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Research Article

Analysis of chromatic mediant relationship in film music score with Neo-Riemannian theory

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Abstract

Film has influenced the public as an important cultural form since the 20th century, and film music, as an integral part of film, plays an important role in shaping its content. Film music was influenced by late European Romantic music, and the Hollywood film score system was established based on composers of European descent, followed by the fusion of numerous emerging musical styles, such as Jazz, Rock, and EDM, etc. The orchestral music as the main composition of the film score has a sense of aural expectation in the sound expression, which largely comes from the chromaticization of the harmonies. When analyzing Hollywood film music, it is inevitable that chromatic harmony progression cannot be accurately expressed by traditional tonal music analysis. This study analyzes the chromatic harmony progression of chromatic mediant relationship in the film scores of four composers from the perspective of neo-Riemannian theory. And the correlation between the four sets of transformations and chromatically harmonic progression, H transformation, PL transformation, LP transformation, and RP transformation, is derived from the comparative analysis of neo-Riemannian theory and chromatic mediant relationship. These transformations have deepened the negative emotions of angst and fear or the positive emotions of grandeur and sacredness in film narratives. Exploring and expanding the use of neo-Riemannian theory in film music analysis has positive implications for the development of film music by demonstrating the rationality, accuracy, and intuitiveness of neo-Riemannian theory in the process of film musicology.

Keywords

chromatic mediant relationship, film music, Hollywood film score, neo-Riemannian theory, transformational theory

Introduction

From the 1920s to the 1930s, Hollywood films underwent a transition from silent film to music in the soundtrack of the sound film. And the 1930s saw the beginning of the classical Hollywood film score. 'The classical Hollywood film score coalesced especially through the work of three composers in the 1930s, Max Steiner, Erich Wolfgang Korngold, and Alfred Newman, whose scores for *King Kong (1933)*, *The Adventures of Robin Hood (1938)*, and *Wuthering Heights (1939)* respectively are among the most accomplished in the form. They were joined by others, notably Dimitri Tiomkin, Miklós Rózsa, Bronislau Kaper, and Franz Waxman. All but Newman had immigrated from Europe, many fleeing Hitler and the rise of fascism' (Kalinak 2010, 62-63). European-born composers created the Hollywood system of film music based on historical heritage and narrative structure, and as the era evolved, many styles emerged in subsequent eras, such as Jazz, Rock, and EDM, etc. As a form of musical expression, film music is not limited to a certain style. Instead, it covers almost all musical styles, and film music is not synonymous with one musical style, but a comprehensive embodiment of many musical styles. So, it is necessary to analyze film music with diverse perspectives and theories.

The use of chromatic mediant relationship in film music is representative of the chromaticism use of music, as described by music theorist David Kopp:

> *Chromatic mediant relations are, of course, not exclusive to nineteenth-century music. Their presence in Renaissance music is familiar. In Baroque style they often occur at the boundaries between large sections of pieces, as a half cadence resolving to an unexpected new tonic. Similarly in the music of Haydn and Mozart, they appear most often as major-third mediants at the boundaries between sections in a minuet or scherzo. Between or within phrases, though, they are exceptional. In Beethoven's and Schubert's music, chromatic mediants began to appear with greater regularity and to find their way into more local harmonic contexts. As their presence grew and their profile became more familiar, chromatic third relations gradually became an accepted and much-exploited aspect of nineteenth-century harmonic practice (Kopp, 2006:18).*

Therefore, the use of chromatic mediant relationship in film music is a continuation of European classical music, especially the compositional style influenced by the opera style of Wagner and is a continuation and development of stage music.

'Film musicology is a scholarly sub-discipline hardly twenty years old, and virtually no dedicated or sustained analytical attention was given to film scores in the conventional venues of Anglo-American music theory—journals, conferences, monographs, and seminars—until a trickle began at the *fin de millénnaire'* (Lehman, 2012:1). In both traditional classical music and contemporary music, there are only a handful of universities where film musicology is taught as a separate professional discipline. Compared to other disciplines in music, the study and exploration of film musicology is still in a new stage.

In the analysis of film music, it is easy to see that the functional harmonic theory of tonal music is no longer able to accurately represent the large number of chromaticism applications that occur in film music. There are many compositions using chromatic mediant relationship techniques in chromatic music. There has been extensive literature on the use of chromatic mediant relationship in analyzing classical music, but not much research has been conducted on the use of chromatic mediant relationship in film music.

