Teaching Analysis of Chromatic Chords Through Chord Qualities

Carissa Reddick

University of Northern Colorado

If I had a dollar for every time I saw a dominant-quality seventh chord built on scale-degree $\hat{1}$ labeled "I^7" on a student's analysis assignment, I would be a rich, if unsuccessful, music theory professor. While labels such as this one, and also the ever-common "II^7," do accurately reflect the spelling and quality of the chord, they do not demonstrate that the student understands the point of that chord.[1] The misunderstanding increases with the esotericism of the label: #iv^{o7}, for example. This semester I had a student ask the thought-provoking question, "Why isn't there a I^7? How come it doesn't exist? Here it is in the music." Her question reaches toward the core of Roman numeral analysis itself. What are we doing when we label chords? Using the system wherein different Roman numeral cases are used for major and minor triads, the label of a diatonic chord identifies both its chord quality and its relationship to the tonic scale degree. A chromatic chord's label, however, also

[1] I use a labeling system wherein a superscript "7" after a Roman numeral indicates a minor seventh over the root. If the seventh over the root is major, I use the superscript "M7," as in Kostka/Payne/Almén's textbook. This system combines the use of Roman numerals and traditional figured bass with lead-sheet symbols. Stefan Kostka, Dorothy Payne, and Byron Almén, *Tonal Harmony*, 7th ed. (New York: McGraw-Hill, 2013), 46, 61.

points to its specific local function according to the voice-leading tendencies it creates.[2] When we label a chromatic chord, the point is to identify its *function*. Thus, the labels "I^7" and "II^7" for dominant-quality seventh chords built on scale degrees $\hat{1}$ and $\hat{2}$ do not accurately communicate that these chords function as secondary dominants to the chords that follow them; the labels V^7/V and V^7/IV are far more informative, at least at the foreground level.[3]

At my institution, a medium-sized public university with both music performance and education majors, the topics of chromatic harmony and basic form are taught during the third semester of the undergraduate theory sequence; this semester consists of a two-credit course in written theory and a corequisite one-credit aural skills course. Both classes meet twice a week for 50 minutes per meeting. Finding the time to cover the voice-leading, syntax, and analysis of chromatic chords, with time for the topics to settle into the students' minds, is very challenging. My approach in teaching chord labeling is to offer them a thought process for determining how a given chromatic chord functions, based on its

---

[2] The term "function" here does not refer to the three basic harmonic functions of tonic, predominant, and dominant, but rather to the specific functionality of what particular chord follows the chromatic chord.

[3] This reasoning applies to chord-to-chord syntax for music in the common-practice style. In some cases, such as when making longer-range middleground connections or when analyzing music in a different style (such as jazz or popular music), the labels "I" and "II" might be preferred. Also, a *major* seventh on the tonic scale degree occurs diatonically and may carry the label "I^7" in other systems; my label for such a chord is "I^{M7}."

quality.[4] I pair this with the reverse, less musical, process: how many labels can match a certain chord quality? In applying the process to the example above, a dominant-seventh quality chord must function as either: 1) V^7 in the key, 2) a secondary dominant (V^7/x), or 3) a IV^7 in a minor mode.[5] "I" and "II" are not options for carrying a dominant-seventh quality chord; with the exception of the occasional IV^7, this quality of chord will be labeled as a "V^7," either primary or secondary to the local key. Chords with other qualities carry different restrictions on how they can function and what labels they can assume.

Prerequisites to the Method

Since chromatic harmony is taught during the third semester of the sequence, students should come in with all the knowledge necessary to use this system. One obvious prerequisite to learning this system is the ability to identify a chord's quality with instant accuracy—E-G-B♭-D♭ is a fully-diminished seventh chord—and the reverse, the ability to

---

[4] The term "chord labeling" is used here to recognize that "analysis" goes far beyond the mere labeling of chords, although a chord label that identifies its function is a step toward analysis.

[5] Occasionally in minor modes, using the raised sixth scale degree with a subdominant root results in a dominant seventh quality. Often this chord occurs in first inversion in the configuration IV^6_5–V^6_5–i (see the tonicization of C minor in the second half of measure 3 in Bach's harmonization of "O Mensch, bewein' dein' Sünde gross," #201, included in Burkhart's anthology). Charles Burkhart, *Anthology for Musical Analysis*, 6th ed. (Boston: Schirmer, 2003).

accurately spell a given quality from a given root. If students originally learn this skill in the first semester of the sequence, it's amazing how the skill can erode during the second semester, when they learn diatonic voice-leading. If the teacher is not diligent, students begin to rely on the key signature, and knowledge of the diatonic chord qualities, to spell the chords for them. The first evidence of this reliance is the difficulty some students have in remembering to raise the leading tone for dominant-functioning chords in the minor mode. Regular chord-spelling drills without key signatures throughout the second semester can help students retain this ability. Ideally timed drills should occur once or twice a month, with the number of chords increased each time; my drills have a mix of spelling and identifying triads and seventh chords in root position. A realistic goal is 50 chords in 15–20 minutes, with 90% or higher accuracy. Having the students correct the chords they miss on the drills will help pinpoint whether errors arise from carelessness or misunderstanding.

The second most important prerequisite is the knowledge of the diatonic chord qualities in major and minor modes. Learning these qualities is straightforward in the major mode, but more tricky in the minor mode because of the variant 6th and 7th scale degrees.[6] These variant scale degrees result in more than one diatonic quality for chords that include these scale degrees. In learning the diatonic chord qualities, students can begin listing which labels a given quality can assume, as shown in Table 1.[7]

---

[6] Paula Telesco, "Rethinking the Teaching of Minor Scales and Keys," *JMTP* 15 (2001): 69–90.

[7] Kostka/Payne/Almén's textbook contains similar charts. Kostka, Payne, and Almén, *Tonal Harmony*, 59–70.

Table 1: Diatonic Chord Qualities

Quality:	Can function as… in the major mode	Can function as… in the minor mode
Major triad	I, IV, V	III, IV, V, VI, VII
Major seventh	I^{M7}, IV^{M7}	III^{M7}, VI^{M7}
Dominant seventh	V^7	IV^7, V^7, VII^7 (8)
Minor triad	ii, iii, vi	i, iv, v
Minor seventh	ii^7, iii^7, vi^7	i^7, iv^7, v^7
Diminished triad	vii^o	ii^o, vi^o, vii^o
Half-diminished seventh	$vii^{Ø7}$	$ii^{Ø7}$, $vi^{Ø7}$
Fully-diminished seventh		vii^{o7}
Augmented triad		III^+

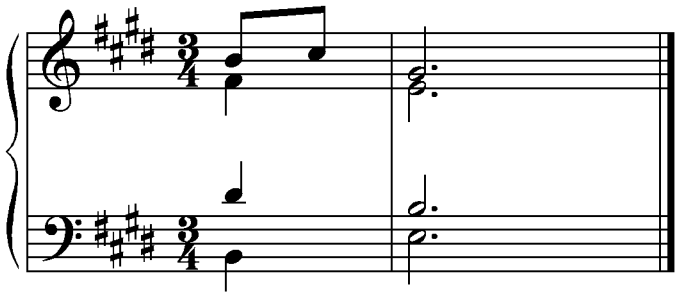
A similar exercise presents a specific chord and asks for the Roman numeral and key possibilities. For example, an E major chord can function as I in E major, III in C# minor, IV in B major or B minor, V in A major or A minor, VI in G# minor, and VII in F# minor. This is an extension of exercises in several harmony and fundamentals workbooks that give the student a pitch and ask them to identify its scale degree in several different keys. Knowledge of scale degrees and key signatures is another prerequisite for learning chromatic chord labeling.

Other prerequisites, which in most undergraduate sequences are at least introduced before the third semester, include understanding parallel keys, aurally identifying cadence types, and distinguishing non-chord tones from chord tones (no small task). A few guidelines can help students determine the chord tones. First, attempt to stack the pitch-classes in thirds. If one pitch-class does not fit into the stack, it is most likely a non-chord tone. Second, if the pitch-class occurs in more than one register, it is likely to be a chord

[8] While a diatonic seventh added to the subtonic triad results in a dominant seventh chord, this chord most often progresses to a mediant, making the label V^7/III more informative.

tone. In a kind of reverse logic, if a pitch in question fits well into a category of non-chord tone (such as passing tone, appoggiatura, etc.), and doesn't fit into a stack of thirds, it is likely to be a non-chord tone. For instance, in Example 1 below the pitch-class C# does not fit into the stack B–D#–F#. If C# is approached with ascending step, and left by descending leap, it acts like an escape tone. That the pitch can easily be classified as an escape tone will help the student realize it is not part of the chord.

Example 1: Escape Tone



The Method: Thought Process Flow Charts

My goal is to provide students some guidelines for labeling chromatic chords, based on the chord's quality. The first step of any tonal analysis exercise is to listen to, play, or sing the passage, and determine the cadence points. The types of cadences can be determined aurally and by analyzing the chords involved in the cadence. If students are unsure of the key after hearing the passage, they can determine it once the cadences are identified, and have some idea of where to look for possible pivot chords. After the cadential and key identification, students should begin analyzing the chords *absolutely*,

with what I call their "letter name, quality, and inversion."[9] In this process, students first identify the root and quality of the chord present. The inversion is also useful, since triads in second inversion often function as cadential six-four chords and can help point to the key of the passage, if it's in doubt. For identifying the inversion, I combine the letter name of the root with the figured bass symbol that the Roman numeral will have. For example, I label the cadential six-four chord in G major a "$G\,^{6}_{4}$" to indicate a G major triad in second inversion; here the symbol "$^{6}_{4}$" refers to the inversion of the chord rather than intervals over the bass.[10] After the chords are identified absolutely in this manner, students can assign the functions of the chords by labeling their Roman numerals or appropriate chromatic chord symbols.

