Teaching Non-Functional Tonality: A Part-Writing Approach[1]

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Over the past two decades, many theorists have been inspired by the work of Hugo Riemann, applying a modern transformational approach that is commonly referred to as neo-Riemannian theory.[2] This work seeks to explain chord progressions in what will be referred to here as non-functional tonality: music with a harmonic language that is tertian, but which is not reliant on fundamental bass progressions for its syntax. While the initial work by David Lewin has sparked an explosion of research, little of this research has been in the area of pedagogy. One notable exception is Nora Engebretsen and Per F. Broman's 2007 article in the *Journal of Music Theory Pedagogy*, which outlines and defends an introduction to neo-Riemannian theory within the context of an undergraduate theory curriculum. This article is similar in many ways, in that it also outlines an approach to introducing concepts associated with neo-Riemannian theory in an undergraduate theory curriculum, but the focus here will be on a graduated series of part-writing exercises governed by parsimonious voice leading rather than on the transformational analysis of triadic progressions. Further, while Engebretsen and Broman's approach to analysis involves the mastery of three different neo-Riemannian transformations, *Tonnetz* representation, binary generated cycles, and ternary generated cycles, this article will suggest an alternative approach to analysis that requires the mastery of fewer key concepts, and thus can be covered in a shorter span of time. Finally, while Engebretsen and Broman's approach dealt exclusively with major and minor triads, this article advocates an approach that also includes dissonant triads as well as seventh chords, and thus is applicable to a much wider range of musical contexts.

[1] I wish to thank Michael Berry, Peter Martens, and Edward Pearsall for their invaluable comments on earlier drafts of this work.

[2] See Lewin (1982, 1987, 1991, 1998), Hyer (1989, 1995), Kopp (1995, 2002), Cohn (1996, 1997, 1998a, 1998b, 1998c, 1999, 2003), Mooney (1996), Callender (1998), Childs (1998), Clampitt (1998), Douhthett and Steinbach (1998), Gollin (1998), Morris (1998), Pacun (2001), Hook (2002, 2007), Siciliano (2002, 2005), Capuzzo (2003), Santa (2003, 2004), and Straus (2005b).

Engebretsen and Broman (2007) thoroughly review current pedagogical approaches to chromatic voice leading, so I will be as concise as possible on that topic. Many undergraduate theory textbooks address the problem of understanding harmonic progression in chromatic music, but few extend their studies into a systematic approach to part writing.[3] They mostly seek to outline the problem for the student through the analysis of representative passages, like the Tristan prelude, and by explaining how chromatic sequences and patterns like the omnibus progression can serve to override the tendencies inherent in functional tonality. Two textbooks introduce neo-Riemannian theory in a more substantive way: the third edition of Joseph Straus's *Introduction to Post-Tonal Theory* (under the heading "triadic post-tonality"), and Miguel Roig-Francolí's *Harmony in Context*.[4] Part-writing exercises where the student chooses the next harmony based on considerations of voice leading parsimony and not harmonic function are uncommon in the recent texts, however, and where they do occur (as in the Roig-Francolí), they are not used as building blocks for subsequent exercises that develop progressively more complex features of this kind of harmonic logic.

In this article, I outline a sequential approach to teaching non-functional tonality that is based on a series of part-writing exercises emphasizing parsimonious voice leading over tonal function, and then makes some suggestions on how this approach can mesh with the analytical work already being done in most theory classrooms. Two pedagogical orientations are evident in this approach: 1) a preference for exercises that maintain a consistent basic structure and assimilate new concepts as they are introduced; and 2) a preference for economy of terminology – i.e., avoiding the introduction of terms that are unlikely to become commonly used by performing musicians in the immediate future. Regarding the repetitive nature of the exercises, I expect little criticism, since it is already so common in teaching undergraduate harmony to return to exercises that consistently use four parts in a chorale style as new concepts are introduced. Regarding the preference for economy of terminology, I expect more resistance, since most music

[3] The following recent editions of textbooks were surveyed for this study: Aldwell and Schachter (2003), Laitz (2003); Roig-Francolí (2003), Clendinning and Marvin (2004), Kostka and Payne (2008), and Gauldin (2004).

[4] See Straus (2005a), 158-170 and Roig-Francolí (2003), 863-71.

theorists who introduce new terms probably believe they have a good reason for doing so. This does not necessarily mean, however, that all future musicians graduating from college must speak the language of the professional music theorist, and to believe that they could do so responsibly after a mere four-year program might be unrealistic. The approach outlined below introduces just two new terms – "parsimony" and "maximally smooth" – believing that fewer terms will result in a greater level of conceptual mastery.

