

ABSTRACT

The Impact of Visual-Music Interaction on Music Perception: The Influence of Agreement and Disagreement

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Previous audiovisual cognition research has focused primarily on music's impact on visual perception. The goals of this study are to explore the impact of visuals on the perception of affective and acoustical qualities of music, and to develop a method for discussing the mood interactions of film and music. Text-music and visual-music analyses demonstrate two types of interactions: agreement and disagreement of moods. In an empirical investigation, participants were presented interactions in music and visual clips: agreeing music and visual, disagreeing music and visual, and music without visual. Participants were asked to rate acoustical properties using scales and adjective choice tasks. The results demonstrated an impact of visual mood on music perception: when in agreement, the mood was retained; when in disagreement, the visual's mood influenced the music's perception. The conclusions are applied to Cohen's associationist-congruence model by describing a new communication pathway between music and visual in film-music perception.

The Impact of Visual-Music Interaction on Music Perception:
The Influence of Agreement and Disagreement

by

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A Thesis

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CHAPTER ONE

Introduction

Background

People can experience music in a context that includes extra-musical elements that provide emotion and meaning. Film music is one of the most popular genres that incorporates music with another element: visual images. This interaction of elements is fundamental to the experience of films but has created a complication that has not yet been completely explained by film-music researchers. Most analysis of film music takes the music into account as an independent entity that does not exist within a greater film space. Robynn Stilwell addresses this issue in her review of film-music literature:

[I]t is truly astonishing how many studies of the music tend to ignore completely what is happening on the screen. This may be explained, if not condoned, by the methods which the researchers have been taught to use. Film studies are traditionally a visual domain; in the last decade or so, sound has made inroads into the field, but primarily in terms of the voice and, to a lesser extent, sound effects. Music has been left out almost completely. Conversely, musicology was established in an era when absolute music—music for its own sake, with no extra-musical program or function—was the ideal, with all music measured to that standard. It is therefore not surprising that music written for purposes of dramatic illustration would be considered almost beneath notice; additionally, methodologies for studying such music, were it to be noticed, are markedly underdeveloped.¹

Analytical approaches that take into account both the music and visual images are needed to provide a more complete discussion of film music. Film-music analyses have

¹ Robynn J. Stilwell, "Music in Films: A Critical Review of Literature, 1980-1996," *The Journal of Film Music* 1, no. 1 (2002): 20.

focused mainly on the music when they discuss the connection between the visual image and music.² Due to the complex nature of film music—including a lack of accessible scores—film-music analysts have discussed only the soundtrack of films, leaving a need for further developments of film-music interaction analysis. In his book discussing methods of film-music analysis, James Buhler calls for a holistic approach, which “is perhaps the most ‘musical’ way of reading [film music], more so than treating the score as a relatively independent component of the film, an analytical strategy that necessarily takes as its object music for film rather than music in film.”³ Buhler puts emphasis on the music when discussing the interaction between the two elements. Although it is important to analyze the music alone, a discussion of the visual elements must be included to make a complete analysis of film music.

Psychological, empirical studies on visual-music interaction have introduced a scientific approach to audience perceptions and emotional responses with a focus on the role of the visual images. These areas of academic research also demonstrate a need for a means to analyze and discuss how the visual images and music interact.

Congruence-Associationist Model

Annabel J. Cohen is a leader in the psychological community for her work on film music, audio-visual integration, and emotional meaning. Cohen’s empirical research

² See *Film Music: Critical Approaches*, ed. K. J. Donnelly (New York: Continuum, 2001) for discussion of basic approaches.

³ James Buhler, “Analytical and Interpretive Approaches to Film Music (II): Analysing Interactions of Music and Film,” in *Film Music: Critical Approaches*, ed. K. J. Donnelly (New York: Continuum 2001), 58.

presents a psychological approach to film music that provides a point of departure for film-music cognition research.

In her article “Music as a Source of Emotion in Film,” Cohen has compiled a list of eight functions of film music. These functions are the specific roles that music plays within its larger responsibility of creating emotion in film. First, music since the silent era has covered up the extraneous noises of the projector. Second, the music connects shots within a scene. Third, music points the attention of the viewer through “structural or associationist congruence.” Fourth, it induces mood when it is not connected to a specific focus, such as the opening credits. Fifth, music narrates and communicates meaning, especially when the narrative or meaning is not clear. Sixth, through *leitmotiv*, reoccurring musical ideas create meanings through past memories and associations within the film. Seventh, the music helps the process of internalizing the realities and meanings portrayed in the film. Finally, “music as an art form adds to the aesthetic effect of the film.”⁴

To further explain the third function from the above list, Cohen develops the Congruence-Associationist Model that emphasizes the effect of the music stimuli on the visual narrative in film cognition.⁵ This framework (see fig. 1) is a theoretical model used to explain how the audience comprehends and attaches meaning to what is seen and heard. Briefly, this model shows how the viewer analyzes the three surfaces of film:

⁴ Annabel J. Cohen, “Music as a Source of Emotion in Film,” in *Music and Emotion*, eds. Patrik Juslin and John A. Sloboda (Oxford: Oxford University Press, 2001), 258.

⁵ *Ibid.*, 249-72.

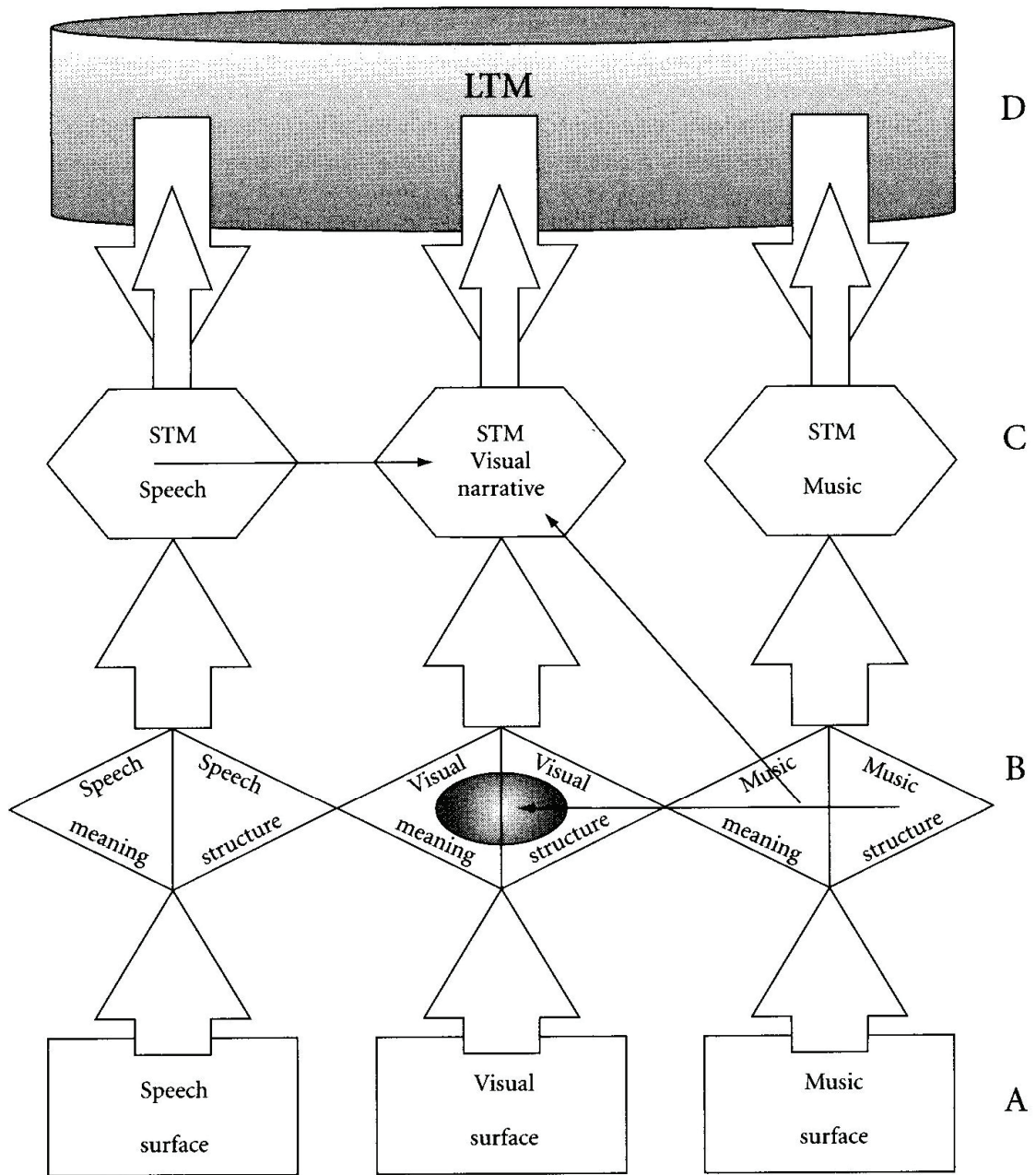


Figure 1. Congruence-associationist framework for understanding film-music communication (see text for explanation). LTM, long-term memory; STM, short-term memory. Reprinted from Cohen, "Music as a Source of Emotion in Film," 259.

speech, visual, and music. Horizontal levels A and B are the bottom-up processes, which include the immediate analysis of what the viewer experiences in each of these areas. Once the basic analysis has taken place, consciously or subconsciously, information moves to level C—the short-term memory (STM)—where an immediate narrative is formed by the combination of the film elements. Level D, the long term memory (LTM), sends information from previous associations and memories downwards to create the overall narrative meaning the viewer associates with the film.

Cohen also discusses that sometimes mood-incongruent relations (when elements do not agree in their mood) can be more memorable and effective than mood-congruent because the expectations are violated, stirring an emotional response. This use of music can determine what is important on the screen.⁶ In this framework, each element outside of the visual space—including music, dialogue, and diegetic sounds—functions as a stimulus to aid the perception of the visual images.⁷

Since congruency can also connote additional temporal or structural relationships, the terms mood-congruent and mood-incongruent are rendered as agreement and disagreement for this study. The terms agreement and disagreement, therefore, will only refer to congruence in mood at a simultaneous presentation.

⁶ Ibid., 256-60.

⁷ In film-music studies, diegetic includes all sound coming from within the scene or is implied by the action. In contrast, non-diegetic elements are presented to be outside of the narrative scene.

Visual-Music Impact on Visual Perception

By continuing Cohen's emphasis on visual image perception, Marilyn Boltz has demonstrated that music can impact the cognition of visual images.⁸ In "Musical Soundtracks as a Schematic Influence on the Cognitive Processing of Filmed Events," Boltz investigated "whether the affect of music can also contribute to a story's comprehension by guiding the course of selective attending and providing a more elaborative encoding of characters' actions, motivations, and inherent temperament."⁹ Participants were presented ambiguous film scenes paired with positive, negative, or no music and were asked to complete an interpretive recall task including an adjective scale and an object memory task. Results revealed that positive and negative music biased the viewer's perception of the film toward the mood of the music.

In "Effects of Background Music on the Remembering of Filmed Events," Boltz explored the role of music in relation to its ability to aid in memory retention. The results of this experiment demonstrated that when the music matched the mood of the visual, the intended emotion of the visual was more accurately remembered.

In "The Cognitive Processing of Film and Musical Soundtracks," Boltz explored the relationship of congruent and incongruent visual and music pairings. By asking the participants to attend to a single element, the study also investigated the role of attention

⁸ Marilyn Boltz, Matthew Schulkind, and Suzanne Kantra, "Effects of Background Music on the Remembering of Filmed Events," *Memory and Cognition* 19 (1991): 593-606; Marilyn G. Boltz, "Musical Soundtracks as a Schematic Influence on the Cognitive Processing of Filmed Events," *Music Perception* 18, no. 4 (Summer 2001): 427-54; and Marilyn G. Boltz, "The Cognitive Processing of Film and Musical Soundtracks," *Memory and Cognition* 32 (2004): 1194-1205.

⁹ Boltz, "Musical Soundtracks," 427.

in audiovisual memory. Participants were asked to respond to a series of audiovisual stimuli through film recall, tune recognition, and paired discrimination tasks. The study's primary finding was that

the encoding and remembering of music/film information is influenced by mood congruency. Across all three memory tasks, music/film pairs displaying incongruent relationships were less well remembered than were mood-congruent ones. . . . The film's encoding, then, becomes a highly elaborated one that can easily be integrated into a coherent framework for subsequent retrieval. Incongruent pairs, on the other hand, display a musical affect that is seemingly unrelated to the sequence of activities. Given that there is no basis on which to integrate the film's activities into one interpretive framework, the remembering of both film and music is impaired.

Therefore, memory of audiovisual stimuli was found as more successful in congruent pairs than incongruent pairs. In contrast to Cohen's findings, this research emphasized mood-congruence's role on the recall of the visual narrative.

Visual-Music Impact on Music Perception

Brittany Ebendorf inverted Boltz's experiments to investigate whether a visual image could influence the cognition of musical phenomena.¹⁰ For her experiment, participants were presented ambiguous music paired with positive, negative, or no visual and were asked to respond to the music through an emotional adjective choice and a 7-point scale concerning acoustical properties such as tempo and rhythm. The results of this experiment demonstrated that the positive and negative visuals biased the music

¹⁰ Brittany Ebendorf, "The Impact of Visual Stimuli on Music Perception," Senior Psy. thesis (Haverford College, 2007). The research has also been recently published as Marilyn G. Boltz, Brittany Ebendorf, and Benjamin Field, "Audiovisual Interactions: The Impact of Visual Information on Music Perception and Memory," *Music Perception* 27, no. 1 (2009): 43-59.

emotional adjective choice toward the mood of the visual; no significant trends were found in the acoustical scales.¹¹

Schubert's Emotional Adjective Quadrant

For analysis and empirical study, a standardized group of emotional adjectives were needed. Emery Schubert's thesis presented emotional adjectives in four quadrants based on valence and arousal.¹² Valence expresses the positive or negative connotation of the stimuli. Arousal describes the level of activity in terms of high or low. These two dimensions are placed on x- and y-axes to create a two-dimensional plane on which emotional adjectives can be represented (see fig. 2). Through empirical research, Schubert placed standard emotion words (including those of Kate Hevner¹³) into four quadrants of musical mood: positive valence-high arousal (happy), positive-low (calm), negative-high (angry), and negative-low (sad). The terms valence and arousal, as well as the four quadrants, are utilized throughout the discussion of agreement and disagreement.

Influence of Acoustical Properties on Emotional Perception

Previous research demonstrated that certain acoustical properties have direct influence on emotional perception. In addition, a group of studies focused on the ability

¹¹ Ebendorf's research will be addressed in depth in Chapter Four.

¹² Emery Schubert, "Measurement and Time Series Analysis of Emotion in Music," Ph.D. thesis (University of New South Wales, 1999).

