Taking Stock of Collections: A Strategy for Teaching The Analysis of Post-Tonal Music

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I. Introduction

Analysis is difficult. Teaching analysis is even more difficult. It is especially challenging to coax students to venture beyond the identification of things—formal sections, thematic ideas—toward consideration of the distinguishing qualities of individual works. In the area of post-tonal or extended-tonal music,[1] several writings address the enterprise of analysis, including textbooks by Joel Lester, Joseph Straus, and J. Kent Williams.[2] While each book takes a different approach, their philosophical orientations and strategies are similar. Each provides a solid theoretical backdrop, which includes various tools for describing and manipulating pitch-class collections, then uses analytical examples to illustrate the theoretical constructs.

That these texts are more theoretically than analytically driven is understandable, since students must learn vocabulary and techniques, and need practice exploring the structural characteristics of pieces. But the end result this approach ought to have—namely, the incorporation of these skills into competent analyses—often never materializes. Even supplementing this preparatory work with presentations of longer analyses in class seems not to provide the skills we hope to see; students follow the examples in the chapters and nod their heads at each new discovery in our model analyses, but still struggle when trying to come to terms themselves with a new piece.

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[1]"Post-tonal" is intended to describe the body of late–19th and early-20th century works whose principal contributors include such composers as Bartók, Debussy, Messiaen, Ravel, (early and middle-period) Stravinsky, and Scriabin.

[2]Joel Lester, *Analytical Approaches to Twentieth-Century Music* (New York: W. W. Norton & Company, 1989), Joseph N. Straus, *An Introduction to Post-Tonal Music* (Englewood Cliffs: Prentice Hall, 1990), and J. Kent Williams, *Theories and Analyses of Twentieth-Century Music* (Fort Worth: Harcourt Brace College Publishers, 1997). A brief comparison of these books, and a more detailed account of the Williams text can be found in Larry Barnes's review in *Music Theory Online: The Online Journal of the Society for Music Theory* vol. 3–4 (July, 1997).

This paper advances a pedagogical strategy for extended-tonal and post-tonal music that can help students learn the craft of analysis. The aim is to encourage a willingness to pursue the qualities that give compositions their individual character. The approach is heuristic and stresses modeling. It asks students to characterize compositional strategies; to identify and "trace the history" of prominent musical elements; to define and follow narrative plots and subplots; to rationalize a work's striking or eccentric events; and to explore the notion of musical "agency," by which we mean the capacity of a musical element to exert influence upon the course of events. We build upon the Lester, Straus, and Williams texts in two basic senses. First, we assume a familiarity with the constructs and techniques that are the subject of their instruction. Second, whereas their discussions mainly cite musical excerpts, appropriate for illustrating specific analytical tools and techniques, our interest is confined to whole pieces or movements.[3]

The point of departure for our approach is a simple assumption: changes in pitch-class collection articulate formal boundaries.[4] This strategy has three advantages: first, there is little analytical apparatus to teach; second, the process of sorting through pitch material and noting formal boundaries penetrates the psychological barrier that students often encounter when studying unfamiliar pieces; third, it acquaints students with the broad organization of a composition, an important first step in analysis that is often ignored as students become caught up in detail whose larger context remains unconsidered. An additional advantage is that students are generally familiar with this approach: one constant between tonal and post-tonal music is that changes in local pitch-class collection tend to coincide with formal boundaries. In the earlier practice, of course, this change involves modulation from one key to another, whereas in much of the music of the late-nineteenth and early-twentieth centuries diatonic collections share the stage with

[3]An article similar in its basic orientation, though its analytical approach differs, is Craig Cummings, "Three Introductory Miniatures for an Undergraduate Twentieth-Century Analysis Course," *Journal of Music Theory Pedagogy* 8 (1994): 159–78.

[4]We recognize that this approach ignores texture, rhythm, meter, tempo, tessitura, and so forth, but these features can be considered in due course. We also recognize, of course, that this is a commonly employed analytical strategy. At the outset, we want confident students with a manageable task that will produce results. What we believe distinguishes our approach is the particular emphasis we place upon it.

octatonic, pentatonic, hexatonic, and whole-tone sets. Still, this similarity between earlier and later repertoires provides one of the few technical points of understanding with which most students should be comfortable. All of this helps assure a successful first step, the confidence derived from which leads students to the sorts of questions we all hope they will ask.

To illustrate the approach, we explore two of Debussy's well-known Preludes, *La fille aux cheveux de lin (The Girl with the Flaxen Hair)* from book I and *Feuilles mortes (Dead Leaves)* from book II. We make no claim to presenting definitive or complete analyses of these works; rather, the aim is to set out along the analytical path we have described, to raise questions worth considering and to see where these inquiries lead. The complexity of pitch-class materials provides a logical succession for the discussion: *The Girl with the Flaxen Hair* is defined entirely by diatonic collections, whereas *Dead Leaves* combines diatonic, whole-tone, and octatonic elements.

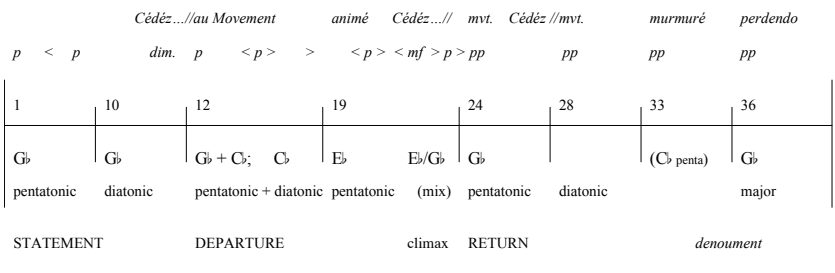
II. *The girl with the flaxen hair*

This accessible prelude provides an ideal springboard for a collection-driven approach since its background pitch-class structure is confined to diatonic sets. At the same time, its formal looseness and abundant tonal references present several interpretive challenges.[5] The piece has inspired a host of recordings and transcriptions—including those for harp solo, clarinet and piano, cello and piano, horn quartet and wind quintet—and thus lends itself to in-class performance, to the critiquing of different performances, and even to a discussion of arranging and orchestration issues.

[5]The extent to which this prelude is tonal is itself a compelling analytical question. On the one hand, there is little evidence of functional harmony and common-practice voice-leading, an abundance of parallels, and a virtual disregard for the structural dominant of G♭. On the other hand, there are many clear tonal allusions, including tonicizations of C♭ and E♭ that are defined by V–I bass motions, and plagal and deceptive root motions in G♭.

We begin by identifying the work's underlying collections and outlining the formal design. Figure 1 diagrams the outer form of the prelude. At the deepest level, the piece is based on a G♭-major scale and its pentatonic subset; these are counterposed by relatively brief E♭ and C♭ pentatonic excursions.[6] Above the timeline the large-scale divisions demarcated by tempo changes are indicated: *un peu animé* (m. 19); *cédéz . . . au mouvement* (mm. 12, 24, 28); and *murmuré et en retenant peu à peu* (m. 33). Each fluctuation in tempo coincides with a change in collection. The first section (mm. 1–11) opens with an incomplete G♭-major (or E♭-minor) pentatonic collection and eventually completes the entire G♭ diatonic scale. The second section (mm. 12–23) ventures beyond the orbit of G♭: it touches briefly on C♭ (m. 15), arrives solidly on E♭ (m. 19), and climaxes on a C♭-major chord that supports E♭6, the highest pitch in the piece. The third section (mm. 24–38) returns to and remains in the opening G♭ pentatonic collection. Thus, from a collectional standpoint, the prelude exhibits a tripartite division of statement, departure, and return.

Figure 1: Formal Snapshot of "The Girl with the Flaxen Hair"



Despite this three-part division, the formal structure of the prelude is in many respects amorphous. Part of its ambiguity stems from the fact that it combines ternary and variation principles. The ternary structure is clear enough: as noted above, the first section establishes G♭; the second section departs from G♭ and moves

[6]By "pentatonic," we refer to the "major pentatonic" scale, which includes scale-degrees 1, 2, 3, 5, and 6 of a major scale. Alternatively, the "minor pentatonic" scale comprises scale-degrees 1, 3, 4, 5, and (natural) 7 of a minor scale.

through C♭ to E♭; the third section returns to G♭. The variational quality is also clear: virtually all of the prelude's melodic material derives from the initial four measures, whose elements are placed in ever-changing tonal, rhythmic, and textural contexts. In other words, the opening materials are "composed out" over the work.[7] The opening two-measure gesture returns three times. First, it is harmonized with parallel Mm-seventh sonorities (mm. 8–9); its "beheaded" form is harmonized with G♭ pentatonic sonorities (mm. 24–25); finally, it is displaced metrically and set above a C♭-major triad (mm. 28–30). The second gesture (beginning with the pick-up to m. 3) is developed in mm. 12–13, 15–23, 30–32 and 35–36.

Let us take a closer look at the deployment of collections within the individual sections, paying particular attention to the interaction of harmony and melody and the appearance of unusual or "quirky" surface events.[8] While this information will be familiar to most readers, we offer it to suggest a basic level of competence students should have.