In learning to identify chromatic chords, two types of exercises are particularly effective: 1) listing what labels belong with which qualities (as in Table 1 above for diatonic chords), and 2) following a "thought process" flow chart based on the chord's quality. Example 2 below shows the crucial first step of the thought process. The opening question, "Is the chord diatonic or chromatic?," should not be taken for granted. Once again, an over-reliance on the key signature might be exposed, as students will be tempted to look for

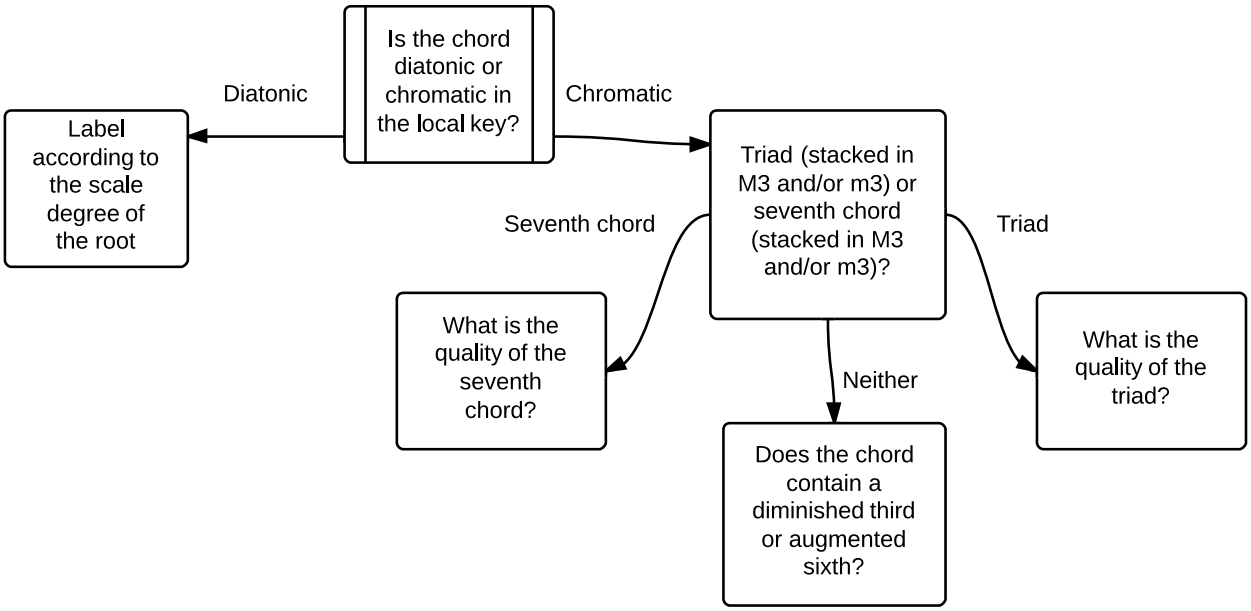
---

[9] This step is similar to the "macro analysis" found in Benward & Saker's textbook, except that I add the inversion symbols and omit the slurs. Bruce Benward and Marilyn Saker, *Music in Theory and Practice* Volume 1, 8th ed. (Boston: McGraw-Hill, 2009), 83–85.

[10] Lead-sheet symbols could also be used for this purpose. Many teachers now use a slash system, wherein a G major triad in second inversion is labeled "G/D." I use "$G\,^{6}_{4}$" since the figures translate directly to the Roman numeral once it is identified.

accidentals to determine the answer. The presence of an accidental does not necessarily indicate a chromatic chord, especially if the music is in the minor mode (both diatonic scale steps “la” and “ti” will use an accidental), and/or the piece may have modulated from the key of its signature, thus requiring accidentals for diatonic chords in the local tonic key. If the chord is determined diatonic, students should label it according to the scale degree of its root, with the appropriate chord quality. If the chord is determined chromatic, its quality and resolution will determine its label.

Example 2: Step 1 of the Thought Process



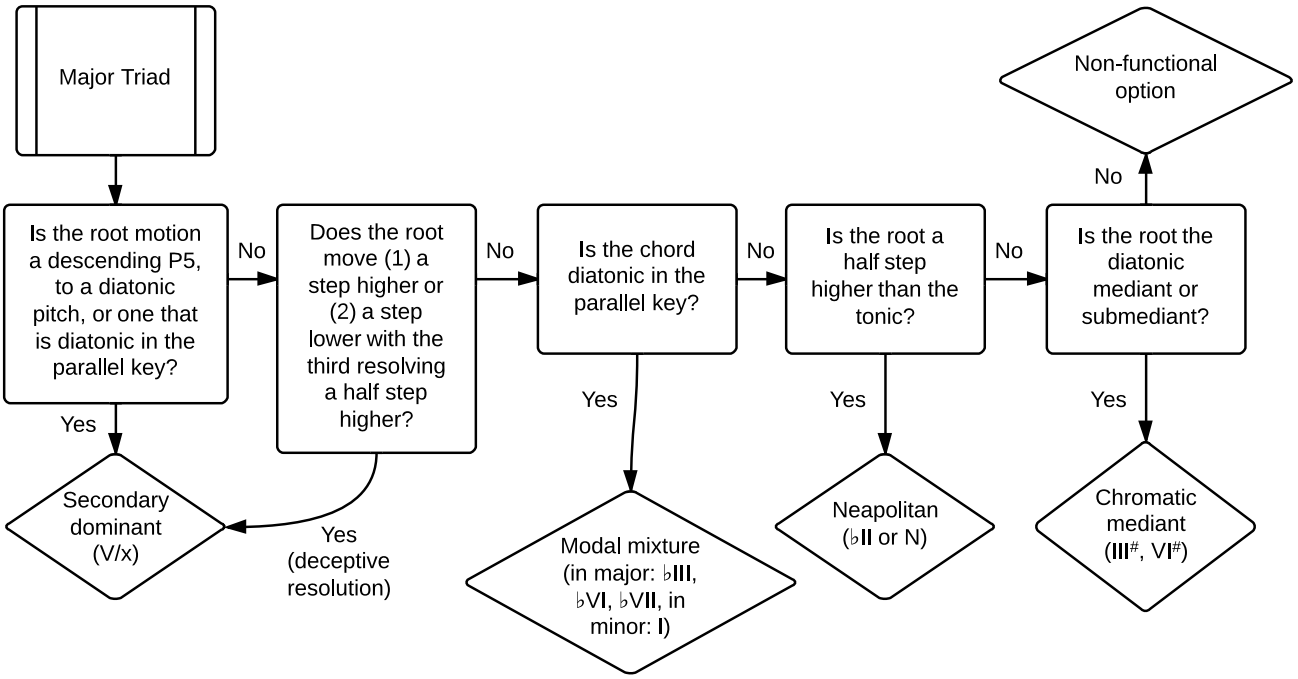
Once the quality of the chord is determined, students can consider what labels that particular chord can carry. As illustrated in the examples below, some chord qualities contain more possibilities for chord labels than others. For instance, as shown in Example 4, a locally chromatic minor triad is fairly limited in its possible functions: it can carry the Roman numerals i, iv, or v, according to the scale degree of its root. On the other hand,

Example 3 shows how a chromatic major triad can function in many different ways; its label will depend on either the chord that follows or its relationship to the local tonic (in the case of modal mixture). In general, I have attempted to keep the more common solutions to the beginning (left side) of each flow chart. "Yes" answers proceed downwards, and "No" answers proceed to the right. Questions about resolutions are shown in boxes, while decisions are shown in diamonds.

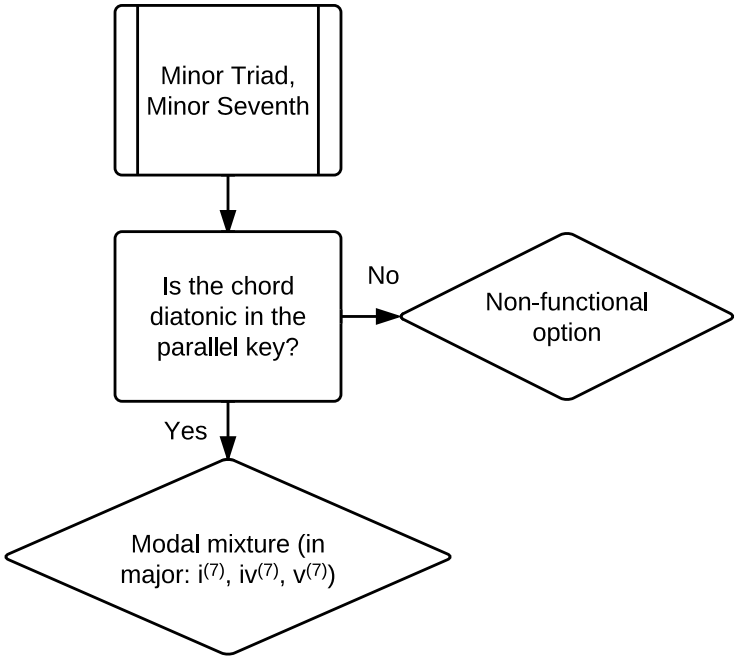
Each thought process below culminates with the decision "Non-functional option." Two main possibilities are encompassed by this decision: 1) the passage has modulated, thus rendering the chord non-functional in the current key that the student is using for analysis, or 2) a contrapuntal technique, such as a sequence or a voice exchange, has taken over the voice-leading. "Non-functional option" also recognizes that the charts cannot be completely comprehensive for all tonal works, particularly those works "at tonality's edge," where often, the only sense to the chord succession is common-tone voice-leading.[11]

[11] Laitz titles the final chapter in his textbook "At Tonality's Edge," wherein he discusses harmonic techniques such as symmetrical division of the octave and nonsequential progressions. Passages from Wagner and Scriabin are analyzed in this chapter. Steven G. Laitz, *The Complete Musician*, 3rd ed. (New York: Oxford University Press, 2012), 648–678.

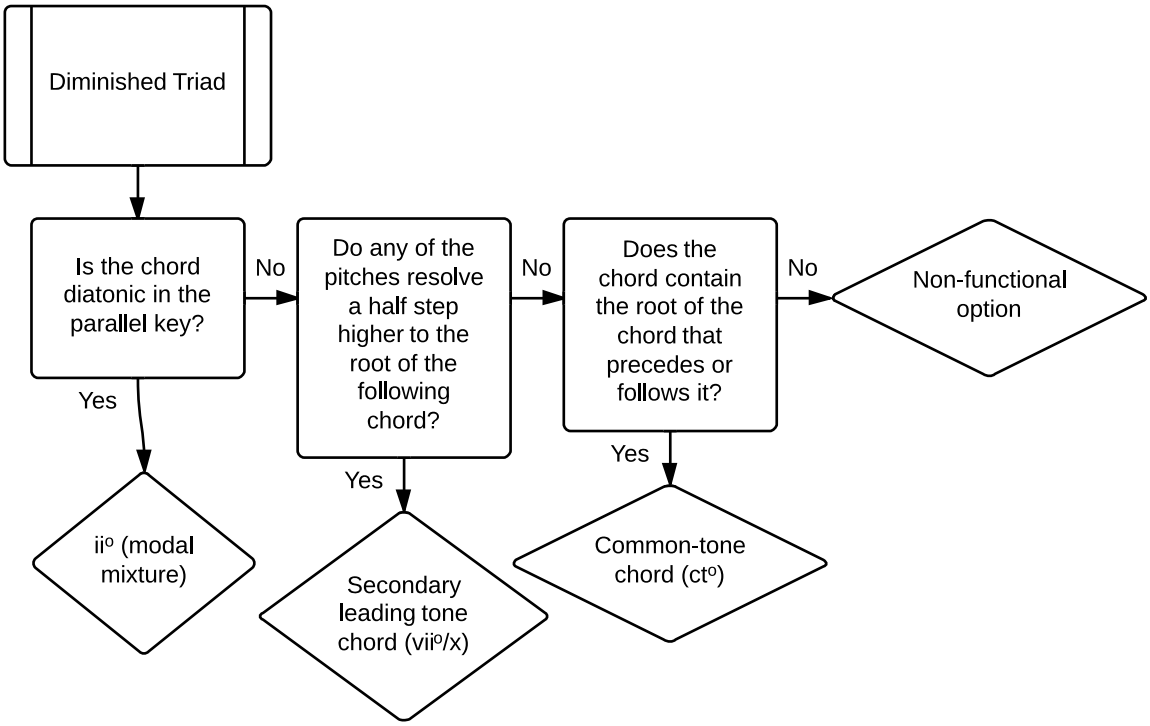
Example 3: Thought Process for Major Triads



