Riffing on Buxtehude: Hierarchical Memory and the Analysis and Pedagogy of Keyboard Improvisation

Proposal

For all the ink dedicated to rhetoric in Baroque music, not enough of it has acknowledged the importance of *memoria*, the skill that equipped the composer-improviser-keyboardists of the Baroque to extemporize the pieces that we know today. Figure 1 presents a three-tiered hierarchical model that places *memoria* as the linchpin between improvisational learning (i.e., memorial input) and improvised performance (i.e., memorial output). Improvisers learn patterns on three interrelated levels---long-range trajectories *(dispositio)*, local generating principles and skeletal frameworks *(elaboratio)*, and diminution strategies to apply to these frameworks *(decoratio)*---and they rely upon these three phases during extemporaneous playing.

By applying this model analytically to pieces such as the Buxtehude Variation Suites, BuxWV 226, 228, 230, and 231, we can view each written-out improvisation as one of countless possible interactions among *dispositio*, *elaboratio*, and *decoratio*. The first reprises of the four Allemandes all reach the same series of basic waypoints (*dispositio*, Fig. 2), but each does so via its own set of generating formulas (*elaboratio*) and motivic diminutions (*decoratio*). Figure 3 contrasts the *elaboratio* frameworks of these reprises. I explore the precise nature of the similarities and differences among these four movements, which lie sometimes on the surface and sometimes beneath it, and I utilize the model in Fig. 1 in order to comment upon the improvisational meanings of variation for pieces such as these.

This model is pedagogical as well as analytic; I report on a curriculum for teaching the improvisation of Binary-form suite movements. Through repertoire study, students

deduce a generic *dispositio* for a Minuet (Fig. 4), which determines a basic layout of phrases, cadences, modulations, and sequences. They also practice, transpose, and memorize characteristic *elaboratio* frameworks (Fig. 5) and diminution strategies, all of which are adapted from contemporaneous treatises by Wiedeburg, Niedt, and others. Prior to improvising, students elaborate this *dispositio* with a piece-specific arrangement of particular keys, modulatory paths, and sequence types (Fig. 6). Within this template, they extemporize a series of learned *elaboratio* formulas that realize the chosen path, and render these as a musical surface by applying melodic and rhythmic diminution (i.e., *decoratio*) to them; a sample improvised Minuet (Fig. 7) realizes the *dispositio* of Fig. 6.

And indeed, analysis and pedagogy fruitfully collide when we riff on Buxtehude, rendering the *elaboratio* skeleton of BuxWV 231 with different surface motives (Fig. 8), or preserving the surface motives of BuxWV 228 while employing different voice-leading progressions to realize the underlying *dispositio* (Fig. 9). Such an improvisational dialogue is simultaneously analytical and creative, and its flexibility derives from regarding improvisational memory as hierarchical generation, rather than serial regurgitation. To conceive of improvisational learning in this way is to view written-out improvisations such as Buxtehude's, quite rewardingly, as realizations of an infinitely variable set of generative options, and also to offer an effective and creatively structured method for the present-day teaching and learning of stylistic improvisation. In this way, the improvisation of Baroque keyboard music resides in a place where analysis and *musica pratica* happily intersect.

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Required Equipment

Piano

LCD projector with Mac laptop connection

1/8-inch audio input (from laptop)

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Riffing on Buxtehude: Hierarchical Memory and the Analysis and Pedagogy of Keyboard Improvisation

Figure 1. *Rhetorical Model of Baroque Keyboard Improvisation.*

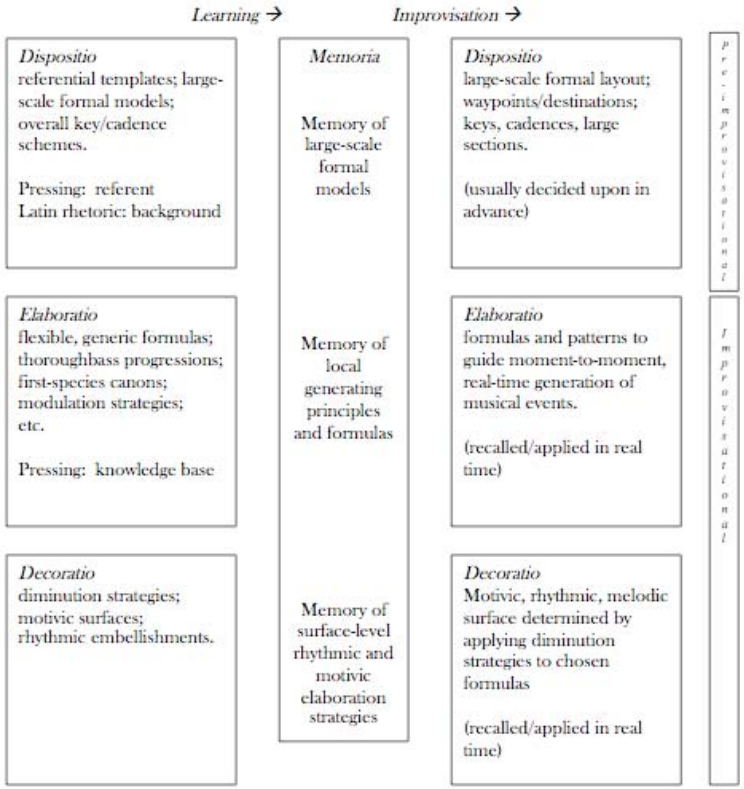
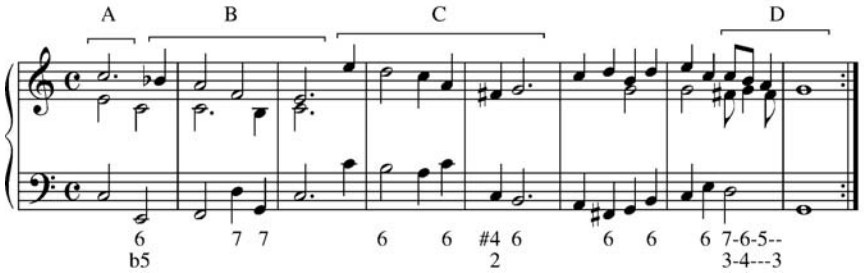


Figure 2. *Dispositio of Buxtehude, Allemandes (BuxWV 226, 228, 230, and 231), first reprises*

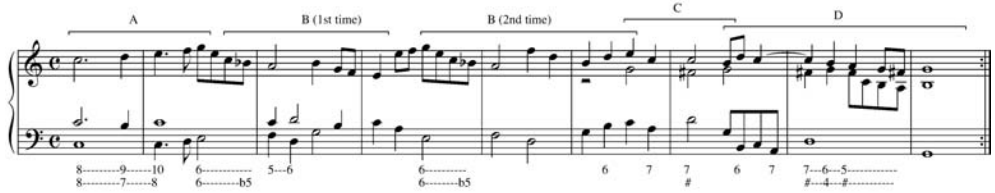
(A) Initial Prolongation of Tonic
(B) Tonicization of IV and Intermediate Cadence in Tonic
(C) Modulation Strategy to V
(D) Cadential Confirmation of V

Figure 3. *Elaboratio Reductions of Four First Reprises*

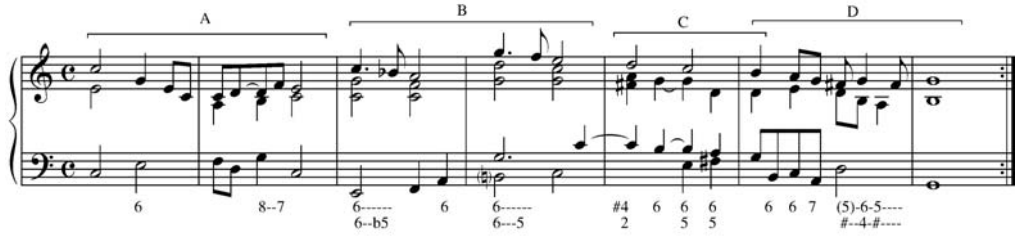
BuxWV 226:



BuxWV 228:



BuxWV 230:



BuxWV 231:

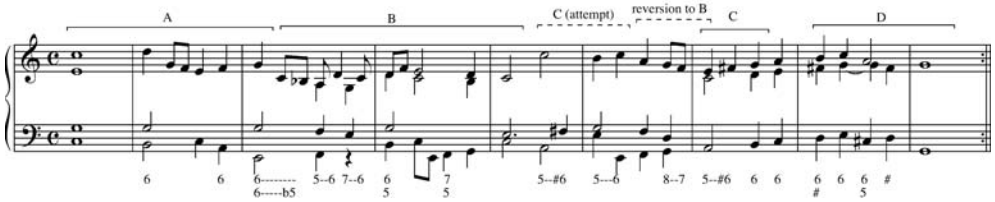


Figure 4. *Generic Dispositio for an Improvised Minuet*

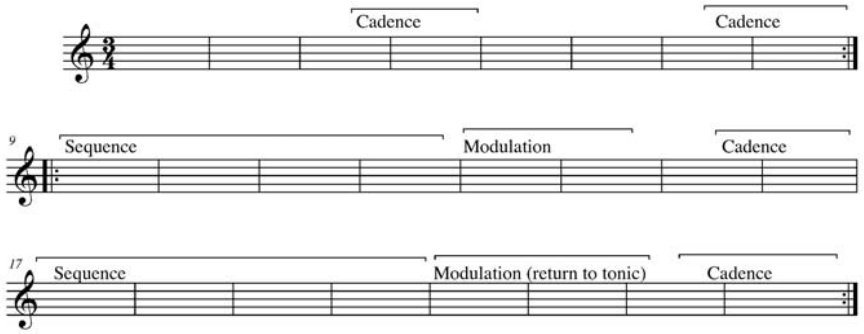
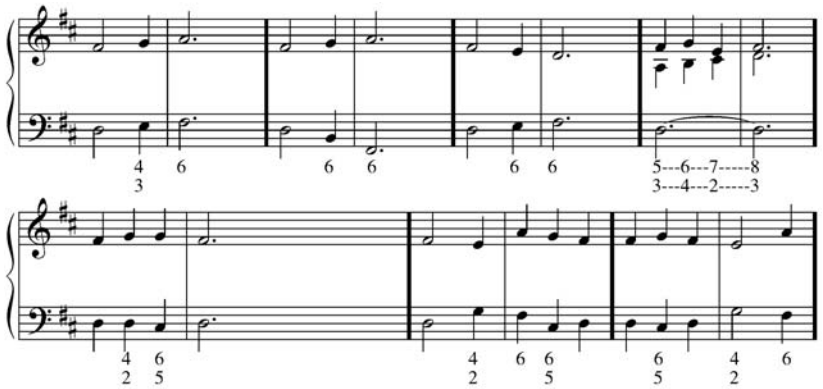
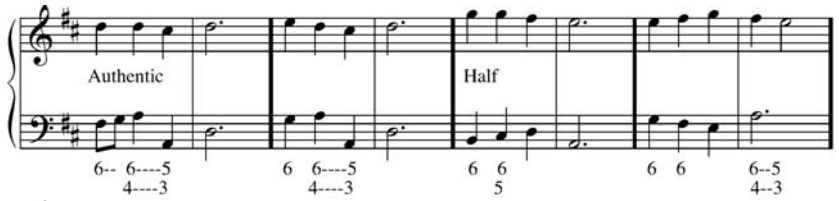


Figure 5. *Elaboratio Patterns (to transpose and memorize)*

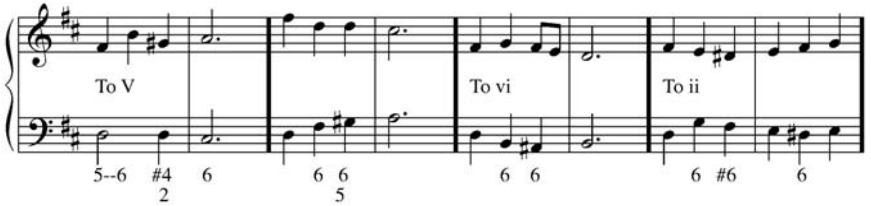
A. *Tonic expansions (key-defining):*



B. *Cadences (key-confirming):*



C. *Modulations (key-seeking):*



D. *Sequences:*

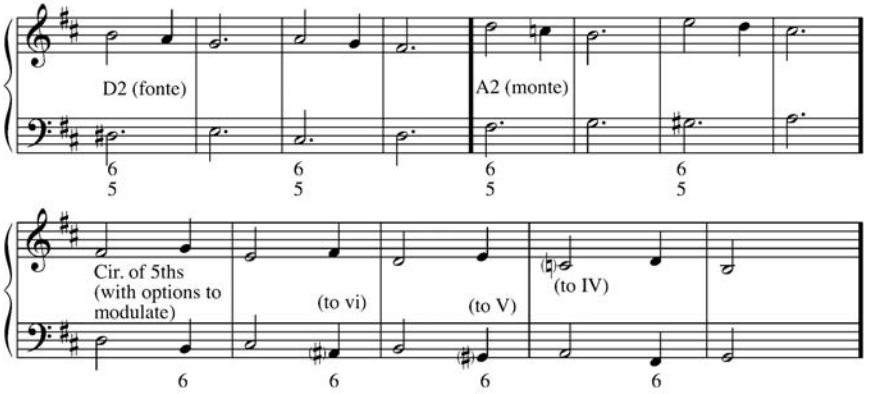


Figure 6. *Detailed Dispositio for an Improvised Minuet in D.*

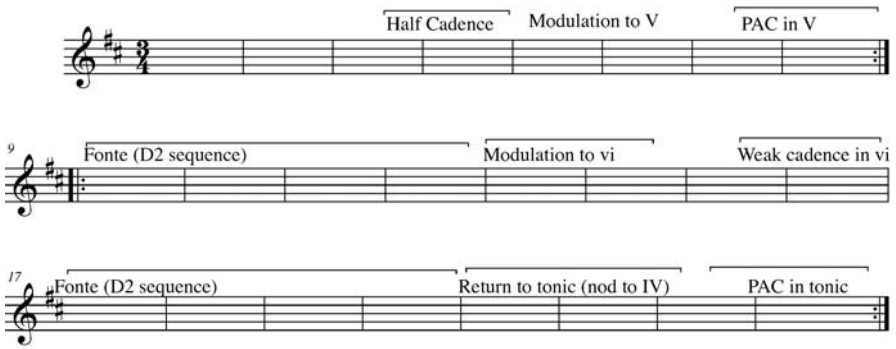


Figure 7. *Sample Improvised Minuet Based upon the Dispositio in Fig. 6*

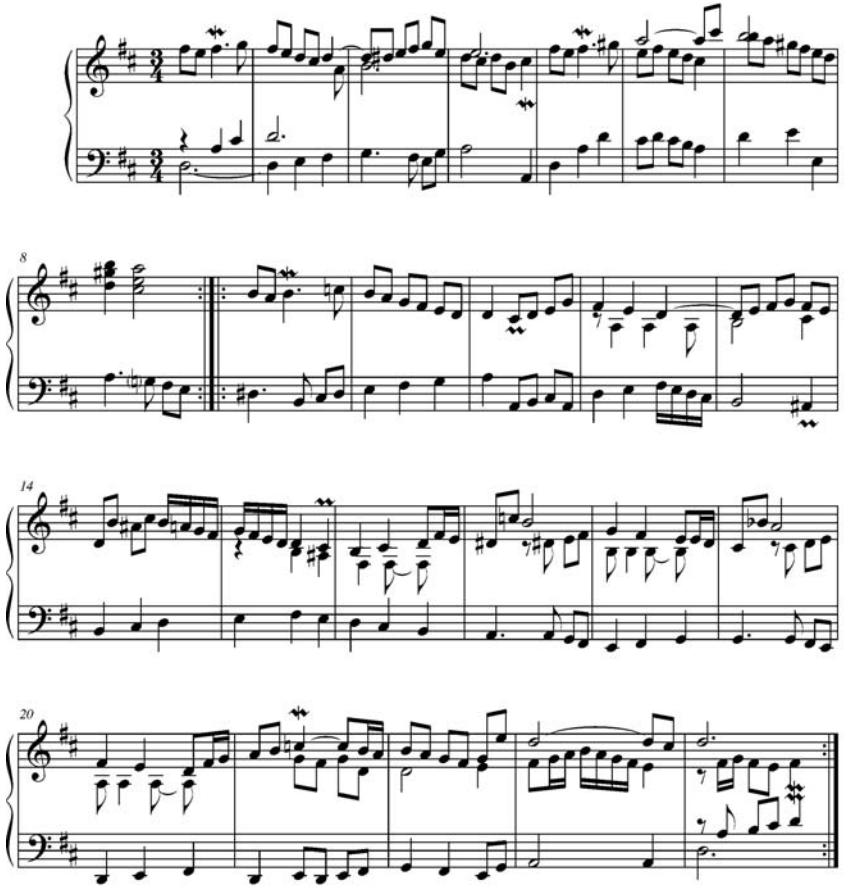


Figure 8. *Sample Improvisation Applying Different Decoratio Patterns to the Elaboratio Framework of BuxWV 231*

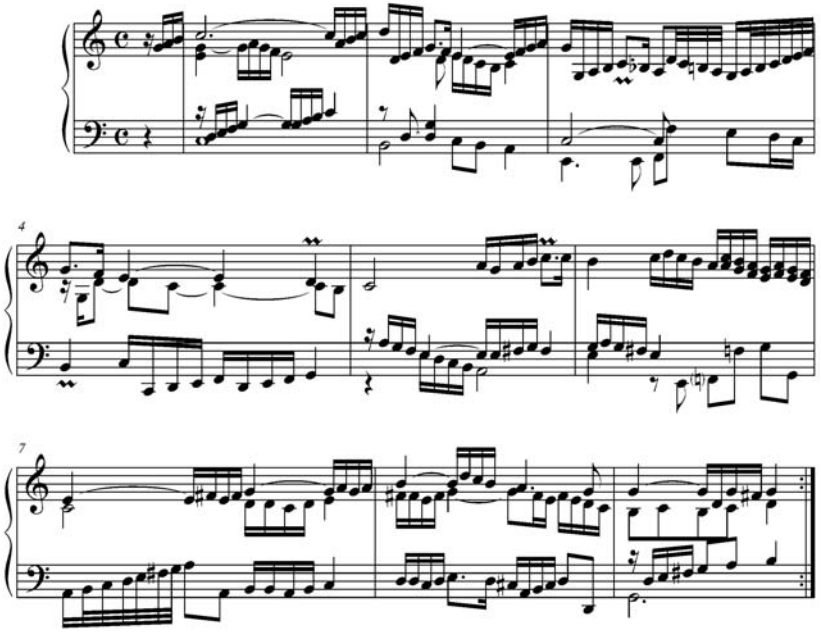
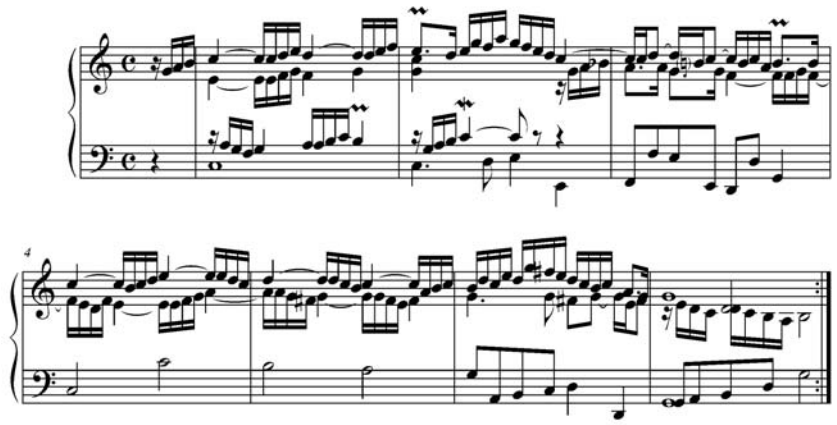


Figure 9. *Sample Improvisation Realizing Buxtehude's Dispositio by Means of a New Elaboratio, but Rendered via the Lower-Neighbor and Turn Figures of BuxWV 228*



The "Continuous Exposition" and the Concept of Subordinate Theme

Proposal

The remarkable flourishing of research into the theory of musical form witnessed in the last several decades has resulted in the propagation of many new ideas and their attendant terminology. This paper examines one key concept of Hepokoski and Darcy's recent "Sonata Theory"—their fundamental distinction between sonata expositions that are either *two-part* or *continuous*. Considering this distinction is useful not only to probe its general efficacy for formal analysis, but also because it permits us to evaluate a number of other key notions associated with Sonata Theory, especially the *medial caesura* and *secondary-theme zone (S)*. For Hepokoski and Darcy ground the distinction between exposition types largely in terms of these two concepts: a two-part exposition contains both a medial caesura and an S-zone, whereas a continuous exposition contains neither.

