An Expanded Macro Analysis System for Chromatic Harmony

Daniel Sommerville

Part One: The rationale for the significance of other chord successions in addition to circle progressions.

In the sixth edition of *Music in Theory and Practice*, authors Bruce Benward and Gary White state that, "all tonal music from the beginning of the baroque to the middle of the romantic period contains a preponderance of circle progressions."[1] They then outline a system of analysis—"macro analysis"—in which circle progressions are readily identified. Letter names for chords are used instead of roman numerals, and under-slurs are used to link those chords that form such progressions (i.e. root movement by descending fifth or ascending fourth). With such analysis, one can see at a glance a wealth of information concerning harmonic movement. Prolongation and "nested progressions" are readily seen, as are circle progressions resulting in strong directional motion. The linking symbol of the under-slur is also useful for training the ear to hear circle progressions as one is studying a score.

However, as Benward and White allude, the romantic composers began to incorporate other chord relationships, particularly third relationships, into their music. The music of this era was characterized by phrasing that was more continuous and less punctuated by cadences. Specifically, this was manifest in deceptive cadences and other types of chord successions such as third relationships, "backward circles," common-tone diminished sevenths and root movement by seconds. The circle progression remained the strongest arbiter of harmonic movement, but certain other chord relationships, specifically chromatic third relationships, exerted a strong harmonic pull as well.

Rameau's statement that "the progressions of harmony are nothing but a chain of tonic notes and dominants"[2] (i.e. circle progressions) may be an adequate way of describing much of the music of the eighteenth and early nineteenth centuries, but it is certainly less true for music after that time. Later, Rameau published his *Génération Harmonique,* in which

1. Bruce Benward and Gary White, *Music in Theory and Practice,* 6th ed. (Madison, WI: Brown and Benchmark, 1997), vol. 2, 67.

2. Jean Philippe Rameau, *Treatise on Harmony,* translated by Philip Gossett (New York: Dover, 1971), 288.

he modifies his views and allows for a third progression in addition to the fifth. The third progression he labeled "chromatic" and the fifth progression, "diatonic."[3]

Over 150 years later, Moritz Hauptmann's theory of chord succession takes into account the romantic composers' predilection for colorful chromatic relationships: "The succession of two triads is. . . only intelligible in so far as both can be referred to a common element which changes meaning during the passage."[4] Hauptmann's main point was to show the commonality and hence, relationship, between the tonic and dominant, and the tonic and subdominant, as each of these pairs share a common tone. But his principal has significance for such chromatic relationships as G♯ minor to E minor (used by Wagner, for example, as the "Tarnhelm" motive in *The Ring;* see example 11).

Because of the importance of other types of chord successions in the music of the romantic composers, it is necessary to devise a means for identifying such successions in macro analysis. Toward this end, what follows is a list of proposed symbols to use in addition to the circle-progression under-slur. Care was taken to make the symbols as intuitive as possible in order to make their usage easy and effective.

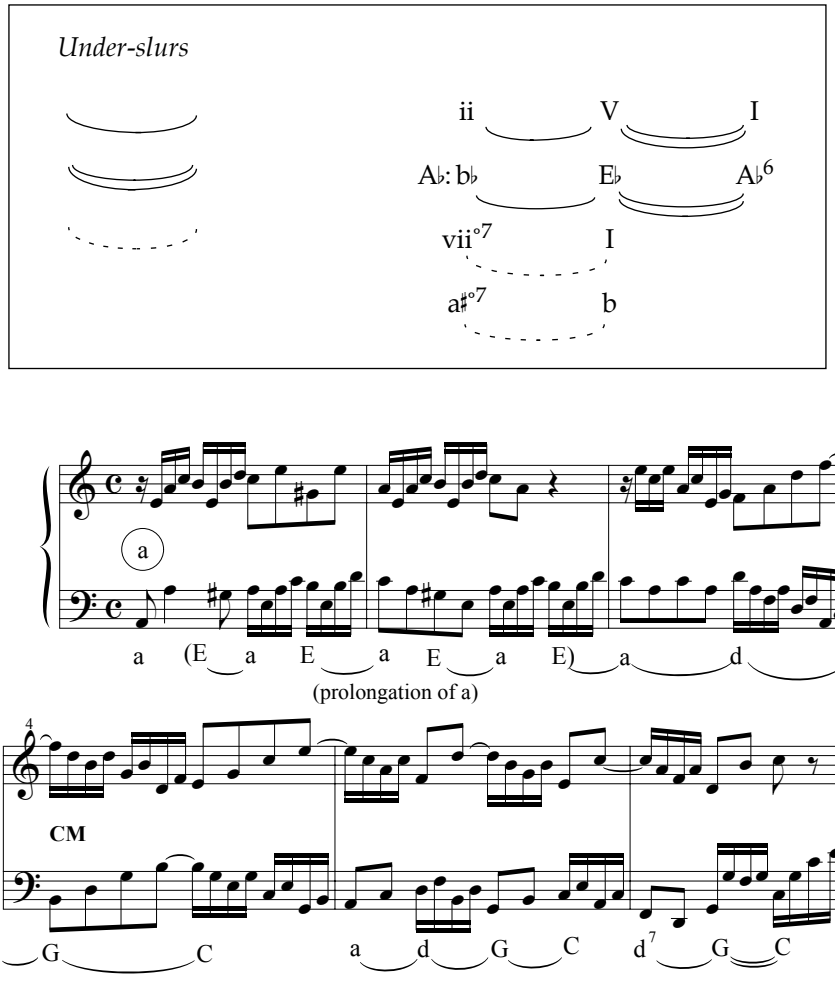
Part Two: The Symbols—a vocabulary of linking symbols and other analytical tools.

Certainly the strongest harmonic pull occurs in circle progressions, and these chord relationships are shown in current macro analysis technique by the *under-slur.* A double under-slur can be used to show the strongest portion of a circle progression: the authentic cadence. A dotted or dashed under-slur indicates the movement from the leading-tone diminished seventh to its tonic. This latter progression is certainly weaker than the root-movement-by-fifth circle, but since the dominant seventh and the leading-tone diminished seventh share three pitches, their effect is similar.[5]

3. Matthew Shirlaw, *The Theory of Harmony* (London: Novello, 1955), 110.

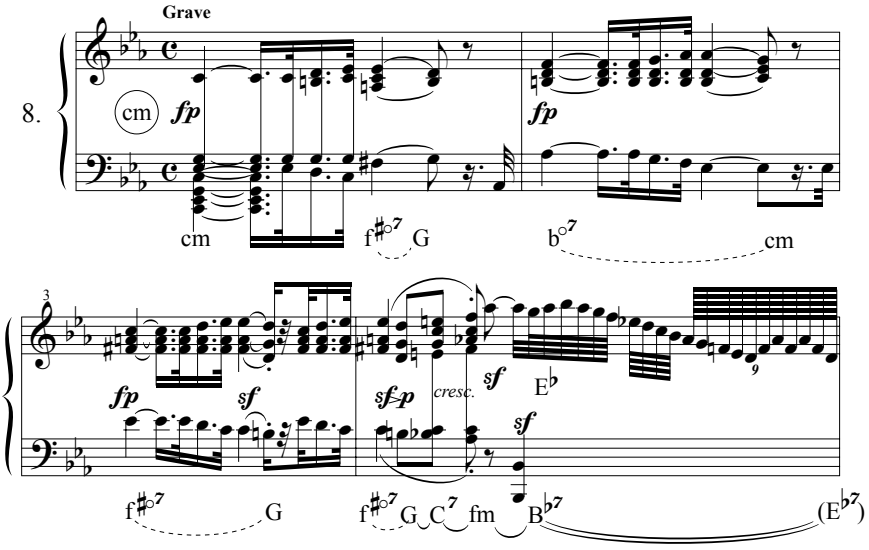
4. Moritz Hauptmann, *The Nature of Harmony and Metre*, translated and edited by W.E.Heathcote, (New York: Da Capo Press, 1991), 45.

5. Romantic composers would often stack the two sonorities—V7 and vii°7—together, forming a "superdominant" sonority, the same as the V♭9 chord used in jazz. Beethoven uses this sonority often in his symphonies.



Example 1. Bach, Two-Part Invention 13 in A Minor, mm. 1–6 (circle progressions). The area within parentheses indicates prolongation of the tonic before significant harmonic motion begins.

6. Upper-case letters will always refer to major (or augmented) chords, lower case to minor. Since "C" has the same shape in upper and lower case, the major chord will be notated "C," and the minor, "cm."