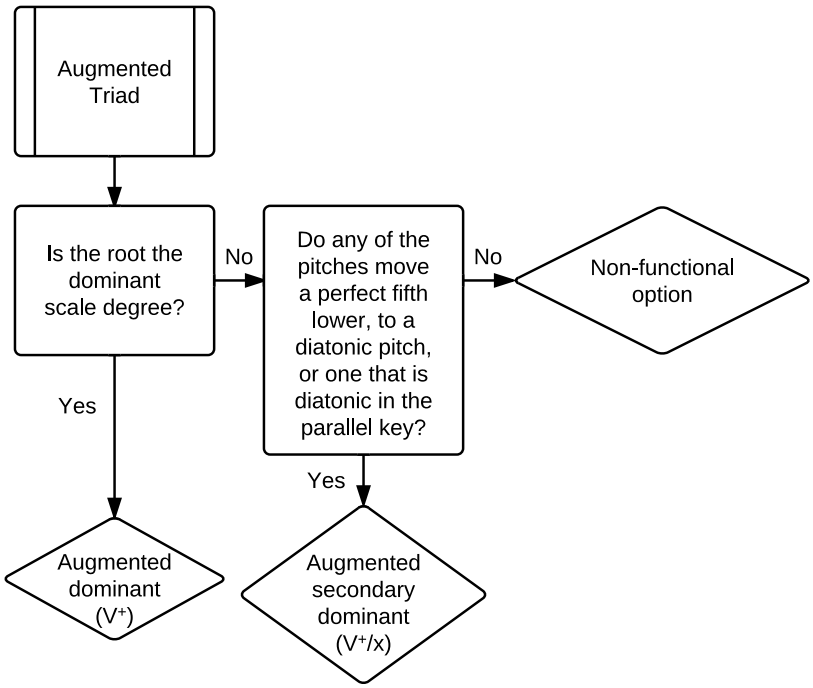
Example 4: Thought Process for Minor Triads and Minor Seventh Chords



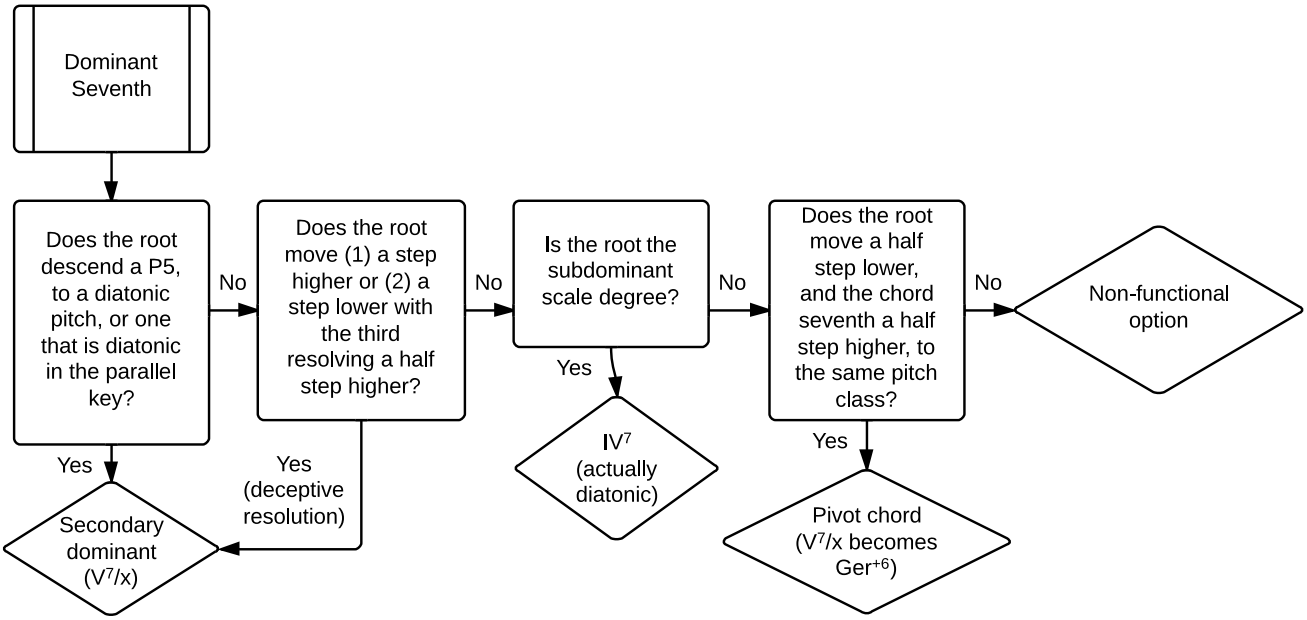
Example 5: Thought Process for Diminished Triads



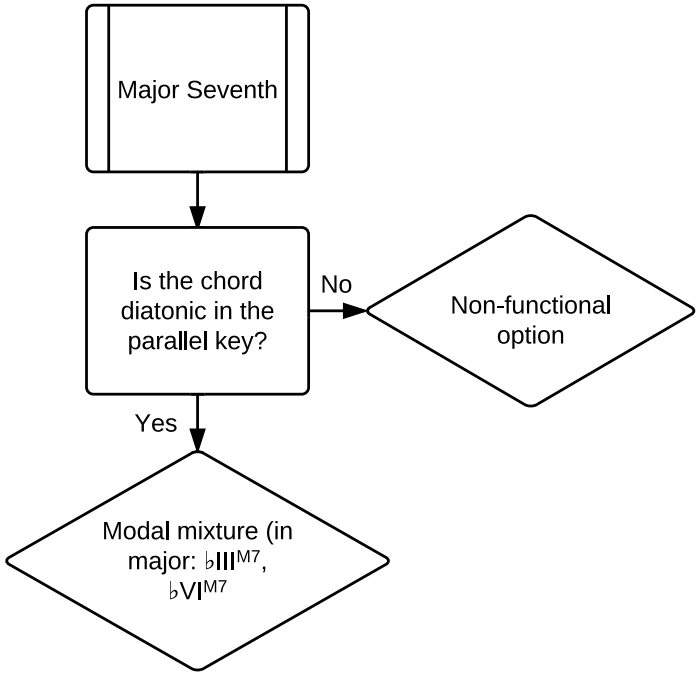
Example 6: Thought Process for Augmented Triads



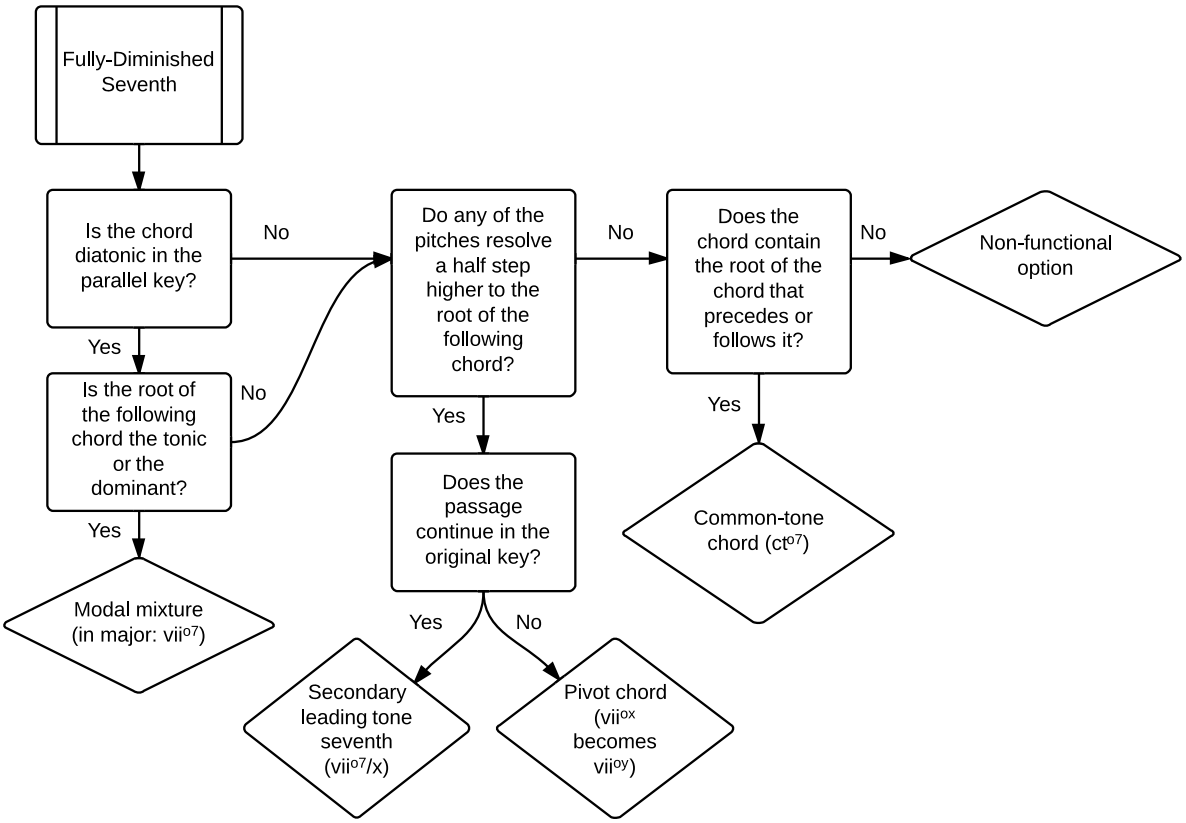
Example 7: Thought Process for Dominant Seventh Chords



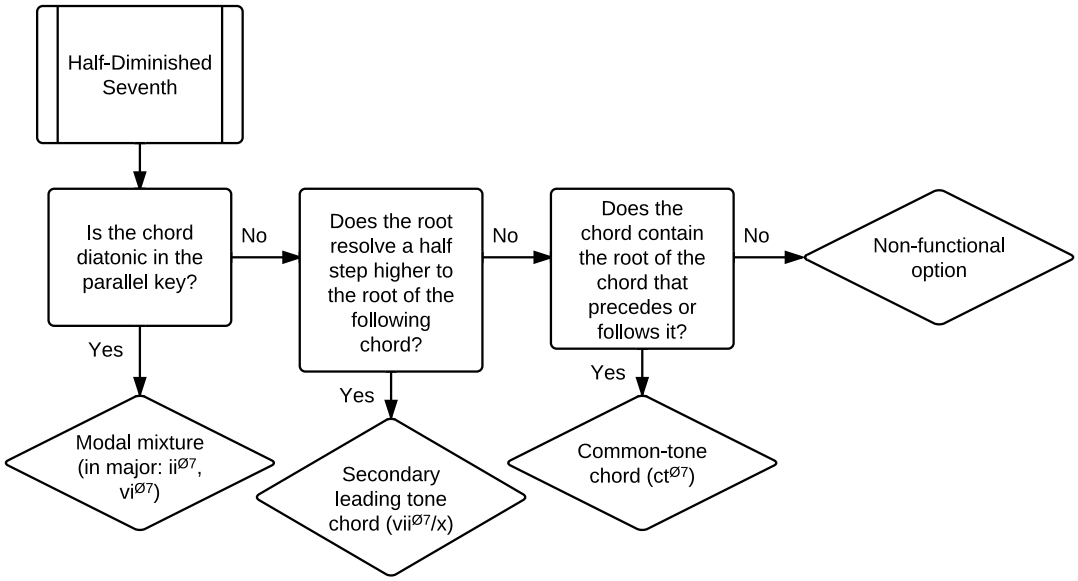
Example 8: Thought Process for Major Seventh Chords