¹³ Kate Hevner, "The Affective Character of the Major and Minor Modes in Music," *The American Journal of Psychology* 47, no. 1 (January 1935): 103-18.

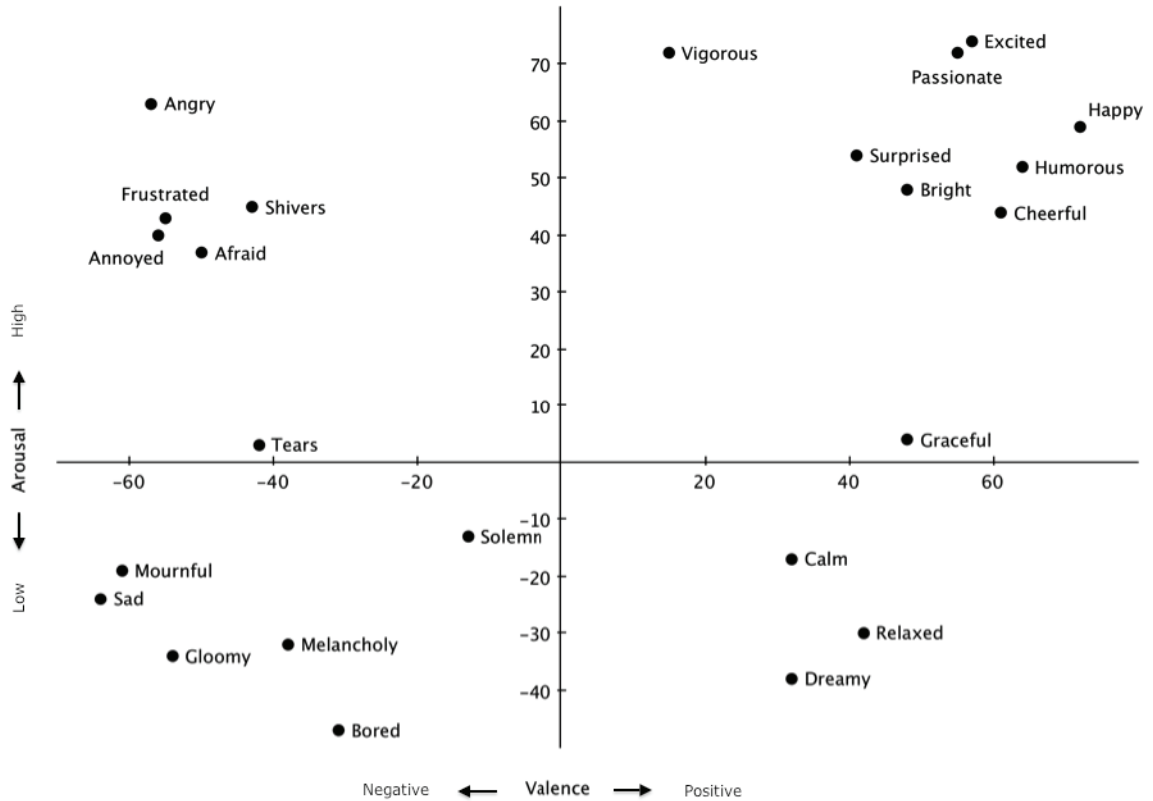


Figure 2. Adjective Values Graph.

of music to elicit certain emotional responses.¹⁴ Gabrielsson and Lindström’s “The Role of Structure in the Musical Expression of Emotions” is a survey of empirical research that demonstrated the connections that have been proven to occur between an acoustical

¹⁴ Robert G. Crowder, “Perception of the Major/Minor Distinction: III. Hedonic, Musical, and Affective Discriminations,” *Bulletin of the Psychonomic Society* 23, no. 4 (1985): 314-6; and “Perception of the Major/Minor Distinction: I. Historical and Theoretical Foundations,” *Psychomusicology* 4, no. 1/2 (1985): 3-12; Carol L. Krumhansl, “An Exploratory Study of Musical Emotions and Psychophysiology,” *Canadian Journal of Experimental Psychology* 51, no. 4 (1997): 336-52; and Isabelle Peretz, Lise Gagnon, and Bernard Bouchard, “Music and Emotion: Perceptual Determinants, Immediacy, and Isolation after Brain Damage,” *Cognition* 68 (1998): 111-41.

element and its emotional reaction.¹⁵ In these studies, the acoustical properties that most contributed to the perception of valence include mode (major or minor) and harmony (concordant or discordant). Tempo (fast or slow) and rhythmic regularity communicated the arousal level of the music.

Goal and Structure of the Thesis

The goal of this thesis is to discuss the interaction between the moods of the visual and music in film; these interactions fall into two categories: agreement and disagreement. Through analysis and empirical investigation, two types of interactions discussed in the musicological repertory are explored: text-music and visual-music (film music). The analysis focuses on how components agree or disagree with the emotion of the other. In these instances the visual and music components are unambiguous; the mood of each element is determined individually before comparing the interaction.

Text-music relationships provide an area of musicological research in which interaction has been examined and offer an analogy for later discussion on visual-music interaction. The parallel between film-music and text-music interaction has been identified by Buhler and Neumeyer: “The type of musical analysis that underlies the topics discussed above is not new: rather, it is the traditional method used to study the interactions of music and text in opera, operetta, melodrama or song.”¹⁶ Chapter Two

¹⁵ Alf Gabrielsson and Erik Lindström, “The Role of Structure in the Musical Expression of Emotions,” in *Handbook of Music and Emotion*, eds. Patrik Juslin and John A. Sloboda (Oxford: Oxford University Press, 2010), 367-400.

¹⁶ David Neumeyer and James Buhler, “Analytical and Interpretive Approaches to Film Music (I): Analysing the Music,” in *Film Music: Critical Approaches*, ed. K. J. Donnelly (New York: Continuum, 2001), 36.

presents examples of agreement and disagreement in text and music. Agreement is found when the musical mood corresponds with the text, such as when calm music is presented with a peaceful text. Disagreement refers to instances when the text and mood do not correspond, such as cheerful music with a gloomy text. To close the chapter, more complex examples of these types of interactions supplement the previous examples and further clarify the categories of text-music relationships.

In Chapter Three, examples from film and television demonstrate the categories of agreement and disagreement in visual-music interaction. Cases of complete-scene agreement and disagreement provide clear illustrations of the types of mood interactions that can occur between visuals and music. Other television and film scenes demonstrate more complex interactions that present a mixture of the two categories in direct contrast to each other, such as in a montage. The chapter also explores foreshadowing in light of the previous discussion. This chapter provides examples from the film repertoire similar to those that are the focus of the empirical research of the final chapter.

Chapter Four presents a report on empirical research that tested visual-music interaction. This experiment demonstrates whether a visual image can affect the perception of a musical element. Observing how a listener/viewer perceives certain visual-music interactions illustrates how a disagreement between the mood of the music and the mood of the visual image can be explained.

The hypothesis was that visual-music interaction directly influences the perception of music. For example, a sad image influences one to hear a simultaneously played peaceful musical example as gloomy. It follows that a music-visual pair in agreement can correctly communicate and preserve the intended emotion as well.

In the experiment, participants were presented combinations of the music and visual clips: agreeing music and visual, disagreeing music and visual, and music without visual (as a control). Participants were asked to respond on a scale regarding acoustical properties such as tempo and harmony. Participants were also asked to select an adjective from a standard group of emotional adjectives.¹⁷ The results provide data that are analyzed and discussed in order to demonstrate the effect of these interactions. Finally, the conclusions are applied to Cohen's model by describing new pathways for communication between music and visual in film-music perception.

¹⁷ Hevner, "The Affective Character," 103-18, and Ebendorf, "The Impact of Visual Stimuli," 70.

CHAPTER TWO

Text-Music Interaction

Background

Text setting in *Lieder* often has music that is complementary to the text. The purpose of the music is to convey the nuances of the poetry. The music becomes the vehicle through which the emotion and meaning of the text is brought to life. For Romantic *Lied* composers—such as Hugo Wolf and Franz Schubert—the poetry drives the composition of the song. Poetry is the source of inspiration and the object of the setting. This interplay between the text and the music is what makes each composer’s setting unique. Some *Lied* faithfully represent the poetic meaning with the music in complete agreement, while other songs present text settings that do not agree with the meaning of the text. Others fall somewhere in between by providing contrasting moments or sections.

The following examples place text-music interaction into two categories: agreement and disagreement. Although there are many methods to discuss text-music relationships, these categories are based on the interaction between the moods of the text and music. Additionally, some of these examples present a *Stimmung*, which Deborah Stein defines as “a single pervasive mood and/or psychological state within a poem,”¹⁸ while others present contrasting moods within a single setting.

¹⁸ Deborah Stein, *Poetry into Song: Performance and Analysis of Lieder* (Oxford: Oxford University Press, 1996), 27.

Agreement

The primary category in text-music interaction is agreement, with the mood of the poetry clearly represented in the setting of the music. For example, in “Verschling der Abgrund meines Liebsten Hütte,” from Hugo Wolf’s *Italienisches Liederbuch*, the musical setting not only agrees with the angry text but also intensifies the mood to violent fury. The poem expresses the thoughts of a vehemently angry woman who desires the worst to fall upon her lover (see fig. 3). The woman wishes for a snake with its deadly poison to destroy the man who deceives her and a flood that would demolish his house. The German words chosen by the poet are filled with harsh sounds such as “Verschling” (devoured), “Schlange” (snake), and “giftgeschwollen” (swollen with venom). The passionate desire for harm is unmistakable throughout the poem.

Verschling der Abgrund meines Liebsten Hütte, An ihrer Stelle schäum ein See zur Stunde. Bleikugeln soll der Himmel drüber schütten, Und ein Schlange hause dort im Grunde. Drin hause eine Schlange gift'ger Art, Die ihn vergifte, der mir untreu ward. Drin hause ein Schlange, giftgeschwollen, Und bring ihm Tod, der mich verraten wollen!	Let my lover's house be engulfed by the abyss, And a lake foam over the place this very hour. Let the heavens pour lead bullets over it, And a serpent dwell there in the ground. Let a poisonous serpent dwell there, That would poison he who was untrue to me. Let a serpent dwell there, swollen with venom, And bring death to him who means to betray me
---	---

Figure 3. “Verschling der Abgrund meines Liebsten Hütte” text and translation. English translation by Donna Bareket.

Wolf’s setting preserves the angry mood with an opening outline of a fully diminished seventh chord in the voice and the piano’s upper line. The repeated dotted rhythm creates an intensity that propels the song forward. Sporadic chromatic lines also convey the image of the snake through their winding contour. Large leaps in the voice—including tritones—and ascending leaps at the end of phrases emphasize the woman’s excited rage. The last four phrases rise in a sequence up to the high A5 on the word “Tod” (death), emphasizing her desire for the death of her lover (see fig. 4).

22
 Drin hause ei-ne Schlan - - - ge, gift - ge - -

25
 schwol - len, und bring' ihm

27
 Tod, der mich ver-ra - then wollen!

30

Detailed description of the musical score: The score is for a song in G major, 3/4 time. It consists of four systems of music. The first system (mm. 22-24) features a vocal line and piano accompaniment. The piano part has a dynamic marking of *p* in the first measure, *f* in the second, and *mf* in the third. The second system (mm. 25-26) continues the vocal line and piano accompaniment, with a dynamic marking of *f* in the first measure and *piu f* in the second. The third system (mm. 27-29) includes a vocal line and piano accompaniment, with dynamic markings of *ff* in the first measure, *f* in the second, and *ff* in the third. The fourth system (mm. 30-32) shows the piano accompaniment, with a dynamic marking of *fff* in the final measure. The score includes various musical notations such as slurs, ties, and fingering numbers (6, 7, 8).

Figure 4. Wolf, *Italienisches Liederbuch*, “Verschling der Abgrund meines Liebsten Hütte,” mm. 22-32.

The final authentic cadence (m. 29) leads into repeated strikes of the snake in the descending sweeps of the piano. In this setting, the violent mood of the text is compounded by the aggressive music.

Disagreement

In contrast to agreement, disagreement is the conflict between the mood of the text and the mood of the music. Some possible reasons for disagreement could be for purposes of satire, sarcasm, or irony, or the text setting could be found to be entirely inappropriate. Another possibility comes from the idea of *persona* as defined by Deborah Stein:¹⁹

The term *persona* denotes “who is speaking,” what voice a performer articulates; the concept also considers what is called the mode of address: to whom that voice speaks. In *Lieder* the pianist’s voice or *persona* may differ from that of the singer, in various voices expressing different parts of the poetic text. In instrumental music, meanwhile, various musical gestures and expressions also can assume *personas*, and these “voices” may differ between treble and bass and among members of an ensemble.²⁰

Stein also defines three types of accompanimental *persona*:

In the simplest case, the pianist will share the general *persona* and mode of address of the singer, the accompaniment functioning as embellishment to the singer’s projection. A second, more complicated *persona* type involves the possibility that the pianist not only accompanies the singer’s *persona* but also adds a separate dimension to that *persona*, singer and pianist representing two different sides of a poet’s consciousness or two different aspects of a poet’s conflict. In this case, the mode of address occurs in the form of a dialogue between singer and pianist, much like a vacillation between two sides of a conflict. A third type of *persona* presentation, which is the most complex, involves the pianist conveying not one but several different *personas* throughout the setting, sometimes sharing the singer’s *persona*, other times adding one or more additional “voices.” In this

¹⁹ *Ibid.*, 96.

²⁰ *Ibid.*, 330-31.

case, the mode of address obviously will change with the persona, which in turn will alter the pianist's musical projection.²¹

Accompanimental *persona* can appear in both agreement and disagreement with the text in complicated relationships, as demonstrated in the following examples.

The songs below demonstrate complete disagreement where the mood of the lyrics and mood of the music are in contrast with each other for the complete duration of the song. One example of this type is the famous aria “Che farò senza Euridice!” from Christoph Willibald Gluck's opera *Orfeo ed Euridice*. Placed toward the end of the opera, this aria is Orfeo's lament over the loss of Euridice. Because Orfeo looked back at her as they were escaping from the underworld, Euridice has perished. The text (see fig. 5) conveys the extreme grief of the lament.

Che farò senza Euridice?	What will I do without Euridice?
Dove andrò senza il mio ben.	Where will I go without [the] my beloved?
Euridice! O Dio! Rispondi!	Euridice! Oh God! Answer!
Io son pure il tuo fedele.	I am still [the] your faithful-one.
Euridice! Ah, non m'avvanza	Euridice! Ah, none gives me
più soccorso, più speranza	Any help, any hope
nè dal mondo, nè dal ciel.	Neither from the world, nor from the heaven.

Figure 5. “Che farò” text and English translation. English translation by Bard Suverkrop from IPA Source.

The grief of the text is in disagreement with the peaceful mood of Gluck's musical setting. The tranquility of the song is found in the use of major key centers instead of the expected minor of a lament, as well as the moderately quick *Allegretto* tempo marking. The harmonies are mostly diatonic with emphasis on the tonic and

²¹ Ibid., 96.

dominant chords (see fig. 6). Overall, the song is graceful with regular phrases and rhythmic patterns.