Since the 1980s, neo-Riemannian theory has been developed based on the transformational theory proposed by David Lewin (1933-2003), Henry Klumpenhouwer and other music theorists, and has become a new method for analyzing music. Although neo-Riemannian theory takes the analysis of late Romantic music works as the starting point, through theorists' continuous expansion and refinement, it is found that neo-Riemannian theory can provide a reasonable theoretical basis for the analysis of film music.

David Kopp's Chromatic Transformations in Nineteenth-Century Music (2002) detailed description of common-tone tonality, chromatic mediant relationship, chromatic transformation system, etc. in 19th century music, providing a reference for the analysis of chromaticization in film music. Frank Lehman's Hollywood Harmony (2018) analyzing triadic transformations in film music and analyzing chromaticism in film music through neo-Riemannian theory, demonstrating the superiority of neo-Riemannian theory as an analytical theory. Scott Murphy's 'tonal-triadic progression classes' (Murphy 2015, 485) analysis of film music. Transformational theory, neo-Riemannian theory and related expanded theories presented by the above music theorists provide valuable research material for the analysis of 19th century Romantic music and film music.

Problem of Study

Chromatic mediant relationship has been used for more than 400 years, but it was not until the mid-19th century that its use was taken seriously by composers, especially recent film composers. The use of chromatic mediant relationship as an important part of chromatic harmony progression in film music is used as the scope of this study, and the researcher uses neo-Riemannian theory in own analysis to explore the analysis of chromatic harmony progression in film music in an extended way. This study problems are;

- So how is chromatic mediant relationship used in film music through the composer's use of different progressions between major triads, between minor triads and between major and minor triads?
- How the use of neo-Riemannian theory as well as transformation network visualizes harmonic progressions in the analysis of chromaticism film music?
- What different cinematic narrative emotions are expressed using different chromatic mediant relationship?

This study takes the above questions as the purpose of the study and explores the analysis of chromaticism harmony in film music through the analytical perspective of this researcher with the use of neo-Riemannian theory as an extension.

Method

Research Model

This study analyzes chromatic mediant relationship-based harmonies in film music through neo-Riemannian theory and uses transformation network to label the movement patterns of harmonic progressions. The neo-Riemannian theory analysis is not centered on tonal functions and involves different types of transformation methods. By compiling the transformations and extensions proposed by theorists such as David Lewin, Brian Hyer, Richard Cohn, Henry Klumpenhouwer, Frank Lehman, the following Table 1 lists the transformations involved in this study.

Table 1. A summary of common transformations

Common description	Types of transformations	Ex.
Chromatic mediants in major	RP	I → VI
	LP	I → III
	PL	I → ♭VI
	PR	I → ♭III
	H(LPL)	I ↔ ♭VIm
	PRP	I ↔ ♭IIIm
Chromatic mediants in minor	RP	I m → IIIm
	LP	I m → VIm
	H(LPL)	I m ↔ ♯III
	PRP	I m ↔ ♯VI
	PL	I m → ♯IIIm
	PR	I m → ♯VIm

This study is based on the music of four films, *Fahrenheit 451* (Director. François Truffaut, 1966), *The Lord of the Rings: The Two Towers* (Director. Peter Jackson, 2002), *Inception* (Director. Christopher Nolan, 2010), *The Hunger Games* (Director. Gary Ross, 2012) whose subjects are Sci-Fi, Thriller, Mystery, Adventure.

Selection Criteria of Film Musics

Bernard Herrmann, the composer of *Fahrenheit 451,* was good at composing in the above styles, and he was one of the representative composers who pioneered these styles. He is also one of the representative composers with research value in the history of film music, and his works influenced composers later. These four films are all based on the theme of talking about good and evil in a fictional time and space. A film does not have a single style of subject matter, but generally consists of several elements of subject matter. The science fiction film is accompanied by elements of adventure, and the thriller is accompanied by elements of horror. So, the subjects selected for analysis in this study have subtle differences in subject matter but are interrelated.