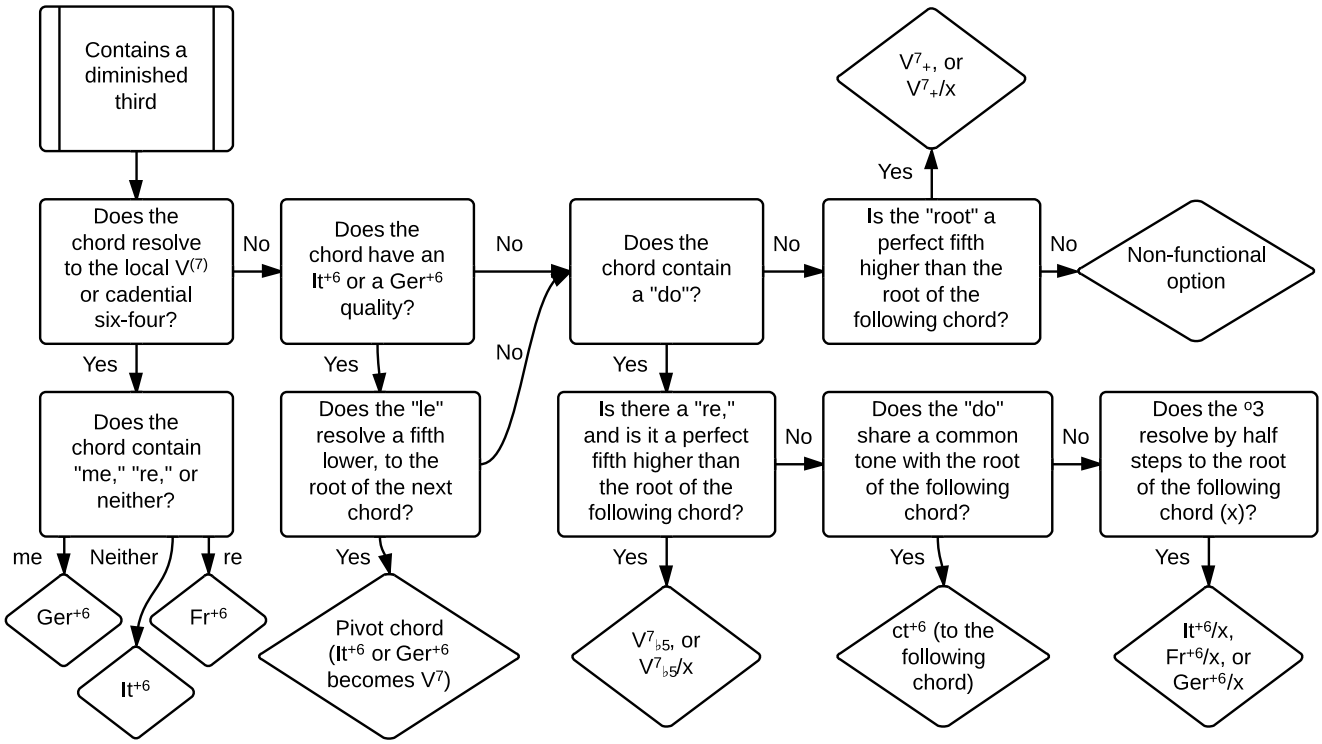
Example 9: Thought Process for Fully-Diminished Seventh Chords



Example 10: Thought Process for Half-Diminished Seventh Chords



Example 11: Thought Process for Sonorities Containing a Diminished Third

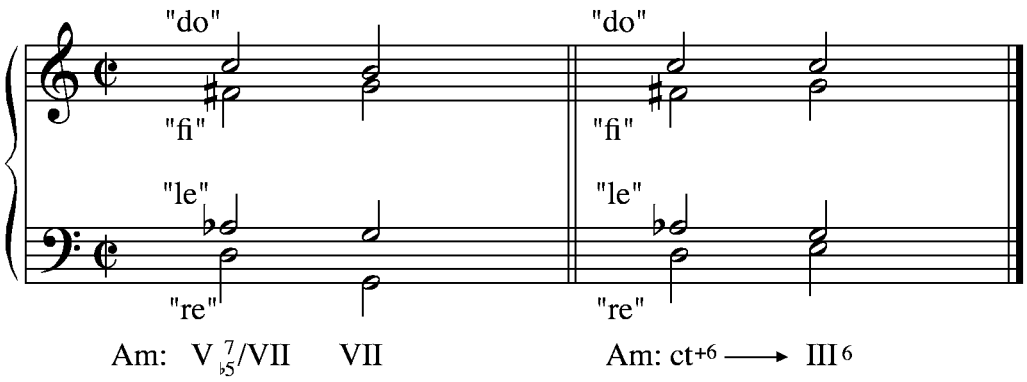


Example 11, the most complex of the thought processes, includes sonorities that contain a diminished third or augmented sixth. Most of the time, these chords will function as an It^{+6}, Fr^{+6}, or Ger^{+6}. Example 11 includes several more rare possibilities that instructors might or might not want to include, such as the common-tone augmented sixth chord (usually the common tone is the local tonic), and the augmented sixth chord "of x" (also, usually "of i" or "of I"). The solfege syllables in the questions in the rectangles refer to the structure of the sonority itself, not to the local tonic. To follow Example 11, the students must understand augmented sixth chords according to their scale degree content, as expressed in solfege. When a diminished third/augmented sixth is present in a chord, the pitch classes that form the diminished third become the "fi" and the "le," both a half step

away from "sol." The "do" of the chord can be found by calculating a major third higher than the "le," or by calculating a perfect fifth lower than the "sol." For example, if the local key is A minor, and a student encounters the sonority D–F#–A-flat–C, the diminished third indicates that the F# is temporarily "fi" and the A-flat is "le," making C the temporary "do" (Example 12). If the chord proceeds to a G major chord (the "re"—D—is present, and the following chord has a root a perfect fifth lower), then the D–F#–A-flat–C functions as a V^{7}_{b5}/VII.[12] If the chord moves on to a C major chord (the "do" shares a common tone with the root of the following chord), then the D–F#–A-flat–C functions as a ct^{+6} to the III.

[12] This sonority presents certain labeling problems when it appears in second inversion, since the altered pitch is located in the bass. Laitz uses the label "FrV^{4}_{3}" to indicate both its French augmented sixth sonority and its function as a dominant to the chord that follows. Laitz, *The Complete Musician*, 614.

Example 12: Less Usual Resolutions of Augmented Sixth Sonorities[13]



Coordinating the Flow Charts with a Textbook

These thought process flow charts are designed to be used in conjunction with a textbook. The flow charts will evolve with the introduction of new chromatic chords throughout the semester. Several commonly used harmony textbooks introduce categories of chromatic chords in this order:[14]

---

[13] Several anthologies, textbooks, and online sources contain an index that lists examples of chromatic chords in context. See Burkhart, *Anthology for Musical Analysis*; Matthew Bribitzer-Stull, *Anthology for Analysis and Performance* (New York: Oxford University Press, 2014); Laitz, *The Complete Musician*; "Internet Music Theory Database," Timothy Cutler and Patricia Gray, accessed September 30, 2013, http://musictheoryexamples.com/.

[14] Not every textbook listed here includes all these categories (especially categories 7 and 8); several have intervening chapters, but the order of presentation is roughly the same. Aldwell, Schachter, and Cadwallader introduce category 2 before category 1; Edward Aldwell, Carl Schachter, and Allen Cadwallader, *Harmony & Voice Leading*, 4th ed. (Boston: Schirmer Cengage Learning, 2011). Other books consulted include Jane Piper Clendinning

1. Secondary dominants and leading tone chords
2. Modal mixture
3. Chromatic mediants (III# and VI#)[15]
4. Neapolitan chords
5. Augmented sixth chords
6. Altered dominants
7. Common-tone diminished seventh chords
8. Common-tone augmented sixth chords

The first category of chromatic chords encompasses several chord qualities. Secondary dominants can be major triads or dominant seventh chords; secondary leading-tone chords can be diminished triads, half-diminished seventh chords, or fully-diminished seventh chords. When faced with a chromatic chord this early in the semester, students will most likely jump to the (usually correct) label that matches the quality of the chord, without checking the chord's resolution. But instilling the concept that a chord's behavior determines its label should begin at this early stage. For major triads and dominant seventh chords, the question "Does the root move a perfect fifth lower, to a diatonic pitch?" will

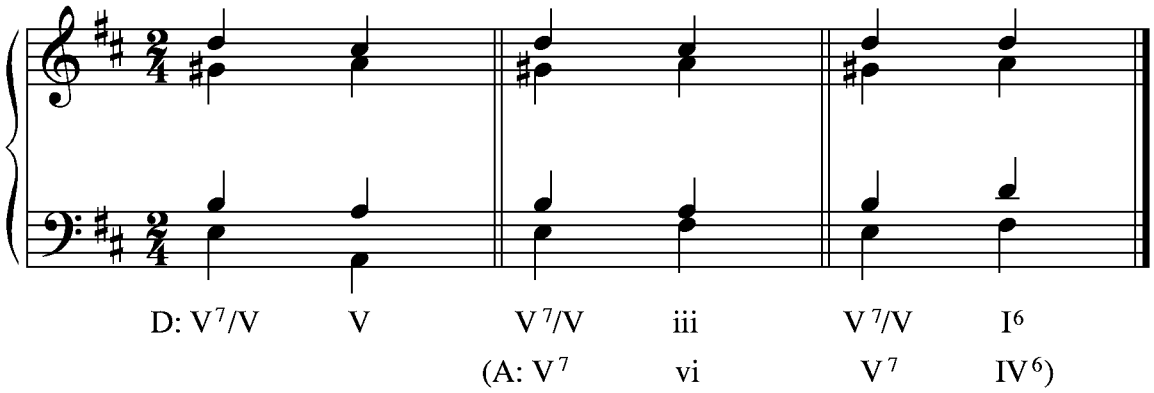
---

and Elizabeth West Marvin, *The Musician's Guide to Theory and Analysis*, 2nd ed. (New York: W.W. Norton & Company, 2011); Kostka, Payne, and Almén, *Tonal Harmony*; Laitz, *The Complete Musician*; Miguel A. Roig-Francolí, *Harmony in Context*, 2nd ed., (New York: McGraw-Hill, 2011).

[15] Steven Laitz presents these chords at the end of his Chapter 21 on modal mixture. Used sporadically in Laitz's textbook, the superscript "#" after the Roman numeral indicates a raised third over the diatonic root, changing the mode from minor to major. While the use of both an uppercase Roman numeral and a "#" is redundant, the added "#" underscores the chord's status as chromatic rather than diatonic. Laitz, *The Complete Musician*, 431–433.

solidify the chord's function as a secondary dominant (Example 13).[16] Occasionally students may encounter a secondary dominant that resolves deceptively, for which the secondary question "Does the root of the chord move (1) a step higher or (2) a step lower with the third of the chord resolving a half step higher?" applies. Likewise, for half-diminished seventh chords, "Does the root of the chord resolve a half step higher?" identifies the function of secondary leading tone chord.