I contend that this binary opposition misconstrues the commonality of formal procedures operative in classical sonata form and, following Caplin's "form-functional" approach, insist that all expositions contain a subordinate theme (or, at least, sufficient functional elements of such a theme), even if the boundary between the transition and subordinate theme is obscured, a situation that can give rise to "continuous" expositions according to Sonata Theory. To frame my argument, I propose three categories of such a blurred boundary. In the first, the transition lacks a functional ending, but the subordinate theme still brings an initiating function of some kind (e.g., Haydn's "Farewell" Symphony). In the second category, the transition ends normally, but the subordinate theme lacks a clear beginning. Two subcategories involve cases where (a) the subordinate theme introduces a new *standing on the dominant*, one that

prolongs the same harmony found at the end of the transition (Mozart's "Hunt" Quartet, Example 1), or (b) the end of the transition is reinterpreted as an *internal half cadence* of a subordinate theme, which is then followed by a new continuation or cadential function leading to a PAC in the new key (Haydn's "Joke" Quartet, Example 2). In the third category, both the transition lacks an end and the subordinate theme lacks a beginning, thus effecting a complete *fusion* of these thematic functions (Haydn's Quartet Op. 33/1).

I conclude by examining some of the key conceptual differences that account for the divergent views of expositional structures offered by Sonata Theory and Caplin's theory of formal functions. In particular I assert that whereas the medial caesura is an effective rhetorical device, it has no essential form-functional consequences: it is neither responsible for ending the transition nor is it a necessary condition for the existence of a subordinate theme. Likewise, the distinction between two-part and continuous expositions, while useful as an informal description of textural and rhythmical processes, obscures the unity of formal syntax of instrumental music in the high classical style. Rather than focusing on rhythmic and textural devices to define expositional structure, I advocate instead an analytical methodology that attends to the form-functional expression of individual phrases making up thematic units within a sonata exposition.

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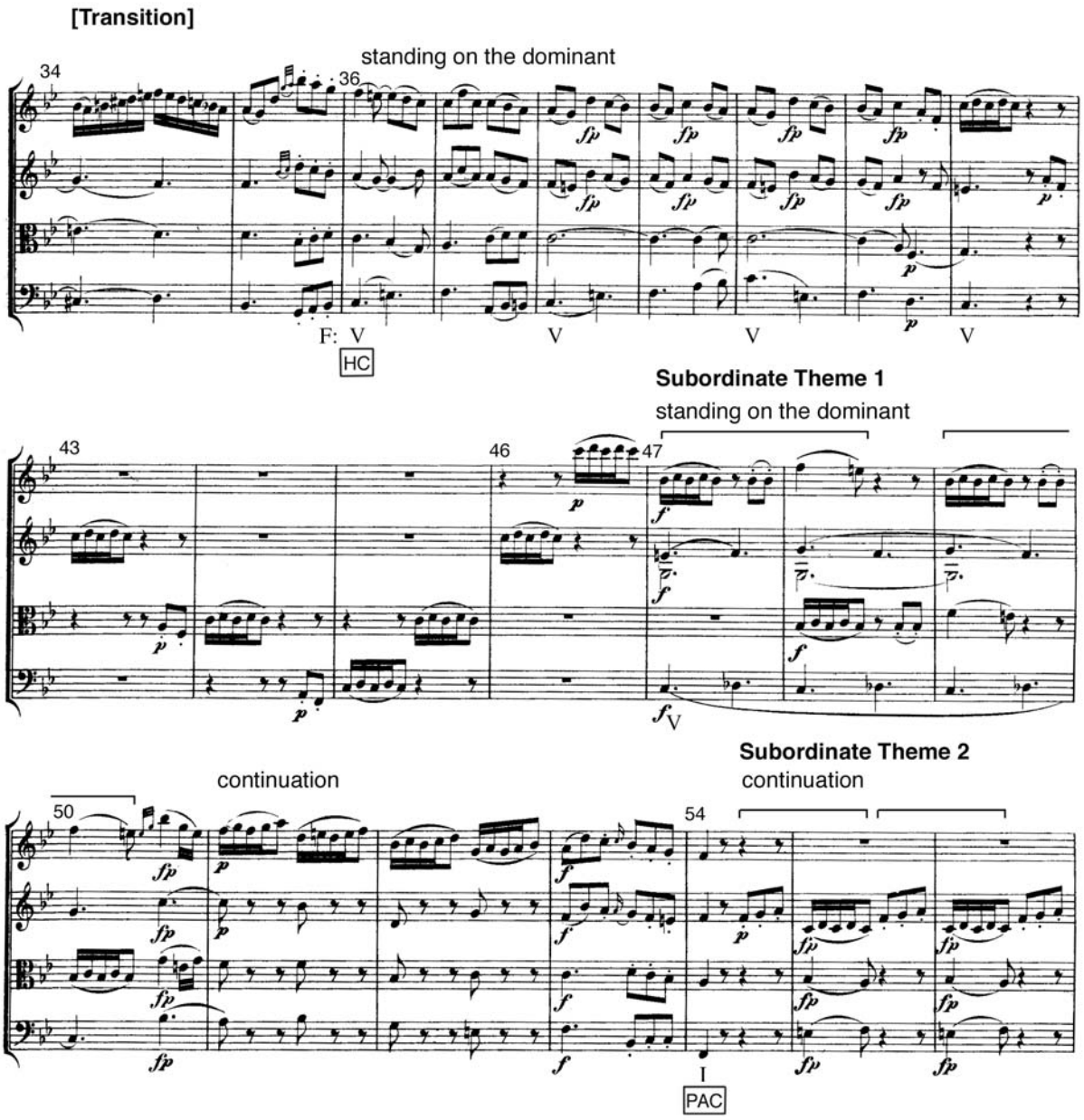
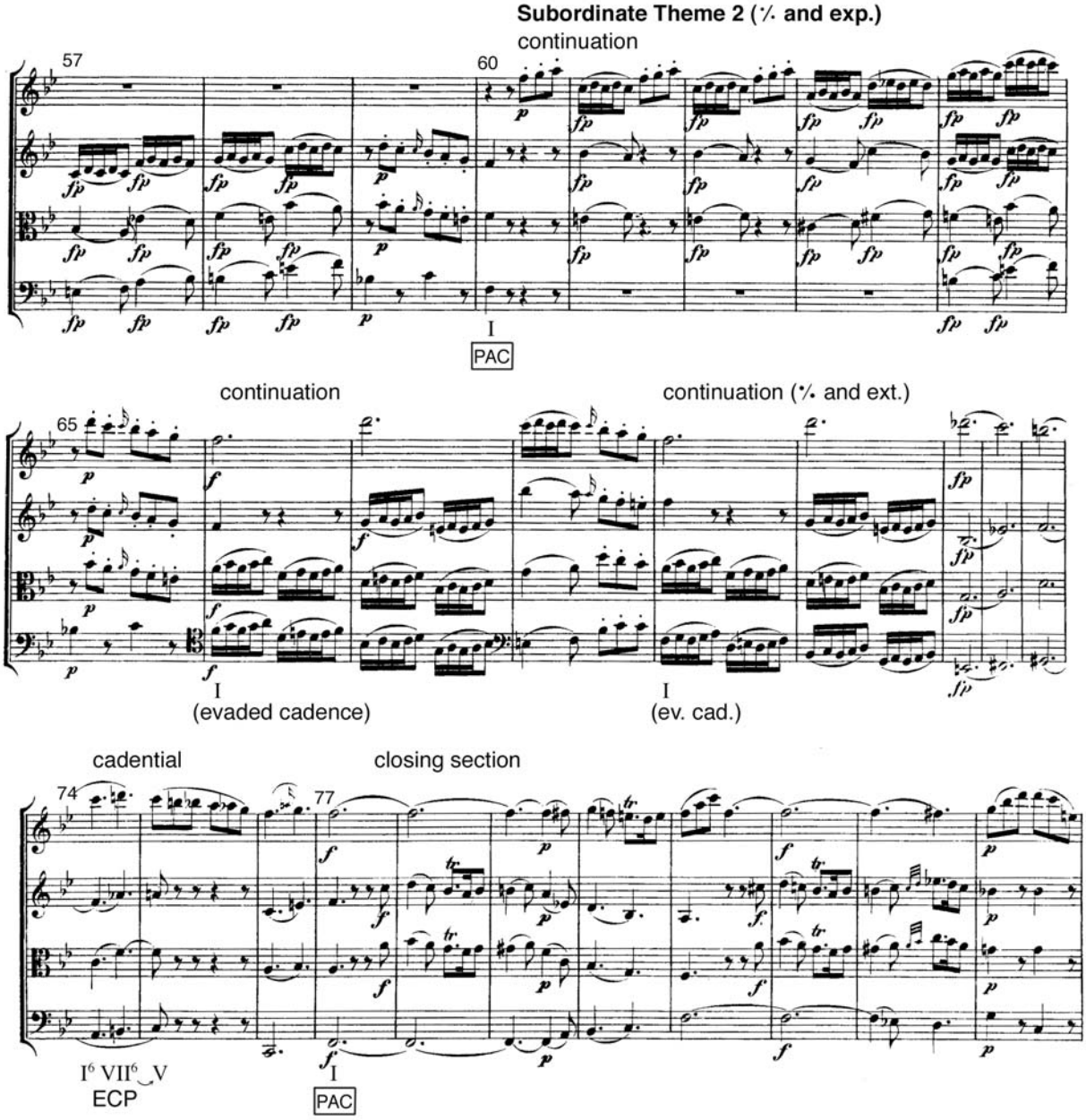
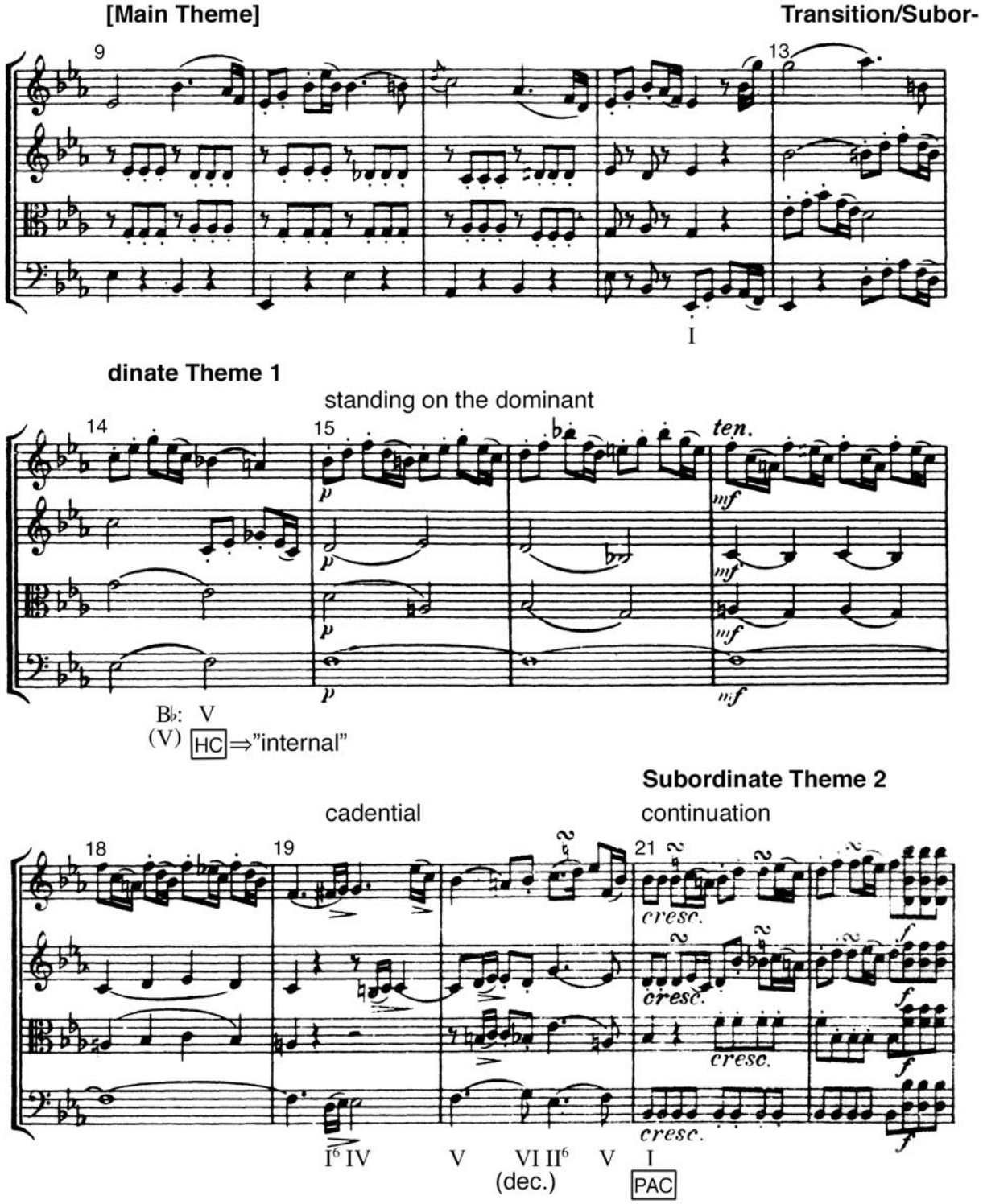
Example 1: Mozart, String Quartet in B-flat ("Hunt"), K. 458, i, 41–79



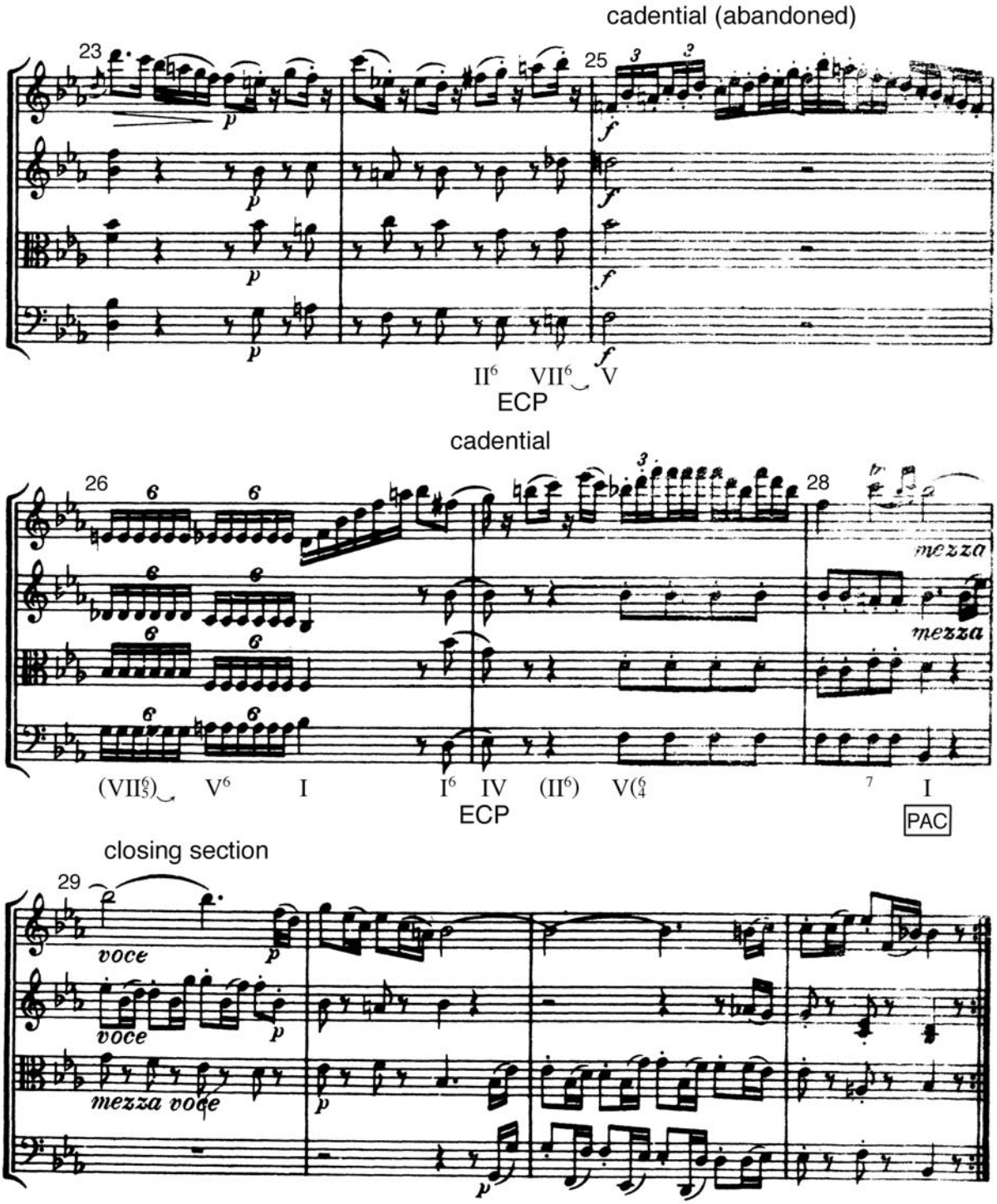
Example 1, cont.