Analysis Techniques

Most of the films of the above subjects are embodied in the chromaticism music. Most of the analytical studies of chromaticism in classical music have used tonal music for works of the romantic period, and the use of chromaticism in contemporary film music draws on the creation theory of classical music. However, combined with the narrative function of film, composers have explored and expanded the chromaticism of music in new ways, and only a few music theorists have studied and analyzed this part. Meanwhile, the development of neo-Riemannian theory has a more reasonable representation for analyzing chromatic music and non-functional harmony. Therefore, this researcher chose neo-Riemannian theory to analyze and explore chromatic mediant relationship in film music.

Results

Through the analysis, it was concluded that the chromatic harmonic progression of chromatic mediant relationship in the 4 pieces of music used H transformation, PL transformation, LP transformation, and RP transformation. These 4 sets of transformation deepen the negative emotions of unease and fear of the film narrative, as well as the positive emotions of grandeur and sacredness. It also demonstrates the superiority and rationality of neo-Riemannian theory analysis of film music.

Analysis of Fahrenheit 451: Prelude

Bernard Herrmann (1911–1975) is the representative composer of classical Hollywood film score, and he is different from his contemporaries such as Max Steiner, Dimitri Tiomkin, Franz Waxman, Erich Wolfgang Korngold etc. He made modern harmonies accepted in film and made modern orchestration techniques created new sound.

The film Fahrenheit 451 based on the 1951 Ray Bradbury novel of the same name, The movie is about a fireman who burned books as his job because the government feared that the public had the ability to think independently. And after he started to read the books, he began to question the motive behind the book burning. *Fahrenheit 451: Prelude* is opening theme, Figure 1 summarizes used in the music as H(LPL) transformation, L transformation, S transformation, T1 transformation. H transformation is the chromatic mediant relationship of the most frequent transformation in the music.

