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This article outlines an approach to outer-voice, linear graphs based on an order-of-procedure model. When analyzing music, the analyst moves around and through music in much the same way one moves through environmental spaces. The "order-of-procedure" model builds on this idea by orienting the analyst towards the spatial aspects of graphing environments. The article demonstrates how such an approach can be used to help beginning students produce credible outer-voice graphs that highlight connections between non-contiguous events in the middleground.

Introduction

In the 1980s and 90s, theorists debated the merits of introducing Schenkerian analysis into the undergraduate curriculum. The discussion was not without its controversy and while a number of approaches were put forth in the abstract, there was a decided lack of consensus with respect to methodology and emphasis. One of the principal contentions of the debate was the notion that systematic rule-based approaches to Schenkerian analysis might lead to impoverished or implausible analyses of music and, as Kofi Agawu has suggested, might even "run counter to the basic improvisatory and artistic motivation for producing a Schenkerian graph" in the first place.[1] Yet Schenkerian analysis is the leading theory of tonal music; its absence in the undergraduate curriculum is therefore puzzling.

In the wake of the controversy over Schenkerian analysis in the undergraduate curriculum, most authors of music theory textbooks have tended to proceed cautiously, introducing various species of melodic analysis for organizing the musical surface while largely avoiding beamed descents, bass arpeggiations, and their nested elaborations in the middleground.[2] Foreground gestures are important, of course, but so too are gestures involving *noncontiguous* connections and nesting. While such concepts may resist formalization, they are not beyond definition. Nor do they contradict the ways in which students experience music; many, if not most, of our students play instruments that are wholly immersed in lines and parts. Hence, as David Gagné points out, Schenkerian analysis is "fundamentally practical in its orientation."[3]

One of the most conspicuous advantages of Schenkerian analysis is that it is flexible enough to account for stylistic peculiarities in pieces that differ widely in terms of their surface details. It is this same

1 Agawu (1989, 291). See also Rothstein (1990).

2 A notable exception is Gauldin (2004, 231).

3 Gagné (1994, 24).

flexibility, however, that can make it difficult to incorporate Schenkerian analysis into the undergraduate theory classroom; the traditional theoretical fare is often unconditional and rule-laden, a manner of conceptualizing music that runs counter to the underlying creative impulses of *Auskomponierung*, and it is difficult to imagine how a new mode of analysis, let alone a new way of thinking, could be added to a curriculum already bursting at the seams with new content.[4] To find a way to introduce Schenkerian analysis into the undergraduate classroom without unduly diluting or changing the existing curricula, we may take our cue from similar attempts to broaden music theory coverage of other subjects. Snodgrass; Covach; Kulma and Naxer; and David Myers et. al. propose *integration* as a means for implementing curricular changes in the face of an ever expanding repertoire.[5] Integrative approaches advocate the re-contextualization of existing categories in the curricula as opposed to replacement or augmentation.

In this paper, I will build on this idea by outlining an approach to linear analysis that integrates linear principles with musical fundamentals. In addition, I will describe an order-of-procedure technique that has proven successful in helping students produce outer-voice graphs that include non-contiguous events quickly and efficiently. Finally, I will show how the insights gained by students through graphing may be used as a foundation for describing events in complex contexts that would ordinarily require advanced graphing skills students may have not yet mastered, thus limiting the amount class time devoted to graphing itself.

The methodological part of the study relies heavily on procedural matters rather than rules per se. In my view, it is the way in which one organizes his or her approach to analysis that can lead to the most fruitful analytical results. I have found, for example, that careful attention to the order of analytical tasks can have a profound effect on performance. When we analyze music, we move around and through it in much the same way we move through three-dimensional space. Like prolongational structures, "spatial environments have a hierarchical structure, in which smaller areas are related to each other and embedded in progressively larger ones."[6] Hierarchical structuring is key to making sense of the complex environment around us. Sandberg, Huttenlocher, and Newcombe have demonstrated that subjects from the age of nine subdivide spaces into regions in order to help them remember the location of objects within environmental spaces.[7] In a similar way, linear graphs subdivide musical spaces into harmonic regions within which progressions nearer the surface are embedded. Seen in this way, graphs are not merely metaphorical

4 Increasing the number of genres to be addressed in the undergraduate music curriculum has become a dominant theme in current pedagogical discussions. For an in-depth discussion of this trend and its ramifications, see Moore (2017).

5 Snodgrass (2016); Covach (2015); Kulma Naxer (2014); and Myers, Sarath, Chattah, Higgens, Levine, Rudge, and Rice (2014).

6 Newcombe and Huttenlocher (2003, 22-23).

7 Sandberg, Huttenlocher, and Newcombe (1996, 722).

spaces, but fully synthesized conceptual blends of space and time.[8] As I will show, the method can support multiple readings and produce tenable musical results, thus addressing the reservations expressed by Rothstein and Agawu. The method also has the benefit of having been empirically tested in the classroom. As a result it has undergone a number of revisions and in its present form has been standardized to the point that graphing questions can be included on exams.

As a final caveat, I should point out that the approach outlined in this study is meant to help improve the student's understanding of concepts that may not be covered in other parts of the curriculum. In no way can it substitute for a course devoted specifically to the study of Schenkerian analysis, although the procedural approach itself might still prove to be a useful starting point in such courses. Instead, the method provides students access to the world of deeper-level analysis *viewed from a Schenkerian perspective*. Many Schenkerian concepts, including "reaching over," "cover tone," "coupling," and "unfolding," along with the graphing techniques associated with them, are not directly addressed. Such concepts are, of course, indispensable to a full and rich understanding of music's linear characteristics. As long as one does not "make a fetish of graphs," however, such ideas may still be addressed on an ad hoc basis.[9] Approaching the subject in this way gives students the means to uncover insights into the linear content of music without claiming to exhaust the subject or downplay its potential for advanced applications.