1 **ORPHEUS**
 She is gone, and gone for ev - er, All my joy, a - las, is flown; Life with -
Che fa - rò sen - za Eu - ri - di - ce, do - ve an - drò sen - za il mio ben? che fa -

6
 - out her would I . . nev - er, Why re - main on . . earth a - lone, why re -
- rò, . . do - ve an - drò, . . che fa - rò sen - za il mio ben, do - ve an -

10 **N**
 - main on earth a - lone?
- drò sen - za il mio ben? Eu - ri - di - ce, Eu - ri - di - ce, Make
Eu - ri - di - ce, Eu - ri - di - ce, oh

Figure 6. Gluck, *Orfeo ed Euridice*, “Che farò,” mm. 6-19. Reprinted from Christoph Willibald Gluck and Ranieri de Calzabigi, *Orpheus: English and Italian Text*, Kalmus vocal scores (New York, N.Y.: Edwin F. Kalmus, 1900).

Although not represented in the mode or harmonic palette, the only indication of the lament might be found in the delay of the voice through suspensions and retardations. These non-chord tones create a constant *motif* of late arrivals that could be seen as a “sigh” motive, but within the greater context of the setting they are outweighed by the major mode of the work.

This aria is notable for its unusual text setting. Eduard Hanslick judged “Che farò” as a poorly written song that stirred its audience to sadness:

When Orpheus’ aria “Che farò senza Euridice!”...moved thousands (including J. Rousseau) to tears, Boyé, a contemporary of Gluck, remarked that one could just as well or, indeed, much more faithfully, set the opposite words to the same tune....We are, indeed, not quite sure that the composer is entirely absolved in this case, insofar as music certainly possesses far more specific tones for the expression of passionate grief.²²

This quote is significant because Hanslick was a purist who believed that music cannot express emotion through its own devices. Peter Kivy, after working through the translation of Hanslick’s *On the Musically Beautiful*, concluded that when Hanslick discussed this music, he defied his absolutist position and found that the expressive quality of the music and lyrics did not agree.²³ If an audience were to perceive this song as sad, it is probably due to the irony that results from the interaction among the nature of the text, its placement in the opera, and its musical elements.²⁴

Another example of disagreement comes from the “Nueva Canción” movement of South America. The “New Song” of the early 1960s was an urban musical genre that revived popular national musics with well-crafted lyrics and traditional instruments. Violeta Parra’s “Gracias a la Vida” (“Thanks to Life”) was a *cueca*, or ballad-like song

²² Eduard Hanslick, *On the Musically Beautiful: A Contribution towards the Revision of the Aesthetics of Music*, trans. Geoffrey Payzant (Indianapolis: Hackett, 1986), 17-18.

²³ Peter Kivy, “Something I’ve Always Wanted to Know about Hanslick,” *The Journal of Aesthetics and Art Criticism* 46, no. 3 (Spring, 1988): 413-17.

²⁴ These examples illustrate how a listener *may* perceive agreement or disagreement of moods. It is possible that some listeners will not recognize the particular agreement or disagreement because of other contextual information including social background, cultural biases, the inclusion of irony, or referential associations.

often performed by Mercedes Sosa; Parra and Sosa were leaders of the “Nueva Canción” movement.²⁵ A portion of the text and translation from the first and last stanzas demonstrates the joyous appreciation for life (see fig. 7). This song expresses the singer’s thankfulness for all that life has given her, including both the good and the bad.

<p>Gracias a la Vida que me ha dado tanto me dio dos luceros que cuando los abro perfecto distingo lo negro del blanco y en el alto cielo su fondo estrellado y en las multitudes el hombre que yo amo Gracias a la Vida que me ha dado tanto me ha dado la risa y me ha dado le llanto, asi yo distingo dicha de quebranto los dos materiales que forman mi canto y el canto de ustedes que es el mismo canto y el canto de todos que es I propio canto.</p>	<p>Thanks to life, which has given me so much. It gave me two beams of light, that when opened, Can perfectly distinguish black from white And in the sky above, her starry backdrop, And from within the multitude the one that I love. Thanks to life, which has given me so much. It gave me laughter and it gave me longing. With them I distinguish happiness and pain--- The two materials from which my songs are formed, And your song, as well, which is the same song. And everyone’s song, which is my very song.</p>
---	--

Figure 7. “Gracias a la Vida” Text and English Translation.

The happy mood of the text is in stark contrast with the musical setting. The strophic song is set in the minor mode throughout. The steady slow rhythms, with complex harmonies make the music feel melancholy instead of hopeful. The final authentic cadence in minor indicates great sadness (see fig. 8). This song presents pleasant lyrics combined with melancholy music. This is experienced as a text that takes precedence over the musical setting. Sosa’s recording of “Gracias a la Vida” is slow and reflective. For her audience, the song is heard as a beautiful anthem exploring the joys of life.

²⁵ WatchCulturetainment, “Mercedes Sosa – Gracias a la Vida,” *YouTube Video*, Online Video Clip, October 4, 2009, <http://www.youtube.com/watch?v=cIrGQD84F1g> (accessed May 10, 2010).

By contrast, other recordings and performances of this song have taken a faster tempo with a more rhythmic approach to the accompanimental guitar. This change demonstrates a different interpretation of the lyrics that may highlight different elements in the text. Although these performances may emphasize the joy of the text through a faster tempo, all performances retain the minor setting, creating a conflict between the mode of the work, the performance tempo, and the meaning of the text. It is possible that other performances may better parallel the dichotomies of “laughter”/“longing” and “happiness”/“pain”.

B♭m ⁹	Cm ^{7(b5)} F ⁷	B♭m ⁹	
Gracias a la vida,	que me ha dado tanto		
	A♭	D♭ ^{M7}	
Me dió dos luzeros e	cuando los abro		
	A♭m ⁷	G♭ ^{M7}	
Perfecto distingo lo negro	del blanco		
	Cm ^{7(b5)} F ⁷	B♭m ⁹	
Y en alto cielo su fondo	estrellado		
	Cm ^{7(b5)} F ^{7(b9)}	B♭m A♭ G♭ ^{M7} F ⁷	
Y en las multitudes el hombre,	que yo amo		

Figure 8. Chord chart of “Gracias a la Vida.”

A final example of disagreement is “Des Baches Wiegenlied” from *Die schöne Müllerin* by Franz Schubert. This *Lied* is a calm and peaceful song about death. In this final song of the cycle, the wanderer has reached the brook, which sings to him (see fig. 9).

The musical setting (see fig. 10) is a lullaby in major, with very little chromaticism and only one modulation to the major subdominant key. The peaceful song

flows with steady and repetitive rhythmic patterns, and pedal tones create a sense of motionlessness by maintaining a constant foundation. The contrast between the mood of the text—death—and the peaceful mood of the lullaby is striking.

Gute Ruh, gute Ruh!	Good rest, good rest!
Tu' die Augen zu!	Make your eyes closed!
Wand'rer, du müder, du bist zu Haus.	Wanderer, you tired one, you are at home.
Die Treu' ist hier,	The fidelity is here,
Sollst liegen bei mir,	You shall lie with me,
Bis das Meer will trinken die Bächlein aus.	Until the sea will drink the brooks dry.

Figure 9. First stanza of “Des Baches Wiegenlied” (“The Brook’s Lullaby”) text and translation. English translation by Bard Suverkrop from IPA Source.

5
 Ruh', gu - te Ruh', thu' die Au - gen zu, gu - te Ruh', gu - te Ruh', thu' die Au - gen zu!
 bet - ten dich kühl - auf wei - chen Pfühl, will bet - ten dich kühl - auf wei - chen Pfühl
 Jagd - horn schallt aus dem grü - nen Wald, wenn ein Jagd - horn schallt aus dem grü - nen Wald, will ich
 weg, hin - weg vonden Müh - len - steg, hin - weg, hin - weg, bö - ses Mäg - de - lein,
 Nacht, gu - te Nacht, bis al - les wacht, gu - te Nacht, gu - te Nacht, bis al - les wacht. Schlaf

9
 Wand - rer, du mü - der, du bist zu - Haus. Die Treu' ist - hier, sollst
 in dem blau - en kry - stal - le - nen Kämmer - lein. Her - an, her - an, was
 sau - sen und brau - sen wohl um dich her. Blickt nicht her - ein, blau - e
 dass ihn dein Schatten, dein Schatten nicht weckt! Wirf mir her - ein dein
 aus dei - ne Freu - de, schlaf aus dein Leid! Der Voll - mond steigt, der

Figure 10. Schubert, *Die schöne Müllerin*, “Des Baches, Wiegenlied,” mm. 5-12.

Although the calm musical setting and the sad meaning of the text are presented above as a disagreement, this conflict can be explained through German Romantic

themes. Suicide was connected to the Romantic ideal of finding salvation through death, which was something to be desired. Ironically, it is through ending life, usually through suicide, that the wanderer believes he will find peace and rest. Stein explains:

Religious faith was intimately linked to the German Romantic longing for death (as spiritual salvation) and was expressed most vividly within the context of nature. When combined with nature's benevolence, the notion of spiritual salvation through death offered a release from both external earthly concerns and the poet's innermost torments. . . . [T]he Romantics adopted the medieval image of death as a gentle release from life's complexities and a serene return to nature's peaceful domain.²⁶

In nature, the Romantic wanderer could escape from the pain of life through death whether by giving up to the elements or through suicide. This brought completion and salvation to the Romantic. In this song, Schubert's wanderer listens to the brook as a source of escape from his troubled world. Therefore, for a contemporaneous audience, the peaceful mood of the music would agree with the escape from suffering that death brings.

Complex Interactions

In contrast to complete agreement or disagreement, other types of interaction can occur within a musical setting. These interactions can be for the purpose of irony, *persona*, or other extra-musical reasons. A common use of this technique can be foreshadowing, where an apparent disagreement is found later to be an agreement. In contrast, the music may deceive by means of an apparent agreement that is later revealed to be a disagreement. These issues take into account the temporal aspects within a song or narrative, a characteristic that is not addressed in detail in songs with only one mood.

²⁶ Stein, *Poetry into Song*, 11-12.

The following examples explore foreshadowing and deception as well as contrasts within a single setting.

For example, in “Ihr Bild” from Schubert’s *Schwanengesang*, a disagreement occurs in the final phrase of the poem (see fig. 11), where a cry of loss is set in the major mode. The poem, according to David Lewin, is a complex example of temporal manipulation: The first stanza and first couplet of the last stanza are set in the past, while the middle stanza depicts a further past as recalled by the character.²⁷ The final transition to the present is a dramatic shift, where the character cries out in disbelief that he has lost his love.

Ich stand in dunkeln Träumen und starrte ihr Bildnis an, und das geliebte Antlitz Heimlich zu leben begann.	I stood in dark dreams and stared at her portrait, and the beloved face secretly came to life.
Um ihre Lippen zog sich Ein Lächeln wunderbar, Und wie von Wehmutstränen Erglänzte ihr Augenpaar.	About her lips formed miraculously, a smile, and how from melancholy’s tears her eyes glistened.
Auch meine Tränen flossen Mir von den Wangen herab- Und ach, ich kann es nicht glauben, Dass ich dich verloren hab’!	My tears, too, flowed down my cheeks- and ah, I cannot believe it, that I have lost you!

Figure 11. “Ihr Bild” text and translation.

These poetic nuances are not ignored in Schubert’s setting. The bleakness of the loss of love is displayed through the unison lines in the first phrase (see fig. 12). The brief mid-phrase interlude moves from minor into major and the vocalist continues to

²⁷ David Lewin, *Studies in Music with Text* (Oxford: Oxford University Press, 2006), 135-49.

sing the consequent phrase in major. In the first presentation of the melody, this move to major indicates the vision of his beloved; in the final measures, however, the text describes his cry of loss.

Langsam.

The musical score consists of three systems. The first system (measures 1-5) shows the vocal line and piano accompaniment. The piano part begins with a *pp* dynamic. The second system (measures 6-10) continues the vocal line and piano accompaniment, with a *cresc.* marking in the piano part. The third system (measures 11-14) concludes the vocal line and piano accompaniment, with a *pp* dynamic in the piano part.

Figure 12. Schubert, *Schwanengesang*, “Ihr Bild,” mm. 1-14.

These final words of grief are in stark contrast to the major-mode authentic cadence (see fig. 13, mm. 33-34). As Lewin describes, “the major-key tonic recapitulation enters into a frightful and continually growing cognitive dissonance against the devastating incursion of Heine’s present tense. ‘No!’ we want to exclaim, as the major music enters once more, blissfully proceeding exactly through its allotted phrase,

Figure 13. Schubert, *Schwanengesang*, “Ihr Bild,” mm. 23-36.

‘No! No!’²⁸ The cognitive dissonance appears as a disagreement on the surface.

However, as Lewin explains, this is a case of ironic agreement:

Schubert’s setting . . . is in fact highly sophisticated. It is also absolutely straightforward. Rather than presenting some stylized manifestation of grief, Schubert shows us the persona, in the present tense, literally not believing that he

²⁸ Ibid., 138.

has lost his beloved. . . . and the music enacts his disbelief—not just his inability to accept the loss, but even more, his refusal to accept it.²⁹

The tension of disagreement as ironic agreement resolves in the final measures, as the piano postludes confirms the loss:

And that dissonance is precisely what is discharged for us by the final piano epilogue, now loud (rather than soft as was the parallel epilogue after the first stanza), now minor (rather than major), now with a full orchestral treatment, trombones and all (rather than a churchy sort of harmonium texture). . . . The final epilogue is Schubert's formal equivalent for the present tense of Heine's final couplet: it crashes in on the singer's "mistaken" musical ABA and demolishes it.³⁰

Thus, in the resolution, there is one final disagreement: the disbelief of the character (set in the major mode) and the conclusive statement of loss (set in the minor mode). The complexity of this disagreement lies in the juxtaposition of elements, rather than the dichotomy occurring concurrently.

Another example of a complex interaction, foreshadowing, occurs within "Not While I'm Around," from the musical *Sweeney Todd* by Stephen Sondheim. In a major key, the character Toby sings about how he will keep his adopted mother safe no matter what comes. The irony is that this woman, Mrs. Lovett, will put him in danger and will drive him to insanity. In a ternary (ABA') song form, Toby presents the initial A and B sections. After a few sentences of dialogue, Mrs. Lovett reprises A' to reassure Toby that he is safe, but a chromatic violin line is superimposed over the previous texture, hinting to the audience that she is lying (see fig. 14). The violin disappears when Toby reclaims the melody. It is in this flash of dissimilar music that the fate of Toby is foreshadowed—

²⁹ Ibid., 137-38.

³⁰ Ibid., 138.

that all is not well. This is a poignant point in the story where the disagreement is for a specific purpose, presenting the truth.