Example 2: Haydn, String Quartet in E-flat ("The Joke"), Op. 33/2, i, 13–29



Example 2, cont.



MUSIC AND THE AGENTS OF OBSESSION

Drawing on recent studies of musical madness, this paper proposes an historically grounded model of the musical representation of obsession.[1] Formed in the late eighteenth century and popularized by the development of psychiatry in the nineteenth, medical theories of obsession divide the mind into two conflicting agents: a rational, mobile agent, and a stubborn, fixed agent.[2] Contemporaneous with the emergence of this medical model of mental pathology, an evocative musical topic—in which a note or group of notes is stuck, repeating itself within a shifting harmonic context—has been used by composers to depict these obsessional spaces in purely musical terms, signifying through metaphoric transfer: the images of obsession (the "mobile idea vs. the fixed idea") are assigned musical equivalents (the "mobile harmony vs. the fixed note").[3] The topic will be introduced via a brief survey through some notable texted examples (Schubert's "Die liebe Farbe," Wolf's "Im Frühling," Vaughan Williams's "In Dreams").

The conflict between the mobile and fixed agents of obsession creates stories that are familiar from other expressive trajectories used to narrate disability (Straus 2006). Three model analyses will demonstrate the most common narratives: the obsessive agent may be rehabilitated (Brunetti's programmatic symphony *Il maniático*), the obsessive agent may prompt a descent

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[1] Recent studies of musical representations of obsession include Brittan 2006, Burstein 2006, and Rodgers 2006. Goldenberg 2006, a study of "musical obstinacy," is also relevant.

[2] For a recent study of the cultural history of obsession, see Davis 2008. Other medical-historical studies include Berrios 1985 and Ingram 1991.

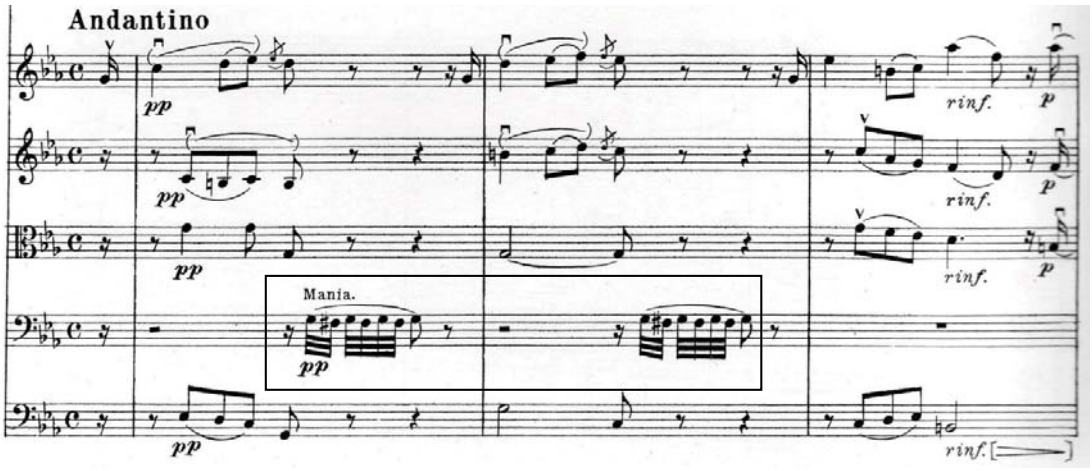
[3] On the relevant theories of gesture and agency, see Hatten 2004. Monelle 2006 explores at length the relationship between topics and the cultures that produce them. For example, Andrew Harper, an eighteenth-century doctor, evocatively describes the obsessive mind as "*pitched upon a specific note* and its nervous motions *circumscribed within the limits of a certain modulation*" (Harper 1789).

into total madness (Britten's *Rejoice in the Lamb*, mvt. 5), or the obsessive agent may be accommodated by the rational agent (Peter Cornelius's "Ein Ton").

Brunetti's formally peculiar symphony places the obsessive agent in the cello, who repeats a "mania" motive (Example 1); according to the symphony's program, his friends (the rest of the orchestra) eventually encourage him to move along from his fixity.[4] In the example by Britten, a repetitive motive isolated in the organ (Figure 1) instigates a gradual darkening of harmonies, from the all-white-key E minor to all-black-key E-flat minor (Figure 2); by m. 12 the chorus, singing the obsessive motive, emerges as "mad." Cornelius's song presents a conflict between the agents of the voice, who "obsessively" intones the entire text on B, and of the piano accompanist, who proposes possible modulations but must scramble to accommodate the singer when he refuses to budge (Figure 3). The moment of maximal conflict to the immobility of the singer's B comes in m. 24—but even there the piano's B flat (which suggests resolutions that would render B dissonant, Figure 4) does little to nudge the voice from its fixity.

[4] On minor-to-major "recuperation," see Grave 2008.

EXAMPLES AND FIGURES



Example 1: First appearance of the solo cello's "mania" figure (strings only). Brunetti, Symphony no. 33 (*Il maniático*), mvt. I, mm. 20–23.

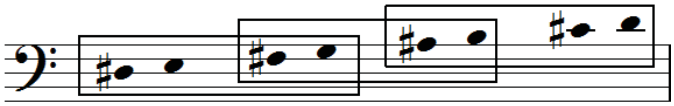


Figure 1: The "obsessive" motive in *Rejoice in the Lamb*, mvt. 5. The motive is replicated at three different pitch levels: D♯-E-F♯-G (m. 3), F♯-G-A♯-B (m. 6), and A♯-B-C♯-D (m. 9).

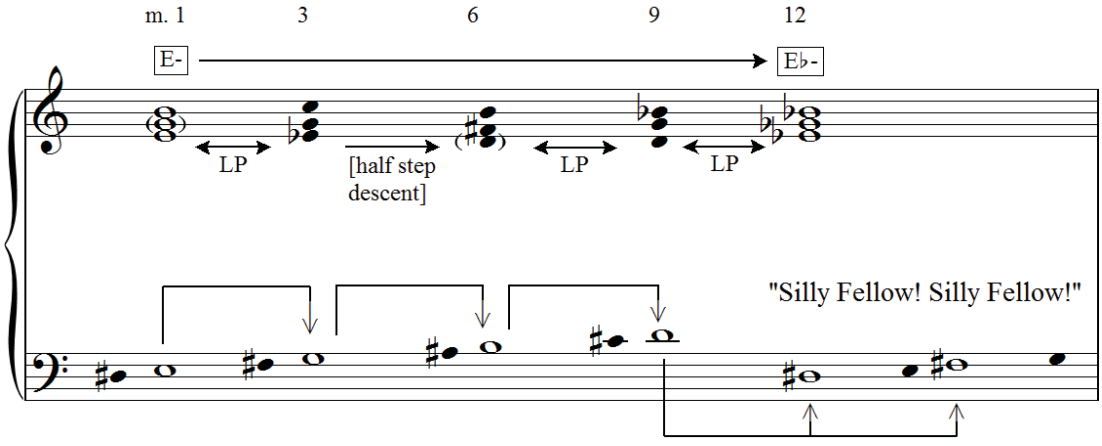


Figure 2: Motion from E minor to E-flat minor in Britten, *Rejoice in the Lamb*, mvt. 5, mm. 1–12. The "scale" in the lower staff is derived from Figure 1; its whole notes represent the *bass* note of each chord. (LP = *Leittonwechsel* + *Parallel* transformations)

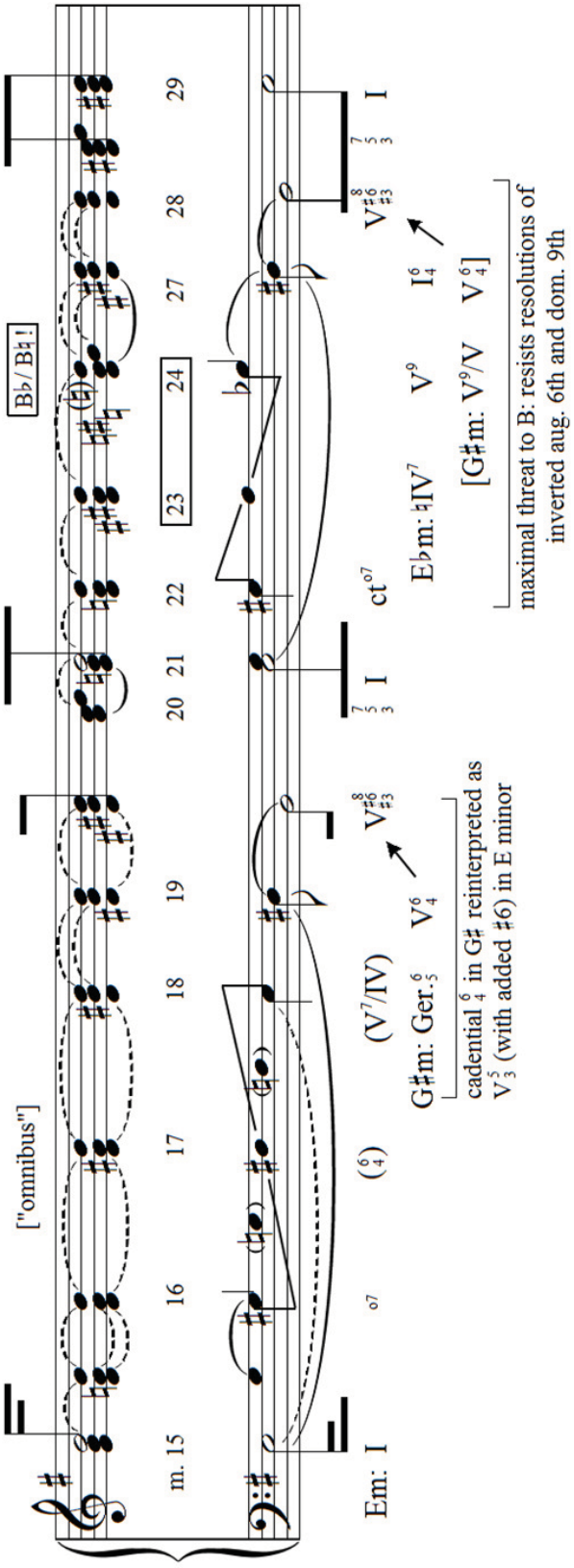


Figure 3: Voice-leading sketch of Cornelius, “Ein Ton,” mm. 15–29.

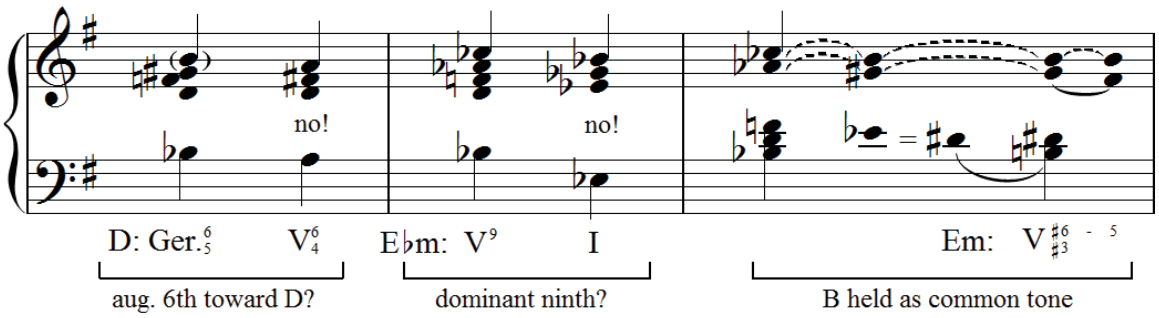


Figure 4: Possible resolutions of the chord in m. 24 (Cornelius, “Ein Ton”). The third option—Cornelius’s choice—allows the “obsessive” B to remain in place.

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PAPER PROPOSAL: "Isomorphic Mapping, Self-Similarity, and 'Nesting' in Charles Wuorinen's *Cello Variations*"

American twelve-tone composer Charles Wuorinen recently celebrated the 30th anniversary of his landmark twentieth-century composition manual, *Simple Composition,* and its historical significance continues to grow.[1] Not only does Wuorinen's text coalesce important twelve-tone developments from giants Schoenberg, Stravinsky, and Babbitt, but it introduces his evolutionary "nesting method," which transfers the implications of an ordered series to the background structure of a piece. Though the book originally addressed composers, its impact resonates through numerous spheres today, including: composers, theorists, teachers, students, or anyone tracing the lineage of twentieth-century twelve-tone serialism.

Though *Simple Composition's* approach is abstract, most specific twelve-tone practices it explicates – pre-existing concepts such as basic operations, multiplicative transformation, rotation, derivation, etc. – have all been identified and analyzed in musical works. Andrew Mead's analyses of Milton Babbitt's music and Joseph N. Straus's work on Stravinsky's late music have facilitated the dissemination of these important compositional contributions to the method.[2] However, the crux of Wuorinen's text, his own "nesting method," has been difficult for theorists to instantiate concretely into actual pieces of music. This presentation will propose the first-ever comprehensive analysis of the "nesting method," illustrating that Wuorinen's basic set – a hexachord

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[1] Charles Wuorinen, *Simple Composition* (New York: C.F. Peters Corporation, 1979).
[2] For representative analyses see Andrew Mead, "About *About Time's* Time: A Survey of Milton Babbitt's Recent Rhythmic Practices," *Perspectives of New Music* 25 1/2 (1987); and Joseph N. Straus, *Stravinsky's Late Music (Cambridge Studies in Music Theory and Analysis)* (New York: Cambridge, 2004).

consisting of the pitches F, D, E, F#, B, and G – efficiently organizes pitched (introduced by Schoenberg), rhythmic (introduced by Babbitt) and formal (introduced by Wuorinen) elements of *Cello Variations* (see Fig. 1). I will present examples of the isomorphic fabric conjoining pitch, local temporal, and global temporal dimensions, as well as construct a comprehensive breakdown of the "nesting method" in this work (see Table 1). Like a set of Russian dolls, the nested form unpacks self-similar versions of itself to communicate uniform musical relationships.

By diagramming the intricate framework of Wuorinen's *Cello Variations*, I aim to not only further advance the dissemination of Wuorinen's stylistic principles contained within his music and text, but also illuminate yet another creative tributary in the American twelve-tone tradition. This presentation hopes the many spheres of interest attached to *Simple Composition* may use the models in *Cello Variations* as an integrative demonstration of multiple twentieth-century twelve-tone techniques.

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DIVISION 1: 6 large sections
1,296♪ / 36 = 36♪ (scaling unit)

Section 1	*Section 2*	*Section 3*	*Section 4*	*Section 5*	*Section 6*
9 x 36 = 324♪	**2** x 36 = 72♪	**2** x 36 = 72♪	**5** x 36 = 180♪	**8** x 36 = 288♪	**10** x 36 = 360♪

DIVISION 2: Section 1 subsections—with "S" divisions
324♪ / 36 = 9♪ (scaling unit)

9 x 9 =81♪	**2** x 9 =18♪	**2** x 9 = 18♪	**5** x 9 = 45♪	**8** x 9 = 72♪	**10** x 9 = 90♪

Section 2 subsections—with "I" divisions
72♪ / 36 = 2♪ (scaling unit)

3 x 2 = 6♪	**10** x 2 = 20♪	**10** x 2 = 20♪	**7** x 2 = 14♪	**4** x 2 = 8♪	**2** x 2 = 4♪

DIVISION 3: Section 1, Subsection 1
81♪ / 36 = 2.25♪ (scaling unit)

9 x 2.25 =20.25♪	**2** x 2.25 =4.5♪	**2** x 2.25 =4.5♪	**5** x 2.25 =11.25♪	**8** x 2.25 =18♪	**10** x 2.25 =22.5♪

Section 1, Subsection 2
18♪ / 36 = .5♪ (scaling unit)

9 x .5 =4.5♪	**2** x .5 =1♪	**2** x .5 =1♪	**5** x .5 =2.5♪	**8** x .5 =4♪	**10** x .5 =5♪

DIVISION 4: "measures with meters" 4 (measure 5)
12♪ used / 30 = .4 ♪ (scaling unit)

9 (10) x .4 =4♪	**2** x .4 =.8♪	**2** x .4 =.8♪	**5** x .4 =2♪	**8** x .4 =3.2♪	**10** (3) x .4 =1.2♪

"measures with meters" 6 (measures 8-9)
21♪ used / 31.5 = .67 ♪ (scaling unit)

9 x .67 =6♪	**2** x .67 =1.33♪	**2** x .67 =1.33♪	**5** x .67 =3.33♪	**8** x .67 =5.33♪	**10** (5.5) x .67 =3.67♪

Table 1: Nested layers from *Cello Variations'* source hexachord F, D, E, F#, B, G with ordered pc intervals 9,2,2,5,8,(10)