The Pre-Graphing Stage: Some Pedagogical Observations

Because the pre-graphing stage functions as a *precursor* to graphing in addition to covering traditional music theory topics, it is important to ensure that the material covered in "the pre-Schenkerian phase of analytical study should in no way contradict what one might later teach a student in a systematic course in Schenkerian analysis."[10] Fortunately, such an approach does not require a complete overhaul of traditional topics. Indeed, William Rothstein advocates concentrating on "conventional disciplines that the student should already know: figured bass, harmony, species counterpoint, and some simple notions of embellishment" in the pre-Schenkerian stage of analysis.[11]

At the same time, linearity engenders a perspective, one that has consequences for how we engage with and define other aspects of music. In the presence of a linear bias, musical fundamentals may take on a guise that differs from traditional approaches. John Rothgeb, for example, argues that adopting an intervals-above-the-bass approach to figured bass (as opposed to conceptualizing the figured bass solely as an indicator for chord inversion), and placing less emphasis on roots, is more compatible with the

8 Zbikowski (2002, passim) provides a thorough exploration of conceptual blending and its attendant cognitive process, cross-domain mapping. Conceptual blending occurs when "elements and events" from different domains are synthesized to create a new domain "with its own structures and relations."

9 The quote is from Rothstein (1990, 298).

10 Damschroder (1975, 17).

11 Rothstein (1990, 297).

Schenkerian paradigm.[12]

Clearly, such a bias has caught on. Most current textbooks, for example, now routinely cover non-functional chords, including parallel 6/3 chords, and the roles of melodic figuration and embellishment receive much more attention than in previous generations of textbooks. For nearly all authors, moreover, embellishment is strongly bound to prolongation, a fundamental tenet of Schenkerian analysis and, perhaps, its most influential contribution to music theory.[13] The introduction of the concept of prolongation into the theory curriculum has led to chord classifications that are largely absent in textbooks written before the 1990s, including, most particularly, substitute chords and prolongational I, IV, V, and VI chords.[14]

Important too is the early introduction of bass arpeggiations and descending melodic lines at cadences. Gauldin, Laitz, and Henry and Rogers all use beams to denote such deeper-level events.[15] Others, including Clendinning and Marvin; Kostka, Payne, and Almén; Roig-Francoli; Turek; and Aldwell, Schachter, and Cadwallader, provide textural reductions, which serve a similar purpose.[16] Descents to $\hat{2}$ at half cadences and $\hat{1}$ at perfect authentic cadences are discussed by Henry and Rogers; Laitz; Clendinning and Marvin; and Gauldin.[17] Such ideas not only lay a foundation for graphing, but can also reinforce other music-theoretical concepts, including cadential formulas and phrase identification. The sense of arrival—or suspended sense of arrival—at cadences is not a function of harmony alone, for example, but of many contributing factors, including melodic descents, harmonic goals, hypermetrical downbeats, etc.[18] Once such ideas have been introduced, their pervasiveness can be reinforced with each new musical example,

12 Rothgeb (1981, 144).

13 References to prolongation in a textbook not devoted purely to Schenkerian analysis was rare before 2000. The earliest use of the term prolongation in a tonal theory textbook I am aware of may be found in the 1997 edition of Robert Gauldin (2004, 99), although the concept of prolongation presented in the guise of "expansion" occurs much earlier; See Aldwell and Schachter (1978, 82). Authors who refer specifically to prolongation in textbooks published more recently include Laitz (2011, 232 passim); Henry and Rogers, (2005, 148 and 288); Roig-Francoli (2003, 162); and Kostka Payne, and Almén (2013, 98).

14 See Caplin (2000, 24-26) for a robust list of prolongational and substitute chords.

15 See Gauldin (2004, 231); Laitz (2011,171); and Henry and Rogers (2005, 150). Roig-Francoli (2003, 248-52) substitutes slurs for beams in his discussion of phrase structure.

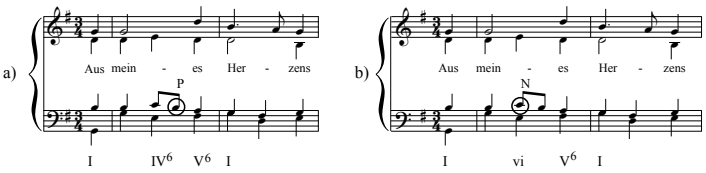
16 See Clendinning and Marvin (2016, 399); Kostka, Payne, and Almén (2013, 115); Roig-Francoli (2013, 180); Turek (2007, 129); and Aldwell, Schachter, and Cadwallader (2011, 290).

17 See Henry and Rogers (2005, 150); Laitz (2011, 88); Clendinning and Marvin, (2016, 216-17); and Gauldin (2004, 47).

18 Clendinning and Marvin (2016, 376-77) use hypermeter to explain broad gestural motions in phrases. The inclusion of melodic context in the discussion of cadences helps, among other things, to account for the inconclusive quality of imperfect authentic cadences; imperfect authentic cadences are not "imperfect" merely because $\hat{3}$ occurs in the soprano, but because $\hat{2}$ veers away from $\hat{1}$ at the cadence, keeping the melody from descending. Ultimately, melody, harmony, and meter all contribute to a sense of impending closure, which the motion to $\hat{3}$ overturns.

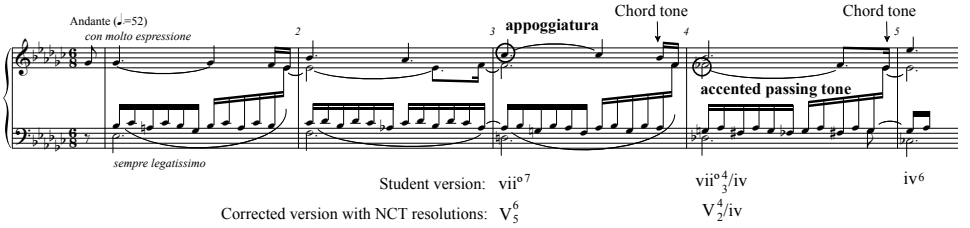
with or without recourse to graphs.

Another crucial tenet of the linear perspective is goal-directed motion. Goal-directed motion comprises three essential attributes: 1) a stable beginning, 2) motion away from stability *and towards a goal,* and 3) arrival at the stable goal. When this tri-partite view of motion is not taken into account, analysis may go awry. Example 1[19] shows two ways of analyzing the first few beats of Bach's chorale harmonization of *Aus meines Herzens Grunde*. While both analyses are "technically" correct, the tenor part "flows" better in Example 1b than it does in Example 1a. In Example 1a the second beat of m. 1 is isolated from the beats around it to form a IV^6 chord. While the subdominant may in some cases serve to prolong the tonic, of course, VI has a stronger affinity with the tonic and often substitutes for it. Perhaps most telling of all is the fact that the two-beat neighbor interpretation in Example 1b aligns perfectly with the text since the first syllable of *meines* also spans two beats.