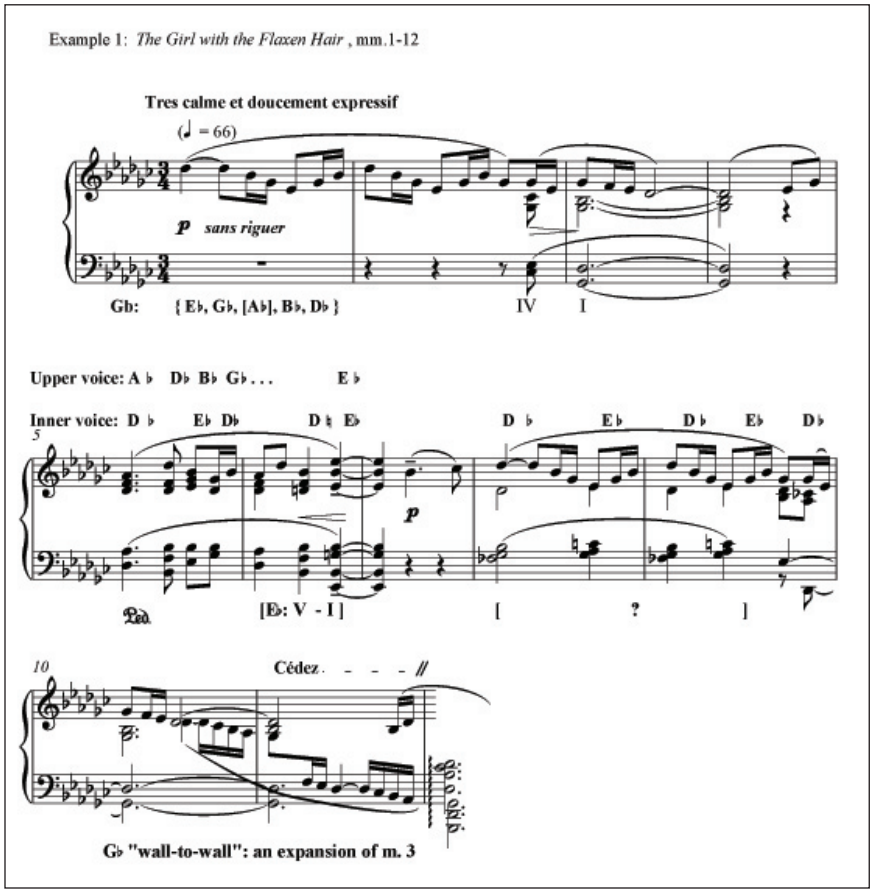
SECTION I (mm. 1–11). The opening section establishes G♭ pentatonic as a subset of G♭ major and presents competing textures of monophony and homophony (there is no polyphony). Example 1 annotates the section, which divides into units of 2 + 2 + 3 + 4 measures. The un-harmonized opening can be characterized variously as a G♭ triad with an added sixth, a minor-seventh chord suggesting vi^7 in G♭ (or perhaps ii^7 in D♭), or a pentatonic fragment.[9] We prefer the latter description, which views the gesture as an incomplete G♭ or e♭ pentatonic scale whose pitches are

[7]The ternary conception aligns the work with traditional nineteenth-century character pieces (commonly found in Schumann's cycles, Brahms' Intermezzi, or Chopin's Preludes). The variational aspect calls to mind similarities to the *Prelude to the Afternoon of a Faun* (which also begins with an un-harmonized melody from D♭5, and which places the opening tune and its fragments in a variety of tonal contexts).

[8]For a discussion of "quirky surface events" and some of the ways in which they are compositionally enlarged see Brian Alegant and Don McLean, "On the Nature of Enlargement," *Journal of Music Theory* 45/1 (2001): 31–71, especially 34–35 and 63–64.

[9]See Adele T. Katz, *Challenge to Musical Tradition: A New Concept of Tonality* (New York: Alfred A. Knopf, 1945), 255–259. Katz focuses on the overall I–IV–V–I background structure and the "ingenious use of the neighbor note [E♭] to prolong the structural motion" (255).

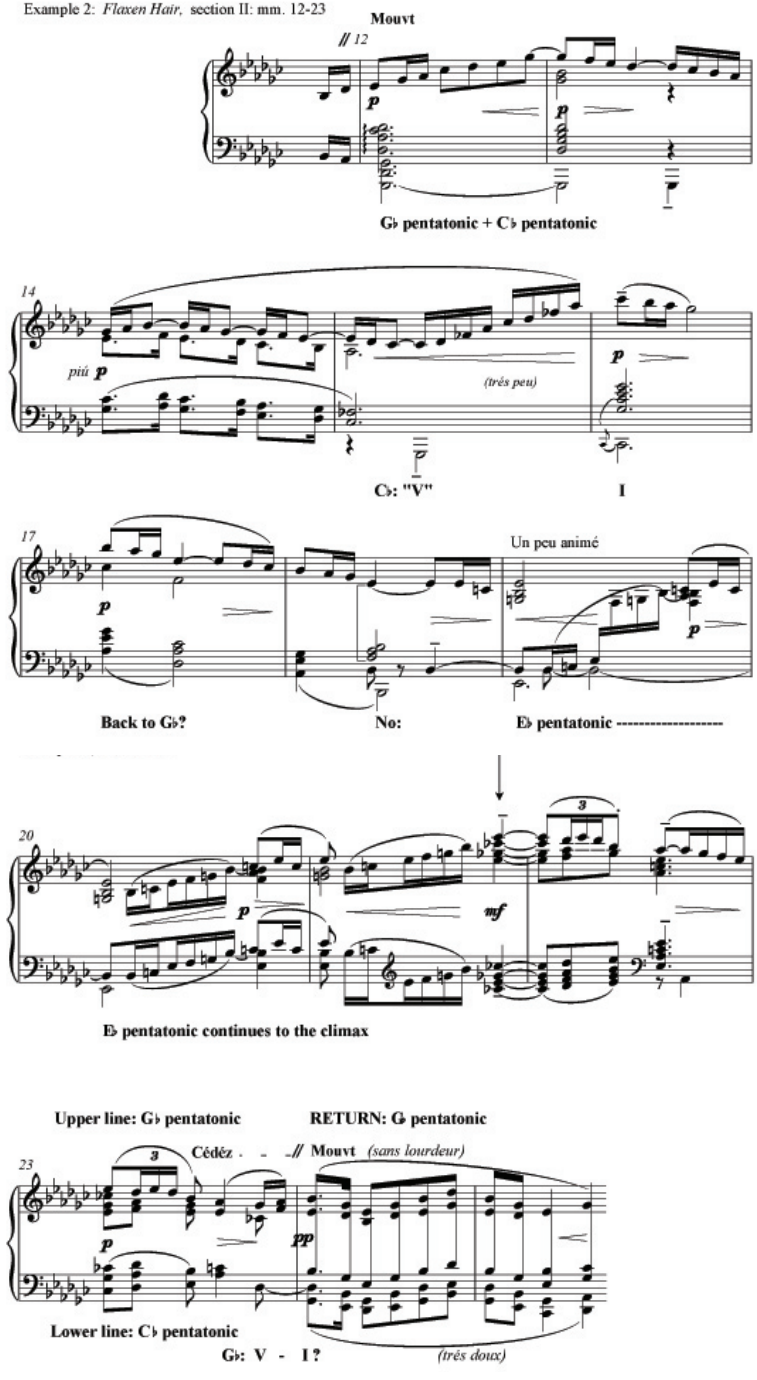
symmetrically disposed about A♭4; this axial A♭4 is the "missing" pitch of the pentatonic collection. The second gesture (mm. 2–4) begins to confirm G♭ by way of a IV–I progression and the melodic motion through a G♭–D♭ tetrachord. The third gesture (mm. 5–7) projects the notes of the opening pentatonic scale into the outer voices. Fittingly, the upper line begins with A♭4 (the missing note of the previously incomplete pentatonic scale), and completes the G♭ pentatonic scale; the lower line restates the pitch classes of mm. 1–2. The series of major and minor chords give consonant support to the pentatonic tones in the outer voices; these chords seem not to carry harmonic function until the end of the phrase, which is punctuated by a V–I progression in E♭ major. The contrary motion in the outer voices here expands the registral boundaries to E♭2 and E♭5. This expansion, underlined by a crescendo and the introduction of foreign tones D♮ and G♮, signifies a departure from



the opening collection and activates an E♭-major chord that sounds peculiarly *bright* in the context of G♭ major. The final gesture (m. 8) restates the melodic material of mm. 1–3, but with vague, shifting harmonies that add two more foreign tones, F♭ and C♮; these carry us further from the realm of G♭. The subsequent G♭4 to G♭2 scalar passage corrects these accidentals and (more importantly) frames the opening section.

