

# Schenkerian Analysis for the Beginner

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## INTRODUCTION: SCHENKER IN THE CLASSROOM

In its earliest days, and continuing throughout the 20<sup>th</sup> century, Schenkerian analysis was often taught by master teachers to highly gifted students. Elite musicians in this tradition included Schenker and his students, Ernst Oster and his students, and so on, creating a relatively small family of expert practitioners.<sup>1</sup> Schenker's Lesson Books (1913–1932) provide snapshots of the diverse analytical, theoretical, and critical activities possible in long-term, mentored relationships.<sup>2</sup> Mentored relationships are fruitful with highly motivated students who arrive with a solid theoretical and practical background. Across the United States and other countries, however, Schenkerian courses at many universities pose challenges:

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<sup>1</sup>Other notable students of Schenker included Hans Weisse, Oswald Jonas, and Viktor Zuckerkandl. For a sample of influential early pedagogical writings, see Oswald Jonas, *Introduction to the Theory of Heinrich Schenker: The Nature of the Musical Work of Art*, trans. and ed. John Rothgeb (Ann Arbor: Musicalia Press, 2005); Adele Katz, *Challenge to Musical Tradition: A New Concept of Tonality* (New York: Alfred Knopf, 1945); and Felix Salzer, *Structural Hearing: Tonal Coherence in Music* (New York: Charles Boni, 1952). For overviews of the early transmission of Schenker's thought, see William Rothstein, "The Americanization of Heinrich Schenker," in *Schenker Studies*, ed. Hedi Siegel (Cambridge: Cambridge University Press, 1990), 193–203; and David Carson Berry, "The Role of Adele T. Katz in the Expansion of the New York 'Schenker School,'" *Current Musicology* 74 (2002): 104–108.

<sup>2</sup>Allen Cadwallader and David Gagné, "The Spirit and Technique of Schenker Pedagogy," in *Structure and Meaning in Tonal Music: Festschrift in Honor of Carl Schachter*, ed. L. Poundie Burstein and David Gagné (Hillsdale: Pendragon, 2006), 45–46. Schenker's lesson diaries are transcribed and translated at <http://www.schenkerdocumentsonline.org>.

the teacher cannot address the needs of one student only, especially if class sizes are large; the length of study may be one semester or less; students may lack necessary academic skills; or students may struggle to retain theoretical content from their earlier training. Given these challenges in many university classrooms, and assuming that instructors want to incorporate research projects and interesting topics such as motivic parallelism and musical narrative (among others), it would seem useful to build students' graphing competency as effectively and quickly as possible. Why then is Schenkerian analysis so challenging for the beginner? I have offered an Introduction to Schenker course at Kennesaw State University in 2014 and 2016. The course was offered at the undergraduate level, in 2014 to seven music performance majors and one computer science major, and in 2016 to three music performance majors and one music education major. In the 2014 iteration, my students twice "froze" in starting graphs of previously unknown works, one time in preparation for an in-class, timed exam focused on the graphing of a short musical excerpt. Since then, I have concluded that their difficulties in starting graphs point to perceptual and cognitive challenges inherent in the method. Schenkerian analysis requires the analyst to weigh multiple parameters (melodic contour, pitch, pitch class, harmony, rhythm, and so on) while making decisions about structural depth, often on the basis of equivocal evidence. These challenges are acknowledged by certain of the method's finest practitioners: Cadwallader and Gagné state that "[the student] will learn how to evaluate a musical context based on [their] hearing and perception of *all* aspects of that context [emphasis mine];" and Schachter notes how the analysis of an ambiguous foreground requires consideration of the overall harmonic context.<sup>3</sup> As noted by Schachter, Brahms's "Meerfahrt" (Op. 96, no. 4, mm. 1–6) includes a beautiful instance of foreground ambiguity: the F<sup>#</sup> in mm. 3–4 initially seems to be a neighbor, but is (surprisingly) chromatically raised; in m. 7, however, that F<sup>#</sup> proceeds up to G<sup>#</sup> and A, thereby reinterpreting the note as passing (see Example 1). I find this passage emblematic of Schenkerian analysis's challenges.<sup>4</sup>

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<sup>3</sup> Allen Cadwallader and David Gagné, *Analysis of Tonal Music: A Schenkerian Approach*, 3<sup>rd</sup> ed. (New York: Oxford University Press, [1996] 2011), 4; Carl Schachter, *The Art of Tonal Analysis: Twelve Lessons in Schenkerian Theory*, ed. Joseph N. Straus (New York: Oxford University Press, 2016), 3–7.

<sup>4</sup>Schachter, *The Art of Tonal Analysis*, 6.

The image shows a musical score for a piano piece in 8/8 time. The score consists of two systems. The first system has a treble and bass staff. The treble staff begins with a piano (*p*) dynamic and features a melodic line with a half note G4, a quarter note A4, and a half note B4. Above the B4, there is a bracketed interval from E4 to F#4, with 'N?' written above it. The bass staff has a steady eighth-note accompaniment. The second system continues the melody in the treble staff, starting with a half note C5, a quarter note B4, and a half note A4. Above the A4, there is a bracketed interval from G#4 to A4. The piece concludes with a final chord in the bass staff.

Example 1: An Ambiguous Tone: Neighbor, or Passing?  
(from Schachter's Example 1.5, *The Art of Tonal Analysis*, 6). (© Oxford University Press; used with permission)

Schenkerian analysis is thus challenging as it is both complex *and* holistic. For the beginner, however, effective learning must be sequential, proceeding from simple to complex, in the teacher's choice of learning objectives, their ordering in time, and the design of assessments and class activities.<sup>5</sup> In designing a Schenkerian curriculum for the beginner, it is helpful to disentangle learning objectives and thereby slow down the presentation of new analytical steps. To do so, a cumulative hierarchy of learning objectives, in which each later stage depends upon and incorporates all previous ones, is an effective strategy.<sup>6</sup>

In this essay, I apply the perspective of a cumulative hierarchy to the graphing procedures suggested by Schenkerian textbooks, evaluating (as an "inverse" problem) if they reconstruct the graphing process from foreground to finished product.<sup>7</sup> Second,

<sup>5</sup>Lorin W. Anderson and David R. Krathwohl, *A Taxonomy for Learning, Teaching, and Assessing: A Revision of Bloom's Taxonomy of Educational Objectives* (New York: Longman, 2001), 3–5.

<sup>6</sup>Two discussions of cumulative hierarchies in learning taxonomies include Benjamin Bloom et al., *Taxonomy of Educational Objectives: Handbook I: Cognitive Domain* (New York: David McKay, 1956), 16–19; and Anderson and Krathwohl, *A Revision*, 6.

<sup>7</sup>Schenkerian textbooks include Allen Forte and Steven Gilbert, *Introduction to Schenkerian Analysis* (New York: W.W. Norton, 1982);

I deduce a new cumulative hierarchy of learning objectives for Schenkerian analysis that works toward the creation of an accurate, internally consistent graph and its use in an end-of-term analytical paper. Third, I demonstrate course activities consistent with the cumulative hierarchy, using the well-known tune “Happy Birthday.” Fourth, I examine learning challenges that have inspired the greatest changes in my Schenker course between 2014 and 2016: (1) the need to gather adequate foreground data to avoid circular reasoning; (2) the method’s demands on long-term memory; and (3) the pervasiveness of hierarchical ambiguity, due to the large number of musical parameters considered in a graph, as well as the complexity of tonal practice. And finally, just as “Happy Birthday” was useful in the course’s first unit (simplified notation), I demonstrate the cumulative hierarchy in the course’s second unit (full Schenkerian notation) through analysis of a parallel interrupted period by Mozart (K. 545/iii, mm. 1–8). Overall, the cumulative hierarchy and its supporting classroom activities foster a spirit of critical thinking, shifting the locus of control from instructor to student and encouraging each student to apply the method toward ends they find relevant.

## PART I: SCHENKERIAN ANALYTICAL ROUTINES FROM THE PERSPECTIVE OF A CUMULATIVE HIERARCHY

As defined above, a cumulative hierarchy is a sequence of learning objectives where later stages depend on earlier ones. By necessity, a cumulative hierarchy moves from simple to complex concepts.<sup>8</sup> In applying the perspective of a cumulative hierarchy

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David Neumeyer and Susan Tepping, *A Guide to Schenkerian Analysis* (Englewood Cliffs: Prentice Hall, 1992); Tom Pankhurst, *SchenkerGUIDE: A Brief Handbook and Website for Schenkerian Analysis* (New York: Routledge, 2008); Allen Cadwallader and David Gagné, *Analysis of Tonal Music: A Schenkerian Approach*, 3<sup>rd</sup> ed. (New York: Oxford University Press, 2011); David Beach, *Advanced Schenkerian Analysis: Perspectives on Phrase Rhythm, Motive, and Form* (New York: Routledge, 2012); and David Damschroder, *Tonal Analysis: A Schenkerian Perspective* (New York: W.W. Norton, forthcoming).