Part Writing

Example 1, given on the next two pages, shows the first lesson and pair of exercises. From reading through the first lesson, one can see that the two new terms are introduced and defined in a short paragraph. Though not shown in Ex. 1, I would give an example of a hexatonic cycle (without naming it as such) – C, Cm, A♭, G♯m, E, Em, C – to demonstrate the two concepts. I would follow with an example of only the major chords from that cycle played successively – C, A♭, E, C – to demonstrate that a progression does not have to be maximally smooth to be parsimonious. As one can see from studying the example, the accompanying exercise requires students to write a series of quarter-note chords for three upper voices that is maximally smooth. The bass voice is allowed to move by common tone or by leap, but not by step. This strategy both ensures that parallel fifths or octaves are not created between the bass and some upper part, and also allows students to write exercises that sound more like examples from the literature, since one rarely finds extended passages that are parsimonious in all voices. The exercise also requires that the student begin and end with the same chord, and that the top voice should move *exclusively* by descending half step or by common tone. By requiring that the top voice descend only, we avoid any chance of redundancy, and by requiring that the first and last chord be the same, we ensure that the student's solutions will all be of a suitable length.

The motion in the upper three voices will allow the students to work with the two most familiar neo-Riemannian transformations, P and L, as well as four other transformation types that connect triads and involve a single semitonal displacement – major to augmented, major to diminished, minor to augmented, and minor to diminished.

Example 1. The first lesson and pair of exercises.

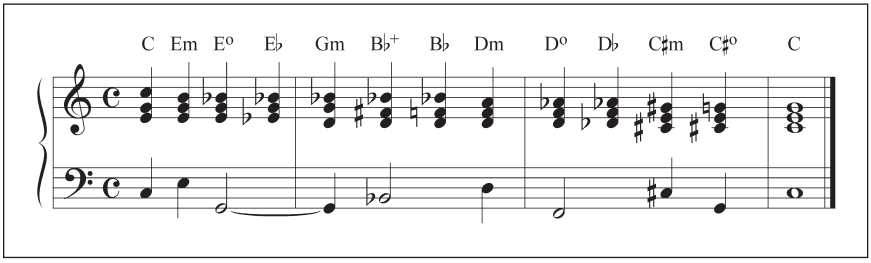
Parsimonious and Maximally Smooth

Parsimonious literally means "frugal," and *parsimonious voice leading* has come to mean voice leading in which the individual parts move as little as possible. *Maximally smooth voice leading* is the most extreme form of parsimonious voice leading, in which only one part moves by half step while the other parts hold common tones. The following exercises focus on writing music where the upper three parts are maximally smooth.

Exercise 1

Instructions: Write a series of quarter-note chords for three upper voices that is maximally smooth. It should begin and end with the same chord, and the top voice should move *exclusively* by descending half step or by common tone. All chords in the series should be one of the four triad types (major, minor, diminished, or augmented), but inversion may be used freely. Label all chords using chord symbols (C, Cm, C°, etc.), but not with roman numerals. Then add a bass line that moves *exclusively* by common tone or by leap, and is composed solely of notes from the chords above. Hint: Compose the upper parts at the same time while playing them with your right hand on the piano.
(Example 1 continued)

Example:

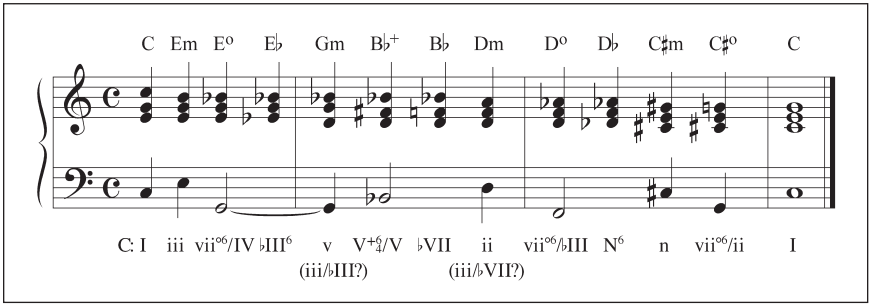


Parsimonious Voice Leading and Romanticism

Notice that by following the instructions, we have avoided the use of the whole step entirely. When one does this, it becomes impossible to write many of the most common chord progressions in tonal music that are functionally goal directed, like ii –V- I, for instance. The example below attempts to apply roman numerals to

a maximally smooth progression (the sample for Exercise 1), but as you can see, with very limited success:

Example:



This might be why parsimonious voice leading is a prominent feature in the music of many Romantic composers: such voice leading creates chord progressions that are strikingly different than those found in the Baroque and Classical eras, and Romantic composers were often very concerned with setting their own music apart from the music of other composers and particularly the music that they inherited.