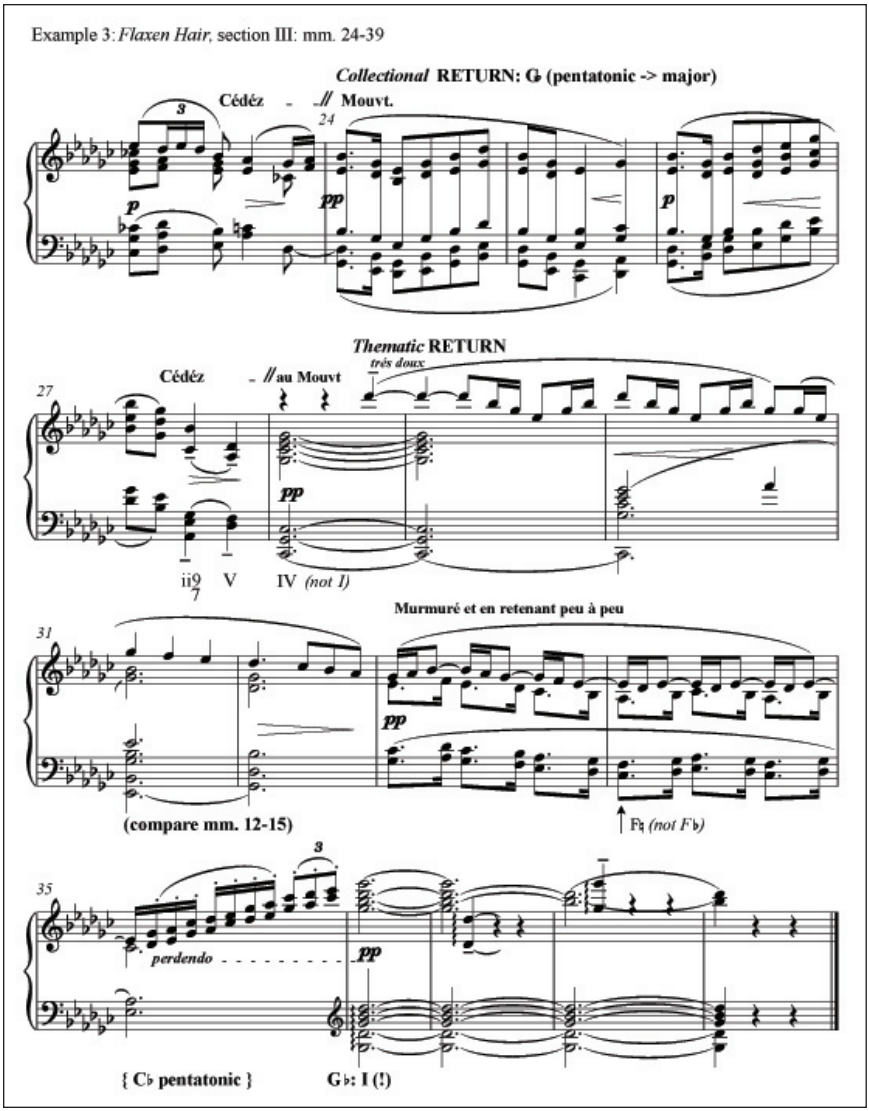
Section II (mm. 12–23). The central section is annotated in Example 2. Its main features include the destabilization of G♭, the adumbration of C♭, and the expansion of E♭. Each of these new tonal centers supports a pentatonic scale and a V^7–I progression. The first subsection (mm. 12–14) can be heard variously as a diatonic hexachord on G♭, a conflation of G♭ and C♭ pentatonic scales, or a C♭ pentatonic scale above a G♭ pedal point. The E♭4 on the downbeat of m. 12 initiates a complete C♭ pentatonic scale. The F♭ in the left hand on the downbeat of m. 15 catalyzes a (temporary) tonicization of C♭ major: in a way, F♭ acts as a foreign element that opens up the region of C♭. Debussy immediately muddies the waters, hinting at a return to G♭ in m. 17, then settling on E♭ instead. The C♮ at the end of m. 18 and the V–I bass motion cement E♭ precisely on the downbeat of m. 19 (at *un peu animé*). The E♭ pentatonic collection fuels the climax with a registral ascent from E♭4 through E♭5 to E♭6 (m. 21), which is supported by a C♭-major chord. The next two measures conflate elements of G♭, C♭, and E♭. C♭ is represented by major triads and by an incomplete pentatonic fragment in the left hand. (The sole pitch class missing from the C♭ pentatonic scale, G♭, occurs on the downbeat of m. 24.) G♭ is represented by pentatonic scales in the right hand; E♭ is suggested by C♮ in the A♭-major chords in mm. 22 and 23. This passage is marked by strident cross-relations between both C♮ and C♭, and G♮ and G♭.

Example 2: *Flaxen Hair,* section II: mm. 12-23



SECTION III (mm. 24–39). The final section stays entirely within the G♭-major collection, with allusions to G♭ and C♭ pentatonic sets. (See Example 3.) Here, as in the opening section, Debussy begins with G♭ pentatonic and gradually completes the G♭-major scale, adding C♭ and A♭ in m. 25 and F♮ in m. 27. Perhaps the most important aspect of this section is that it contains two returns, one *collectional*

Example 3: *Flaxen Hair*, section III: mm. 24-39



and the other *thematic*.[10] The collectional return (mm. 24–25) restates the opening tune at pitch, omitting the initial D♭5. The harmonic stasis of the return recaptures the incomplete G♭-pentatonic scale introduced in mm. 1–2; its first eight chords all contain G♭, B♭, D♭, and E♭, with the right and left hands exchanging, alternately, B♭–E♭ and D♭–G♭ dyads.

Three surface details in the last section deserve mention. Each will be developed shortly. The first is a "deceptive" harmonic progression in m. 27. We have every reason to expect the *tenuto* chords labeled "ii–V" in G♭ to resolve to the tonic. But m. 28 features instead a IV chord, upon which Debussy places the *thematic* return of the opening tune. The second detail concerns the realization of measure 35. Measures 31 and 32 are an augmentation of m. 13, and m. 33 is a literal restatement of m. 14. Measure 34, however, diverges from m. 15: its downbeat has an F♮ in the left hand rather than F♭.[11] This exception is easily explained: given that the piece is winding down, an F♭ (or any tone foreign to G♭, for that matter) would undermine G♭ and thwart a sense of closure. A comparison of these two passages suggests that the outer lines in m. 34 appear "stuck": the upper voice oscillates between E♭4 and D♭4 while the left hand's fourths wander back and forth in a parallel, non-functional manner. The last detail involves the collection in m. 35, a C♭ pentatonic scale built on E♭. Not only is the invocation of C♭ pentatonic striking here; so too is the fact that the final G♭ triad is preceded not by the dominant, D♭, but by E♭.

[10]This divided return can lead to a variety of performance-related issues. For instance: how much time and weight should one give to the // marks in mm. 24 and 28? Should one articulate a *main* and a *subsidiary* return, or treat them more or less equally? Even a casual evaluation of performances reveals a range of interpretations from immanently satisfying to utterly unconvincing. We prefer m. 24 as *the* return, for several reasons, chief among them that m. 28 seems "too late" and has too recessive a dynamic. The Golden Mean can also be brought into the argument, since 39 measures times 0.618 = 24, which corresponds to the truncated thematic return. For applications of GM and GS proportions in Debussy see Roy Howatt, *Debussy in Proportion: a Musical Analysis* (Cambridge: Cambridge University Press, 1983). Incidentally, a twelve-tone piece that exploits both a collectional and a thematic return is Schoenberg's Fantasy. See David Lewin, "A Study of Hexachordal Levels in Schoenberg's *Violin Fantasy*," *Perspectives of New Music* 6 (1967): 18–32.

[11]The F♭2 in m. 15 recalls the same pitch in the left hand of m. 8 (a "color" association), and paves the way for the tonicization of C♭ major (adding another flat to a G♭-major collection enables C♭ major). This F♭ also forces the upper voice's E♭4 to move down. The absence of F♭ allows E♭4 to be maintained (or "prolonged") throughout m. 34.

BEYOND THE SURFACE. We now turn to questions of interpretation. Let us begin by considering the abstract properties of the pitch-class collections we have identified thus far. Three pentatonic collections operate in the work: G♭, which anchors the piece, C♭, and E♭. Each pitch class carries a complete pentatonic scale and is supported by a V–I progression. Superimposing these pentatonic scales reveals one common pitch class, E♭.

G♭ pentatonic scale:	G♭	A♭	B♭	D♭	E
C♭ pentatonic scale:	G♭	A♭	C♭	D♭	E♭
E♭ pentatonic scale:	B♭	C	E♭	F	G