Example 2. Beethoven, Piano Sonata, Op. 13, "Pathetique," I, mm. 1–5 (leading-tone diminished sevenths and their resolutions). Note the significant circle progression in the last measure of the example, leading to the secondary key of E♭.

What follows is a list, with examples, of the analytical symbols that are useful for expanding the chord relationships that can be shown by macro analysis.

A. Predominant chord (other than ii) to dominant. In the baroque era, composers often utilized the diminished seventh chord to provide chromatic color. The recitatives of Bach are full of such unstable sonorities. In the classic era, composers focused most of their chromatic efforts on the sonority immediately preceding the dominant (called the "predominant" chord in this discussion). In this predominant position, composers used a wide variety of borrowed and secondary-function chords. These chords not only include ii and IV, but also Neapolitan sixth, secondary dominant and leading-tone diminished seventh chords, and augmented sixth chords. Augmented sixth chords in particular defy roman numeral analysis because of their chromatic linear resolutions. The strong chromatic pull of the augmented sixth interval to the root in octaves of the dominant is proof that chromatic relationships can effect as strong a harmonic pull as a circle progression. Therefore, such relationships need to be shown in analysis. The symbol is an under-slur in parenthesis. The

under-slur indicates strong, predictable harmonic movement from predominant to dominant and the parenthesis reminds one that it is not a true circle progression, in terms of root movement by descending fifth.

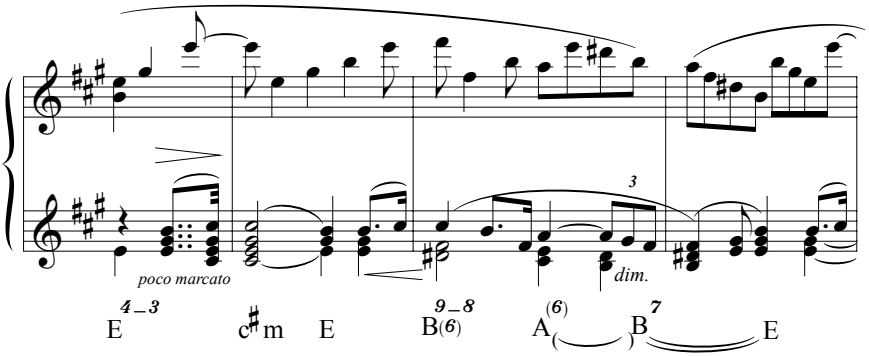
Regarding the IV to V movement, I use an under-slur with parenthesis, although there are good reasons for just using the under-slur without parentheses and treating the succession as a true circle progression. Rameau referred to the ii§ as a subdominant with an added sixth![7] To him, the root movement from the fourth to the fifth scale degree was even more important than root movement from the second to the fifth. This is borne out in the music of the eighteenth century, because the ii^7 chord as predominant certainly appeared much more in first inversion (like a subdominant with an added sixth) than it did in root position. Therefore, a case can be made that IV and ii§ are interchangeable, as they share three common tones.

When Wagner uses the IV chord as a predominant, he often puts it in first inversion, making it resolve like an augmented sixth chord without the chromaticism.

Predominant Chord (other than a ii) to Dominant

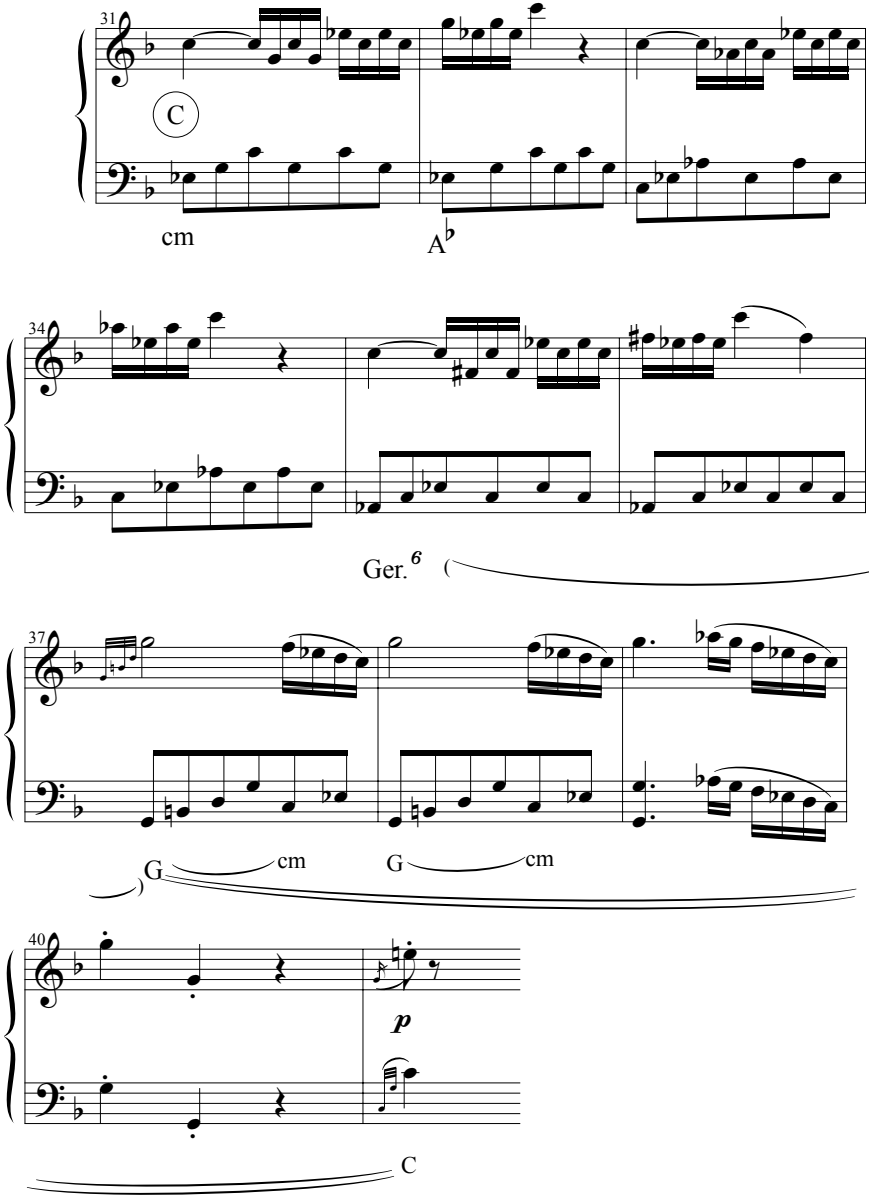
( ) IV ( ) V $^{+6}$ ( ) V

C major: F$^{(6)}$ ( ) G



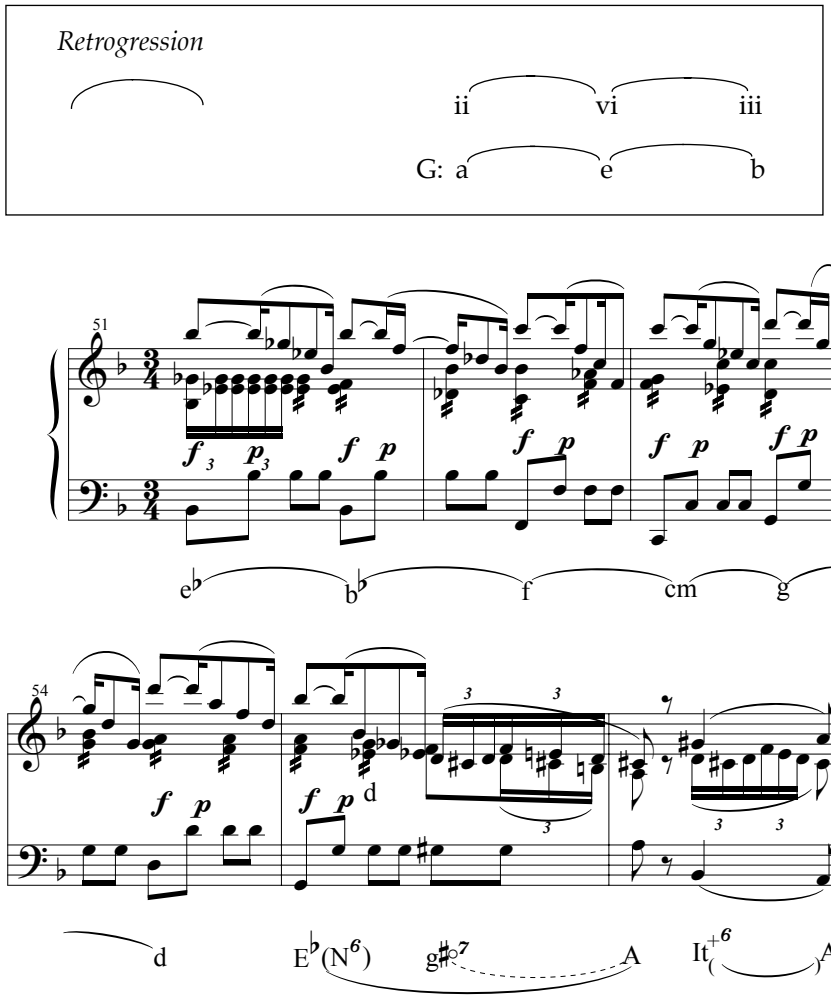
Example 3. Wagner, from Prelude to *Lohengrin*. Note IV^6 to V motion in m. 3. Also see example 19, mm. 5 and 14–15.

