye, 2010
Falling pitch contour	Falling pitch/melodic contour	Threat	Juslin & Laukka, 2003
Low pitch (and infrasound)	Low tessitura	Threat	Shanahan & Huron, 2014; Huron, Kinney & Precoda, 2006
Loudness	Loud dynamics	Threat	Huron, Kinney & Precoda, 2006
“Volume,” or extensity	Relatively many sound sources	Threat	Huron, 2012
Approaching sounds	Crescendos, especially quick crescendos and those with wide dynamic range	Threat	Bach et al., 2009
??	Drone tones	Suspense/threat	Trevor, 2017
Surprise	Rapid increase in loudness, abrupt change in tempo, new/unprepared harmony, unexpected modulation, sudden change of texture	Threat	Huron, 2012
Silence	Silence	Relatively weaker sense of safety	Schafer et al., 2015

Table 1. Possible acoustic cues for fear and danger, as suggested by empirical literature.

A primary issue with the current empirical literature on the sounds of fear and threat is that it often does not specify what musical techniques produce the types of sound—for example, what does “microstructural irregularity” sound like, and what types of techniques available to musicians produce this effect? The same question should be asked of non-linear sounds (though see Blumstein et al. 2010 for suggestions) and of the type of roughness that is found in screams (Arnal et al. 2015).

Taken together, the information in this table suggests several musical features and compositional techniques that we would expect to find in music seeking to illustrate threat, danger, and/or fear. The narrative context and symbolism of the Nazgûl in *The Lord of the Rings* suggests that the music accompanying their scenes is a likely place to find music that seeks to illustrate threat, danger, and fear. In the following section of this paper, I inquire as to whether the acoustical features identified by research to be associated with fear, threat, and danger can be identified in the music of the Nazgûl in Howard Shore’s soundtrack to *The Fellowship of the Ring*.

4. The Sounds of Fear, Threat, and Danger in *The Fellowship of the Ring*

I do not intend Table 1 to imply that any music portraying fear will use all of these cues, or that use of any of these cues is necessarily a cue for fear. For example, I will point the use of large choir in the Nazgûl music as contributing to the threatening effect of the music—many voices present high extensity, or number of sound sources, one of the signifiers addressed above as a cue for threat. However, composer Shore also employs choir frequently in the music of the elves, who are not semantically connected to terror or threat at all, but in contrast, peace and beauty. So how can I reasonably claim extensity via choir as a cue for fear? Furthermore, many of the cues listed in Table 1 might seem conflicting or just too broad to be useful. For example, rising pitch contour

is associated with fear expression, which in turn might make us fearful via emotional contagion, but descending pitch contour is associated with threat, which also might make us fearful! A similar problem arises when considering tessitura, where high pitch is expressive of fear while low pitch is expressive of threat, and when considering loudness, where low sound level can be fearful, high sound level can be aggressive, and sound level variability is also claimed as a cue.

Juslin and Laukka (2003) suggest using Brunswick's lens model, an early model of visual perception, to consider the communicative process in vocal and musical expression and address these types of concerns. Essential to this analogy is that relevant cues for vocal and musical communication are encoded probabilistically. Encoders use a large set of these probabilistic and partially redundant cues, and decoders recognize and use these same cues.

“The cues are probabilistic in that they are not perfectly reliable indicators of the expressed emotion. Therefore, decoders have to combine many cues for successful communication to occur...each cue is neither necessary nor sufficient, but the larger the number of cues used, the more reliable the communication.”

Many different cues can convey the same information; cues are often redundant. Though this is good for the robustness of the system's communicative power, it limits the amount of information that can be shared. Juslin and Laukka suggest that this may be why broader categories of emotion can be efficiently communicated while the finer nuances are not.

My analysis of the Nazgûl music from *The Lord of the Rings* assumes the analogy provided by this model. I do not expect that musical techniques emulating cues of fear, threat, and danger in the Nazgûl music will be exclusive to that musical material. However, I do expect I will easily be able to identify a large number of possible cues in fear-related music. I expect that the music

accompanying the scenes of the Nazgûl will contain relatively far more fear cues than that of scenes centered on different, especially positive, affects.