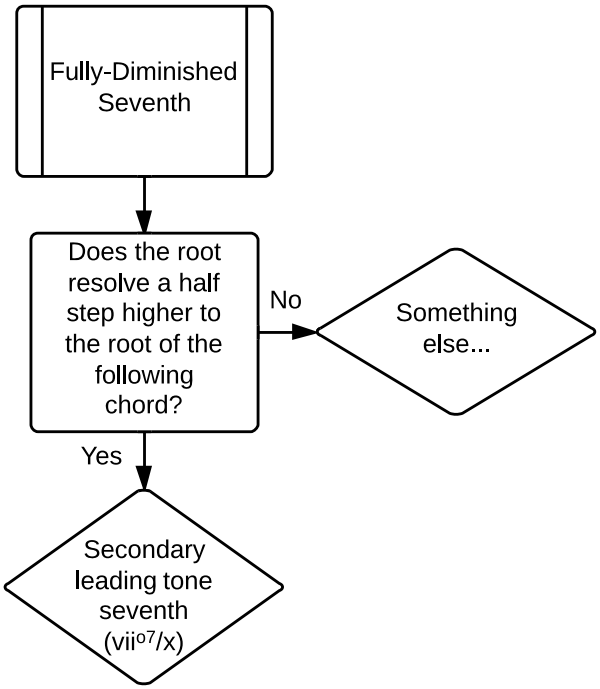
Example 13: Resolutions of Secondary Dominant Seventh Chords



The charts shown in Examples 3–11 attempt to show all the possible solutions to labeling chords that the students will learn in their third semester. In order not to overwhelm the students, the charts should be simplified at the beginning, and then expanded and adapted as each new chromatic chord category is introduced. For example, the flow chart for fully-diminished seventh chords might look like Example 14 during the introduction of secondary leading tone chords.

[16] The second part of the question, "or one that is diatonic in the parallel key?," can be added after the unit on modal mixture.

Example 14: Early Thought Process for Fully-Diminished Seventh Chords



Since modal mixture has not yet been introduced, those options can be bypassed. Likewise, the wording of the question in Example 9, "Do any of the pitches resolve a half step higher to the root of the following chord?," (instead of referring to the "root" of the fully-diminished seventh chord, as in Example 14), is unnecessary until the students learn modulations involving enharmonic reinterpretations. The adaptation of the charts to incorporate new chords can be a class activity. For example, when the ct^{o7} is introduced, students can add the boxes and configure the wording of the questions as a group.

Often the second category of chromatic chords introduced in textbooks is modal mixture. In some ways, identifying modal mixture chords is similar to identifying diatonic chords; students have to think diatonically in the parallel key, and then label the chord according to its scale degree and quality. It can be challenging, however, since many chord

qualities are involved. With modal mixture, listing the possible Roman numeral solutions for each quality, as in Table 1 for diatonic chord qualities, can be useful. Table 2 combines diatonic qualities with modal mixture possibilities.

Table 2: Diatonic and Modal Mixture Chord Qualities

Quality:	Can function as… in the major mode	Can function as… in the minor mode
Major triad (diatonic): (modal mixture):	I, IV, V ♭III, ♭VI, ♭VII	III, IV, V, VI, VII I
Major seventh (diatonic): (modal mixture):	I^{M7}, IV^{M7} ♭III^{M7}, ♭VI^{M7}	III^{M7}, VI^{M7}
Dominant seventh (diatonic): (modal mixture):	V^7 IV^7	IV^7, V^7, VII^7
Minor triad (diatonic): (modal mixture):	ii, iii, vi i, iv, v	i, iv, v
Minor seventh (diatonic): (modal mixture):	ii^7, iii^7, vi^7 i^7, iv^7, v^7	i^7, iv^7, v^7
Diminished triad (diatonic): (modal mixture):	vii^o ii^o, vi^o, vii^o	ii^o, vi^o, vii^o
Half-diminished seventh (diatonic): (modal mixture):	$vii^{ø7}$ $ii^{ø7}$, $vi^{ø7}$	$ii^{ø7}$, $vi^{ø7}$
Fully-diminished seventh (diatonic): (modal mixture):	— vii^{o7}	vii^{o7}
Augmented triad (diatonic): (modal mixture):	— ♭III^+	III^+

As more categories of chromatic chords are added, both the thought process flow charts and the chord quality tables expand. This expansion is especially notable for major triads. To return to an early example, at the beginning of the semester, an E major triad could carry several diatonic functions: I in E major, III in C# minor, IV in B major or B minor, V in A major or A minor, VI in G# minor, and VII in F# minor. At the end of the third semester, however, an E major triad can carry many chromatic labels as well: I in E minor, ♭II in D# minor or E♭ major (spelled enharmonically), ♭III in C# major or D♭ major (spelled enharmonically), ♭VI in A♭ major (spelled enharmonically), ♭VII in F# major, III#

in C major, VI# in G major, and secondary dominants in many keys that would be too tedious to list here. Knowing the possibilities, and how to sort through them by looking at the chord's resolution, is the key to correctly labeling chromatic chords.

Sample Analysis 1: Felix Mendelssohn, *Song Without Words*, Op. 19b, No. 1, mm. 1–15

The A section in Mendelssohn's *Song Without Words* provides an example for demonstrating the use of the charts in a passage that modulates (see Example 15). First, students should listen to the passage, identify the tonic of the piece, and mark the cadence points: measures 6 and 15. If the cadence in measure 6 is not aurally identifiable as a half cadence, students can analyze the last chord of measure 5 (f# $^{6}_{5}$),[17] and the first two chords of measure 6 (E $^{6}_{4}$ and B major). These chords are all diatonic in E major, and present motion from the ii $^{6}_{5}$ through the cadential six-four to V, creating a half cadence in the tonic key. The cadence in measure 15 is clearly V^{7} to I motion in B major, although students might be encouraged to reserve judgement on whether this motion represents a perfect authentic cadence in B major, or a tonicized half cadence in E major.

Since the first phrase concludes with a half cadence in the tonic key, students can commence labeling the chords in the tonic E major. Most of the chords in the first three

[17] Students may have trouble identifying which pitch-class, B or A, in the right hand to consider a chord tone. To guide them toward the A, point out that the A is also present in the bass, and the B does not "fit" when stacking the notes in thirds: F#–A–C#–E…B? The B also matches the most standard type of appoggiatura: approached by ascending leap, left by descending step.

measures are diatonic. Beat four of measure three presents the first chromatic chord: F#$^{6}_{5}$. Students should first analyze the next chord in the music (measure 4 beat 1): B major, the diatonic V chord. Using the thought process flow chart for dominant seventh chords (Example 7), the answer to the first question ("Does the root descend a perfect fifth, to a diatonic pitch, or one that is diatonic in the parallel key?") is "Yes," since the root F# descends a perfect fifth to the root B. Following the arrow down, this chord is therefore a secondary dominant seventh chord; since the root descends a fifth to the dominant B, the correct label is V$^{6}_{5}$/V.

Following the dominant on the downbeat of measure 4, beat 2 presents again an F#^{7}, but now in second inversion. Since the root F# also descends a perfect fifth to the root B on beat 3, the label is the same (with a different inversion symbol): V$^{4}_{3}$/V. Beat 4 presents another chromatic chord: C#$^{6}_{5}$. The C# root descends a perfect fifth to the root of the next chord, F#, the diatonic second scale degree; its label is therefore V$^{6}_{5}$/ii. The downbeat of measure 5 provides an opportunity to reinforce the very beginning of the thought process, the question "Is the chord diatonic or chromatic in the local key?" (Example 2). The notated A-natural is a courtesy accidental that reminds the player to cancel the A# from measure 4; therefore, this chord is diatonic (ii^{7}). The remainder of the chords in this phrase are diatonic.

After the chords are labeled in the first phrase, students should examine it to determine 1) its form and 2) the fundamental logic behind the progression. The phrase is a sentence form, with measure 3 as the first statement of the basic idea, measure 4 as the second statement, and measures 5 and 6 the continuation and cadence. Measure 4, however, is not an exact repetition of the first basic idea, but rather is transposed to the

dominant. Momentarily relabeling the first three chords of measure 4 into B major and comparing them to the first three beats of measure 3 makes this easy to see:

Measure 3 E major (I): I–V$^{4}_{3}$–I^{6}
Measure 4 B major (V): I–V$^{4}_{3}$–I^{6}

Additionally, both measures 3 and 4 contain a voice exchange between the bass line and the melody, subsuming the V$^{4}_{3}$ on beat two of each measure into a prolongation of the harmony on beats 1 and 3. Savvy students might also point out the progression of V^{6} to V$^{6}_{5}$/ii from measures 4–5. Here, the Roman numerals indicate that a dominant area progresses to a predominant area. The root motion from B to C#, however, is an ascending second, a typical motion in this style. This motion will recur in a varied form at the same point in the second phrase. At the phrase level, the tonic is prolonged through beat 3 of measure 5, followed by a brief predominant chord on beat 4 and the cadential dominant harmonies in measure 6.

As determined previously, the second phrase (mm. 7–15) ends with either a tonicized half cadence in E major, or a perfect authentic cadence in B major. One of the tasks in labeling the chords in this phrase will be to decide on one of these interpretations. The second phrase corresponds with the first phrase until beat 4 of measure 8. Instead of a chromatic chord as in the first phrase, Mendelssohn resolves the dominant B chord to a diatonic c#$^{6}_{5}$ (vi$^{6}_{5}$). While the chord on beat 4 is no longer chromatic, the ascending second root motion (B–C#) is maintained. Breaking away from the tight-knit sentential form established in the first phrase, this c#$^{6}_{5}$ chord persists through the next measure and the first two beats of measure 10. On beat 3, the change of E-natural to E# makes the chord chromatic: C#$^{6}_{5}$, previously labeled as V$^{6}_{5}$/ii. The next chord (m. 11, b. 1) is also chromatic in

E major: F#^{7}, previously labeled as V^7/V. On beat 2, the same chord changes to first inversion. Beats 3 and 4 are diatonic in E major (B major and c#^{6}).

Measure 12 presents $B\,{}^{6}_{4}$ for two beats, followed by F#^{7}. The use of a second inversion triad should give the students pause, since this inversion only occurs in certain situations: a passing bass, a pedal bass, an arpeggiated bass, or as part of a cadential formula. Here, a second-inversion triad moves to a dominant seventh chord over the same bass, which describes the familiar cadential six-four formula. If $B\,{}^{6}_{4}$ to F#^{7} is a cadential formula, then the local tonic is no longer E, but B. To test this hypothesis, play measure 12 followed by a root-position B major chord; the result is quite convincing.

The task for the students now is to find an appropriate pivot chord. Often, students are advised to find the first chord that "does not work" in the old key, and examine the chord before it as a viable pivot.[18] Applying this method, students might identify the cadential six-four as the first chord in the new key, and the c#^{6} chord on beat 4 of measure 11 as the pivot (vi^6 in E functions as ii^6 in B). With the students' knowledge of chromatic harmony expanding, however, the notion of what chords "do not work" in a key has grown much more vague. For example, all of the chords in this second phrase *can* be labeled in E major, but the labels will not faithfully reflect the harmonic relationships and aural experience.