Example 1
Two Analyses of J. S. Bach, *Aus meines Herzens Grunde*, BWV 269, mm. 1-2.

Although the analysis of the chorale in Example 1a may exhibit less sensitivity to the harmony and text than that in Example 1b, it does not contain an error per se. The analysis of Chopin's Etude No. 10, m. 4, shown in Example 2, on the other hand, contains two actual errors, both of which are attributable to the failure of the student to "gesturalize" the non-chord tones in the passage; the student has correctly identified the non-chord tones, but does not seem to realize that they elaborate—and therefore emphasize—the consonantly supported chord tone which enters on the last sixteenth note of mm. 3 and 4.



Example 2
Two Analyses of Chopin, Etude in E-flat minor, Op. 10, no. 6, mm 1-5.

19 Editor's note: Flash player must be downloaded to view several of the examples embedded in this document: https://helpx.adobe.com/acrobat/using/flash-player-needed-acrobat-reader.html. The slides will also run successfully if the document is opened in Adobe Pro.

Perfunctory interpretations like those in Examples 1 and 2 can easily be avoided by emphasizing the motional aspects of melody in the pre-graphing stage of analysis. Implicit in the term "incomplete neighbor," for example, is the notion that unmarked neighbors are somehow more complete than their marked incomplete counterparts. The rationale for this observation, on the other hand, may not be immediately apparent to the novice. Definitions built around a two-step departure/approach paradigm may engage the tri-partite nature of goal-directed motion in the abstract, but they do not directly convey the sense that preparatory and finishing notes, *along with a dissonant tone*, typically form a "complete" *three-note* melodic figure.[20] This is not to say that the "approach/departure" paradigm is incorrect, but merely that the idea of "three-ness" corresponds more directly to music's motional aspects and thus provides a stronger foundation for defining middleground gestures. It also attaches labels to their context, making their origin more explicit and, hence, more intelligible to the student; incomplete neighbors are incomplete because they are missing either the preparatory or finishing note found in the *complete* three-note neighbor motion.[21]

As the foregoing discussion suggests, Schenkerian analysis incorporates some of the most important developments in recent music theory pedagogy and, thus, may be easily integrated with the curricula found in many current undergraduate theory textbooks. (Indeed, in many ways, it is a compilation of current approaches to undergraduate music theory studies.) Once students understand harmonic and melodic goal-direction and have learned to gesturalize foreground melodic figures, the concept of middleground motion is but a small step away:

> Just as non-chord tones elaborate chord tones, chord tones themselves may also elaborate other chord tones on deeper levels, forming gestures or motions resembling those we have already encountered, including passing motions, neighbor motions, and incomplete neighbors. These motions help to prolong or emphasize the melodic tones in descents and the harmonies that support them.[22]

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20 In the 2nd edition (2011, 328) of Clendinning and Marvin (2016), the authors explicitly refer to "three-ness" in their definition of incomplete neighbors: "complete neighbor-note patterns involve *three notes*: the main melody pitch (a consonance that fits with the harmony), the upper or lower neighbor a step away (usually a dissonance), and the return to the main melody pitch. If one of the consonant elements is left out, the resulting embellishment is called an incomplete neighbor." [italics mine].

21 As Bruce Benward and Marilyn Saker point out, other non-chord tones may be explained in terms of a three-part motion as well. The appoggiatura, for example, is a non-chord tone that leaps past its goal, or towards it, while the escape tone moves in the opposite direction of its goal. Benward and Saker (2011, 102). Illustrating foreground motions with slurs is another way to inculcate the notion of "three-ness" while also preparing students to use slurs as a graphing technique later in the curriculum. Slurs are used to depict foreground melodic figuration in several of the textbooks previously mentioned including those by Aldwell, Schachter, and Cadwallader; Gauldin; and Henry and Rogers.

22 Editor's note: The editorial board was unable to find the source of this statement.

This statement explicitly connects the task of graphing middleground motions to ideas the student will already be familiar with. Not only can statements like this aid in the transition to the graphing stage, but they also provide a way to keep the topic of middleground descents close at hand, allowing them to continue to play a role when other topics are introduced. The efficiency of the procedural model introduced in the next section, moreover, allows students to catch on quickly so that graphing does not overtake the class.

Leaps and Levels: An Introduction to Graphing

In the instructor's manual for *Introduction to Schenkerian Analysis*, Allen Forte and Stephen Gilbert note that the upper-voice E in m. 5 of the second movement of Mozart's Symphony in D major, K. 385 "might not be immediately understood in its correct role as upper neighbor to scale-degree 5."[23] The quote underscores one of the most problematic pedagogical issues for linear analysis, namely that in contending with foreground events, students may miss noncontiguous conjunct connections in the middleground. Consider the scatter-gram effect produced by the extraction of chord tones from the upper voice in mm. 1-12 of the second movement of Mozart's Symphony K. 385 shown on the bottom staff of Example 3a (Slide 1). Without proper guidance, the student may group notes into a series of back-to-back foreground gestures that may or may not adequately portray goal-directed motion. As Examples 3b and c (Slides 2 and 3) demonstrate, removing the notes of the unfilled leaps to and away from the head-tone D—including leaps of a third and larger—dramatically exposes the neighbor motion and conjunct descent in the passage (Slide 4).