Exercise 2

Instructions: Write a series of quarter-note chords for three upper voices that is maximally smooth. It should begin and end with the same chord, and the top voice should move exclusively by *ascending* half step or by common tone. All chords in the series should be one of the four triad types (major, minor, diminished, or augmented), but inversion may be used freely. Label all chords using chord symbols (C, Cm, C°, etc.), but not with roman numerals. Then add a bass line that moves *exclusively* by common tone or by leap, and is composed solely of notes from the chords above. Hint: Compose the upper parts at the same time while playing them with your right hand on the piano.

By focusing attention on the flexible concept of maximally smooth voice leading in Example 1 above, rather than only two specific *maximally smooth* transformations - P and L - as in Engebretsen and Broman (2007), students learn to apply the concept of parsimonious voice leading to broader musical contexts, such as those that include augmented and diminished triads.[5]

As one can see from reading the rest of Example 1, the second part of the first lesson ties the sound of parsimonious voice leading to Romanticism, and explains why roman numeral analysis, which is so helpful in explaining much tonal music, is less useful in explaining music created from parsimonious voice leading strategies. The fact that almost none of the chord-to-chord motions here can be related to standard fundamental bass progressions should be enough to convince the students of the inadequacy of roman numerals when dealing with such music. Questions regarding labeling and regarding enharmonic equivalence will undoubtedly arise here, but the instructor should probably de-emphasize the "preferred" spelling of augmented triads here: the chord symbols are required merely to ensure that students are limiting their chord choices to triads, and the roman numerals are used only in this one example to make a point about harmonic function in this kind of music. I have avoided including bass position with my chord symbols for analytic clarity, and have chosen to label the augmented triads throughout based on their simplest spelling. Spending a lot of time on issues of enharmonic spelling and root finding here would risk the students missing the point. The second exercise provided in Example 1 is merely an inversion of the first and could be omitted at the discretion of the instructor (or the instructor could allow the students to pick which one they would like to complete).

Example 2 shows the second lesson and pair of exercises. As one can see from reading the example, the second lesson adds (027)s and incomplete seventh chords to the roster of available harmonies for our parsimonious chord progressions.

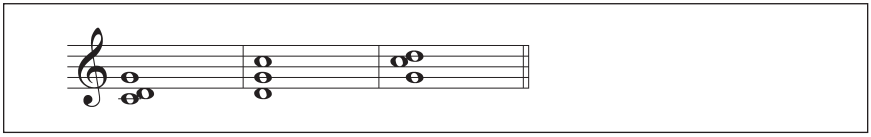
[5] While adding augmented triads and diminished triads to the roster of available harmonies makes it harder to explain all of the harmonies in a single network that displays the same kind of group-theoretic elegance that one finds in Cohn (1996), Douhthett and Steinbach (1998) have already embraced the augmented triad in two very elegant networks they whimsically call "Cube Dance" and "Weitzmann's Waltz," respectively.

Example 2. The second lesson and pair of exercises.

(027) as an Agent of Parsimony

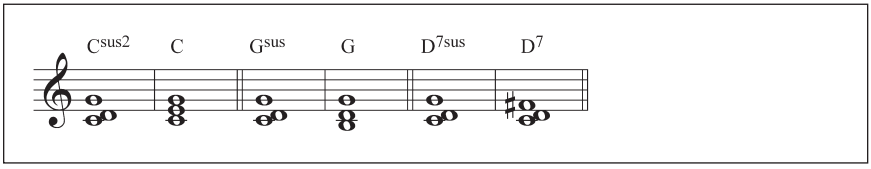
(027) is the name of a common harmony produced when the third of a triad or incomplete seventh chord is suspended or retarded, and it is often found in progressions that move parsimoniously. It is called (027) because in its most compact, most bottom-heavy voicing the middle note is two (2) half steps above the bottom note, and the top note is seven (7) half steps above the bottom note. There are three bass positions for (027):

Example:



As with the augmented triad and the diminished seventh chord, one can only tell the root of a given (027) by its context – i.e. by how it resolves:

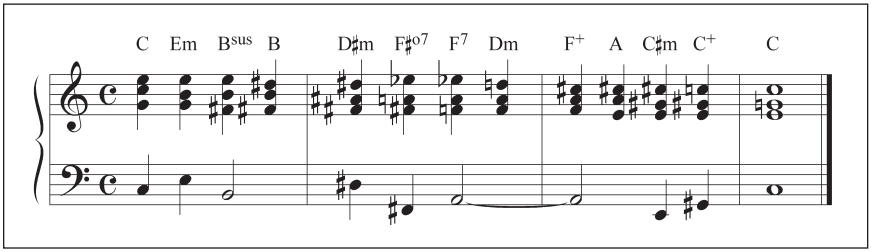
Example:



Exercise 3

Instructions: Follow the instructions for Exercise 1 above (harmonizing a descending top voice), but this time add seventh chords with the fifth omitted as well as (027) harmonies to the roster of possible chord choices. Include at least one example of an (027) harmony and one example of an incomplete seventh chord in your setting.

