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## Expanded Tonality: The Treatment of Upper and Lower Leading Tones As Evidenced in *Sonata "Undine," IV* by Carl Reinecke

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Expanded Tonality: The Treatment of Upper and Lower Leading Tones  
As Evidenced in *Sonata "Undine,"* IV by Carl Reinecke

by

Joshua Blizzard

A thesis submitted in partial fulfillment  
of the requirements for the degree of  
Master of Music  
College of Visual and Performing Arts  
University of South Florida

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delayed resolution, chromaticism

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## Dedication

To my wife for her tireless support of me both emotionally and monetarily, to my Aunt Susie who played a significant role in my musical development from my youth, to my parents who worked to instill a sense of discipline in my studies, and, ultimately, to the glory of God, without whom nothing is possible.

### Acknowledgement

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Expanded Tonality: The Treatment of Upper and Lower Leading Tones  
As Evidenced in Sonata "Undine," IV by Carl Reinecke

Joshua A. Blizzard

ABSTRACT

In the Romantic period, expanded tonality offers a creative challenge to composers as they explore new ways of establishing the hierarchy of pitches and utilizing the chromatic and diatonic resources. Prominent compositional techniques of this period include the use of linear harmony with less clearly defined root movements, the structural placement of dominant function, new approaches that redefine tonal stability, motivic treatment that generates harmony and form, flexible treatment of rhythm and meter, and functional treatment of chromatic pitches. This study explores the ways in which characteristics of the Romantic period are influenced by the upper/lower leading tone and the effects of compositional treatment on the expansion of tonality. In addition, this study includes two supportive concepts: (1) the *wedge* and *toggle switch* by David Witten and (2) The Neapolitan Complex by Christopher Wintle. In describing techniques in expanded tonality, excerpts from compositions by Robert Schumann and Johannes Brahms (both prominent composers of the Romantic period) are used to establish the significance of these techniques. In the fourth movement of *Sonata in E minor*, "Undine," by Carl Reinecke, the structural treatment of the upper/lower leading tones to tonic and dominant are very prominent features that contribute significantly to the development of the concepts in this study.

## Chapter One

### Introduction

In music, tonality within a composition provides a unifying similar to that of gravity holding the planets in orbit around the Sun. Each of the planets maintains a course surrounding the Sun with each having a gravitational pull, but ultimately, the center of the greatest pull is always the Sun. A definition of tonality is that it is “the orientation of melodies and harmonies towards a referential (or tonic) pitch class.”<sup>1</sup> Traditional tonality adheres to this concept by the specific emphasis that is given to single referential pitch identified as tonic. Expanded tonality however, departs from this concept by decreasing the emphasis on tonic and enhancing the significance of other pitches as alternate points of reference. The progression from traditional tonality to expanded tonality is accelerated during the Romantic period as composers explore the wide range of sounds and their timbral combinations. Basic characteristics of traditional tonality include a harmonic progression governed by predetermined root movements, a dominant anticipation of tonic, a structural emphasis on prominent chords, a melodic line generated by harmony, an emphasis on pitch with rhythm and meter, and a prominent use of diatonic pitches ornamented by chromaticism. In contrast, expanded tonality contains a linear harmony with less clearly defined root movements, an emphasis on the dominant, a decrease of traditionally prominent chords, motivic patterns that generate form, a flexible treatment

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<sup>1</sup> Bryan Hyer. ‘Tonality’, *Grove Music Online* ed. L. Macy (Accessed 15 May 2007)  
<<http://www.grovemusic.com>>

of rhythm and meter, and an increase in the use of chromaticism. During this period, the disparity between traditional and expanded tonality are evident within the melodic, harmonic, and rhythm of the musical fabric.

### *Discussion of Expanded Tonality*

The concept of the upper/lower leading tone influences the presence of chromaticism due to the natural outgrowth of chromatic pitches in relationship to other pitches, creating an even further departure from traditional tonality. The natural result of emphasizing the tonic and dominant with the upper/lower leading tones is the placement of chromatic pitches in a sequential setting, thus emphasizing other pitches and further creating harmonic ambiguity through the structural placement of these non-diatonic pitches.

The concept of the upper/lower leading tone also appears as a motivic pattern and generates different types of harmonic progressions that delay and prolong structural resolutions to tonic or dominant. The melodic treatment as a neighbor group, for example G-A-flat-F-sharp-G, might appear initially in melodic line and be supported by harmonies that contain some, but not all, of these pitches. These melodic patterns become increasingly separated from the linear unfolding harmonies that appear beneath them. The chord members related to the progressions may gradually appear, adding to the ambiguity of the local harmony. The combination of these asynchronous events further expands the perception of tonal clarity.

The leading tone and its half step ascending resolution create the clearest perception of a pitch as tonic in traditional tonality. In expanded tonality, the concept of the lower leading tone also applies to the upper leading tone and both are used to

emphasize the dominant as well as the tonic. This compositional technique, coined by David Witten as a *wedge*, plays a significant role in the transition toward expanded tonality. With the use of the *wedge* concept in relation to the tonic and dominant, both pitches and their respective chords have a similar potential in establishing tonal structure. While this concept is melodic in origin, it also has the important function of generating harmonic material. As composers seek new ways to modify traditional practices, they assign the function of leading tone to both diatonic and chromatic pitches.

The treatment of an upper/lower leading tone to both tonic and dominant, is a technique that creates a framework in which tonality can retain some of its traditional stability and extend this role to other dimensions of the musical fabric. The emphasis on tonic as well as dominant within a phrase places these two functions on a more equal basis and allows both of them to participate in extending the tonal structure.

The function of tonic plays a less pervasive role in defining musical structure. A compositional technique that contributes to this effect is the substitution of an expected tonic chord with a different chord that shares the same pitches, such as the relationships that occur in third-related chords. For example, in the key of e minor, a resolution that would normally progress to the tonic (E-G-B) might instead progress to the submediant (C-E-G). This substitution is effective, because the harmonies share two identical pitches (E-G) and the voice leading that is needed to complete the harmonies is only a half step from B to C. This type of alternative chordal resolution is coined by David Witten as a *toggle switch* and is described as a series of incomplete chords in which the pitch needed to complete the chord is sustained in a manner similar to a suspension. When that pitch finally resolves by step, the other notes have moved on to another incomplete chord. The

series of resolutions for these incomplete chords create a type of deceptive resolution in which the root of the chord assumes a secondary function to that of the chord member.

The role of the dominant is increased from a secondary role to one that is often comparable to that of the tonic. A compositional technique that contributes to this prominence is the placement of the dominant pitch or chord at the beginning of the phrase and its prolonged treatment within the phrase. The increased emphasis on the dominant chord and especially the distinct function of the leading tone shifts the hierarchy of certain pitches in traditional tonality, as well as their expected resolutions.

#### *Characteristics of Maintaining Tonality*

By the middle of the nineteenth century, the predictable progressions of traditional tonality lack elements of spontaneity, a component that is essential to creativity. Some composers dealt with this challenge through the expansion of tonality rather than its dissolution. By expanding tonality, composers use different techniques that create an increased sense of harmonic ambiguity, departing further from the tonic. Despite this departure, all of the music that expanded tonality still carry with it characteristics to keep some sense of pull toward the tonic, even if it was very slight. One of the ways in which tonal characteristics are maintained in music is by the continued use of associative resolutions of chromatic pitches, even ones that are prolonged. In addition, melodic references to the tonic triad are embedded, and often appear unaligned within the basic harmonic structure, but retain their associative relationship. The bass line also replaced the whole harmonic progression by creating a goal toward a particular cadential point, thus directing motion toward a harmonic goal. This technique creates a sense of counterpoint by moving contrary to the soprano voice, which is a practice that is

significant in tonality. While phrase treatment is modified in expanded tonality, the elements essential to the construction of phrase remains. As long as pitches and harmonies anticipate other sonorities, a hierarchy of pitches persists and thus expanded tonality is still tonality, but now the tonic does not have as much of the prominence that it has in traditional tonality.

### *Significance of Carl Reinecke*

In this study, works by composers of the Romantic period are used to show the developing characteristics of expanded tonality. The finale movement of *Sonata in E minor "Undine"* (1882) by Carl Reinecke (1824-1910) contains frequent appearance of characteristics that demonstrate techniques that are prevalent within expanded tonality. Critics of Reinecke have accused him of writing music that has very little invention as well as demonstrating a cold classicality.<sup>2</sup> Although this trait may be true for some of his music, "*Undine*" contains many characteristics that represent a departure from the conventions of traditional tonality and the inclusions of other techniques that expand the boundaries of a tonal stability. In addition, "*Undine*" has a longstanding position in the standard flute repertoire for over a hundred years, and it continues to be associated with literature by other Romantic composers.

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<sup>2</sup> J.A. Fuller Maitland. *Masters of German Music*. Boston: Longwood Press. 1977, 205-206.

## Chapter Two

### Two Perspectives of Tonal Expansion

The discussion of concepts related to tonal expansion provides valuable insight concerning the compositional treatment of tonal expansion. Two articles that contribute to perspectives discussed in this thesis are “The Coda Wagging the Dog: Tails and Wedges in the Chopin Ballades”<sup>1</sup> by David Witten and “The ‘Sceptered Pall’: Brahms’s progressive harmony”<sup>2</sup> by Christopher Wintle. In both articles, the upper/lower leading tones to the tonic and dominant provide important insight into the treatment of expanded tonality. This chapter of the thesis will include a discussion of concepts of the *wedge* and the *toggle switch* in the article by Witten, and the *Neapolitan complex* developed in the one by Wintle.