<sup>8</sup> Readers may find similarities between my cumulative hierarchy and learning taxonomies across the cognitive domain: examples of taxonomies for general learning include Bloom et al., *Taxonomy*; and Anderson and Krathwohl, *A Revision*. A cumulative hierarchy leading

to Schenkerian analytical procedures, one may ask: are the steps discussed necessary and sufficient to generate a final analysis? Complicating the picture are parallels between the analysis of music and visual perception, as noted by Lerdahl and Jackendoff: principles in both domains include grouping by similarity and proximity.<sup>9</sup> David Marr's 3-stage model of vision perception, which has proven invaluable as the basis of recent models of machine vision, also merits consideration as a corroboration of musical perceptual processes, thus of analytical routines.<sup>10</sup> This model takes a "primal sketch" (a 2-D assortment of lines and blobs that starts with primitive intensity changes and then infers boundaries and groups) and transforms it into a "2½-D sketch" (shapes and depth, but only from the viewer's current perspective), and then a "3-D model representation" (shapes, depth, and object recognition from multiple perspectives).<sup>11</sup> Similarly, Schenkerian analysis takes a foreground (basic, isolated data such as chords and cadences), infers patterns (melodically fluent lines and bass paradigms such as <T-PD-D-T>), and then arrives at a sense of depth (structural levels)—although not to the point where "walking around" a

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to a Schenkerian analysis and term paper, however, is specific to Schenkerian studies only; a learning taxonomy is instead an archetype of cognitive activities applicable across multiple subject areas (e.g., history, music, sociology, language studies). Thus, between the two a cumulative hierarchy may have a greater number of, and more specific learning objectives, than would be found in a learning taxonomy.

<sup>9</sup>Fred Lerdahl and Ray Jackendoff, *A Generative Theory of Tonal Music* (Cambridge: MIT Press, [1983] 1996), 303–307.

<sup>10</sup>David Marr, *Vision: A Computational Investigation into the Human Representation and Processing of Visual Information* (Cambridge: MIT Press, 1982). For a recent overview of developments in machine vision, see David Peebles and Richard P. Cooper, "Thirty Years after Marr's Vision: Levels of Analysis in Cognitive Science," *Topics in Cognitive Science* 7, no. 2 (2015): 187–190. Two innovative studies, the first using Bayesian probabilities and the second proposing refined algorithms for stereo vision, are Vicky Froyen, Jacob Feldman, and Manish Singh, "Bayesian hierarchical grouping: Perceptual Grouping as Mixture Estimation," *Psychological Review* 122, no. 4 (2015): 575–597; and Lazaros Nalpantidis and Antonios Gasteratos, "Stereo Vision for Robotic Applications in the Presence of Non-Ideal Lighting Conditions," *Image and Vision Computing* 28, no. 6 (2010): 940–951.

<sup>11</sup>Marr, *Vision*, 37.

piece of music and hearing it from all angles are necessary for its comprehension. If we accept Marr's model as an analogue of Schenkerian analysis, our cumulative hierarchy should include a number of basic perceptual steps (foreground data, melodic patterns) in addition to the inference of structural levels. Given the typical ambiguity of hierarchical relationships (as demonstrated in Example 1), the generating of multiple analyses, as well as different weights attached to each analysis (similar to Lerdahl and Jackendoff's Preference Rules), will be essential.<sup>12</sup>

According to the perspective of a perceptually-driven cumulative hierarchy, recent Schenkerian textbooks and other writings often struggle in enumerating analytical procedures that explain finished analyses. Beach directs his textbook largely toward graduate students who have had previous practice in graphing.<sup>13</sup> Forte and Gilbert, Neumeyer and Tepping, Pankhurst, and Cadwallader and Gagné describe and summarize analytical routines leading from the foreground to background, reversing the direction of Schenker's mature theory, but maintaining consistency with an analytical view of the process.<sup>14</sup> Top-down considerations are also addressed: some methods consider the overall form, or assume a type of fundamental structure prior to creating a graph.<sup>15</sup> Forte and Gilbert divide a procedure between different chapters, seeming to (1) identify figured bass labels, (2) distinguish between structural and contrapuntal chords, (3) create a rhythmic reduction in chorale texture, and (4) convert this reduction to elementary Schenkerian notation with structural background and prolongations included.<sup>16</sup> Over several chapters, Neumeyer and Tepping offer a highly comprehensive routine: (1) create a bassline sketch; (2) in upper

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<sup>12</sup>Lerdahl and Jackendoff, *A Generative Theory*, 8–11.

<sup>13</sup>Beach, *Advanced Schenkerian Analysis*, Ch. 1.

<sup>14</sup>Forte and Gilbert, *Introduction*, Ch. 2, 5, and 7; p. 224; Neumeyer and Tepping, *A Guide*, 33, 62, 66–71, and 76–77; Pankhurst, *SchenkerGUIDE*, 87–107; and Cadwallader and Gagné, *Analysis of Tonal Music*, 110–113.

<sup>15</sup>For the former, see Neumeyer and Tepping, *A Guide*, Ch. 1, and for the latter, Damschroder, *Tonal Analysis*.

<sup>16</sup>Forte and Gilbert, *Introduction*, 49–63, 103–109, and 135–137. Unfortunately, they wait until pp. 223–224 (Ch. 18) to discuss how to find a work's primary tone: (1) look for scale degrees beginning and ending formal sections; (2) look for ascending motions to a candidate tone; and (3) critique the counterpoint resulting from each choice.



voices, draw linear and arpeggiated connections between the initial, climactic, and final pitches of each phrase or period; (3) consider soprano events (e.g., primary tones) structural if they receive consonant support and stepwise embellishment; (4) determine the number and visual appearance of levels; (5) read the set of graphs in reverse from background to foreground to eliminate logical gaps between levels; and (6) add text commentary if necessary.<sup>17</sup> Marlowe presents an analytical routine focused on the graphing of fugues: (1) perform a traditional formal analysis; (2) identify and compare all parallel material; (3) consider and test potential middleground structures in which arrivals align with stable harmonic events; (4) perform a complete foreground analysis; and (5) complete a multi-leveled graph.<sup>18</sup> A three-step procedure with pedagogical aims is proposed by David Beach: (1) label the surface form of the piece at all levels, along with key centers and hypermeasures; (2) label foreground details, including motives, rhythmic and metrical features, and surface harmonies; and (3) analyze the contrapuntal structure in several steps, reducing a metrical foreground to a structural background.<sup>19</sup>

Examples 2 and 3 compare the analytical routine of Cadwallader and Gagné with Pankhurst's. In Example 2 (Cadwallader and Gagné), I have inferred four stages from their discussion of the Trio from Mozart's *Eine Kleine Nachtmusik*, K. 525/iii, mm. 1–8.<sup>20</sup> First, in Example 2a they infer an "imaginary continuo," a metrical reduction in keyboard style that has a flexible number of voices and idealized voice leading (the parallel octaves between vi and ii<sup>6</sup> are

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<sup>17</sup>Neumeyer and Tepping, *A Guide*, 33, 62, 66–71. On pp. 76–77, they offer additional pointers on analyzing upper parts. I have combined their shorter, separate procedures and renumbered the steps.

<sup>18</sup>Sarah Marlowe, "Fugue in Context: A Schenkerian Approach to Select Works by J.S. Bach and Dmitri Shostakovich" (Ph. D. diss., University of Rochester, 2013), 68.

<sup>19</sup>David Beach, "The Analytic Process: A Practical Demonstration [of] the Opening Theme from Beethoven's Op. 26," *Journal of Music Theory Pedagogy* 28 (2014): 8–9; and Beach, "Schenker's Theories: A Pedagogical View," in *Aspects of Schenkerian Theory*, ed. David Beach (New Haven: Yale University Press, 1983), 19–20.

<sup>20</sup>Cadwallader and Gagné, *Analysis of Tonal Music*, 110–113.

atypical): it guides all later analytical stages.<sup>21</sup> Second, they return to the foreground (Example 2b) and interpret the surface in relation to a proposed Ursatz.<sup>22</sup> Third, in Example 2c they reduce away local diminutions to create a middleground graph. And fourth, in Example 2d the background is isolated (Ursatz plus “intermediate,” or predominant chord).<sup>23</sup> With the exception of the second stage (Example 2b), which curiously *adds* events, the third and fourth remove foreground and middleground details. This procedure may be critiqued from logical and perceptual perspectives. First, reducing a work from foreground to background does not signify an increase in complexity: rules of harmony and counterpoint persist on all levels.<sup>24</sup> Second, at no time are multiple analyses weighed. Third, the Ursatz is implicit already in Example 2b, thereby conflating perceptual stages and rendering later analytical ones cosmetic. Fourth, full Schenkerian notation is used from Example 2b on, adding to a student’s challenges in mastering the routine.

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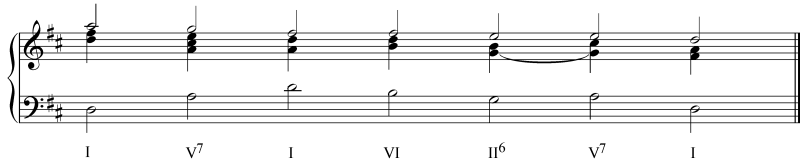
<sup>21</sup> Cadwallader and Gagné, *Analysis of Tonal Music*, 66–68 (their Example 3.22) distinguish different stages of the imaginary continuo: (1) a figural reduction; (2) blocked chords maintaining original register; and (3) blocked chords with normalized register. Example 2a is an instance of their second stage. The term “imaginary continuo” was originally coined by William Rothstein, “Rhythmic Displacement and Rhythmic Normalization,” in *Trends in Schenkerian Research*, ed. Allen Cadwallader (New York: Schirmer, 1990), 87–113.

<sup>22</sup> The brackets on Example 2b isolate repetitions of motion through the interval of a third (Cadwallader and Gagné, *Analysis of Tonal Music*, 112).