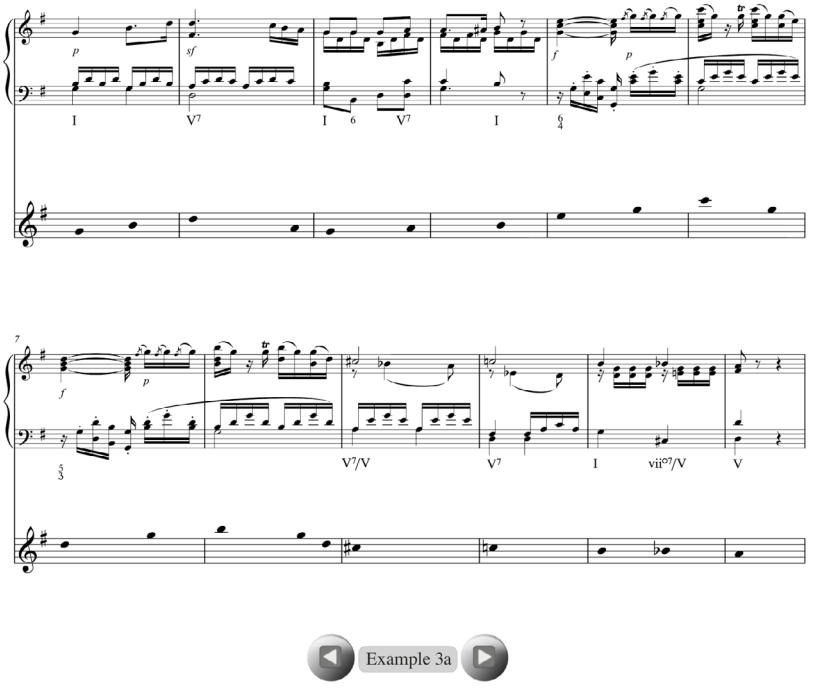
Obviously, the elimination of the notes of unfilled leaps cannot by itself lead to the creation of complete and proper graphs (Example 3d leaves the majority of the passage uninterpreted), but, as I will show, such a step can play a crucial role in the identification of middleground, noncontiguous motions. Constructing legitimate graphs also requires a thorough understanding of hierarchical structuring, prolongation, harmonic function, and phrase structure in addition to graphing conventions, the goals of analysis, foreground details, and the like.[24] Such concerns were discussed in the last section. What remains is to outline a systematic approach to *graphing* in order to help undergraduate students produce successful linear reductions *once this knowledge is in place*.

I have found that the flowchart in Figure 1 goes a long way towards achieving this goal. The flowchart directs students' attention to specific aspects of a passage and thus orients them towards a particular analytical perspective.[25] Note that the flowchart does not provide analytical rules per se, but rather lists

23 Forte and Gilbert (1982, 122). By polyphonic leaps, I mean leaps between voices in compound melodies.

24 Because there are ample sources that address these kinds of issues, I will not rehearse them here. See, for example, Larson (1996), and Cadwallader and Gagné (2011).

25 This idea resonates with that of Rifkin and Stoecker (2011, 161). Rifkin and Stoeker note that



Example 3
Noncontiguous Connections in Mozart's Symphony in D major, K. 385, II, mm. 1-12.

graphing activities in a *particular order* to help the student successfully mine middleground events. The usefulness of eliminating unfilled leaps discussed in conjunction with Example 3 is incorporated into Step 4. Unfilled leaps may be reintroduced in Step 6 or they may continue to be withheld until students have become proficient in identifying long-range conjunct prolongational structures. The vagueness of Step 5 is intentional; it allows instructors to implement their personal preferences regarding the use of graphing tools and symbols. In practice, Steps 4 and 5 become a negotiation; unfilled gaps may sometimes only emerge once "smooth" motions have been identified, although arpeggios like those in Example 1 clearly signal a departure from the range of the principal melodic line.

One of the main advantages of introducing beams early in the graphing process is that beams supply a visual representation of the level they occupy, helping to ward off the temptation to incorrectly add notes from other levels. Because beamed structures often leave out a number of foreground details,

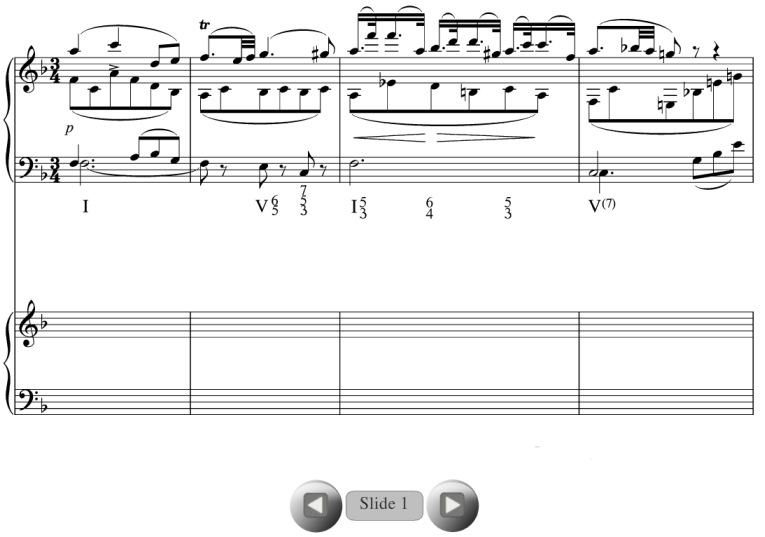
"[m]usic students often need some sort of conceptual map, usually a visual or kinesthetic representation before they can apply and synthesize a new music concept." The steps in the order-of-procedure model operate in a sense like leading questions, an approach to teaching advocated by Dirske (2014).

Figure 1
Order-of-Procedure Flowchart.

moreover, they immediately direct the student's attention towards conjunct noncontiguous motions in the middleground. Once ingrained, the affinity for such deeper-level phenomena can help students make better decisions as more and more detail is added, while also providing a strong conceptual foundation for analyzing non-descending middleground events.

Example 4 illustrates how the flowchart operates. (Click on the arrows to move forward and backward through the analysis.) After analyzing the chords in the passage, the student beams the notes of the descent and bass arpeggiation (Slide 2) and adds a double hash mark to indicate the interruption at the half cadence (Slide 3). Continuing with Step 2 of the flowchart, the student places a stem on each instance of the prolonged tonic and head tone using the highlighted root position tonic chords in the harmonic

analysis as a guide (Slide 4). The student then extracts the other chord tones in the passage along with their bass support in accordance with Step 3 (Slide 5), leaving out unfilled leaps (Slide 6). Keeping in mind the fact that linear motions must begin and/or end with a stemmed note, the student organizes the remaining notes into slurred and flagged motions (slide 7) and only then, as the last step, reintroduces the unfilled leaps (slide 8).[26]



Example 4
Graphing Procedure for Schubert's Quintet in A major, Op. 114 ("Trout"), II, "Andante", mm. 1-4.