7. Shirlaw, p. 113.

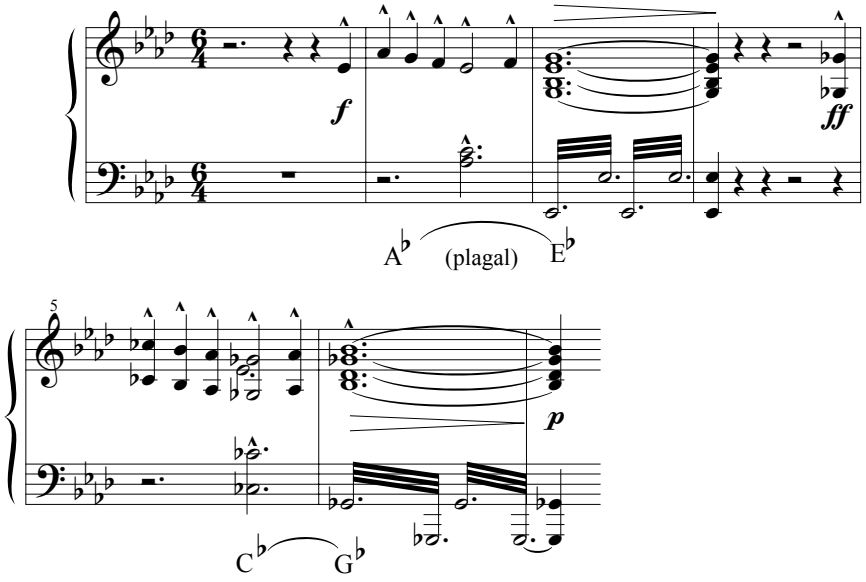


Example 4. Mozart, Piano Sonata in F, K. 332, I, mm. 31–41. The tonality (C major) is labeled between the systems in m. 1 (tonal profiling will be explained in detail later). Also evident in this example are nested circle progressions (m. 37 and 38).

B. Retrogression. A "retrogression" (or "regression") is a backward circle progression, i.e. root movement by descending fourth or ascending fifth. Such root movement is used in a coloristic way, but it also has its antecedent in the "soft" plagal cadences of the Renaissance era. The symbol for a retrogression is an over-slur (signifying the opposite of an under-slur).

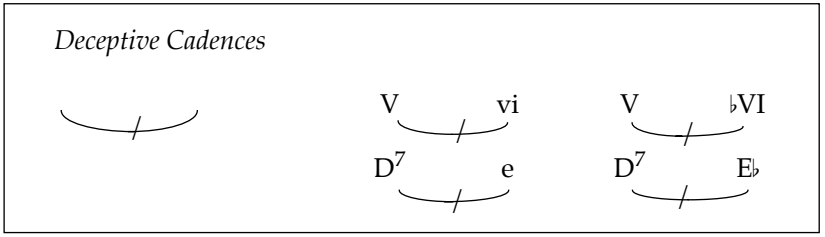


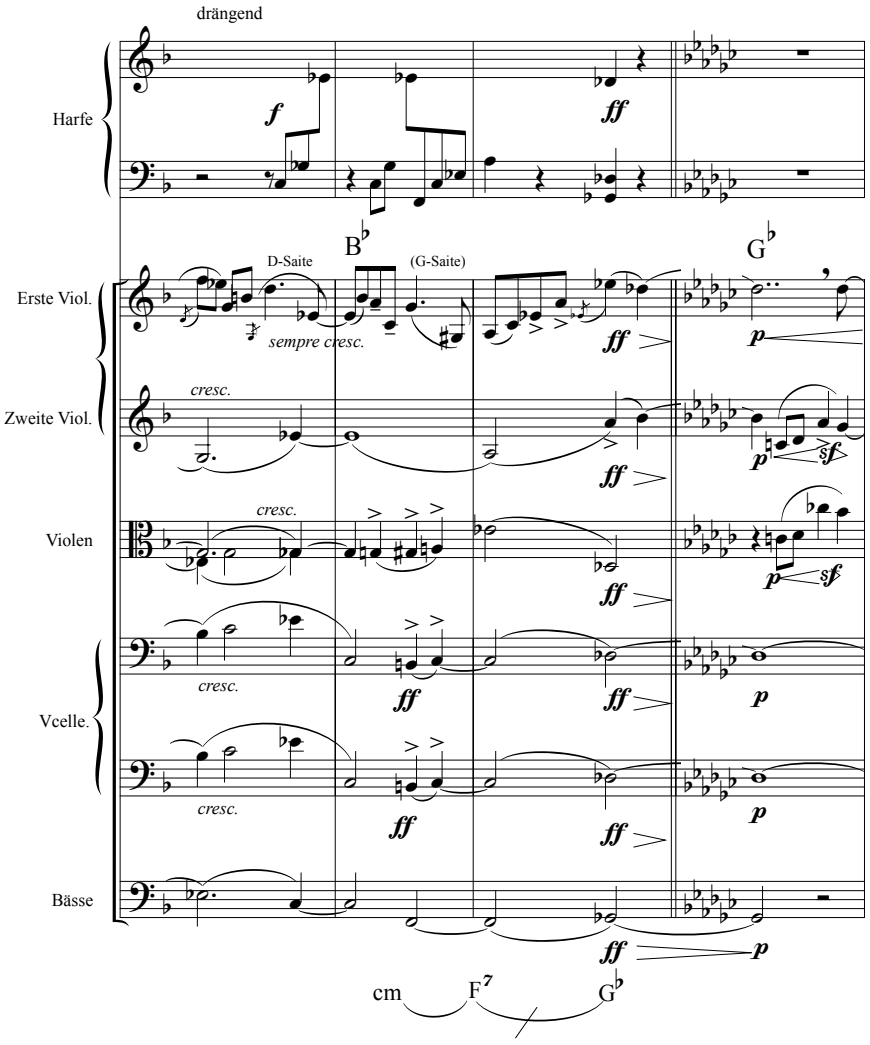
Example 5. Mozart, Symphony No. 41, II, mm. 51–56. A poignant string of suspensions is made possible by the long, retrogressive chord movement. The tonic (D minor at this point) is all but obliterated by the combination of melodic and harmonic sequence, retrogression, and the use of all minor chords (real imitation).



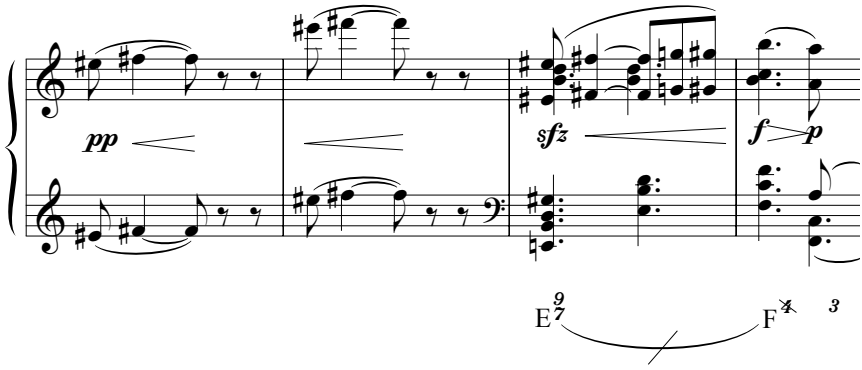
Example 6. Wagner, from Prelude to *Parsifal*. The harmonic vocabulary of the entire work is based on the plagal cadence, namely, the *Dresden Amen,* which is itself a retrogression. Wagner chose this familiar Lutheran Amen in keeping with the Christian themes of this opera.