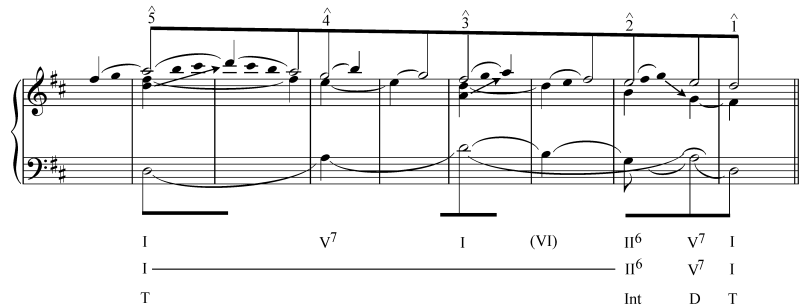
<sup>23</sup> Examples 2b–d comprise an Urlinie-Tafel, as noted on p. 113. For an Urlinie-Tafel, see Heinrich Schenker, *Five Graphic Analyses (Fünf Urlinie-Tafeln)* (New York: Dover, 1969), 33. The “Ursatz” here refers to the deepest structural level of the excerpt, a pedagogical compromise that treats excerpts as complete tonal entities.

<sup>24</sup> Matthew Brown, *Explaining Tonality: Schenkerian Theory and Beyond* (Rochester: University of Rochester Press), 70.

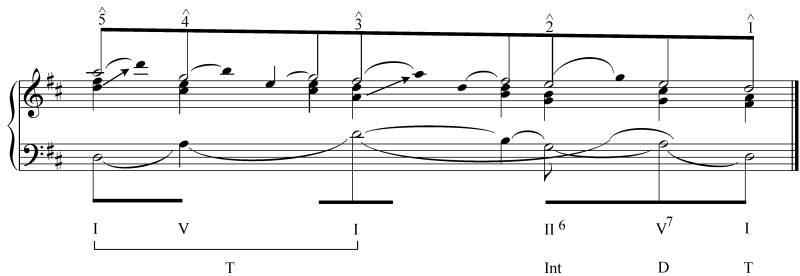




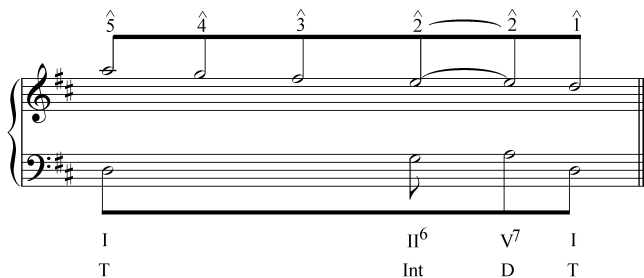
(a) Imaginary Continuo, a Figured Bass Realization (their Example 5.3).  
(© Oxford University Press; used with permission)



(b) Multileveled Graph with Surface Embellishments (their Example 5.4a).  
(© Oxford University Press; used with permission)



(c) Multileveled Graph with Surface Embellishments Reduced Out (their Example 5.4b). (© Oxford University Press; used with permission)



(d) Underlying Background Plus Predominant (their Example 5.4c).  
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Example 2 (a–d): Implied Analytical Routine of Cadwallader and Gagné's *Analysis of Tonal Music*.

Pankhurst's analytical stages, shown in Example 3 and described as "a four-stage method," include the following: (1) foreground harmonic analysis; (2) starting with unstemmed noteheads and reducing out repeated tones, the identification of foreground elaborations in the bass and upper voices; (3) alternative, multi-leveled analyses, each aligning large-scale linear and harmonic units; and (4) a top-down, theoretical evaluation of analytical alternatives leading to the selection of an *Ursatz* (here, an *Ursatz* parallelism due to the excerpt's short length).<sup>25</sup> While this procedure shows some evidence of a perceptual perspective, it still conflates computational tasks. Throughout Pankhurst's textbook, stages (3) and (4) blend into each other: in Example 3, for instance, background structures are identified by stage (3), while stage (4) is the relatively trivial identification of the more normative *Ursatz* (as proposed in stage 3b).<sup>26</sup> Pankhurst's method thus conflates pattern recognition, the evaluation of patterns, and depth perception. There are three interesting innovations in the procedure, though, which my cumulative hierarchy adopts: first, in stage (2) the soprano melody is reduced separately before being compared with the entire texture; second, in stage (3) different, alternative structures (3a and 3b) are considered and evaluated; and third, the notation in stages 2–3 is simplified, with both retention slurs and open noteheads absent. Pankhurst's routine thus hints at a teasing apart of perceptual stages.

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<sup>25</sup> Pankhurst, *SchenkerGUIDE*, 88; deeper discussion of each stage is found on pp. 87–107.

<sup>26</sup> Pankhurst, *SchenkerGUIDE*, Example 4.2 (p. 92), as well, shows only stages 1–3; stage 4 is missing.

The image displays a four-step analytical routine for a musical excerpt, presented in five systems of staves. Each system represents a stage of the analysis, with the original notation on the top staff and the analytical reduction on the bottom staff.

- Stage 1:** Shows the original notation in G major (one sharp) and 2/4 time. The bass line is reduced to three chords: G. I, V<sup>7</sup>, and I.
- Stage 2:** The treble staff is simplified to a three-part structure (3-prg) with notes G, A, and B. The bass line remains G. I, V<sup>7</sup>, and I. The treble staff has a 3-measure rest followed by notes G, A, and B.
- Stage 3a:** The treble staff shows the three-part structure with notes G, A, and B. The bass line is reduced to three chords: G. I, V<sup>7</sup>, and I. The treble staff has a 3-measure rest followed by notes G, A, and B.
- Stage 3b:** The treble staff shows the three-part structure with notes G, A, and B. The bass line is reduced to three chords: G. I, V<sup>7</sup>, and I. The treble staff has a 3-measure rest followed by notes G, A, and B.
- Stage 4:** The treble staff shows the three-part structure with notes G, A, and B. The bass line is reduced to three chords: G. I, V<sup>7</sup>, and I. The treble staff has a 3-measure rest followed by notes G, A, and B.

Example 3: Four-Step Analytical Routine shown in Pankhurst's *SchenkerGUIDE*. Excerpt is Haydn's Piano Sonata in G major (Hob. XVI, No. 39, i), mm. 0–2. (Copyright Taylor and Francis Group LLC Books; used with permission)

What would a cumulative hierarchy of Schenkerian analysis, consistent with perceptual processes and increasing in complexity, look like? Example 4 proposes just such a scheme, with the first six levels culminating in a completed graph (assumed to be of a short work, or Ursatz parallelism, of about 16 or fewer bars), and the last, eighth one an analytical paper. The definition of cumulative hierarchy, the mapping onto Marr's 3-stage model, the necessity of probabilistic perception, and the assumption of the classroom environment allow us to deduce each step. Step 1, "collect foreground data," in which many surface insights are compiled (e.g., cadences, emphasized scale degrees, formal units), is necessitated by the raw primal sketch sub-stage of Marr's 3-stage model, which features intensity changes, but without boundaries and groupings present.<sup>27</sup> Step 2, "discuss the opening assumptions of the graph," is a top-down activity implied by the classroom environment: the teacher tells students to assume a particular inner form (1-part, 2-part, etc.), structural type (e.g.,  $\hat{3}$ -line,  $\hat{5}$ -line), or recurrent prolongational technique (e.g., passing tone, neighbor, unfolding), or leaves these determinations to the students. Step 3, "hypothesize potential structures in bass and soprano," proposes multiple, well-formed structural patterns, first in the bass and then in the soprano, that lack hierarchical status. These patterns are perceived groupings of notes: in the upper voices, they are melodically fluent; in the bass, leaps can also be grouped together if the phrase model (<T-PD-D-T>) is inferred. This step corresponds to Marr's full primal sketch sub-stage, which includes boundaries and groupings.<sup>28</sup> Step 4, "evaluate structural hypotheses," assigns each pattern a probabilistic weight; it transitions to Step 5, "interpret the structural level(s) of each hypothesis and align outer voices." Step 5 corresponds to Marr's 2½-D stage, as both include some depth but only from the viewer's current perspective. Steps 6 and 7, respectively, include "notate the graph" (a long-standing Schenkerian convention)<sup>29</sup> and "describe,

<sup>27</sup>Marr, *Vision*, 52. This step in my model is more exhaustive than Pankhurst's Stage 1, which labels surface Roman numerals only, and Cadwallader and Gagné's imaginary continuo, which is overlaid with surface Roman numerals, figured bass, and structural harmonic functions (Tonic, Intermediate, and Dominant). See my Examples 2 and 3, as well as Cadwallader and Gagné, *Analysis of Tonal Music*, 66–68.

<sup>28</sup>Marr, *Vision*, 91–96.

<sup>29</sup>Kofi Agawu, "Schenkerian Notation in Theory and Practice," *Music Analysis* 8, no. 3 (1989): 276.

explain/interpret, or evaluate the graph,” a necessary transition to the final paper, Step 8, which uses the graph as evidence for a thesis. The intent of the 8-step model, while informed by a perceptual,

| Step Number | Learning Objective                                                          | Detailed Description                                                                                                                                                                                      |
|-------------|-----------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 8           | Use graph to further the thesis of a final paper                            | Use graph as evidence in a paper focusing on analysis, music history and culture, or theory                                                                                                               |
| 7           | Describe, explain/interpret, or evaluate the graph                          | Speculate on musical agency; infer compositional strategies; compare graph with other interpretations                                                                                                     |
| 6           | Notate the graph                                                            | Moving toward the foreground, interpret structural dependencies; decide notational strategies                                                                                                             |
| 5           | Interpret the structural level(s) of each hypothesis and align outer voices | Rank hypotheses by level; finish graphing deepest level; align outer voices at same level                                                                                                                 |
| 4           | Evaluate structural hypotheses                                              | list criteria supporting each hypothesis; consider choices for primary tone                                                                                                                               |
| 3           | Hypothesize potential structures in bass and soprano                        | Infer possible basslines, both melodically fluent and prototypical (T-PD-D-T); infer possible fluent soprano lines; sketch unambiguous sections of graph, in bass then in principal melody                |
| 2           | Discuss the opening assumptions of the graph                                | Assign students particular assumed interpretations in inner form, background structure, or prolongation techniques; or have them identify these on their own; find instances of techniques in other works |
| 1           | Collect foreground data                                                     | Do a foreground rhythmic reduction; identify tonal centers, surface Roman numerals, cadences, emphasized and cadential scale degrees, hypermeasures, surface formal units, surface non-chord tones        |

Example 4: A Cumulative, Eight-Step Hierarchy of Schenkerian Analytical Steps.

computational perspective,<sup>30</sup> is primarily pedagogical: it allows a teacher to slow down the presentation of graphing tasks, increasing the likelihood of success for weaker students.