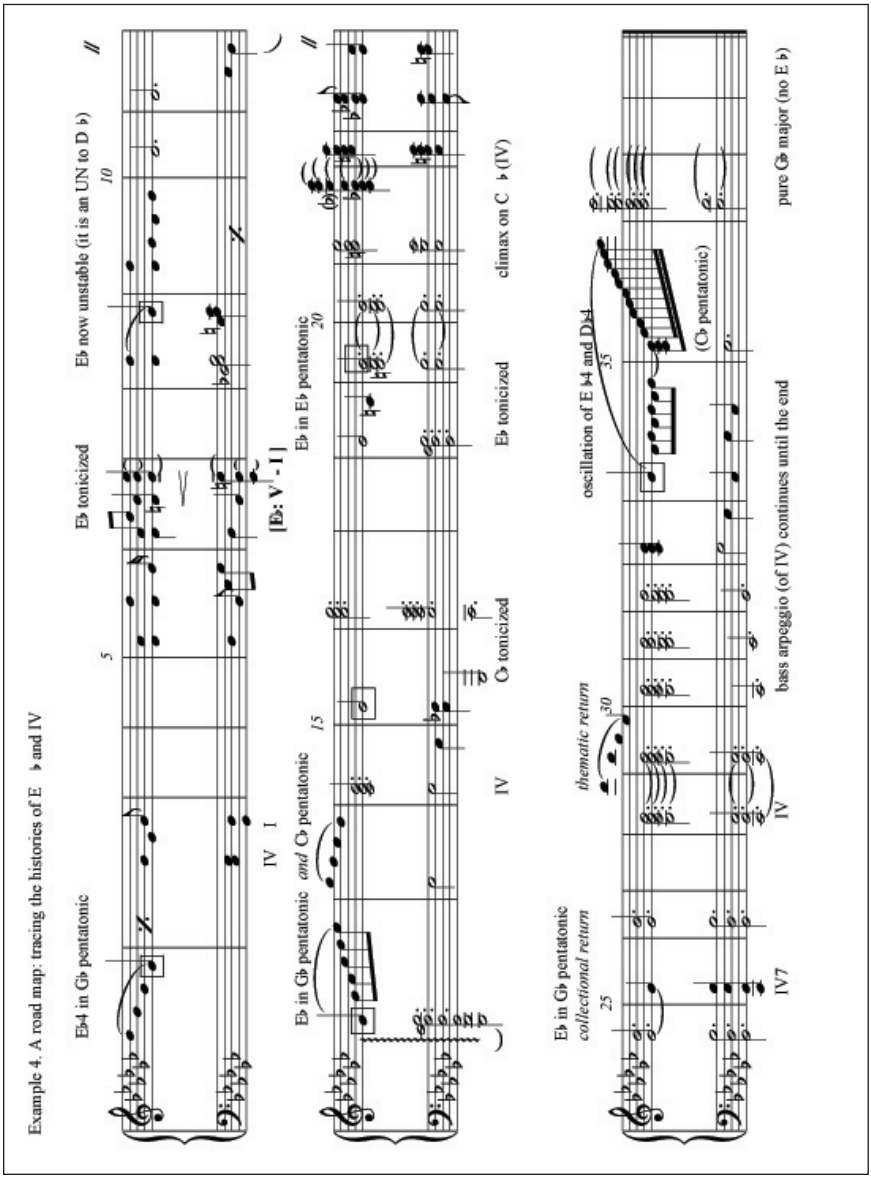
This observation suggests an analytical perspective that we might ask students to pursue: "tracing the history" of E♭. The presence of this pitch class as a hinge among the three collections suggests that reviewing (and re-hearing) the prelude through an E♭ "filter" may be analytically rewarding. It also offers students a clearly defined and manageable approach. Their investigation will highlight the diverse roles assigned to E♭ in general and E♭4 in particular. In the opening, for instance, E♭4 functions as the lower boundary of the initial gesture that articulates the space between D♭5 and E♭4. The inner voices of mm. 5–8 oscillate between D♭4 and E♭4, and the brief tonicization of E♭ major (near the end of m. 6) sets E♭ in three octaves (including E♭4).[12] In the fourth phrase, the upper and inner voices in the right hand converge on E♭4 (mm. 8 and 9).[13] E♭ now gains in importance. Prominent E♭s—and especially E♭4s—initiate the second section (m. 12); trigger the tonicization of C♭ (set into motion by the downbeat of m. 15, where E♭ clashes with F♭); prepare the E♭ pentatonic scale that fuels the climax (mm. 18–21); and inform (indeed, *dominate*) the *denouement* (mm. 33–35), which focuses on E♭4 and its lower neighbor, D♭4

A similar analytical line of inquiry might issue from the observation that the three primary tonal centers of the work, G♭,

[12]In this light, D4 in the third phrase plays a vital role: it is the first foreign tone (the first pitch class outside the collection of G♭), and it partakes in the first chromatic motion. By splitting the distance between D♭4 and E♭4, D marks E♭ as a goal.

[13]From a performer's standpoint it is an easy task to bring out these inner voices. The question arises: how much weight should (could) one give to the thumb of the right hand?

C♭, and E♭ together form a C♭-major triad. A student would be well rewarded by tracing the history of this chord, too. Prominent examples of C♭-major triads can be found in m. 2 (the first chord, an integral component of a key-defining plagal progression), mm. 14 and 16 (the tonicization of C♭), mm. 21 and 23 (the climax and its aftermath), mm. 28–30 (the deceptive progression supporting the thematic return), and m. 33 (a replay of m. 14).



Example 4 offers a "road map" that brings together the foregoing observations about E♭- and C♭-major triads. A road map is a flow-chart that models or relates one's experience of a piece. The exercise requires a close reading of the score, and a good deal of thought into the integration of visual and aural stimuli. The map might be ill-formed or well-formed; it may focus on pitch or other striking parameters; and it may invoke verbal descriptions, icons, arrows, pictures, or other symbols as needed. The point, simply put, is not to represent every note of the piece, but to show the relationships that are internalized; thus, one should be able to follow the piece by following his or her road map. Both preludes in the present study are ideally suited for this type of assignment.[14]

The road map in Example 4 divides the score into three annotated systems. The labels above each system describe the roles played by various E♭s. The first entry, "E♭4 in G♭ pentatonic," interprets E♭4 as a member of a G♭ pentatonic collection. The first system also highlights the tonicization of an E♭ triad in m. 6 and the oscillation of E♭4s and D♭4s in the middle register. The annotations below each system track the occurrences of C♭-major (IV) triads. The first system has just one such chord; the second system shows the tonicization of C♭ major and the approach to the climax; the third system shows IV chords underlying the collectional and thematic returns. The third system discloses a significant structural aspect of the prelude, namely the *composing out* of the C♭ triad. Note that the last three measures of the third system feature a bass arpeggiation of the IV chord, in which the bass moves from C♭2 through E♭2 to G♭2. This same arpeggiation, an octave higher, structures the remainder of the prelude: the bass line from m. 28 onward is built solely upon the pitch classes of the C♭ triad. (Note also that the bass line in mm. 33–36 is a pitch palindrome.) This preoccupation with IV helps explain why the C♭ pentatonic scale in m. 35 is built upon E♭, and why the final "cadence" in the piece incorporates E♭–G♭ instead of D♭–G♭.

[14]A road map (such as shown in Example 4) is a useful and flexible tool that is easily worked into various kinds of (individual and group) assignments. Other post-tonal pieces that lend themselves especially well to this kind of approach include movements from Berg's op. 5 (for clarinet and piano), Schoenberg's op. 19 *Klavierstücke*, and Webern's opp. 22/1 (the first movement of the Saxophone Quartet) and 27/2 (the central movement of the Variations for piano). A student might begin a roadmap of Webern's op. 22/1, for instance, by focusing initially on the F♯4 axes that dominate the surface, and then gradually orienting other surface events around these F♯s. After repeated hearings, as more and more of the landscape is internalized, more events can be added to the map.

SUMMARY. We conclude our remarks on this work with a summary of the analytical methodology. We began by taking an overview of the collections in the prelude, noting the various manifestations of diatonic and pentatonic scales built on G♭, E♭, and C♭. This reading suggested a ternary structure comprised of three relatively equal sections. We then looked closely at the deployment of collections within each section, noting any unusual surface *events*, such as the introduction and expansion of foreign tones, tonicizations and modulations, and thematic recurrences. What follows is an inventory of striking events.

Section I:
- a C♭-major triad (m. 2), the first chord and "low" sound
- a *tenuto* E♭-major triad (m. 6), the goal of the third gesture and the first instance of chromatic voice leading
- foreign tones D♮ and G♮ (m. 6) and, especially, F♭ (m. 8)

Section II:
- F♭ (m. 15) and the subsequent tonicization of the IV chord (m. 18)
- C♮, G♮, and the subsequent invocation of E♭ pentatonic (mm. 18–19)
- a IV chord at the climax (m. 21)

Section III:
- a collectional return to an incomplete G♭ pentatonic collection (mm. 24 ff.)
- a thematic return above IV (mm. 28–30)
- the replacement of F♭ with F♮ (m. 34)
- a complete C♭ pentatonic collection built on an E♭ (m. 35)

It remained to associate these events and place them in context. To this end, we employed a "top-down" view that compared the referential collections in the prelude and looked for common, or *invariant* pitch classes. This prompted us first to trace the history of E♭, the common pitch class (the "glue") among the G♭, C♭ and E♭ diatonic collections, then to take a similar approach to the C♭-major triad, the product of those three tones. Finally, we used a roadmap to highlight some of the important registral, melodic, harmonic, and voice-leading associations.

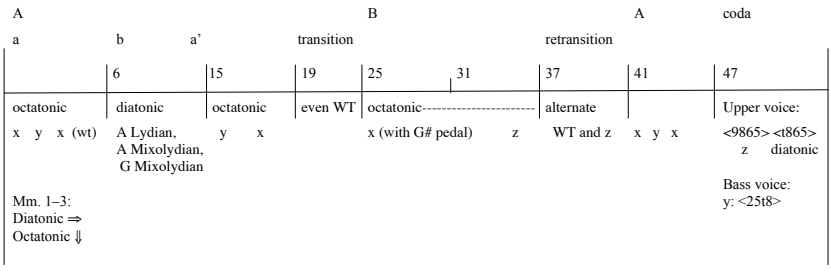
III. *Dead Leaves*

This complex and sophisticated work from the second book of preludes poses significant challenges to the analyst. Having taught the piece in both undergraduate and non-specialist graduate analysis courses, we have found that imposing constraints on the scope of students' analytical inquiry helps them avoid becoming mired in its surface detail. The strategy of charting the changing collections through the piece again affords an efficient way into the structure. The process here is more involved than in the earlier prelude, since Debussy not only employs diatonic, whole-tone, and octatonic sets, but also moves among the three octatonic transpositions.

Our interest in encouraging students to focus their analyses through different lenses—teleology, narrative plots, striking events, musical agency—can be well-satisfied here: a number of paths through the piece reveal fascinating relationships. We will discuss three of these in turn following an overview of Debussy's subtle "modulations" in pitch class content.