4.1 A Shortcut to Mushrooms/Buckleberry Ferry

Soon after hobbits Frodo and Sam venture outside the borders of their homeland, the Shire, the film version of *The Fellowship of the Ring* contains two chase scenes, nearly back to back. In the first, Frodo and Sam bump into their hobbit friends Pippin and Merry, who have been pilfering vegetables from Farmer Maggot's crop and are currently being pursued by an irate Farmer Maggot, who is determined to catch the thieves. The four hobbits take off running together to escape his fury. After a comic moment teetering on the edge of a cliff, they tumble down a hill and evade the grumpy farmer. However, moments later, Frodo senses something wrong. Just in time, the hobbits hide under fallen tree roots. A Ringwraith, riding on a giant, sinister black steed, enters the scene. It comes close to finding the hobbits, but they toss a pack into the woods, creating a distraction for the Rider and an opportunity to escape. The chase scene builds as the hobbits realized they are being pursued by multiple Riders. The chase ends with the Riders mere yards away and Frodo's dramatic leap onto the Ferry: the Wraiths cannot follow them into the water, and the hobbits are safe...for now.

Although both chases involve threats to the hobbits, these are threats of two very different sorts. Farmer Maggot's ire is a hobbit-sized threat: parochial, straightforward, part of the world the hobbits know and understand. The Riders pose a much more sinister and unknown threat from outside the borders of the hobbit lands—though the hobbits do not understand the full nature of the threat of the Riders, it is apparent to hobbits and audiences alike that the consequences of being caught by the Riders are much greater. Indeed, the contrast of these chase scenes marks the

initiation of the hobbits into the conflict and danger of the world of the “Big Folk” (men), which they must navigate in order to ultimately save their own people and land. Several cues in the film inform the audience of the sudden shift in gravity between the two chases, including the actors’ demeanors and dialogue and the scene change of day to night, as well, of course, as the intimidating visual presence of the Riders. Perhaps the most critical set of cues, however, comes from the music and sound effects in the two scenes.

The Farmer chase scene is accompanied by light, playful music scored for flutes, upper woodwinds, celesta, and strings—drama is certainly built through the urgency of the tempo and the short articulation, but the overall effect of the music is comical. The hobbits run over the edge of a cliff; their momentary teetering is punctuated by an orchestral trill which crescendos and sends them toppling off. Some of the potential fear cues are identifiable in this music, particularly cues related to the expression of fear: fast tempo, high pitch, and rising pitch contour. The orchestral trill seems to cue a moment of tension, perhaps as an example of microstructural irregularity. However, on the whole, this music reflects the playfulness and relative safety of the current situation: urgency and a bit of good-natured panic, but not raw fear or terror.

In contrast, the music of the Ringwraith chase makes extensive use of nearly all the cues discussed earlier in the paper. The music calls upon orchestral instruments in a much lower range as compared to the previous Farmer chase: the rumbling bodhrán, low strings, and low brass. These instruments set the musical theme with motivic material related to “the bad guys.” Examination of this motivic material reveals connections with threat music. In *The Music of The Lord of the Rings: a Comprehensive Account of Howard Shore’s Scores*, musicologist Doug Adams catalogs Shore’s leitmotifs throughout all three films. Two of the Mordor motives that feature heavily in the music of this scene feature descending pitch contour, the “Threat of Mordor” and the “Descending Third”

accompaniment figure. Both of these descending lines are orchestrated in a very low tessitura, featuring heavy brass and low strings, and call to mind the threat signal discussed earlier of falling pitch contour. The line of the Nazgûl music itself, however, is ascending, creating a feeling of rising intensity, and perhaps also taking advantage of rising pitch contour as an expression of fear. While the music featured in the scenes of the Nazgûl contains both rising and falling motives, it does not make use of melodic arches, as does the music for the hobbits or elves.

Leading up to the chase, aleatoric string harmonics permeate the atmosphere as the hobbits assess their situation. This special effect is high-pitched and eerie, perhaps an example of microstructural irregularity, non-linear sound, or both. This section also employs the gong, an inharmonic percussion instrument. Overall, the sound level is low while the hobbits are hiding, deciding what to do.