The cumulative hierarchy is progressed through, at minimum, three times in my introductory Schenker course. As shown in Example 5, this course is organized into three units: one with simplified notation, a second with mainstream Schenkerian notation, and a third that moves on to more advanced topics and individual research. Framing the beginning and end of the course are discussions of the purpose of Schenkerian analysis. More specifically, Unit I introduces bassline reduction, soprano reduction, and their combination. The students practice reduction from excerpts in a variety of textures, culminating in the examination of passages from Bach's unaccompanied suites. Unit II covers prolongation types, Schenkerian structures, and notation; within this unit, I discuss how species counterpoint underlies Schenker's background structures. The class then practices reductions of various parallel interrupted periods (or other short forms) for four weeks, leading to a quiz and in-class midterm. Unit III covers advanced topics such as chromaticism, sequences, and types of inner form.

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<sup>30</sup>Marr, *Vision*, 24–27, defines a computational explanation as answering the “what” and “why” of a perceptual process: the tasks that must be performed for a person to gain knowledge of the outside world, not the representation of those tasks, their algorithms, nor the hardware that such tasks and algorithms are performed on. In this essay, the computational level (from his Tri-Level Hypothesis) is the only achievable one within the scope of a Schenkerian pedagogy. To begin to define algorithms, for instance within my Step 3 (structural patterns), would require a search procedure for melodically fluent lines, thus requiring the calculation of melodic distances between all notes of successive chords. Even this algorithm depends upon a prior harmonic analysis. Difficulties would thus accumulate.



Unit I: Simplified Notation

- Intro: why do Schenkerian analysis? What is the method's purpose?
- Bassline analysis (phrase model, prolongation)
- Principal melody analysis (melodic fluency)
- Coordination of bass and soprano (displacement, alignment)
- Practice reduction of well-known, short works
- Reduction of different textures
- Quiz 1 (bassline reduction)

Unit II: Schenkerian Notation and Graphing

- Prolongation types and notation (lacking non-chord tones, linear progressions, neighbors and others)
- Schenkerian structural types (Ursätze); derivation from strict counterpoint
- Schenkerian notation review
- Graphing practice with memory aids
  - Well-known works
  - New parallel interrupted periods
  - New works in other predictable forms
  - Quiz 2, Practice midterm, midterm (in-class)

Unit III: Advanced Topics, Research

- Chromaticism
- Sequences
- Inner forms (one-part, two-part, three-part, sonata)
- Individual research
- Conclusion: what do students believe Schenkerian analysis explains? What are its advantages? Disadvantages? How do they believe the method is useful?

Example 5: Design of *Introduction to Schenker* Class.

In Examples 6–10, I demonstrate classroom activities consistent with the cumulative hierarchy, using the well-known tune “Happy Birthday.” This tune is highly useful in an introductory Schenker course: it is short, is in the public domain in the United States (as of February 2016), contains memorable subphrases (three if one assumes a sentence form), and provides a light-hearted break from heavier classical fare.<sup>31</sup> The activities use simplified Schenkerian symbols, restricted to slurs, quarter notes with stems and beams, eighth notes for neighbor tones and predominant bass notes, and

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<sup>31</sup> “Happy Birthday” can be reused throughout a Schenker course to great effect. Out of a 16-week semester, all of the upcoming examples can be covered in the first three weeks of a course. The tune can then be mined for examples of prolongation techniques and full graphing techniques (around weeks 4–6), and then briefly for form-types (usually week 9 and after).

diagonal lines for temporal displacements. Simplified notation helps one teach less advanced students how to make competent reductions as early as three weeks into a course (Unit I).<sup>32</sup>

Step 1 in the cumulative hierarchy, “collect foreground data,” asks students to analyze a wide variety of foreground details, including tonal centers, Roman numerals, surface non-chord tones, thematic-motivic and formal labels (e.g., b.i. or “basic idea,” cont. or “continuation” of a sentence), cadences and tonal centers, cadential and emphasized scale degrees in upper voices, hypermeasures, and clues toward structural harmonic functions, such as beginning tonics and cadential V and I chords.<sup>33</sup> Listening to the tune, and performing different voices on solfège or scale degree numbers, will help students retain the data. Example 6 applies this step to “Happy Birthday,” including an imaginary continuo retaining the original registers of the bass and principal melody (following Cadwallader and Gagné). Most crucial, yet most neglected in published textbooks, is the labeling of scale degree emphases in the principal melody:  $\hat{5}$  in mm. 1 and 3 due to the upper neighbor  $\hat{6}$ , as well as  $\hat{7}$  and  $\hat{8}$  (mm. 2 and 4) due to subphrase ends.<sup>34</sup> As well, cadential scale degrees in the principal melody include the  $\hat{2}$ - $\hat{1}$  motion in mm. 7–8 during the final PAC. These emphases and cadential associations help students evaluate potential structures and avoid analytical circularity. All students should perform this step carefully.

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<sup>32</sup> This simplified approach to graphing contrasts with Proctor and Riggins’s insistence on presenting Schenkerian theory in its entirety before students attempt the analysis of works. See Gregory Proctor and Lee Riggins, “A Schenker Pedagogy,” *Journal of Music Theory Pedagogy* 3, no. 1 (1989): 1–24. It is not helpful to delay the analysis of works in a one-semester course. Further, if *Free Composition* is used as a textbook (as they advocate on p. 7), Schenker’s theory is presented starting with the background, thereby favoring top-down over bottom-up considerations (both are essential).

<sup>33</sup> The labels of basic idea, continuation, and sentence are defined in William Caplin, *Classical Form: A Theory of Formal Functions for the Music of Haydn, Mozart, and Beethoven* (New York: Oxford University Press, 1998), Ch. 3.

<sup>34</sup> I avoid the term “soprano melody” since the soprano voice (called a “descant” by Forte and Gilbert, *Introduction*, 68 to imply a degree of registral freedom) is melodically fluent; in contrast, the “principal melodic line” (in this essay) typically unfolds two or more fluent lines as a compound melody.

The image shows a musical score for "Happy Birthday" with Schenkerian analysis annotations. The score is in 3/4 time, key of F major. The first system shows measures 1-4 with annotations: b.i., ^5, ^7, b.i.', ^5, ^8, continuation. The second system shows measures 5-8 with annotations: ^5, APT, ^2, ^1, I: PAC. Below the staff, Roman numerals and figured bass are provided: F: I Beg. T, V, V6 5 3, I. The second system includes IV Cad. PD, ii:06, V6 8 7 5 3, I Cad. T, and Cad. D.

Example 6: (Step 1) Foreground Analysis of “Happy Birthday.”

Step 2, “discuss opening assumptions of graph,” involves having the class assume a particular inner form, or type of Urlinie (typically either a  $\hat{3}$ - or  $\hat{5}$ -line).<sup>35</sup> The choice of inner form or fundamental structure typically involves a degree of subjective interpretation; its recognition, though, is essential since it serves as a metaphorical container for the analysis, conditioning the placement and types of embellishing tones. Students and instructors often react differently to music: for instance, they may not agree upon a single inner form. To arrive at a common interpretation, it is most efficient, and not a detraction from the building of graphing competency, to assume an inner form. When students are familiar with Schenker’s fundamental structures and mappings between simple outer and inner forms (usually by the third unit of my course), they can determine inner forms on their own. Within such constraints, there are still questions of interpretation to maintain students’ interest, such as the choice of primary tone ( $\hat{3}$ ,  $\hat{5}$ , or  $\hat{8}$ ), or the location of that tone within the work’s outer form. In “Happy Birthday,” useful assumptions include the restriction of the background soprano line to a  $\hat{3}$ - or  $\hat{5}$ -line, the supporting <I-IV-V-I> progression, and a one-part inner form.

Steps 3 and 4 translate foreground data into a comparison of different potential analyses. Example 7 (a, b) demonstrates these

<sup>35</sup> Similarly, Proctor and Riggins have students look for works with a given structure or technique (Proctor and Riggins, “A Schenker Pedagogy,” 7–8); Damschoder, *Tonal Analysis*, organizes several chapters around top-down, structural patterns, e.g., the descending  $\hat{3}$ -line Ursatz and PAC in Ch. 1.

two steps in the bass; Example 8 (a, b) demonstrates them in the principal melody. Note the use of horizontal lines, each highlighting a melodically fluent, potential structural voice.<sup>36</sup> (I sometimes ask each student in the class to contribute one or two melodically fluent notes, allowing all to participate.) Colors also help in disentangling possible structural melodies (in this essay's greyscale examples, textures are substituted).<sup>37</sup> The bass analysis begins with students mapping out the beginnings and ends of Tonic expansions (I or I<sup>6</sup>), structural harmonies, contrapuntal bass motions within expansions, and embellishing chords. As shown in Example 7a (Step 3), mm. 1–4 may be interpreted in two ways: (1) as the solid line shows, as a lower neighbor embellishment of F3 (via the pitch E3), which then implies a lower-level arpeggiation between C3 and E3; or (2) as the squiggly line shows, an arpeggiation of the tonic through V, which is itself elaborated through arpeggiation between C3 and E3. (Unambiguous events, such as the beginning Tonic harmonies and the tune's cadence, are graphed at this point, as shown in Example 7a.) In Step 4, as shown in Example 7b, each candidate pattern is then analyzed for its degree of melodic fluency, emphasis (whether by accent, restatement, neighbor decoration, occurrence in an outer voice, or placement at a formal boundary), consonant support, and prototypicality (melodic, contrapuntal, formal, or structural). The arpeggiated (squiggly) path aligns with the fluent soprano line <F-E-G-F> in mm. 1–4, and with the onsets of V in m. 2 and I in m. 4; in the other (solid) path, the E3 pitch in m. 3 (beat 1), as part of an inverted V, is typical of the presentation of a sentence (in which cadences are weak or absent), and is metrically accented as the third measure of a 4-bar hypermeasure. The third and fourth steps have proven necessary in my course, albeit as the focus of only 2–3 class demonstrations. Teachers could consider incorporating these steps in a fill-in-the-blank task to be completed outside of class. The visual clarity of the two steps, the relative ease of the first, and their robust effect on graphing ability recommend them to all students.