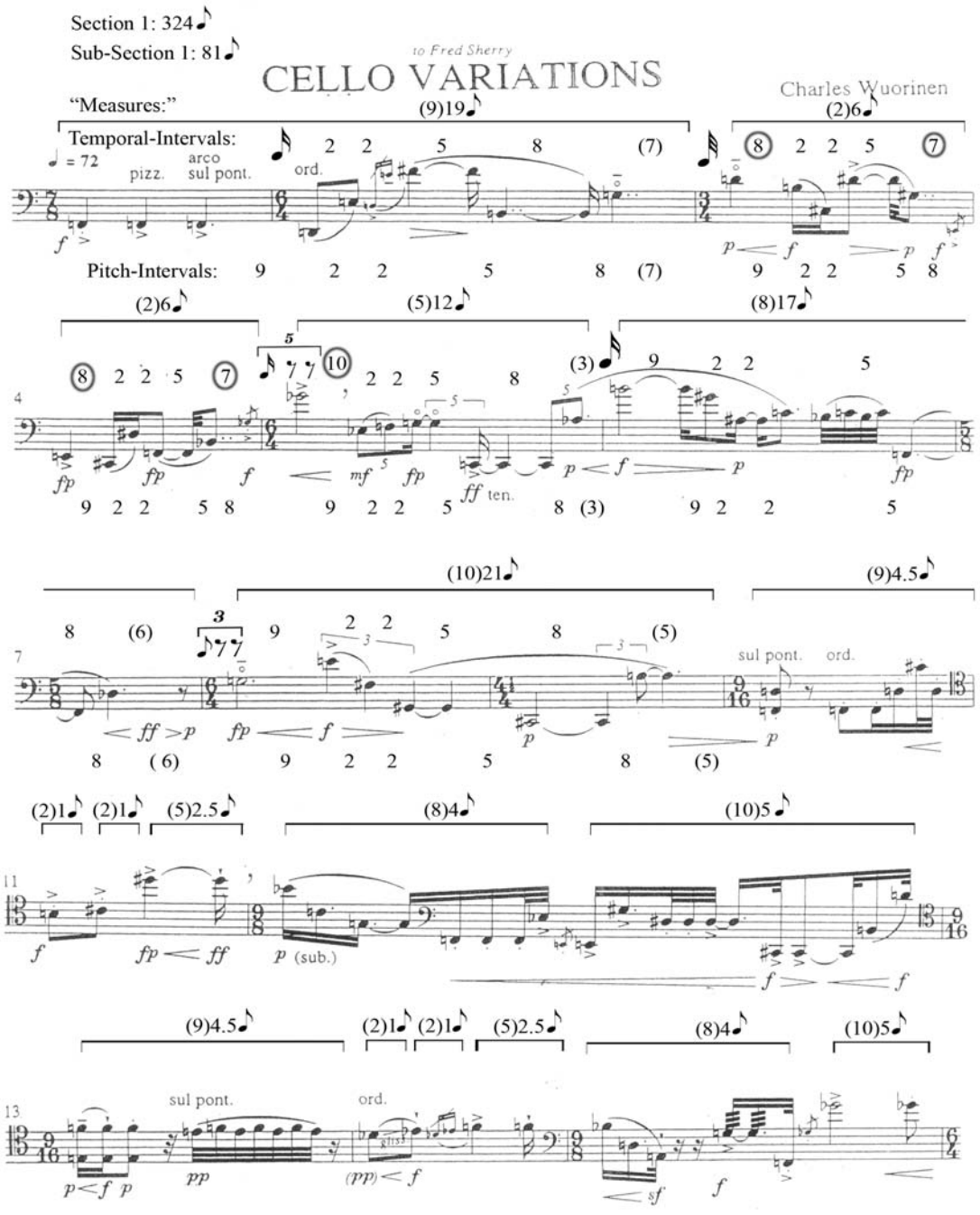


Fig. 1. Isomorphic stratification of pitch, temporal, and formal designs in *Cello Variations* (mm. 1 – 15) from single source hexachord with ordered pc intervals: 9,2,2,5,8,(10)

Improvising with "Perle Knets"

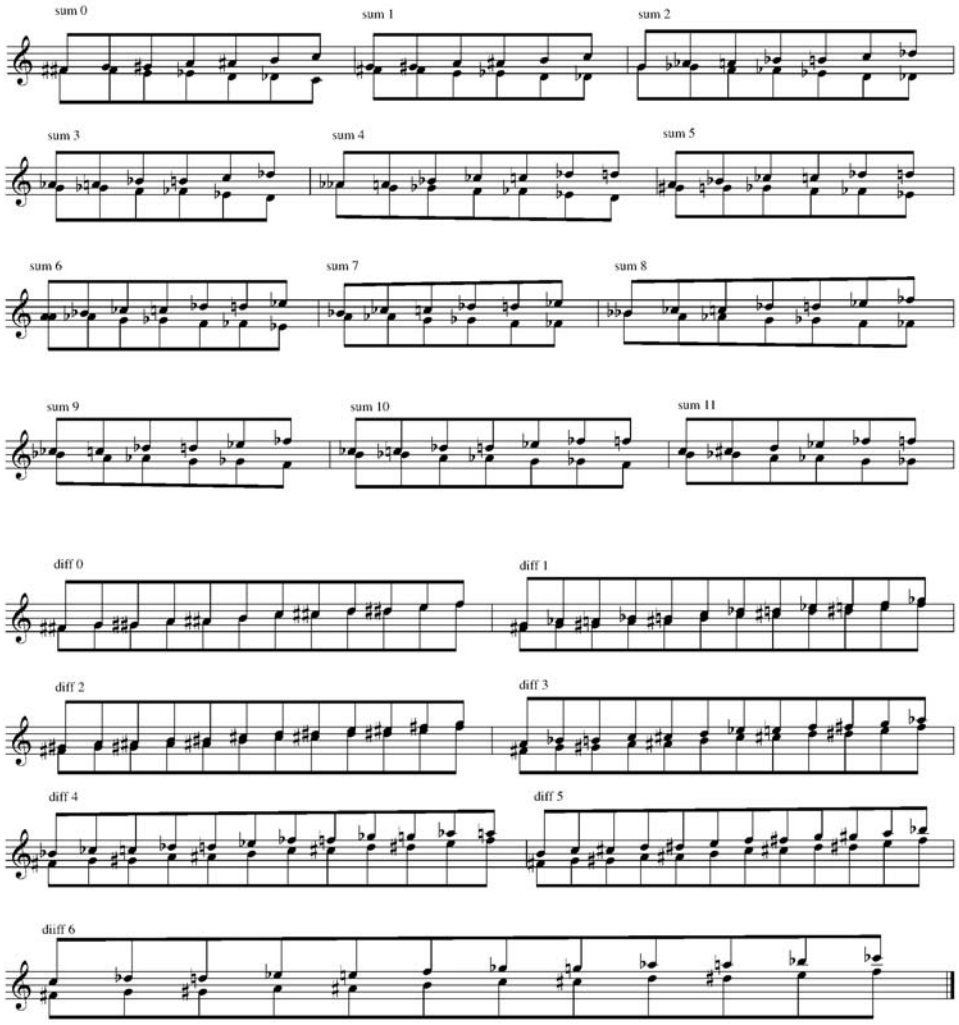
Recent connections between the compositional materials of George Perle and theoretical/analytical approaches from David Lewin and Henry Klumpenhouwer (labeled "PK") have shown promise (Perle 1993, Lewin 2002). However, concerns about relational "promiscuity," recursion, and perceptibility (Buchler 2007) suggest that a more practical orientation is needed. This paper proposes to explore PK materials through keyboard improvisation, 1) to give a practical method for hearing their relationships; 2) to show the interdependence of harmony and voice leading; and 3) to suggest the many paths through pieces that PK materials offer analysts, following the argument for multivalence given in Klumpenhouwer 2007.

The bases of PK are the twelve inversional sums and intervallic differences, shown as contrary-motion sum *wedges* and parallel-motion difference interval *parallels* (Ex. 1). In the simplest case, note pairs from a single wedge or parallel form the structure, as has been shown in many analyses. Improvisation with PK materials begins with these shapes, and recognition of aspects such as the differences between the even and odd sums. Knets emerge when two wedges or one parallel and one wedge combine. The trichord A-F#-B in Schoenberg's Opus 19/6 (Ex. 2a, arrow) derives (a) from aligned sum 3,5 wedges, with axes offset by one; the registral setting results from flipping one "arm," then reducing out the doubled voice (G#-G-F#, etc.). Example 2b shows a wedging formation from the chord A-F#-B itself, in strongly isographic knets, and a melodic Perle cyclic set representation, all for practice and context. Example 2c shows an improvisatory path through the piece, exploiting the T2-based positively isographic knets in six marked event areas. The voice leading shows how modulation between

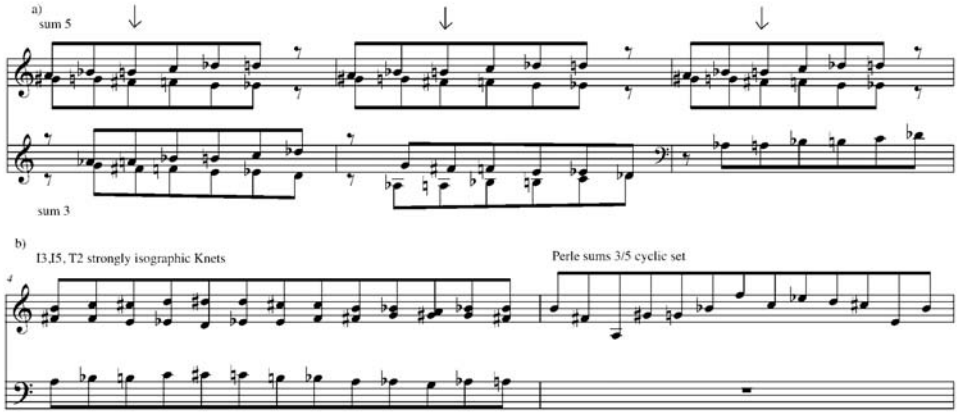
wedges occurs by moving the voices unevenly, allowing for the changes from odd to even sums that mark the form. The change from sums 3,5 (C-F-Bb) to sums 5,7 (C-F-G) (Example 2d) adds another sum 5 wedge; the distance of 3 from Bb to G comes from the alignment. This voice-leading pattern occurs throughout the piece and reflects the G-E-C# bass notes; Example 2e can form the basis of an improvisation bridging mm. 6-7.

Improvisation with wedges and parallels allows us to understand PK materials as a *process*, encompassing Lewinian "imbalance" and Perle's symmetrical completion. Schoenberg's Opus 19, no. 1 (recast in Ex. 3) opens with improvisational wedges (lower staff) from tetrachordal pairs (sums 9,3) and then trichordal pairs (sums 0,7); these reveal the underlying structure in the harmony and voice leading: how A-C-G-G# gets to D#-B-E-F# in the next bar, for instance. Example 4 shows the *composing out* of positive isography in Stravinsky's Pieces for Quartet, mvt. 3. Example 5 shows the opening of Perle's aptly-named "Improvisation," in the more complex interwoven cycles that characterize the two lines of his arrays; discussion will clarify how recursion is solved in Perle's music by these arrays. The paper will continue with interwoven cycles through hexachordal knets from Berg and Messiaen, and will conclude with some comments on the Whincop observation that Knets reduce to two Lnets with one I-relationship. The latter may be interpreted as piling on additional parallels to an internal wedge. Throughout, the practical orientation will attempt bridge the gap between current "gut-level" understanding of PK materials and their analytical use.

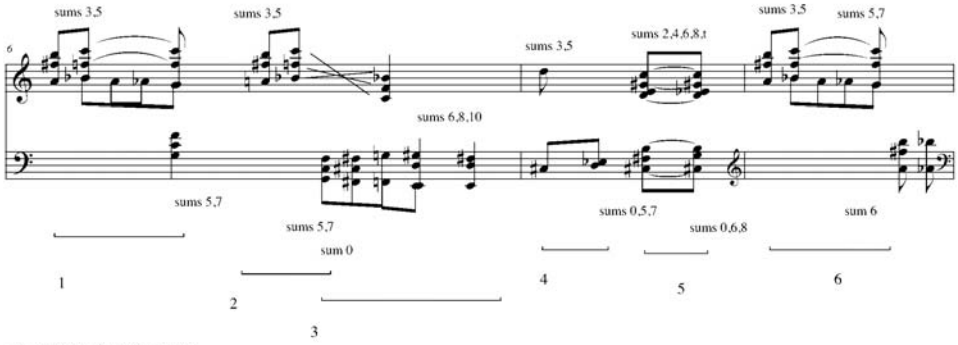
Example 1: twelve sum wedges and twelve difference parallels (7 shown of latter)



Example 2: aligned sum 3,5 wedges to PK representation of Schoenberg op. 19/6 first chord

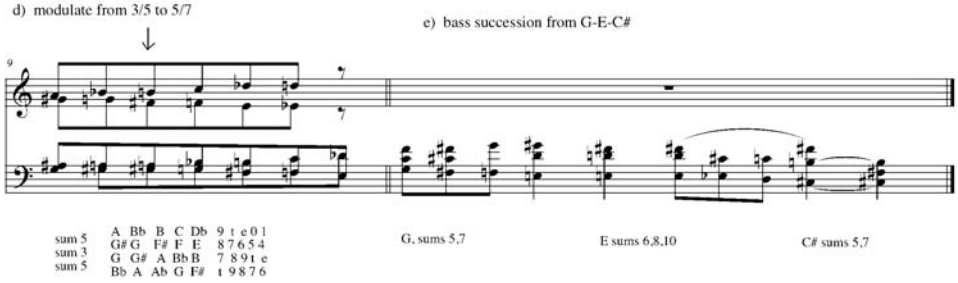


c) path through Schoenberg's Opus 19/6

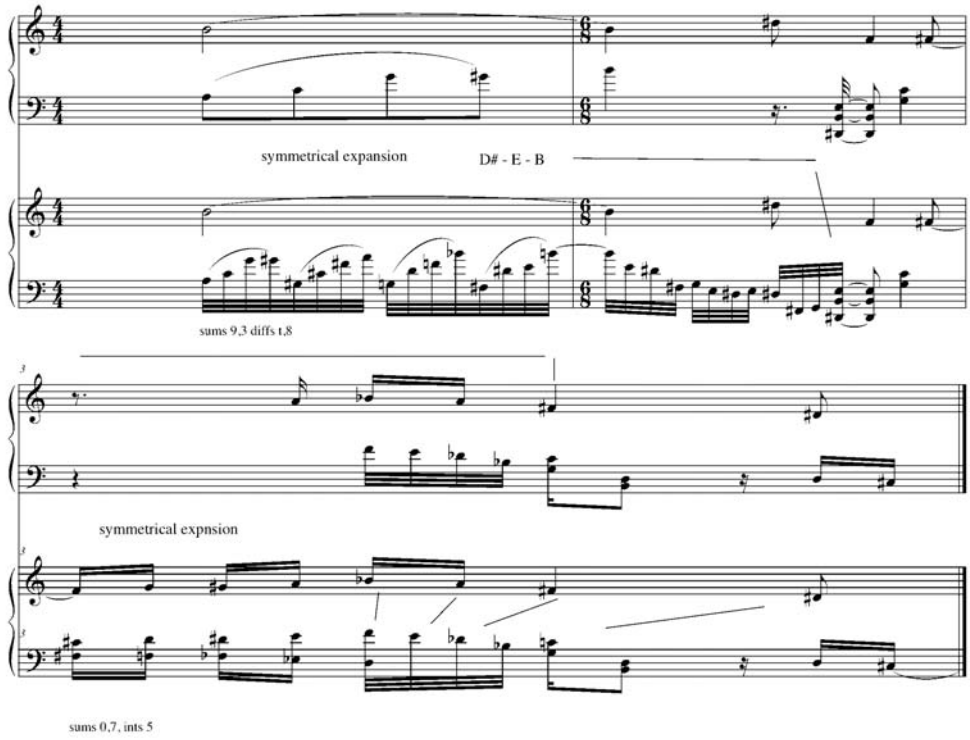


d) modulate from 3/5 to 5/7

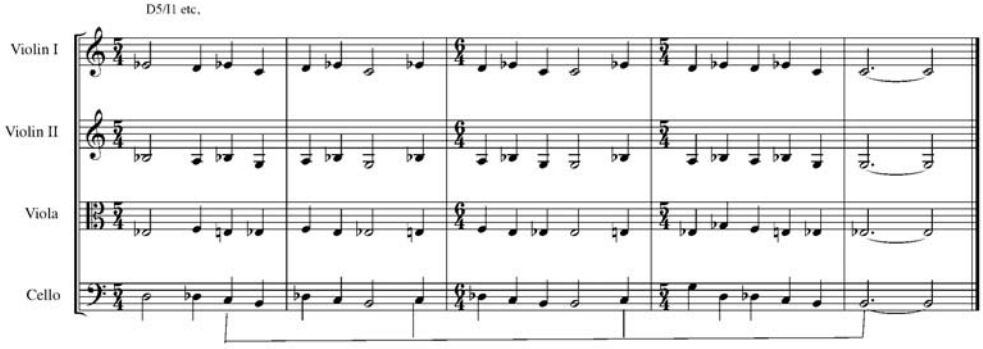
e) bass succession from G-E-C#



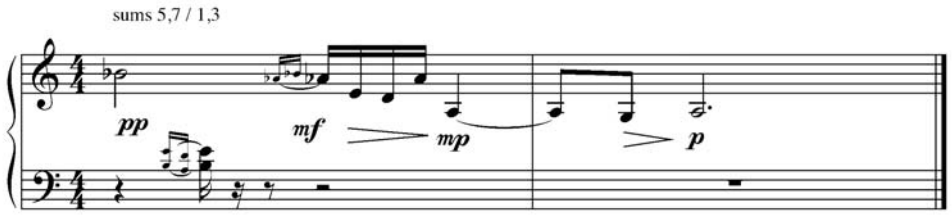
Exampe 4: Dyadic knets in Schoenberg's Opus 19/1 opening



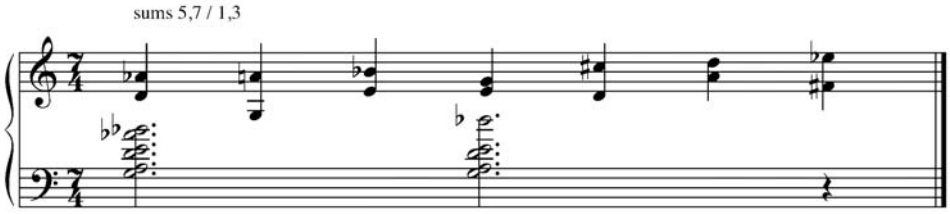
ex. 5 Stravinsky composing out positive isopgraphy based on combinations of int 5/4 in changing sum or difference relationships



ex. 6: Perle Improvisation (also PC I/III, expanded wedge formations in axis-dyad chords from arraysScore



ex. 6: Perle Improvisation (also PC I/III, expanded wedge formations in axis-dyad chords from arraysScore



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SCRIABIN AND THE POSSIBLE

Alexander Scriabin envisioned *Prometheus,* op. 60 as a "symphony of sound" counterpointed by a "symphony of light" (Sabaneev 1910). However, the work premiered without the *luce* (color organ) as hoped. Since then, the relationship between music and lights has not been well understood. Cook (2000) wrote, "The *luce* part literally *does* add little; for while the slower part has no discernible relationship to what is heard, the faster part simply duplicates information that is already present in the music." This paper reassesses the relationship between lights and music in *Prometheus* based on the "Parisian score," a manuscript containing Scriabin's handwritten annotations for the light part, and a fresh staging of the work informed by the manuscript, produced by this author.

As Example 1 shows, Scriabin correlated twelve colors of an expanded spectrum with the roots of mystic chords transposed along the circle of fifths. The part written for *luce,* Example 2, has two light "voices." The faster voice moves with the fundamental bass of the mystic chord, and is a visual manifestation of the work's harmonic rhythm. The slower voice moves around a whole-tone cycle, dividing the work into seven parts (Example 3). These large-scale sections correspond to seven evolutionary stages described in Blavatsky's *The Secret Doctrine* (1888)*,* Scriabin's metaphysical source text (Sabaneev 2000). The slow *luce* delineates the work's dramatic plot, providing new insights into the work's formal ambiguities.