PITCH-CLASS COLLECTIONS. Figure 2 shows the prelude's outer form and its collectional organization; Example 5 provides a score of the prelude. The broad A–B–A design is mirrored in the opening section by the a–b–a scheme of the initial eighteen measures. The first three measures can themselves be heard as ternary, since mm. 1 and 3 present a subset of the C/C♯ octatonic set (which we refer to as "X"), while m. 2 moves to a subset of the C♯/D set (henceforth "Y").[15] The chords on each downbeat of mm. 1–3 consist of five pitch classes, four of which produce a fully-diminished-7th, the "signature" chord of the octatonic set, and a fifth pc that fixes the octatonic transposition unequivocally.[16] Above the octatonic harmonies of mm. 1–3, though, is a diatonic melody. This links nicely to the central part of this opening section (mm. 6–14), which is diatonic. Four measures of A Lydian and Mixolydian (mm. 6–9) and five measures of G Mixolydian (mm. 10–14) precede the return

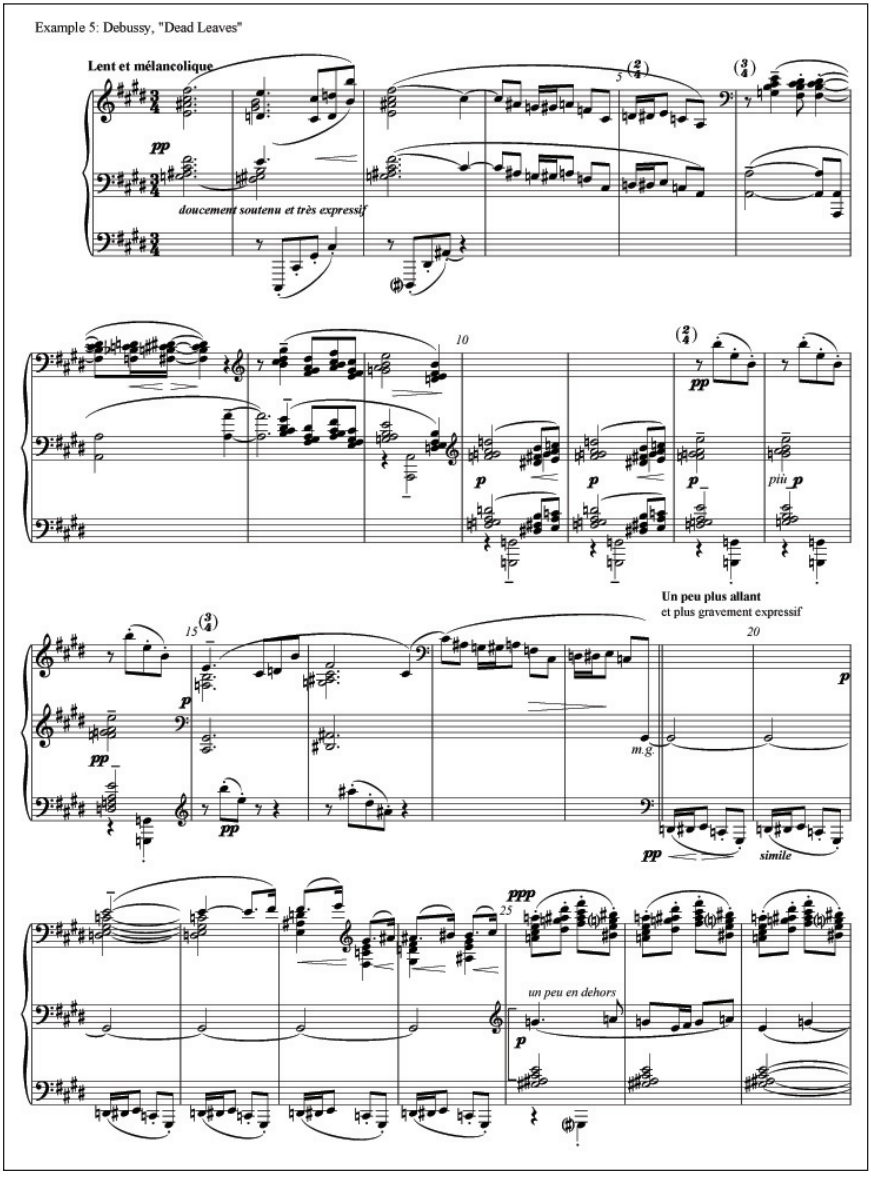
Figure 2. Formal Snapshot of "Dead Leaves"



[15]Transposing by semitone, three different octatonic collections result before the (unordered) pitch class content of the first is duplicated at T3 (transposition by three semitones). The complete "X" collection, in integer notation, runs {0134679T}, where "T" = 10. "Y" is {124578TE}, where "E" is 11. The third transposition level, the c/d set, "Z," is {0235689E}.

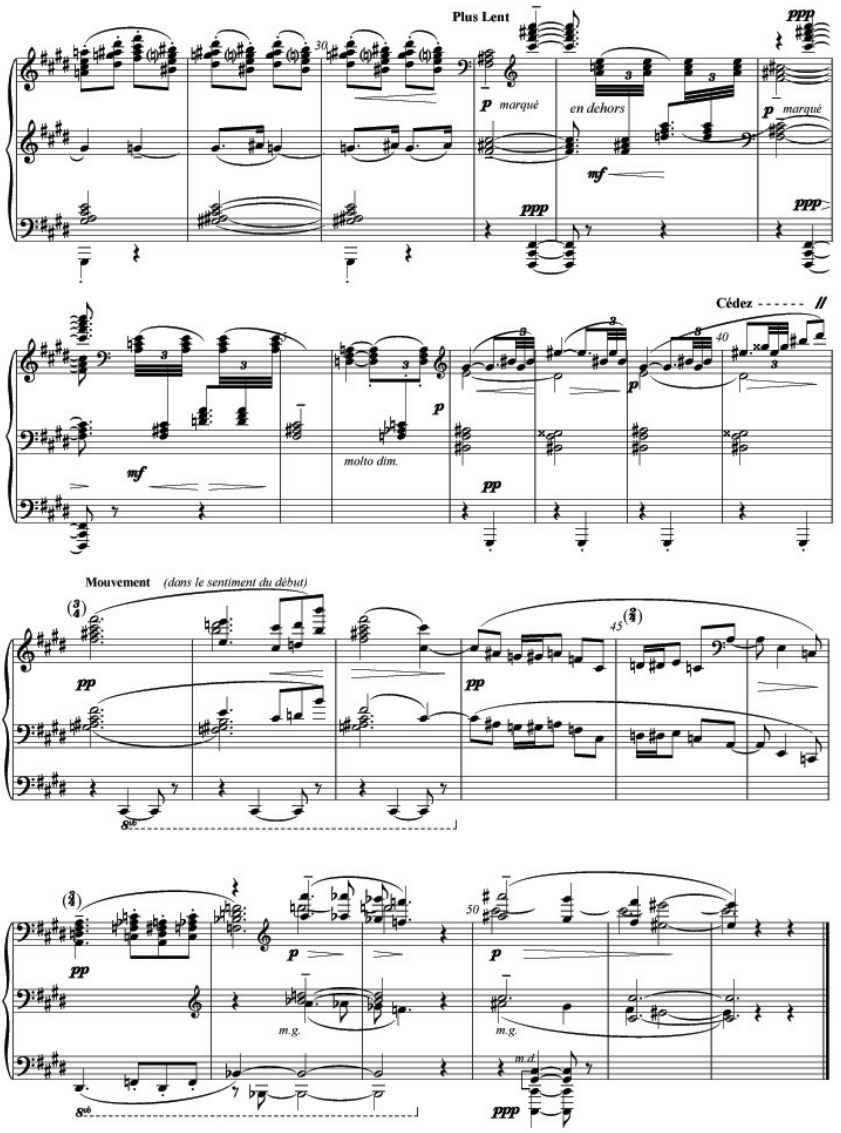
[16]Combining any two of the three diminished-7th chords produces an octatonic set, or, put another way, a diminished-7th chord combines with each of the remaining diminished-7th chords to produce two of the three octatonic sets. It follows, then, that the addition of a single pc to any diminished-7th chord defines the octatonic transposition of which the five pcs are a subset.

of a′ (mm. 15–18, which recall mm. 2–5). As the final note in m. 18, Debussy substitutes G♯ in place of A♮ (compare with m. 5). This prepares the passage at m. 19, which is based primarily on the even-numbered whole-tone collection and functions as a transition.[17]



[17]Whole-tone scales often function as transitions Debussy's music. See, for example, "Sunken Cathedral," the *Prélude to the Afternoon of a Faun*, and *Nuages*.

Example 5: Debussy, "Dead Leaves" *(Continued)*



Measure 25 ushers in the central section and a new texture. A right-hand ostinato sounds major triads at transposition levels that describe a minor-third chain. This pattern generates and is confined to the X octatonic transposition. The melody, in the middle of the texture, moves within a segment of X (E–F♯–G–A–B♭). The final element of the texture is a G♯ pedal, which is not a member of X (more

on this below). The first subdivision of the "B" section occurs at m. 31, where the G♯ pedal yields to the open 5th, F♯–C♯, and the melody and superposed ostinato give way to a new gesture that juxtaposes F♯-major, A-minor, and D-major triads. Since major or minor triads can only be constructed on the lower member of each chromatic dyad in the octatonic collection, the listener is immediately aware that the music has broken free of a single octatonic set. In fact, the F♯ and A triads belong to the X transposition that asserted itself in m. 25, while the D-major triad implicates the Z collection.[18] A D-major triad, in and of itself, does not, of course, indicate a larger octatonic source, but the context of the following measures suggests such an interpretation. Here, in mm. 37–40, the return of "A" at m. 41 is prepared; this passage, then, acts as a retransition. Pitch-class collections alternate between the even whole-tone (mm. 37 and 39) and the Z octatonic, prepared by the D-major triad of the previous passage.