C. Deceptive cadences. These chord relationships abound in all tonal music but are exploited in the romantic era. Wagner and Mahler often use deceptive cadences to usher in new tonal areas, and it is important to have a symbol for this relationship. It is the under-slur with a slash through it, signifying the thwarting of the expected circle progression.



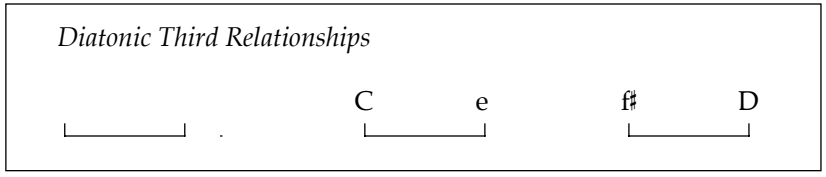


Example 7. Mahler, Symphony No. 5, IV, *Adagietto*, mm. 44–47. The effect of the deceptive cadence is heightened by the use of the predominant ii chord (C minor) before the dominant, by the use of the lowered VI chord (borrowed from the parallel minor of the tonic key, B♭), and by the suspensions in the violins.

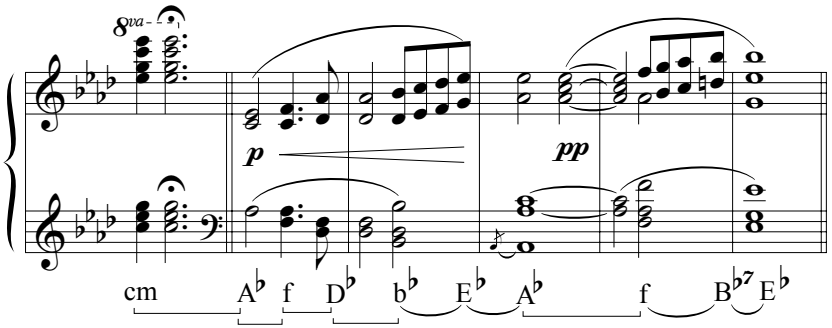


Example 8. Wagner, Prelude from *Tristan und Isolde*, mm. 14–17. The effect of this deceptive cadence is heightened by the Lydian 4–3 suspension, so often employed by Wagner.

D. Third relationships. There are three types of third relationships between chords. First, a diatonic relationship in which there are *two* common tones between the chords. In the classic era, this can often be interpreted as mere chord substitution, e.g. between I and iii. In his classic book on analysis, *Guidelines for Style Analysis,* Jan La Rue refers to the baroque perception of "bi-focal tonality,"[8] showing a close relationship between the major key and its relative minor, but otherwise third relationships were usually chord substitutions. In the romantic era, however, the color aspect of diatonic third relationships was exploited. The third relationship is shown by a squared-off under-bracket between chords.



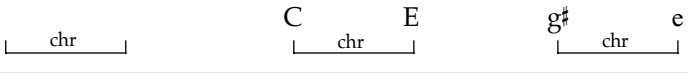
8. Jan La Rue, *Guidelines for Style Analysis,* 2nd ed. (Michigan: Harmonie Park Press, Second Edition, 1992), 52–53.

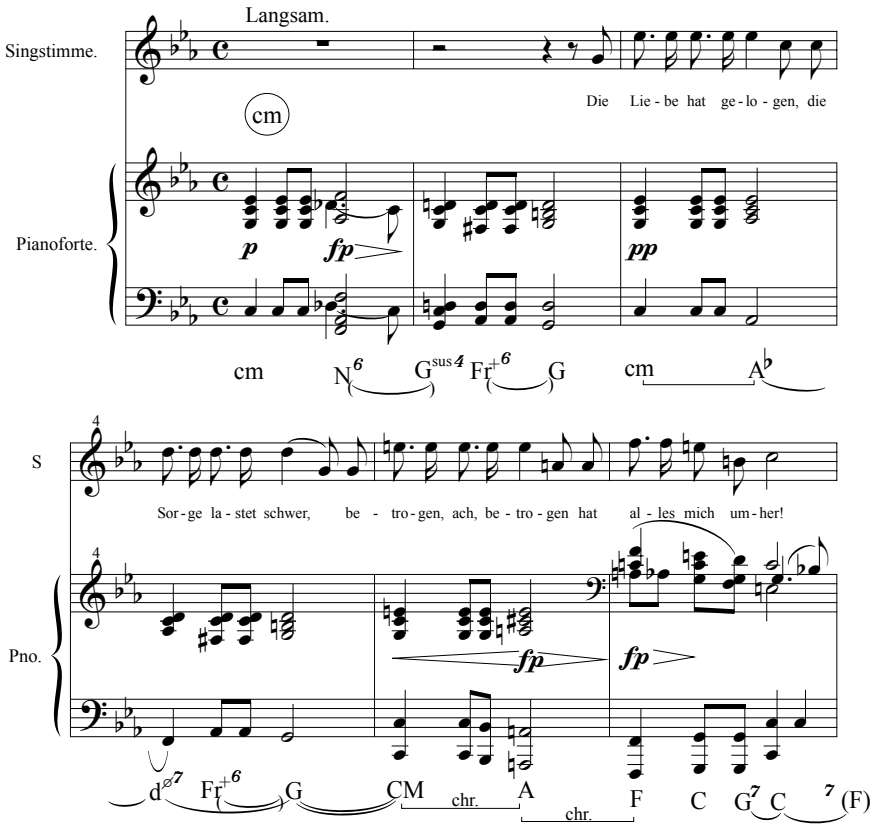


Example 9. Wagner, from the Prelude to *Parsifal*. In listening to this example, note the difference between the color changes of the third relationships (mm. 1–3), yielding a sense of static motion, or at most, local activity, contrasted against the strong directional motion of the circle progressions (mm. 3–4, 5–6). Thus can one show—and hear—different levels of harmonic motion through macro analysis.

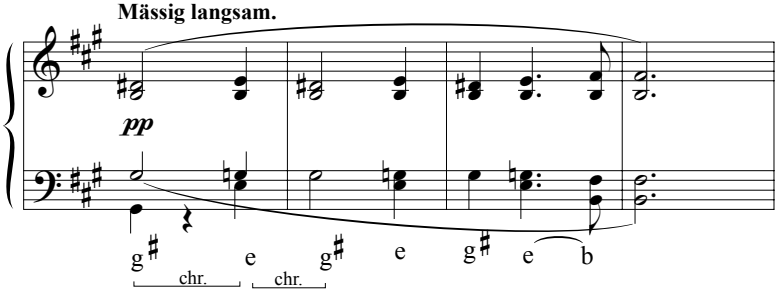
The second and third types of third relationships are chromatic relationships. The second type consists of chords that share just *one* common tone, and where one or both of the linear moves is chromatic (by half-step). "Chr" can be written on the under-bracket to differentiate it from a diatonic third relationship.

Chromatic Third Relationships (one common tone)





Example 10. Schubert, "Die Liebe hat gelogen," mm. 1–6. Note the contrast between the diatonic third relationship of m. 3, and the chromatic third relationships of mm. 5–6.

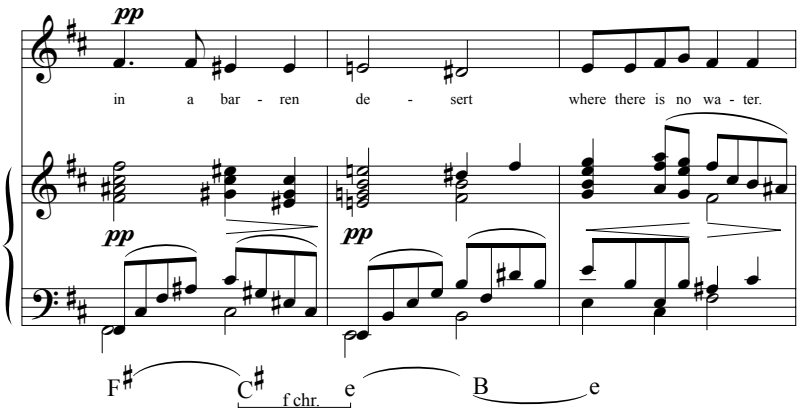


Example 11. Wagner, Tarnhelm motive from *Das Rheingold*. The eerie character of the music at this point is due to the chromatic third chord relationships.