<sup>36</sup> Similarly, in Cadwallader and Gagné, *Analysis of Tonal Music*, 66–68, arrows show the most fluent connection between chord tones. This valuable step, which points toward my Step 3, is unfortunately not applied to other voices, nor in the rest of their text.

<sup>37</sup> This is a step that has yet to be acknowledged fully in a Schenkerian textbook. It is similar in spirit to Lerdahl and Jackendoff's cognitive approach (*A Generative Theory*, 8–11), which progresses from hypotheses (well-formedness rules) to a selected structure (preference rules).

(a) Hypothetical Bass Structures Displayed with Lines (Step 3).

- **Arpeggiation View of mm. 1–4’s bass (squiggly):**
  - C3 in m. 2 aligns with E4 in soprano and onset of V
  - F3 in m. 4 aligns with F4 in soprano and onset of I
  - Soprano line has greater variety than static <C-C-C> line supported by lower neighbor view
- **Lower Neighbor View of mm. 1–4’s bass (solid):**
  - E3 in m. 3 is metrically accented
  - Inverted V chord in m. 3 expected in sentence presentation
- **Remainder of Bass (mm. 5–8):**
  - <I<sup>6</sup>-IV-V<sup>6/4-5/3</sup>-I> normative pattern

(b) Determine How Alternative Bass Structures are Preferred (Step 4).

Example 7 (a–b): Propose, then Evaluate Hypothetical Structures in the Bass (Steps 3–4).

In the principal melody (Example 8a), melodically fluent patterns are traced from each plausible note of the beginning, F major Tonic triad; so too are patterns that arrive on the upper-voice  $\hat{1}$  in the final cadence. All violations of melodic fluency are noted and weighed: e.g., could students accept the melodic third in mm. 2–3 (<E4-G4>), or the octave jump in mm. 4–5 (<C4-C5>) within the same line? In the beginning of Example 8a, two contending lines emerge, one starting on C4 in m. 0 and drawn

solid ( $\hat{5}$ ), the other on F4 in m. 1 and drawn dashed ( $\hat{1}$  or  $\hat{8}$ ). The solid line starting on C4 disintegrates by m. 6 on B $\flat$ 3; on the other hand, C4 is emphasized in mm. 1 and 3 at the beginnings of the two subphrases, is embellished by upper neighbor D4, and is an octave from the climax tone of C5 in m. 5 (i.e., they are the same pitch class).

What about the dashed line starting on F4 in m. 1 ( $\hat{1}/\hat{8}$ )? It has numerous advantages: emphases on E4 and F4, respectively (mm. 2 and 4), which align with the onsets of V and I; it is higher in pitch than the C4 line in mm. 1–4; it is more interesting than the static reiterations of C in the C4 line; and the structural note of F4 is only a fifth below the climax, C5. Nevertheless, it vanishes into an inner-voice A3 in m. 8. Since neither opening linear gambit has succeeded in reaching the cadential  $\hat{1}$ , we next work backwards from the final  $\hat{2}$ - $\hat{1}$  in mm. 7–8: sticking to the squiggly line, there is a  $\hat{3}$  in m. 7, a  $\hat{4}$  in m. 6, and a  $\hat{5}$  in m. 5. C5 is thus the tune's primary tone since the descent by fifth is a prototypical Urlinie, but we need to link this fifth progression in some way to the initial section of the piece. Do we join the prolonged  $\hat{5}$  (solid) to  $\langle \hat{5}-\hat{4}-\hat{3}-\hat{2}-\hat{1} \rangle$  (squiggly), or  $\langle \hat{1}-\hat{7}-\hat{2}-\hat{1} \rangle$  (dashed) to  $\langle \hat{5}-\hat{4}-\hat{3}-\hat{2}-\hat{1} \rangle$  (squiggly)? Based on the evidence given in Example 8b, the C5  $\hat{5}$ -line is most structural, followed by the F4 line and then the C4 one. As a result, beginning students of Schenker might understand the F4 that is prolonged in mm. 1–4 (dashed line) as arpeggiated up to C5 (squiggly) in m. 5.<sup>38</sup> Likewise in the bass (mm. 1–8, shown in Example 7b), the class has identified the overall  $\langle I-IV-V^7-I \rangle$  motion as most structural, followed by the arpeggiated line in mm. 1–4 ( $\langle F-C-F \rangle$ ), and then the lower neighbor line in the same bars ( $\langle F-E-F \rangle$ ). We have thus begun Step 5 of the cumulative hierarchy, "interpret the structural level(s) of each hypothesis." Noting that the opening F3 in the bass (m. 1) aligns (via a normalized displacement) with the primary tone of C5 (m. 5), a single Ursatz is conceptualized as a top-down "container" for the entire tune. A student would now be ready to graph the background level. In the principal melody, the F4 line needs to be viewed overall as prolonging the notes of the C5 line; also, events from the C4 line need to prolong events from the F4 line. (Many works, however, will have more complex relationships between their candidate voice-leading lines.)

<sup>38</sup> Since the class is using basic notational symbols at this point, certain well-known voice-leading transformations are unavailable. Later in the course, however, the  $\langle F4-C5 \rangle$  interval will be viewed as an unfolding of a perfect fifth and an initial, arpeggiated ascent to the C5 primary tone.

(a) Hypothetical Soprano Structures Displayed with Horizontal Lines (Step 3)

- C4 Line Advantages (solid):
  - Beginning emphasis on C4
  - Upper neighbor embellishment of C4
  - Is an octave from C5 climax in m. 5 (same pitch class as C5)
- F4 Line Advantages (dashed):
  - Attack points align with new harmonies
  - E4 and F4 ( $\hat{7}$  and  $\hat{8}$ ) are emphasized
  - Is higher in pitch than C4 line in mm. 1–4
  - Soprano line of <F-E-G-F> has greater variety than C4 line's repeated C's
  - Is a fifth below climax of C5 (shorter distance than octave)
- C5 Line Advantages (squiggly):
  - Is highest in pitch for all lines
  - C5 in m. 5 emphasized metrically, is climax of phrase
  - Contains cadential degrees  $\hat{2}$  and  $\hat{1}$

b) Determine How Each Soprano Structure Is Preferred (Step 4)

Example 8 (a–b): Propose, then Evaluate Hypothetical Structures in the Soprano Melody.

Step 6 is demonstrated in Example 9, a multi-layered graph combining background, middleground, and foreground levels. This graph uses simplified notation: unstemmed noteheads for foreground events; quarter notes with beams for structural notes; solid slurs for all prolongations; diagonal lines for rhythmic



displacements; and eighth notes for neighbors.<sup>39</sup> Simplified notation disentangles reduction from notation, thus leading to better graphing outcomes at early stages. At this point, the student must interpret prolongational techniques working from large to small: analyzing the C5 line, then the F4 line in relation to it, then the C4 line, until all events—at all levels—are explained: in the principal melody, common tones or leaping motions within the same chord are arpeggiations, whereas stepwise motions (depending on context) imply passing or neighbor relationships.<sup>40</sup> The student must then notate these relationships with enough detail to explain every note, but avoiding a cluttered appearance. In Example 9, the Ursatz-plus-predominant background is indicated using an encircled “1,” the first level of the middleground within encircled “2’s,” and the second level of the middleground with “3’s;” all other levels toward the foreground lack numbers (in the classroom, I use colors, with red as most structural).<sup>41</sup>

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<sup>39</sup> Other simplified approaches to reductive notation include Steve Larson, “Strict Use of Analytic Notation,” *Journal of Music Theory Pedagogy* 10 (1996): 37–78, which uses only noteheads, stems, and slurs; and Steven Laitz, *The Complete Musician: An Integrated Approach to Theory, Analysis, and Listening*, 4<sup>th</sup> ed. (New York: Oxford University Press, 2016), 152: quarter notes with beams, filled noteheads only, eighth notes for neighbors, and slurs for neighbor dependencies, linear progressions, and arpeggiations.

<sup>40</sup> Larson provides a helpful classification of prolongational types in “Strict Use,” 43.

<sup>41</sup> Students are less likely to confuse levels if they are asked to label each within a graph. In general, however, teasing apart and listing vertically the maximum number of possible levels can become a fruitless task. Other instructors, nevertheless, may wish to separate levels visually onto multiple staves. Although “Happy Birthday” is short enough that a multi-level graph of it will not overwhelm students, longer works may demand separate graphs, at least on the levels of background, middleground, and foreground.

Example 9: A notated graph within Unit I (Step 6).