The moment at which the hiding ends and the chase begins is marked with an abrupt, very loud Ringwraith scream, which is both surprising and jarring. The chase itself is very loud, and is a gradual crescendo throughout. By the time the hobbits make the break for the ferry, the volume is extremely loud; the high, forceful, and dissonant chords belted by the choir at this point are nearly unbearably loud, particularly in a theater with surround sound. This contrasts with the music immediately preceding the chase, which shares many other features with the chase music: orchestration/tessitura, tempo, and some of the same motivic material. However, the preceding music, which plays while the hobbits are scuttling from tree to tree, on the alert for danger, is played at a much quieter volume than the music during the chase. This is consistent with the potentially conflicting findings of Juslin and Laukka on sound level; the quieter level corresponds to the fear of the unknown and a sense of danger unseen (anxiety), while the louder volume music,

paired with visible, tangible, and imminent threat as the hobbits are fleeing, corresponds to panic fear, the flight response. The addition of the choir adds extensity, or volume, to the music.

The screams and screeches of the Nazgûl, also unbearably loud, have the effect of nails on a chalkboard. While not strictly part of the musical soundtrack, the screeches are an essential part of the movie's auditory effects, and the backstory of the sound's creation is consistent with the theory (Arnal et al. 2015) that the scream contains unique acoustic markers that put us on guard for danger and that can trigger fear. *Lord of the Rings* sound editors Mike Hopkins and Ethan van der Ryn had created effects for the Nazgûl screams, but director Peter Jackson was dissatisfied with the original attempt, stating that the sounds were, “not scary, not chilling, not working.” The screams were missing something—as it turns out, they were missing actual human screaming. Jackson suggested that the editors record co-producer Fran Walsh screaming, and it was her screams that constituted the core of the final composite Nazgûl scream sound. Hopkins commented about her screams that they were, “the most spine-chilling sounds I’ve ever heard in my life. They just about knocked me on my ass” (Osbourne, Jackson, Walsh, & Sanders, 2001).

The left-hand column of the table below contains a list of musical features of the Ringwraith chase scene, while the right-hand column suggests the way or ways in which this musical technique makes use of acoustic cues that have been suggested to signal fear and/or threat.

Musical Technique in the Soundtrack	Related Acoustic Cue
Moderately fast, driving tempo	Fast tempo/speaking rate (fear)
Low tessitura; low strings, low brass, Bodhrán	Low pitch (threat)
Descending contour of “Threat of Mordor” and “Descending Third” motives	Falling pitch contour (threat)
Aleatoric string harmonics	Microstructural irregularity and/or non-linear sounds (fear)
Contrast between relatively quiet dynamics while the hobbits are trying to stay hidden and relatively loud dynamics during the chase scene	Low sound level (except in panic fear), sound level variability (fear)
Abrupt Ringwraith scream marking the beginning of the chase	Surprise
Long overarching crescendo through chase scene; very loud dynamics throughout	Loudness, approaching sounds (threat)
Nazgûl screams	Screaming/scream-like sounds (fear/threat)
Frequent short, extreme crescendos	Approaching sounds
Full choir	Extensity of sound source
Rising contour of “Revelation of the Ringwraiths;” high pitch in final choir chords	Rising pitch contour, high pitch (fear)—this may more accurately be linked to increasing intensity that parallels the increasing intensity of the semantics of the scene

Table 2. Musical Cues in the Buckleberry Ferry Scene

The previous discussion and corresponding table describe the music of the scenes in which the hobbits hide and run from the Nazgûl. In order for this table to support the main ideas of the paper, it is not necessary for each individual cue to be uniquely and obviously related to fear and danger; recall that affective cues in musical expression are probabilistic.

4.2 The Black Rider

I will now consider the excerpt from the film that comes immediately prior to the Ringwraith chase scene: the hobbits' first encounter with the Rider, described earlier in brief. Recall that the four hobbits, laden with stolen vegetables, have just tumbled down the cliff, escaping Farmer Maggot's clutches. Punctuated by blithe flute commentary, Merry, Pippin, and Sam delight in the mushrooms they found at the bottom of the hill, but Frodo warily assesses their surroundings. As he steps down the path away from his friends, the camera zooms out, the hobbits getting smaller, followed by a cut to a close-up of Frodo, looking increasingly concerned. The soundtrack under these shots lets the audience know for sure that something ominous is about to happen: the "Footsteps of Doom Endcap" motive sounds four times in an extremely low register with a predominantly low-woodwind deep, dark sound. Though the Footsteps motive is heard frequently on its own and is treated separately from the Ringwraith theme by Adams, the motive is derived directly from the Ringwraith music.