The return is a truncated version of the opening with a higher register, a clearer and unopposed C♯ pedal, and an expansion, in m. 46, of the material from m. 5. This leads to the coda (m. 47), which begins with a gesture that recalls the music of mm. 31–37: D-major, F-minor and B♭-major triads recall the earlier F♯-major, A-minor, and D-major triads. Completing the work is a pair of tetrachordal descents, the first from the Y collection (A–Ab–Gb–F), supported by B♭, and the second diatonic (A♯–G♯–F♯–E♯), which rests on the open 5th, C♯–G♯. Both the bass-voice triadic root arpeggiation, D–F–B♭, and the closing fifth, C♯–G♯, belong to the Y collection.

[18]Since neither major nor minor triads occur above the upper members of the chromatic dyads, it follows that any major or minor triad points unequivocally to a single octatonic source set. In passages where octatonic contexts are presented as major or minor triads, then, such as these beginning at m 25 and m. 31, it is a good strategy to listen for the intervals between and among triadic roots to gain one's octatonic bearings.

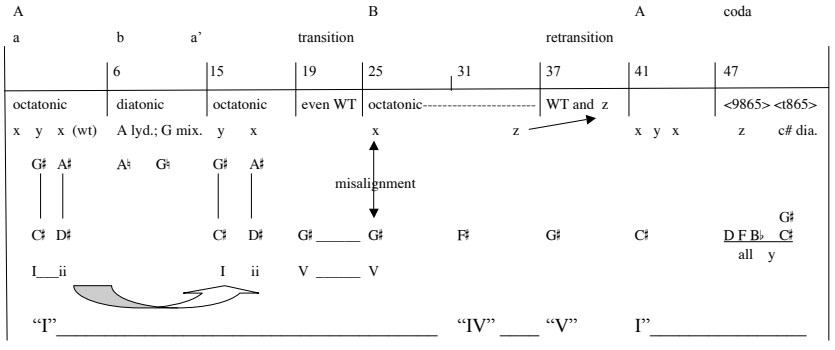
THE BASS VOICE. The role of tonal process in Debussy's music is elusive.[19] Our view is that Debussy's idiosyncratic language developed as a synthesis of different ideas and elements from a number of sources, and that among these are vestiges of common-practice tonality. Perhaps the clearest such element in *Dead Leaves* is the suggestion of tonal progression carried by the bass line. An obvious example is the passage at mm. 37–40 that prepares the return of the opening material: four measures of G♯ pedal move to a C♯ pedal. Despite the octatonic and whole-tone collections that these bass tones support, it is hard to ignore the tonal reference: this is a dominant-to-tonic progression in *some* sense.

This observation raises the issue of the roles played by pedal points and bass lines throughout the prelude. How do these events interact with other aspects of the work's organization? Figure 3 completes the investigation of the bass voice and offers an interpretation. It suggests a correspondence between, respectively, the bass tones C♯, G♯, and D♯/F♯ and tonic, dominant, and predominant tonal functions. Suppose we ally each function to one particular octatonic transposition, where that tone occurs as the lower member of the chromatic dyad (i.e., C♯ with Y; G♯ with Z; D♯/F♯ with X). The following image of Debussy's tonal organization then comes into focus.

The tonic is established in m. 2 by the Y set and C♯ bass, and moves to ii as D♯ supports X in m. 3. This same progression recurs in mm. 15–16, and continues into the G♯ dominant pedal of the transition. The G♯ pedal persists into the central section, where it supports the X collection. This misalignment of functions—the dominant G♯ belongs with the Z set while X is allied with the pre–V transposition—perhaps signifies the "structural dissonance" traditionally associated with central sections of ternary forms. Correct alignment is reestablished in m. 31, as the bass F♯ supports F♯-major and A-minor triads, both members of X. The D-major

[19]Among other things, tonal music is fundamentally diatonic; its chromatic elements are understood as elaborative at some level. Its processes depend on a clear definition of consonance and dissonance, and an adherence to established norms of dissonance treatment. This underlying diatonic structure and the resolution of dissonant elements give rise to patterns of voice-leading and harmonic progression. Though passages that conform to these norms can be found in Debussy's music, none is generally characteristic of his style. And yet certain features that pervade his music clearly derive from earlier practice.

Figure 3. "Dead Leaves": outer form and bass voice interpretation.



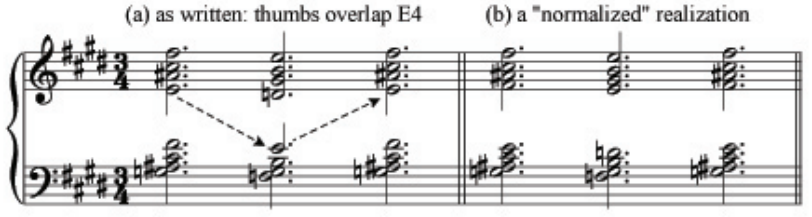
triad, though, is a foreign element, and by the time it is paired with an F-minor chord in m. 36, X has been displaced by Z, creating once again a misalignment of bass function and octatonic transposition. Realignment is achieved yet again in the retransition, as the dominant pedal G♯ moves in to support octatonic set Z. This collection alternates above the pedal with the even whole-tone set, recalling the alignment first presented in the transition.

The recapitulation (m. 41) is announced by the resolution of dominant-to-tonic bass tones and a restatement of the opening melodic idea. In a reference to earlier practice, this gesture, which had introduced two different bass tones and harmonic functions at its first appearance, now occurs in the "tonic," as the C♯ bass supports its full statement. The coda allows two final resolutions. The D-major and F-minor triads, recalling m. 36, reintroduce the Z collection, which is aligned with V function. Its continuation, however, does not prolong that V, as it did at m. 37. Instead, in one of the beautiful moments of the piece, it moves into the B♭-major triad at m. 48, which implicates the Y, or tonic, collection. Now that harmonic resolution has occurred, melodic resolution takes place. The Z segment A–A♭–G♭–F yields to the diatonic segment A♯–G♯–F♯–E♯, which at once resolves the dominant Z tetrachord, hearkens back to the diatonic music of mm. 6–14, and affirms C♯. Underlying these motions, the bass D–F–B♭ arpeggiation continues into the cadential C♯–G♯, all of which invoke for the final time the tonic octatonic collection.

E4 and the B♭-major triad at m. 48. The remaining commentary on *Dead Leaves* addresses two eccentric, or quirky, features that students might be directed to consider. Focusing on such features and attempting to rationalize their behavior can be an attractive option for students who have developed an aversion to more traditional analytical assignments. The first detail concerns the spacing and registration of the opening chords. As Example 6a shows, the composition of these chords requires the performer to cross the right- and left-hand thumbs: observe that the lowest note in the right hand, E4, is positioned below the highest note of the left hand, F♯4. The same holds for the downbeats of mm. 2 and 3, which have, respectively, E4 above D4 and F♯4 above E4. Debussy could easily have written the chords in the opening measures "normally," of course, with triads in the right hand and diminished-seventh chords in the left. Example 6b gives this hypothetical realization. Instead, the somewhat awkward thumb crossing underscores the one pitch that is held throughout the first three chords: E4. (This note is, in effect, the glue between the adumbrated octatonic collections.) This admittedly small detail suggests that it may be profitable to follow the course of E4 through the prelude (in the same manner that we traced the history E♭4 the in *The Girl with the Flaxen Hair*).

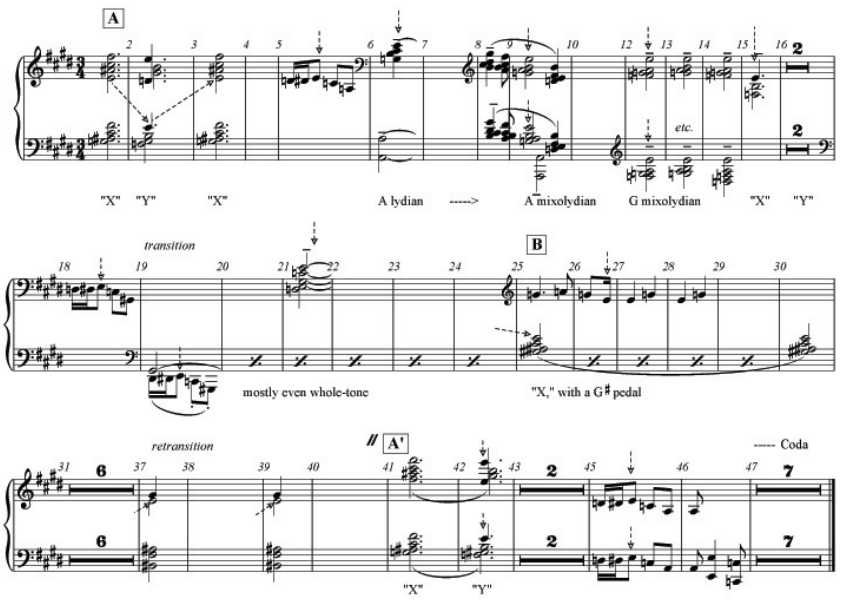
In fact, this tone has a number of prominent occurrences. We can find prominent E4s in the top notes of the three-note chromatic gestures in mm. 5–6; on the *tenuto* downbeat of m. 15 that marks a return to the opening material; on the *tenuto* downbeat of m. 21 that heralds the transition; atop the left-hand chords throughout mm.25–30, and within the middle-voice octatonic fragment throughout these same measures, {E4, F♯4, G4, A4, A♯4}. These E4s connect the various diatonic, octatonic, and whole-tone collections. In this light, Example 7 offers a road-map that traces the histories of E♮. It is, admittedly, a somewhat myopic view of the prelude, insofar as it strips away all dynamics, articulation, slurs, expressive marks, and extraneous notes. It does, however, effectively highlight the various manifestations of pitch class E. Perhaps the most telling aspect of this road map is the *absence* of E♮ in large sections of the work, particularly in the central section and the coda.