*“The Coda Wagging the Dog: Tails and Wedges in the Chopin Ballades”*

*by David Witten*

The article by David Witten includes a discussion of the *wedge* and the *toggle switch*, as well as the ways in which they influence the voice leading of linear harmony. The author uses various Ballades by Frederic Chopin to illustrate and contextualize these concepts. The *wedge* is a result of an upper/lower leading tone, whose persistent presence creates a gravitational pull toward a significant pitch. The other main concept, the *toggle*

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<sup>1</sup> David Witten. ‘The Coda Wagging the Dog: Tails and Wedges in the Chopin Ballades.’ *Nineteenth-Century Piano Music: Essays in Performance and Analysis*, ed. David Witten. (New York: Garland Publishing, 1997)

<sup>2</sup> Christopher Wintle. ‘The ‘Sceptered Pall’: Brahms’s progressive harmony.’ *Brahms 2*, ed. Michael Musgrave. (Cambridge: Cambridge University Press, 1987)

*switch*, is the fluctuation of one note of a particular chord to another note of a chord while the other pitches in the chords are identical. This concept is discussed in more detail later in this chapter.

During a discussion of *Nocturne in B Major*, Op. 32, No. 1 by Frederic Chopin, Witten refers to a description that contains four appearances of the  $b\hat{6}$  throughout fifty measures prompting the emergence of a raised fourth scale degree in m. 62, creating a *wedge* a half step above and below the dominant (Fig. 2.1a). These pitches serve as upper/lower leading tones that emphasize structural pitches. In addition to these leading tones that appear before the dominant, the *wedge* serves to accentuate the tonic, in both a melodic and harmonic context. In the diagrams below (Fig. 2.1b), Witten illustrates examples of the *wedge* within the *Ballade*, and briefly discusses the conflict between the upper/lower leading tone. This study will expand on this concept by discussing the competition between the tonic and dominant, as well as the harmonic implications created by the *wedge*.

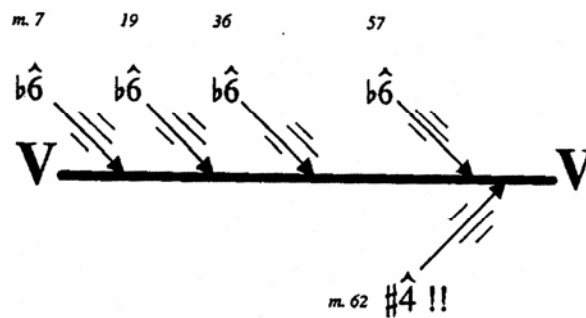


Figure 2.1a – The *wedge* concept in *Nocturne in B Major*, Op. 32, No. 1 by Frederic Chopin (Cited from Witten's article on p. 124).



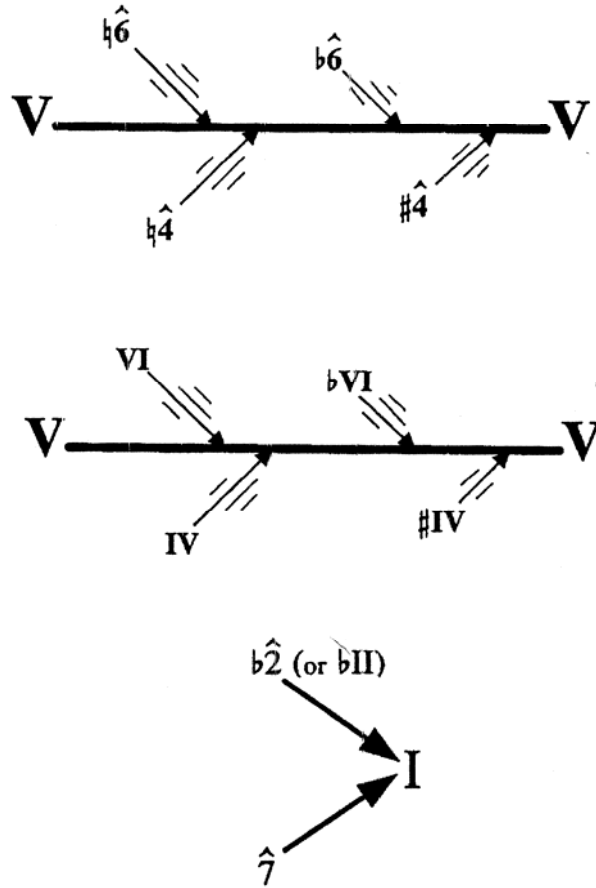


Figure 2.1b – Use of upper/lower leading tones by Chopin (Cited from Witten’s article on p. 125).

In this article, Witten discusses Chopin’s use the *toggle switch*. This term is most frequently derived from progressions of third related chords, such as moving from the submediant triad to the tonic triad. An example that he uses to describe this technique is,

“The distance between the roots of F major and A minor is, of course, a major third, but Chopin was apparently intrigued with an alternate perception of these sonorities as nearly identical chords. Two of the chord tones, A and C, are common to both; the third tonics either F or E, separated by only a half-step. In terms of the scale degrees of the A-minor scale, this F-E “toggle switch” is 6-5.”<sup>3</sup>

<sup>3</sup> David Witten. ‘The Coda Wagging the Dog: Tails and Wedges in the Chopin Ballades.’ *Nineteenth-Century Piano Music: Essays in Performance and Analysis*, ed. David Witten. (New York: Garland Publishing, 1997), 140.

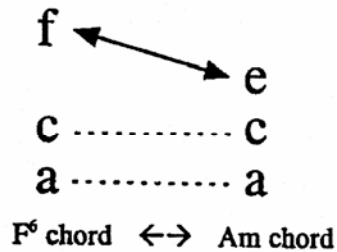


Figure 2.2 – Toggle switch between single pitches (Cited from Witten’s article on p. 140).

This is an interesting example illustrating the important role of the upper leading tone and the dominant in Chopin’s music, as well as its significance in creating tonal ambiguity. In addition to having a single pitch that functions as a toggle, two pitches can also assume the same function joined by a single common pitch. The concept of the *toggle switch* in third-related harmonies creates the opportunity for the use of substitute chords, by providing progressions similar to those that reflect deceptive resolutions. The tonality of a piece becomes increasingly ambiguous when the tonic becomes a member of a chord instead of the root. The upper/lower leading tones also contribute to tonal ambiguity by acting as a *toggle switch*, creating harmonies that are more linear, and less vertical, and thus contributing to expansion of tonality.

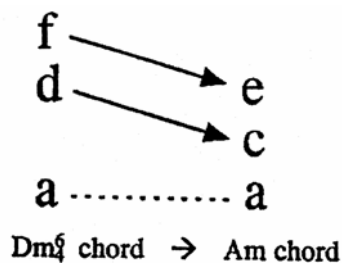


Figure 2.3 – Double toggle switch between single pitches (Cited from Witten’s article on p. 144).

The treatment of voice-leading in the *toggle switch* is expressed in the prolongation of pitches that emphasize traditionally structural pitches. Witten discusses

the use and prolongation of the submediant in order to delay the structural dominant in a composition by Chopin.

“Motion from the sixth to the fifth degree is an essential element not only melodically, but on every structural level; it occurs in the melodic contour of the themes, it strengthens various secondary dominants, and it plays the major role in preparing the structural dominant.”<sup>4</sup>

This frequent voice-leading device of 6-5 is a significant stylistic characteristic that Witten designates as a distinguishing characteristic of Chopin's compositional style. The upper leading tone to the dominant assumes a structural role in the harmony of these compositions and when it is extended in time, it prepares a more structural role for the dominant instead of the tonic.

A technique that reflects Chopin's style is “composing a four-measure phrase to cadence on V or within the area of V, rather than I.”<sup>5</sup> This technique is very important to the concept of the expanded harmony, because the placement the dominant in a structural position offsets the prominence of the tonic, creating tonal ambiguity.

*“The ‘Sceptered Pall’: Brahms’s progressive harmony”*

*by Christopher Wintle*

Christopher Wintle discusses the concept of the *Neapolitan complex* in his article. This concept describes the function of the half step as an upper leading tone. The author uses excerpts from compositions by Johannes Brahms and Franz Schubert to illustrate this concept. Wintle discusses the function of the upper leading tone to tonic and dominant (minor mode) and its use in the context of key areas to emphasize thematic material. An important concept to note is the difference in treatment of the upper leading

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<sup>4</sup> Ibid., 120.

<sup>5</sup> Ibid., 121.

tone within the major and minor modes. In the minor mode, the submediant is naturally a half-step above the dominant, and therefore needs no modification; however, the major key requires the lowering of the submediant from its natural whole-step disparity from dominant. The half-step above tonic requires a modification in both modes to create an upper leading tone above the tonic. Wintle quotes James Webster to describe Franz Schubert's use of the *Neapolitan complex* in sonata form by saying, "When the first part of the second group appears in  $\flat VI$  or  $\flat vi$ , the subsequent move to the dominant mimics a move from the Neapolitan ( $\flat II$ ) to a major tonic."<sup>6</sup> Neapolitan relationships of the key areas in the exposition and recapitulation of Schubert's Octet reinforce this concept:

Exp: F – D flat – C

Recap: F – G flat – F

(Np – I)

In this example, the exposition contains a Neapolitan relationship between the  $\flat VI$  and V, while the recapitulation contains the same relationship a fifth down from  $\flat II$  to I.

Interestingly, in minor modes, the *Neapolitan complex* creates an allusion to the pre-tonal Phrygian mode through the half-step relationship between scale degrees 1 and 2. In addition to harmonic relationships, the *Neapolitan complex* also applies to motivic passages as well. Wintle uses an excerpt from the *Sonata* Op. 38 by Johannes Brahms (Fig. 2.4) to demonstrate this idea. The example below is a reduction of a passage containing a principal motive (B-C-B), which is duplicated at the fifth in mm. 6-7. The

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<sup>6</sup> James Webster. 'Schubert's sonata form and Brahms's first maturity,' *19<sup>th</sup>-Century Music*, 2/1 (1978-9), 27



Figure 2.4 – Reduction of Brahms’s Cello Sonata in E minor Op. 38, first theme (Cited from Wintle’s article on p. 206).

*Neapolitan complex* is very important to the study of the expanded harmony, because of the structural position of the upper leading tone to both the tonic and dominant creating greater tonal ambiguity through the equal treatment of both functions.

