Prolongation in the Final Movement of Bartók's String Quartet No. 4

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The debate over the defensibility of prolongational structures in post-tonal music is far from over.[1] Prolongation was amplified most significantly and systematically by Heinrich Schenker in connection with music of the eighteenth and nineteenth centuries, and thus arises from relationships, patterns, and processes specific to the tonal system; consequently, the yardstick for measuring the validity of post-tonal prolongational structures is often one which is calibrated according to the tonal tradition. Joseph Straus, for example, alludes to such a mode of evaluation in making his claim that "With a few exceptions, theorists have virtually ceased to produce prolongational analyses of post-tonal music." Because his four conditions for prolongational validity—conditions which "distill certain familiar phenomena that underlie the concept of prolongation as that concept is generally understood"—are not met in post-tonal music, he concludes that such music "is incapable of sustaining a prolongational middleground or of being meaningfully described in terms of prolongation."[2]

In several respects Fred Lerdahl represents the other end of the spectrum of thought on this issue, for his "listener-based" theory—an extension of his and Ray Jackendoff's "generative theory" of tonal music—is sufficiently abstract to facilitate inference of prolongational structures in virtually any atonal context.[3] Central to his theory is the claim that "Atonal music almost by definition does not have stability conditions," and it is stability conditions, after all, which facilitate prolongational reductions (whether his or Schen-

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[1]In the theoretical literature, see especially: Craig Ayrey, "Berg's *Scheideweg*: Analytical Issues in Op. 2/ii," *Music Analysis* 1 (1982), 189–202; James Baker, "Schenkerian Analysis and Post-Tonal Music," in *Aspects of Schenkerian Theory*, ed. David Beach (New Haven and London: Yale University Press, 1983), 153–188; Edward Laufer, review of Heinrich Schenker *Free Composition* (trans. and ed. Ernst Oster), *Music Theory Spectrum* 3 (1981), 158–184 (esp. 159–161); Fred Lerdahl, "Atonal Prolongational Structure," *Contemporary Music Review* 4 (1989), 65–87; Robert P. Morgan, "Dissonant Prolongation: Theoretical and Compositional Precedents," *Journal of Music Theory* 20 (1976), 46–91; Joseph N. Straus, "The Problem of Prolongation in Post-Tonal Music," *Journal of Music Theory* 31 (1987), 1–22; Arnold Whittall, "Music Analysis as Human Science? *Le Sacre du Printemps* in Theory and Practice," *Music Analysis* 1 (1982), 33–54; and Paul Wilson, "Concepts of Prolongation and Bartók's Opus 20," *Music Theory Spectrum* 6 (1984), 79–89.

[2]Straus, "The Problem of Prolongation," 1, 2.

[3]Fred Lerdahl, "Atonal Prolongational Structure." For the tonal theory on which this atonal theory is based, see Fred Lerdahl and Ray Jackendoff, *A Generative Theory of Tonal Music* (Cambridge, Mass.: MIT Press, 1983).

ker's) in tonal music. Lerdahl proposes that, in atonal music, "salience conditions" replace stability conditions in providing the necessary basis on which surface pitch events are hierarchized within time-span reductions, eventually leading to prolongational reductions.[4] He then lists "preference rules" for isolating the most important event in a particular time-span, discusses the conditions under which "strong" and "weak" prolongations occur, and demonstrates the validity of his theory through the analysis of three works by Schoenberg. If no abstract musical constructs can be found to provide an external hierarchical basis for the inference of prolongational structures in a particular post-tonal piece—and this, to be sure, is often the case—then salience factors are indeed vital to the understanding of that piece's structure, and Lerdahl's theory is a systematic vehicle for arriving at such an understanding.

But the claim that all atonal music is without stability conditions is a rather sweeping one. What, for example, of individual pieces or even portions of pieces which *do* manifest allegiance to identifiable abstract musical constructs according to which hierarchical distinctions may be made? The opening section of the final movement of Bartók's String Quartet No. 4 is one such case. In fact, the abstract constructs on which its foreground and highest level of structure are based distinguish not only between primary and secondary pitch elements, but also between a primary element and a "tonicizing" element—the latter capable of implying the former in its absence. At these two distinct structural levels, salience conditions play only a limited role. On occasion the externally defined stability conditions will be shown to support interpretations which actually contradict those founded on salience factors alone. In such instances, stability conditions will override salience conditions, in a manner analogous to the interaction between salience and stability conditions in tonal music as defined by Lerdahl.