Example:



Exercise 4

Instructions: Follow the instructions for Exercise 2 above (harmonizing an *ascending* top voice), but this time add seventh chords with the fifth omitted as well as (027) harmonies to the roster of possible chord choices. Include at least one example of an (027) harmony and one example of an incomplete seventh chord in your setting.

The use of (027) in Example 2 above might count as a new "term" for the theory sequences at some schools, but if a program covers set theory in its harmony sequence, then (037) would simply be introduced a little earlier than normal in the approach suggested here. It is defined here as though set theory has not yet been introduced, and in this it might provide one additional bridge between tonal and post-tonal harmonic thinking for the students. The third exercise keeps the structure of the first, but requires that the two new harmonic choices be used at least once. Both the (027)s and the incomplete seventh chords contain tendency tones—each (027) contains a note that sounds either like a retardation or a suspension, while the seventh chords obviously contain chordal sevenths—and thus come with an expected resolution; the instructor should probably specify whether or not these tendency tones must resolve as before, given that the new format is already abandoning doubling and spacing rules typically taught in four-part writing. (I prefer to allow them to ignore the traditional resolution rules here, because doing so opens up a lot more possibilities for the students.) The fourth exercise is merely an inversion of the third and could also be omitted at the discretion of the instructor (or the instructor could allow the students to pick which one they would like to complete).

The addition of new chord choices in Lesson 2 makes it difficult if not impossible for a pedagogy that relies on explaining harmonic progressions as paths through a single network. While Callender (1998), Childs (1998), Douhthett and Steinbach (1998) Gollin (1998), Santa (2003a), and Santa (2003b) have all included seventh chords in networks based upon parsimonious voice leading, none of these authors have explored a network that combines all of the chord types that are required in the exercises following Lesson 2. Such an all-inclusive network would be both unwieldy to teach an unwieldy to learn. This article suggests abandoning pedagogical strategies that focus on networks and instead adopting an approach that is closer to how we teach species counterpoint: a set of rules govern how one may proceed from chord to chord.

Example 3 shows the third lesson and pair of exercises. As one can see from reading the example, the third lesson keeps the expanded roster of available harmonies from the second lesson, but focuses on parsimonious progressions that are not quite maximally smooth. The fifth exercise keeps the structure of the first, but requires that students use the following voice leading pattern throughout: two voices move by half step while one voice holds a common tone. This creates the opportunity for students to write parallel fifths, so instructors using this approach should point out this new possibility and specify whether or not they will allow them in the format. (I prefer to allow them, again because doing so opens up a lot more possibilities) The sixth exercise is merely an inversion of the fifth and could also be omitted at the discretion of the instructor (or the instructor could allow the students to pick which one they would like to complete).

Example 3. The third lesson and pair of exercises.

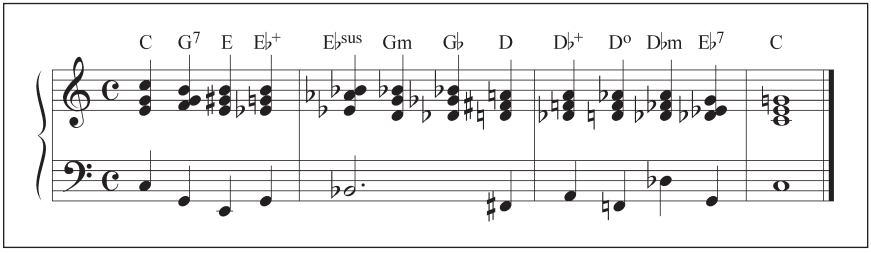
Parsimonious, but not Maximally Smooth

While maximally-smooth voice leading is the most parsimonious, other less-parsimonious voice leadings can still achieve the same effect, especially if used consistently. The next two exercises focus on progressions which, while not maximally smooth, are still very parsimonious.

Exercise 5

Instructions: Write a series of whole-note chords for three upper voices using the following voice leading pattern throughout: two voices move by half step while one voice holds a common tone. It should begin and end with the same chord, and the top voice should move exclusively by *descending* half step or by common tone. Use the same chord qualities that were used in Exercises 3-4. Label all chords using chord symbols (C, Cm, C°, etc.), but not with roman numerals. Then add a bass line that moves *exclusively* by common tone or by leap, and is composed solely of notes from the chords above.