The Footsteps motive is simply a quarter note followed by an eighth note, the quarter note starting quietly and rapidly growing in volume, the eighth note heavy. The repetitions of the motive are separated by two and half beats of rest. Then, a muted scream of a Ringwraith combined with the rustling of leaves punctuates an eerie shot of the path in the woods which seems to zoom in and zoom out at the same time—a distortion that director Peter Jackson explains is a nod to Hitchcock.

At this point all non-diegetic sound cuts out as Frodo yells, "Get off the road, quick!" Birds chirp in the woods around them as they duck for cover under the tree roots, but the sounds give us a hint of the danger that is coming: the birds flutter and flap away, fleeing the scene and leaving silence as the Rider's horse clops down the road, snorting. The natural silence directs attention to

the disturbing and threatening sound effects of the massive horse and its terrifying rider. As the power of the Ring begins to exert its lure on Frodo, urging him to put it on, an incredibly low tone enters, nearly infrasound—more felt than heard. Layered on this tone are eerie sounds, probably created by percussion. Some of it sounds like bowed metal, perhaps a bowed cymbal; whatever extended technique is creating the sound is probably non-linear.

Although this brief scene actually contains little music, it provides examples of several of the concepts we have been considering. The orchestration is extremely low, as is the infrasound-like effect associated with the Ring's power. The most salient feature of the musical motives, other than their lowness, is a short, dramatic crescendo. The music drops out for the scariest moments of the scene, calling to mind the research of Schaefer, Huron, Shanahan, and Sedlmeier (2015) on feelings of safety in different sonic environments: these researchers theorized that sounds offer us information about the environment, and that music, in providing a relatively predictable pattern of aural information, signifies a stable environment. In the scene currently under consideration, the audience loses both the sounds of the music as well as the sounds of nature: we have no aural information from the environment, nothing letting us know what is likely to happen. Personally, I find the birds flapping away and the resultant silence to be very unsettling, which might be argued to be an adaptive subjective response: animals often sense things humans do not, so if the animal life is fleeing, there might be good reason for us to flee too. Finally, the sounds of the Ring's lure provide an illustration of how non-linear sound, probably coming from extended percussion techniques, is used to heighten tension and anxiety.

4.3 At the Sign of the Prancing Pony

The next scene involving the Ringwraiths contains much of the same musical material and also employs silence at the greatest moment of narrative tension. The hobbits have navigated the woods, escaped the wraiths, and crossed the river to arrive at the inn in Bree—but the wraiths continue to pursue them, though the hobbits do not know it. Fortunately, the ranger Strider (later revealed as Aragorn, heir to the throne of Gondor) has pulled the hobbits aside and warned them of the wraiths: “They’re coming.”

At these words, rapidly crescendoing orchestral trills lead into a full, rich presentation of the Ringwraith musical theme, complete with choir and brass, low and loud, as the film shows the Riders on their horses breaking through the gates of the city and stalking through the inn past a terrified barkeep. The choir stops abruptly as the camera cuts to a close-up of Merry, then Pippin, both asleep. Silence. The shot widens, revealing four beds with sleeping figures. The camera sweeps around to show four Ringwraiths approaching with swords unsheathed. They approach the beds, blades raised high. There’s a shot of Sam sleeping peacefully.

The film cuts back to the Ringwraiths with blades poised; they stab forcefully into the figures in the bed—for the novice viewer, it appears that the Ringwraiths have killed the hobbits. No music has played throughout this sequence from the first shots of the sleeping hobbits—just the harsh, diegetic noises of the wraiths and their steeds and a smattering of disconcerting sound effects.

Now, Aragorn watches gloomily out a window, and the Footsteps of Doom motive is re-introduced, a deathly repetition; cut back to the wraiths’ blades plunging into the figures in the beds. Feathers fly everywhere, and the wraiths screech unnervingly as they realize they have been deceived—the hobbits are safe, hidden in Aragorn’s room. The underlying music is not quite

“Footsteps of Doom” or the Ringwraith theme, but somewhere in the middle. It is orchestrated as the Footsteps motive usually is, with low winds, lacking the characteristic choir of the full Ringwraith theme. However, the music and rhythm is complexified to match the Ringwraith theme, adding in pick-up notes as well as building chords up harmonically. This musical underpinning continues relatively quietly as Aragorn explains who the Ringwraiths are—and the magnitude of threat they pose to the hobbits. This scene transitions to the next with an ominous, rumbling tremolo in the contrabasses.