Example 6. The opening chords.



Several points of detail distinguish the recapitulation from the initial section. The first occurs in the opening three measures of the return (mm. 41–43). Here, the right-hand chords are pure triads, and they are shifted upward to a higher register (a register that recalls the F♯-major "bell" chords of the central section). Example 8 summarizes these registral associations. The registral distance between the right- and left-hand chords in these measures makes it impossible to pass E4 between the hands' thumbs. The second detail is the arrival of a B♭-major chord on the downbeat of m. 48. This chord supports F4 (the enharmonic equivalent of E♯4) in the upper voice, a pitch that is reasserted by the final melodic tetrachords A–G♯–F♯–F♮ and A♯–G♯–F♯–E♯, which project F♮ and E♯ in three registers. In a sense, then, the prelude features a large-scale *tierce de Piccardy*,

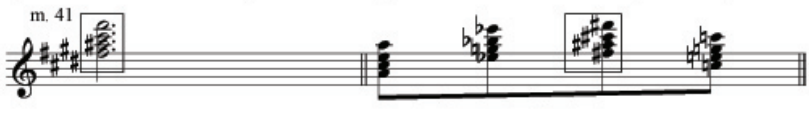
Example 7. Road map of *Feuilles Mortes:* Tracing the history of E ♮



as E♮ is gradually replaced and eventually "corrected" to E♯ in the final C♯-major sonority. (This helps explain why E♮ is nowhere to be found in the last eight measures of the road map in Example 7.)

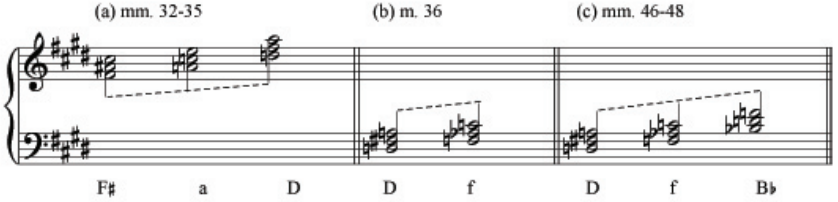
The curious aspect of the B♭-major triad in m. 48 is the way in which it is, in a manner of speaking, *due*. Debussy juxtaposes major and minor triads several times in the prelude; each occurrence is marked by contrasts in texture and dynamics. The first juxtaposition occurs in the central section, with two fanfare gestures that combine A-minor, F♯-major, and D-major triads (mm. 32–33 and 34–35). Example 9a displays these triads, arranging them in terms of lowest to highest register. Several measures later Debussy alternates D-major and F-minor triads (m. 36); as we can see from Example 9b, these triads are transpositions down a major third of the first two triads in mm. 32–36. If there *were* a third triad, we would expect it to be B♭ major, a major third below D major. Debussy returns to these same chords in mm. 46–48, in a passage characterized by a thicker

Example 8. Registral associations among B♯-Major triads.



texture, a *pp* dynamic level, and a marking of *lointain*, which adds an element of mysteriousness. As Example 9c shows, this passage completes the pattern implied by Example 9b with a B♭-major triad.

Example 9. Manipulation of triads and the B♭ triad that is "due."



IV. Final considerations

In *The Girl with the Flaxen Hair* a collectional approach appears to amount to little more than parsing the score according to changes in surface design. This is because the changes in collection are in phase with changes in tempo and motive. This is by no means the case with all pieces, however, as we saw in *Dead Leaves*. It is important that students understand that these two aspects of compositional organization function independently, and that their interaction is a compositional resource that contributes to varying degrees of emphasis in the articulation of formal boundaries. It is not at all uncommon that a collection persists through changes in surface design, or, conversely, that a change in collection occurs without accompanying changes in surface design. Such misalignments may be employed to de-emphasize or blur a formal boundary.[20]

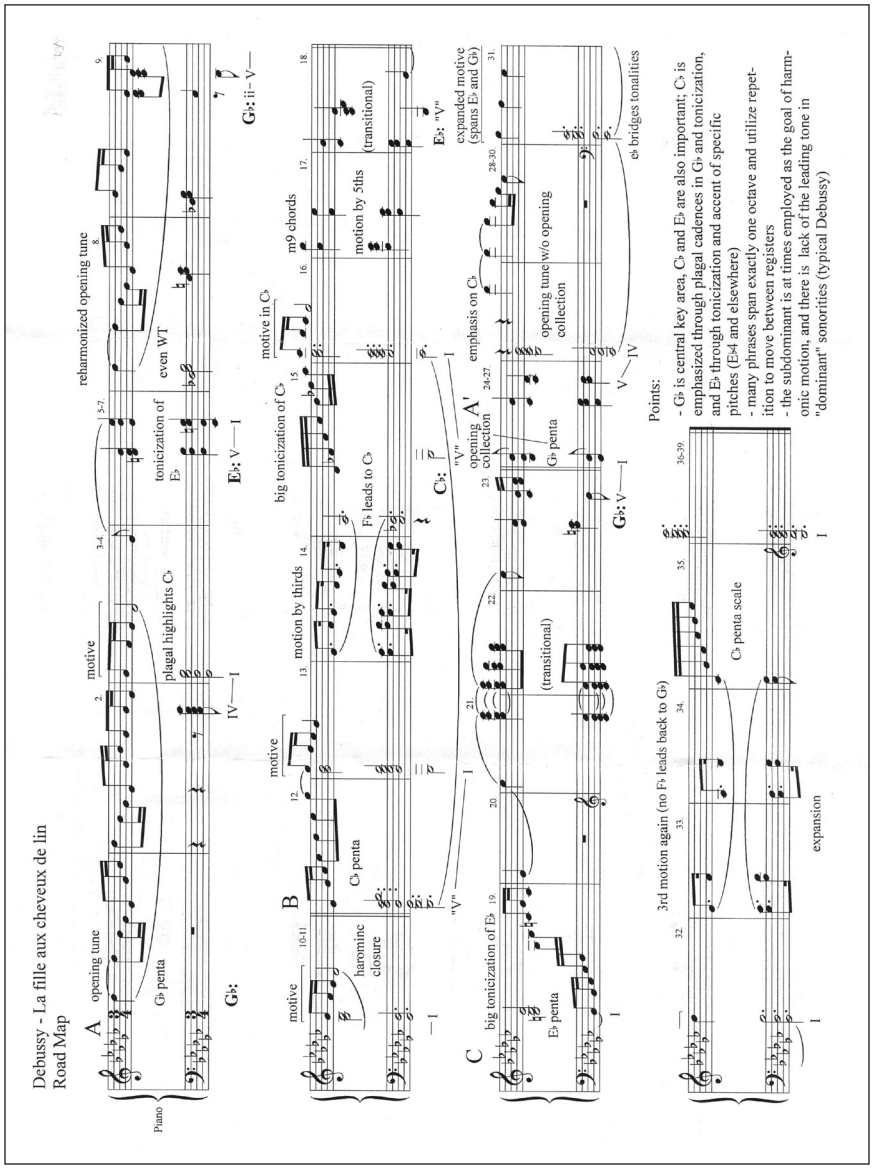
The advantage to pursuing a collectional approach lies not in comprehensiveness but in efficiency. This approach is manageable and gets students inside the music. It leads them to consider the behavior of foreign tones—those that lie outside the prevailing collection—which in turn can prompt questions that are the stuff of analytical inquiry. And since they have arrived at and formed these questions themselves, a greater likelihood of better (or, at the very least, more assured) answers attaches to their work. Finally, it should be noted that a collectional approach has broad analytical applicability, being a basic technique in the study of tonal, post-tonal, twelve-tone, and minimalist music. It is therefore a skill that is both familiar to students and worth honing, since it will underlie so much of their analytical study.