Example:



Exercise 6

Instructions: Follow the instructions for Exercise 5 above, but this time harmonize a top voice that moves exclusively by *ascending* half step or by common tone.

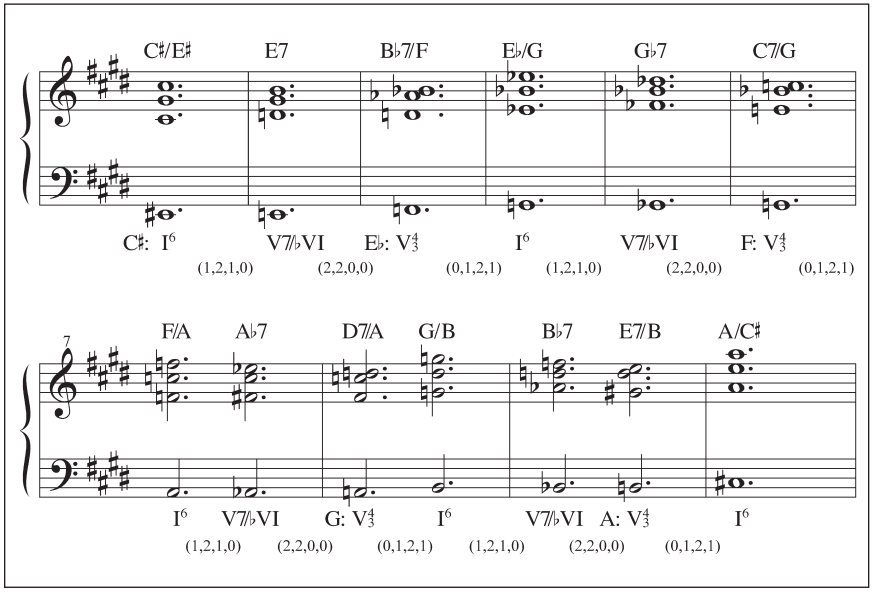
Analysis

The part-writing exercises suggested here could be integrated with analysis assignments in any number of ways, and many choices made by an instructor would either influence or be influenced by the repertoire to be covered by the students. A general strategy and some repertoire choices are outlined here, but one could make the part-writing approach outlined above work with numerous other pieces, as long as the specifics of those pieces are taken into account and those specifics serve to guide the instructor in creating a logical progression throughout. For example, instructors should probably begin with pieces that are extremely parsimonious on the surface and in pitch space before discussing those pieces that are easily viewed as parsimonious only after rhythmic reductions and octave transfers have been made. One advantage to the approach outlined here over the one outlined in Engebretsen and Broman 2007 is that, just as with the part-writing exercises, parsimonious voice leading connections can be made between a wide variety of harmonies, not just major and minor triads. Thus, the approach is applicable to a much wider range of musical contexts than those found in the majority of neo-Riemannian studies.[6]

After introducing the terms *parsimonious* and *maximally smooth*, one could have students analyze passages of music that are parsimonious by adding chord symbols and roman numerals, but also providing a tally of how many voices held common tones, how many voices moved by half step, how many voices moved by whole step, and how many moved by more than a whole step, in each motion from chord to chord. This tally could be abbreviated as a 4-place vector (c, h, w, l), with c, h, w, and l representing the common tones, half step motions, whole step motions, and leaps, respectively, and a series of such tallies could stand in between where roman numerals usually stand in a tonal analysis. Furthermore, one could have students perform such a tally after normalizing the registers, enabling voice-leading motions that can be reduced to common tones, half steps, or whole steps through octave transposition to be recognized and tallied as such.

[6] Most of the studies cited here deal only with major and minor triads. The only ones to deal with seventh chords are Callender (1998), Childs (1998), Cohn (2003), Douhthett and Steinbach (1998), Gollin (1998), Santa (2003a), and Santa (2003b).