## Chapter Three

### Compositional Treatment of Expanded Tonality

The musical environment that influences compositional activity in the Romantic period is both traditional and innovative. The dates that frame this activity in the narrowest sense are from 1825 to 1900, and in the broadest sense 1790 to 1910.<sup>1</sup>

Composers that represent a variety of national origins that include German, Italian, and French, “carr[y] the traditions and idioms of the Classical period to the threshold of the Romantic.”<sup>2</sup> In the transition between the two musical periods, composers retain the structural techniques that contribute to structural stability; however, they modify the context in which they are developed. This chapter is divided into two sections: (1) a discussion of characteristics that represent expanded tonality and (2) compositional techniques of expanded tonality in selected musical example and excerpts.

#### *Characteristics of Expanded Tonality*

In the Romantic period, traditional elements of tonality are retained as composers explore other techniques that modify the treatment of pitch organization. Changes in the hierarchy of pitches affect the structure of melody, harmony, rhythm, meter, texture, tone color, and form. Harmonic instability is the result of the additional use of chromatic pitches and the delay in their resolution within linear progressions. The melodic line

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<sup>1</sup> Rey M. Longyear. *Nineteenth-Century Romanticism in Music*. (Englewood Cliffs, New Jersey: Prentice-Hall, Inc. 1969), 3.

<sup>2</sup> Homer Ulrich and Paul A. Pisk. *A History of Music and Musical Style*. (New York: Harcourt, Brace & World, Inc. 1963), 425.

contains short, intervallic motives with wider leaps, “along with [a] greater emphasis on chromaticism and thematic transformation (character variation), leading at one extreme to extraordinary lyricism.”<sup>3</sup>

The modified treatment of tonality affects other aspects of the musical fabric. Melodic phrases are frequently asymmetrical due to the cumulative development of motives that unfold independently of the harmonic progression. The treatment of rhythm and meter are expressed with greater freedom and changes in tempo and time signatures occur more frequently. Compositions contain “richer, fuller chords and constantly changing textures.”<sup>4</sup> The texture of music experiences significant changes in density, independent thematic activity, and less harmonic congruity. Changes in tone color are the result of additional timbral resources that become available with the expansion of the orchestra and the wide range of dynamics used to produce dramatic effects.

The external treatment of form continues to be a framework for the musical content; however, the internal content is progressively modified. Some of the modifications include the fragmentation of thematic material into smaller theme groups, the expansion of the coda as a second development section, and the use of third related keys that define structural tonal relationships. In addition, tonal areas are no longer the primary focus for formal divisions, but are replaced by motivic material as a primary determinant of form.

The pitch content of harmonic progressions in the Romantic period is generated more by linear rather than vertical motion. In traditional tonality, tertian chord structures

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<sup>3</sup> David Poultney. *Studying Music History*. (Upper Saddle River, New Jersey: Prentice Hall, 1996), 205.

<sup>4</sup> *Ibid.*, 204

progress by predictable root movement that provides a sense of tonal structure. The traditional analysis that uses Roman numerals to indicate harmonic structure requires additional methods to explain the structural significance of these progressions. In expanded tonality, the chord structure often consists of linear step progressions, and the half-step is used provide a gravitational pull to a certain pitch. The frequent appearance of a pitch in a harmonic progression establishes its significance, regardless of its function as a root or a as a chord member.

The supremacy of tonic in establishing musical structure is now shared by both tonic and dominant. In expanding tonality, tonic continues to appear frequently, however it is often shares the structural function of defining phrases with the dominant. *Tonic substitution*, in which the tonic pitch becomes a chord member rather than the root of the chord, weakens the prominence of the tonic. In addition, the dominant no longer functions exclusively as anticipation for tonic; instead, it assumes a more stable function that does not need a resolution. The strength of the dominant is due to its prominent placement at the beginning and ending of a phrase, and the techniques that prolong its presence, as well as delaying its need for resolution.

The upper/lower leading tones to the tonic and the dominant contribute to the strength of these two functions, and their treatment in melodic and harmonic materials contributes to the expansion of tonality. The additions of these leading tones create more chromaticism when pitches are altered to achieve a half-step relationship. The tritone, in conjunction with the leading tones creates a strong gravitational pull to a significant pitch, similar to the *wedge* concept discussed earlier. The appearance of these chromatic pitches in prominent harmonic positions serves to delay, and sometimes even avoid



resolutions. The harmonic structure that contains these upper/lower leading tones is most evident in the German sixth and Neapolitan chord; however, secondary dominants, diminished seventh chords, and the minor submediant also assume leading tone functions. The linear texture is characterized by stepwise motion and neighboring patterns that are frequently used to prolong these upper/lower leading tones. The linear unfolding of harmonic progressions delays the resolution of these leading tones, and consequently this technique often leads to harmonic ambiguity. While stepwise motion creates ambiguity in harmonic progressions, it is the stepwise motion in the bass line that directs the motion towards a stable pitch center.

Melodic development is affected by the appearance and treatment of leading tones. The expansion and repetition of motives is a characteristic technique of the Romantic period, and many of these motivic fragments contain pitches with leading tone potential that are realized later in the composition. Some motives contain leading tones that resolve immediately within the motive, while others are delayed through various techniques of linear unfolding. A sense of counterpoint is created in the texture using imitative motivic fragments and the independence established by contrary motion between the melodic line and the bass.

#### *Compositional Techniques of Expanded Tonality*

In this portion of the chapter, musical examples (originally composed) and excerpts (from the standard literature) will be used to illustrate many of the compositional techniques that have been previously discussed. The first three examples demonstrate the changing roles of the tonic and dominant, the techniques of the upper/lower leading tone, and the treatment of tonic substitution that contribute to these functions. The additional

excerpts contain other significant compositional techniques that appear in selected compositions by Johannes Brahms, Robert Schumann, and Carl Reinecke.

The retention of tonic as a pitch in various harmonic contexts and the emphasis created by upper/lower leading tones are techniques that are described in the figure below. Figure 3.1 is a reduction of an excerpt from mm. 9-19 of *Symphony No. 4* by Brahms. In this excerpt, tonic (in the key of e-minor) frequently appears in a variety of harmonic contexts to assert its structural presence. It should be noticed that the tonic pitch E is emphasized by its lower and upper leading tone; however, it is not always the root of the chord. The presence of the tonic pitch within various harmonic contexts creates a sense of tonic stability, while the vertical stability that is indicated by the Roman numerals expresses harmonic tonal ambiguity. In the figures below, the shaded notes indicate upper/lower leadings, as well as tonic and dominant when appropriate.

The image displays a harmonic reduction of an excerpt from Brahms' Symphony No. 4 in E minor, I, mm. 9-19. It consists of two staves of music. The first staff contains seven chords with Roman numerals: viio7, iv6/4, bII, viio7/III, VI6/4, viio7/iv, and iv. The second staff contains six chords: VI, Gr6, V7/V, i6/4, V, and i. Shaded notes in the original image indicate upper and lower leading tones, as well as the tonic and dominant pitches when appropriate.

Figure 3.1 – Harmonic reduction of *Symphony No. 4 in E minor*, I, mm. 9-19 by Johannes Brahms.

The use of the upper/lower leading tones to the dominant pitch elevates the significance of the dominant to a role similar to that of the tonic. In traditional tonality, the dominant functions as a preparation for the tonic, however in expanded tonality the dominant assumes a role of greater tonal stability similar to that of the tonic. In Figure

3.2, an original example in C-major illustrates how the upper/lower leading tone is used to establish the stability of the dominant. The bottom voice of the progression emphasizes this neighboring effect of the upper/lower leading tones. It should also be noted that the pitches F-sharp and A-flat are lower and upper neighbors to the root of the dominant chord, while the pitches C and E-flat are upper neighbors to the third and fifth of the dominant triad, B and D respectively.



Figure 3.2 – Prominence placement of the dominant prolonged by upper/lower leading tones (An original example).

The technique described in the previous paragraph is defined as dominant prolongation. This term refers to the extended presence of the dominant by its upper/lower leading tones. In the treatment of dominant prolongation, the dominant pitch appears as a chord members until it achieves a more prominent role as the root of the chord.

The use of leading tones in order to emphasize the tonic as well as the dominant redefines their dual roles in establishing tonal stability. With this treatment, the structural use of leading tones produces an expanded harmonic context that alters the traditional harmonic progressions, and extends the melodic line through delayed resolutions. Figure 3.3 is an original example that illustrates tonic and dominant duality by using upper/lower leading tones to emphasize both pitches. The techniques of tonic substitution and dominant prolongation allow for the frequent appearances of these two pitches within this progression. The tonic chord in this progression is followed by secondary harmonies that

contain the tonic pitch, which functions as a chord member instead of the root. In mm. 4 and 5, the secondary diminished and dominant seventh chords contain the tonic pitch as a chord member rather than the root. These two secondary harmonies provide references to the tonic pitch and at the same time create an embellishment for the dominant. In these measures, there is a sense of tonic and dominant duality, since the tonic pitch within these chords is used to enhance the dominant. In this passage, upper/lower leading tones of both tonic and dominant appear in their characteristic neighboring motion in order to add stability to both functions.

I    iii6/4    iv6/4    vii6/4/V    V4/2/V    iii6/4    vi    vii4/2    i6/4    vii7/V    V

Figure 3.3 – Duality of the tonic and dominant through equal treatment.

The use of the upper/lower leading tones and their effects on voice-leading greatly influence harmonic progressions in expanded tonality. Various compositional techniques create a sense of stability by using step progressions of chord roots in order to replace the emphasis on roots of chords, which are prominent in traditional tonality. The appearance of tonal instability is often obscured by chromatic neighboring motion in voice-leading, the addition of the tritone enhancing the *wedge* concept, the emphasis of chromatic harmonies that delay and sometimes avoid resolution, and stepwise linear motion in the bass that appears in both a diatonic and chromatic context. The recognition of these techniques as modifications of traditional practices provides an insight into the transitional role of tonal function in the Romantic period.

In the following paragraphs, the compositional treatment of the upper/lower leading tones within harmonic and melodic textures is discussed. The intention of this

discussion is to indicate a type of structural presence that is achieved through these techniques. Chromatic neighboring motion is often the voice-leading that results from the use of upper/lower leading tones. In the e-minor example below (Fig. 3.4), the German sixth chord precedes the tonic chord. In this progression, E and G are retained in a similar manner to the *toggle switch* technique, while the A-sharp and C generate a half-step *wedge* motion to the dominant pitch. The neighboring motion that follows provides stability for the ultimate statement of the tonic triad.