75 *mp*
Noth-ing's gon-na harm you, Not while I'm a - round.

molto espressivo

79
Noth-ing's gon-na harm you, dar - ling, Not while I'm a - round.

Figure 14: Sondheim, *Sweeney Todd: The Demon Barber of Fleet Street*, “Not While I’m Around,” mm. 75-82.

The final example of a complex interaction involves deception, in which the inconsistency is unknown for the audience until later in the song, when the true nature of the previous material is clear. This is related to the concept of dramatic irony:

Dramatic irony is defined as ‘The dramatic effect achieved by leading an audience to understand an incongruity between a situation and the accompanying speeches, while the characters in the play remain unaware of the incongruity.’ Simply put, in any situation where we, the audience, are aware of significant circumstances of

which one or more of the characters on stage or screen are unaware, there is an element of dramatic irony.³¹

This is found in cases where characters and individual *personas* speak: one character (and therefore the audience) is aware of the true evil nature of another character although the music and text communicates otherwise.

Schubert's setting of "Erlkönig," D. 328 tells the story of a boy taken from his unsuspecting father by Death, represented by the Erlking.³² The fast-paced ride is told through four voices: narrator, father, son, and Erlking. Schubert's setting of Goethe's poem develops different musical themes for each character, which become interwoven as they reach the end of the story. The father's and son's musical lines are in clear agreement with the text. For example, the son's half-step motive (mm. 47-50) and urge to modulate up by half step (mm. 73, 98, 124) show his fearfulness and excitability. The father's assurance in his son's safety is represented by his confident leaps by perfect fourths (mm. 36-7, 80-1) with clear progression and cadences (mm. 44-5).

The disagreement in this example occurs in the melody of the Erlking. Although the mood of the musical setting agrees with the mood of the Erlking's text, the juxtaposition of his deception and the realization of the other characters creates a level of disagreement that transpires for most of the *Lied*, only to be revealed and resolved in its tragic ending. The Erlking, who can only be heard by the son, sings a cheerful melody

³¹ Alexander Mackendrick and Paul Cronin, *On Film-Making: An Introduction to the Craft of the Director* (New York: Faber and Faber, 2005), 92.

³² The following analysis is derived from Deborah Stein, "Schubert's 'Erlkönig': Motivic Parallelism and Motivic Transformation," *19th-Century Music* 13, no. 2 (Autumn 1989): 145-58.

that entices the boy to come with him (see fig. 15). The Erlking's generous promises are known by the son (and later by the father) to be a deception. These stanzas are set in the major mode with little chromaticism as if to imply that the Erlking is telling the truth (mm. 87-96). The Erlking's first stanza (mm. 58-72) confirms the happy spirit of the games and flowers with stable harmonies.

<p>"Du liebes Kind, komm, geh mit mir! Gar schöne Spiele spiel ich mit dir, Manch bunte Blumen sind an dem Strand, Meine Mutter hat manch güldne Gewand."</p> <p>.....</p> <p>"Willst, feiner Knabe, du mit mir gehn? Meine Töchter sollen dich warten schön; Meine Töchter führen den nächtlichen Reihn, Und wiegen und tanzen und singen dich ein."</p>	<p>"You lovely child, come, go with me! Very beautiful games play I with you; May colorful flowers, are on the shore, My mother has many golden garments."</p> <p>.....</p> <p>"Want, fine boy, you with me to go? My daughters shall (on)-you wait well; my daughters lead the nocturnal dance to (They) rock and dance and sing you (to-sleep)."</p>
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Figure 15. "Erlkönig" text and translation, stanzas three and five. English translation by Bard Suverkrop from IPA Source.

The texture resembles a quick dance rhythm, and the voice happily leaps around the tonic triad. The Erlking's second stanza (see fig. 16) presents the text over a lilting arpeggiated triplet figure.

These examples are in contrast not only to the other characters' themes, but also to the Erlking's final verse (see fig. 17). The Erlking has a new melody created from the fourths of the father and the chromatic half step of the son. The Erlking states, "if thou art not willing, I'll take thee by force." This stanza finally reveals that the Erlking is not the joyful character who was presented in the previous verses. It is at this point that the previous stanzas are in disagreement with the true nature of the character, now revealed as Death.

87
 fei - ner Kna - be, du mit mir gehn? mei.ne Töch - ter sol - len dich
 90
 war - ten schön; mei.ne Töch - ter füh - ren den nächt - li.chen Reihn, und
 93
 wie - gen und tan - zen und sin - gen dich ein, sie wie - gen und tan - zen und sin - gen dich ein.

Figure 16. Schubert, "Erlkönig," mm. 87-96.

113
 „Ich lie - be dich, mich
 118
 reizt dei.ne schö - ne Ge - stalt; und bist du nicht wil - lig, so brauch ich Ge -

Figure 17. Schubert, "Erlkönig," mm. 113-22.

Conclusion

These examples have demonstrated a possible method of categorizing text-music interaction by the moods of text and music. When the moods of the text and the lyrics are in complete agreement or disagreement, there can be simple means of discussing the interaction that takes place. More complex situations arise within these two categories especially when both are present and juxtaposed. The ideas of agreement and disagreement can be an aid to analyzing why a composer might use a disagreeing musical setting or moment.

Empirical research by S. Omar Ali, presented in “Songs and Emotions: Are Lyrics and Melodies Equal Partners?” explored these types of relationships.³³ The study “explored whether lyrics and melodies of songs are equal partners in their effectiveness in conveying emotion, and how they affected each other.”³⁴ According to his hypothesis, Ali predicted that agreeing pairs would enhance their conveyed emotion. This result occurred only in agreeing negative pairs; when positive lyrics and melodies were paired, the responses were not higher than when the lyrics and melodies were presented separately. Additionally, Ali found the following regarding disagreeing pairs: “When conflicting emotions are presented, the ratings congruent with respect to the melodies tended to be higher than the ratings congruent with respect to the lyrics.”³⁵ Although this

³³ S. Omar Ali, “Songs and Emotions: Are Lyrics and Melodies Equal Partners?” *Psychology of Music* 34 (2006): 511-34. The ideas of disagreement and agreement are similar to the Ali’s terms “congruent” and “incongruent” as previously discussed in Chapter One.

³⁴ *Ibid.*, 528.

³⁵ *Ibid.*, 529.

research does not address the complexities brought forth in this chapter, it demonstrates through experimental methods that agreement and disagreement can affect how listeners perceive emotions.

CHAPTER THREE

Visual-Music Interaction

Background

Background music in film often presents a mood that represents or enhances the desired emotion presented in the scene.³⁶ The interaction that takes place between these two elements, music and visual, can be described in terms of “congruency” when discussing mood. In their 1991 article that tested the effect of foreshadowing music in film, Boltz, Schulkind, and Kantra focused on what they termed “mood-congruency” and “mood-incongruency”—whether the conveyed moods of the visuals and music agreed or disagreed.³⁷ Boltz also described two types of temporal interaction: foreshadowing, music occurring before the agreeing or disagreeing visual; and accompaniment, music that occurs simultaneously with the scene. Accompaniment also includes the subcategory of ironic contrast, a type of incongruency.

The exception to this convention involves a phenomenon known as *ironic contrast*. These types of scenes are accompanied by incongruent music whose overall effect is to neutralize, and sometimes satirize, the connotative meaning of the depicted activities. The film *Bonnie and Clyde* offers some very good illustrations of this technique in that many of the various robbery scenes are accompanied by lively banjo music. This instills a sense of fun into the characters’ actions, and the overall significance of their criminal activities is

³⁶ The following analyses focus on the emotional impact of audiovisual elements, with examples of potential interpretive responses to certain moments in film. While not explicitly addressed in the analyses, the film arts are understood to be a narrative form where the story is intentionally communicated through imagery.

³⁷ Boltz, “Effects of Background Music,” 593-94.

somewhat reduced. Ironic contrast typically relies on one type of mood-incongruity relation—namely, a negative scene paired with positive music; rarely does one find negatively affected music (e.g., sad, angry, fearful) accompanying a pleasant event.³⁸

As in the previous chapter, the following examples place visual-music interaction into two categories: agreement and disagreement. While Boltz concentrated on interactions in time, the following examples focus solely on simultaneously presented music. The music examples derive from pre-existing sources outside of the films and are clear in their intended emotion; this provides a means of discussing how the perception of the music might change with the addition of a visual image.

Agreement

The typical format of mood interaction in film is agreement. In these instances, the music and visual have similar mood throughout, often in order to enhance the overall mood.³⁹

The Hollywood sound style is strongly parallel. The programmatic music of thirties movies nudged, underlined, emphasized, characterized, and qualified even the simplest scenes so that the dullest images as well as the most striking were thoroughly pervaded by the emotions designed by the composers of the nearly continuous music track.⁴⁰

A scene from *Apocalypse Now* with “Ride of the Valkyries”—from the opera *Die Walküre* by Richard Wagner—provides an example in which the music intensifies the

³⁸ Ibid., 594.

³⁹ Another agreement example is the film *Australia*'s incorporation of Elgar's “Nimrod” in the climactic sequence.

⁴⁰ James Monaco, *How to Read a Film: Movies, Media, and Beyond: Art, Technology, Language, History, Theory* (Oxford: Oxford University Press, 2009), 238.

emotional mood of the scene. This scene depicts an American helicopter attack of an enemy-fortified Vietnamese village. The helicopters fly across a long stretch of sea in formation, and the soldiers prepare and wait for battle. The scene cuts to the village, including a group of schoolchildren preparing for the attack. Then the action returns as the helicopters reach the shore and begin to attack. Explosions and gunfire continue for the duration of the sequence. The violent scene is intense and graphic in its depiction of the attack, but without music it could be interpreted in starkly different ways. One could consider the attack as negative, brutal, and unnecessary, especially when juxtaposed with images of unarmed women and children. On the other hand, one could perceive the scene as a victorious and necessary action.

The accompanying music suggests a possible intent and meaning. The main theme from “The Ride of the Valkyries” is heroic in its arpeggiation around the tonic chords in leaps of thirds and fourths. The melody modulates up a major third from D major to F# major during the second phrase; the arrival in major emphasizes the victory in each presentation (see fig. 18). For some phrases, the trumpets blast the final major



Figure 18: Melody from Wagner, *Die Walküre*, “Ritt der Walküren,” mm. 20-23. Reprinted from Richard Wagner, *Der Ritt der Walküren* (Wien: Wiener Philharmonischer Verlag, 1953).

chord as if to sound the triumph. The pulsating meter and continuous rhythm emphasize the steady and unyielding mood. Although there are contrasting sections in Wagner’s original composition, director Francis Ford Coppola chose only the subtle introduction followed by repetitions of the main theme.

When combined with the scene, this victorious theme sounds as the helicopters approach in formation and every time an attack or explosion takes place in the ensuing battle. This music is contrasted with silence when the Vietnamese people are shown, providing an interpretation of the scene to be one of victory for American helicopters and a defeat for the Vietnamese. This famous scene is exaggerated through its use of agreement between the mood of the action and the music, but within the narrative of the film, this scene presents distinct irony. Therefore, an audience would interpret this scene as overstated, suggesting the moral dilemmas of the Vietnam War. It is not intended for the audience to experience the victory expressed through the agreement, but rather the moral failure of the soldiers' acts expressed through the exaggerated irony.

Disagreement

The other type of visual-music interaction, disagreement, occurs when the mood of the visual and music conflict. As stated above by Boltz (and confirmed through preliminary survey of the film repertory), most examples of disagreement juxtapose disturbing visuals with cheerful music. This results in chilling effects, specifically in the horror or thriller genres. Therefore, the given examples are often violent or vulgar in their content.⁴¹

⁴¹ Other disagreement examples include *A Clockwork Orange* ("Singing in the Rain" over brutal attack); *Reservoir Dogs* ("Stuck in the Middle with You" during ear cutting scene); *Snatch* ("Golden Brown" during fight scene); and *There Will Be Blood* (at the end of brutal beating, the main character says, "it is finished" over Brahms' Violin Concerto, mvt. III).

As in text-music relationships, possible reasons for disagreement⁴² can include satire, sarcasm, or dramatic irony. Like a narrator, music can tell the audience the truth that is in contrast with the image on screen. As Robynn Stilwell writes: “The music, then, is telling the true story, as per usual; in film scoring, when there is a discrepancy between screen and score, the emotional truth is almost always in the music, a reversal of the usual dominance of sight over sound.”⁴³ The following examples demonstrate music-visual disagreement.

The first example of visual-music disagreement comes from *Good Morning Vietnam*, when “What a Wonderful World” is played over a montage of violent images.⁴⁴ The song’s text (see fig. 19) is unmistakably happy.

The steady tempo, regular rhythms, and major mode contribute to the cheerful mood of the ballad. Also, the sweeping strings and woodwinds present a calm mood. In contrast, the montage of images includes explosions and the killing of Vietnamese citizens. In other images, soldiers beat protesters and execute innocent men. The blood,

⁴² Two other terms, “contrapuntal” and “anempathetic,” are similar to disagreement but are more specific in their usage. The term “contrapuntal sound” is related to disagreement but includes all sounds from inside and outside of the film space—not only music—that disagree with the visual. James Monaco notes, “Contrapuntal sound is commentative, asynchronous, and opposed to or in counterpoint with the image” (*How to Read*, 238). Another related term is Michel Chion’s “anempathetic,” which emphasizes diegetic (of the film space) sound that is oblivious to the action on screen (*Audio-Vision*, 8-9, 221).

⁴³ Robynn J. Stilwell, “Sense & Sensibility. Form, Genre, and Function in the Film Score,” *Acta Musicologica* 72, no. 2 (2000): 228.

⁴⁴ A similar example is found in Michael Moore’s *Fahrenheit 9/11* where “What a Wonderful World” is presented with images depicting a US Aggression Chronology including the planes flying into the World Trade Center.

fire, and violence are intense and graphic. The irony is evident during the bridge of the song, when a confrontation between protestors and soldiers is juxtaposed with the lyric, “I see friends shaking hands saying how do you do/ They're really saying I love you.”

I see trees of green, red roses, too
I see them bloom for me and you
And I think to myself what a wonderful world.

I see skies of blue and clouds of white
The bright blessed day, the dark sacred night
And I think to myself what a wonderful world.

The colors of the rainbow so pretty in the sky
Are also on the faces of people going by
I see friends shaking hands saying how do you do
They're really saying I love you.

I hear babies crying, I watch them grow
They'll learn much more than I'll never know
And I think to myself what a wonderful world
Yes, I think to myself what a wonderful world.

Figure 19. “What a Wonderful World” text.