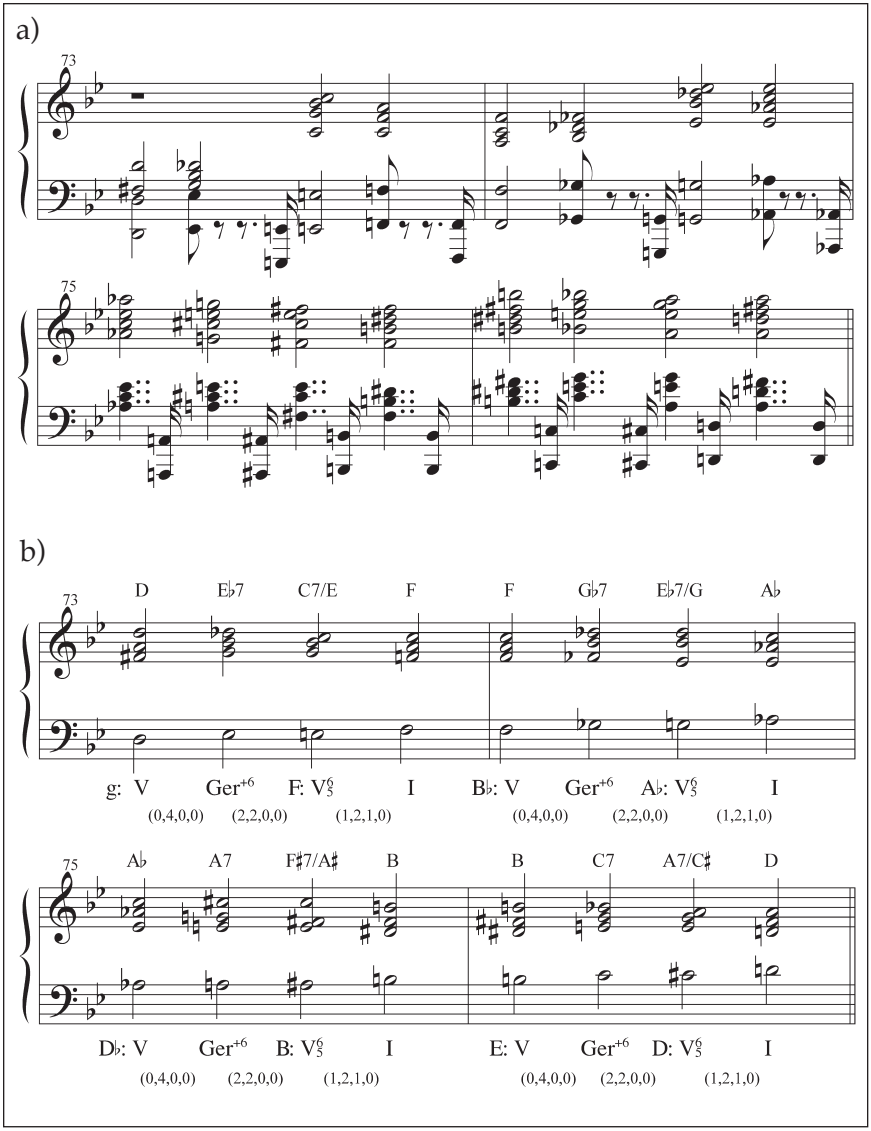
It might at first seem contradictory to have the students apply both roman numerals and voice leading vectors at the same time, given that the first lesson in Example 1 shows the students how roman numerals are problematic when parsimonious voice leading is the logic governing a harmonic progression. However, in much of the repertoire involving parsimonious voice leading, fundamental bass strategies are seamlessly interwoven with parsimonious voice leading strategies to create the progression. The following examples are meant to show the students how these two strategies of harmonic progression interact with one another in real musical contexts



Example 4. Roman numeral and voice leading analysis of *Scheherazade*, mm. 11-20 (chordal reduction).

Example 4 shows a chordal reduction of mm. 11-20 from Rimsky-Korsakov's *Scheherazade*.[7] The example includes the voice leading patterns expressed as vectors in addition to a traditional roman numeral analysis. The voice leading patterns expressed as vectors are (1,2,1,0), (2,2,0,0), and (0,1,2,1), which are repeated in that order three times after the initial statement. Example 4 shows how a parsimonious voice leading analysis coupled with a traditional roman numeral analysis can demonstrate a very Romantic compositional strategy: voice leading connections between key areas are smoother than those that can be understood diatonically within a single key area.

[7] The passages analyzed in Examples 4-6 were chosen because they are all used in the 6th edition of the popular undergraduate theory textbook *Tonal Harmony, by* Stefan Kostka and Dorothy Payne. The passage in Example 4 can be found on pp. 476-477. The three examples chosen for this article are all from the Romantic period, but Capuzzo (2004) shows examples of neo-Riemannian transformations in pop and rock music, so one could easily expand the repertoire to be studied by using his examples.