The published *luce* part is a real-time visual analysis of the work occurring on two temporal levels. However, the Parisian manuscript indicates the lights fulfilled additional aesthetic functions. Scriabin's annotations call for dynamic shading and special effects such as tongues of flame, fireworks, and lighting bolts—effects that were impossible to realize with Scriabin's available technology, and existed only in his mind. This imaginary aspect of the work brings *Prometheus* closer to the *Mysterium,* the unfeasibly grandiose ritual Scriabin was planning at the time of his death. As

Morrison recounts in "Skryabin and the Impossible" (1998), Scriabin hoped the *Mysterium* would end the material world and usher in a new spiritual epoch. The Parisian score manuscript of *Prometheus* ends with Scriabin's annotations "inferno, the whole world engulfed," "cataclysm, all in fire."

Robotics and LED technology can bring a performance of *Prometheus* closer to Scriabin's vision than ever before, allowing the lights to counterpoint the music with unprecedented precision. Yet, staging *Prometheus* also generates questions related to the performance of an imaginary work. First, is a real-time representation of the harmonic rhythm and formal trajectory of the work visually interesting? Can analysis *be* performance? Second, because Scriabin designed a lighting display far in advance of his times, the very fact that his annotations are now possible somewhat diminishes the spirit of their imagined impact. *Prometheus* embeds a peculiarly modernist paradox: it was a vision of the future, so only in the future can an "authentic" performance of the work be realized—a statement perhaps as true today as it was a century ago.

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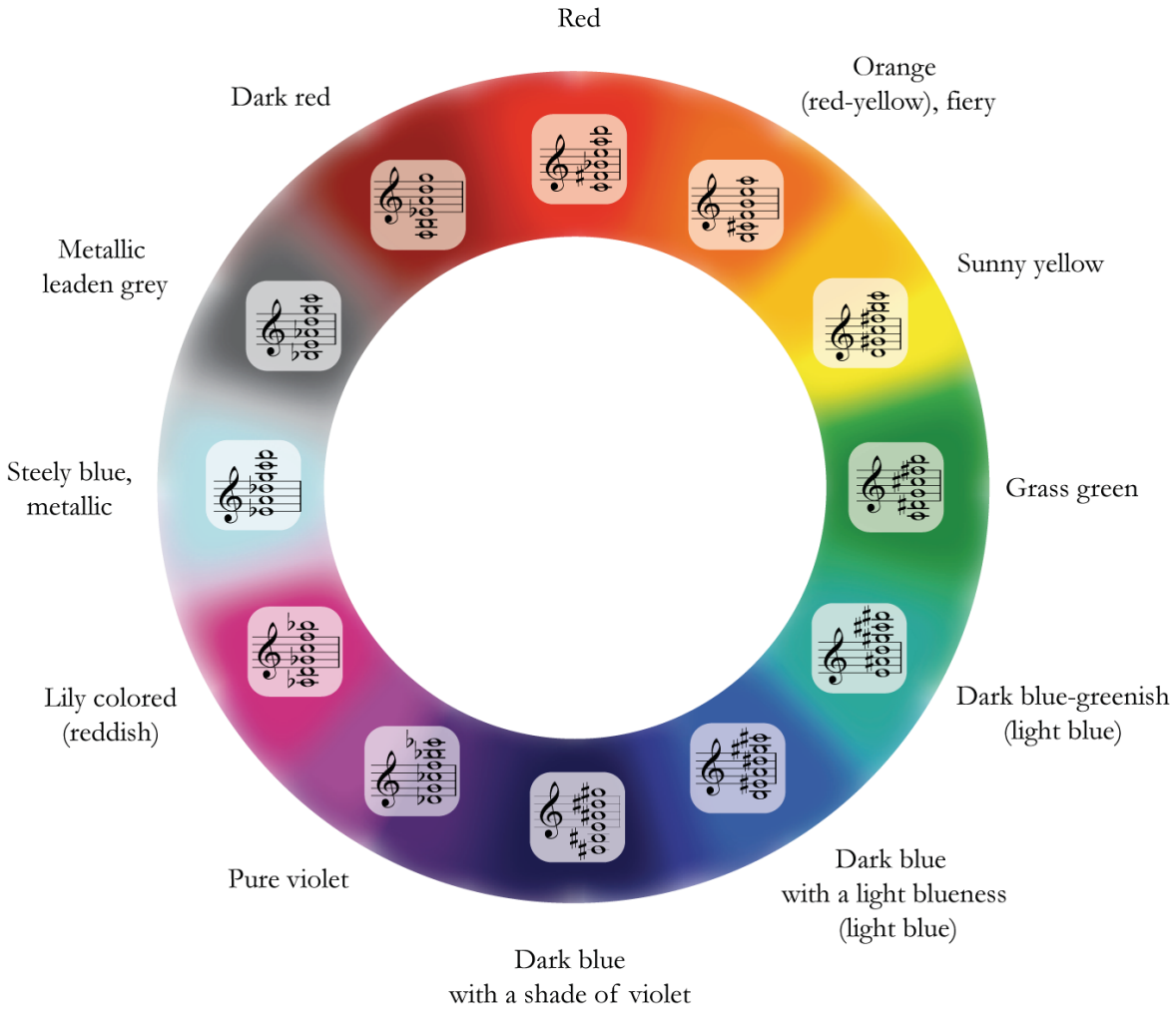
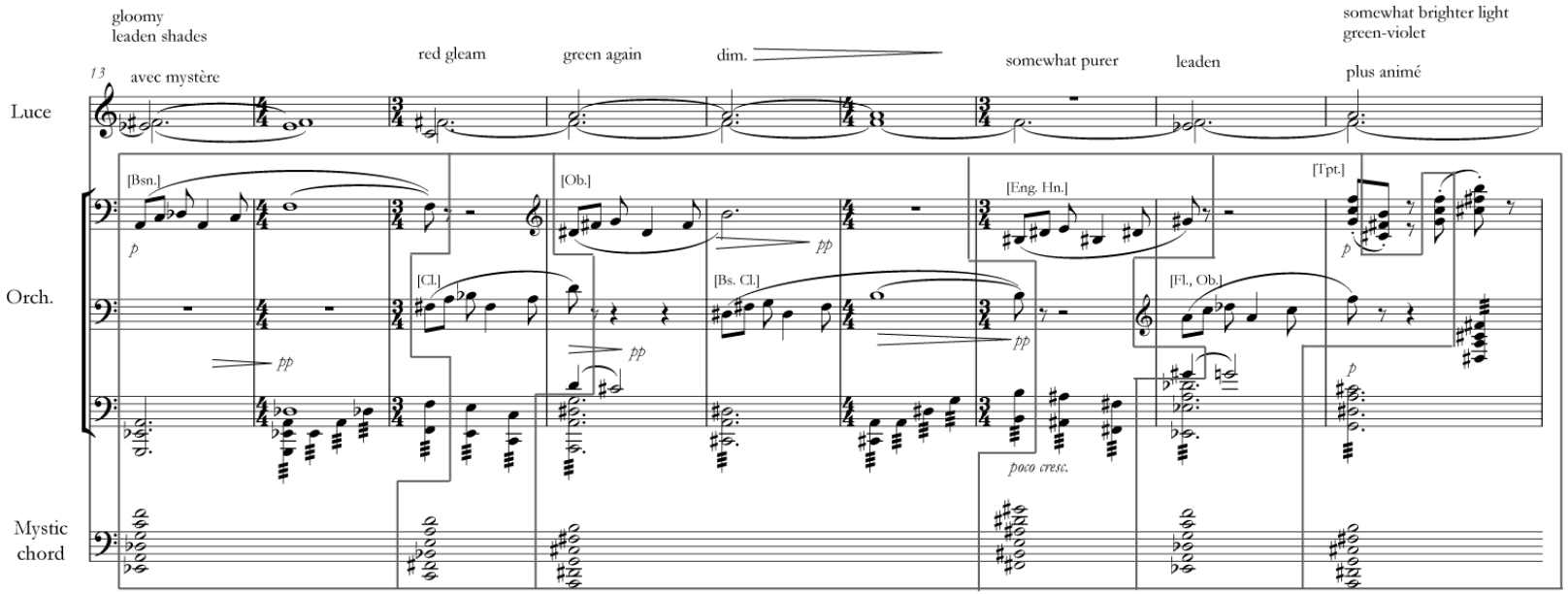
EXAMPLES

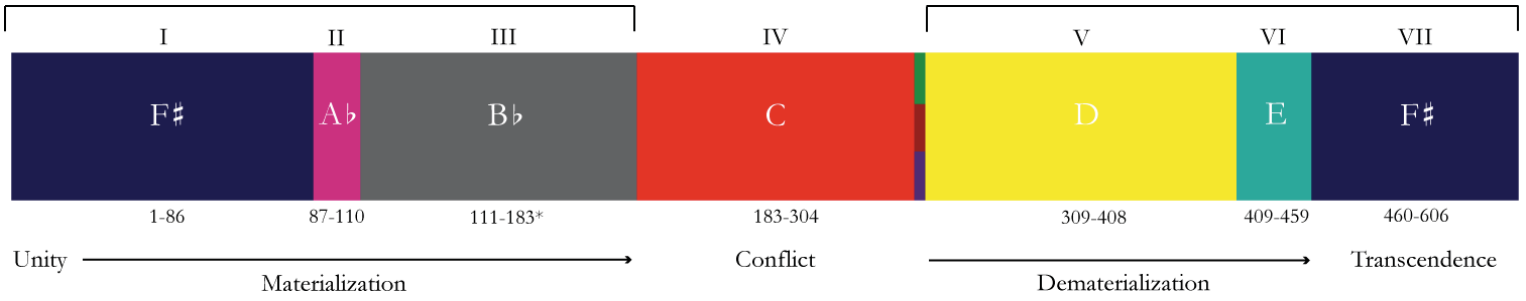
Example 1. Reconstructed musical color circle from Scriabin's "Table of colors" in the "Parisian score" manuscript of *Prometheus,* op. 60



Example 2. Reduced score of *Prometheus,* op. 60, mm. 13-21. The fast *luce* voice outlines an F♯-A-C-E♭ m3 cycle in the fundamental bass while the slow *luce* holds F♯.



Example 3: The slow *luce* part in roughly temporal proportion.



Victoria the Progressive: The Cadential Formula as Historical Nexus

Tomás Luis de Victoria has been overshadowed in scholarly discourse both by the more conservative Palestrina and by the more radical Florentine Camerata. This paper will use Victoria's *Officium Defunctorum* (1603) to exemplify some previously-unexplored connections between *prima pratica* and *seconda pratica* music. While the *seconda pratica*[1] is usually characterized by its free treatment of dissonance, Victoria's music is considered conservative, even mystical, exemplifying the earlier polyphonic style codified by Zarlino (1558).[2] This paper will not contradict these claims, but will show how Victoria's cadential elaborations position his music as a link between the two styles. I will demonstrate that Victoria's cadential formulae are typically as elaborate as those in Jacopo Peri's *Euridice* (1600),[3] if not more so, and that the cadence serves as a meeting point between the more progressive side of the *prima pratica* and the more traditional side of the *seconda pratica*.

Example 1 shows two G cadences,[4] each based on the figured-bass pattern 3-4-4-3.[5] The only structural difference between them is the placement of B-flat: in example 1a, it creates an "augmented" sonority on the downbeat, whereas in example 1b it appears as part of a 6/4 sonority on beat two. Surprisingly, 1a is taken from Victoria's work, and 1b from Peri's. The B-flat in 1a, the only "madrigalism" in either cadence,[6] comes from the *prima pratica* work, and the gentler cadence

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[1] As presented in classroom texts; see, for example, Burkholder 2010 (297-98), or Palisca 1991 (30ff.).

[2] See Atlas 1998 (613-15), Reese 1959 (608), and Cramer (1990).

[3] I have chosen Peri's work for comparison because it typifies the *seconda pratica* style.

[4] For comparison, I have normalized the texture and omitted the text.

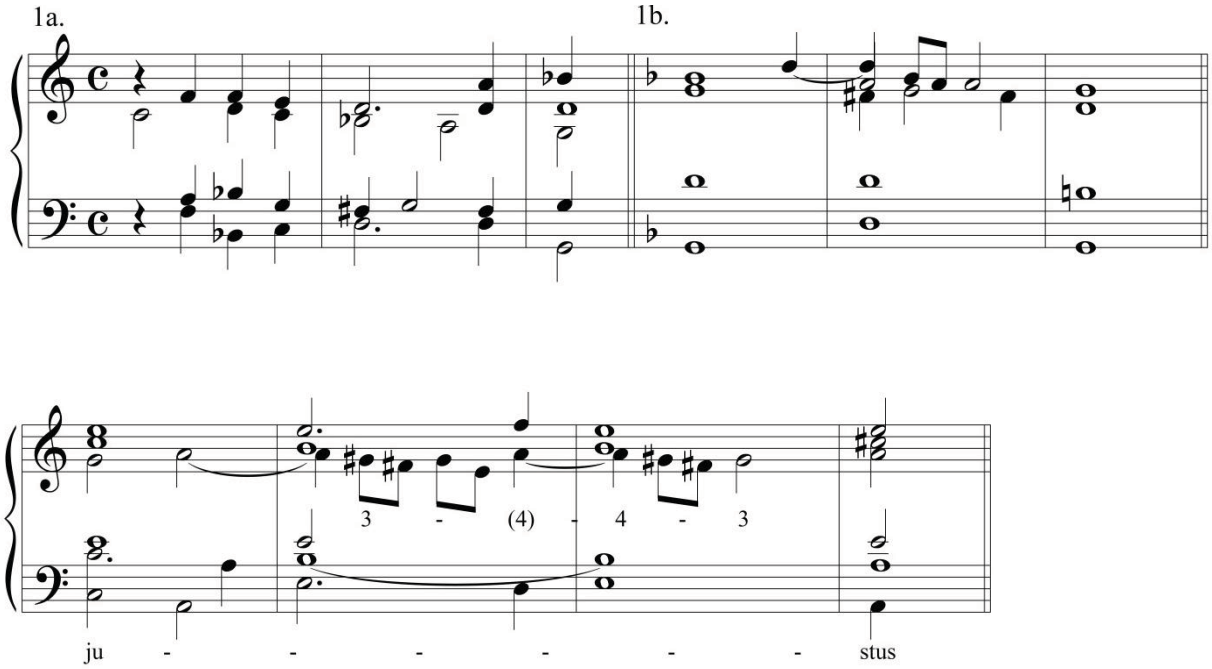
[5] See Arnold (1964, 40-41) for a discussion of this figure.

[6] The sonority appears under the word "flentium" (weeping).

from the *seconda pratica* work. Nor is this an isolated instance: example 2 shows the most lavishly elaborated version of the same pattern from Victoria's work, with its ornamented suspension and poignant 6/5 sonority on the fourth beat of the second bar. By contrast, the most elaborate version of the figure from *Euridice* is given in example 3. It contains the same 6/5 sonority as Victoria's example, but uses none of the same rhythmic complexity or the extravagant ornamentation. Again, Peri's use of the cadential figure is much tamer than Victoria's.

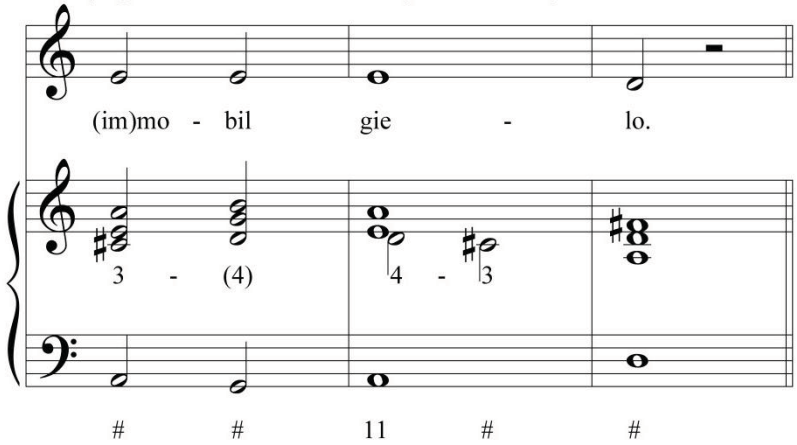
This paper will compare several instances of this cadential figure, both to the composer's typical style and to the other style in question, with an aim towards a stylistic generalization: Victoria's work, with its more homogeneous texture, elaborates the figure in order that its heightened expressivity might more clearly mark its cadences. Conversely, Peri uses the same figure to better mark his own cadences by their *lack* of expressivity (compared to the rest of the work's style). Thus, as the title suggests, the paper will define the early seventeenth-century cadence as a historical nexus, a meeting point between the most progressive features of the sixteenth century and the most conservative aspects of the seventeenth.

Examples



Victoria, *Officium defunctorum*, *Graduale* mm.26-28.

3. (Figured-bass realization by the author)



Peri, *Euridice,* Scene II, mm. 404-6.

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"The Role of the Producer in Hip-Hop: An Ethnographic and Analytical Study of Remixes"

Analytical publications on hip-hop have usually focused on the rapper's skill while overlooking the producer's contribution, leading to a misunderstanding of the creative process in hip-hop. A case in point is Kyle Adams' article analyzing hip-hop tracks. Adams makes the erroneous assumption that a completed musical track is given to the rapper, who records on top of it. He therefore concludes that the music is "pre-composed" and credits all text-music interaction to the rapper's skill.

In contrast, the 60 rappers and hip-hop producers I have interviewed say that the rapper receives a simplified track, upon which he/she improvises. As producer Pete Rock explains: "To start, I give them the beat, Plain Jane as it is. Too much sound would throw them off." This "plain beat" is a drum track and a few other rhythmic elements, emptied to provide ample space for the rapper to vary his/her vocal rhythms. The producer and rapper then test the combination in the studio, after which the producer refines the track: "It's like baking a cake—I wait for the cake to cool, and then I add the frosting." This "frosting" includes horns, scratches, and other sounds added—or deleted—to emphasize the rapper's words and adjustments to the drum track to coincide with the rapper's rhythm. Producers also adjust the track's key to fit the rapper's pitch contour, as DJ Kentaro did with the Pharcyde. Hence, many of the musical aspects of rap are likely the handiwork of the producer instead of the rapper. The producer's imprint is even stronger today, as ProTools has given producers the ability to edit iteratively at low cost.

Given the lack of manuscripts, ethnography is among the few avenues to understanding the creative process in hip-hop. Many hip-hop artists have not had formal training in music and are not bound by the aesthetic standards of most Western music, such as metric consistency or absolute pitch. The producer's edits are deliberate aesthetic

responses, illuminating what combinations of sounds—rhythms, instrumental loops, and vocal declamations—are valued by the hip-hop audience.