The song is played by the radio D.J. as a commentary on the condition of the awful world in which they live. While the song presents an idealized world where things are good, the montage presents the opposite—a world where death and destruction are normal. The disagreeing visuals and music cause the audience to interpret the images in light of the music. In the storyline, the music would be chosen by the disc jockey to comfort the soldiers; for the audience, however, it creates a commentary on morality when paired with the images in the film. The images also tarnish the happy mood of the song and could change the perception of the mood to sad instead of calm. In this example, the visuals are in unmistakable disagreement with the music for the purposes of irony and commentary.

Complex Interactions

Although there are many instances where visual-music relationships are expressed in clear categories of agreement and disagreement, other cases can be more complex. The first example is an episode from the television series *Lost* entitled “Meet Kevin Johnson.”⁴⁵ In this episode, the song “It’s Getting Better” by Mama Cass (from the Mamas and the Papas) plays on the car radio while a character, Michael, attempts to commit suicide. At this point in the series, everything has deteriorated for Michael since he left the island, including the loss of his son. He has also plunged into a deep depression due to the terrible acts he committed on the island. The scene begins with Michael writing what later will be revealed to be a suicide note. Michael then gets in the car and tunes the radio to the song “It’s Getting Better,” which continues to play as he crashes the car into a large shipping crate. The music stops for a second as the car collides with the crate, but then it continues with the lyrics “better every day” as the radio turns back on. Although the suicide attempt inevitably does not work, in the moment the dark sequence is in strange contrast to the music on the radio.

“It’s Getting Better” is a happy and uplifting song with major harmonies and steady rhythms. The percussion maintains an upbeat pattern throughout in a fast tempo. The elements of the song convey a positive attitude about how good life is. The placement of this song in the scene creates a cognitive dissonance that effects the perception of the suicide scene. The “anempathetic” use of the song, which continues

⁴⁵ Jeffrey Abrams et al, “Meet Kevin Johnson,” *Lost: The Complete Fourth Season* (Burbank, CA: Touchstone Home Entertainment, 2008).

after the crash, creates a dissonance that may shape the understanding of the suicide.⁴⁶ It is possible that the intent of the music was to let the audience know that things were going to get better for Michael.

A montage can present visuals with differing moods against music of a single mood. This creates a contrast of agreement and disagreement in mood. An example of this is the baptism sequence at the conclusion of *The Godfather*. Scenes of the assassination of the competing mob bosses are juxtaposed with the baptism of Michael Corleone's nephew. The sequence mixes violence with the innocence of the child's christening.

The music from the scene, played on an organ in a diegetic sense, continues to be heard over the contrasting, violent images in a non-diegetic fashion.⁴⁷ The music, two Bach organ works, including the *Passacaglia and Fugue in C-Minor* (BWV 582) and the *Preludium in D-Major* (BWV 532), as well as some newly composed music, communicates a serious tone with an unyielding, constant presence. The scene opens with the newly composed music, which is in major and establishes a calming mood that agrees with the visual of the baptism. The music transitions into the first and second theme repetitions of the *Passacaglia* and creates a more serious tone to reflect the preparations of the assassins. The theme of the *Passacaglia* (see fig. 20) is presented alone and then repeated with upper voices providing embellishment. The solemn and slow feel of this music does not entirely agree with any of the images at this point as it

⁴⁶ See footnote 42 of this chapter for explanation of “anempathetic”.

⁴⁷ See footnote 7 of Chapter One for explanation of “diegetic” and “non-diegetic”.

seems too sad (minor) for the baptism and too calm (slow) for the murders that will take place.



Figure 20 Theme from J.S. Bach, *Passacaglia and Fugue in C-Minor* (BWV 582).

The next transition leads into an excerpt from the *Preludium*, beginning at the *Adagio* marking (see fig. 21). The sweeping scalar passages lead to fully diminished



Figure 21. J.S. Bach, *Preludium in D-Major* (BWV 532), mm. 92-107.

seventh chords that are synchronized with the shooting on the screen (m. 97, beat 3 and m. 99, beat 1). These passages are repeated before moving to the final cadence. The final cadence is delayed in the penultimate measure through dissonant contrapuntal motion, emphasizing a lack of closure that is resolved in the final measure (mm. 106-7). In the film, the delayed cadence is emphasized while the final major tonic chord is barely heard as the music fades. Through the use of harsh harmonies and unresolved dissonances, this excerpt provides a shift in mood that agrees with the brutal murders. This contrasts with the images of the baptism, where Michael pledges that he will serve God. This music and the contrasting images are intended to show Michael's promises as deceit.

There is a definite contrast between the images of an infant baptism and brutal murders as well as a contrast between the three musical excerpts (see fig. 22). The agreeing interactions draw the attention of the audience from the baptism to the murders. These contrasting elements are brought together to emphasize the consolidation of power under the new godfather, Michael Corleone. The music effectively ties the images

Music	Newly-composed (calm, sacred)	Passacaglia (serious, minor)	Preludium (tense, dramatic)
Visual	Baptism	Baptism	Baptism
Interaction	Agreement	Disagreement	Disagreement
Visual	Assassin Preparations	Assassin Preparations	Murders
Interaction	Disagreement	Agreement	Agreement

Figure 22: Diagram of interactions in the *The Godfather's* baptism montage.

together, providing continuity between the images and the completion of the dramatic climax through the build-up of musical mood.

Foreshadowing, another type of complex interaction, is a common tool in horror and thriller genres. These films incorporate disagreement in order to foreshadow an upcoming event. The music tells the audience what the visual is not—that something bad could be about to happen—while the visual continues to portray a calm or happy mood. This disagreement can lead to either a confirming outcome, in which the negative foreshadowed event occurs as expected, or in a conflicting result, in which the music is found to be teasing the audience to believe a false future event (see fig. 23). In either outcome, the previous moment is an example of foreshadowing disagreement, whether actual or false.

	Foreshadowing Moment	Resolution	
		Positive (Deceptive)	Negative (Expected)
Music	Negative		
Visual	Positive	Positive	Negative
Interaction	Disagreement	Disagreement with previous music	Agreement with previous music

Figure 23: Foreshadowing diagram.

An example of foreshadowing can be found in *Star Wars Episode II: The Attack of the Clones*.⁴⁸ In this prequel to the original *Star Wars* films, a young Anakin Skywalker, who will later become Darth Vader (the villain of the original trilogy), is presented as the hero. In one scene, Skywalker mourns the loss of his mother while Darth Vader's theme is heard in the background. Because this character is not yet the evil figure of the later movies, the music is in disagreement at this point in the film (see fig. 24).

	Episode II	Episode IV-VI
Music	Imperial March (Darth Vader's Theme, dark, evil)	
Visual	Anakin (good character)	Darth Vader (evil character)
Interaction	Disagreement (Foreshadowing)	Agreement

Figure 24: Diagram of "Imperial March" interaction.

This music has a menacing sound. Played by low brass instruments, the theme consists of two minor triads in a chromatic mediant relationship (see fig. 25). Using only minor triads, Williams creates a dark melody that repeats throughout the later movies to indicate evil. By juxtaposing the evil theme with the good character, the audience gains

⁴⁸ Another foreshadowing example includes *Jaws* (peaceful beach scene contrasts with ominous two-note shark theme).

insight into the character that was previously unknown.⁴⁹ The music hints at the character Anakin will become.



Figure 25. John Williams, *Star Wars Episode II: The Attack of the Clones*, Darth Vader’s Theme (“Imperial March” of *Star Wars Episode V: The Empire Strikes Back*).

Conclusion

These examples present visual-music interaction when moods are in agreement or disagreement. Agreement in mood between music and visual can enhance the mood of the individual parts. Disagreement can create irony, commentary, or foreshadowing. These interactions cause the audience to perceive the individual elements in an enhanced or different way than when experienced separately. This idea is the basis for the empirical research of the final chapter.

⁴⁹ Because this film is a prequel, there is an assumption is that the audience already knows that Anakin Skywalker will become Darth Vader.

CHAPTER FOUR

The Effect of Visual Stimuli on Music Perception

Background

This experiment demonstrates whether a visual image can affect the perception of a musical element. Observing how a listener or viewer perceives certain visual-music interactions enlightens how a disagreement between the emotional mood of visuals and music can be explained.

The focus in this experiment is on the perception of the music. The primary question of this research is: can visual stimuli directly influence the cognition of musical stimuli? The hypothesis is that the visual image will affect the perception of the music, such that the perceived emotion of the music will shift towards the mood of the visual. In a pair where the music's and visual's moods agree, there should be little change in the ratings of the music's mood. For example, a positive-valence music stimulus, when combined with a positive-valence visual stimulus, will retain the positive valence. In contrast, a disagreeing pair will alter the rating of the music's mood, moving it towards the visual's. For example, when a positive-valence music stimulus is presented simultaneously with a negative-valence visual stimulus, the mood of the music will be perceived more negatively than when presented without the visual.

Annabel Cohen's associationist research demonstrated the flow of musical stimuli to visual perception in film cognition.⁵⁰ In this framework, each element outside of the visual space—including music, dialogue, and diegetic sounds—functioned as a stimulus to aid the perception of the visual images. Marilyn Boltz's experiments have shown that music can impact the cognition of visual images.⁵¹ The results of this experiment demonstrated that when the music matched the mood of the visual, the intended emotion of the visual was more accurately remembered.

Brittany Ebendorf inverted Boltz's experiment in an attempt to demonstrate that a visual image can influence the cognition of neutral musical phenomena.⁵² In this experiment, the format (montage or video) and mood of the visual were manipulated in order to determine their effect on the perception of ambiguous music.⁵³ Participants were asked to choose from a pool of adjectives that were predetermined from a valence-arousal quadrant. In confirmation of the study's hypothesis, participants chose adjectives that represented the intended valence of the visual when asked to respond to the music. Ebendorf's experiment demonstrated that when the music does not have clear emotional

⁵⁰ Cohen, "Music as a Source," 249-72.

⁵¹ Boltz, "The Cognitive Processing," 1194-205.

⁵² Ebendorf, "The Impact of Visual Stimuli."

⁵³ Ebendorf's four visual stimuli were excerpts from the films *Darr: A Violent Love Story* and *Baraka* that represented either positive or negative valence including three of the clips utilized in this study ("Chickens," "Waterfalls," and "Homeless"). Montages were created from databases of images pre-rated for their positive or negative valence. Ambiguous musical clips from New Age and Electronica genres were "The Chamber" by Mike Oldfield, "The Mummies' Dance" by Loreena McKennitt, "Industrial Revolution Overture" by Jean Michel Jarre, "Tiergarten" by Tangerine Dream, and "Traverser le Temps" by Benza Maman (Ebendorf, 31-33).

content, the image's mood determines the emotional response. Ebendorf also asked participants to rate acoustical properties on 7-point scales to demonstrate whether the visual had an effect on the perception of musical properties—including tempo, tonality, harmony, rhythm, flow, and loudness—which have been shown to communicate valence or arousal. These results showed little significant difference but did not disprove the hypothesis. The unclear results of Ebendorf's experiment call for an improvement in the method and stimuli.

The following experiment, which extends Ebendorf's study, furthers research into visual-music interaction by using positive and negative mood stimuli instead of “ambiguous” music. Ebendorf claimed that music can be completely neutral and selects music that she believed is emotionally neutral. Although music can be ambiguous, music cannot be completely neutral but normally contains some level of emotional valence. Therefore, for this experiment, the selected musical stimuli represent either positive or negative emotional valence and either high or low arousal. The music and visual stimuli have been musically informed by the previous discussion on text-music and visual-music interaction as well as previous research in acoustical properties that communicate valence and arousal. Due to the avoidance of ambiguous stimuli, music and visual interactions will fall into either the agreement or disagreement categories as previously discussed.

Method

Participants

One hundred fifty undergraduate students (79 female, 71 male; mean age = 19.2) from Baylor University participated in the experiment. All but 11 of the participants

were music majors, and six of the nonmajors had a music specialty in their degree (minor or emphasis). All participants were currently enrolled in undergraduate music theory classes.

Materials

Eight music clips and four visual clips comprised the stimuli for the experiment (see Appendix A). The visual clips represented the extremes of the valence-arousal quadrant: “Birds” (positive valence-high arousal), “Chickens” (negative-high), “Waterfalls” (positive-low), and “Homeless” (negative-low). The music also characterized a single mood or emotion from each of the extremes of the valence-arousal quadrant with two of each category to allow for control conditions. These clips were chosen from the Classical piano repertory, spanning Baroque to Twentieth-century periods.

The music and visuals were edited into sixty-second clips using Apple’s GarageBand digital audio workstation. For the trials, songs were paired with the visual clips using iMovie and iDVD software. The music-only conditions were layered with a solid black image for the purpose of a control condition. The stimuli were presented in a “smart classroom” using the installed projector, speakers, and DVD player.

Participants were divided into eight groups. Each group was presented a different pairing and ordering of stimuli so that no two groups were given the exact same set or ordering. There were eight sets of stimuli for the eight groups, in order to account for all possible combinations of music and visual stimuli (see fig. 26). The pairs of positive and negative music and visual stimuli represent the four possible combinations:

- positive music-positive visual
- positive music-negative visual
- negative music-positive visual
- negative music-negative visual

The visual and music stimuli were also rated according to arousal, either high or low.

The valence of the stimuli either agreed or disagreed, with two agreeing and two disagreeing pairs in each stimuli set.

Group A	Group B	Group C	Group D
M _{+H1} V _{+H}	M _{-H1} V _{-L}	M _{+H2} V _{+L}	M _{-H2} V _{-H}
M _{+L1} V _{-H}	M _{-L1} V _{+L}	M _{-L2} V _{-H}	M _{+L2} V _{+L}
M _{-H1} V _{+L}	M _{+H1} V _{-H}	M _{-H2} V _{+H}	M _{+H2} V _{-L}
M _{-L1} V _{-L}	M _{+L1} V _{+H}	M _{+L2} V _{-L}	M _{-L2} V _{+H}
M _{+L2} NV	M _{-L2} NV	M _{-L1} NV	M _{+L1} NV
M _{-H2} NV	M _{+H2} NV	M _{-H1} NV	M _{+H1} NV
M _{-L2} NV	M _{+L2} NV	M _{+L1} NV	M _{-L1} NV
M _{+H2} NV	M _{-H2} NV	M _{+H1} NV	M _{-H1} NV
Group E	Group F	Group G	Group H
M _{-L2} V _{-L}	M _{+L2} V _{+H}	M _{+L1} V _{-L}	M _{-L1} V _{+H}
M _{-H2} V _{+L}	M _{+H2} V _{-H}	M _{-H1} V _{+H}	M _{+H1} V _{-L}
M _{+L2} V _{-H}	M _{-L2} V _{+L}	M _{-L1} V _{-H}	M _{+L1} V _{+L}
M _{+H2} V _{+H}	M _{-H2} V _{-L}	M _{+H1} V _{+L}	M _{-H1} V _{-H}
M _{+H1} NV	M _{-H1} NV	M _{+H2} NV	M _{-H2} NV
M _{-L1} NV	M _{+L1} NV	M _{+L2} NV	M _{-L2} NV
M _{-H1} NV	M _{+H1} NV	M _{-H2} NV	M _{+H2} NV
M _{+L1} NV	M _{-L1} NV	M _{-L2} NV	M _{+L2} NV

Legend:

- M music stimulus
- V visual stimulus
- NV no-visual (music-alone stimulus)
- + positive valence
- negative valence
- H high arousal
- L low arousal
- 1/2 number for music duplicates

Figure 26. Group Presentation Sets

A survey (see fig. 27) posed questions concerning the visual and music elements.