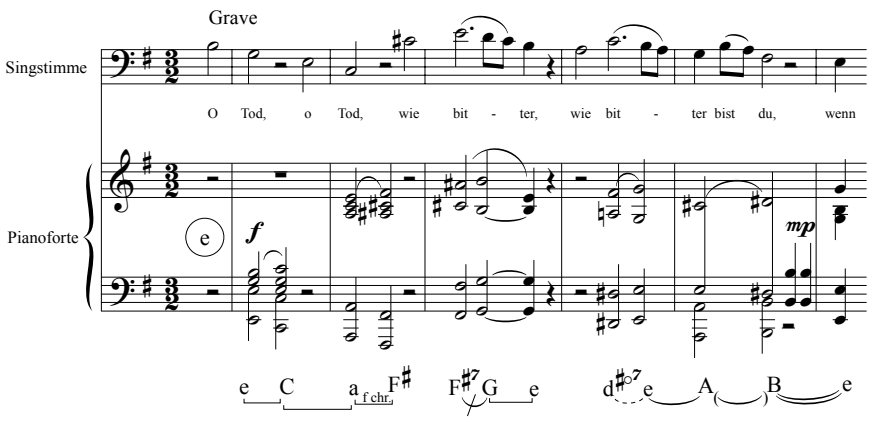
The final (third) level is fully chromatic, where there are *no* shared tones, and at least two of the linear moves are chromatic.

Chromatic Third Relationships (no common tones)

f chr C f chr e♭ E f chr cm

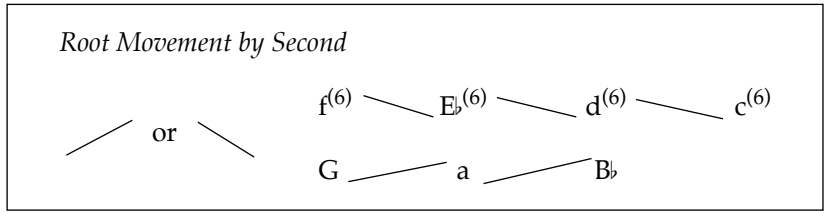


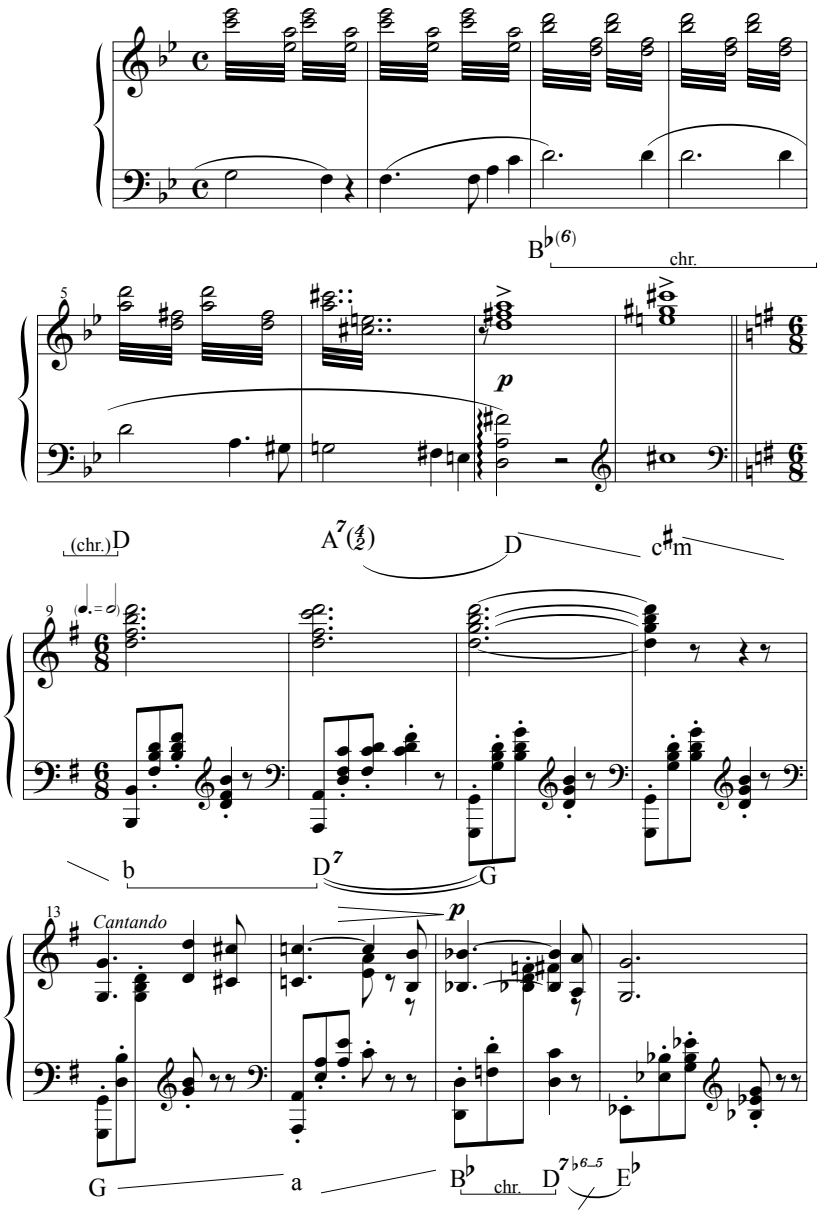
Example 12. Dvorak, "Hear my Prayer," from Biblical Songs, Op. 99. Part of the harmonic richness of the first two measures derives from the descending sequence of backward circle progressions (retrogressions), but its real poignancy comes from the fully chromatic relationship between the C♯ major and E minor chords which connects the two segments of the sequence.



Example 13. Brahms, "O Tod, wie bitter bist Du," from *Vier Ernste Gesänge*, mm. 1–6. As with the example from Wagner's *Parsifal* (example 9), this example begins with chords based on third relationships, resulting in rich and colorful harmony but no strong harmonic motion, and ends with strong directional motion through circle progression. Note the added interest provided by the chromatic third relationship to the F♯ major chord in m. 2, and the deceptive cadence (in the dominant key) of m. 3.

E. Root movement by second. Often this type of harmonic motion is ornamental, serving to prolong a chord as a neighboring or passing chord, but occasionally it will serve to cloud the tonality or "migrate" the tonality to a different key. A diagonal line in the pertinent direction between the chord names indicates this type of movement.





Example 14. Wagner, from Act III, Scene 2 of *Tannhäuser*. The first set of chords that moves by seconds actually serves to modulate, briefly, to a new tonal area (mm. 7–9). The second set is more ornamental in nature (mm. 13–15). Whenever Wagner uses parallel chords in root position, he always moves the bass and soprano in contrary motion.

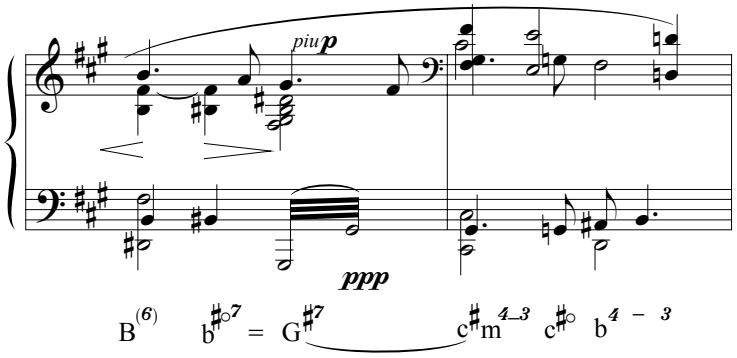
F. Substitute chords. The main substitutions are between the dominant and the leading-tone seventh chord, and between the supertonic triad (or seventh chord) and the subdominant (or their diminished / minor counterparts). I and iii or I and vi could be considered substitutes, as mentioned earlier, or may be considered third relationships, depending on the context and the analyst's interpretation. Substitute chord relationships would be shown by an "equals" sign (=) between the chords, signifying no real harmonic movement, but a slight change in color nonetheless.

Substitute Chords

D: c♯°7 = A7

=

Fm: g° = b♭m



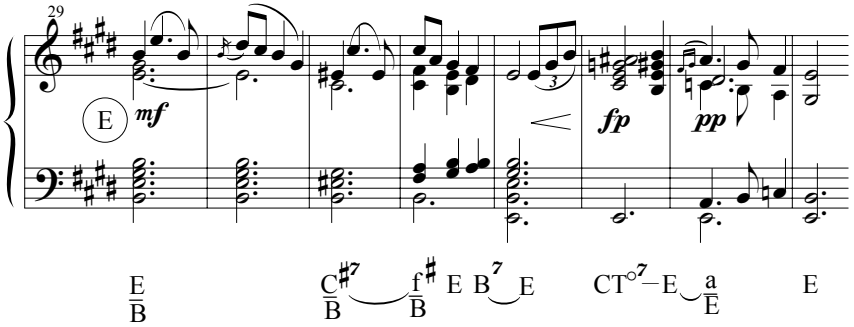
Example 15. Wagner, excerpt from Prelude to *Lohengrin*. Although Wagner's music includes passages so contrapuntal as to defy harmonic analysis, nevertheless there are usually points of clear harmonic motion even in such passages, as can be seen in this example (the circle progression from G♯7 to C♯ minor).