---

[18] For example, Roig-Francolí advises the student to "Find the first chord that clearly indicates that we are moving to a new key…" then "Look at the chord immediately before this clear sign of a new key, and read it in both the old key and the new key." Roig-Francolí, *Harmony in Context*, 469.

Another approach to finding the pivot chord is to look for a place where the use of chromatic chords increases. Scanning from measure 7, an isolated chromatic chord appears in measures 7 and 8, but this chord (V^6_5/V) is surrounded by diatonic chords, and this portion of the phrase replicates the first phrase, which does not modulate. Scanning further, two chords that are chromatic in E major appear next to each other in measures 10 and 11 (C#$^6_5$ and F#^{7}). If the key changes to B major before the C#$^6_5$, the F#^{7} that was chromatic in the old key will become diatonic in the new key (shown in boldface in Table 3 below). The C#$^6_5$ does not make a good candidate for a pivot, however, since it is chromatic in both keys, and therefore does not provide a firm anchor in either key. The best choice for the pivot chord in this passage is therefore the chord before the C#$^6_5$: the long c#$^6_5$ in measures 8–10.

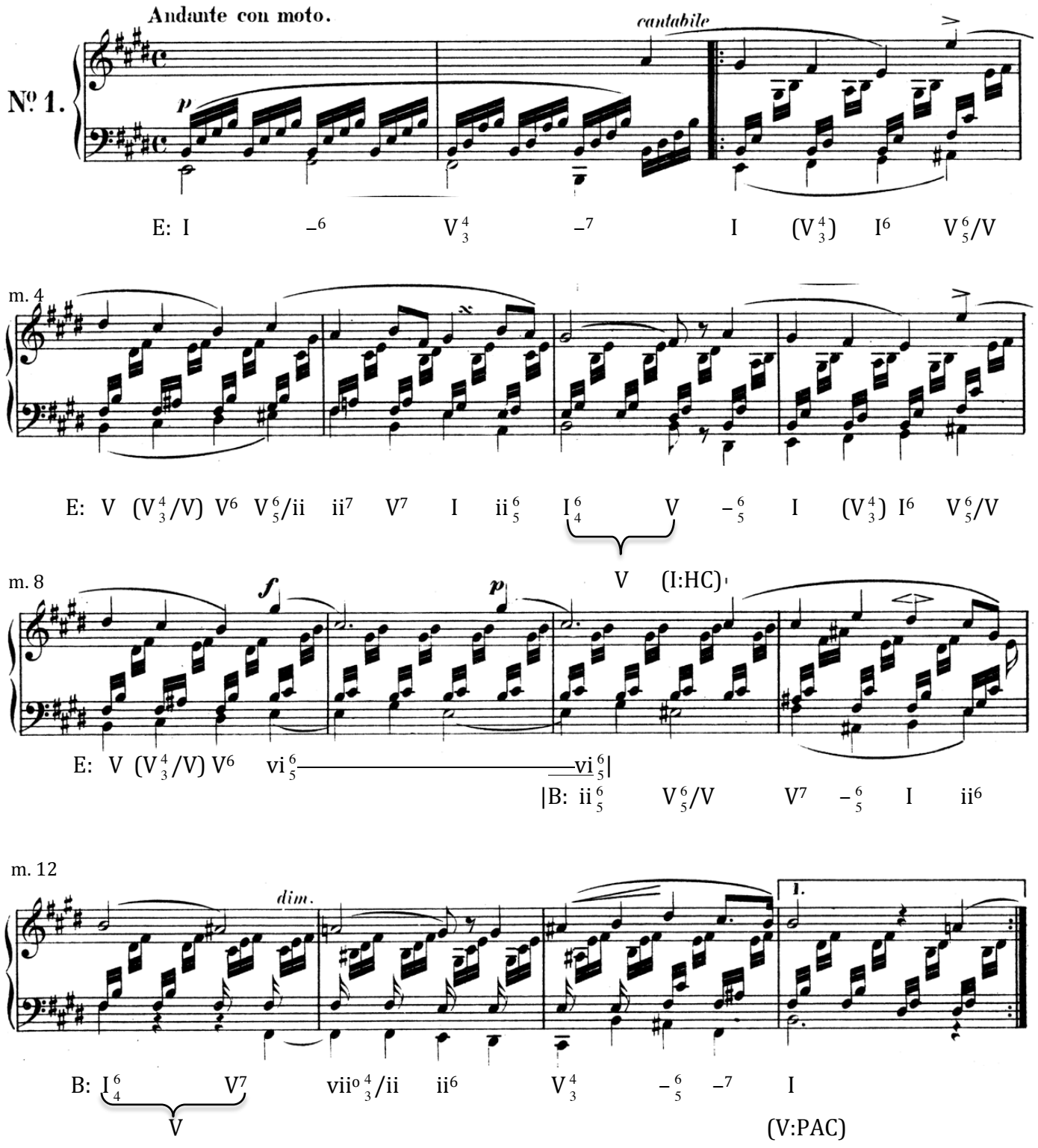
Table 3: Two Alternatives for Chord Labels in mm. 10–12
of Mendelssohn's *Song Without Words*, Op. 19b, No. 1

Measure:	10				11				12			
Beat:	1	2	3	4	1	2	3	4	1	2	3	4
Chord:	c#$^6_5$	–$^4_3$	C#$^6_5$	–	F#^{7}	–$^6_5$	B	c#^{6}	B$^6_4$	–	F#^{7}	–
E major:	vi$^6_5$	–$^4_3$	V$^6_5$/ii	–	**V^7/V**	–$^6_5$	V	vi^6	V$^6_4$?	–	V^7/V	–
B major:	ii$^6_5$	–$^4_3$	V$^6_5$/V	–	**V^7**	–$^6_5$	I	ii^6	I$^6_4$	–	V^7	–

Once the pivot chord is chosen, only one chord remains in the passage that is chromatic in B major. The cadential formula presented in measure 12 does not achieve its cadence on the downbeat of measure 13; instead, the harmony changes to a b#^{o7}, and the cadence is evaded. The b#^{o7}, a chromatic chord in B major, is followed by a diatonic c#^{6} (ii^6). To find the label for the chromatic chord, the thought process for fully-diminished seventh chords (Example 9) should be used. The answer to the first question ("Is the chord diatonic in the parallel key?") is "No." Following the arrow to the right, the answer to the second

question (“Do any of the pitches resolve a half step higher to the root of the following chord?”) is “Yes,” since B# in the chromatic chord is a half step lower than C#, the root of the next chord. Following the arrow down, this chord is a secondary leading-tone chord, one that tonicizes C#, so the correct label is vii$^{o\,4}_{\ 3}$/ii. The remainder of the chords in this phrase are diatonic, and the passage ends with a perfect authentic cadence in the key of the dominant.

Example 15: Felix Mendelssohn, *Song Without Words*, Op. 19b, No. 1, mm. 1–15



Sample Analysis 2: Robert Schumann, "Kleine Studie," from *Album für die Jugend*, Op. 68, No. 14

This example includes chromatic chords with several different qualities in a complete piece that does not modulate (see Example 16). Its form is rounded open binary, where the first A section's repeat is written out: A (mm. 1–16, 17–32), B (mm. 33–48), A' (mm. 49–64). The first five measures present a tonic expansion using diatonic chords over a G tonic pedal; the harmonic rhythm is one chord per measure.[19] In measure 6, the D from the tonic chord of measure 5 is raised to D#, creating an augmented triad on G.[20] The chord in the next measure is C major (IV). Using the thought process for augmented triads (Example 6), the answer to the first question ("Is the root the dominant scale degree?") is "No." Moving to the right, the answer to the second question ("Do any of the pitches move a

[19] Throughout the third semester, I have students complete a "second-level analysis," wherein they identify the main tonic, predominant (if present), dominant, and tonic (if present) areas of the phrase; thus, students will understand the term "tonic expansion" by this point. Steven Laitz discusses this concept as the "phrase model" in Chapter 9 of his textbook; the term "expansion" also appears frequently in later chapters. Laitz, *The Complete Musician*, 200–203.

[20] The D# in the right hand could be understood as a passing tone from D in measure 5 to E in measure 7. Its doubling in the left hand and the prevailing harmonic rhythm of one chord per measure, however, suggest that the D# is a chord tone. The Kostka/Payne/Almén textbook presents an example with a similar ambiguity: the augmented fifth "is a chromatic passing tone, but at the same time it creates a V^{+7} for a duration of four eighth notes." Kostka, Payne, and Almén *Tonal Harmony*, 412.

perfect fifth lower, to a diatonic pitch, or one that is diatonic in the parallel key?") is "Yes," since the chord in measure 6 contains a G, and the root of the chord in measure 7 is C. Moving downward, the chord is an augmented secondary dominant that tonicizes C (IV): V^{6}_{+}/IV.

After an expansion of the predominant area, measure 12 arpeggiates a chromatic g#^{o7}. The next chord (m. 13) is A minor (ii). Using the thought process for fully-diminished seventh chords (Example 9), the answer to the first question ("Is the chord diatonic in the parallel key?") is "No." Moving to the right, the answer to the second question ("Do any of the pitches resolve a half step higher to the root of the following chord?") is "Yes," since G# in the chromatic chord resolves to A, the root of the following chord. Moving downward, the chord is a secondary leading tone seventh that tonicizes A (ii): vii^{o7}/ii. As in the Mendelssohn example, here the chord labels seem to suggest that a dominant harmony (m. 11) moves to predominant harmonies (mm. 12–13). Two possible interpretations can be discussed. First, the motion from ii$^{4}_{2}$ in measure 10 to V^{6}_{5} in measure 11 is a genuine motion to the dominant harmonic area. The subsequent motion to the fully-diminished seventh chord in measure 12 represents a deceptive resolution of the dominant, and instead the harmony regresses to the predominant area to re-approach the upcoming half cadence. Second, the V^{6}_{5} in measure 11 is not a move to the dominant harmonic area, but is rather a neighbor chord that continues the prolongation of the predominant. The latter interpretation is supported by linear considerations: the top line in measures 11–13 (C–B–A) participates in a voice exchange with an inner voice in the left hand (A–B–C). This voice exchange subsumes the V^{6}_{5} into a prolongation of the ii chord in measure 13.

The dominant area arrives unambiguously in measure 15 with a diatonic V^7. The next measure (m. 16) presents a chromatic chord: D^+. The following chord is G major (I, m. 17). Using the thought process for augmented triads (Example 6), the answer to the first question ("Is the root the dominant scale degree?") is "Yes." Moving downward, the chord is an augmented dominant: V^+. This measure marks an important formal delineation, since measure 17 begins the written-out repeat of section A. Schumann signals this point by changing the contour of the eighth notes in the right hand from descending to ascending; this is the only measure in the piece with such a contour. The repeat of section A (mm. 17–32) is identical to its first statement except for the last two measures, which outline a V^7 chord with a 4–3 suspension and maintain the prevailing melodic contour.