This, however, is not to say that salience conditions are entirely irrelevant to the prolongational design of this piece. Mid-level centric orientation, for example, is achieved through processes which effect a type of emphasis and exposure readily associated with Bartók's music. Thus, while externally defined musical constructs, rigorous hierarchical distinctions, and the potential for implication of a primary element are fundamental to prolongation at the surface and at the deepest of structural levels, salience conditions and the processes which account for perceived emphasis and exposure are fundamental to mid-level organization. Discussion of the prolongational validity of, and interaction between, these patterns and processes operating at various structural levels will occur as the analysis unfolds.

The vehicle for foreground prolongation in the excerpt under discussion—the first 148 measures of the movement—is the departure-return pattern, the "nesting" of which generates large-scale prolongation. Both the departure-return model and the nesting process have been discussed in the literature, chiefly from the perspective of prolongational significance. In arguing against the viability of prolongation in post-tonal music, for example, Straus comments on the departure-return pattern, asserting that

> . . . mere departure and return do not constitute prolongation. This is not a semantic dispute or evidence of an excessively zealous desire for theoretical purity; it is a central qualitative distinction. . . . If the "away" material and the type of motion toward it are virtually unrelated to the material departed from and returned to, then they can hardly be considered prolongational. . . . Just because event Y falls between two occurrences of event X does not mean that Y prolongs X.[5]

[4]Lerdahl, "Atonal Prolongational Structure," 73.

[5]Straus, "The Problem of Prolongation," 6.

Paul Wilson, on the other hand, refers to "the establishment of a primary chord, a departure from that chord, and a return to it" as a "basic structural model" which, when reiterated over different spans, may be said to generate "nested prolongational structures." It is not entirely clear whether Wilson regards the initial departure-return pattern as prolongational, or whether the pattern acquires prolongational validity only through the nesting process. He does, however, also refer to the model of departure and return as an "inherent hierarchical resource" and thus appears to accord even the basic model prolongational significance.[6]

But an important distinction must be made here. It could be said that through simple repetition or systematic nesting of the pattern the departure element may be associated with the returning element (presumably the more important of the two) to such a degree that it implies and in a sense prolongs the latter.[7] This is very different, though, from ascribing prolongational status to a departure element whose relationship to, and potential to imply, the primary element is externally and systematically defined and, accordingly, is not reliant on subsequent contextual reinforcement through some type of repetition. While it is entirely reasonable to require that the "away material," as Straus puts it, be related in some identifiable way to the returning material, such a relationship need not be based in all its detail on the major-minor system.

In the Bartók excerpt, the foreground, prolongational departure-return pattern—which effects centric orientation over mid-level spans through a process referred to as "oscillation-reiteration"—involves two and sometimes three melodic pitch-pairs: $\flat\hat{2}$–$\hat{1}$, $\sharp\hat{4}$–$\hat{5}$, and sometimes $\flat\hat{6}$–$\hat{5}$ (all over the same designated fundamental or reference pitch). These may be referred to as "disposition-pairs," reflecting their quality of inherent directedness. The concept of disposition-pairs is borrowed from William Benjamin, who, in his analysis of Debussy's "Pour les sixtes," defines them as "ordered pairs of adjacent diatonic scale degrees in each of which the first element is thought of as disposed towards, or as tending toward, the second." Benjamin goes on to assert that such qualities of disposition can only occur if we think of disposition-pairs "in terms of their prior relationship in the diatonic scale or some comparable prior construct."[8]

The first notes of the disposition-pairs cited above as relevant to the Bartók excerpt—$\flat\hat{2}$, $\sharp\hat{4}$, and $\flat\hat{6}$—are said to be disposed towards their paired counterparts and thus may be referred to separately as "disposition-notes." Singly or in combination, superimposed or temporally disjunct, these disposition-notes make up the departure component—or what could be called the "tonicizing agent"—in the foreground departure-return pattern. The second notes of the disposition-pairs make up the primary component or "referential element." What is needed is an "external" basis on which these disposition-notes might be said to acquire their sense of inherent directedness and according to which they may be said to imply, and thereby prolong at the foreground at least, the constituents of the more stable referential element to which they are paired. Bartók's concept of polymodal chromaticism provides this necessary basis—this "comparable prior construct," to use Benjamin's term. Bartók comments that

[6]Wilson, "Concepts of Prolongation," 88.