The flowchart in Figure 1 functions much like the widely-known time management tool known as the "Critical-Path Method" first introduced by James E. Kelly and Morgan R. Walker in 1959.[27] The Critical-Path Method specifies the order in which activities, indicated by arrows and connected by nodes, must be completed. Such approaches—there are others—provide the organizational strategy or plan needed to efficiently complete a project. Time plays a crucial role in this process. Depending on the earliest and latest start times, for example, each activity may reach completion before the next phase is ready to begin, producing "float" times. It will not be necessary to track float times where the "construction" of graphs is concerned, but the general notion of such a tool is informative; by moving through the graphing steps

26 Gauldin (2004, 137) outlines a somewhat different order-of-procedure approach to foreground graphs.

27 Kelley and Walker (1959, 161). For further discussion on the Critical-Path Method and other "precedence" network management tools, see Lock (2013, 199).

in a particular order (and sometimes back-and-forth), the student stands a better chance of arriving at a satisfactory interpretation while avoiding tear-downs, do-overs, and frustration in general.

Schenker too frequently adopted a spatial perspective in his early discussions of organicism in music. In volume 3 of *The Masterwork,* for example, he expresses the idea that motion involves not only displacements in real time, but also a "traversal from background to foreground" ["*aus einem Hinter- zum Vorder-grund zurücklegt*"].[28] Hence, as Nicholas Cook observes, Schenker adds a "third dimension, a dimension of depth" in which "cause-effect relations flow not from one note to the next but rather from the background to the foreground."[29] Indeed, the allegory of spatiality appears to be something Schenker consciously recognized; quoting Schenker's essay "Das Hören in der Musik," for example, Mark Evan Bonds notes that Schenker outlines "a manner of listening that would 'elevate the ear…to the power of the eye,'" imagery that "blends both the temporal and the spatial."[30]

While the flowchart allows for greater freedom of movement among levels than Schenker's paradigm, it does, at least, exhibit a general tendency to move from the deepest level—in this case, the middleground descent and bass arpeggiation, the background origin of the structure being understood—towards the foreground. This tendency is reflected in the color-coding of the chart; activities involving deeper-level events appear in blue hexagons, activities involving events closer to the surface appear in green hexagons. Step 1 addresses both foreground (Roman numerals) and deeper-level (phrase structure) events, accounting for its blue-green (cyan) color. The jump from the middleground to the foreground and then back to deeper-level events in steps 4 and 5 may transgress Schenker's later analytical approach, but operates well from a practical point of view; the student is encouraged to move around in the musical architecture in order to bring the total structure into better focus.

The procedural rules do not address the analytical work the student must engage in before and during the creation of graphs, but they go a long way towards preventing "tunnel vision" in which adjacent notes and chords receive the most attention. Example 5 provides a case in point. It not only contains a linear descent from scale-degree 3 to scale-degree 2 with intervening chord skips and a large-scale neighbor motion, but also a nested foreground passing motion (Slide 1).[31] To successfully negotiate the passage, the student must not only identify connections between noncontiguous notes, but also those between noncontiguous *motions*; the passing and neighbor motions are not organized in a back-to-back fashion, but hierarchically. The "order-of-procedure" model helps to ensure this outcome. The elimination

28 Schenker (1997, 7). The German quotation may be found in Schenker (1930, 7).

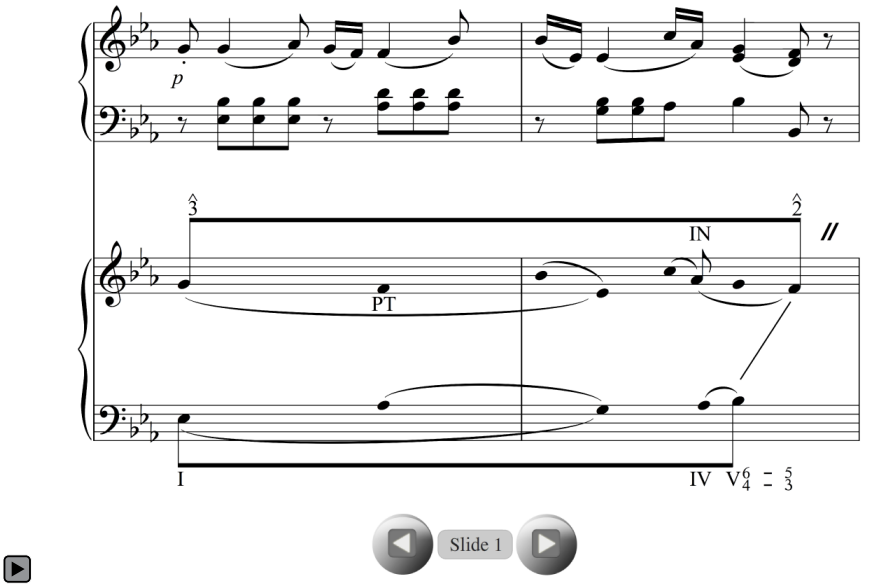
29 Cook (2007, 70).

30 Bonds (2010, 268).

31 In this and succeeding examples, I have not included a swan slur because I do not require them in my undergraduate classes. I do, however, sometimes use swan slurs in my graphing demonstrations; I have found that students are intrigued by revelations of this kind as long as they don't have to worry about being tested on them. Frank Samarotto attributes the term "swan slur" to an early student of his. See Frank Samarotto, "Schenker's 'Freer Forms of Interruption' and the Strict: Toward a General

of non-chord tones and leaps, for example, exposes the foreground voice exchange along with its attendant passing motion in mm. 1-2 (Slide 2). At the same time, Step 4 clears away enough of the busy surface to reveal A♭'s neighboring relation to G in m. 1 (Slide 3). The beams also play an important role by highlighting connections between notes that are separated by a relatively long temporal span and by visually reinforcing the prolongational span of the tonic (Slide 4).