Section B presents a long dominant prolongation. Over a dominant pedal, imitation occurs between the top line (A–G–F#–E, mm. 33–36) and an inner voice in the left hand (A–G–F#–**E#**, mm. 35–38). The imitating line ends in a chromatic pitch that creates an $e\#^{o\,4}_{\ 2}$. The next chord is a diatonic D^7 (V^7, m. 39). Using the thought process for fully-diminished seventh chords (Example 9), the answer to the first question ("Is the chord diatonic in the parallel key?") is "No." Moving to the right, the answer to the next question ("Do any of the pitches resolve a half step higher to the root of the following chord?") is also "No." Moving once more to the right, the answer to the third question ("Does the chord contain the root of the chord that precedes or follows it?") is "Yes," since $e\#^{o\,4}_{\ 2}$ contains the pitch D. Moving down, the chord is a common-tone diminished seventh (ct^{o7}) to both the chords that precede and follow it (D^7). This is the same fully-diminished seventh chord, enharmonically respelled, that occurred in measure 12, where the appropriate label was vii^{o7}/ii. The difference in the chord's behavior in measure 38 warrants the different label.

In measure 40, a chromatic G^{4}_{3} proceeds to a diatonic C (IV, m. 41). Using the thought process for dominant seventh chords (Example 7), the answer to the first question ("Does the root descend a P5, to a diatonic pitch, or one that is diatonic in the parallel key?") is "Yes," so the chord is a secondary dominant: V^{4}_{3}/IV. Measure 42 presents an $f\#^{o\,4}_{3}$ that resolves to a diatonic G^{6} (I^{6}, m. 43). Using the thought process in Example 9, the answer to the first question ("Is the chord diatonic in the parallel key?") is "Yes," since $f\#^{o\,4}_{3}$ is diatonic in G minor. Moving down, the answer to the second question ("Is the root of the following chord the tonic or the dominant?") is "Yes," so this chord is a modally-mixed $vii^{o\,4}_{3}$ in G major. The last chromatic chord in section B is a $c\#^{o\,4}_{2}$ in measure 44, which is followed by a diatonic D^{4}_{3} (V^{4}_{3}). Again using Example 9, the answer to the first question is "No." Moving to the right, the answer to the second question ("Do any of the pitches resolve a half step higher to the root of the following chord?") is "Yes," since C# resolves to D. This chord is therefore a $vii^{o\,4}_{2}$/V. The chordal analysis of section B is a fruitful exercise for students, since it provides three fully-diminished seventh chords that function in three different ways.

The return of A (mm. 49–64) is the same as the opening A section until measure 56 (corresponds with m. 8). Here, a chromatic E^{4}_{3} replaces the diatonic $C^{M\,4}_{2}$ ($IV^{M\,4}_{2}$) from the first A section. The chord in measure 56, E^{4}_{3}, moves to an A minor (ii) chord in measure 57. Using the thought process for dominant seventh chords (Example 7), the answer to the first question ("Does the root descend a P5, to a diatonic pitch, or one that is diatonic in the parallel key?") is "Yes," since the root motion between E and A is a descending P5. Moving down, the chord is a secondary dominant: V^{4}_{3}/ii. This chord progression, V^{4}_{3}/ii–ii, repeats

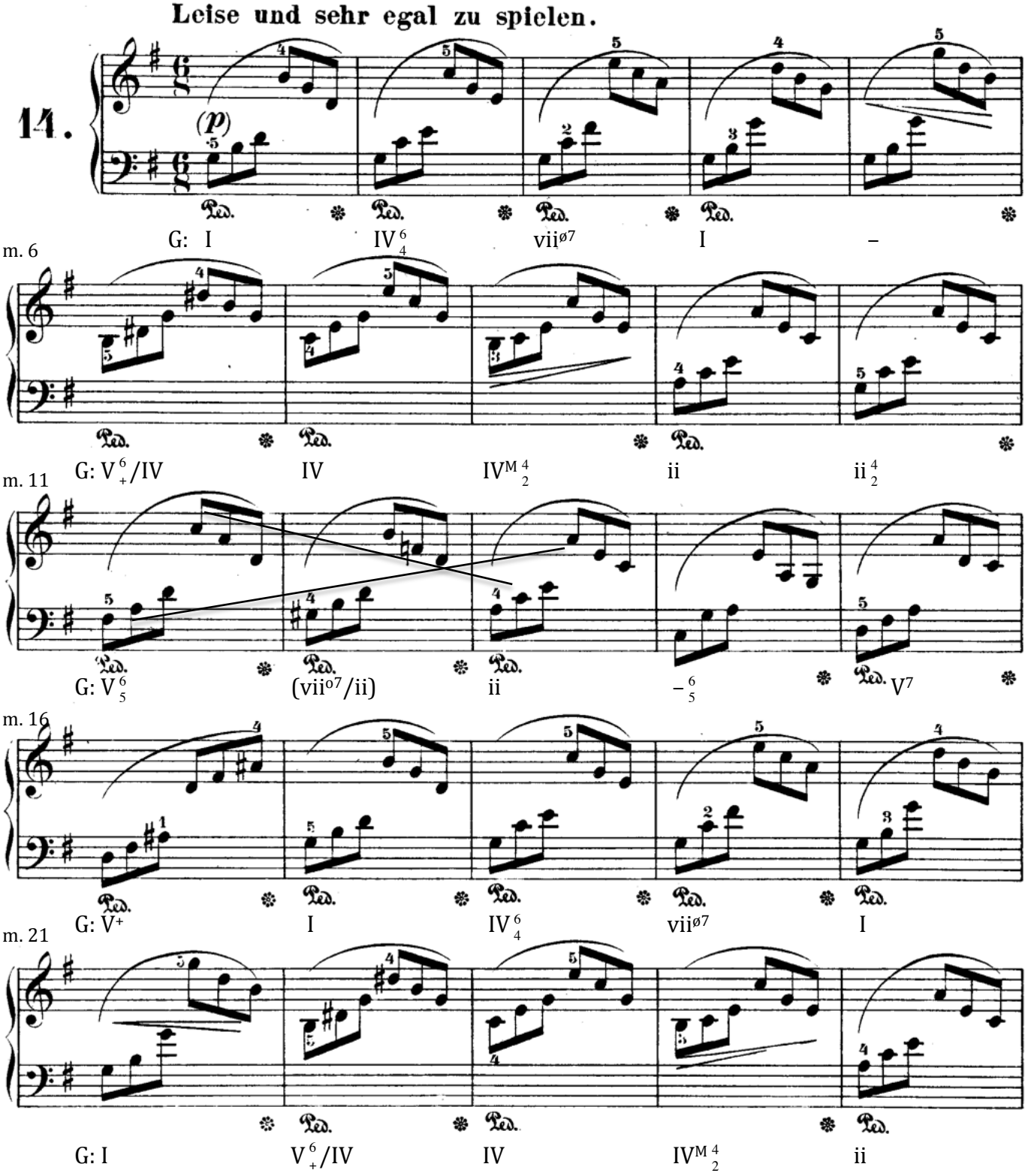
in the next two measures. Measure 60 presents the last chromatic chord in the piece; A $^{6}_{5}$ moves to a diatonic D^7 (V^7 with a suspended G) in measure 61. Again using Example 7, the answer to the first question is "Yes," since the root motion from A to D is a descending P5. Moving down, the chord is a V^{6}_{5}/V.

This piece provides students with practice in identifying chromatic chords with three qualities: augmented triads, fully-diminished seventh chords, and dominant seventh chords. Upon reflecting on the chromaticism used in the piece, one motion stands out: the move from G# to A. This pitch pair first occurs in measures 12–13, where G# functions locally as the leading tone in a vii^{o7}/ii. Here, the motion is fairly unremarkable. Although the chromatic G# occurs in the bass, it fills in passing motion from F# through G# to A, and could be subsumed at a slightly deeper level into a voice exchange. The G# to A motion becomes more noteworthy in the B section (mm. 38–39). Here, G# appears in the highest voice as part of a chord that completes a line of imitation, but alters the final note of the line (E# instead of E). While the G# is part of the (enharmonically) same fully-diminished seventh sonority in measure 38 as in measure 12, it functions differently: as part of a neighbor chord to V^7, instead of a tonicization of ii. The G#–A motion is most remarkable during the return of A. Here, the chord containing the chromatic G# replaces a diatonic chord from the first A, and this motion is immediately repeated. The context of G# in measures 56 and 58 is milder from its first two appearances. The G# is the third of a dominant seventh chord, a more consonant context than a member of a fully-diminished seventh chord. The G#–A motion also occurs in an inner voice.

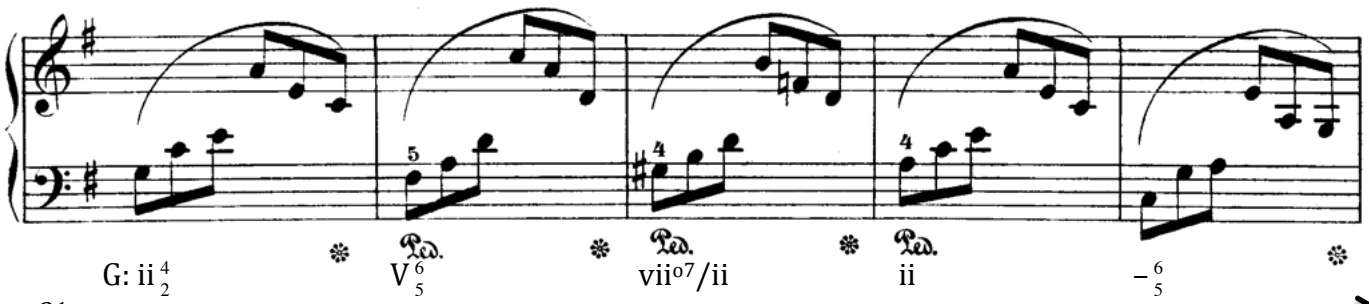
The chromaticism in *Kleine Studie* tells several stories, but one of them is surely the taming of G#. First, in measures 12–13, G# tonicizes A in the bass voice in a dissonant

chord. Second, in measures 38–39, the G# functions as part of a neighbor chord, but in the same dissonant chord as its first appearance, in the top voice. Lastly, the G# is tamed in the final section. Its function as a tonicization of A is restored, but it occurs in an inner voice, and as part of a less dissonant chord. That its appearance marks a diversion from the first section A, and that it is repeated, suggests that the role of G# is noteworthy in this piece.