Following the completion of the graph, Step 7 allows the class to describe, explain, and evaluate it. In this step, the instructor asks open-ended, then more specific questions to stimulate class discussion, or poses the questions in a collaborative homework assignment or on a group worksheet. “Explanations” differ from “descriptions:” a description reports features of a graph neutrally, whereas an explanation attempts to show the “why” for its features or resulting musical intuitions.<sup>42</sup> Explanations may be strengthened by intuiting musical agents, which may help ferret out causal relationships within a work and place them within an overarching narrative.<sup>43</sup>

<sup>42</sup> For instance, Cadwallader and Gagné (*Analysis of Tonal Music*, 168) describe a graph when they begin a sentence with “The graph shows...” Note the use of clinical, neutral language aiming to downplay subjectivity. In its entirety, the sentence reads as follows: “The graph shows that a foreground line D-C-B shapes the path of the upper voice in bars 1–4, foreshadowing the later descent to the tonic.”

<sup>43</sup> One instance of explanation via a musical agent is found in Cadwallader and Gagné (*Analysis of Tonal Music*, 173), who note a “remarkable” motivic parallelism in Beethoven’s Piano Sonata, Op. 31, no. 1, mm. 1–8: “as Beethoven approaches the cadence...” and “fostering motion in the drive to the cadence.” Their language here implies a motive and Beethoven as causal agents, so as to make intuitions suggested by their analysis more vivid. For a comprehensive study of the different forms an agent may take ((1) individual musical elements such as themes, (2) the “persona” of the work, (3) the fictional composer,

An “evaluation” weighs the merits of various aspects of a Schenkerian analysis—coherence, musicality, perceptions of the work resulting from it, and aesthetic fallout being just four—so as to encourage students’ critical thinking. A fruitful classroom exercise is to debate different structural interpretations of a work: is a particular analysis accurate, complete, conceptually consistent, and musically insightful? After group work, the teacher may compare graphs from different groups, teasing out differences and asking the class to reply (after a performance of each analysis) if they can “hear” a given one, and whether they find one to be most compelling.<sup>44</sup> Students are thereby empowered to ask and answer their own evaluative questions.

Consider a focused, evaluative question on “Happy Birthday:” “Compare a  $\hat{3}$ -line analysis of “Happy Birthday” to a  $\hat{5}$ -line. Why is the  $\hat{3}$ -line less effective? In your answer (5–6 sentences), describe at least two differences between the two readings.” The teacher provides a graph of a  $\hat{3}$ -line at this point (Example 10). This Step 7 activity resembles an error detection since the student is forced to critique the  $\hat{3}$ -line, in its claims of foreground emphasis, its simplicity or complexity, its logical coherence (or lack thereof), and the degree of normativity in its outer-voice counterpoint. In answering the question, students might note how  $\hat{3}$  in m. 5, the proposed primary tone, occurs on beat 2, a weak beat; how this primary tone is introduced by a superposition (C5); how A4 is not present in the soprano in mm. 1–4; and how contrary octaves are present in mm. 4–5 (F to A), and parallel octaves in mm. 5–6 (A to B $\flat$ ). At this point, the teacher should remind students that Schenkerian theory is an adaptation of species counterpoint, since the poor counterpoint of the outer voices is decisive in rejecting Example 10. We thus allow theoretical issues to arise from debates

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and (4) the analyst), see Seth Monahan, “Musical Action and Musical Agency,” *Journal of Music Theory* 57, no. 2 (2013): 321–371.

<sup>44</sup>Segall calls the progression of activities leading from individual work, to the pinpointing of different analyses in group work, to an overall class discussion of interpretations, the “You, Y’all, We” model of a flipped classroom. See Christopher Segall, “You, Y’all, We: A Framework for Collaborative Learning,” *Engaging Students: Essays in Music Pedagogy* 3 (2015), <http://flipcamp.org/engagingstudents3/essays/segall.html>, accessed June 19, 2017.

over the analysis of repertoire.<sup>45</sup> Instructors can offer hints about the locations of the errors, or rephrase questions to be narrower in scope if discussion is not immediately forthcoming. (The pedagogy of the term paper, as corresponds to Step 8, is beyond the scope of this essay.)

Example 10: A 3-Line, Alternative Analysis for Classroom Discussion (Step 7).

Overall, in comparison with previous reductive routines, my cumulative hierarchy maps onto a well-known, fruitful model of visual perception, progresses methodically toward a completed graph, addresses ambiguities in hierarchical interpretation, and increases gradually in complexity. I will now return to three specialized challenges that Schenkerian analysis presents the beginner: *foreground data collection*; *long-term memory*; and *hierarchical ambiguity*.

(1) **Foreground Data Collection:** since foreground data of necessity informs hierarchical judgments, all students should be reminded to collect it thoroughly and intentionally to avoid circular or arbitrary analyses. Foreground analysis appears at times in Schenkerian textbooks, but it is sometimes disconnected from hierarchical concerns. Aspects of foreground analysis, including elementary Roman numeral analysis and cadence identification, are discussed in core theory texts such as Aldwell, Schachter, and Cadwallader,

<sup>45</sup> A similar point is made in Cadwallader and Gagné, "The Spirit and Technique," 49–52.

and in Laitz, typically from a Schenkerian perspective: these can be incorporated into weeks 1–2.<sup>46</sup> Schenkerian texts also discuss harmonic functions, distinguishing structural harmonies (Tonic, Dominant, and Intermediate or Predominant) from contrapuntal chords (e.g., vii<sup>06</sup>), a topic that I cover in week 1 of my course.<sup>47</sup> These texts, however, neglect to label salient and cadential scale degrees in the principal melody, an activity that informs (more than any other) the selection of the Urlinie's tones. Foreground emphasis may be due to metrical and durational accent, the repetition of a scale degree, the decoration of a note by neighbor tones, occurrence in an outer voice, or placement at the beginning or end of a formal unit. (Of course, an isolated emphasis—say, a metrical downbeat—need not indicate a structural event on its own.) In general, time spent on foreground analysis is not wasted if a linear perspective is present: in fact, it may be essential if students are struggling to identify surface harmonies. To translate a foreground harmony into a linear one most easily, convert it into its associated scale degree (or moveable-do solfège) in the bass. My Schenker course thus not only starts with a brief review of Roman numeral and figured bass analysis, but also uses the solfège syllable of a bass note to predict the most likely Roman numeral and figured bass: in easy cases (for instance, where  $\hat{1}$  is in the bass), the likely Roman numeral (I chord) can be rapidly identified; in less prototypical cases (e.g., a diminished seventh chord above  $\hat{2}$  in 6/5 position), the chord can be identified

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<sup>46</sup> Edward Aldwell, Carl Schachter, and Allen Cadwallader, *Harmony and Voice Leading*, 4<sup>th</sup> ed. (Boston: Schirmer and Cengage, 2011); and Laitz, *The Complete Musician*.

<sup>47</sup> See Forte and Gilbert, *Introduction*, Ch. 5 and Cadwallader and Gagné, *Analysis of Tonal Music*, Ch. 3.

through longer, slower calculation—thus vii<sup>06/5</sup>. Other Schenkerian pedagogues agree on the importance of the foreground in graphing.<sup>48</sup>

(2) Long-Term Memory: my students in 2014 repeatedly balked at starting a new graph, noting that they did not know where to begin, and showed anxiety at the prospect of creating a graph during an in-class quiz. Such experiences imply that a musician's long-term memory is strongly challenged by the Schenkerian method. For beginners, who have limited time to absorb the approach, the reuse of well-known works reinforces long-term memory and prevents backtracking to foreground topics, which quickly become uninteresting.<sup>49</sup> Another helpful technique is the use of temporary memory aids that allow students to master the method more quickly. Such memory aids could contain, for instance, lists of prolongational techniques presented in prototypical format (in the key of C major), normative tonic prolongations, and so on. In my course, memory aids are used in the second unit (weeks 6–8) as students begin graphing short excerpts from works, usually parallel interrupted periods. (The memory aids may be used during all group work, homework, and exams.)

One such published memory aid is Cadwallader and Gagné's summary of chord prolongations (not shown).<sup>50</sup> Their summary, however, is too loosely organized to serve as a ready reference during an exam. They place neighbor prolongations ahead of passing ones, despite Schenker's clear preference for linear progressions (i.e., passing tones) over neighbor complexes;<sup>51</sup> the keys change

<sup>48</sup> Forte and Gilbert, *Introduction*, 387; William Rothstein, "The Americanization of Schenker Pedagogy?" *Journal of Music Theory Pedagogy* 4, no. 2 (1990): 296–297; Carl Schachter, "Either / Or," in *Schenker Studies*, ed. Hedi Siegel (Cambridge: Cambridge University Press, 1999), 168.

<sup>49</sup> Additional works that I reuse include mm. 1–8 from "Greensleeves" (also covered in Cadwallader and Gagné, *Analysis of Tonal Music*, 39) and mm. 1–8 from Beethoven's "Pathétique" Piano Sonata, Op. 13/ii. In both, inner forms are specified by the instructor before students begin graphing.

<sup>50</sup> Cadwallader and Gagné, *Analysis of Tonal Music*, 68–72.

<sup>51</sup> Schenker, *Counterpoint*, transl. John Rothgeb and Jürgen Thym and ed. John Rothgeb (Ann Arbor: Musicalia Press, 2001), 178–179 views the passing tone as more natural than the neighbor in second-species counterpoint; and Schenker, *Free Composition*, transl. and ed. Ernst Oster (New York: Longman, 1979), 42 restricts neighbors at the first level of

between different techniques; and the techniques are notated using foreground rhythms instead of Schenkerian graphing symbols. How might this summary be refined into a memory aid useful in an in-class graphing exam? One with more robust Schenkerian symbols would be beneficial.<sup>52</sup> Furthermore, each prolongation type could be shown in C major on a single page, in a simplified texture of 1–2 voices, and with structural levels labeled (in my course, using a variety of colors).