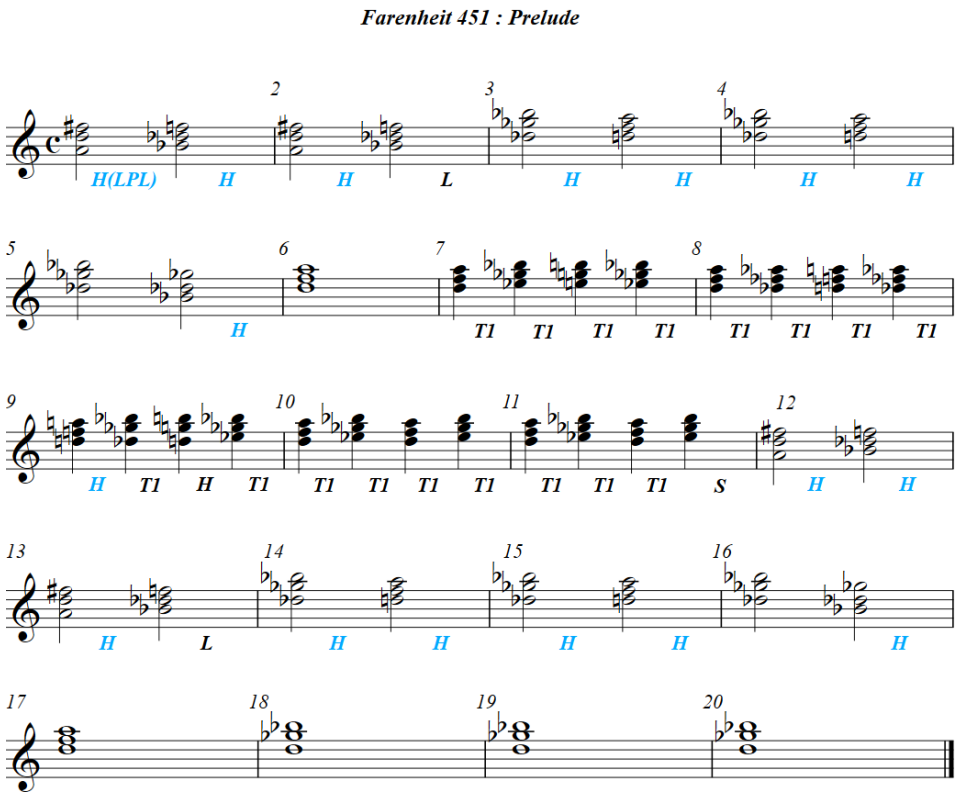

Figure 1. Bernard Herrmann, 'Prelude', Fahrenheit 451: harmonic reduction

The music corresponds to the film images shown in Figure 2. Although there is no cinematic dialogue or story narration in this section, the shifts of different bright colors in the images suggest an unsettling and tense sense of perspective. The music makes extensive use of H transformation chromatically harmonic progression, which are consistent with the emotional atmosphere conveyed by the film images, and the constant color shifts and use of chromatic harmony suggest the narrative development of the film. The intuitive nature of using transformation network to observe harmonic progressions can be seen through the demonstration in Figure 3. The above analysis shows that the chromatic harmony progression of the chromatic mediant relationship using H transformation deepens the uneasiness and fear of the film narration. The instrument consists mainly of violins, harps, glockenspiel with violins playing in a continuous longitudinal harmonic wave in the high voice range, many high-frequency tones, and a dissonant chromatic harmonic structure that deepens the tension and uneasiness of the musical expression.

Figure 2. The opening scene of Fahrenheit 451

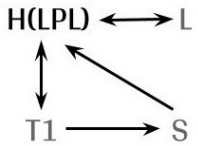

Figure 3. Bernard Herrmann, 'Prelude', Fahrenheit 451: transformation network

Analysis of Gollum's Song

Composer Howard Shore composed hours of scores for the *Lord of the Rings* series. He applied Wagner's operatic mode of composition to write more than 100 leitmotifs, providing a deep aural interpretation of the film's narrative and forming one of the most ambitious and complex collections of themes in the history of film scoring. As an important character in the film, Gollum is both pitiable and disgusting, and his character has two sides. '"Gollum's Song" is a song that plays during the end credits of Peter Jackson's 2002 fantasy film The Lord of the Rings: The Two Towers. It is sung from the point of view of Gollum with a big focus on his tragic story. It was performed by the Icelandic singer Emilíana Torrini' (Fandom, 2022). The composer created this music for the sad character Gollum using a lot of chromatic music, and the lyrics are Gollum's own desperate confessions. Figure 4 summarizes the chromatic mediant relationships used in the music as RP transformation, PL transformation, LP transformation. The corresponding chromatic harmony progressions are shown in Table 2.

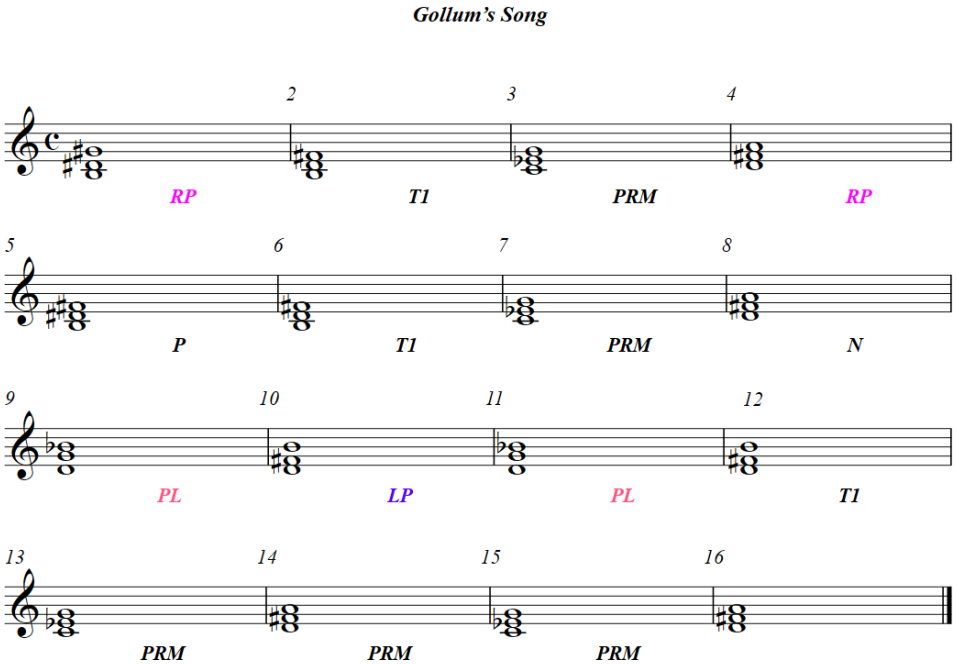

Figure 4. Howard Shore, 'Gollum's Song', The Lord of the Rings: The Two Towers: harmonic reduction