By asking about both the visual and music in separate questions, the survey was intended to ensure that the participants were attentive to all stimuli elements.

Practice Stimulus

Choose a number on the scale that best represents your perception of the **visual**:

1	2	3	4	5	6	7
active			neutral			passive

Select **one** adjective that best represents the emotion of the **music** from the following adjectives (circle one):

Afraid	Cheerful	Happy	Sad
Angry	Dreamy	Humorous	Shivers
Annoyed	Excited	Melancholy	Solemn
Bored	Frustrated	Mournful	Surprised
Bright	Gloomy	Passionate	Tears
Calm	Graceful	Relaxed	Vigorous

Choose a number on each scale that best represents your perception of the **music**:

1	2	3	4	5	6	7
very fast			neutral			very slow

1	2	3	4	5	6	7
very regular rhythm			neutral		very irregular rhythm	

1	2	3	4	5	6	7
very loud			neutral			very soft

1	2	3	4	5	6	7
very harmonious			neutral		very discordant	

Figure 27. Sample Survey Question

Pre-test

Before the main study, 12 participants (representative of musically-trained participants) completed an adjective-choice task for each of the visual and music stimuli separately. (See Appendix B for pre-test survey.) The pre-test was designed to confirm that the visual and music stimuli received the desired ratings in a controlled setting.

The pre-test ratings confirmed that most of the stimuli represented the desired level of valence. Both of the negative-high arousal stimuli were not scored at a high negative rating; therefore, they were replaced with two new examples for the main study.

Procedure

After giving consent to participate in the study, participants were given verbal directions followed by an opportunity to look over the survey and ask questions about the format of the experiment. All participants were given the same demonstration trial that presented “Oil Fields” from *Baraka* with Prokofiev’s *Piano Sonata No. 7*. Then, participants observed eight stimuli consisting of four visual-music pairs followed by four music-alone conditions for control purposes to be compared with the responses of other groups.

Immediately following the presentation of each clip, participants selected an adjective from a group that best represented their perceived emotion of the music. Participants also completed four 7-point Likert-type scales designed to assess cognitive perceptions of the musical structure in terms of tempo, rhythmic regularity, volume, and harmony. For only the music-visual pairs, an additional 7-point Likert-type scale, asking about the level of arousal of the visual, assured that the participants would remain attentive to the visual image. The participants had 60 seconds to complete each clip’s rating set between presentations.

Analysis

The primary focus for this study was the comparison of the mean valence judgments of the participants. In order to investigate the changes in the music ratings, two statistical tests were performed on the data: a *t*-test and an ANOVA. A *t*-test identified significant differences in means when comparing only one single condition against the control for the 7-point Likert scales and the arousal values. An ANOVA compared the mean values for more than two conditions; significant results indicated that

the difference in mean valences were not a product of chance. A p -value reports the probability that the result is due to chance; the lower the p -value, the higher the level of confidence that a significant result is due to the stated condition and not due to chance (see table 1). As a *post-hoc* analysis of the ANOVA test, the Tukey HSD (Honest Significant Difference) compared the values of two individual groups to see whether mean values were different, with at least a 95 percent confidence level.

Table 1: p -value table.

p -value	Confidence level
0.05	95%
0.01	99%
0.001	99.9%
0.0001	99.99%

For the dependent variable, the adjective choices were converted into numerical values (see table 2) representing their valence and arousal, as calculated by Emery Schubert in his analysis of emotion. The following graph (see fig. 28) illustrates how this data shows the range of values of the emotion words. Each quadrant represents the four general emotional moods that are present when describing emotions according to valence and arousal. These values provided numerical data that represented the mean valence or arousal ratings of the musical adjective responses.

Table 2. Schubert's Adjective Values. Adapted from Emery Schubert, "Measurement and Time Series Analysis of Emotion in Music" (Ph.D. thesis, University of New South Wales, 1999), 134.

	Valence	Arousal		Valence	Arousal
Afraid	-50	37	Happy	72	59
Angry	-57	63	Humorous	64	52
Annoyed	-56	40	Melancholy	-38	-32
Bored	-31	-47	Mournful	-61	-19
Bright	48	48	Passionate	55	72
Calm	32	-17	Relaxed	42	-30
Cheerful	61	44	Sad	-64	-24
Dreamy	32	-38	Shivers	-43	45
Excited	57	74	Solemn	-13	-13
Frustrated	-55	43	Surprised	41	54
Gloomy	-54	-34	Tears	-42	3
Graceful	48	4	Vigorous	15	72

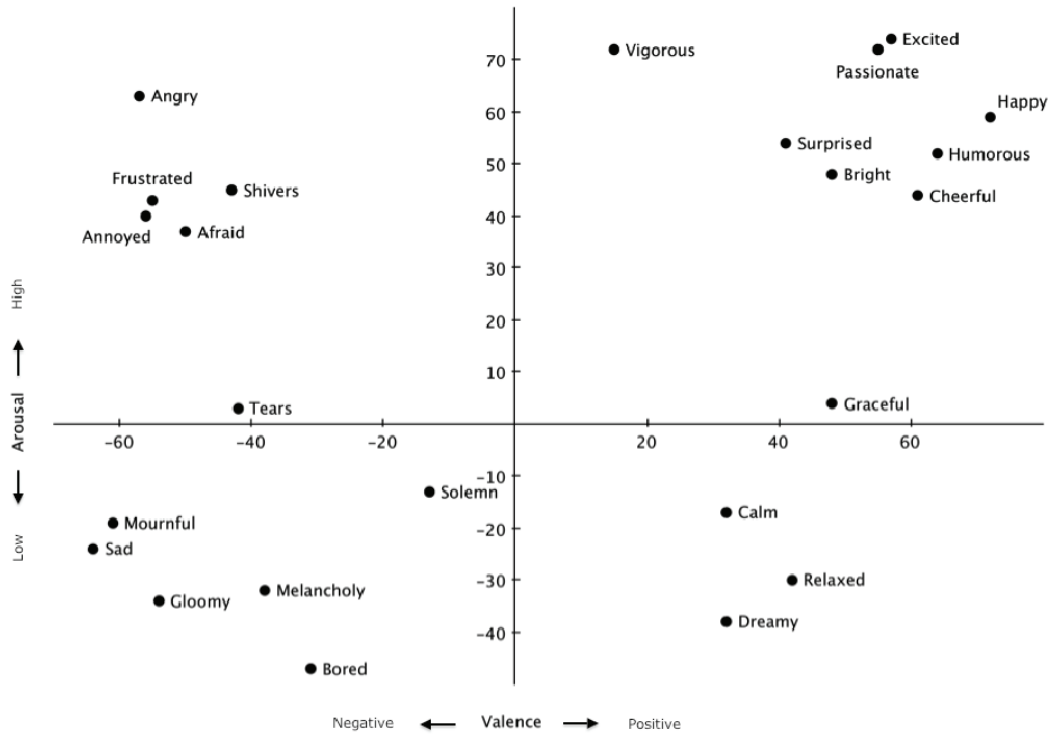


Figure 28. Adjective Values Graph

Results

Control

The mean values for the control (no-visual) condition confirmed the pre-test and fit the expected judgments of musical condition (see table 3). The control values for

Table 3: Control Mean Values

Musical Condition	Valence	Arousal	Tempo (1=fast; 7=slow)	Rhythm (1=regular; 7=irregular)	Volume (1=loud; 7=soft)	Harmony (1=harmonious; 7=discordant)
Positive-High	47.58	52.06	1.96	3.15	3.35	3.36
Positive-Low	27.08	-23.84	5.29	2.99	5.07	2.63
Negative-High	-33.37	54.61	2.62	4.69	1.93	6.53
Negative-Low	-32.07	-19.51	5.62	2.79	5.24	2.95

tempo, rhythm, volume, and harmony confirmed that the acoustical qualities were perceived as intended. For example, a happy music stimulus should have the acoustical qualities of fast tempo, indicating high arousal, and regular rhythm and concordant harmony, which are qualities of positive-valence music.⁵⁴ It is important to note that the positive-low music stimuli were at a lower mean valence than positive-high music stimuli (47 versus 27); therefore, they were less positively charged than high arousal examples.

This difference can be related to the limitations of the adjective choices; the most

⁵⁴ Patrick Gomez and Brigitta Danuser, "Relationships Between Musical Structure and Psychophysiological Measures of Emotion," *Emotion* 7, no. 2 (2007): 377-88; Alf Gabrielsson and Patrik N. Juslin, "Emotional Expression in Music," in *Handbook of Affective Sciences*, eds. Richard J. Davidson, Klaus R. Scherer, and H. Hill Goldsmith (Oxford: Oxford University Press, 2003), 503-34; and Gabrielsson and Lindström, "The Role of Structure," 367-400.

positive-low arousal adjectives were not as positive as the high-arousal adjectives (“graceful,” 48 versus “happy,” 72). This was in contrast with the negative high and low music stimuli which had almost the same control values (-33 and -32). The negative-valence adjectives also had similar extreme values for high and low arousal adjective choices (“mournful,” -61 versus “angry,” -57). While the positive-high stimuli had a higher valence rating than the positive-low stimuli, $t(292) = -6.41, p < .0001$, there was no difference between negative-high and negative-low controls for mean valence rating. However, the difference between these groups is in their level of arousal ($t(291) = -30.61, p < 0.0001$), which creates two different categories for comparison within negative stimuli.

Valence Comparisons

For every musical condition, there was an effect of the visual condition on the perceived judgment of the valence for the music. (Data are presented in Appendix C.)

In each of the following graphs, the mean valence ratings are demonstrated through diamonds. The middle line on the diamond marks the mean value; the top and bottom points mark the 95 percent confidence intervals. Non-overlapping diamonds suggest a significant difference in means between conditions. When confirmed by the Tukey HSD *post-hoc* test, significant differences are marked by asterisks. All observations compare a visual condition to its control (no-visual) condition, which is shown on the left side of each figure.

As shown in figure 29, the visual conditions affected the valence judgment for the positive valence-high arousal musical stimuli, $F(4, 291) = 3.04, p < .05$. The *post-hoc* test revealed that the music was perceived at a less positive valence than the control when

the visual was the negative-low condition. All other visual conditions were not significantly different from the control.

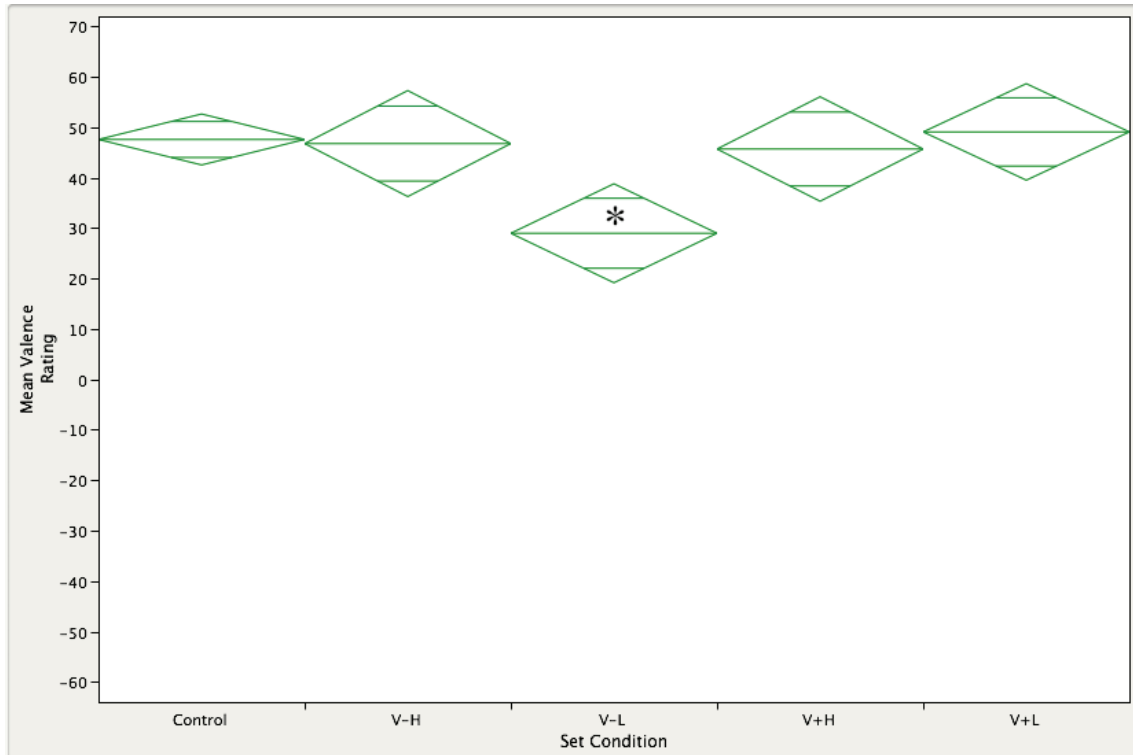


Figure 29. Valence Ratings for Positive-High Musical Stimuli

The visual conditions also significantly affected the perception of the positive valence-low arousal musical stimuli, $F(4, 292) = 39.11, p < .0001$ (see fig. 30). Both of the negative-valence visual stimuli pulled the valence rating of the music toward a negative mean. The low-arousal negative visual condition had a strong effect, creating a significantly more negative response than the high-arousal visual condition. The positive visual conditions were not significantly different from the control.