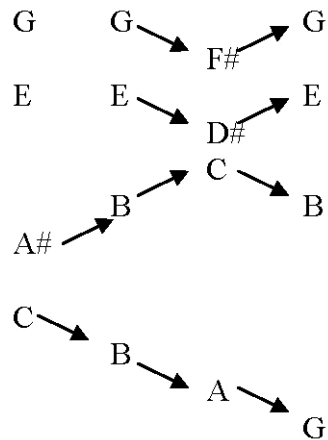


Figure 3.4 – Chromatic neighboring motion in conjunction with the upper/lower leading tones to the dominant (Ordering of pitches shown non-traditionally for sake of clarity).

The *wedge* concept is often the result of the use of the upper/lower leading tones in conjunction with the tritone. The added tritone can be either natural to the vertical structure of the German sixth, or it can arise in a linear manner characteristic of the chromatic neighbor pattern. In the e-minor example below (Fig. 3.5), the German sixth chord contains both the upper/lower leading tones to the dominant pitch, as well as a tritone. In addition to the resolution implied by upper/lower leading tones to the dominant, the presence of the tritone between the root and the diminished fifth also demands resolution. This combination creates a strong gravitational pull to pitches of the

dominant triad. It should be noticed that C and A-sharp, the augmented sixth interval, traditionally expands to the pitch B, the root of the dominant chord. In the tritone A-sharp to E, the pitch A-sharp traditionally contracts to B, however, the pitch E is delayed before resolving to D-sharp in the third chord. The resolution of the pitch G is also delayed in its resolution to F-sharp. In the third chord, the pitch C arises from the characteristic neighboring motion from B. The third chord that results from the linear motion resembles a D-sharp diminished chord without the fifth, but more important is the presence of another tritone, F-sharp to C. When this tritone resolves in a traditional manner to G and B, it is accompanied by the pitch F, creating another tritone between B and F that commands a traditional resolution to C and E. A reference to the upper line of this harmonic progression contains a double neighboring motion, D-sharp and F to E, creating a linear *wedge* to this tonic pitch.

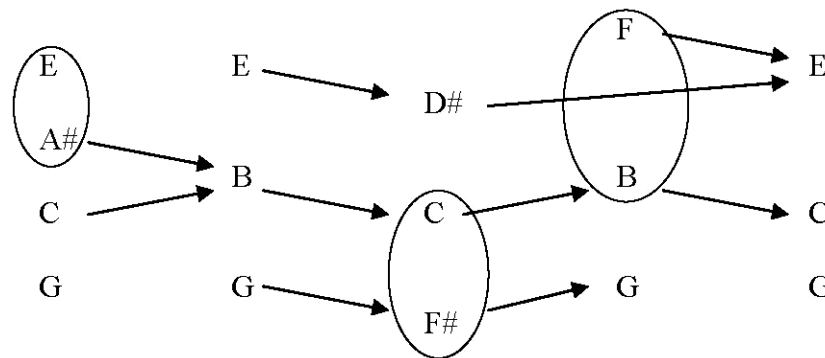


Figure 3.5 – Wedge concept created by the resolution of upper/lower leading tones and tritones (chord placed in non-traditional ordering for clarity).

In harmonic progressions, the implied resolutions of upper/lower leading tones are often delayed. In Figure 3.6, the harmonic reduction from an excerpt by Schumann illustrates this technique. In the first measure, the secondary dominant of the dominant sets up the traditional expectation for a resolution to dominant. While this dominant pitch

does occur in other chords, it is disguised due to its function as a chord member rather than the root of the chord. The upper/lower leading tones appear alternately to provide the intended resolution to the expected dominant triad earlier in the progression. The deceptive resolutions occur when some of the chord members resolve. The lack of a complete resolution occurs for such a length of time, that when the chord finally appears, it no longer has an audible association with the previously unresolved chord.

V7/V    i        VI        i        VI6        i        V4/2/V    viio    V6/5    i

Figure 3.6 – Reduction of *Sonata in A minor*, Op. 105, mm. 113-119 by Robert Schumann. Delayed resolution to the dominant is created in part by the use of upper/lower leading tones.

In Figure 3.6, the upper/lower leading tones create step progressions that delay the appearance of the major dominant triad, which causes a degree of tonal instability within the harmonic progression. A sense of tonal direction is provided by the stepwise chromatic descent in the bass line. This continuous half-step descent provides a sense of tonal stability that is created by the goal-directed motion leading to the dominant.

The function of the melodic line in traditional and expanded tonality provides a framework in which to express and develop thematic ideas from pitches in the harmonic background. In traditional tonality, the thematic ideas are often immediately associated with their local harmony. In expanded tonality, thematic fragments frequently delay harmonic resolutions that are realized later in the progression. Another feature of the melody in expanded tonality is its independence from the harmony, due to the repetitive nature of the motive, and its contrary motion from the bass line.

Motivic fragments containing pitches with leading tone potential expand and repeat throughout the course of thematic development. Some of these pitches are resolved within the motivic statement, while others are delayed until later in the phrase. Motives containing a pitch with leading tone potential occur naturally within the harmonic minor scale, as either a lower leading tone to tonic or upper leading tone to dominant. Composers may also give structural significance to pitches with leading tone potential through its structural placement within motivic material.

In the development of thematic material, motivic fragments consist of intervallic patterns that are suggestive of different tonalities. These patterns are repeated, expanded, and combined to later reflect a form of tonal clarity. An example of this motivic treatment is presented in the first movement of *Symphony No. 4 in E minor* by Brahms (Fig. 3.7). This example features a two-note motivic fragment, that of a descending third and an ascending sixth, which become the source of further thematic development within much of the composition. The identical rhythmic pattern of this fragment reinforces its contribution to the evolving thematic material, and the sequence that follows immediately expands it into a four-note motive. The four-note motivic pattern created by the rhythmic qualities of the motive disguises the descending tonic triad in the first measure, causing harmonic ambiguity within the melodic line. The isolated two-note fragments give an initial impression of harmonic ambiguity. In the sequential treatment of the four-note pattern, a D-sharp diminished triad provides clarity to the harmonic implications. This example also illustrates the structural placement of the lower leading tone, D-sharp in measure three, and the upper leading tone of the dominant in measure two. In the first four-note motive, the pitch C does not resolve to the dominant until the four-note



sequence in measure four. In the second sequence, the resolution of the pitch D-sharp is also delayed until it resolves to the tonic on the downbeat of the measure five.

The image displays a musical score for the first eight measures of Brahms' Symphony No. 4 in E minor, I. The score is presented in two systems. The first system covers measures 1 through 5, and the second system covers measures 6 through 8. Each system includes a melodic line in the upper voice and a piano accompaniment in the lower voice. Roman numerals are placed below the piano part to indicate the harmonic structure: i, iv6/4, V4/3, i, VI in the first system, and i, vii, iv in the second system. The melodic line features a prominent two-note motive (D-sharp and E) that is repeated and varied throughout the passage.

Figure 3.7 – Harmonic reduction of *Symphony No. 4 in E minor*, I, mm. 1-8 by Brahms. This two-note motive is the generating factor within this composition.

In the original score, the harmonic content that supports this melodic line is expressed within an arpeggiated context. In Figure 3.8, however, the texture has been reduced to block chords in order to show the full harmonic content that supports these motivic gestures. It is also interesting to note the initial complexity of the harmonic function when using Roman numerals. A further reduction of this progression reveals the

delayed resolutions of the upper/lower leading tones, F and D-sharp, to the tonic, as well as the upper leading tone, C, to the dominant.



Figure 3.8 – Further harmonic reduction of *Symphony No. 4, in E minor*, I, mm. 1-8 by Brahms. The lower and upper leading tones to the tonic emphasize the tonic pitch within this melodic passage.

A similar treatment in the development of motivic fragments appears in the melodic line from the first phrase of *Sonata “Undine”* by Reinecke (Fig. 3.9). The appearance of a potential leading tone within the motive, and its delayed resolution is very evident in the development of this phrase, and is discussed in more detail in the following chapter. The example is included here to show the independence of the melodic line and its contrapuntal implications in other places within the musical texture.

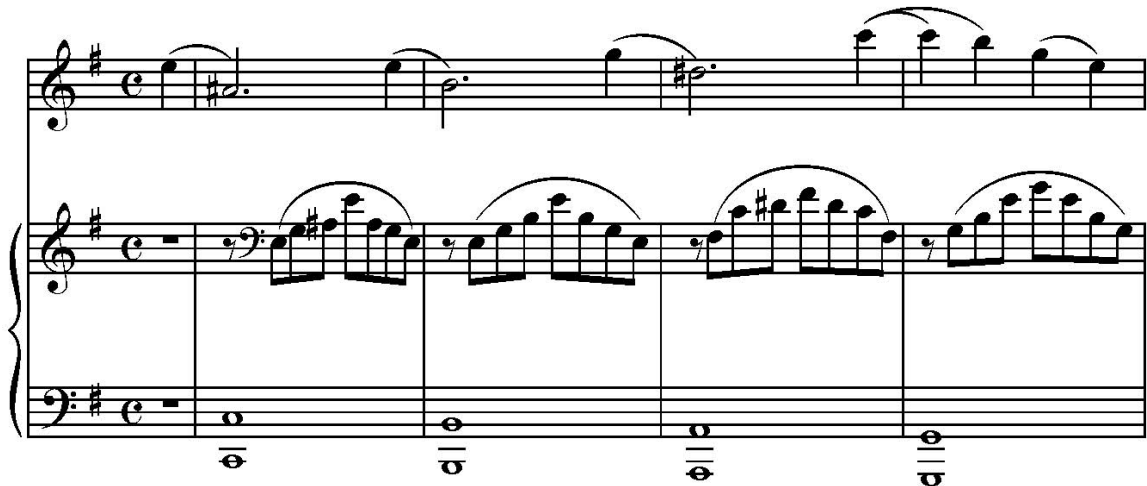


Figure 3.9 – *Sonata “Undine,”* mm. 1-4 by Carl Reinecke. The melodic line moves in an ascending motion contrary to the bass line, which moves in a descending motion.