[7]In Lerdahl's listener-based theory, in fact, a "strong prolongation" is simply the repetition of an event ("Atonal Prolongational Structure," 74). Without an externally defined hierarchy—in a theory in which pitch hierarchy emerges within a given musical context, through salience factors specific to that particular context—repetition is likely the only possible basis on which prolongation could be inferred.

[8]William Benjamin, "*Pour les sixtes*: An Analysis," *Journal of Music Theory* 22 (1978), 261.

As the result of superimposing a lydian and phrygian pentachord with a common fundamental tone, we get a diatonic pentachord filled out with all the possible flat and sharp scale degrees. These seemingly chromatic degrees, however, are totally different in their function from the altered chord degrees of the chromatic styles of the previous periods. A chromatically altered note of a chord is in strict relation to its non-altered form; it is a transition leading to the respective tone of the following chord. In our polymodal chromaticism, however, the flat and sharp tones are not altered degrees at all; they are diatonic ingredients of a diatonic modal scale.[9]

Bartók proceeds to find a conventional precedent for this polymodal structure, noting that the upper tetrachords of the phrygian and lydian modes are exactly the same as the two forms of the more conventional minor scale, and concludes that the polymodal chromaticism which results in the lower pentachord of the two modes is "an extension of the above-described methods of old composers to the lower half of the scale."[10]

This composite modal scale, or polymode, thus reveals inherent tendencies of ascending and descending motion based on the semitonal departure from successive whole tones in a given direction. As indicated in Example 1, the quasi-leading-tone resolutions from $\sharp\hat{4}$ to $\hat{5}$ and $\sharp\hat{7}$ to $\hat{1}$ are found in the lydian (that is, ascending) portion of the polymode, while the resolutions from $\flat\hat{2}$ to $\hat{1}$ and $\flat\hat{6}$ to $\hat{5}$ are found in the phrygian (descending) portion. Those disposition-pairs indicated at (a) on Example 1 (one from each modal component of the polymode) are also found in the conventional major and minor scales, while those at (b) (again, one from each mode in the polymode) are specific to the lydian-phrygian polymode.[11] The latter abstract musical construct thus furnishes the external basis on which the departure element may be considered more than a mere "foil" to the referential element; it acquires status comparable to the conventional dominant in its ability to tonicize, imply and, ultimately, prolong the referential element.

The movement in question begins with an unsettled verticality consisting of a C–G fifth, complicated by the addition of D♭ and F♯ (see (a) in Ex. 2). Leo Treitler and Elliott Antokoletz, in their analyses based on George Perle's concept of symmetry through interval cycles, label this collection "cell Z" ([0,1,6,7]) and track its various transpositions, showing how they interact with those of cells X ([0,1,2,3]) and Y ([0,2,4,6]) to provide the basis of pc organization and harmonic progression in this particular quartet.[12] This approach, of course, takes the four-note cell as a complete unit, without structural differentiation of its component parts—an

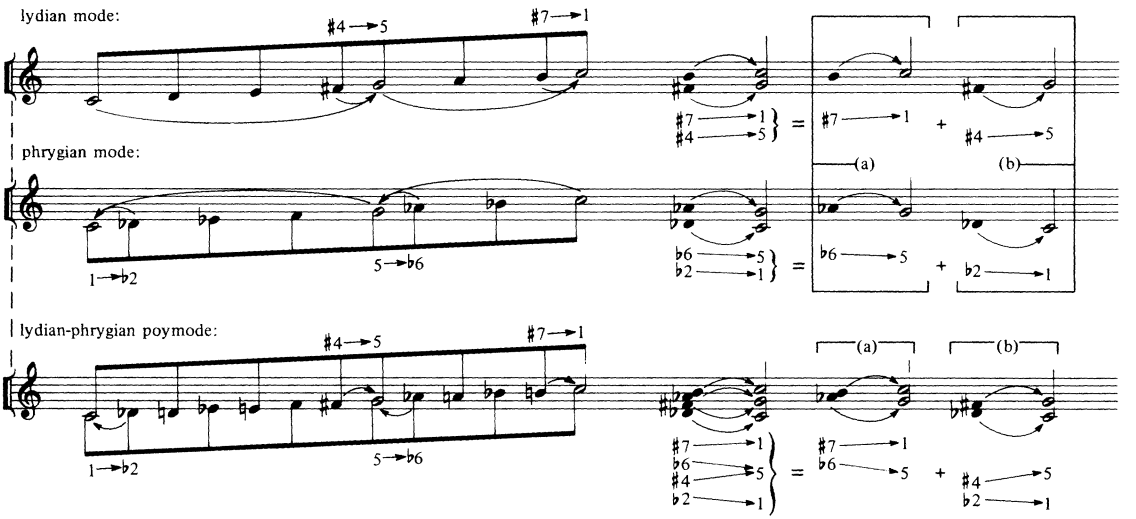
[9]Béla Bartók, "The Relation Between Folk Music and Art Music," in *Béla Bartók Essays*, ed. Benjamin Suchoff (London: Faber & Faber, 1976), 367.