Categorizing both polyphonic leaps and decorative chord leaps as "unfilled leaps" in early analytical exercises has little effect on the analysis of middleground conjunct motions in the principal voice. When



Example 5

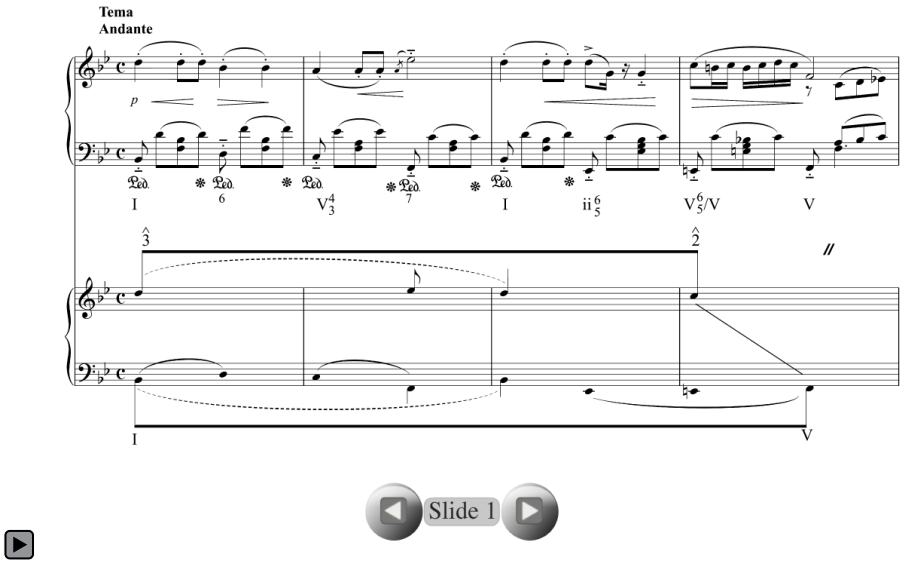
Nested Passing Motion in Mozart's Quintet for Piano and Winds in E-flat major, K. 452, I, mm. 21-22.

the time comes, polyphonic leaps and compound melodies can be introduced without fanfare as the final step of the analytical process. Example 6 shows the graph that emerges when the student eliminates the unfilled leaps in the top voice of Schubert's Impromptu in B♭ (Slide 1).[32] The analysis is correct, but incomplete. Step 6 (Slide 2) reintroduces the notes of the inner voice as unfilled leaps.

The use of the negatively marked term "unfilled leaps" immediately conjures leaps that *are* filled in. The distinction is important because unlike unfilled leaps, filled-in leaps engender motion. Indeed, for

Theory of Interruption," Paper presented at the annual meeting of the *Society for Music Theory*, Cambridge, MA. (2004).

32 Because the order-of-procedure approach is meant to be integrated with the typical undergraduate theory curriculum, I use lowercase numerals for minor chords rather than the uppercase numerals



Slide 1

Example 6
Compound Melody in Schubert's Impromptu in B-flat major, Op. 142, No. 3, mm. 1-8.

Leonard Meyer, the quintessential example of a goal-directed melodic figure is the "gap-fill" melody.[33] The excerpt in Example 4 contains a filled-in middleground leap. In this example, the small leap of a major third from A to F in the first two measures is filled in by the passing motion F-G-A in mm. 2-3.

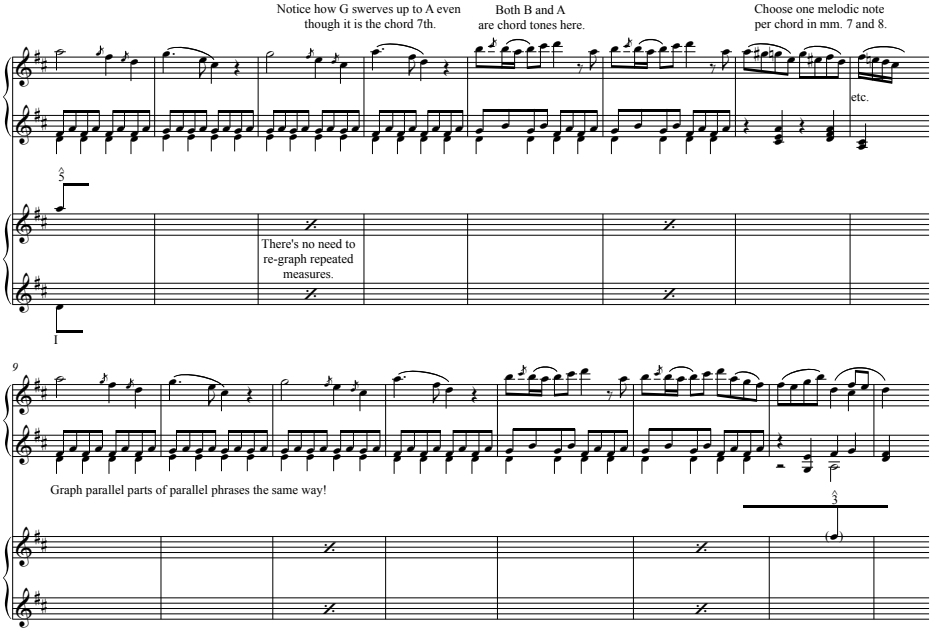
It is against this backdrop that a further defense for the elimination of unfilled leaps in the early graphing stages may be mounted. Unfilled leaps—despite the expressive impact they may have—are not motions in the sense neighbors and passing gestures are precisely because they do not engage the principle of three-ness; unfilled consonant leaps, polyphonic leaps, and chord skips, that is, do not typically "move" away from and back to stability. Instead, they either play a decorative role or jump to another voice in the texture. The elimination of leaps, then, is not merely a convenient methodological step, but a theoretical necessity.

Even relatively straightforward passages may be difficult for novice analysts to navigate. Partially completed graphs, like that in Example 7, can go a long way towards ensuring that students arrive at the desired outcome. Such graphs orient the student to a particular analytical perspective and may include features such as the implied scale-degree 3 in m. 15 of the example. The repeat bar symbols in the example indicate that the events of mm. 2, 5, 10, and 13 carry through to the next measure and do not need to be re-graphed. The missing notes in m. 8 reinforce the decorative role the sixteenth-note run plays in that

normally associated with Schenkerian analysis.