In the melodic line, a sense of contrary motion emerges between the ascending pitches of the anacrusis in each of the motivic fragments and the descending bass line. The

polyphonic nature of the melodic line implies two voices, as illustrated by Figure 3.10. The anacrusis to each measure outlines the tonic triad until its descent in the fourth measure, while the leading tones to the dominant and tonic receive structural significance through their metrical placement on the strong part of the beat, as well as by duration. All three lines have varying degrees of independence due to the textural distinctions created by varying rhythmic patterns.

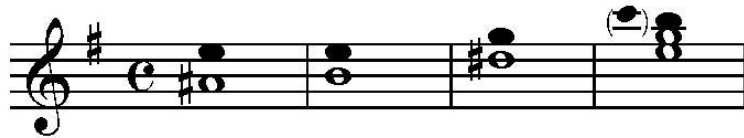


Figure 3.10 – Melodic reduction of *Sonata "Undine,"* IV, mm. 1-4 by Carl Reinecke.

The next example (Fig. 3.11) contains a primary motive in the first movement of *Sonata in A minor*, Op. 105 by Schumann. In this motive, the upper/lower leading tones to the dominant are expressed within in the motive. This primary motive contains a resolution of the upper leading tone (F) to the dominant pitch (E). The resolution of the lower leading (D-sharp) is interrupted by a repetition of the motive (see upper bracket). The pitch E provides a temporary resolution in the immediate repetition of the motive. The initial appearance of the neighbor group is embedded in the repetition of the motive (see lower bracket of the example). It is interesting to note the metric displacement that occurs when the rhythm of the motive and its repetition does not appear on the primary beat of the measure.



Figure 3.11 – Primary motive of *Sonata in A minor*, Op. 105, I by Schumann.

In this chapter, originally composed examples and excerpts from the standard literature are used to illustrate various treatments of the upper/lower leading tones within melodic and harmonic contexts. The modified treatment of leading tones to the pitches of the tonic and dominant provide another perspective to pitch stability during a period where composers are extending traditional functions and exploring new resources in pitch organization. The primary and supporting roles of tonic and dominant respectively are modified, giving both more of an equal status. Tonic substitution is the frequent presence of the tonic pitch as a chord member, appearing in a variety of contexts and replacing its traditional role of tonic in framing melodic and harmonic motion. The secondary role of dominant as a preparation for tonic is enhanced through its prolongation and significant placement within the musical structure.

In harmonic progressions, the upper/lower leading tones appear in a linear context, and are used to emphasize pitches through neighboring voice-leading. The use of the tritone in conjunction with the leading tones creates strong linear harmonies and enhances the *wedge* concept. The inclusion of these chromatic pitches within the harmonic texture and their delayed or avoided resolutions provide a sense of tonal instability. Stepwise linear motion in the bass line of this harmonic texture often creates a projected motion that helps to define a more stable tonal goal.

In addition to harmony, the upper/lower leading tones strongly influence the melodic line of a composition. The expansion and repetition of motives is a concept central to the Romantic period, with fragments containing pitches with leading tone potential that are later realized. Motivic fragment contain leading tones that resolve immediately and others that are delayed through various techniques of linear unfolding.

A notable feature of the melody in expanded tonality is its independence from the harmonic line through the different rhythmic and textural features that contributes to its distinctive qualities. The use of the upper/lower leading tones in melodic, harmonic, and textural contexts creates new approaches to the treatment of tonality.

## Chapter Four

### The Compositional Style of Carl Reinecke's

#### *Sonata in E minor "Undine," Op. 167, IV*

Compositional techniques of the Romantic period begin to reflect more innovative approaches to pitch structure as the restrictive principles of traditional tonality decline. These techniques become more prevalent in the last two decades of the nineteenth century. In the previous chapter, general musical characteristics of the Romantic period are described in reference to the ways that they modify the practice of traditional tonality. In addition, prominent composers of this period are referenced in regards to their approach to these modifications by using the upper/lower leading tone. The concept of the upper/lower leading tones to the tonic and dominant provides a framework in which tonality can be modified and expanded from traditional concepts in *Sonata in E minor, "Undine," Op. 167, IV* by Carl Reinecke. Reinecke uses this concept as a pervasive structural feature in this composition, and consequently, a more detailed analytical discussion appears in this chapter.

#### *Reinecke's Background*

Carl Reinecke was a German composer, teacher, pianist, and conductor born in Altona, Germany on June 23, 1824. In his early years, his father, J.P. Rudolph Reinecke, was responsible for a significant portion of his initial music education. He was court pianist in Copenhagen in 1846, and in 1851, he moved to Cologne to teach counterpoint

at Hiller's conservatory. In 1860, he became a teacher at the Leipzig Conservatory where he eventually became director in 1897. Carl Reinecke died in Leipzig on March 10, 1910.<sup>1</sup> "As a composer Reinecke was best known for his numerous piano compositions, representing virtually every musical form of the time and, despite being influenced by Mendelssohn's melodic style, was stylistically nearer to Schumann."<sup>2</sup>

Many critics have accused Reinecke of being a traditional composer and teacher with a preference for the conservative foundation provided by the works of composers such as Bach and Palestrina.<sup>3</sup> At the same time, he was productive in his compositional activities with early Romantic influences from both Robert Schumann and Felix Mendelssohn.<sup>4</sup> In addition to influences from his predecessors, his contemporary professional circle contained many friends who were accomplished musicians and composers, the most notable being Johannes Brahms. Reinecke was also a piano teacher whose students included the daughters of Franz Liszt. In 1898, Reinecke wrote a cello and piano sonata "To the memory of Brahms,"<sup>5</sup> revealing a familiarity that they had with one another.

The compositions of Reinecke are numerous, many of which are chamber and piano music. "His sonata for flute and piano, *Undine*, is his most frequently performed work"<sup>6</sup> and remains a part of the standard flute literature to this day. This sonata, more

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<sup>1</sup> Reinhold Sietzr, 'Carl Reinecke,' *Grove Music Online* ed. L. Macy (Accessed 2 July 2007) <<http://www.grovemusic.com>>

<sup>2</sup> Ibid.

<sup>3</sup> Maurice Hinson, *Guide to the Pianist's Repertoire*. (Indianapolis: Indian University Press, 2000), 640.

<sup>4</sup> Ibid., 640

<sup>5</sup> Michael Musgrave, *The Cambridge Companion to Brahms* (United Kingdom: Cambridge University Press, 1999), 296.

<sup>6</sup> Reinhold Sietzr, 'Carl Reinecke,' *Grove Music Online* ed. L. Macy (Accessed 2 July 2007) <<http://www.grovemusic.com>>

formally known as *Sonata in E minor*, “*Undine*,” Op. 167, is a programmatic composition based on the 1811 novel by Friedrich de la Motte Fouque, which tells the story of the sea nymph Undine who falls in love with a mortal man that later scorns her.<sup>7</sup> The sonata consists of four movements: I: Allegro, e-minor; II: Intermezzo, b-minor; III: Andante, G-major; and IV: Finale, e-minor. The following analytical discussion of the fourth movement provides insight into the use of upper/lower leading tones to the tonic and dominant as a structural determinant. This discussion includes an overview of the thematic structure, a chart that summarizes the formal scheme, a description of expanded tonal techniques in the first 35 measures of the exposition and other selected passages that occur at structural points within the movement.

#### *Form of Sonata “Undine”*

The Finale movement in e-minor contains characteristics that are indicative of sonata-allegro form. The three traditional sections are the exposition (mm. 1-114), development (mm. 115-159), and recapitulation (mm. 159-317). In the exposition, a two-note motivic gesture characterizes the first theme (mm. 1-46) with a descending skip from an anacrusis to a sustained strong beat. The first theme in e-minor is followed by a transitional passage which prepares for the arrival of the second theme (mm. 53-89), in G-major. A similar motive from the first theme characterizes the second theme, with an ascending skip rather than a descending one. The tonality of G-major lasts for 21 measures and then changes to the dominant of B-major. This key overlaps four measures into the closing theme (mm. 91-114) as it modulates temporarily for eight measures back to e-minor (mm. 96-103). The motive in the closing theme, when compared to the first

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<sup>7</sup> For more detailed information on the story of Undine, visit <http://www.larrykrantz.com/undine.htm>



and second themes, contains a distinct contrast with the absence of an anacrusis and the frequent use of triplets within the rhythm pattern. In measure 104, the tonality changes again to the third-related key of c-minor (mm. 104-114), which is strengthened by the German sixth chord that emphasizes the dominant pitch within this key. This tonal area ends in the closing theme at measure 115 with a short transitional section to the development (mm. 120-159), as well as a return to the key of B-major (mm. 120-134).

The development section begins with a traditional treatment of motivic development from the previous thematic material and includes a transitory progression to various tonal areas. This section remains in the dominant key from mm. 135-147, modulates to the key of G-major, and then progresses through a tonally ambiguous passage (mm 148-159) to the recapitulation.

In the recapitulation, the first theme (mm. 159-186) returns in the tonic key of e-minor as is typical of sonata-allegro form. The second theme (mm. 187-225) modulates to the parallel key of E-major, and continues with a seemingly uncharacteristic modulation to A-flat-major from measures 212-228; however, this key is an enharmonic equivalent of G-sharp-major, the mediant of E-major. The end of this section contains a closing theme (mm. 229-246) that alternates between a D-sharp diminished chord and an E-flat-major chord. These two chords contain pitches that are also enharmonically equivalent, with the E-flat chord functioning as the dominant of the previous key of A-flat-major. A transitional section to the coda occurs at measure 246 with the return of the first theme in the original tonic key of e-minor. In measure 278 of this transitional section, a mutation occurs from e-minor to E-major, which anticipates the key of the coda

in m. 279. The diagram in Figure 4.1 provides a summary of the formal and tonal plan of the movement.