Types of transformations	Chromatic mediant relationship	Emotional themes
RP	G♯m - Bm	Sadness tragedy
RP	D - B	despair anger loss of hope
PL	Gm - Bm	melancholy uneasy tense
LP	Bm - Gm	

Table 2. Howard Shore, 'Gollum's Song', The Lord of the Rings: description of chromatic mediants

RP transformation is used as G♯m - Bm, D - B, Gm - Bm for PL transformation, and Bm - Gm for LP transformation. RP transformation in music is a progression between two minor triads (G♯m - Bm) and two major triads (D - B), respectively, while both are root connections of minor third interval relationships. RP transformation (G♯m - Bm) is a minor triad progression representing sorrow, and the root connection of the minor third interval relationship is also an expression of the emotional theme of sadness and tragedy, with the corresponding lyric 'Where once was light, now darkness falls. So in the end, I'll be what I will be' (Genius, 2022). The combination of music and lyrics further deepens the tragedy of the character. RP transformation (D - B) is a major triad progression representing light and hope, while the root note of the minor third interval relationship also expresses the emotional theme of sadness and tragedy, corresponding to the lyrical part 'Love is no more. Don't say Goodbye. Now we say goodbye' (Genius, 2022) expressing Gollum's sadness, despair and anger at the loss of hope. PL transformation and LP transformation are the interchangeable connections of the minor triad Gm - Bm, and the melancholy, uneasy and tense emotions of the minor triad. Combined with the chromaticization of a lot of music in Figure 4, the overall music is tense and desperate, and the use of chromatic mediant relationships shows that the music has an important function in shaping the sad character. The intuitive nature of using transformation network to observe harmonic progressions can be seen through the demonstration in Figure 5.

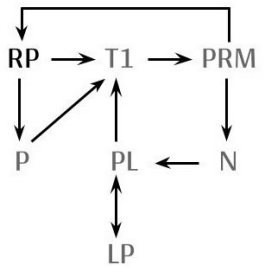

Figure 5. Howard Shore, 'Gollum's Song', The Lord of the Rings: The Two Towers: transformation network

Analysis of Dream Is Collapsing

The film *Inception* storyline is the story of Dom Cobb and his team stealing secrets through the subconscious in the dream world. The film is full of Action, Sci-Fi, Thriller elements. Composer Hans Zimmer uses orchestral and electronic music to create a dream-like musical space for the film. 'Dream Is Collapsing is the third track on the album Inception: Music from the Motion Picture. It runs for 2:28 minutes. The title is a phrase said by Arthur after waking up from the second dream level (Saito's palace) during the Saito extraction job' (Fandom, 2022). The music is summarized in Figure 6 using the chromatic mediant relationships RP transformation, PL transformation, H transformation. The use of RP transformation is G♭ - E♭, B - A♭, the use of PL transformation is E♭ - B, A♭ - E, and the use of H transformation is E - Cm, B - Gm. RP and PL transformation are harmonic progressions between major triads, suggesting bright and hopeful emotions, and H transformation is a transition between major and minor triads, suggesting uneasy tension and expressing conflict. So, the music expresses the scenario of the collapse of a dream and the urgency to awaken the dreamer's tension. The chromatic harmony progression of chromatic mediant relationship in this piece has the function of creating tension and releasing it. The harmonic progressions can be observed visually in Figure 7. The instrument composition is mainly orchestral, with strings played by ostinato and the brass family played by low brass, and the sound effect of the low register is deepened to create the scene of the collapse of the dream.