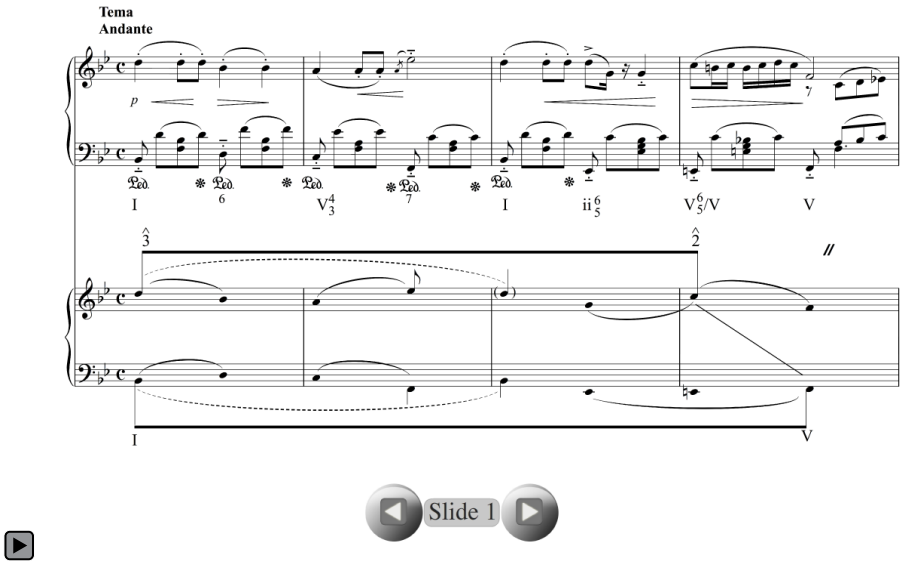
33 Meyer (1973, 145).

measure. Bass lines, which are often difficult for beginners to handle, can also be supplied in partially-completed graphs to guide students through the analytical process. As a further aid, students may be presented with instructions like those that appear throughout Example 7. Such explanations are commonly used in textbook exercises to help students make better musical decisions and to alert them to the amount of detail to include.



Example 7
Partially completed graph of Mozart's Rondo in D major, K. 485, mm 1-16.

Instructions and annotations can also be used to help students graph inner-voice motions correctly. Slide 1 of Example 8 shows where we left the analysis of Schubert's Impromptu in B♭ in Example 6, Slide 2. With a little prompting, students can be taught to tweak their graphs in real time to depict the B♭–A–(B♭) neighbor that emerges in the first three measures of the piece (Slide 2) using downward-pointing stems. (Note that this precise motion occurs an octave below in the left-hand piano part.) Students could further be instructed to verticalize scale-degree 2 (implied by the underlying ii^6-chord) above the inner-voice G in m. 3 (Slide 3) to create a more elegant graph. Rote learning of this kind allows students to graph features that may be beyond their ability to negotiate successfully on their own. Knowing when and where to include implied and verticalized notes is a much more nuanced activity than graphing notes as they appear on the page. Explanations of note additions and placement, on the other hand, are fairly easy to follow (especially when the student literally engages in the alteration of a graph rather than watching a tutorial), and the ability to comprehend the reasons for such



Example 8
Schubert's Impromptu in B-flat major, Op. 142, No. 3, mm. 1-8 Revisited.

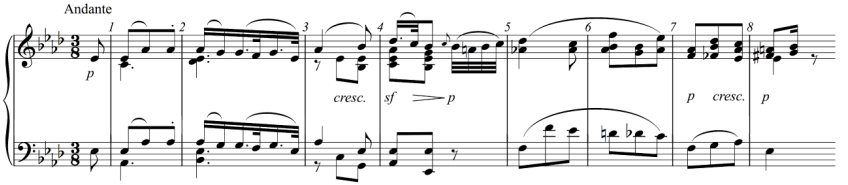
alterations connotes, in and of itself, a strong knowledge of voice-leading principles.

The linear dimension of music in class discussions can be addressed, and probably should continue to be addressed, even when the production of graphs is not the primary topic. Such an approach reinforces the link between linear phenomena and other elements of music. In these circumstances, virtual graphs may be used to provide an overview of the linear aspects of a passage. Virtual graphs can also be used to illustrate linear features the student is not familiar with or to provide more detailed descriptions of complex foreground activity. Regardless of the specific circumstances, the "order-of-procedure" model—or some version of it—becomes the foundation on which to build, allowing students to comment on the linear features of more complex passages using their knowledge of descents, neighbors, and hierarchical structuring as a point of departure.

Consider Example 9, Slide 1, which contains the beginning measures of the theme from Beethoven's Sonata, Op. 26, movement I.[34] Although the passage raises complex contrapuntal and harmonic issues, there are a number of features students familiar with rudimentary graphing techniques will recognize, such

34 While somewhat rare, virtual graphs do appear occasionally in Schenkerian literature and textbooks. See, for example, Forte and Gilbert (1982, 133) and Laitz (2011, 176). Olli Väïsälä (2009, 103), uses the term "annotated score" for what I am calling a virtual graph. Although virtual graphs themselves can be created using paper scores, that in Example 9 uses techniques similar to those explored by Timothy Koozin (1999). Koozin's Example 4 uses virtual graphing to highlight the motivic content in the fourth movement of Corelli's Trio Sonata, Op. 3, No. 2.

as the descent and large-scale neighbor.[35] Given a choice, some students might choose E♭ in m. 6 as the head-tone since it is followed immediately by a smooth foreground descent to B♭ at the half cadence. Upon further reflection, however, C in m. 4 emerges as a better choice because it is supported by a prolonged root position tonic chord (Slide 2).



Example 9
Virtual Graph of Beethoven's Sonata No. 12 in A-flat major, Op. 26, I, mm. 1-16.

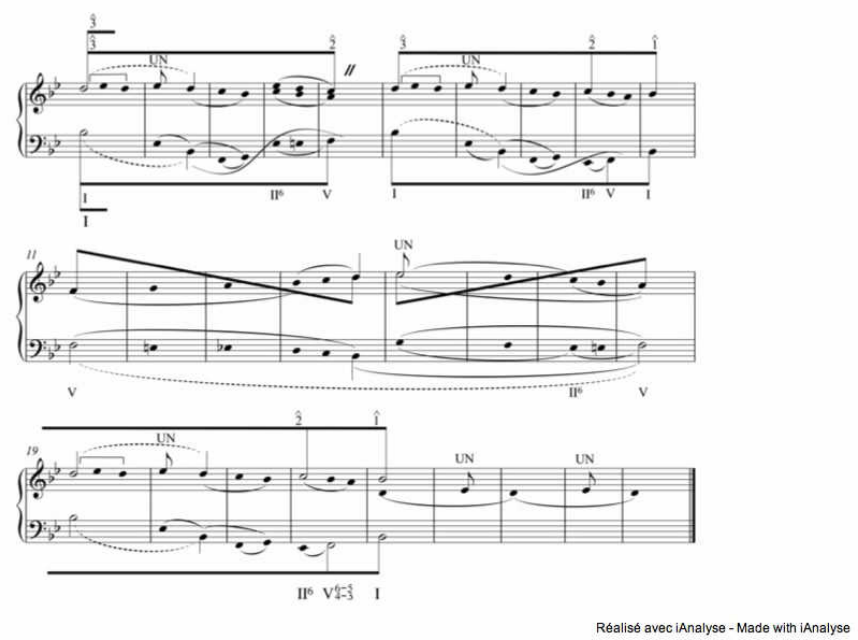
The passage begins with the initial ascent highlighted in Slide 3. The ascent to C in the upper voice reaches completion when B♭ moves to C in mm. 3-4 supported by a lower-neighbor motion, A♭–G–A♭, in the bass. A♭, meanwhile, is prolonged in the first three measures by a nested lower-neighbor motion in the soprano and a nested A♭–B♭–C passing motion in the bass (Slide 4). Slide 5 shows the incomplete upper neighbor that occurs in m. 5. The gap-filling F–E♭–D♭–C–B♭ motion in mm. 6-7, shown in Slide 6, completes the phrase.