These musical cues are by now very familiar: low range, lots of short, intense crescendos, soft volume for anticipated threat, loud volume for present threat, the disturbing screeches of the Ringwraiths and the non-linear sound effects that accompany their presence. The moment of peak tension, when it seems the most threat is posed to the hobbits, again drops the music altogether, allowing the silence to undermine any remaining sense of security.

4.4 Weathertop

Led by Aragorn away from the town of Bree, the hobbits enjoy some time in relative safety—until the wraiths catch up to them once again at Weathertop. A long, low crescendo accompanies a wide shot from above of the Riders approaching the camp. More crescendo underneath a fast, rising sixteenth-note figure as the hobbits find the highest ground and prepare to defend themselves. The descending third motive enters in the low range, building tension, as the violins begin a slow, unsettling *portamento* in open fifths up a twelfth, throughout the course of two and a half measures. Tremolo bowing is added to the *portamento*, creating another disturbing extended technique probably exemplifying microstructural irregularity and non-linearity and certainly exemplifying a rising pitch contour. The descending Threat of Mordor

motive enters in the bass, overlaid with a quieter but very intense choral orchestration of the Ringwraith theme as the wraiths surround the hobbits.

At the moment swords begin to clash, the violins enter on a shrill high Bb, which develops into a highly dissonant A-Bb-C cluster drone. There is a longer crescendo as the wraiths throw Merry and Pippin aside and Frodo stumbles back, falling to the ground. As the Nazgûl approach, the various threatening Mordor motives combine with trembling aleatoric string and wind figures. The violin tone cluster enters again, now composed of five or more chromatically-neighboring pitches, creating a striking high-pitched dissonance that sustains throughout the approach of the Nazgûl, cutting off at the moment Frodo, cornered with no other defense, yields to the power of the Ring and puts it on his finger, which draws him into the warped, distorted wraith world. Frodo's experience of the wraith world is accompanied only by harsh, non-linear sound effects. One of the Ringwraiths stabs Frodo in the shoulder.

Just in time, the clear horns return the music to the scene, proclaiming Strider's heroic theme as he swoops down with a flaming torch to save the hobbits. Once the wraiths are driven off, low string and brass punctuate the scene with brief, ominous crescendos as the party recognizes the severity of Frodo's stab wound.

In this sequence, several new and expanded musical techniques have been employed in the service of expressing fear and threat, including the violin tremolo *portamento* (rising contour, high pitch), aleatoric activity throughout the orchestra (microstructural irregularity?), and tone clusters in the violins that create a suspenseful drone.

4.5 Arwen's Flight to the Ford

Frodo's shoulder wound is worsening; he has lost touch with reality, and if he does not get to Rivendell for help soon, he will become a wraith. Arwen, an elf from Rivendell, finds Aragorn and the hobbits; they decide she will take Frodo on horseback to the Elven city of Rivendell, where they will be safe and Frodo can be healed with the magic of the Elves. As Arwen rides furiously toward Rivendell, the remaining Nazgûl appear in pursuit. The Riders close in on Arwen and nearly catch up to her, but she crosses the river just in time. They balk at the prospect of crossing the water but are so determined to claim the Ring that they urge their horses over. As they are crossing, Arwen calls on the spirit of the river to rise up and flood the wraiths out; they are overcome by the water and washed away.

As Arwen rides out, holding Frodo, the music is low and driving, combining a very low, sustained horn *solì* over a perpetual motion bassoon ostinato. A chain of descending suspensions in the brass intensifies as the Riders begin to close in on Arwen. Sustained brass chords are paired with the rumbling bodhrán and punctuated with low instruments playing the Footsteps of Doom motive. A brassy crescendo over three bars is underscored with high strings playing an aleatoric tremolo, intensifying into the Ringwraith theme. This time, a high-pitched violin drone in a crunchy minor second is added over the full presentation of the choral theme and ornamented with tremolo. As Arwen crosses the river, the melody drops out, leaving just a high-pitched violin drone. This drone sustains throughout Arwen's interactions with the wraiths, their move to cross the river, and Arwen's spell-chanting. The drone is only washed away by the sounds of the river roaring up to defeat the Nazgûl. Though the Nazgûl are immortal and will return in pursuit of the Ring, this is the last we see of them until 50 minutes into *The Two Towers*, when a Ringwraith riding a flying beast circles over Frodo, Sam, and Gollum hiding in the Dead Marshes.