[20]An analogous resource exists in the logical and rhetorical components of a cadence. Cadential strength depends upon both a specific harmonic progression and the motions of individual voices. The familiar authentic cadence of tonal music is clarified by the bass voice assuming its "harmonic" role and leaping from the root of V to the root of I. Here, logical and rhetorical aspects are aligned and the result is a strong cadence. If, however, the bass voice brings to the cadence a motion proper to its other role, as part of the melodic or contrapuntal fabric, then logical and rhetorical aspects are *misaligned* and the result is a deemphasized or weakened cadence

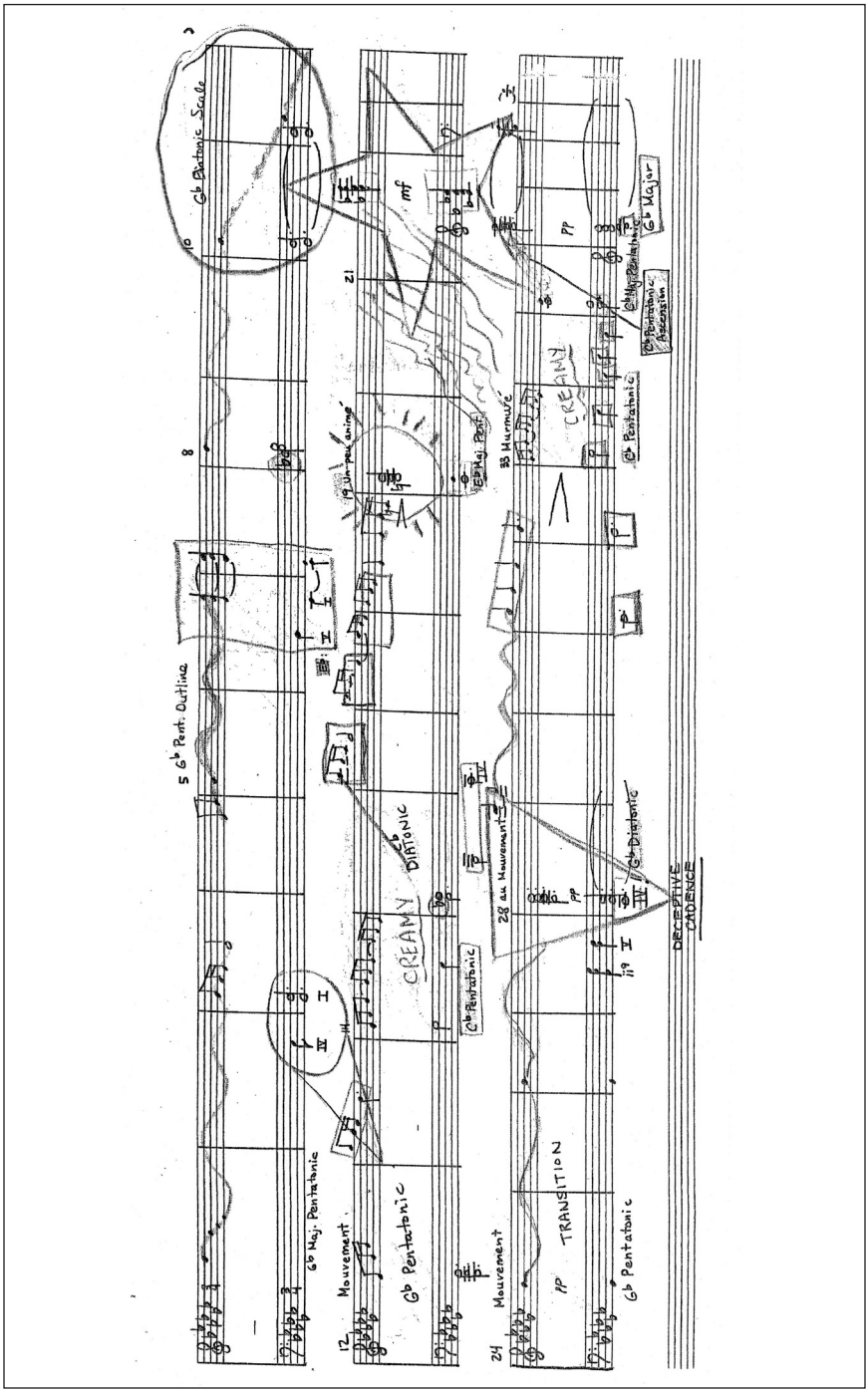
APPENDIX 1: Examples of students' road-maps of *Flaxen Hair*

(These road maps were made by sophomores in a fourth-semester fundamentals course.)

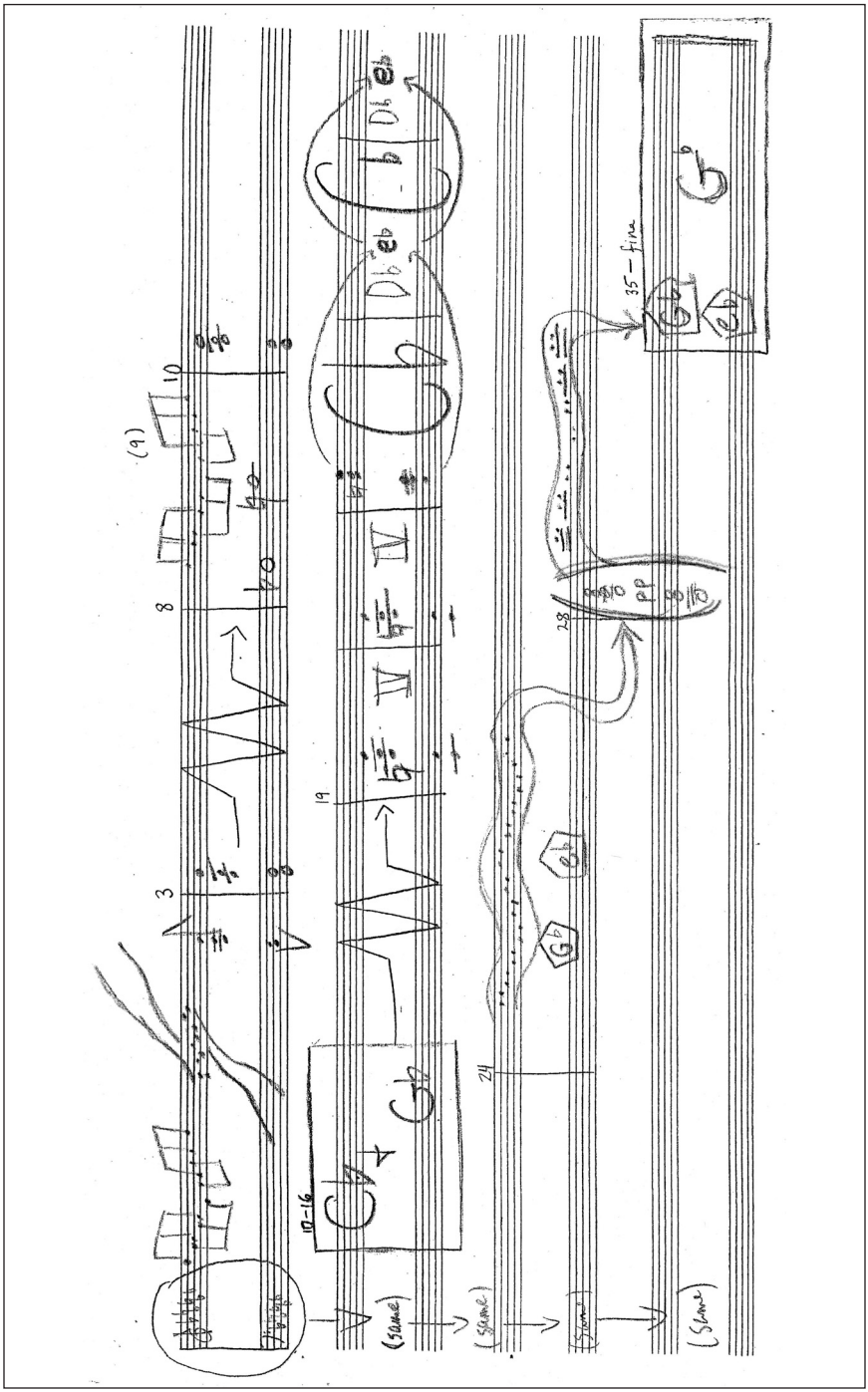
PART 1



Appendix 1: Part 2



APPENDIX 1: PART 3



APPENDIX 2: Works well-suited to a collection-driven approach

The compositions below are arranged (somewhat loosely) into easy, medium, and difficult grades. This list is hardly exhaustive; its purpose is merely to suggest other pieces that are easily modeled by a collection-driven approach. These pieces could easily comprise a module in an upper-level undergraduate course, or a graduate course in analytical techniques or 20th-century music.

Easy

- Bartók, *Diminished Fifth*, *Isle of Bali* and other pieces from the *Mikrokosmos*; *Song of the Harvest* (from 44 duos); *Bulgarian Rhythms*; selections from *Ten Easy Pieces for Piano* (such as #2)
- Berg, "Nacht" from *Sieben frühe Lieder*
- Britten, "O Waly Waly," "The Trees They Grow So High," and other folk songs
- Debussy, "Voiles," "Sunken Cathedral," and other piano preludes
- Gorecki, "Totus tuus" and "Amen" (for unaccompanied choir)
- Lutoslawski, *Bucolic* #2
- Miki, *Time* (for marimba)
- Pärt, *Fratres*
- Reich, *Eight Lines, New York City Counterpoint*

Medium difficulty

- Adams, *Shaker Loops*
- Bartók, the opening of *Bluebeard's Castle*; *Free Variations* (from *Mikrokosmos*)
- Bloch, Sonata for Violin and Piano (especially the first and second movements)
- Britten, Canticle #2, "Abraham and Isaac"
- Debussy, *Trois Chansons* #1, *Syrinx*, *Nuages*, *Pour le Piano* (any movement)
- Messiaen, *Poemes pour Mi*, i; Interméde from the *Quartet for the End of Time*
- Ravel, *Jeux d'eau*, Sonatine, i
- Stravinsky: *Duo Concertante*, i and iv

More challenging

- Bartók, *Out of Doors Suite*, Third String Quartet
- Debussy, *Images*, Book II
- Harbison, *Mirabai Songs*, especially #4
- Hindemith, Sonata for Harp (any movement)
- Scriabin, Piano Sonata #6
- Stravinsky, Petrouchka (first tableau)