Discussions of music that address complex deeper-level motions in the middleground may be lost on students who have little or no knowledge of such ideas. Students who have a passing familiarity with beams, stems, flags, slurs, and their meaning will be able to make sense of them. But students who have themselves

35 This passage has received much attention. See, for example, Beach (1989). Heinrich Schenker himself analyzes the passage in conjunction with his discussions of the consonant passing note (Fig. 56/1c) and initial ascent (Fig. 85). See Schenker (1979 [1935], 61-62 and 75). Drabkin (1996) cites Schenker's correspondence with a former student to shed light on his rather trenchant views on the consonant passing note.

grappled with middleground descents, bass arpeggiations, and large-scale linear motions—even with a lot of help—will not only be able to follow such discussions, but also contribute meaningfully to them.

To move even further into the background, scores can sometimes be abandoned entirely in favor of graphs. Example 10 contains a graph of Haydn's "Chorale St. Antoni." Playing the passage while highlighting important relationships encourages students to hear the music in terms of broader gestures rather than getting lost in the details. The goal, that is, becomes that of *hearing* relationships, rather than of *searching* for them in a score. "Chorale St. Antoni," while relatively transparent harmonically and melodically, is uniquely rich in content, and includes unfoldings, implied notes, octave shifts, and cover tones. Even if students never become proficient in creating graphs that incorporate such techniques, they may still benefit greatly from knowing that music can be viewed as more than a moment-to-moment series of improvised events, but also as an elegantly structured interplay of a few simple ideas operating at multiple levels in a composition. Here, the many neighbor motions, highlighted by flashing halos in the example, provide indisputable evidence of hierarchical structuring.[36]



Example 10
Graph of Haydn's Divertimento in B-flat major, Hob. II: 46, II ("Chorale St. Antoni").

36 Example 10 was created using iAnalyse 3, a powerful analysis program written by Pierre Couprie. While useful, the computer animation is no better at getting the point across to students than simply pointing to the highlighted notes on a chalkboard or projected version of the graph while playing a recording of the music. I have found, in fact, that I can excite a higher degree of class enthusiasm for the neighbor motive using the chalkboard version, and I typically opt in favor of it.

Perhaps one of the most problematic obstacles to implementing linear analysis in the undergraduate classroom is that the typical practice of dividing music into various rudimentary building blocks such as rhythm, meter, pitch, and harmony is not easily adapted to linear analysis. Linear analysis requires the analyst to make decisions based on multiple contributing factors and to take large gestural shapes into account. Building up terms and concepts gradually, then, may not be the best approach to middleground graphing.[37] Instead, an analysis like that in Example 10 (I analyze only the first ten measures, without swan slurs, in my classes) may be presented as a precursor to graphing.[38] Approached in this way, the example provides a bird's-eye view of the analytical process, giving students an opportunity to see the goals and benefits of graphing before attempting to create their own graphs. Once the goals of graphing are clearly understood, the process can be broken down into discrete exercises that address the various aspects of graphing independently: identifying the notes of the bass arppeggiation and descent at the phrase level, extracting chord tones and their contrapuntal support, learning to slur elaborative motions, etc.

Conclusions

Instructors wanting to introduce linear analysis into the undergraduate curriculum are faced with a number of logistical concerns. One of these is finding a way to integrate linear analysis into the general curriculum without making it seem at odds with traditional topics. The idea itself is not entirely out of step with Schenker's own motivation. Joseph Lubben, for example, documents Schenker's attempts to integrate the *Ursatz* with "a multiplicity of other musical forces" in *Der Tonwille*.[39] Richard Cohn goes even further, arguing that

> Schenker's claim to have shown how all of the 'secondary factors' fall under the control of the *Ursatz*, via harmony and counterpoint, must be regarded as misguided. Rather, the great accomplishment of Schenker's final fifteen years was to model *one* aspect of this complex fabric, the interaction of harmony with counterpoint, and to begin to suggest implications of this model toward the exploration of how the harmony-counterpoint complex interacts with other elements of tonal composition.[40]

37 This is essentially the approach David Beach advocates despite his claim that the instructor should "not present too many new ideas at once, particularly at the early stages [of Schenkerian Analysis]." See Beach (1983, 16-17).

38 It is worth considering that a bird's-eye approach might also be an effective way to broach the topics of harmony, interval, rhythm, and meter. In Schenker pedagogy, for example, the phrase is often treated as the most basic element in music. See Beach (2012, 5); Forte and Gilbert (1982, 14-16); and Cadwallader and Gagné (2011, 5). Using the phrase as a starting point allows intervals, triads, Roman numerals, figured bass symbols, inversion, rhythm and meter, tonal organization, and cadences to be introduced on an as-needed basis rather than in an all-at-once catalog fashion.

39 Lubben (1993, 61).

40 Cohn (1992, 169).

The order-of-procedure model outlined in this paper engages these ideas by approaching linear graphing in a way that accommodates, indeed, builds on present-day theoretical concepts associated with harmony and melodic figuration. One does not have to be an expert in Schenkerian analysis to understand and portray important aspects of music's *linear* dimension. Indeed, to the extent that music unfolds temporally, linear events can scarcely be ignored. The procedural model provides one way for students to gain access to this dimension by giving them the means to peer into the middleground and uncover the noncontiguous and sometimes nested motions that reside there. If students move no deeper than that, they will still have learned a valuable lesson, one that can have a profound influence on their appreciation of music as well as their professional careers.

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