5. Comparisons

In the final section of this paper, I return to the leading premise of this paper: music is able to communicate fear, threat, and danger by employing acoustical cues that emulate vocal expression of fear and/or mimicking the acoustical properties of potentially threatening entities. I have suggested quite a few of these cues based on previous research in music, speech prosody, animal ethology, and evolutionary psychology, but this list of cues is most likely not exhaustive. Because these acoustical cues can signify multiple affects, our brains use these cues in a probabilistic way, meaning that successful communication involves the use of multiple cues that are partially redundant in the information they communicate.

A priori, I predicted I would be able to identify many of the cues discussed in the Nazgûl music. As affect cues are probabilistic, I predicted that music accompanying the scenes of the Nazgûl would contain relatively more types of fear cues than scenes with positive or less threatening affects. In the following analysis, I use the list of cues I compiled to probe this last prediction. I count the number of cue types used in three scenes involving the Nazgûl and three other non-scary scenes, which were randomly selected and matched to the Nazgûl scenes for length. This analysis is admittedly quite subjective, but this strategy allows a quantification of the use of these cues in the movie music, albeit informally.

To choose scenes for comparison, I used a random number generator to select scenes from *The Fellowship of the Ring*. As I was looking to compare the Nazgûl scenes to scenes without narrative threat, *a priori* I decided to eliminate scenes in which physical threat was present and scenes in which the Ring played a prominent role. The excerpts started with the beginning of the scene, and I determined an appropriate place to end the excerpt based on matching lengths with the Nazgûl clips.

The table below lists the musical techniques as determined from Table 1; the only change is that I have here combined “non-linear sounds” and “microstructural irregularities,” as I was not able to tell definitely from listening alone which techniques belong to these categories and did not identify any techniques that I believed belonged to one category but not the other. The columns in this table alternate between scary (Nazgûl) and non-scary scenes so that scenes matched for length can be directly compared.

Musical Cue	Flight to the Ford (2:30) Scary	Fellowship Departs (2:30) Non-scary	Weathertop (3:00) Scary	Many Meetings (3:00) Non-scary	Buckleberry Ferry (2:17) Scary	The Shire (2:17) Non-scary
Fast tempo/speaking rate	half=82	X quarter=62	half=88	X quarter=70	half=88	X quarter=104
Low sound level (except in panic fear)	X	X	low sound level while anticipating threat	X	low sound level while hobbits are hiding	X
Lots of sound level variability	X	X	lots of crescendo and subito piano; dynamic range of excerpt is wide	X	lots of crescendo and subito piano; dynamic range of excerpt is wide	melodic phrases swell and fade
High pitch	high choir	high strings	high strings/choir	high strings/choir	high choir	X
Little pitch variability	horn melody has narrow theme	X	X	X	X	X
Rising pitch contour	Nazgûl theme	X	portamento	X	Nazgûl theme	X
Microstructural irregularity/non-linear sounds	aleatoric string harmonics	sustained violin trills	tremolo, portamento	string harmonics	aleatoric string harmonics	X
Screaming	Ringwraith screams	X	Ringwraith screams, Frodo screams	X	Ringwraith screams	X
Falling pitch contour	chain of descending suspensions; horn motive is falling	X	“Descending Third” and “Threat of Mordor” motives	X	“Descending Third” and “Threat of Mordor” motives	X
Low pitch (and infrasound)	primary orchestration low strings and brass	low supporting chords in one section	primary orchestration low strings and brass	X	primary orchestration low strings and brass	X
Loudness	loud	X	loud	X	loud	X
“Volume,” or extensity	choir	choir	choir	choir	choir	X
Approaching sounds	frequent short, intense crescendos and several longer ones	two salient crescendi	frequent short, intense crescendos and several longer ones	X	frequent short, intense crescendos and several longer ones	X
(Drone tones)	high string drones	X	high string drones	X	aleatoric string harmonics provide drone	X
Surprise	X	X	X	X	first Ringwraith scream	X
Silence	X	X	X	X	X	“A Wizard is never late”

Table 3. Types of cues used in scary and non-scary scenes

Table 4 below shows how many cues I identified in each of the scenes, information which is visualized in the bar graph.