[10]Ibid.

[11]The use of flat and sharp signs in front of scale degrees is not to be confused with chromatic inflection in the traditional sense. Apart from $\hat{1}$ and $\hat{5}$, each scale degree in the lydian-phrygian polymode is represented twice, once in the ascending component (the lydian mode) and once in the descending component (the phrygian mode). In order to reflect the ascending tendency of the lydian mode, its second, third, fourth, sixth, and seventh scale degrees are preceded by a sharp sign; correspondingly, those scale degrees in the phrygian mode are preceded by a flat sign, to reflect the descending tendency of that mode. Thus, there are no second, third, fourth, sixth, or seventh scale degrees in the polymode which have neither a sharp nor a flat sign in front of them.

[12]Leo Treitler, "Harmonic Procedure in the Fourth Quartet of Bartók," *Journal of Music Theory* 3 (1959), 292–298; Elliott Antokoletz, *The Music of Béla Bartók: A Study of Tonality and Progression in Twentieth-Century Music* (Berkeley and Los Angeles: University of California Press, 1984). Certain fundamental principles of Antokoletz's approach are based on George Perle, *Twelve-Tone Tonality* (Berkeley and Los Angeles: University of California Press, 1977). See also Perle, "Symmetrical Formations in the String Quartets of Béla Bartók," *The Music Review* 16 (1955), 300–312.

Example 1. Disposition-pairs in the lydian-phrygian polymode

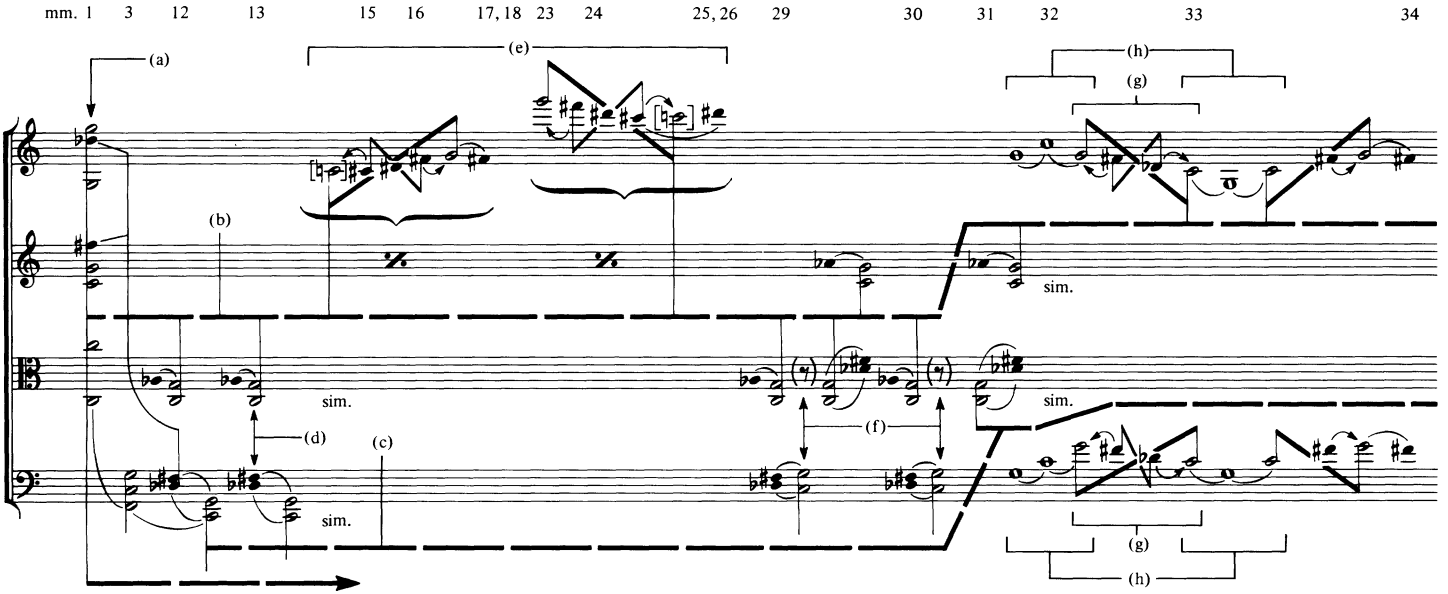


approach which, as will become clear, is more appropriate for the first movement than for the final movement.