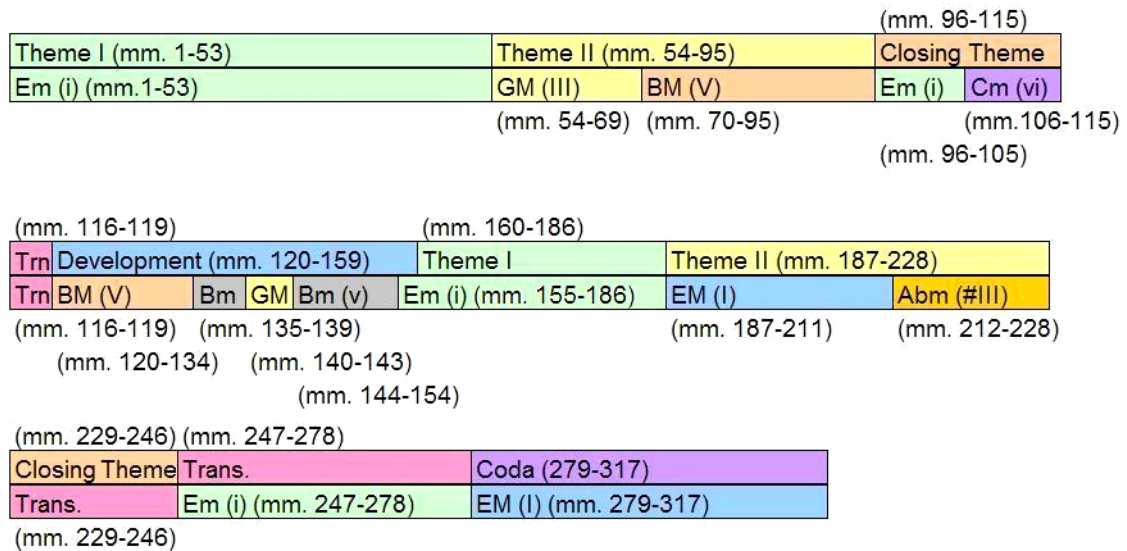


Figure 4.1 – Thematic and tonal areas in *Sonata in E minor, “Undine,”* Op. 167, IV by Carl Reinecke.

### *Treatment of Tonality*

The treatment of tonality in this movement is modified in the melody, harmony, rhythm, and texture. The traditional emphasis on pitches within the tonic, subdominant, and dominant triads are replaced by occasional references to pitches from the tonic and dominant triads. The tonic pitch appears frequently to establish its presence; however, it is disguised in other harmonic contexts. In more frequent situations, the dominant assumes greater significance when it appears at the beginning of the phrase, is prolonged, or its resolution to tonic is avoided. The structural significance of pitches from the tonic and dominant triad are given greater emphasis by the use of upper/lower leading tones. Additional significance is given to this leading tone treatment by its use in motivic patterns, as well as rhythmic and metrical emphasis. In harmonic progressions, the linear

voice leading contains chromatic neighbor motion that is reflective of the upper and/or lower leading tone treatment.

The vestiges of tonality are most evident in the formal design of the composition. An interesting feature to note is the relationship between the first thematic material and the tonal areas of the composition. Figure 4.2 contains the order of key areas in this movement and their relationship to the melodic line in the first phrase. The key areas at the beginning of this movement express an e-minor triad and the key of c-minor follows shortly thereafter in the second half of the closing theme where it may be interpreted as an upper leading tone to the dominant, in a manner similar to the melodic line in mm. 3-4. The next part of the tonal progression creates an interrupted descending e-minor triad similar to the melodic material in measure four. In the following analysis, phrases from structural points in the movement are used to illustrate the ways in which the upper/lower leading tone and other compositional techniques expand the boundaries of traditional tonality.

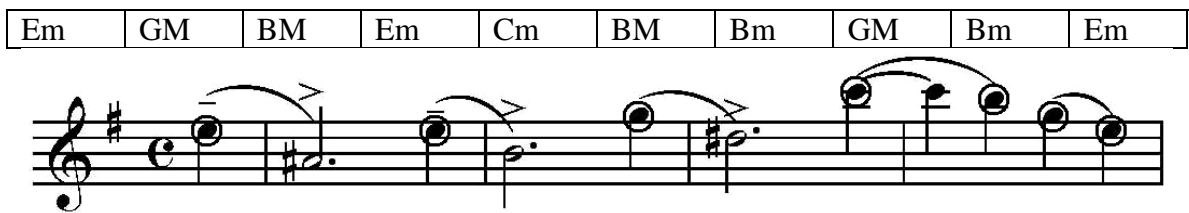


Figure 4.2 – Comparison of tonal areas to the first phrase of *Sonata “Undine.”*

### *Analysis of First Theme*

The motivic development of thematic material is repeated and expanded within the phrase structure. This material is divided into two phrases, mm. 1-4 and 5-11. In Figure 4.3, the first phrase is assigned to the flute. The rhythmic treatment of the first phrase creates a strong sense of metric instability when the two-note motive in the first

three measures appears as an anacrusis to a strong beat. The repetition of this motive becomes a generating factor throughout the composition. The fourth and final measure of the phrase augments the feeling of syncopation from the first three measures with a delayed resolution of the anacrusis. These features of instability, as well as the *allegro molto tempo*, contribute to the general feeling of tension in the first phrase. The second phrase of the theme begins in measure five. The two-note grouping of the motive in the first phrase is now extended to three and four notes as the thematic material develops. The continuous development and expansion of the motive extends the second phrase to seven measures, creating an asymmetrical relationship when compared the four measures of the previous phrase.

In the melodic line, the vestiges of traditional tonality are quite evident. Pitches related to the e-minor triad initiate the two-note motives at the beginning of the phrase, they are followed by a descending and ascending tonic triad in mm. 4 and 8, respectively, and the tonic is prominently placed as a climactic pitch in mm. 9-10. The first and second anacrusis of the first phrase is on E with the following anacruses on G and C. The pitch C becomes an upper leading tone to the dominant when it resolves immediately to B. In this progression, the tonality of e-minor is retained in the ascending e-minor triad expressed in the span of three measures, followed by a rapid descent in the following measure. The absence of the traditional dominant-tonic support by the harmony creates a less stable tonality. The lower leading tone emphasizes the pitches of the e-minor triad; however, their resolutions are often delayed, creating a sense of tonal instability.



Figure 4.3 – Melodic line of the first phrase of *Sonata “Undine,”* IV, mm. 1-11. Arrows indicate the resolution of the upper and lower leading tones to the tonic and dominant.

The appearance of a chromatic pitch with leading tone potential in the motivic line is indicated by arrows in Figure 4.3. In these phrases, the potential of these pitches contains a delayed realization. Figure 4.4 illustrates this melodic line in a reduced format, which helps to reveal leading tone relationships. In this diagram, the shaded notes are the leading tones, while the white notes are pitches of the e-minor triad. It is interesting to note that every pitch that is not a part of the tonic triad is a leading tone to the tonic or dominant, with the exception of the A-flat, an upper leading tone to the mediant. The pitch D-sharp is delayed in its resolution to E at the end of the descending e-minor triad. In the second phrase (the second bracketed group in the figure), the pitches F-natural and E are emphasized on strong beats in successive measures, creating a delayed resolution to E. These pitches occur again in the next two measures, and are preceded by an anacrusis. An ascending e-minor triad follows in measure eight, leading to the climax pitch of E. The function of pitch C as an upper leading tone to the dominant appears clearly in the first phrase with its immediate resolution to the dominant. In the second phrase, a reference to the second bracket shows that the pitch C appears early in the phrase, is delayed, and is later followed by the lower leading tone, A-sharp, before resolving to B,

the dominant pitch. The treatment of these delayed leading tones contributes greatly to the expansion of tonality.

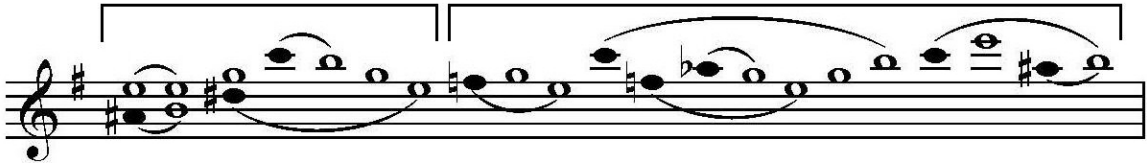


Figure 4.4 – Reduction of the melodic line of mm. 1-11 in *Sonata “Undine,”* IV.

The texture that supports this melodic line enhances the elements of expanded tonality. A reference to Figure 4.5 illustrates the independent roles of the bass line and the arpeggiated harmony. The stepwise progression in the bass begins on the pitch C and creates a goal of directed motion that ends on the pitch G before it skips back to the pitch C. When the C appears again, it resolves to the dominant pitch, B, functioning as an upper leading tone to the dominant. This descending step-wise motion moves contrary to the ascending motion of the two-note motive in the melodic line, creating a contrapuntal motion of independent voices.

The image shows a musical score for Flute and Piano, measures 1-11. The score is in 3/4 time and E minor. The piano part features a German sixth chord in the first measure, which is arpeggiated in the subsequent measures. The flute part has a melodic line with slurs and accents.

Figure 4.5 – Sonata in E minor “Undine,” Op. 167, IV, mm. 1-11 by Reinecke.

In the harmonic progressions, the characteristics of expanded tonality are prevalent in the use of *tonic substitution*, which obscures the immediate presence of harmonic stability. In this arpeggiated harmony (mm. 1-11), pitches of the e-minor triad are retained by their presence in other chords. This treatment of *tonic substitution* appears in the opening German sixth chord as the pitches E, G, and B gradually unfold through

stepwise motion in the form of the *toggle*. While the dominant harmony does not appear in this passage until the cadence, the German sixth chord in the first measure provides anticipation to this chord through the presence of the upper/lower leading tones to the dominant. The prolongation of these leading tones through the unfolding harmonic progressions creates a *wedge* to their eventual resolution at the end of the phrase. In this linear harmony, the chord structures are often unclear when they are identified with traditional Roman numerals.