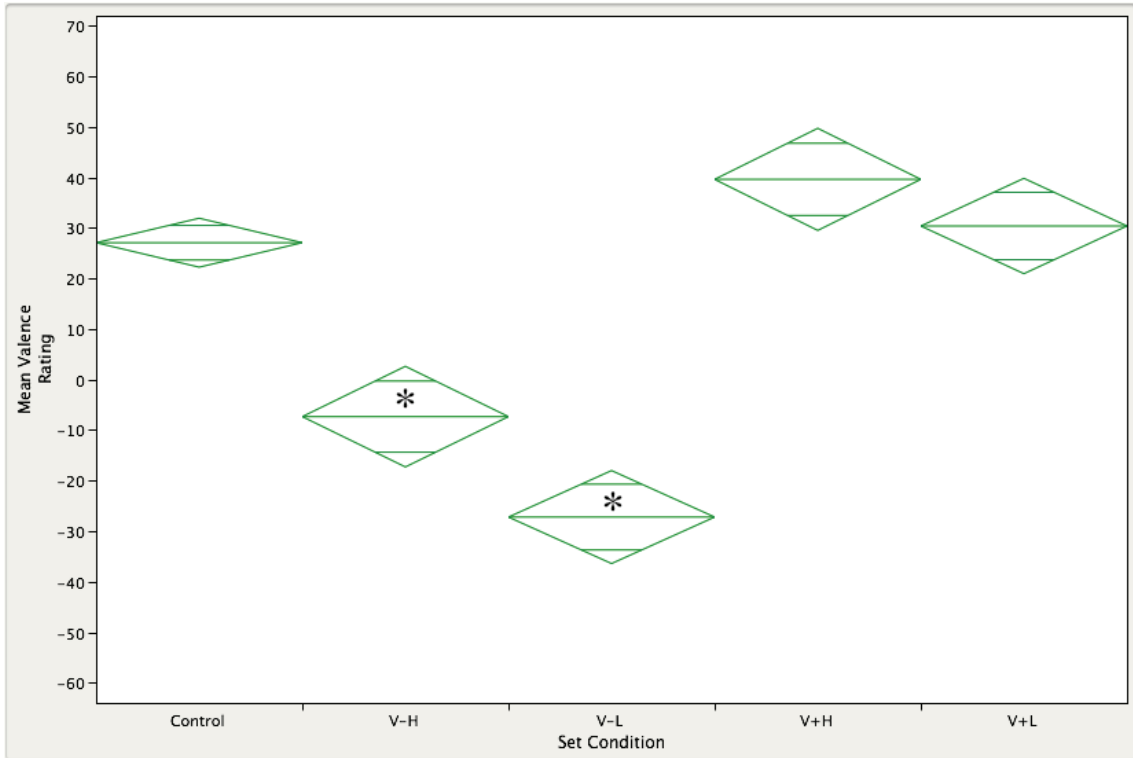


Figure 30. Valence Ratings for Positive-Low Musical Stimuli

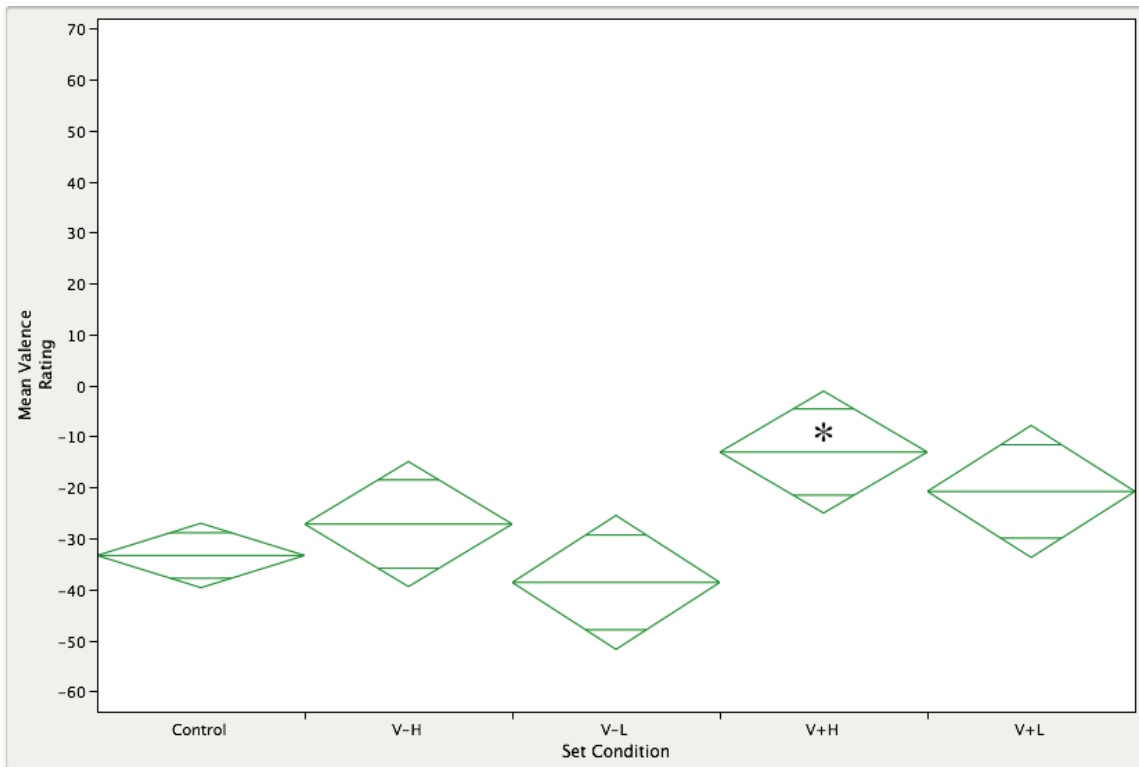


Figure 31. Valence Ratings for Negative-High Musical Stimuli

The visual conditions had an effect on the valence rating of the negative-high music stimuli, $F(4, 291) = 3.11, p < .05$ (see fig. 31). The positive-high visual condition caused a less negative valence response, while the positive-low and both negative visual conditions had no significant effect on the perception of negative-high music.

Finally, the negative-low musical stimuli were strongly affected by visual conditions, $F(4, 292) = 9.00, p < .0001$ (see fig. 32). The positive visuals (both high and low arousal) led to a less negative valence response. The results for both high and low negative visual conditions were not significantly different from the control group.

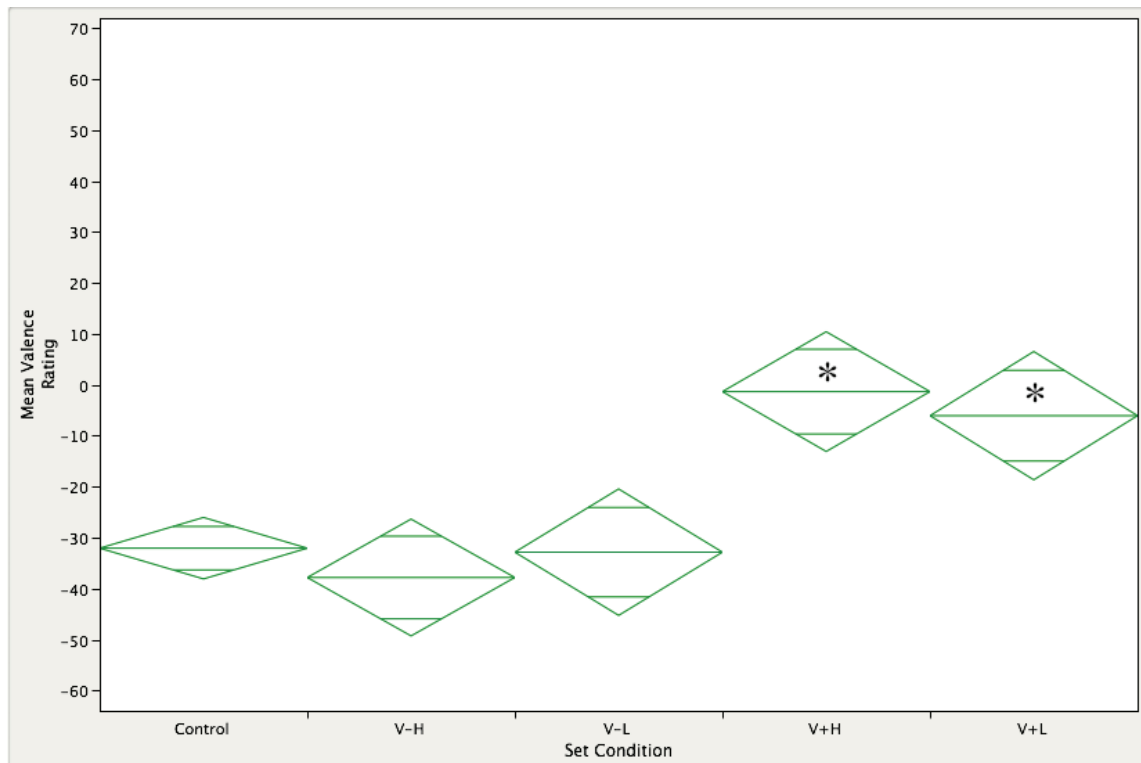


Figure 32. Valence Ratings for Negative-Low Musical Stimuli

Other components of the survey produced some—albeit few—significant results. For the positive-high music stimuli, the tempo was perceived as slower when presented with positive-high visuals, $t(54) = 3.68, p < .001$. Also, the perceived volume of the

positive-high music was softer when presented with positive-low visuals, $t(59) = 2.70, p < .01$.

The positive-low music stimuli were affected in only one condition: positive-high visuals created a higher arousal rating than the control, $t(37) = 3.11, p < .01$.

The rating of negative-high music stimuli found significant differences in volume and harmony responses. Volume was perceived as softer than the control when presented with negative-high visuals, $t(59) = 3.95, p < .001$. Also, positive-low and negative-high visual conditions caused the negative music to be perceived as more harmonious (less discordant) than the control: negative-high, $t(51) = 4.83, p < .0001$; positive-low, $t(42) = 2.40, p < .05$.

No significant changes were found in the responses for the negative-low music stimuli. Furthermore, no significant changes were found in the results for the regular/irregular rhythm scale.

Discussion

This study's hypothesis stated that the perceived valence of a musical excerpt would remain the same when in agreement and would be influenced by—and moved toward—a visual clip's valence when in disagreement. Both agreeing and disagreement pairs confirmed these hypotheses in most cases.

Agreement

In all conditions where the valence of the visual and music agreed, the mean valence rating for the music did not significantly differ from the non-visual control rating. This confirms previous research where elements that are in agreement retain the intended emotion; however, this result could be limited by the choice of adjectives. If participants

choose an extremely high valence adjective for the music control condition, then when paired with the agreeing visual, there are no higher valence adjectives to be chosen. Therefore, the lack of difference from the control in the agreement pairings may be a product of the scale and not the stimuli. In further research on agreement, participants could evaluate through free response or could be allowed to choose any point on the valence-arousal quadrant instead of being limited to the adjective values, although all evaluation methods have their own limitations. The quadrant method is found in Schubert’s emotion research, which determined the numerical values for this analysis.⁵⁵

Disagreement

When the perceived moods of the music and visual elements disagreed, the result was a significant, symmetrical trend that highlights the effect that arousal has on the perception of valence (see fig. 33).

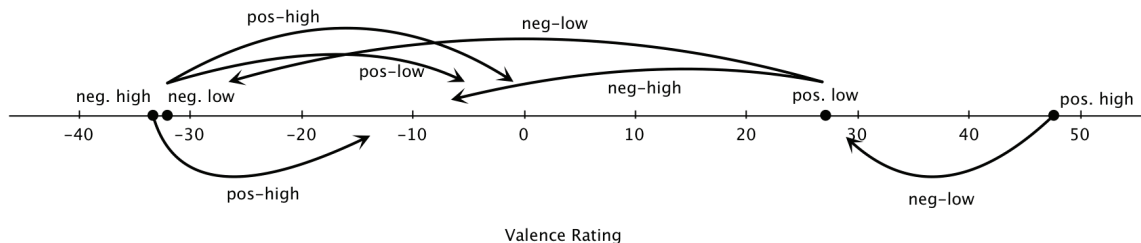


Figure 33. Valence Rating Shifts. Points show control values. Arrows represent specific visual conditions that demonstrate significant shifts in valence rating.

A negative-low visual led to a less positive-valence response in the positive-high music stimuli. Similarly, the positive-high visual led to a less negative valence response

⁵⁵ Schubert, “Measurement and Time Series Analysis.”

in the negative-high music stimuli. These results demonstrate that high arousal music stimuli are less easily affected. For example, an angry (negative valence-high arousal) music is more resistant to being heard as positive than a sad (negative-low) music. Therefore, while the low-arousal music stimuli were affected by both high and low opposite-valence visual stimuli, the high-arousal music stimuli were only affected by high-arousal opposite-valence visual stimuli.

Visual Stimuli

Visual images in this study were strongly charged; specifically, each one led to expected responses. The negative-low visual—the images of homeless people lying in the street—had a strong effect on both positive music stimuli due to the image’s emotional pull. For the positive-high music, this visual stimulus produced adjective responses such as annoyed, gloomy, and frustrated instead of cheerful and bright, as were selected by the control group. For the positive-low music, the adjective choices changed from dreamy, graceful, and calm to gloomy, mournful, melancholy, and sad.

The negative-high visual stimulus, “Chickens,” had a strong effect only on the positive valence-low arousal music. The brutal treatment of the chickens, when paired with “calm” music, brought out the “sad” elements of the music. This pairing elicited the adjective choices “solemn” and “melancholy.” When paired with the positive-high music, this clip presented an alternate interpretation of the events. The outrageous scene of the chickens on the conveyor belts was interpreted as humorous when paired with busy, happy music. The laughter in the participant groups turned into gasps as the chickens began to be tossed by their wings and branded on their beaks. The combination

caused confusion and encouraged humor and excitement in the adjective choices over sadness. This influenced a lack of mean valence shift for this stimuli pairing.

The positive-high visual, “Birds,” had an effect on all negative music stimuli. The “angry” and “frustrated” negative-high music stimuli elicited some positive responses including “vigorous,” “excited,” and “humorous” when paired with the dancing birds. “Sad” music stimuli were perceived as “graceful,” “dreamy,” and “relaxed,” which could emphasize the graceful dance of the birds over the humorous jumping at the end of the clip.

The positive-low visual, “Waterfalls,” only had an effect on the negative-low music stimuli. In this pairing, the participants’ adjective choices changed from “melancholy,” “gloomy,” and “mournful” to “calm” and “dreamy.” The beauty of the waterfalls and the rainbow was emphasized by the calmer and lower arousal music; however, when paired with high arousal music, the strength and grandeur of the tall waterfalls outweighed the beauty. Perhaps, when paired with positive-high music, the quickness of the music emphasized the rushing water instead of the calming beauty of the scene.

Music Stimuli

The music stimuli had specific characteristics that influenced the results. The positive-high music, “The Juggler” and “Happy Enough,” are both unmistakably happy, limiting the ability of visual images to affect the adjective choices. Likewise, the negative-high music, *Caloana infinita* and *Dynamic Motion*, is angry and frightening due to the harsh, dissonant chords that sound constantly in each excerpt. It could be that the steady, harsh excitement was heard as excited or vigorous—both positive-valence

adjectives—when paired with the happy bird images, although the mean valence rating remained negative.

Conclusion

This study clarifies what other film-music cognition research has not demonstrated to this point; specifically, when the moods of the music and visual disagree, the visual can have an effect on the music. This research creates a new pathway on Cohen's congruence-associationist model by connecting visual meaning to short-term memory of music, demonstrated through the added arrow on figure 34. Thus, in film music, the focus is not always on the visual narrative. In some cases, the music draws the attention. In these instances, the mood of the visual image affects the perception of the music through enhancement when in agreement or reinterpretation when in disagreement. Cohen alludes to this influence in the most recent incarnation of this model, although no direct link is given.⁵⁶ This study presents evidence for a direct link and suggests that a richer, more intertwined connectionist network may best describe perception of film music.