G. Same root, or same root feeling. In the music of the nineteenth century, there are chord relationships where two successive chords have the same root, but where other chord tones are moved chromatically. Two incidences of this are the common-tone diminished seventh going to its tonic, and a modal shift (C major to C minor, for example). The symbol is a horizontal line between the two chords, signifying no root movement.

Same Root, or Same Root Feeling

CT°7 ——— I I ——— i

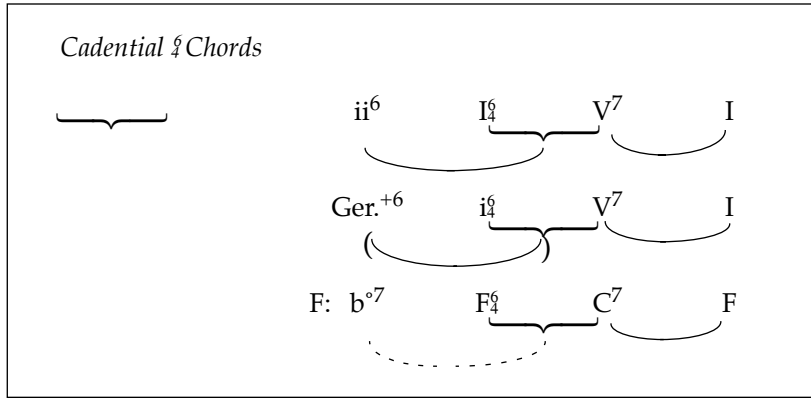
f♯°7(4/3) ——— C D ——— d



Example 16. Schubert, *Moment Musical* No. 6, Op. 94, mm. 29–36. Note the common-tone diminished seventh in m. 34. The letters under the horizontal lines indicate pedal tones.

For an example of change of mode of a chord, see m. 8 of example 18.

H. Cadential $\frac{6}{4}$ chords. The cadential $\frac{6}{4}$ is a sonority that occurs through voice-leading means, as the 6 and 4 above the root of the dominant resolve to 5 and 3. It is the tonic sonority posing as both a predominant chord and part of the dominant chord with suspensions or appoggiaturas. Because of its hybrid, yet important function, it needs to be shown in analysis in a unique way. A way of notating it that makes such cadences immediately noticeable is with a piano bracket underneath both the cadential $\frac{6}{4}$ and the $V^{(7)}$. The chord before the cadential $\frac{6}{4}$ (the *real* predominant) is then connected by under-slur (or dotted line, or under-slur with parentheses) to the middle of the piano bracket, like this:



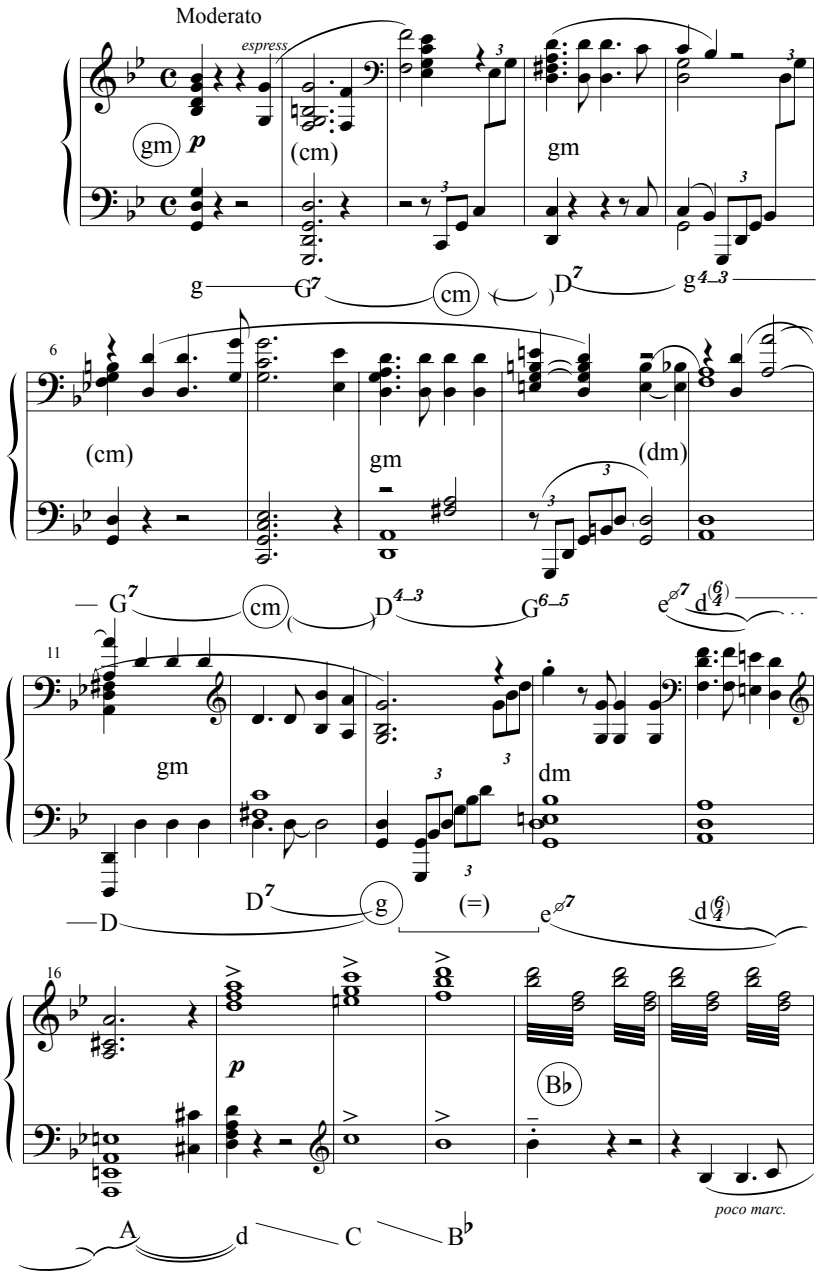
See example 17 at mm. 9–10 and 15–17. Note the partial cadence at m. 10, to the cadential 6/4, but moving via mode change on to a different tonality.

I. Other symbols for analysis.In addition to the symbols described above, there are a few other analytical symbols that provide useful information. Whenever possible, it is preferable to keep the analysis on the musical score and not have to resort to separate graphs, tables or charts. For instance, writing the tonal profile on the musical score itself saves one from having to constantly go back and forth between a graph, table or chart and the musical score. To this end, I employ LaRue's "rule of three"[9] in assigning relative importance to tonalities. The tonal center (key) is written between the staves, with the macro analysis below the staves. Significant tonal centers are circled and brief, insignificant tonicizations are in parenthesis. A middle level is neither circled nor in parenthesis. Such a system can be seen in example 17.

Tonal Centers

1. Significant tonic—circled	(A♭)
2. Middle-level—not circled	A♭
3. Brief, insignificant—in parenthesis	(A♭)

9. Ibid., p. 5



Example 17. Wagner, from Act III, Scene 2 of Tannhäuser, opening. The two main tonalities of this section are G minor and B♭ major. Along the way, there are brief tonicizations of C minor and D minor. Pivot chords are circled.

Such a system helps the analyst immediately see how a chord progression is functioning within a key, which has been the strength of roman numeral analysis. At the same time, with highly chromatic music, one is not encumbered by secondary functions, which is what can happen with roman numeral analysis. One can immediately see where a key begins to be established, and making such decisions develops the ear as well as the eye. In example 18, the C minor chord of m. 8 has a dual purpose: first, it connects to the previous C major chord as two chords with the same root, but a change in color; second, it becomes the subdominant of a new tonic, G Minor, as it progresses to the dominant, D major, and on to G minor. The analyst can hear the C minor chord, then, as a pivot chord, and the new tonality begins to be established on that chord (as it includes the lowered sixth scale degree), being confirmed by the inclusion of the leading tone in the next chord. By putting the beginning of the G minor on the C minor chord, the analyst is taking into account a sophisticated level of hearing, that of retrospective listening, where earlier sounding chords are re-informed to take on new meaning.