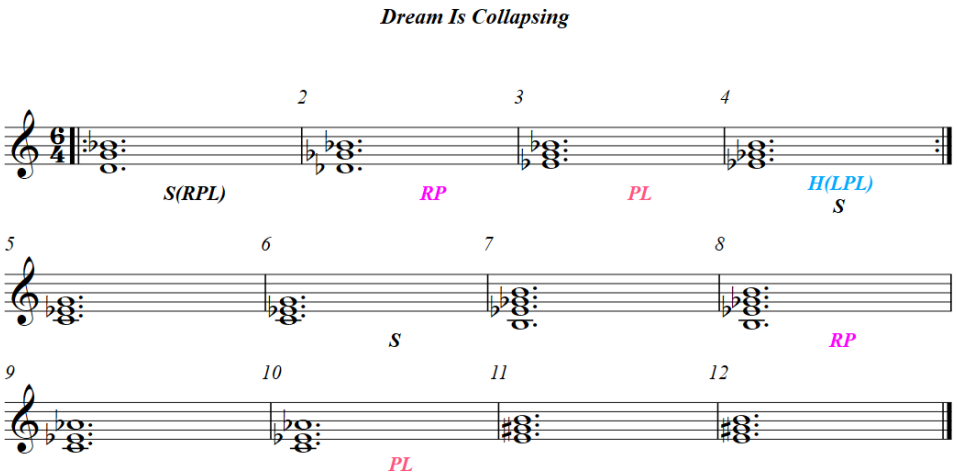

Figure 6. Hans Zimmer, 'Dream Is Collapsing', Inception: harmonic reduction

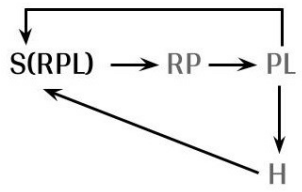

Figure 7. Hans Zimmer, 'Dream Is Collapsing', Inception: transformation network

Analysis of Horn of Plenty

The film *The Hunger Games* tells the story of a fictional dystopian future world in which the main character takes the place of his sister in a cruel game. The subject of the film is Action, Sci-Fi, Thriller. '"Horn of Plenty" is the national anthem of Panem and is played during the Hunger Games, in public announcements by the Capitol, and in other official Capitol events or propaganda commercials. During the Games, it is played every night throughout the arena while the faces of dead tributes are displayed in the sky. In the film adaptation of The Hunger Games, the instrumental version of this song plays during the opening ceremony and the display of the dead tributes in the arena' (Fandom, 2022). The film's composer, James Newton Howard has constructed a fictional and grand dystopian future musical world for the film. The music can be summarized in Figure 8 using chromatic mediant relationship's PL transformation and LP transformation, PL transformation's use of B - G, and LP transformation's use of G - B, B - D♯. Both transformations are two major triads and their roots are a major third apart. The major triad expresses a grand and bright emotion, while the major third interval has the same emotional expression. And the PL transformation and LP transformation reinforce the grand and sacred narrative presented by the capitol and in official capitol events in the film. Of course, this musical emotional representation can be real or illusory and it is precisely the latter that is represented in the film, thus corresponding to the spatial architecture of the dystopian future world of the film. The harmonic progression can be observed visually through Figure 9. The music is composed of orchestra and choir, with the orchestration in an epic style and the choir singing sacred lyrics according to chant, presenting a sacred and unreal dystopian future world.

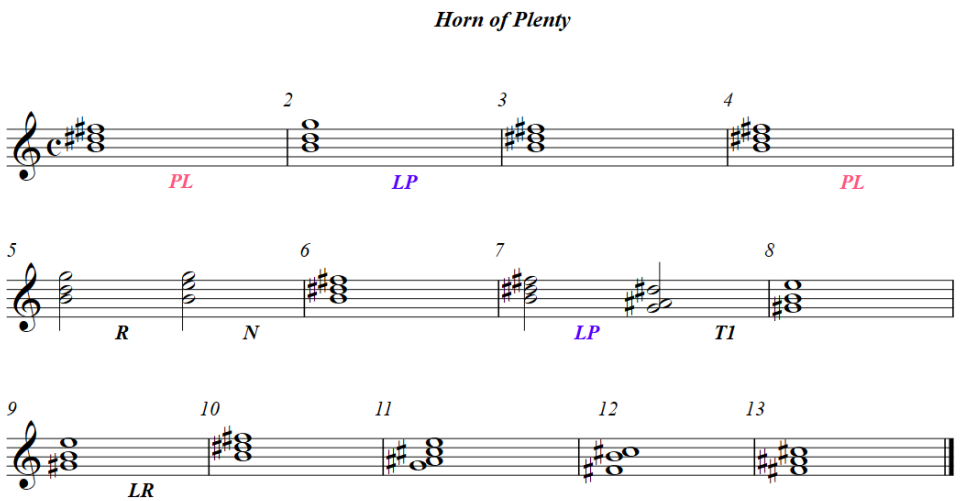

Figure 8. James Newton Howard, 'Horn of Plenty', The Hunger Games: harmonic reduction