Figure 4.6 is an original harmonic progression that has been created to show chords containing at least two notes in common with the tonic triad, and the influence that these chords have on the progression when other notes are added. It may be noticed that when Roman numerals are added to represent these chords in a traditional manner, they do not indicate traditional root movement.

|                      |    |    |   |   |   |   |
|----------------------|----|----|---|---|---|---|
| i                    |    | E  | G | B |   |   |
| vii <sup>o</sup> 7/V | A# | C# | E | G |   |   |
| Gr6                  | A# | C  | E | G |   |   |
| VI                   |    | C  | E | G |   |   |
| iv7                  | A  | C  | E | G |   |   |
| III                  |    |    | G | B | D |   |
| V7/VI                |    |    | G | B | D | F |

Figure 4.6 – Chords with tonic substitution potential

In the harmonic progression, it is interesting to note that the presence of the tritone in addition to the upper/lower leading tones also contributes to the expansion of tonality. Measures 1-11 begins with a German sixth chord, which contains the tritone, along with the upper/lower leading tones to the dominant, creating a greater need for resolution. Two different treatments of the resolution of the tritone appear within this



passage. The first type appears in mm. 1-2 where the leading tone to the dominant (A-sharp) resolves while the tonic pitch is retained in both chords. The second type occurs in mm. 3-4 where the pitch A resolves to G while the leading tone resolves to tonic. The inherent potential of the tritone and the leading tone to resolve creates a stronger gravitational attraction to the note of resolution.

em: Gr6 i6/4 viio4/3 i6 V7/VI VI V7/VI VI Gr6 V

Figure 4.7 – Harmonic reduction of mm. 1-11 in *Sonata "Undine," IV*.

The delaying of structural harmonies in mm. 1-11, particularly the dominant, is created by the frequent use of upper/lower leading tones, which expand and modify harmonic progressions. When the German sixth chord appears in the first measure, it makes its traditional resolution to the *i6/4* in the second measure, but instead of resolving to the dominant chord, the progression moves deceptively to a diminished seventh chord in the third measure. Nine measures delay this resolution to the dominant until the reappearance of the German sixth, which resolves directly to the dominant in a cadential statement. An important concept to note here is Reinecke's frequent use of harmonies with deceptive qualities to delay resolution.

The treatment of the dominant and tonic using upper/lower leading tones is similar throughout mm. 1-11, causing a greater equality of both pitches. In the first measure, the upper and lower leading tones to the dominant (C and A-sharp) appear and

resolve through linear unfolding in the second measure. In the third measure, the lower leading tone to tonic (D-sharp) appears and resolves in a similar manner in the fourth measure. The upper leading tone to tonic (F) appears in measure five and its resolution in measure six is delayed by an escape tone. The upper and lower leading tones to the dominant appear again in the tenth measure and resolve in the following measure similarly to the beginning of the phrase. The similar treatment given to both the tonic and dominant modifies their traditional roles in establishing tonality.

The previous discussions of expanded tonality in the fourth movement have focused primarily on the first eleven measures. In these measures, the treatment of the upper/lower leading tones appear in melodic, harmonic, and textural materials, and they greatly influence an expansion of tonality. The related concepts that are discussed in the third chapter also appear in these measures to form the framework for the remainder of the movement. The discussion that follows identifies the use of these concepts in passages that appear in traditional sonata-allegro form.

#### *Analysis of Transition Section*

The transition section in mm. 12-35 is divided into three sections (mm. 12-15, mm. 16-27, and mm. 28-35). In the first phrase of this transition (Fig. 4.8), the lower voice of the piano continues the development of the two-note motive from the first theme. One of the primary features of this segment is the emphasis that is given to the dominant harmony. In this passage, the dominant harmony is resolved deceptively and then embellished by a secondary diminished chord. Within this progression, pitches of the upper/lower leading tones to the dominant pitch as well as the lower leading tone to the tonic pitch provide a dual reference to both pitches. Within the phrase an underlying

arpeggiated tonic triad appears in the lower voice of the piano, which gives the tonic a sense of tonal stability.

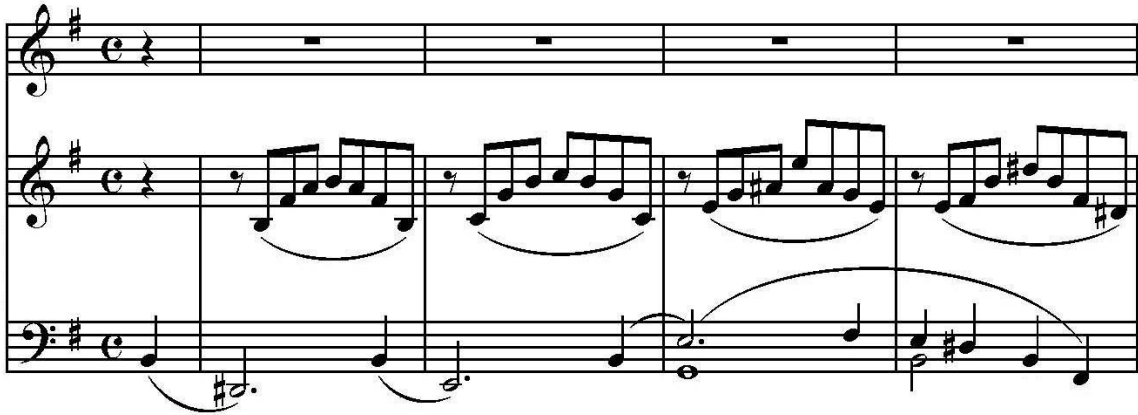


Figure 4.8 – Sonata “Undine,” IV, mm. 12-15.

The second segment of the transition in mm. 16-27 (Fig. 4.9) assumes a dual function of emphasizing the dominant and anticipating the tonic in the melody, as well as in the harmony. One of the most prominent features of this segment is the linear unfolding of the dominant seventh chord within the melodic line. The segment begins with an ascending skip of the dominant pitch, followed by underlining chromatic motion with intervening neighbor motion to the pitch D-sharp. The harmonic support for this portion of the melodic line contains a half-diminished seventh chord. The dominant seventh chord is then completed by two ascending skips from D-sharp to F-sharp and F-sharp to A, supported harmonically by a fully diminished seventh chord. The placement of these final three pitches on the strong beat of each measure contributes stability to the metrical structure. While the dominant is emphasized throughout the phrase, the very nature of the dominant seventh chord anticipates tonic, especially in conjunction with the diminished seventh harmonies that support it.

Figure 4.9 - Sonata "Undine," IV, mm. 16-25.

In the third segment (mm. 28-35), the two-note motivic skips are reminiscent of the opening thematic motive, and alternate between the upper voice of the piano and the flute (Fig. 4.10). The descending intervallic skip of a tritone is imitated in different registers before resolving in the upper voice of the piano to E-G (mm. 33-34), which are members of the tonic triad that appear in the context of an unrelated diminished seventh chord. At this point of resolution, the pitch A-sharp creates another tritone between A-sharp and E, which is also repeated and imitated. The traditional resolution of this tritone is avoided and these pitches instead become members of the German sixth chord (A-sharp, C, E, and G) in preparation for the return of the first theme.

Figure 4.10 - Sonata "Undine," IV, mm. 28-36.

### *Analysis of Second Theme*

The second theme begins at m. 54 in the key of G-major. A second statement of this theme at m. 70 in the key of B-major features the prominent placement of the dominant and its prolongation. A harmonic reduction of this passage is illustrated in Figure 4.11. In this figure, the first measure containing the C-sharp half-diminished chord represents mm. 70-76 because of its sustained presence. This figure is used to describe the techniques of dominant prolongation, *tonic substitution*, the dual treatment of tonic

and dominant, and the *toggle switch*. Within this passage, the dominant harmony is emphasized because of its prominent placement and its prolonged treatment throughout the phrase. When the tonic chord does occur, it functions as either a tonic 6/4 or V7/IV utilizing the technique of *tonic substitution*. Another feature that disguises the tonal function is the initial presence of the ii7 chord that precedes the dominant prolongation.

BM: iiø7      V7      I6/4      V7      I6/4      V7/IV      IV

viio6/5/III      I6/4      viio6/5/V      I6/4      ii7      V7      I6/4

Figure 4.11 – Harmonic reduction of *Sonata “Undine,”* IV, mm. 70-90.

The reduction of this passage in Figure 4.11 illustrates the dual treatment of the tonic and dominant pitches. The passage begins with a suggested reference to the key of B-major when in the bass line, the pitches C-sharp, F-sharp (sustained), and B suggest ii-V-I in B-major. A return to the dominant (F-sharp) in the last four measures reinforces this. The reduction also shows that the pitch E (tonic of the movement) emerges as a descending E-major scale that is further emphasized by neighboring motion. The

structural appearance of the pitch E in this B-major passage allows both tonic and dominant pitches to coexist.

The compositional technique of the *toggle switch* contributes to the lack of tonal clarity within this reduction. The retention of pitches that are common to their surrounding chords decrease the chord's vertical stability and consequently weakens their root identity. These chords become more linear in nature as some pitches are retained and others resolve as step progressions. Figure 4.11, shows this technique as the white notes are tied and the shaded notes progress in stepwise motion. The progression in mm. 77-80 is a good example of the *toggle switch* because of the altered treatment of the tonic chord. When the tonic chord appears in second inversion in both mm. 78 and 80, the listener may perceive this chord as an unresolved dominant tonic. The result of this process creates double pivoting between the A-sharp and C-sharp in the dominant seventh chord and the B and D-sharp in the tonic chord. The F-sharp in the bass line sustains the dominant function of these chords. The frequent use of the *toggle switch* in these harmonic progressions creates a sense of tonal structure that may be described as harmonic ambiguity when interpreted from a traditional perspective.

In the closing theme of the exposition, the delayed melodic resolution of the leading tones is prevalent. This concept is evident in mm. 101-107 (Fig. 4.12) where leading tones emphasize the members of the e-minor triad. In the first measure of this example, the lower leading tone, D-sharp, resolves to E in the next beat. In the first beat of the second measure, the D-sharp does not resolve to E until the second beat of the measure three. This delayed resolution that emphasizes the tonic pitch with the upper leading tone also appears in the fourth, fifth, and sixth measures. The A-flat that appears

in the second beat of the sixth measure is also delayed for two beats when it repeats and finally resolves to G, a chord member of the e-minor triad.