	Scary Scenes			Non-scary scenes		
Scene Name	Weathertop	Flight to the Ford	Buckleberry Ferry	The Shire	Many Meetings	The Fellowship Departs
# of cues identified	13	12	14	2	3	5

Table 4. Number of fear/danger cues used in scary and non-scary scenes.

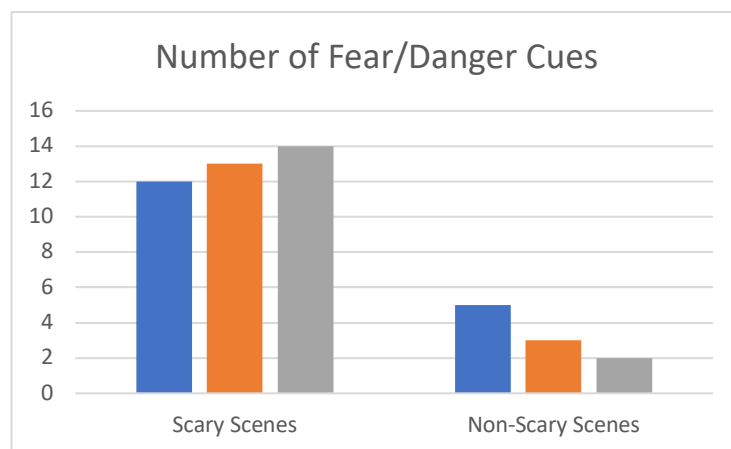


Figure 1. Number of fear/danger cues in scary and non-scary scenes. Corresponding colors indicate scenes matched for length.

In the scene “The Fellowship Departs,” some of the cues listed in Table 3 are thematically linked to the possibility of danger, in particular, the string tremolos and the entrance of the low, supporting chords (around 1:18 in the video clip). These features contribute to the music as the newly-formed Fellowship steps out of the safety of Rivendell, embarking on their quest. The wide shots of the landscapes are beautiful but daunting—they are journeying out into the unknown on a mission that very well may be impossible.

Other “fear” or “danger” cues as used in these scenes clearly communicate affects other than fear and danger. For example, the use of silence in “The Shire” scene is used for comedic

effect. The same scene uses frequent crescendos and decrescendos to shape its melodic arches, creating sound level variability. This warm rising and falling is qualitatively different from the intense crescendos and *subito* pianos of the Nazgûl scenes. I observed that the motivic material in the Nazgûl scenes either rises or falls but almost never makes use of a full arch shape, while the melodic material of the compared scenes almost always uses melodic arches on top of neutrally shaped accompaniment figures.

This analysis supports the theory that fear and danger cues are used probabilistically in encoding and decoding music. Nazgûl scenes, or scary scenes, employ many of the musical features suggested by previous research to signify fear and danger, while non-threatening scenes use far fewer of these types of cues. When music that accompanies non-scary scenes employs the cues suggested to signify fear and danger, the music may be foreshadowing a future threat, or the cue may be employed to signify a different affect; for example, while “fast tempo” can be a cue for fear, it can also be a cue for happiness.

6. Conclusions

I began by reviewing the literature on acoustic cues for fear and threat and considering how these might be employed in music. Next, I considered specific ways some of these cues might be manifested as compositional techniques by analyzing the Nazgûl music from several scenes in *The Fellowship of the Ring*. This analysis identified many specific musical techniques in the Nazgûl music that recruited the acoustic cues suggested by the empirical literature. Lastly, I compared the Nazgûl music to non-scary music in other portions of the film and concluded that relative to non-scary music, the scary (Nazgûl) music employs far more of the acoustic cues suggested by empirical literature. These findings are consistent with the “lens model” theory of musical

communication as submitted by Juslin and Laukka (2003), which suggests that successful communication is a product of multiple, probabilistic cues that are partially redundant.

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