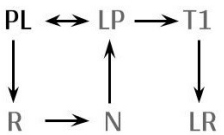

Figure 9. James Newton Howard, 'Horn of Plenty', The Hunger Games: transformation network

Summary of the relationship between neo-Riemannian theory and chromatic mediant relationship

After analyzing the musical works of the above four composers, the results of this study are summarized as follows:

Firstly, the use of neo-Riemannian theory and transformation network allows visual observation of the chromatic harmony progression of chromatic mediant relationship in music. Secondly, neo-Riemannian theory can accurately interpret and express the chromatic harmony progression of the corresponding chromatic mediant relationships. Thirdly, a summary of the chromatic harmonic progressions of the transformations used in the music in this study in relation to chromatic mediant relationship, and their expression of the cinematic narrative atmosphere, is presented through Table 3.

Table 3. A summary of chromatic mediants

Soundtrack title	Types of transformations	Chromatic mediant relationship	Emotional themes
Fahrenheit 451: Prelude	H	I ↔ ♭VIm	uneasiness fear
		I m ↔ ♯III	
Gollum's Song	RP	I → VI	despair anger loss of hope
		I m → IIIm	sadness tragedy
	PL	I m → ♯IIIm	melancholy uneasy tense
	LP	I m → VIm	
Dream Is Collapsing	RP	I → VI	bright hopeful
	PL	I → ♭VI	
	H	I ↔ ♭VIm	uneasy tension
Horn of Plenty	PL	I → ♭VI	grand sacred bright
	LP	I → III	

Conclusion

Hollywood film music has some default musical expressions in listening, which are very often composed of chromatic harmony progression in the structure of chromatic mediant relationships. Using these chromatic mediant relationships, the composer allows the music to form an emotional expression that is consistent with the cinematic image and narrative function. This study explores the chromatic mediant relationship techniques used in Hollywood film music of different eras by using neo-Riemannian theory. The rationality and accuracy of the neo-Riemannian theory analysis method is demonstrated through the analysis process, which summarizes the structural relationship between H transformation, PL transformation, LP transformation, RP transformation and chromatic mediant relationship in music. These four transformations are related to the Action, Sci-Fi, Thriller, Adventure theme, and these transformations enhance the narrative expression of the film as well as the emotional depth of the film.

The following is a comparative observation with functional tonal harmony theory through 3 aspects.

- In terms of benefits, neo-Riemannian theory is more advantageous in analyzing non-functional harmony because of the use of a large amount of chromatic music in film music, which is detached from functional harmony. And the tonal-focused properties of functional harmony cannot meet the accurate representation of chromatic harmony in film music.

- In terms of usefulness, neo-Riemannian theory was developed based on Riemannian theory, and neo-Riemannian theory theorists critically inherited the functional and harmonic aspects of Riemannian theory and expanded it into new branches of theory. The function of film music is to assist the narrative of the film, so the composition of film music is needed for any possibility, which also includes the use of functional harmony and non-functional harmony. The use of neo-Riemannian theory is more useful than functional tonal harmony theory.

- In terms of correctness, it is possible to observe that the chromatic mediant relationship corresponding to the transformation is correct and reasonable through the harmonic progression by harmonic reduction. The results presented by transformation network are intuitive. The use of the above neo-Riemannian theory is something that cannot be presented and accurately expressed by functional tonal harmony theory.

Recommendations

Film music covers numerous music genres such as classical music and pop music. Especially, the extensive use of chromatic harmony progression in film music makes the tonal music analysis method somewhat limited. As a music analysis tool, neo-Riemannian theory is powerful, and expanding the use of neo-Riemannian theory in film music analysis is worthy of the attention of researchers.

At the same time, for researchers, it is hoped that neo-Riemannian theory can be used to analyze more film music of different themes, to summarize the current patterns of harmonic progressions in film music in relation to harmonic transformations, and to explore new harmonic progressions to be applied to the creation of film music.

Limitations of Study

There may be some limitations in this study. There are twelve types of different transformations of chromatic mediant relationship, and due to the limitation of the number of tracks analyzed in the study, this study only explored the chromatic harmony progressions of four chromatic mediant relationships and could not show the association and musical functions of the other eight. This limitation can be addressed in the future. An increase in the number of tracks analyzed can identify all film music works that use chromatic mediant relationship in a more transformations way.

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