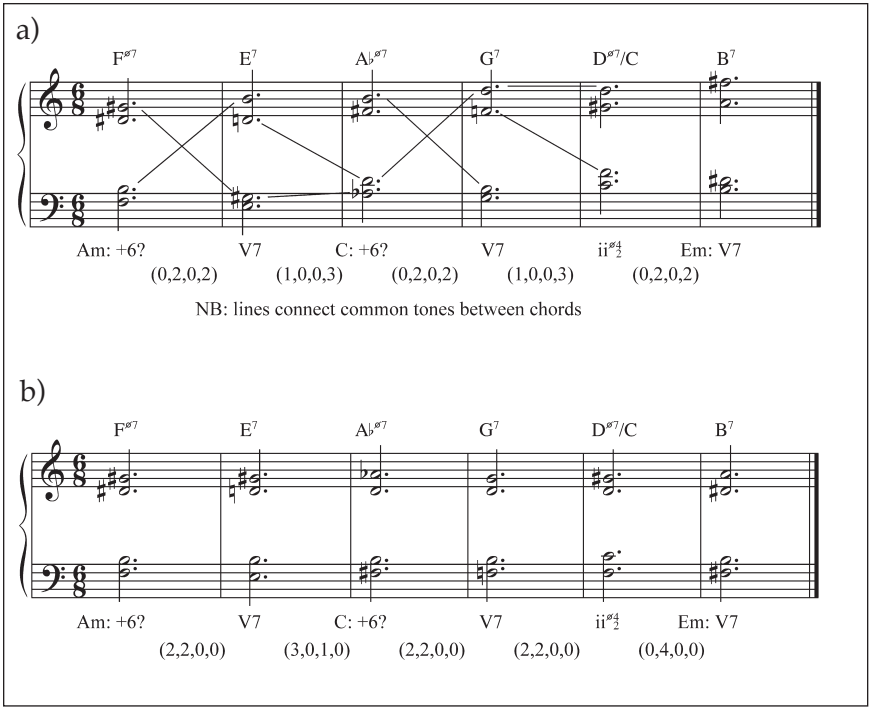


Example 5. Roman numeral and voice leading analysis of Schumann, "Die Löwenbraut," Op. 31, No. 1, mm. 73-76 (piano part only).

Example 5a shows the piano part in mm. 73-76 of Schumann's "Die Loewenbraut," Op. 31, No. 1.[8] Because it is very difficult to trace the voices in the piano part, having the students analyze a chordal reduction of the passage would work much better than

[8] The passage in Example 5 can be found in the workbook to *Tonal Harmony*, 6th edition,. p. 260.

having them analyze the score directly. Asking the students first to create a chordal reduction of the passage in four voices that avoids leaps and moves as smoothly as possible, and then to apply a vector analysis, should yield the result given as Example 5b (I would give the students the first voicing in the reduction to ensure the best result). The reduction approach would better lead to an understanding of the key concepts: parsimonious voice leading can substitute for strong fundamental bass progressions in Romantic music, and it is also used in Romantic music to sew together several key areas within a single larger harmonic motion.



Example 6. Roman numeral and voice leading analysis of the main harmonies in Wagner, Prelude to *Tristan und Isolde*, mm. 1-13.

Example 6 shows two chordal reductions of the main harmonies from mm. 1-13 of the prelude to Wagner's *Tristan und Isolde*. The chordal reduction given as Example 6a shows the voicings as they appear on the musical surface, and highlights the voice exchanges and other common tones held between the adjacent chords, while the chordal reduction given as Example 6b freezes the common tones in the register of the first voicing and shows how the entire

progression can be understood in terms of stepwise motions and common tone retentions. Once again, it illustrates how multiple key areas can be woven together in a seamless way over a relatively short span of time simply through parsimonious voice leading.

Note that Examples 4-6 have been ordered so as to introduce a new level of reduction with each one. Example 4 is really just a rhythmic reduction of the passage from *Scheherazade*, but it leaves the register of the pitches in place (except for the fact that it excludes octave doublings). Examples 5 and 6, however, take a further reductive step by shifting the registers of individual pitches to show underlying stepwise connections that exist in pitch-class space. This leads to the choice of format for these latter two examples: the pitches are shown first in their original registers, and then in a parallel layout with the registers adjusted to show stepwise connections. I recommend adopting such a format for any other examples of voice leading parsimony that have underlying stepwise connections, since many students must first be convinced that the reduction actually does reflect the structures of the musical surface before they will accept that voice-leading parsimony is the logic behind those structures.

Examples 4-6 differ from the part-writing exercises in two ways that are worth mentioning: 1) the bass lines are disjunct in the exercises but are conjunct in Examples 4-6; and 2) the harmonic progressions are not sequential in the sample exercises provided, but are sequential in Examples 4-6. The reasons for these two differences are practical. The bass lines are disjunct in the exercises to more closely match the kind of part-writing exercises (and, in many cases, keyboard exercises) that the students have had earlier in their theory sequence, and also to facilitate and encourage performances of the exercises in a keyboard style (i.e. three voices played by the right hand). One could choose different analytical examples that follow a similar pattern, but at some point the instructor needs to introduce the idea that the leaping voice does not always have to be the bass. The sample exercises provided are not sequential in order to separate out the concepts of parsimonious voice leading and chromatic sequence for the students: they are independent concepts, and without some experience with non-sequential parsimonious voice leading, students might easily confuse the two. Examples 4-6 were chosen because their sequential nature makes them easier for the student to analyze.