The result was my “Table of Schenkerian Graphing Symbols” (Example 11), a memory aid used in the graphing of tight-knit, parallel interrupted periods by Haydn or Mozart. As shown in Example 11, it presents prolongational techniques and associated graphing symbols in their simplest forms. Note the encircled numbers (1 for background; 2 for deep middleground; and 3 for the second level of the middleground), which are substituted for in my course by colors (red, yellow, and green). Working downwards, the *Ursatz* (or *Ursatz* parallelism), without and then with predominant, is shown in Nos. 1–2: its events are labeled with an encircled “1.” Besides having structural levels labeled, each prolongation technique is given in C major in a single staff: in No. 3, prolongations limited to harmonic tones; in No. 4, prolongations with passing tones; in No. 5, those with neighbors; and in No. 6, compound situations mixing different types. (No. 7 shows additional situations that are not classifiable by type of non-chord tone.) Types of chromaticism (tonicization, mixture) and sequences are withheld until a student masters the simpler graphing of diatonic units of no more than two phrases (by about week 8); so too are cover tones, which usually unfold across an entire work.<sup>53</sup> After being given initial and later versions of the Table, both the 2014 and 2016 classes successfully completed their midterms. Errors tended to be relatively insignificant: crossing branches (overlapping prolongations) and confusions between structural levels, often due to an overzealous use of slurs.

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the middleground to upper neighbors; linear progressions, though, may descend or ascend (43–46).

<sup>52</sup> On pp. 384–402, the authors have a very clear appendix devoted to notational symbols, of which many examples are in C major. This appendix, however, is more of a detailed reference than a quick memory aid.

<sup>53</sup> Schenker, *Free Composition*, 107.



**Table of Schenkerian Graphing Symbols**

Background: highest ①  
Middleground: next down, ② then ③  
Foreground: lowest level (no number)

**1. Ursatz**  
Primary Tone ① (all) 1 V I Urlinie Bass Arpeggiation

**2. Bass Arpeggiation plus Predominant**  
① (all) Beg. T Cad. PD Hooked Slur Cad. D Cad. T

**3. Prolongations With Only Harmonic Tones**  
Arpeggiation Unfoldings ① ② Repetition (Retention Slur) ① (all)

8ve Coupling Obligatory Register ① ② I V Voice Exchange ① ②

**4. Prolongations With Passing Tones**  
Linear progressions Motion into an Inner Voice Alternate Notation Primary Tone Superposition inner-voice tone

**5. Prolongations With Neighbor Tones**  
Neighbor Tone Double Neighbor Incomplete Neighbor

**6. Compound Prolongations**  
Initial Ascent Anstieg Motion From an Inner Voice Arpeggiated Ascent Reaching-Over ① ② ③ (from inner voice)

**7. Other Symbols**  
Interruption (Equal Two-Branch Notation) ① (all) 1st Branch Dividing Dominant 2nd Branch Substitution (Implied Tone) ① ② ③ ^7 replaces ^2 Displacement Symbol ① (all) 6 5 V4 4 3

Example 11: Table of Schenkerian Graphing Symbols as Used in Weeks 4–8.

(3) Hierarchical Ambiguity: whether of non-chord tone types, boundaries of prolonged harmonies, or inner form, hierarchical ambiguity is unavoidable in the process of graphing. Scholars have tended to claim that one analytical path through a forking of alternatives will be “the best answer,” a stance that has informed



Schenkerian pedagogy.<sup>54</sup> A focus on “correct” interpretations, however, can be pedagogically ineffective as it tamps down on the diversity of viewpoints in a class, thereby stifling debate. A cognitive and perceptual approach solves this problem: it explains the slippery, holistic intuitions of the method as ranging from definite to equivocal. Multiple criteria supporting one analysis lead to definite intuitions, mixed criteria to equivocal ones. According to this view, a final analysis must be preceded in the mind of the analyst by an evaluation of multiple analytical choices, each of which is assigned a weight (ideally represented by a probability).<sup>55</sup> Similarly, my cumulative hierarchy identifies hypothetical structures (Step 3) and then evaluates them (Step 4). For beginning students, these steps would seem essential: they reconstruct the process of graphing from foreground to notation; and the consideration of multiple choices promotes students’ critical thinking abilities. The teacher of Schenkerian analysis must thus help students propose and make analytical choices. Two strategies for refining them follow: (1) evaluating two or more analyses of a work (Step 7); and (2) telling the students when to override their perceptions or habits with top-down theoretical assumptions. (1) has been discussed previously; (2) requires more comment. Normative procedures within Schenkerian theory may, on occasion, contradict students’ perceptions, violate “common sense,” or seem arbitrary. The preference for descending over ascending passing motion, which underlies the claim that Ursätze are backgrounds, will need to be explained to students since it is not obvious why  $\hat{2}-\hat{1}$  in a PAC is more “relaxed” than  $\hat{7}-\hat{8}$ , nor why  $\hat{2}$  should “stand for” (or substitute for)  $\hat{7}$  (both are

<sup>54</sup> V. Kofi Agawu, “Ambiguity in Tonal Music: A Preliminary Study,” in *Theory, Analysis and Meaning in Music*, ed. Anthony Pople (Cambridge: Cambridge University Press, 1994), 86–107 limits ambiguities to “50/50” choices; Schachter, “Either/Or,” 169 argues that ambiguities are sharply circumscribed by aspects of design; Cadwallader and Gagné (*Analysis of Tonal Music*, 110) say: “one path...usually serves as the best higher-ranking line...”

<sup>55</sup> Lerdahl and Jackendoff, *A Generative Theory*, 336n2, propose a model of preference rules (a probabilistic approach of selecting different analyses with different weights) as formally describing intuitions of variable strength; Chapters 8–9 apply the preference rule model to the concept of prolongation (which they interpret as an intuition of relaxation). For an examination of Schenkerian analysis from the perspective of probability, see David Temperley, *Music and Probability* (Cambridge: Cambridge University Press, 2007), 172–179.

melodically fluent).<sup>56</sup> Similarly, Schenker allows upper, but not lower neighbors at the first level of the middleground, claiming that a lower neighbor implies an interruption.<sup>57</sup> Both assumptions, seemingly arbitrary in certain situations, are necessary for defining the first middleground level, and thus should be discussed at the same time as Step 5 (the interpretation of structural levels for each hypothetical line). The strategy of intervening with top-down, theoretical assumptions, providing a recurring motif in Damschroder's forthcoming textbook,<sup>58</sup> should help students arrive at their analyses more quickly and confidently.

## PART II: CLASSROOM APPLICATIONS OF THE CUMULATIVE HIERARCHY IN UNIT II

I adapt the cumulative hierarchy to Unit II (weeks 5–8) of my course by having students practice, repeatedly, the graphing of parallel interrupted periods using full Schenkerian notation; throughout the unit, their recall is helped by glancing at the Table of Graphing Symbols as they work. Each homework or in-class assignment is practice for the upcoming midterm; subsequent class discussions focus on graphing mechanics over expressive interpretation and more mechanical aspects of the foreground (e.g., surface Roman numerals). In this section, I demonstrate the cumulative hierarchy on mm. 1–8 from Mozart's Piano Sonata, K. 545/iii, one of the more challenging parallel interrupted periods used in Unit II. This excerpt is useful since a  $\hat{5}$ -line structure, as implied in the first phrase, appears to fizzle out in the second phrase, forcing students to recheck their total voice-leading analysis (Step 3) and distinguish their structural soprano from displaced inner voices. Class time is structured by carefully designed handouts, to be completed individually or collaboratively. Example 12 shows a sample: at its top is a foreground score with expressive information omitted and some Roman numerals already labeled; emphasized or cadential scale degrees are hinted at; and spaces are given below each system for missing Roman numerals. (In the Mozart excerpt, the initial pickup is considered measure "0.") In the middle of the

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<sup>56</sup> In Schenker, *Free Composition*, 13n5, Ernst Oster discusses why ascending forms of the fundamental structure are prohibited.

<sup>57</sup> Schenker, *Free Composition*, 42.

<sup>58</sup> Damschroder, *Tonal Analysis*.

handout, all note stems and immediately repeated notes are reduced out: here, the student draws colored lines to explore the total possible voice leading. (The absence of unfilled noteheads makes students identify the Ursatz on their own.) Students are then asked to list at least two criteria in favor of each view ( $\hat{5}$ -line or  $\hat{3}$ -line) of the principal melody. (The bass is not especially ambiguous here, so its total voice-leading is not pursued in ensuing examples.) At the bottom of the handout, students develop their finished, multi-level graph, using standard Schenkerian notation and colors for structural levels.

**Mozart K. 545/iii Practice Test**  
 (assume parallel interrupted period)

**1. Foreground Analysis**

Emph.: \_\_\_\_\_ cadence: \_\_\_\_\_

(I) vi ii<sup>6</sup> V I<sup>6</sup> IV ii<sup>6</sup> V (I)

**2. Structural Hypotheses (soprano): start on G5 and E5 (m. 0)**

**Criteria for 5-Line:**

- 1.
- 2.

**Criteria for 3-Line:**

- 1.
- 2.

**Rank Structural Candidates (circle backgr.):**

|        |        |
|--------|--------|
| 5-Line | 3-Line |
|--------|--------|

**3. Final Graph** (use different colors for background and first level of the middleground)

Example 12: Mozart's Piano Sonata, K. 545/iii, mm. 1–8: A Sample Practice Test on a Parallel Interrupted Period.