Figure 4.12 – Upper voice of piano in *Sonata “Undine,”* IV, mm. 101-107.

### *Analysis of Retransition*

The retransition in mm. 135-159 contains techniques of tonal expansion as it prepares for the return of the first theme. This passage, in the key of the dominant (b-minor) is divided into two segments, (1) mm.135-147 and (2) mm. 148-159. In the first segment, a phrase with modified fragments from the second half of the first theme appears three times in b-minor, G-major, and b-minor respectively (Fig. 4.13). In the first phrase, references to the key of b-minor appear in the melodic line (upper voice of the piano), especially with the unfolding of the b-minor triad. This figure shows that in the upper voice a neighbor pattern emphasizes the pitch E of the ii chord in the key of b-minor. A similar treatment continues in the two repeated phrases of G-major and b-minor. It is interesting to note that in the three statements of this phrase, the first one in b-minor contains an emphasis on the pitch E, as well as the other two phrases in G-major and b-minor, creating an underlying reference to e-minor, the predominant key of the movement.



b: ii ----- i G:viio vi viio I b:iiio i iiio i6/4

Figure 4.13 – Harmonic reduction of *Sonata “Undine,”* IV, mm. 135-147.

In the second segment of the retransition (mm. 148-159), a projected motion is created toward the recapitulation. The thematic neighboring motion now appears in the melodic line of the flute while the stepwise motion of the bass line provides a guided motion to the penultimate chord before the recapitulation. The arpeggiated harmonic progression in the upper voice of the piano completes this textural alteration, which also anticipates the texture of the recapitulation.

Figure 4.14 provides a reduction of the harmonic progression in the second segment (mm. 148-159). In this segment, the tonality continues in b-minor and gradually progresses to the recapitulation in the key of e-minor. One of the more prominent techniques that contribute to this passage is the use of the *toggle switch*. The first two chords are indicative of this concept where both chords share the pitches B and D, while the F-sharp ascends to G-sharp in the upper voice and the lower voice descends a half-step to E-sharp. An interesting feature within the first three chords is the neighboring motion in the outer voices similar to that of the first segment. The upper voice continues this motion by a descending half-step, which creates an upper/lower leading tone emphasis F-sharp, on the dominant of b-minor. The *toggle switch* is also very prominent between the final chord of the segment and the German sixth that begins the recapitulation. Both chords share three notes, A-sharp, E, and G, while the C-sharp to C-natural functions as the *toggle switch*.

b: i6/4 V6/5/V i6/4 viio/V-V/V v6 e:viio7/V Gr.6

Figure 4.14 – Harmonic reduction of *Sonata “Undine,”* IV, mm. 147-160.

Another technique in the second segment of the retransition is the use of stepwise motion in the bass line that progresses toward a directed goal. This stepwise directed motion occurs in mm. 148-153 from E-sharp up to A-sharp with a final skip of a third to C-sharp. The pitch C-sharp becomes an upper neighbor to the C, initiating the descending motion to the return of the first theme in the recapitulation. The majority of the harmonies that occur within this stepwise motion anticipate F-sharp, the dominant of b-minor. This anticipation creates a significant delay in the harmonic resolution of the line. When the dominant harmony appears, it is a minor triad that prepares for the return of the key of e-minor. This anticipation of the predominant key occurs through the chromatic motion in the bass line from G-sharp to A to A-sharp, the latter of which is the root of the secondary diminished chord of the dominant in e-minor.

#### *Analysis of Recapitulation*

In the recapitulation, a mutation occurs when the key of E-major replaces the predominant tonality of e-minor. In the middle of the second theme (mm. 212-228), a modulation to the key of A-flat-major occurs, providing an enharmonic equivalent to G-sharp, the major third of the tonic key. The appearance of this A-flat/G-sharp key area

enhances the quality of the E-major mode within the predominant e-minor mode of the movement. In the following measures (mm. 229-246), the closing theme appears with a change to the key signature of E-major. In a portion of this passage (mm. 229-232), a D-sharp diminished seventh chord in E-major is outlined in the arpeggiations of the piano. This chord is then followed by an E-flat-major triad, which functions as the dominant of the previous key of A-flat major, and is further outlined in mm. 233-234. These alternating chords are enharmonically equivalent; however, the notation gives the appearance of two different key areas. This enharmonic competition continues until m. 242 when e-minor finally returns and is firmly established in m. 247.

The upper and lower leading tones to the tonic and dominant generate and contribute to many techniques that expand tonality. This concept is quite pervasive within *Sonata in E minor, "Undine,"* Op. 167, IV by Carl Reinecke where the leading tones create harmonic ambiguity with an emphasis of both the tonic and dominant. This duality of traditional function inspires new approaches to the establishment of tonal structure.

## Chapter Five

### Conclusions

Tonal expansion represents a transitional period in which the techniques of pitch organization shared by composers in the Baroque and Classical periods are transformed into more individual styles by composers of the Romantic period. During this transition, certain principles of traditional tonality are modified and others replaced by newer techniques of unity and organization. In order to clarify this process, it is necessary to identify some of the traditional principles that contribute to tonal stability and the ways in which they are modified in expanded tonality.

Traditional tonality is achieved through the hierarchy of pitches and their prominent placement as well as a predetermined order that governed the function of each chord. A strong sense of tonal stability is established when the interval of the tritone in the dominant seventh chord resolves in a traditional manner to intervals of the tonic chord. The significance of the dominant and tonic function is emphasized in rhythm and meter as these functions retain a structural position within the musical phrase.

In expanded tonality, a hierarchical arrangement that indicates the prominence of the tonic pitch continues to be an essential component of tonal unity. In addition, the dominant continues to reinforce tonic at larger structural points, however its progression within phrases is often expanded to equal the treatment of tonic. The dominant pitch or chord appears prominently at the beginning of the phrase, and it is prolonged by compositional treatment that delays its resolution. As the dominant becomes more

prominent, the tonic loses its prominence as a root-generated chord. The term *tonic substitution* is used in this thesis to identify the treatment when the tonic pitch is retained as a chord member instead of its traditional function as a chord root. These characteristics of expanded tonality create more equality between the tonic and dominant, and consequently, the presence of two tonal centers create a sense of tonal ambiguity.

The treatment of upper/lower leading tones to tonic and dominant enhances the duality of these two functions and it generates additional pitches that assume significant function in expanded tonality. The half-step relationships that occur from these leading tones create additional chromaticism that appears in structural positions within melodic lines and harmonic progressions. The chromatic neighboring motion of voice leading appears frequently within the linear harmonic progressions to reinforce the prominence of pitches that are related to the tonality. The delayed resolutions of these leading tones result in incomplete chords when the sustained pitches are dissonant within tertian harmony. A lack of harmonic clarity occurs when the leading tones are delayed, and this treatment affects a lack of tonal clarity. The German Sixth chord, with its upper/lower leading tones to the dominant, and the Neapolitan chord, which contains the upper leading to the tonic, are traditional harmonies that are transformed from a vertical to a linear treatment in expanded tonality. The addition of the tritone to the upper/lower leading tones creates greater harmonic tension, resulting in a *wedge* towards structural pitches

In the melodic line, the appearance of the upper/lower leading tones often assumes a motivic identity during the process of thematic development. A motivic fragment that contains a chromatic pitch may resolve immediately or it may be repeated,

imitated, and later resolved. In addition to its motivic prominence, the melodic line maintains an independence with the bass line when its contours appear in contrary motion. It is often in this context that the upper/lower leading tones in these outer voices create a *wedge*, which culminates at the end of a phrase on certain structural pitches.

The treatment of the upper/lower leading tone is pervasive within the fourth movement of Carl Reinecke’s *Sonata in E minor*, “*Undine*,” Op. 167. Unifying features within the movement are achieved with the appearance of this technique in the melodic, harmonic, rhythmic, and textural materials and also in the key schemes that define some of the tonal areas. It is interesting to note that the structural pitches in the melodic line, reflects significant tonal areas in the movement. In Figure 5.1, the first ten tonal areas that appear from the exposition to the beginning of the recapitulation are set above the first melodic phrase (mm. 1-4). The ascending e-minor triad that appears in the melody is very similar to the succession of tonal areas. In addition, the upper leading tone pitch (C) to the dominant, appears similarly in both the tonal areas and the melodic line (m. 3), and it resolves to the dominant pitch (B) in melodic line and later in the succession of keys. The descending triad at the end of the melodic phrase also appears in the succession of the tonal areas with some modification.

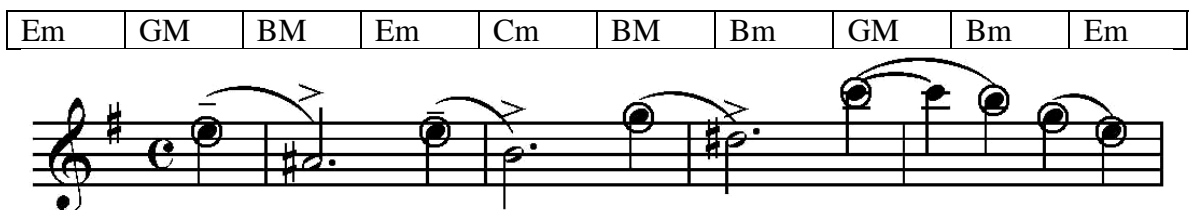


Figure 5.1 – Comparison of tonal areas to the first phrase of *Sonata “Undine.”*

The treatment of tonality in the Romantic period involves modified approaches to pitch organization that extend the boundaries of traditional concepts. Traditional practices

from previous periods are inherited and modified by composers of the nineteenth-century, and those modifications provide a point of departure for composers in the twentieth-century. Some of the compositional practices that characterize the nineteenth-century are an emphasis of motivic development, linear harmonies, and a more flexible ordering of pitches. The eventual dissolution of tonality and its association with formal elements in melody, harmony, texture, rhythm, and meter creates new structural dimensions that are defined by the creativity of individual composers.

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