Example 16: Robert Schumann, "Kleine Studie," from *Album für die Jugend*, Op. 68, No. 14

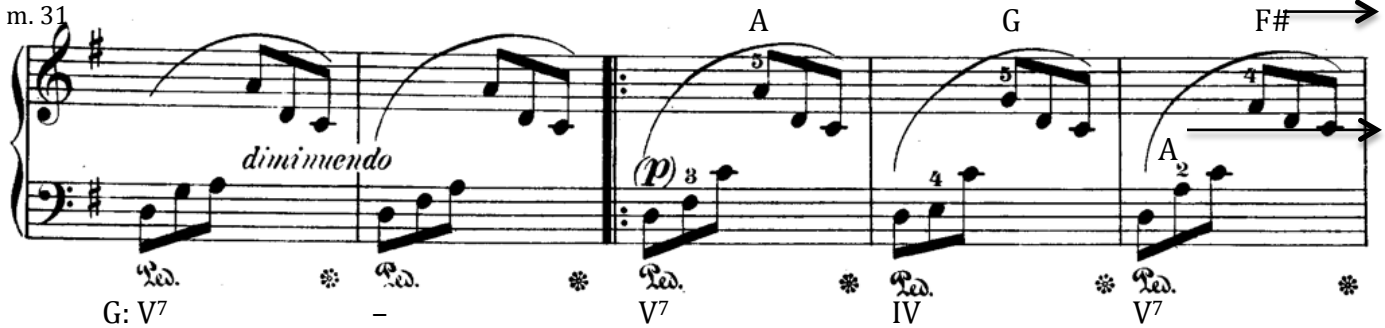


m. 26



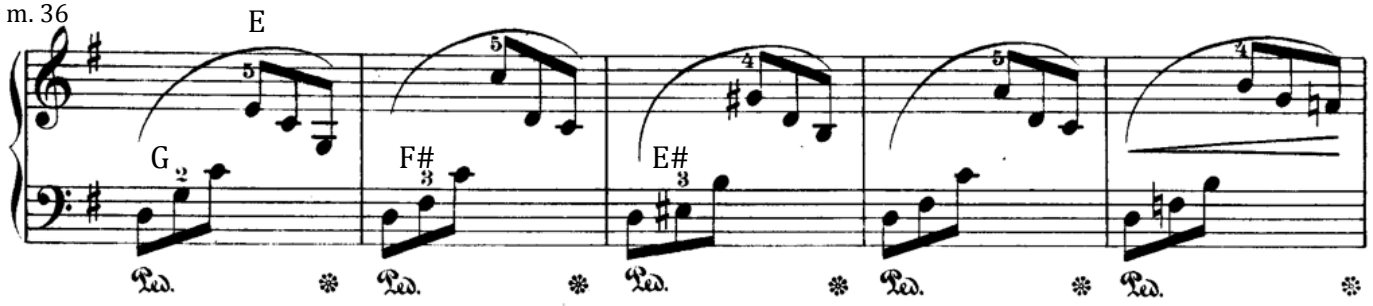
G: ii $^{4}_{2}$ V $^{6}_{5}$ vii^{o7}/ii ii – $^{6}_{5}$

m. 31



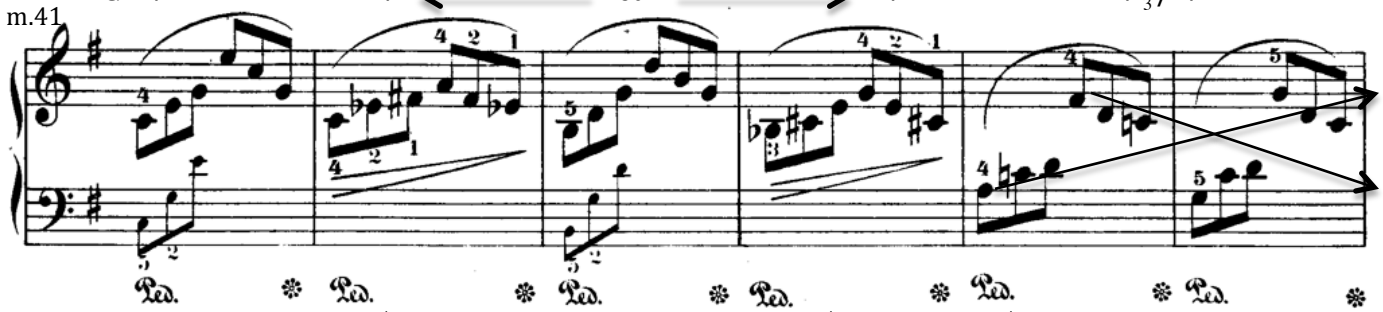
G: V^{7} – V^{7} IV V^{7}

m. 36



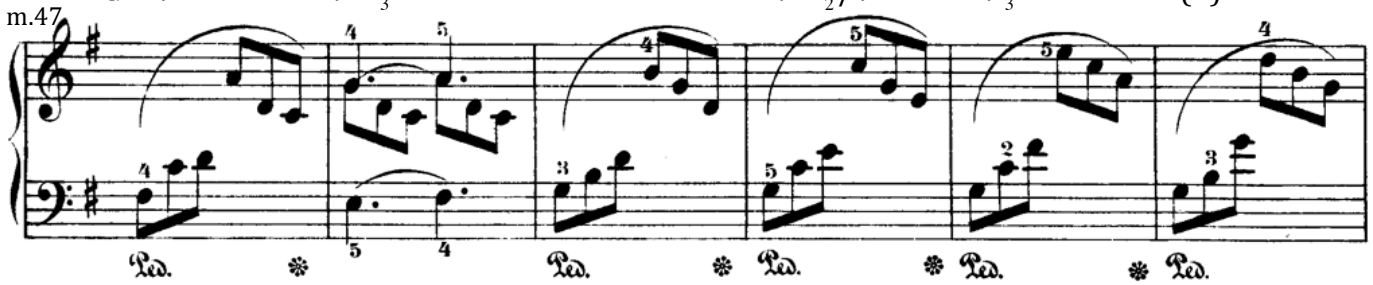
G: IV V^{7} ct^{o7} V^{7} V $^{4}_{3}$/IV

m.41

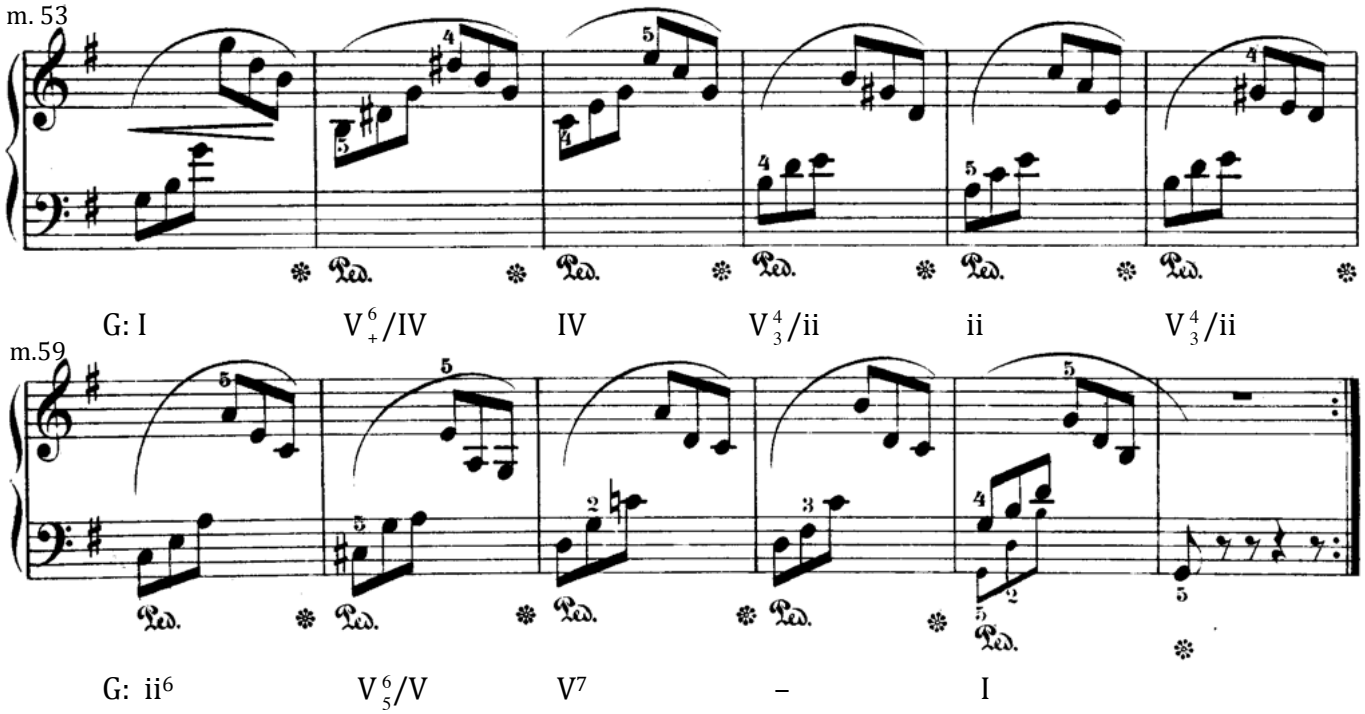


G: IV vii^{o} $^{4}_{3}$ I^{6} vii^{o} $^{4}_{2}$/V V $^{4}_{3}$ (P)

m.47



G: V $^{6}_{5}$ IV^{6} V $^{6}_{5}$ I IV $^{6}_{4}$ vii^{ø7} I



Conclusion

The labeling of chromatic chords is a complex skill that requires many prerequisites: identifying chord qualities, distinguishing chord tones from non-chord tones, knowing the diatonic system thoroughly, and identifying cadences and their keys. It is evident in the sample analyses that simply labeling the chords is not enough to produce a thoughtful analysis. In addition to labeling, the analyst must take linear aspects into consideration, and apply interpretation to the linear and vertical phenomena. Although they cannot provide a complete analysis in themselves, the thought process flow charts are meant to be a tool to help students get started by asking the right questions.

Bibliography

Aldwell, Edward, Carl Schachter and Allen Cadwallader. *Harmony & Voice Leading*. Fourth Edition. Boston: Schirmer Cengage Learning, 2011.

Bach, Johann Sebastian. *371 Harmonized Chorales and 69 Chorale Melodies with Figured Bass*. Ed. Albert Riemenschneider. New York: G. Schirmer, Inc., 1941.

Benward, Bruce, and Marilyn Saker. *Music in Theory and Practice*. Eighth Edition. Boston: McGraw Hill Higher Education, 2009.

Bribitzer-Stull, Matthew. *Anthology for Analysis and Performance*. New York: Oxford University Press, 2014.

Burkhart, Charles. *Anthology for Musical Analysis*. Sixth Edition. Boston: Schirmer, 2003.

Caplin, William E. *Classical Form: A Theory of Formal Functions for the Instrumental Music of Haydn, Mozart, and Beethoven*. Oxford University Press, 1998.

Clendinning, Jane Piper, and Elizabeth West Marvin. *The Musician's Guide to Theory and Analysis*. Second Edition. New York: W. W. Norton & Company, 2011.

Cutler, Timothy, and Patricia Gray. "Internet Music Theory Database." Accessed September 30, 2013. http://musictheoryexamples.com/.

Kostka, Stefan, Dorothy Payne, and Byron Almén. *Tonal Harmony with an Introduction to Twentieth-Century Music*. Seventh Edition. New York: McGraw-Hill, 2013.

Laitz, Steven G. *The Complete Musician: An Integrated Approach to Tonal Theory, Analysis, and Listening*. Third Edition. New York: Oxford University Press, 2012.

Roig-Francolí, Miguel A. *Harmony in Context*. Second Edition. New York: McGraw-Hill, 2011.

Telesco, Paula. "Rethinking the Teaching of Minor Scales and Keys." *Journal of Music Theory Pedagogy* 15 (2001): 69–90.