Finally, the notation of inversions and non-harmonic tones must be addressed. Although one of the beauties of the macro analysis system is that the analyst need not be encumbered by the labeling of inversions of chords, still there are places where the analyst may wish to label inversions for a variety of reasons. Noting the beauty of a chromatic bass line, labeling passages of fauxbourdon (successive $\frac{6}{3}$ chords), or identifying particularly interesting chord relationships are three instances where inversion notation are useful. I advocate a hybrid system that combines voice leading and inversions in the notation. It should be stressed, however, that such notations are necessary only when the voice leading or inversion of the chord plays a vital role in the music at that point. It does not need to be used constantly.

Inversions are put in parenthesis: $(_6)$ or $(\frac{6}{3})$ for first inversion, $(\frac{6}{4})$ or $(\frac{4}{3})$ for second inversion, and $(\frac{4}{2})$ for third inversion. Diminished and half diminished sevenths need not be labeled for inversions. A dominant seventh is always listed with a "7," and the inversion in parenthesis. This way, it is immediately apparent that it is a dominant seventh chord—no need to decipher the inversion notation. An alternative to using the traditional figured-bass symbols for inversions is to write the bass note in pedal-tone notation:

Inversions

$\frac{E\flat}{G}$ where G is the bass note.

The identification of the inversion makes it possible to see at a glance what position the chord is in without having to constantly refer to the bass line.

Voice-leading, especially with nonharmonic tones and their resolutions, are not put in parenthesis, but are listed as they relate to the chord in *root position*, regardless of the chord's actual inversion. This is not the same as figured bass notation, but as a hybrid it combines aspects of figured bass notation and chord inversion notation without having to deal with the complexities of both in their purest form. A 4–3 suspension is always labeled such, regardless of the chord position.

For example, to show a "D dominant seventh" with an A in the bass (second inversion), and a melodic movement above of a suspended 4 going to 3, here is the notation:

Nonharmonic Tones

D^7 chord and type

$(\frac{4}{3})$ position of chord

$^{4–3}$ significant non-harmonic melodic movement

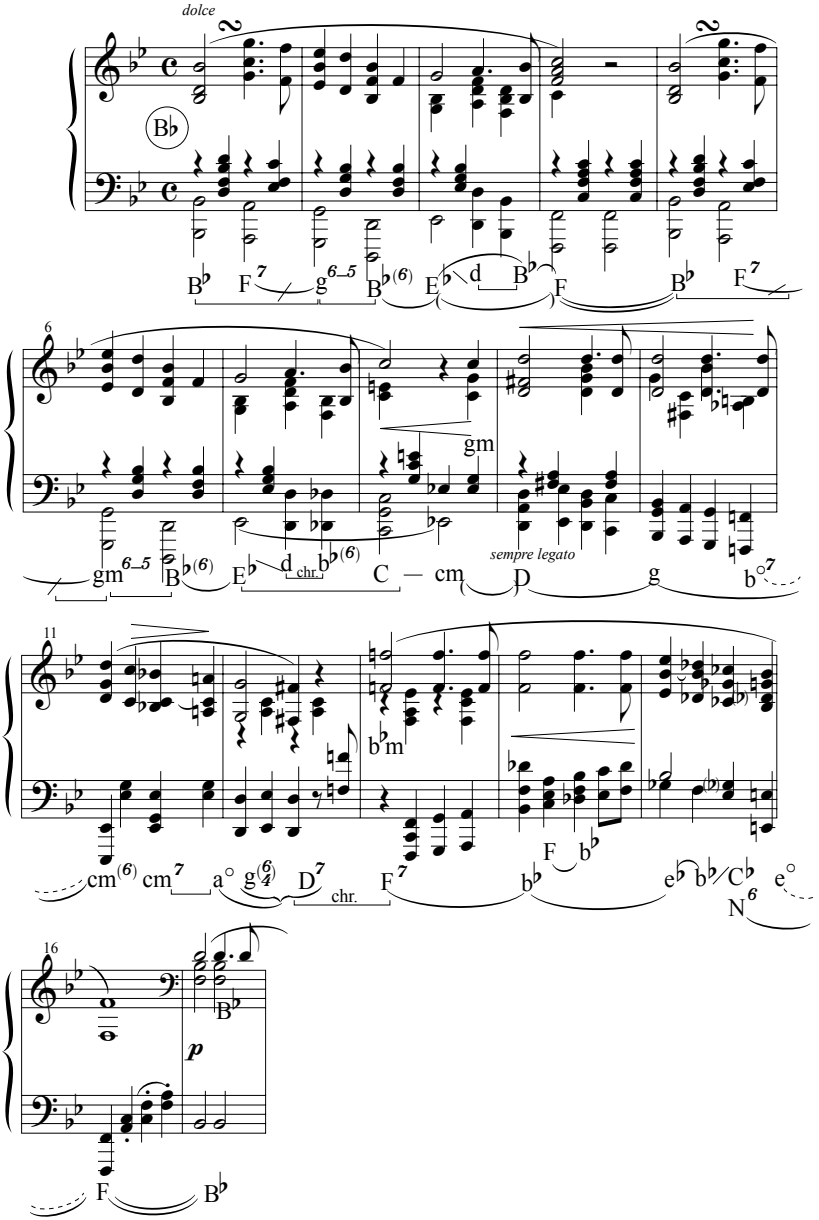
Alternative

$\frac{D^7}{A}$ $^{4–3}$

Part Three: Interpreting the data gained by expanded linking symbols.

In music of the late romantic composers, Wagner for example, it would not be uncommon to see linking symbols between every chord of a section. This is in keeping with Wagner's concept of "endless melody," and the continuity of the harmony further supports that concept. After the analyst has figured out the chords and how they relate, he or she can move on to refining and interpreting the data that is collected.

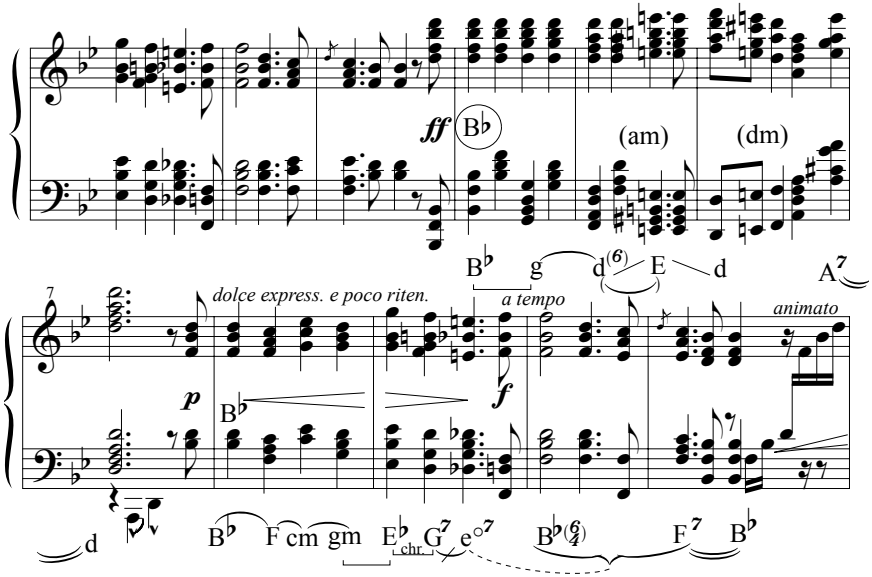
The refining process is that of identifying broad harmonic gestures and differentiating between such gestures and mere prolongation or nested harmonies. In the next example, linking symbols inside and above broader linking symbols indicate nested harmonies. It is also easy to see the prolongation of B♭ in mm. 1–2 and 5–6 and the broad third relationship between E♭ and C, mm. 7–8.



Example 18. Wagner, from Act V of Rienzi. Measures 1–2 and 5–6 can be heard as a prolongation of the B♭ chord. It can be argued that the chord on the third quarter of m. 3 is really a B♭ chord with an accented passing tone in the soprano. However, the deliberate bass line motion from E♭ to D, then to B♭ adds credence to hearing this chord as a separate sonority, D minor.