My paper shows the central role of the producer in hip-hop recording by combining ethnography and musical analysis. I first describe the creative process through quotes from my interviews with artists including Pete Rock and DJ Krush, combined with musical examples. I then illustrate the musical contribution of producers through an analytical comparison between the 1995 and 2006 versions of "Only the Strong Survive" by CL Smooth and DJ Krush. Smooth's rap consistently hits the first sixteenth note of beats 2 and 4 on a stress accent (capitalized, Example 1), coinciding with the snare drum in the 1995 version (Example 2, "down," "take"); meanwhile his syncopated delivery ("for my crown") fits with the bass line. In 2006, when Krush fitted CL Smooth's vocal track to a completely different accompaniment, he noticed a pervasive triplet pattern in Smooth's rap; his refashioned drum pattern matches and complements Smooth's rhythms (Example 3). Through analysis, I demonstrate that the hip-hop track ends not with the rapper, but with the editing producer; through my interviews, I demonstrate the value of ethnography in the analysis of popular music.

"The Role of the Producer in Hip-Hop: An Ethnographic and Analytical Study of Remixes": Examples

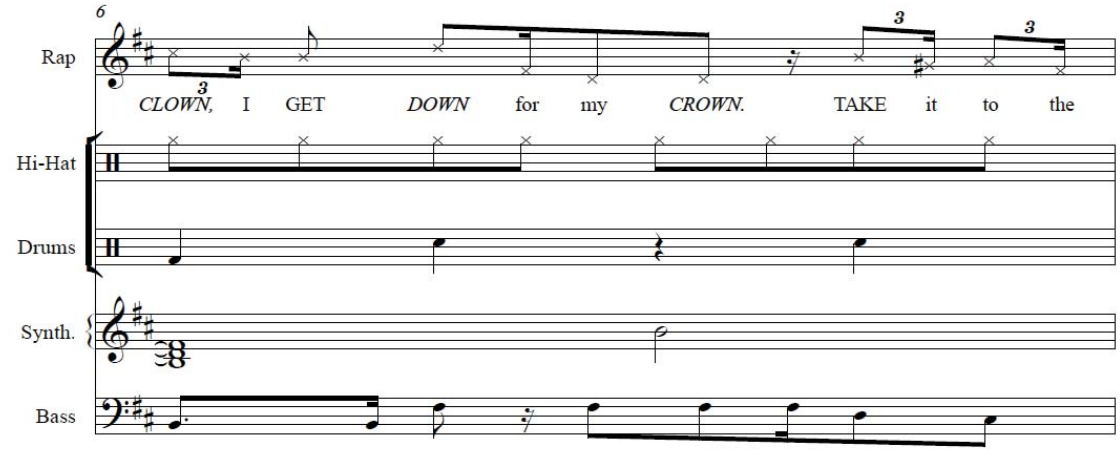
Example 1 presents Smooth's rap, with each row representing a measure in 4/4, each box representing one beat, an "x" representing a spoken 16th-note pulse, and a "-" a silent or held pulse. Stress accents are written in capital letters, with rhymes and assonances in italics. While Smooth places his rhymes in ever-changing positions (e.g., "losers," "prisoners," and "maneuvers" on beats 4, 1, and 3 respectively), he consistently hits the first sixteenth note of beats 2 and 4, on a stress accent.

Example 1: "Only the Strong Survive" (1995), layout of CL Smooth's rap

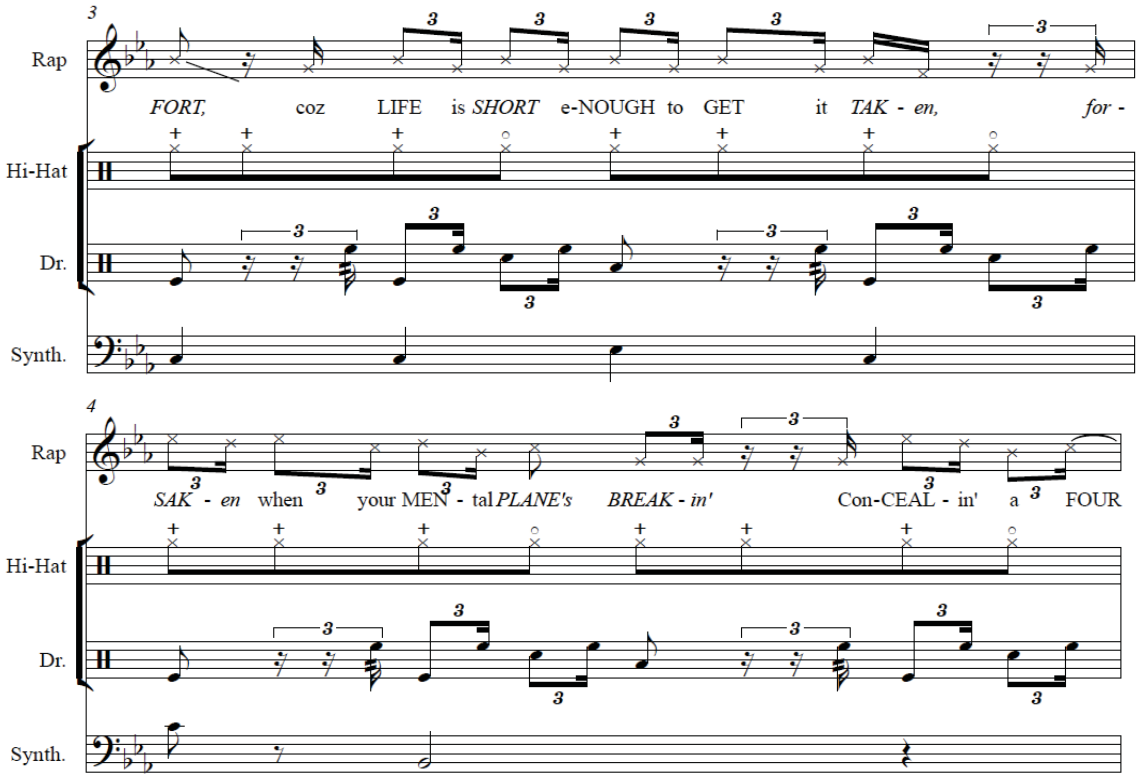
1	2	3	4
XxxX	-xXx	xX-x	X-x-
AC-tu-al *FACTS*,/	the GHET-to	re-*ACTS* -to	WAR-*fare./*
X-Xx	Xxxx	X--x	Xxxx
REAL BUL-lets	MISS you by your	*HAIR*. / Sur-	VIV-al of the
Xx--	X-xx	X-x-	Xx-x
FIT-test,/	HELL for the	THREE time	*LOS-ers*,/ the
Xxxx	Xxxx	Xx--	Xx-x
PRIS-*on-ers* of	EN-e-my ma-	*NEU-vers./*	HOLD down the
X-x-	XxXx	XxXx	Xx-x
FORT, /coz	LIFE is *SHORT* e-	NOUGH to GET it	*TAK-en*,/ *for*-
Xxxx	XxX-	Xx-x	XxxX
SAK-en when your	MEN-tal *PLANES*'	*BREAK-in'*./ Con-	CEAL-in' a FOUR-
-X-x	XxXx	X-Xx	X--x
-*POUND* with	EV'-ry AR-e-	a/ WE sur-	*ROUND*, coz
XxX-	X-xx	-X--	Xxxx
CLOWN,/ I GET	*DOWN* for my	-*CROWN./*	TAKE it to the
X-xx	Xxxx	XxXx	Xx-x
STREETS for the	HON-or and *re*-	*SPECT./ Con-NECT* the	*LE-thal./* plus
-xX-	Xxx-	Xxx-	Xxxx
-my YOUNG	GUNS are un-	*BEAT-a-ble./*	*AID-ing* and a-
XxxX	-xXx	xXxx	XxxX
BET-ting, the FOUL	-is a VI-	o-*LA-tion./* That's	WHY my re-TAL-
xXxx	X-Xx	Xx-x	XxXx
i-A-tion/ is	pre-MED-*i*-	*TA-tion./* The	IN-*vi-TA-tion/*
--xx	XxxX	-xX-	X--x
is to	RUN with a *CREW*	you CAN'T	*DO*,/ and
x-Xx	XxX-	xxXx	X-x-
too GREAT to	IN-*fil-TRATE*	from a *NICK-el*	*PLATE./* I
X--x	-X-x	XxXx	X-xx
STATE,/ this	BE the	IL-lest EV-*er*	KNOWN on a
X---	Xxxx	X---	
RUSH,/	*SWERV*-in' with the	*KRUSH.*	

"The Role of the Producer in Hip-Hop: An Ethnographic and Analytical Study of Remixes": Examples

Example 2: "Only the Strong Survive," 1995 version, m. 6



Example 3: "Only the Strong Survive," 2006 version, mm. 3–4



Formal Functions and Retrospective Reinterpretation in the First Movement of Schubert's String Quintet D. 956

The first movement of Schubert's String Quintet D. 956 is among the early nineteenth-century repertory's clearest examples of what Janet Schmalfeldt has called "form as the process of becoming" (Schmalfeldt 1995, 2011). Our paper shows how the governing formal principle of the movement's exposition is the conflation of distinct and typically consecutive formal functions. Each of the exposition's large formal units fuses distinctive features of sections that are normally adjacent: mm. 1-32 fuse introduction with main-theme function, 33-60 main theme with transition, 61-99 transition with subordinate theme, and 100-137 subordinate theme with closing. The result is an extraordinary chain of form-functional overlaps, requiring the analyst to engage in a process of constant retrospective reinterpretation that ends only with the unambiguous closing group at m. 138.

We begin by presenting a form-functional overview and cadential plan of the exposition (ex. 1) and then zoom in on two passages that pose particular analytical challenges: the introduction⇒main theme (mm. 1-32) and the transition⇒subordinate theme (61-99). The former is a small ternary with dissolving recapitulation (ex. 2), a theme type that Schubert not infrequently employs for main theme/transition complexes (e.g., in D. 960, i). At the same time, however, the periodic A-section simultaneously manages to suggest an introductory function (the expansion of its basic idea from 2 to 4 measures, see ex. 3, crucially facilitates this suggestion), and the strongly marked half cadence to VII# in m. 24, together with the ensuing dominant prolongation (with VII# corrected to V), evokes the normal concluding rhetoric of a slow introduction, so that when the small ternary's recapitulation enters—significantly, with heightened surface rhythmic activity—the passage sounds like the actual beginning.

Mm. 61-99 pose a comparable set of analytic difficulties (exx. 4 and 5). Chief among these is the status of the local tonic Eb at the section's beginning: is Eb a neighboring sonority within the ambitus of C, which "returns" in m. 71 (Webster 1978, Rosen 1980, Beach 1993), or does it already prefigure the dominant G, which is asserted in mm. 76-79 (as a hexatonic analysis along the lines of Cohn 1996 and 1999 and the use of B+ as a dominant substitute in m. 24, mm. 106ff, and mm. 139ff might suggest)? We argue that mm. 60-70 hold that decision poignantly in abeyance. Heard at first as the beginning of a subordinate theme in Eb (as bIII of C), these measures become, as they unfold, a modulating transition in which Eb (mm. 66-70) and C (mm. 71-75) gradually take on subordinate roles within G major. From a form-functional perspective, this process is articulated through a series of cadences that are arranged in a nested periodic design (mm. 60-80 as a periodic antecedent and their repetition in 81-99 as a consequent) in which seemingly identical cadences acquire different meaning as the key of G major becomes gradually more established.

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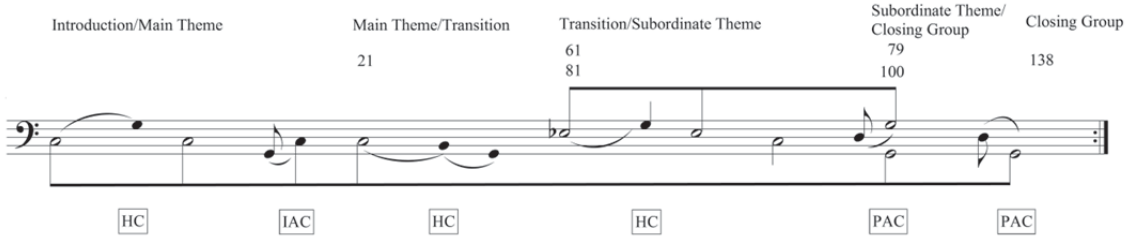
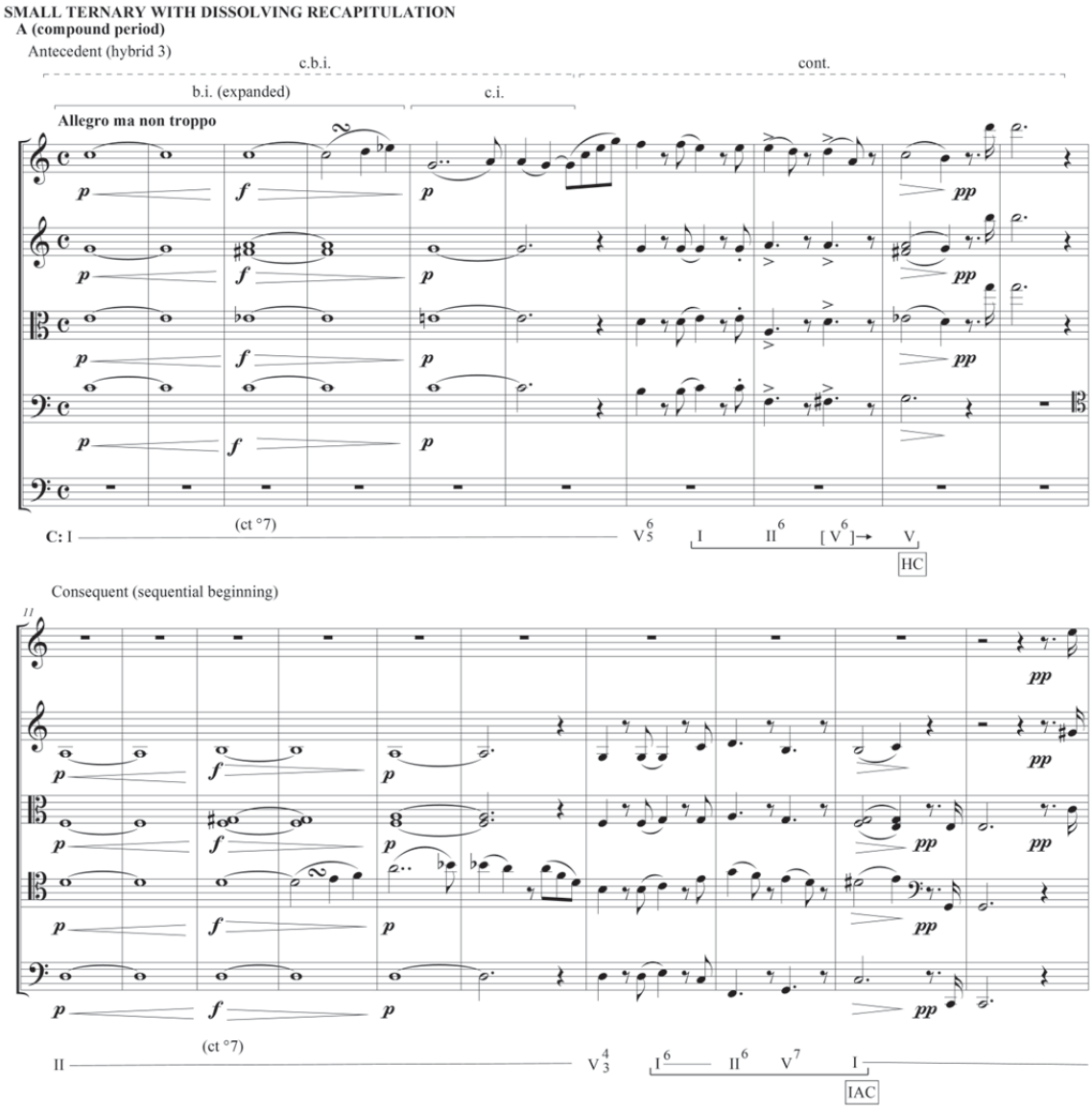
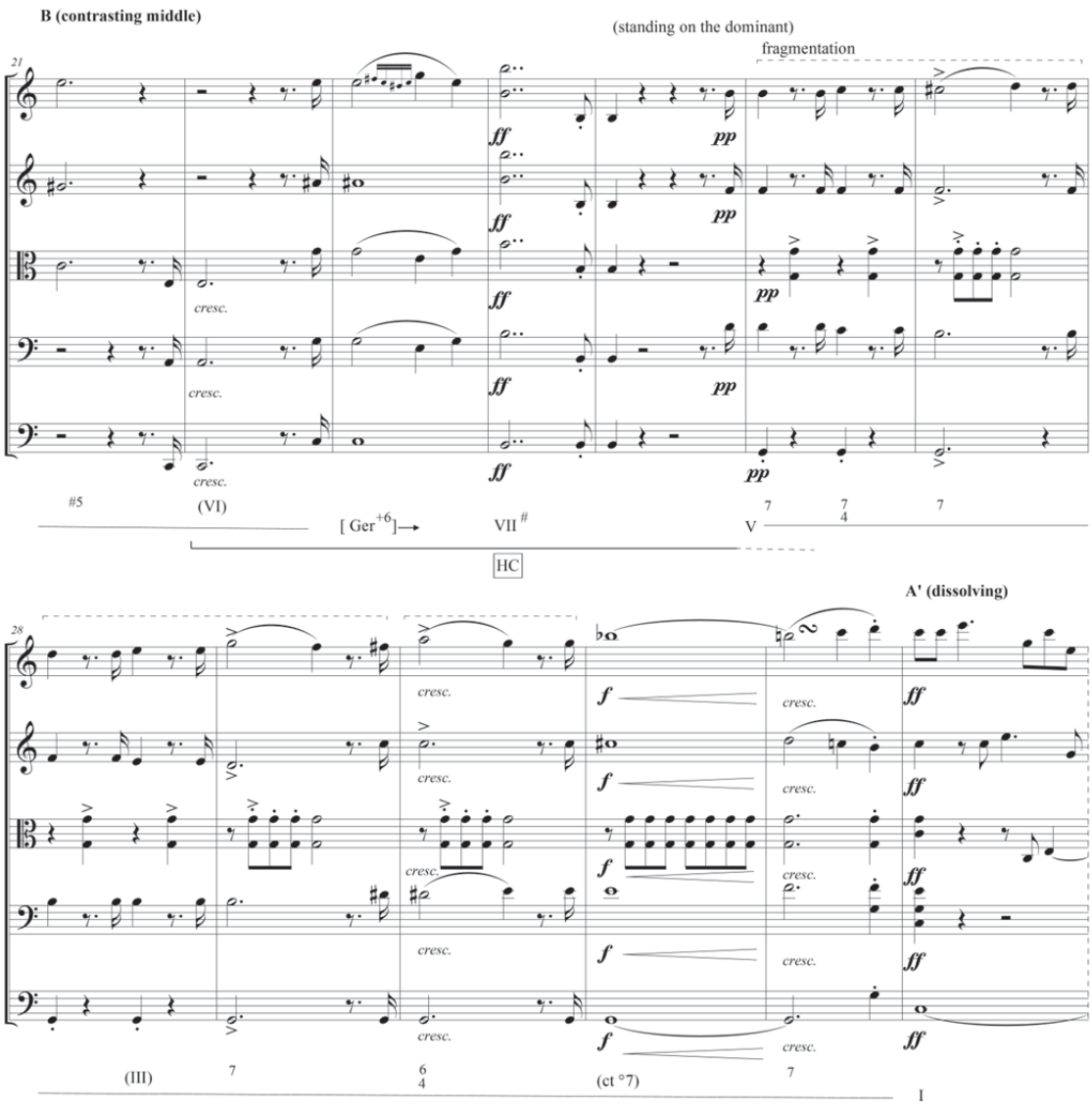
Ex. 1. Overview of the Exposition