Previous film-music cognition research focused primarily on valence without considering the nuance of arousal as a factor in emotion research. By selecting stimuli that represented different levels of both valence and arousal, the results of this study indicated that the arousal played a role in the perception of the musical valence. This study demonstrates that the inclusion of all four valence-arousal quadrants is valuable for

⁵⁶ Annabel J. Cohen, "Music as a Source of Emotion in Film," in *Handbook of Music and Emotion*, eds. Patrik Juslin and John A. Sloboda (Oxford: Oxford University Press, 2010), 879-908.

accurately analyzing the true impact of visuals and music upon the film viewer. By expanding to a two-dimensional view, researchers can acknowledge that emotions are more complex than simply positive and negative. The level of high and low arousal distinguishes happy from calm and angry from sad. Further research should take into account these levels of arousal in emotion.

Film-music cognition research—including this study—has direct application for film and dramatic arts. Storytellers of screen and stage combine several elements including the spoken word, the visual image, the music, and the sound effects to create story and to provide context. Although narrative is not simply pure emotion, emotion does drive the story. In understanding how visuals and music interact and impact the viewer, a director can select appropriate pairings to create the mood desired for the moment. Through appropriate use of disagreement, the storyteller can manipulate emotional moods to create complex elements including irony, foreshadowing, and deception. The combination of music and visuals adds to the overall understanding of the creators' intent and makes the storytelling more effective by stirring the emotions of the audience.

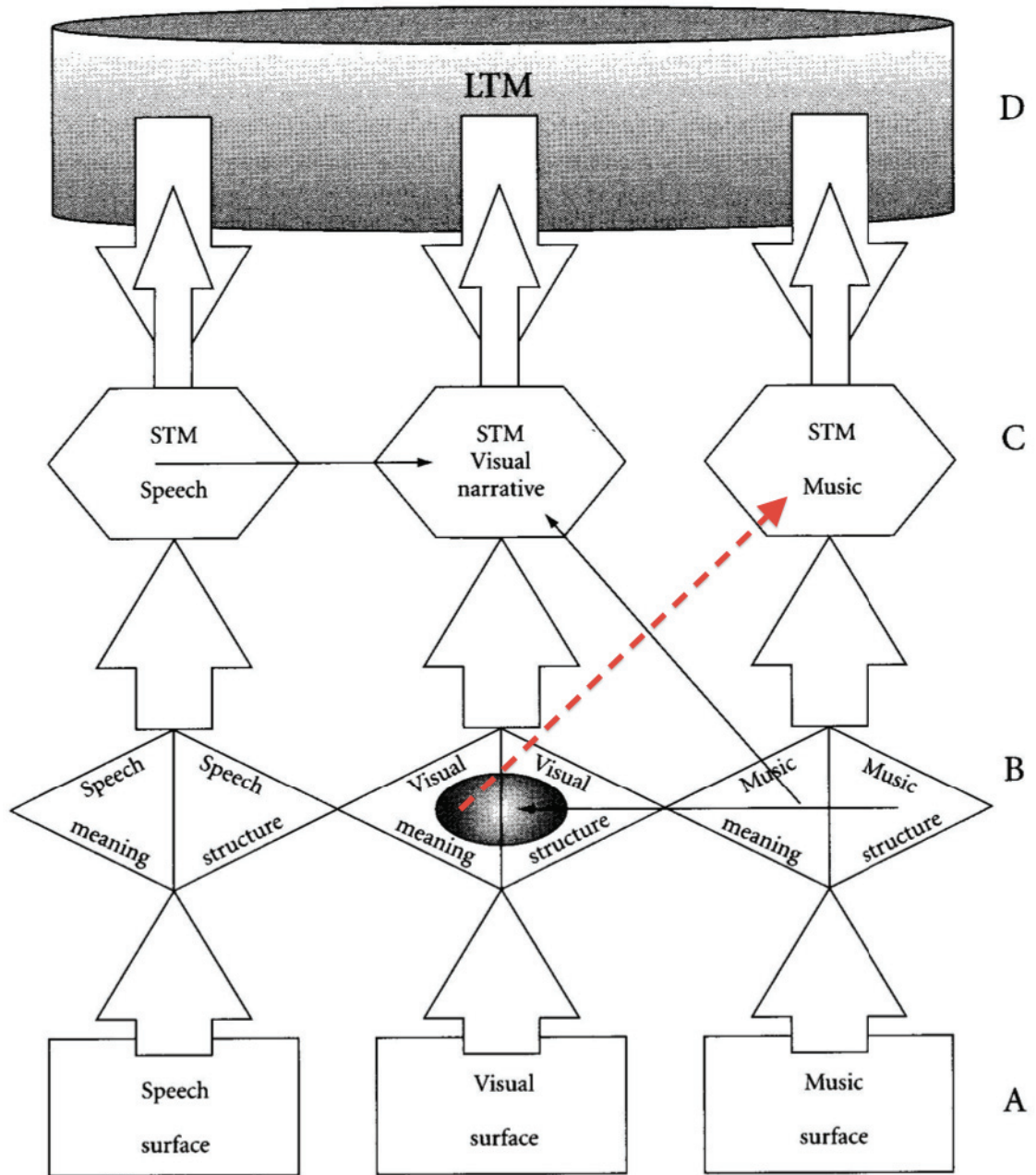


Figure 34. Cohen's congruence-associationist framework with added arrow. The dashed arrow indicates an influence from visual meaning to short-term memory of music, as demonstrated in this study. Adapted from Cohen, "Music as a Source," 259.

APPENDICES

APPENDIX A

Stimuli Information

Stimuli	Composer, Title (Date of composition)
M _{+H1}	Ernst Toch, <i>Der Jongleur</i> (1926)
M _{+L1}	Erik Satie, <i>Gymnopédies</i> , No. 1 (1888)
M _{-H1}	György Ligeti, XIV. <i>Caloana infinita</i> , <i>Piano Études, Deuxième livre</i> (1988-94)
M _{-L1}	Jean Sibelius, “Souvenir” from <i>Eight Pieces</i> , Op. 99 (1922)
M _{+H2}	Robert Schumann, “Happy Enough” (no. 5) from Op. 15, <i>Kinderszenen</i> (1838)
M _{+L2}	Edvard Grieg, <i>Sommeraften</i> (Summer Evening), Op. 71 (1901)
M _{-H2}	Henry Cowell, <i>Dynamic Motion</i> , L213/1 (1916)
M _{-L2}	J.S. Bach, <i>French Suite No. 1 in D Minor</i> , BWV 812: III. Sarabande (1722)
V _{+H}	“Birds” from <i>Planet Earth</i>
V _{-H}	“Chickens” from <i>Baraka</i>
V _{+L}	“Waterfall” from <i>Baraka</i>
V _{-L}	“Homeless” from <i>Baraka</i>
M _{Demo}	Sergei Prokofiev, <i>Piano Sonata No. 7 in B Flat Major</i> , Op. 83: III. Precipitato
V _{Demo}	“Oil Fields” from <i>Baraka</i>

APPENDIX B

Pre-test Survey

Music Stimulus 1

Select **one** adjective that best represents the emotion of the **music** from the following adjectives (circle one):

Afraid	Cheerful	Happy	Sad
Angry	Dreamy	Humorous	Shivers
Annoyed	Excited	Melancholy	Solemn
Bored	Frustrated	Mournful	Surprised
Bright	Gloomy	Passionate	Tears
Calm	Graceful	Relaxed	Vigorous

Choose a number on each scale that best represents your perception of the **music**:

1 very fast	2	3	4 neutral	5	6	7 very slow
1 very tonal	2	3	4 neutral	5	6	7 very atonal
1 very regular rhythm	2	3	4 neutral	5	6	7 very irregular rhythm
1 very loud	2	3	4 neutral	5	6	7 very soft
1 very harmonious	2	3	4 neutral	5	6	7 very discordant
1 very flowing	2	3	4 neutral	5	6	7 very choppy

APPENDIX C

Mean Valence Rating Data Table

Table C.1: Mean Valence Rating Data. All shaded data are significant from the control according to *post-hoc* test.

Music Stimuli	Visual Set Condition				
	Control	V _{-H}	V _{-L}	V _{+H}	V _{+L}
M _{+H}	47.5782	46.7647	28.9744	45.6857	49.0732
M _{+L}	27.081	-7.343	-27.22	39.618	30.385
M _{-H}	-33.367	-27.205	-38.647	-13.073	-20.8
M _{-L}	-32.074	-37.829	-32.857	-1.333	-6.059

BIBLIOGRAPHY

- Abrams, Jeffrey et al. *Lost: The Complete Fourth Season*. Burbank, CA: Touchstone Home Entertainment, 2008.
- Ali, S. Omar. "Songs and Emotions: Are Lyrics and Melodies Equal Partners?" *Psychology of Music* 34 (2006): 511-34.
- Boltz, Marilyn, Matthew Schulkind, and Suzanne Kantra. "Effects of Background Music on the Remembering of Filmed Events." *Memory & Cognition* 19, no. 6 (1991): 593-606.
- Boltz, Marilyn G. "Musical Soundtracks as a Schematic Influence on the Cognitive Processing of Filmed Events." *Music Perception* 18, no. 4 (Summer 2001): 427-54.
- . "The Cognitive Processing of Film and Musical Soundtracks." *Memory and Cognition* 32 (2004): 1194-1205.
- Boltz, Marilyn G., Brittany Ebendorf, and Benjamin Field. "Audiovisual Interactions: The Impact of Visual Information on Music Perception and Memory." *Music Perception* 27, no. 1 (2009): 43-59.
- Chion, Michel. *Audio-Vision: Sound on Screen*. Translated by Claudia Gorbman. New York: Columbia University Press, 1994.
- Cohen, Annabel J. "Film Music: Perspectives from Cognitive Psychology." In *Music and Cinema*, edited by James Buhler, Caryl Flinn, and David Neumeyer, 360-77. Middlebury, VT: Wesleyan University Press, 2000.
- . "Music as a Source of Emotion in Film." In *Music and Emotion*, edited by Patrik Juslin and John A. Sloboda, 249-72. Oxford: Oxford University Press, 2001. Revised in *Handbook of Music and Emotion*, edited by Patrik Juslin and John A. Sloboda, 879-908. Oxford: Oxford University Press, 2010.
- Crowder, Robert G. "Perception of the Major/Minor Distinction: III. Hedonic, Musical, and Affective Discriminations." *Bulletin of the Psychonomic Society* 23, no. 4 (1985): 314-6.
- . "Perception of the Major/Minor Distinction: I. Historical and Theoretical Foundations." *Psychomusicology* 4, no. 1/2 (1985): 3-12.
- Donnelly, K. J. *Film Music: Critical Approaches*. New York: Continuum, 2001.

- Ebendorf, Brittany. "The Impact of Visual Stimuli on Music Perception." Senior thesis, Haverford College, 2007.
- Gabrielsson, Alf and Erik Lindström. "The Role of Structure in the Musical Expression of Emotions." In *Handbook of Music and Emotion*, edited by Patrik Juslin and John A. Sloboda, 367-400. Oxford: Oxford University Press, 2010.
- Gabrielsson, Alf and Patrik N. Juslin. "Emotional Expression in Music." In *Handbook of Affective Sciences*, edited by Richard J. Davidson, Klaus R. Scherer, and H. Hill Goldsmith, 503-34. Oxford: Oxford University Press, 2003.
- Gluck, Christoph Willibald and Ranieri de Calzabigi. *Orpheus: English and Italian Text*. Kalmus Vocal Scores, 6189. New York, N.Y.: Edwin F. Kalmus, 1900.
- Gomez, Patrick and Brigitta Danuser. "Relationships Between Musical Structure and Psychophysiological Measures of Emotion." *Emotion* 7, no. 2 (2007): 377-88.
- Hanslick, Eduard. *On the Musically Beautiful: A Contribution towards the Revision of the Aesthetics of Music*. Translated by Geoffrey Payzant. Indianapolis: Hackett, 1986.
- Hevner, Kate. "The Affective Character of the Major and Minor Modes in Music." *The American Journal of Psychology* 47, no. 1 (January 1935): 103-18.
- Kivy, Peter. "Something I've Always Wanted to Know about Hanslick." *The Journal of Aesthetics and Art Criticism* 46, no. 3 (Spring 1988): 413-17.
- Krumhansl, Carol L. "An Exploratory Study of Musical Emotions and Psychophysiology." *Canadian Journal of Experimental Psychology* 51, no. 4 (1997): 336-52.
- Lewin, David. *Studies in Music with Text*. Oxford: Oxford University Press, 2006.
- Mackendrick, Alexander and Paul Cronin. *On Film-Making: An Introduction to the Craft of the Director*. New York, NY: Faber and Faber, 2005.
- Monaco, James. *How to Read a Film: Movies, Media, and Beyond: Art, Technology, Language, History, Theory*. Oxford: Oxford University Press, 2009.
- Peretz, Isabelle, Lise Gagnon, and Bernard Bouchard. "Music and Emotion: Perceptual Determinants, Immediacy, and Isolation After Brain Damage." *Cognition* 68 (1998): 111-41.
- Scherer, Klaus R. and James S. Oshinsky. "Cue Utilization in Emotion Attribution from Auditory Stimuli." *Motivation and Emotion* 1, no. 4 (1977): 331-46.
- Schubert, Emery. "Measurement and Time Series Analysis of Emotion in Music." Ph.D. thesis, University of New South Wales, 1999.

- Sondheim, Stephen. *Sweeney Todd: The Demon Barber of Fleet Street*. New York: Revelation Music Publ. Corp. & Riling Music, Inc., 1981.
- Stein, Deborah. *Poetry into Song: Performance and Analysis of Lieder*. Oxford: Oxford University Press, 1996.
- . “Schubert's ‘Erlkönig:’ Motivic Parallelism and Motivic Transformation.” *19th-Century Music* 13, no. 2 (Autumn 1989): 145-58.
- Stilwell, Robynn J. “Music in Films: A Critical Review of Literature, 1980-1996.” *The Journal of Film Music* 1, no. 1 (2002): 19-61.
- . “Sense & Sensibility. Form, Genre, and Function in the Film Score.” *Acta Musicologica* 72, no. 2 (2000): 219-240.
- Temperley, David. *The Cognition of Basic Musical Structures*. Cambridge, MA: MIT Press, 2001.
- Wagner, Richard. *Der Ritt der Walküren*. Philharmonia Partituren. Vienna: Wiener Philharmonischer Verlag, 1953.
- WatchCulturetainment. “Mercedes Sosa – Gracias a la Vida.” *YouTube*. Online Video Clip. October 4, 2009. <http://www.youtube.com/watch?v=cIrGQD84F1g>, (accessed May 10, 2010).