Conclusions

The approach to teaching parsimonious voice leading outlined here could be expanded in several different directions. One could keep returning to the harmonization of chromatically descending and ascending lines, and keep changing different elements: 1) the upper three parts could be allowed to move freely by common tone or by half step; 2) a fourth upper voice could be added, creating a five-part texture in which the top four parts move parsimoniously; or 3) one could allow the bass part to introduce new notes that would transform triads into seventh chords. One could alternately keep the parsimonious method of harmonization as given in Exercises 1-6, but choose different melodies to harmonize (either newly composed or from the literature). Or one could take a completed harmonization exercise like those given here and compose it out by adding different figuration patterns (for example, eighth-note figuration embellishing a harmonic rhythm in whole notes).

The differences between the approach outlined here and the approach outlined in Engebretsen and Broman 2007 are substantial. First of all, Engebretsen and Broman write "one might reasonably question whether an approach designed to address a rather narrowly circumscribed repertoire—tonally indeterminate but predominantly triadic passages—is worth this time investment" (2007, 55). This article broadens the repertoire addressed considerably by including dissonant triads, non-triadic harmonies such as (027)s, and all the qualities of seventh chords. This point is the most important one of all. Romantic-period music is the reason that many of us turned to neo-Riemannian theory in the first place, and that repertoire is filled with seventh chords, not to mention diminished and augmented triads. Any approach that can include more colors from this repertoire's harmonic palette and at the same time capture the insights that neo-Riemannian theory has given us should be seriously considered.

Second, Engebretsen and Broman 2007 cover the three main neo-Riemannian transformations (Relative, Parallel, and *Leittonwechsel), Tonnetz* representations, binary generated cycles, and ternary generated cycles, while the approach here adds only the terms "parsimonious" and "maximally smooth," and focuses only on the relative smoothness of the voice leading. By focusing on the relative smoothness of the voice leading rather than on labeling its various transformations, we avoid the dangers inherent in analyzing music according to a set of transformations that can connect any two triads in five steps or less. Arthur von Oettingen warned that the latter approach leads to a "chaos of possibilities" (1866, 156). A neo-

Riemannian analysis transcends mere descriptive accounting when it explains the logic behind a given passage. While binary and ternary generated cycles provide a compelling logic that a transformational analysis demonstrates nicely, so does an analysis that calculates voice-leading parsimony, and the latter kind of analysis can also be applied to musical settings in which binary and ternary generated cycles are not present.

Third, Engebretsen and Broman state that their approach takes "roughly two weeks to work through—admittedly a substantial amount of class time in a semester already typically packed with a survey of various chromatic chords and linear processes, modulatory techniques, and stereotypical formal patterns" (2007, 54-55). The approach outlined here introduces fewer terms and concepts, so it consequently requires less class time to cover—about four 50-minute class sessions.

Finally, the activities in Engebretsen and Broman 2007 are mainly framed as in-class activities and they vary greatly in structure: "As an introductory exercise, students are encouraged to explore the *Tonnetz* by identifying the shortest path between a given pair of triads...by calculating the result of apply a given compound transformation (such as RPRP) to some given triad, and, as Roig-Francolí recommends, by composing short progressions based on various combinations of L, P, and R—on paper and/or improvising at the keyboard" (2007, 45). The exercises given in this article have more specific instructions, are accompanied by sample solutions, and all follow the same structure, so they can each be assigned for homework and the instructor only has to spend time explaining the structure of the assignment once. By assigning a series of homework assignments, the instructor will get a better sense of how well the concepts are understood by the entire class, rather than just the students who tend to take charge of in-class activities.

While the terms "parsimonious" and "maximally smooth" are not historical, the spirit of exploration that exercises such as these promote is decidedly Romantic, and thus the study of voice-leading parsimony deserves a place in our curriculums. Many theorists now believe that voice-leading parsimony is often the most efficient way to explain harmonic progressions in Romantic music when roman numeral analysis fails to do so. The approach that I have outlined here adds part-writing exercises to the analytical work already being done in most theory classrooms, and advocates the same kind of double exposure to parsimonious voice leading that students typically receive with voice leading in functional tonality: a healthy balance of analysis and part writing.

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