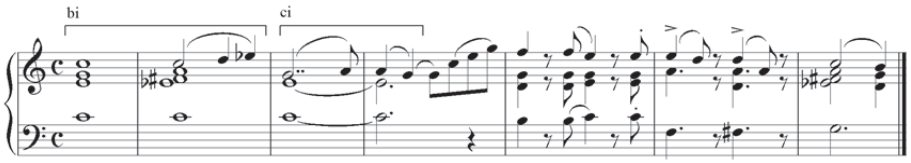


Ex. 2. Form-Functional Analysis of mm. 1-32

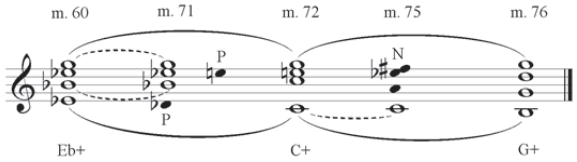




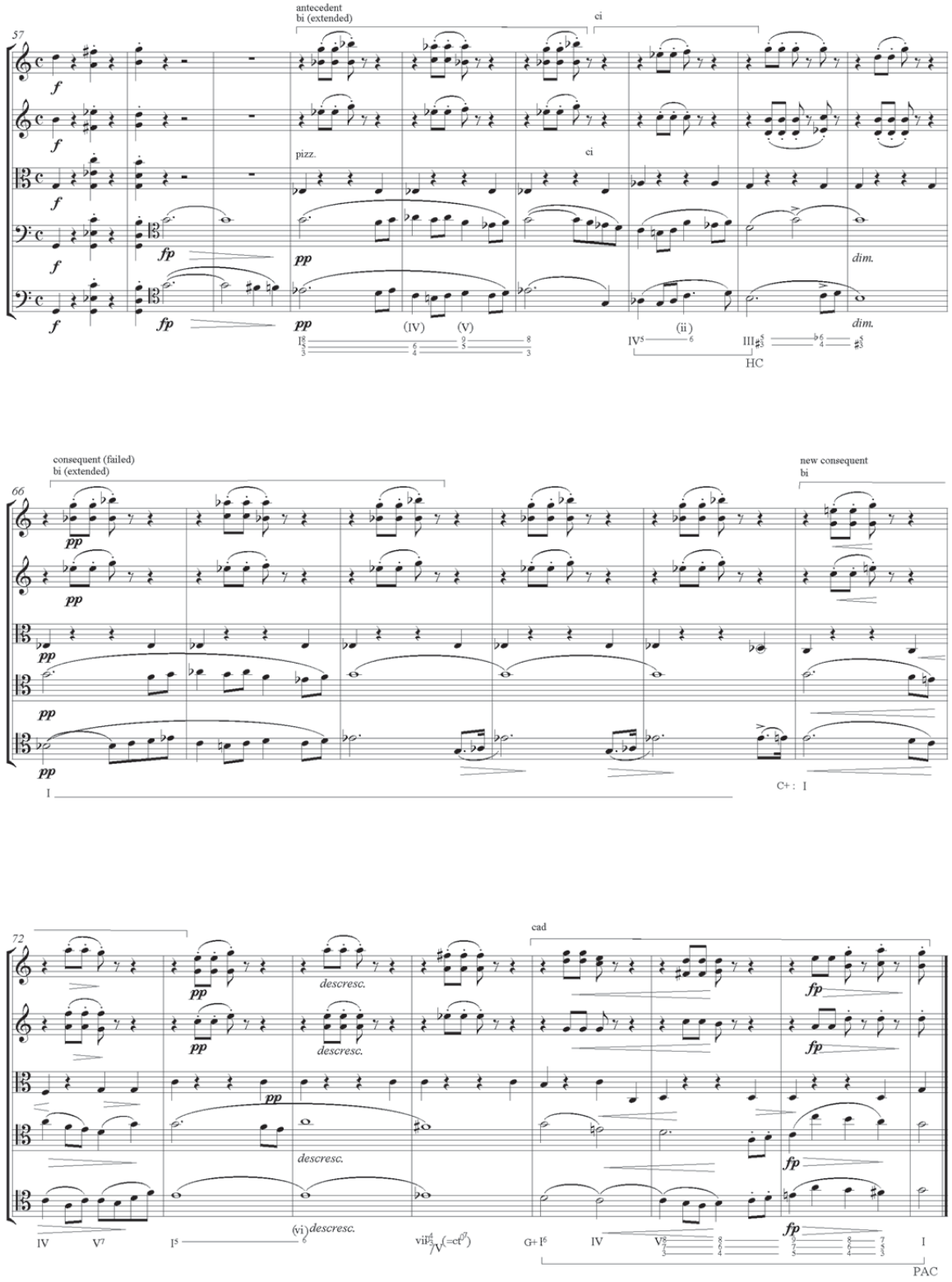
Ex. 3. Normative Recomposition of mm. 1-9



Ex 4. Overview of mm. 60-79



Ex. 5. Form-Functional Analysis of mm. 60-79



Metric Dissonance in the Scherzo of Mahler's Fifth Symphony

As Williamson (2007) observes, the voluminous literature on Mahler's symphonies includes surprisingly little close analysis. There are, of course, well-known exceptions such as full-scale studies of the Sixth and Ninth Symphonies by Samuels (1995) and Lewis (1984) respectively. Most recently, the rotational element of sonata form emphasized by Hepokoski and Darcy (2006) has spurred a re-evaluation of Mahler's handling of this form, as in Darcy (2001), Kaplan (2005), Marvin (2009), and especially Monahan (2008). The extant analytic writings on Mahler's symphonies tend to emphasize tonal structure (esp. associative key relationships) and formal design (esp. sonata form); most comment extensively on inter-movement connection, a feature much contemplated by Mahler himself. The upsurge in rhythmic-metric analysis during the past two decades has not yet extended into Mahler scholarship. This is particularly striking given the centrality of rhythm to hermeneutic studies that rely on accurate identification of the dance topics Mahler deploys and distorts (see, for instance, the discussions of the scherzo from the Ninth Symphony in Draughon [2003] and Newcomb [1992 and 1997]). Mahler's music is not without rhythmic-metric complexity, and nowhere is this more apparent than in the massive scherzo of the Fifth Symphony.

The first of the Fifth's movements to be composed, the scherzo Mahler likened to a "comet's tail" for Natalie Bauer-Lechner (1980: 173), and he lamented the movement was "enormously difficult to work out," a sentiment shared by reviewers of its earliest performances. In part, the difficulty arises from the pervasively contrapuntal texture—celebrated by Adorno (1992: 102–103)—but rhythmic-metric factors contribute substantially. A glance at the opening phrase, shown in Example 1, reveals weak D3+1 dissonance in the horns, a delayed initial hyperdownbeat, and D3+1 at a hypermetric level. Although hemiola is commonly referred to as metric dissonance, the strong G3/2 dissonances in mm. 6–9 and 12–13 actually counteract the

initial destabilizing elements. Cooke (1982: 101–102) notes that Mahler follows this 12-measure phrase with 11- and 13-measure variations. Such manipulations, however, are characteristic of the entire movement; despite its expressive contrast, the graceful Trio I begins analogously with phrases of 8, 7, and 9 measures. Example 2 provides a further illustration of the movement's language; observe the different hypermetric reinterpretations of the arrivals on ♭VI (mm. 66 and 83), compression of the original theme (mm. 67–72), and displacement dissonances of varying types and strengths (mm. 73–81).

This paper will identify the principal rhythmic-metric features that contribute to the scherzo's "comet-like" energy and changeability. It will then outline a metric narrative for the movement: a progression through increasingly intense conflicts as thematic materials are combined, followed by a progression towards more periodic surface hypermeter and somewhat lesser metric dissonance in the movement's later sections. This metric narrative suggests that the scherzo remains a site of considerable unrest—as posited by writers including Mitchell (1999: 300–307) and Hefling (2007: 114–117)—and does not constitute an abrupt and complete rejection of the turmoil of the preceding movements as interpreted by Cooke (1988: 82). More broadly, close rhythmic-metric analysis offers a new perspective on Mahler's ability to fuse sharply contrasting dance-inspired melodies into a sweeping, almost overwhelming, symphonic movement.

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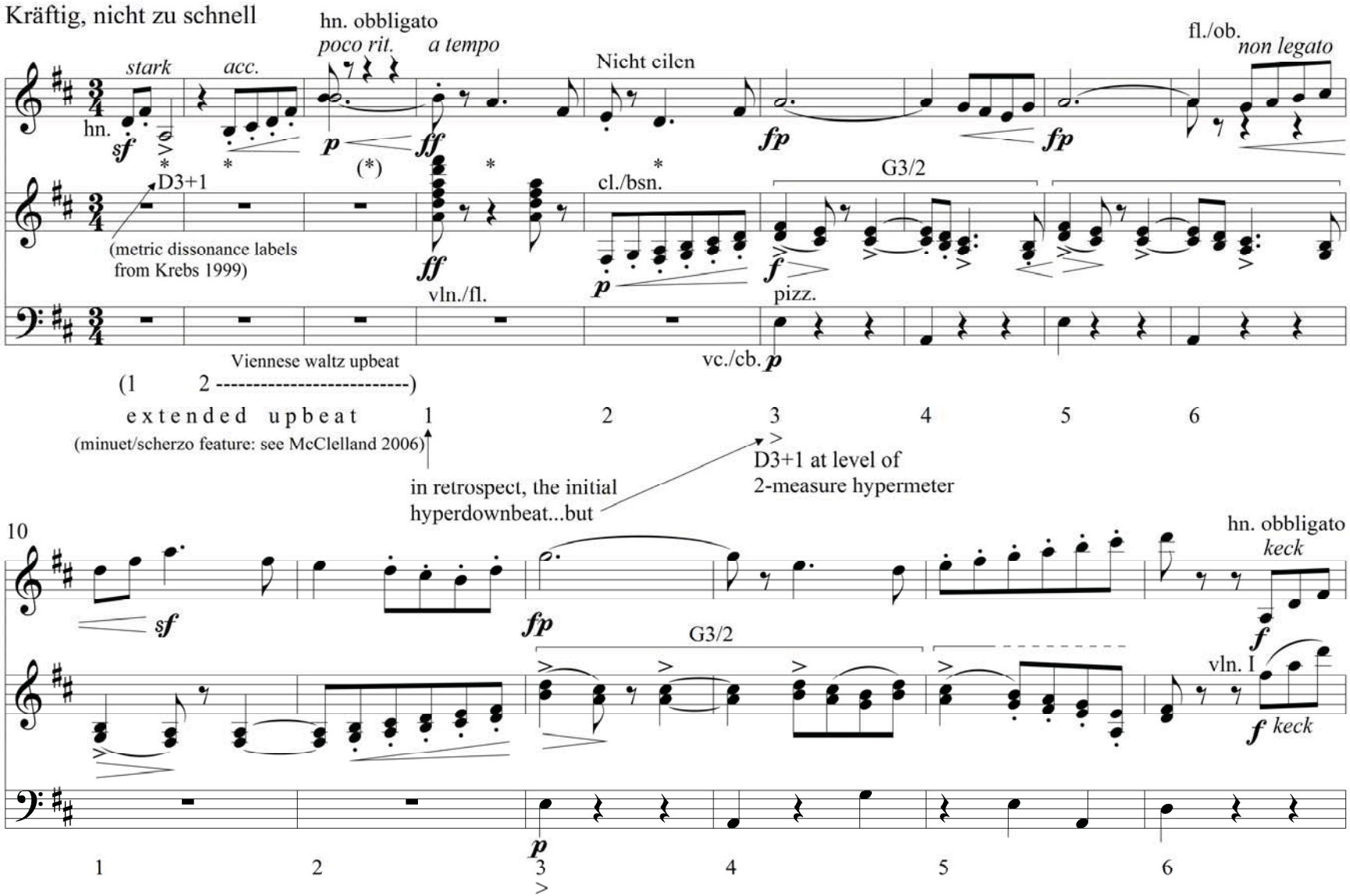
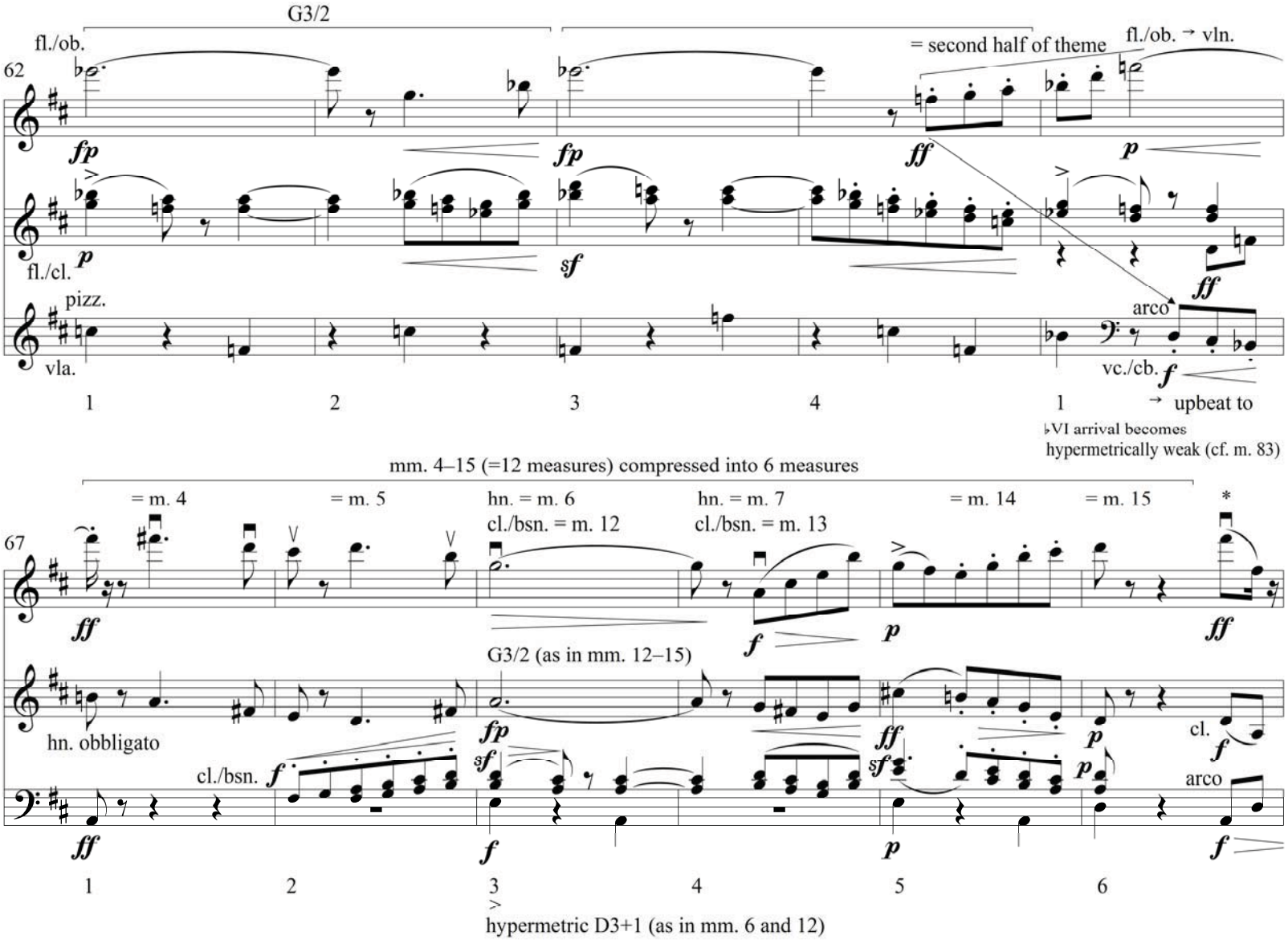
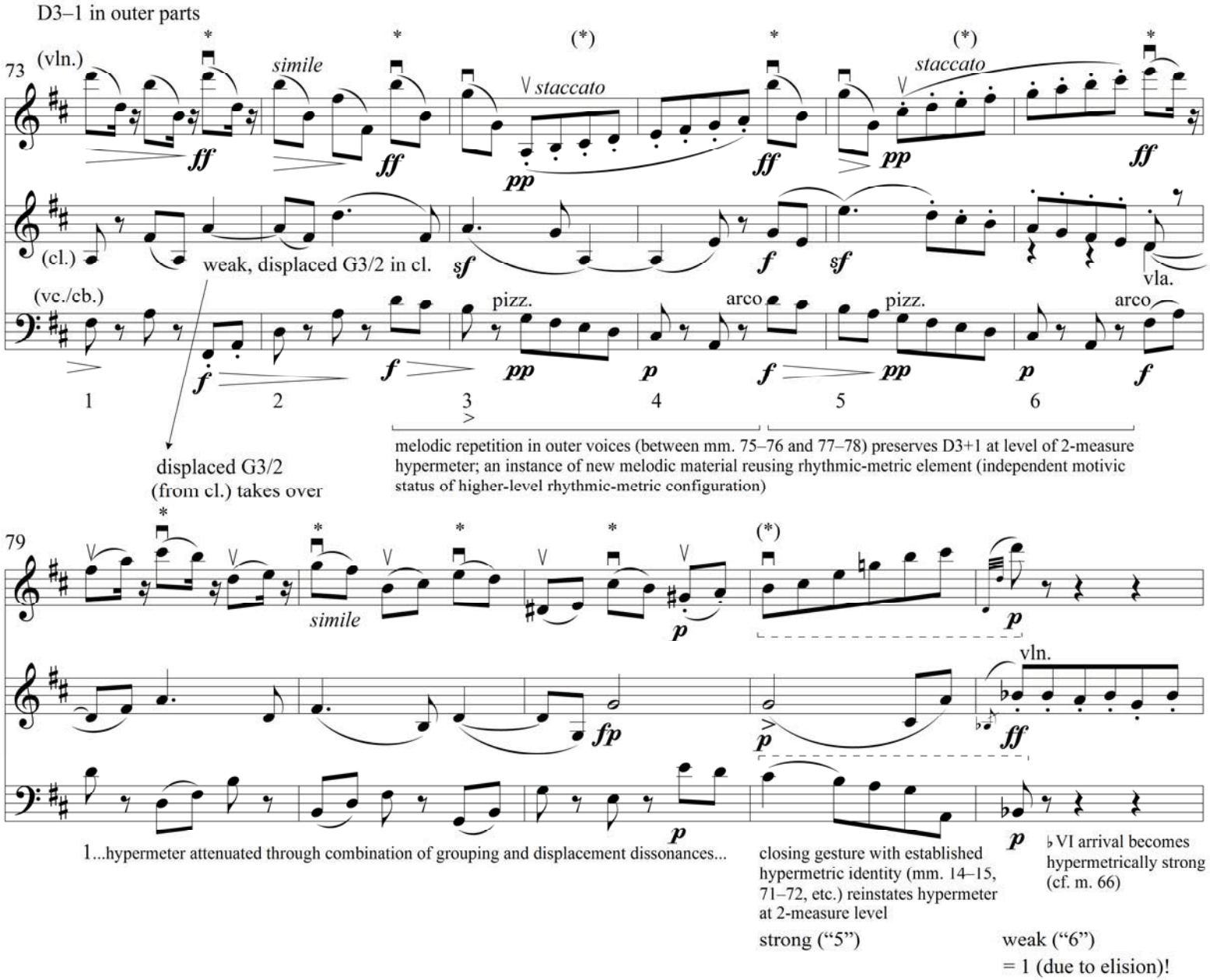


Example 1. Mahler, Symphony No. 5, scherzo: rhythmic-metric features of mm. 1–15



Example 2. Mahler, Symphony No. 5, scherzo: rhythmic-metric features of mm. 62–83 (continues on next page)


D3–1 in outer parts
73
(vln.)
simile
staccato
staccato
(cl.)
weak, displaced G3/2 in cl.
vla.
(vc./cb.)
pizz.
arco
pizz.
arco
1
2
3
4
5
6
melodic repetition in outer voices (between mm. 75–76 and 77–78) preserves D3+1 at level of 2-measure hypermeter; an instance of new melodic material reusing rhythmic-metric element (independent motivic status of higher-level rhythmic-metric configuration)
displaced G3/2
(from cl.) takes over
79
simile
vln.
1...hypermeter attenuated through combination of grouping and displacement dissonances...
closing gesture with established hypermetric identity (mm. 14–15, 71–72, etc.) reinstates hypermeter at 2-measure level
♭VI arrival becomes hypermetrically strong (cf. m. 66)
strong (“5”)
weak (“6”)
= 1 (due to elision)!