The analysis of this excerpt in Unit II is intended to build, and then assess, students' individual graphing ability. In my class, I would start with an open discussion of Steps 1–2 (up to the discussion of an excerpt's assumed form or structure), have students work unassisted on Steps 3–6 (up to the notated graph), and then, if they were to produce a successful analysis,

end with an evaluative class discussion including a list of needed improvements. Before graphing begins, the foreground analysis (Example 13) reveals generally unproblematic Roman numerals and structural harmonies, allowing the class to focus on later steps of the cumulative hierarchy. Emphasized scale degrees in the principal melody include three prominent onsets of  $\hat{5}$ , with *two* upper neighbors (mm. 5 and 6) preceding the last one in m. 6, and a slightly lesser emphasis on  $\hat{4}$  in m. 3. The HC in m. 4 has an associated scale degree in the principal melody of  $\hat{7}$ ; the PAC in mm. 7–8 has associated scale degrees of  $\hat{2}$ – $\hat{1}$ , with  $\hat{2}$  emphasized by its leading-tone C#.

**Antecedent**

b.i.  $\hat{5}$  m. 0 C: (I) vi ii<sup>6</sup> V I<sup>6</sup> IV<sup>5</sup>—6 (ii) ii V (I) Beg. T Cad. PD I: HC  $\hat{7}$   $\hat{5}$

**Consequent**

UN  $\hat{5}$  vi ii V I UN  $\hat{5}$   $\hat{5}$   $\hat{2}$  ii<sup>6</sup> V<sup>7</sup> I I: PAC  $\hat{1}$  Cad. PD Cad. D Cad. T

Example 13: Foreground Analysis of Mozart's K. 545/i, mm. 1–8 (Step 1).

Next, in Step 2, only one basic assumption is necessary: each phrase begins on an implied root-position I in the bass. Although the harmonic support for I in m. 0, beat 2 and m. 4, beat 2 is missing in the bass, and mm. 1 and 5 announce salient vi chords, a graph beginning each phrase on vi encounters difficulties: (1) explaining the opening G5 pickup as the seventh of vi; and (2) parallel fifths between the V in m. 4 (G/D) and the coming vi in m. 5 (A/E). A tonic chord starting each phrase, then, seems preferable.

Skipping Step 3 in the bass, in Example 14 (a–c) the soprano melody's reduction is explored, evaluated, and then, once structural levels are decided, converted into notation and aligned with the

structural bass (Steps 3–6). Tracing lines starting with the opening I chord (Example 14a), in the first phrase a solid line begins on G5 in m. 0: it moves to F5 and E5 in mm. 1–2, but in measure 3 one faces a choice between D5 or F5 (the ambiguity is shown using dashed lines). More choices arise moving into m. 4, and approaching the HC: does F5 move to D5, does D5 stay put, or does D5 move down by third to B4? (The melodic A4 in m. 3 arises from an inner voice of G3 in m. 2 and is never in contention as part of a structural melody.) A squiggly line may also be traced starting on E5 in m. 1: this line proceeds by step to D5 and C5 in m. 2, and then back to D5 as part of a 5–6 shift in m. 3. Although the solid and squiggly lines are both emphasized, the former as the beginning of the b.i. of <G-G-E> in mm. 0–1, the latter as its end, the solid line (<G-F-E-D>) is preferred since it has a higher starting pitch and descends fluently to D5 in m. 3. In the second phrase, the solid G5 line presents a choice: either it toggles between G and A (upper neighbor of G) in mm. 4–6, or it descends to F5 and E5. The first path fizzles out, with the solid line stranded in m. 7 on F5; the descent through F5 (m. 5), however, reaches  $\hat{1}$  (m. 8) by step. Although the E5 squiggly line in the second phrase moves to the emphasized D5 in m. 7, and then to the cadential C5 in m. 8, the E5 line had never previously received G5's level of emphasis, and thus the squiggly line is not in contention with the solid one.

As summarized in Example 14b, the G5  $\hat{5}$ -line emerges as most compelling since it has the highest starting pitch, and in the second phrase, it is supported by *two* upper neighbors in mm. 5–6. There are costs to the G5 view: there is similar motion to the octave in mm. 1–2 (G/F to E/E), whereas the E5 view begins with a simple voice exchange (C/E in m. 1 to E/C in m. 2). However, the E5 line never attains the G5 line's degree of emphasis. At this point, the class will probably settle upon a 5-line interpretation. The G5 interpretation, nonetheless, may seem counterintuitive since one has to override the fluent motion of <G5-A5> in mm. 4–5, instead preferring <G5-F5>. To prepare for the midterm, though, each student should be urged to decide upon a single interpretation (5-line) and pursue its consequences for structural levels (Step 5). In this step (Example 14c), the G5 solid line, within an interrupted, two-part inner form (interpreted here as two equal branches), is associated with the background, except for various paths that lie closer to the foreground, for instance, the motion to an inner voice (<D-C-B>) in mm. 3–4 and the upper neighbors (A5) in mm. 5 and 6, which are

The image shows two musical staves. The top staff is in treble clef and contains a melodic line with various ornaments and accidentals. Above the staff, the text "G5 Line (solid)" is written. Below the staff, there are several annotations: "E5 Line (squiggly)" with a squiggly line, "C to D (squiggly)" with a squiggly line, and "E to D or F? (dotted) F-D? D-B?" with a dotted line. The bottom staff is in bass clef and contains a melodic line with various ornaments and accidentals. Above the staff, the text "G to A or F? (solid)" is written. Below the staff, there are several annotations: "G5 Line fizzles?" with a squiggly line, "1!" with a circled 1, and "ii6" with a circled 6. The staves are connected by a long horizontal line.

### (a) Soprano Structural Hypotheses (Step 3)

**G5 Line (solid):**

**Advantages:**

- Line starts at a higher pitch level than the E5 one
- G5 and F5 emphasized in mm. 0–2 at start of b.i., b.i.’
- G5 descends to  $\hat{2}$  linearly (mm. 1–3)
- Upper neighbor emphasis of G5 occurs twice in mm. 5–6
- If line descends to F5 (m. 5), melodic parallelism between phrases
- If line descends to F5 (m. 5), reaches  $\hat{1}$  in m. 8 by step

Disadvantages:

- Similar motion to a perfect octave on  $\hat{3}$  in mm. 1–2

**E5 Line (squiggly):**

**Advantages:**

- Emphasized at ends of b.i. and b.i.' in mm. 1-2
- Voice exchange in mm. 1-2

### (b) Evaluation of Hypotheses (Step 4)

The image displays two systems of a musical score for 'The Swan' by Camille Saint-Saëns. Each system consists of a piano accompaniment (piano) and a vocal line (soprano). The piano part is written in treble and bass clefs, while the vocal part is in soprano clef. The score includes various musical notations such as notes, rests, and ornaments. Below the piano staves, there are figured bass notations in parentheses, such as (I), (II), (V), (I), (ii), (V), (I), (ii6), (V7), and (I). Above the vocal staves, there are figured bass notations in hats, such as 5, 4, 3, 2, 1, 4, 3, 2, 1. The score is divided into two systems by a double bar line. The first system ends with a double bar line and a repeat sign. The second system ends with a double bar line and a repeat sign. The score is in 3/4 time and G major.

(c) Finished Graph showing Bass, Soprano, and their Alignment (Steps 5–6)

Example 14 (a–c): Soprano Structural Hypotheses, Evaluation, and Finished Graph of Bass and Soprano.



generated by superposition above the structural soprano, which descends to F5 and E5. (As a side benefit, the superposition helps clarify the thematic parallelism between the two phrases.) The E5 solid line tends to have events on the first level of the middleground, for instance the E5 in m. 1, which is an unfolding of the primary tone, G5.<sup>59</sup> As a result of the  $\hat{5}$ -line background, the second phrase contains two bassline arrivals on a root-position I (mm. 6 and 8). Overall, the analysis shows students the value of pursuing the total voice leading (Step 3), and backtracking to this stage as necessary.

By Step 6 in Unit II (Example 14c), the class can more easily use two colors for a graph in an exam: thus, in grayscale the graph uses only the encircled numbers “1” and “2.” In comparison with the “Happy Birthday” analysis, the students now distinguish between a wide variety of prolongational techniques (e.g., unfoldings versus superpositions); locating prototypes for them on the Table of Graphing Symbols, they inscribe them in the graph. Their graphs also use new notational techniques: retention (dotted), solid, and hooked slurs. Having settled upon their favored interpretation of the excerpt’s structure, students now focus on notation, trying to achieve visual clarity: in Example 14c, to counteract a relatively busy right-hand texture, the descent of <E5-D5-C5> within an inner voice (mm. 1–2) is preferably shown using beams and note stems instead of a slur. Once students complete their graphs, and the instructor offers hints on refining them, the class can pinpoint differences between graphs, which are illustrated through a performance of each. Relative advantages and disadvantages are then debated (Step 7). Lastly, the instructor notes recurrent errors for students to work on.

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<sup>59</sup> Within Unit III, the class can return to this excerpt within the context of the entire movement, investigating whether  $\hat{5}$  is a convincing primary tone, and demonstrating that the identification of primary tone is contingent upon events in an entire movement, not just its opening.

## CONCLUDING THOUGHTS

We return, full circle, to the complex and holistic nature of Schenkerian analysis, and to its conflict with the sequential presentation of content in a course. The cumulative hierarchy for Schenkerian analysis, as presented in this essay, has sought to unpack and slow down this learning progression to enable beginners, especially undergraduates, to master the method quickly. Just as I have found in the 2014 and 2016 iterations of my introductory course, teachers should find, upon using the cumulative hierarchy and strategies to overcome problems of foreground data collection, long-term memory, and hierarchical ambiguity, that students of all levels retain material longer, make faster progress in graphing, and are more strongly motivated. The result should be a more engaging, vibrant Schenker course that develops in students a wide range of critical thinking skills and empowers them to use the method toward ends they find relevant (whether a musical performance with a sense of overall line, a deeper understanding of a work's form, or an understanding of a work's position within common-practice tonal tradition).

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