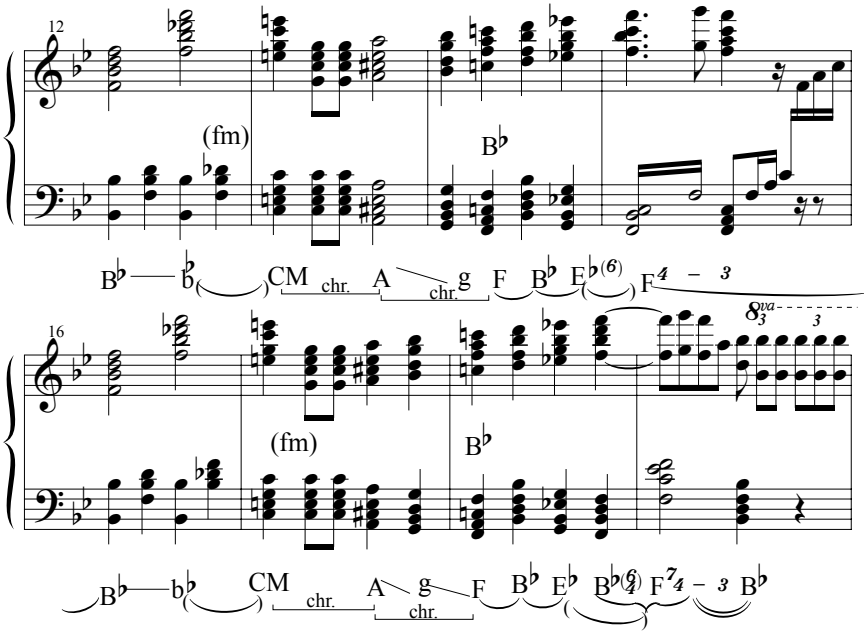
In further interpreting the data, the analyst can determine relative strength and weakness of harmonic motion in the piece. La Rue speaks of three levels of musical activity—strong directional motion, local activity, and stasis or stability.[10] A piece of music attains a sense of movement and shape through the varying rates of activity in each of the basic parameters of music: sound (including texture and timbre), harmony, melody, rhythm and growth.[11] An example of how these three levels are reflected in harmony is as follows: the circle progression and cadence signify strong directional motion; local activity may be signified by the presence of sequence, or of *fauxbourdon,* or colorful chord relationships by thirds, etc.; stasis or stability in harmony is usually represented by prolongation of the tonic.

The final two examples are lengthier ones, showing the whole system in action. The first one, example 19, is interesting because it has strings of retrogressions, chromatic third relationships, modal shifts and root movement by seconds, in addition to circle progressions. The analysis makes it possible to hear and see the strong harmonic movement when the music "shifts gears" into circle progressions.



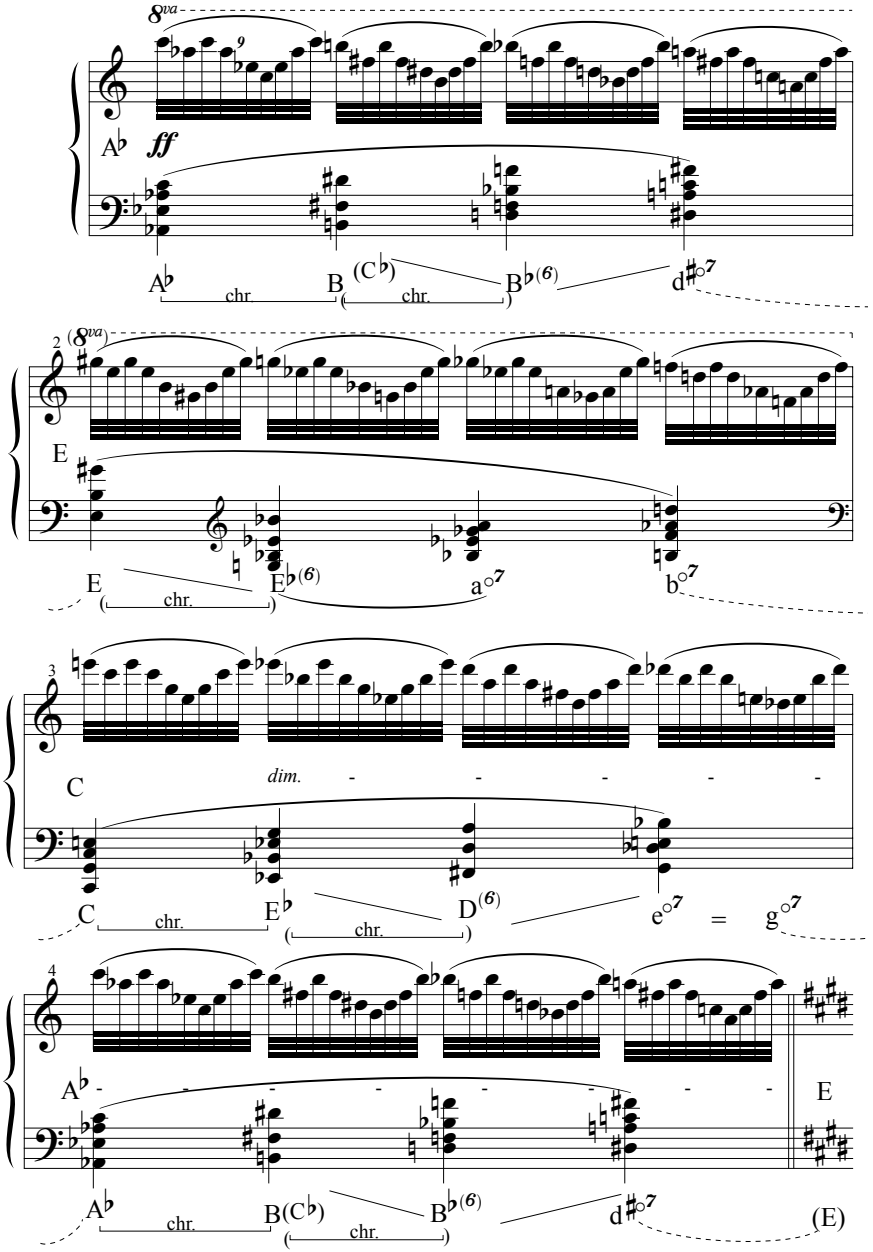
Example 19. Wagner, Introduction to Act II, *The Flying Dutchman.*

10. Ibid., pp. 12–14.
11. Ibid., Chapter 1.



Example 19, continued.

Example 20 is amazing for some false, illusionary chord relationships: in m. 1, the chromatic third relationship between the first two chords, A♭ and C♭ (respelled as B), is replicated by the motion between the third and fourth chords, B moving to $B♭^{(6)}$. This replication occurs because of the bass line move of a minor third and because of the half-step linear descent between F♯ and F. In reality, the relationship is root movement by half step. In each measure, a new pitch is tonicized via its leading-tone diminished seventh, and strong circle progressions do not exist here. The pitches tonicized form an augmented triad—A♭, E and C. It is also interesting to note that just a few measures after this, the harmony moves into broad, long circle progressions with very strong directional harmonic motion. The harmonic contrast adds to the drama of this portion of the opera.



Example 20. Wagner, Magic-Fire Scene from *Die Walküre*.

Conclusion

The addition of other linking symbols to the basic circle under-slur enables the analyst to find out much more about the harmonic style of the romantic composers in particular. It was in the area of harmony that these composers made some of their greatest creative contributions. Eventually, the symbols themselves will aid one in his or her aural perception of the music, as relationships between chords are immediately perceived. With a finished macro analysis that includes these expanded linking symbols, the analyst is able to effectively scan a piece when searching for specific chord relationships.

Furthermore, the integration of these symbols into a profile of harmonic ebb and flow is an exercise that reaps great rewards for the musician. Such a system can clarify rates of harmonic motion within a piece, and can help the performer determine how harmony contributes to the overall sense of movement and shape. In this way, the performer can be ushered even deeper into the drama of the music as it unfolds, because he or she is able to see the big picture. Such macro analysis gives the performer the understanding to be able to make interpretive decisions that will allow others to perceive the harmonic shape of a piece, and to get caught up in the drama of it themselves.

Bibliography

Benward, Bruce and Gary White. *Music in Theory and Practice.* Sixth Edition, Volume I. Madison, Wisconsin: Brown and Benchmark, 1997.

Hauptmann, Moritz. *The Nature of Harmony and Metre.* Translated from the German and edited by W.E. Heathcote. New York: Da Capo Press, 1991.

La Rue, Jan. *Guidelines for Style Analysis.* Second Edition. Michigan: Harmonie Park Press, 1992.

Jean Philippe Rameau. *Treatise on Harmony.* Translated from French by Philip Gossett. New York: Dover, 1971.

Shirlaw, Matthew. *The Theory of Harmony.* London: Novello, 1955.