Half Full, or Fully Half?: Distinguishing Half and Elided Authentic Cadences

Distinguishing between a half cadence and an authentic cadence is one of the first things taught in music analysis classes. This should be an easy task, yet often it is not: at times even seasoned scholars and performers disagree on whether something should be considered an elided authentic cadence or a half cadence (Ex. 1).

Much of the problem derives from the ambiguous nature of the half cadence, in which an unstable harmony ends a progression so that—in Schenkerian terms—it is "closed off" from what follows. But how can an unresolved harmony serve as a satisfactory endpoint? Surely there is almost always some connection between the V of a half cadence and the tonic that begins the next phrase; in many cases a short bridge even links the half-cadential V to the ensuing tonic. But how strong may such post-cadential filler be before it should be regarded as a full-fledged part of the phrase, rather than simply a link (Ex. 2)?

In differentiating half and authentic cadences, one properly should consider three interrelated factors: formal function (for example, one would more likely expect a half rather than an elided authentic cadence to close a transition or development section); demarcation in texture and rhythmic grouping (a strong demarcation more likely follows the end of a phrase); and harmonic status (specifically, a half cadence is typically marked by a root-position V triad, as opposed to an inverted V^7). When these three features coincide, it often is obvious whether a half or authentic cadence is present. However, one should always be prepared to come across non-normative situations, or cases where these parameters are unclear or in conflict with one another.

For instance, ambiguities may arise when an expected formal cadence is weakly demarcated (as in Exx. 2 and 3a); when a strongly demarcated formal segment concludes

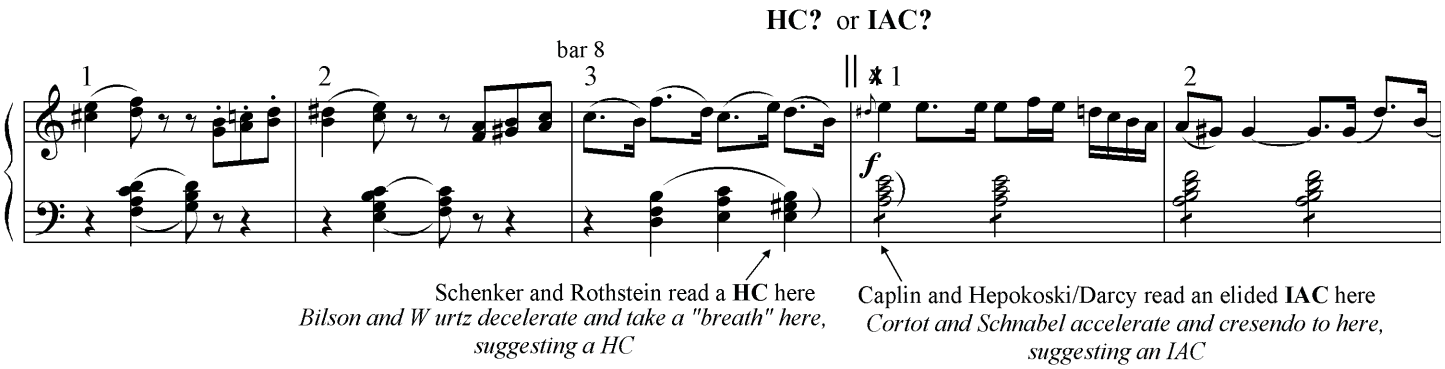
with an inverted V^7 (3b); or when the point of demarcation is debatable (3c). Such passages frequently give rise to disagreements regarding cadential status, in turn leading to broader analytic disputes concerning large-scale formal design and voice-leading (Ex. 4).

The distinction between half and elided authentic cadences need not be regarded as an either/or situation, however. On the contrary, admitting a degree of fuzziness in determining cadential status—as well in determining "closed off" status—often allows for a richer and more nuanced understanding of the various analytic and performance possibilities. In my presentation I will explore the criteria used to distinguish half and elided authentic cadences; examine selected excerpts whose cadences have inspired contrasting interpretations by distinguished scholars and performers; reconsider some more flexible approaches to cadences offered by earlier theorists (such as Anton Reicha); and discuss the pedagogical and performance implications that accrue from a more fluid approach to dealing with cadences. As I shall argue, such a flexible understanding of cadences encourages a re-evaluation of certain central aspects of various modern approaches to form and voice leading.

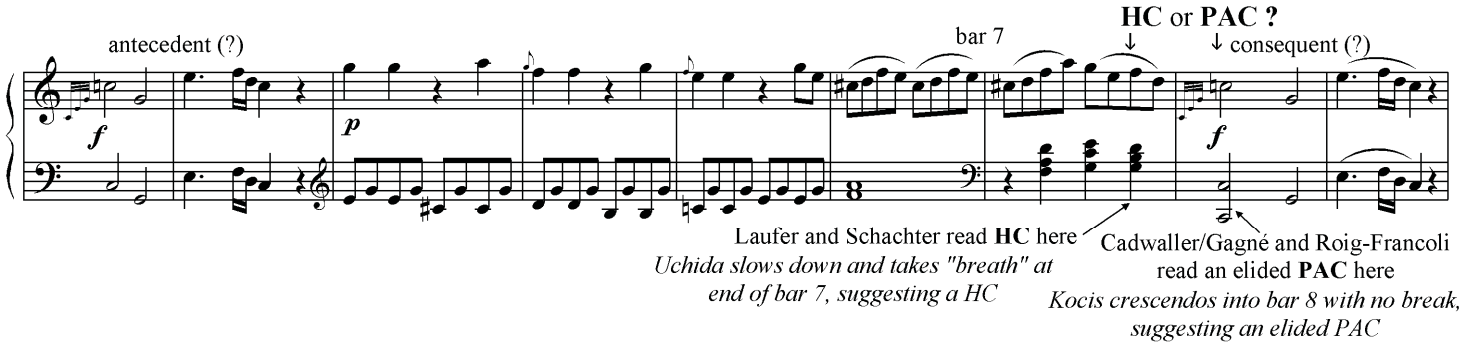
Half Full, or Fully Half? *Examples*

Example 1. Passages in which analysts and performers interpret cadential status differently.

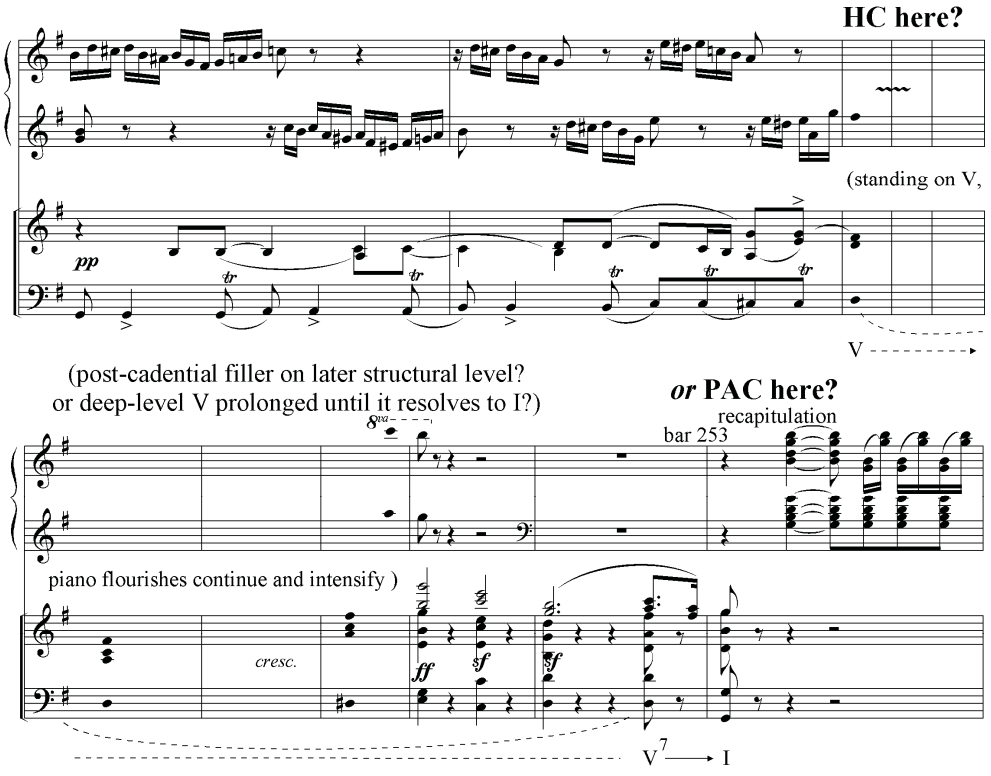
(a) Mozart, Sonata for Piano in A Minor, K. 310, I, bars 1–10: *HC in bar 8 or IAC in bar 9?*



(b) Mozart, Sonata for Piano in C Major, K. 309, I, bars 1–9: *HC in bar 7 or PAC in bar 8?*

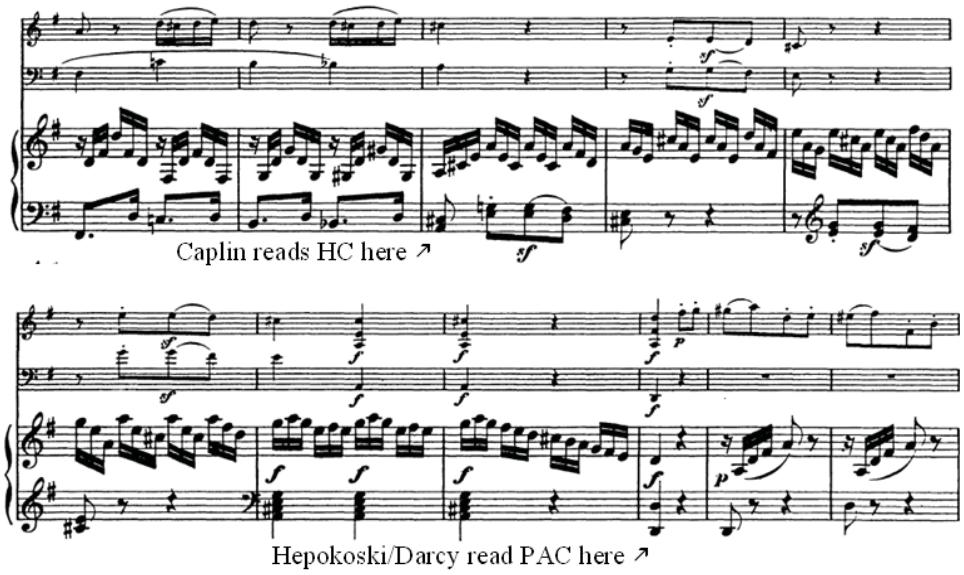


Example 2. Beethoven, Concerto for Piano and Orchestra in G Major, Op. 58, I, bars 243–253.

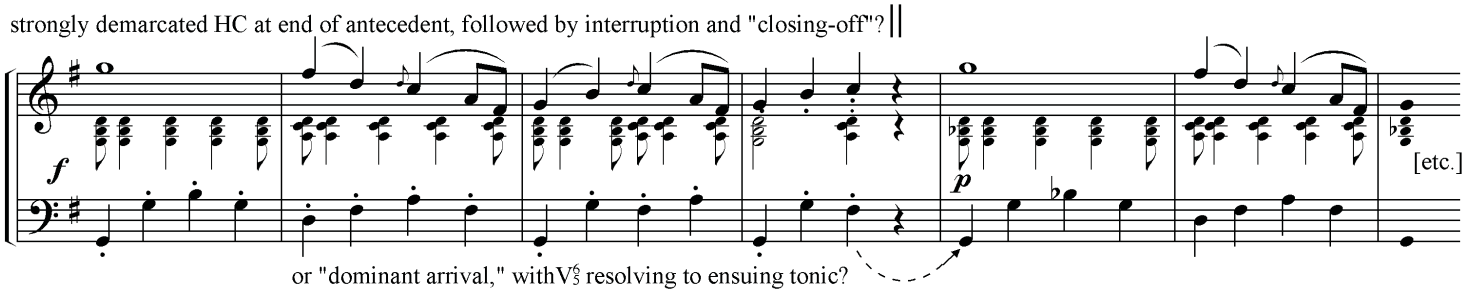


Example 3. Ambiguous situations.

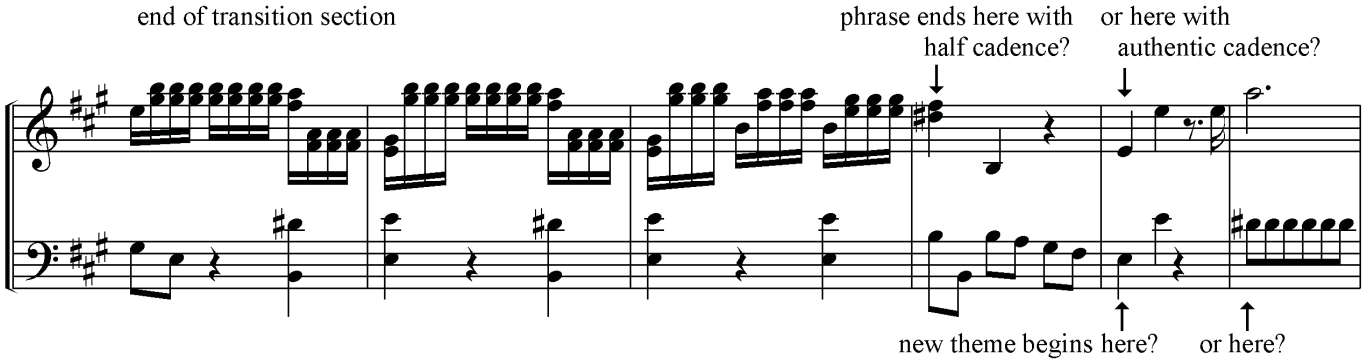
(a) Beethoven, Trio for Piano and Strings in G, Op. 1, No. 2, bars 91–101 (HC or elided PAC?).



(b) Haydn, Symphony No. 54 in G, IV, bars 98–104 (HC on inverted V7, or not?).

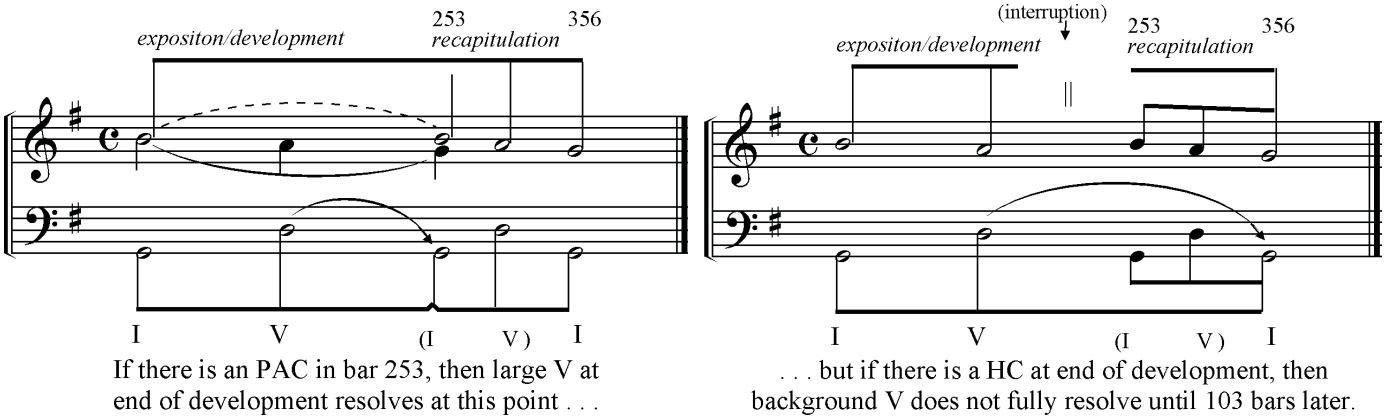


(c) Haydn, Symphony No. 5, II, bars 28–33 (where is phrase demarcation?).



Example 4. Selected cases where different interpretations of cadences lead to drastically different formal and/or voice-leading interpretations.

(a) Beethoven, Concerto for Piano and Orchestra in G Major, Op. 58, I (cf. Ex. 2).



(b) Haydn, Symphony No. 5, II (cf. Ex. 3c).