The opening sets in immediate and harsh opposition (through superposition) two functionally distinct components: the referential fifth, C–G, and the superimposed disposition-notes D♭ and F♯, the external basis for this separation residing in the concept of polymodal chromaticism discussed above.[13] The ensuing oscillation-reiteration process provides gradual clarification and confirmation of, and differentiation between, those structural components as the piece unfolds. This process of differentiation and clarification begins in m. 11 and is especially apparent after m. 14. As of m. 11 the two components are separated in timbre, the referential fifth reiterated in the viola, in occasional oscillation with the disposition-note ♭$\hat{6}$ (see (b) in Ex. 2), and the superimposed disposition-notes ♭$\hat{2}$ and ♯$\hat{4}$ in oscillation with the referential fifth in the cello (at (c)). This textural clarification already differentiates the final movement from the opening one. In the final movement, for example, Treitler's and Antokoletz's cell Z is in fact comprised of distinct structural components, differentiated on the basis of an underlying, external musical construct and expressed in the music in such a way as to dramatize these distinctions. Comparison of the passage under discussion with Antokoletz's analysis of

[13]János Kárpáti separates these same structural and elaborative elements, though not on the basis of an underlying lydian-phrygian polymode. Kárpáti writes: "In keeping with the movement's C tonality the central layer of the fifth-chord is the fifth C–G, to the basic note of which D♭ is added as an adjacent chromatic note, and to its fifth F♯ is added" (*Bartók's String Quartets* [Budapest: Corvina Press, 1967], 223).

Example 2. String Quartet No. 4, V, mm. 1–45

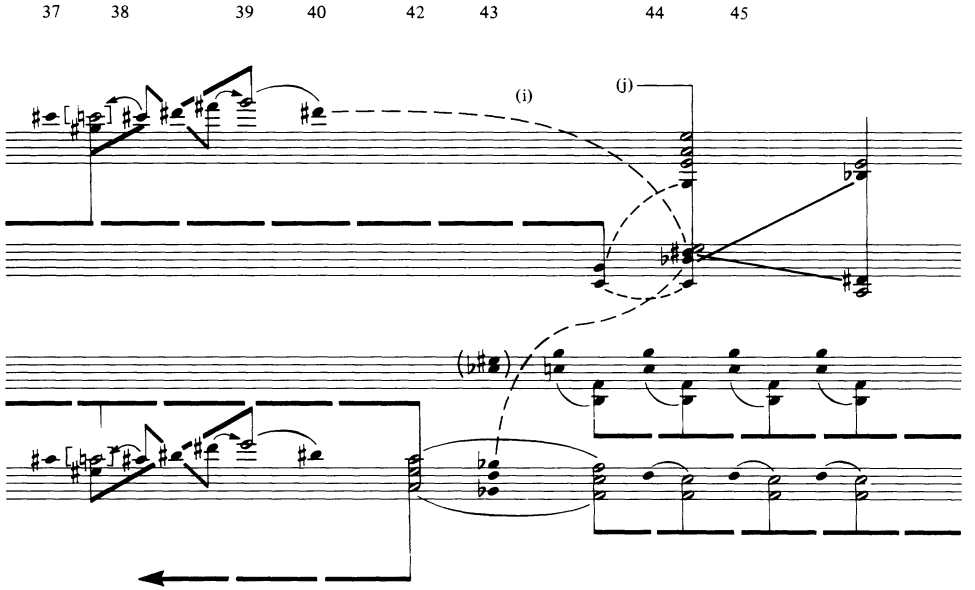


mm. 14–25 of the first movement, for example, reveals the latter to be considerably more expressive of cells X, Y, and Z as complete units, and is more concerned with the manipulation, transposition, and integration of those cells than is the final movement.[14] Clearly, the cell approach is more appropriate for the first movement than the last, as reflected by the fact that, apart from several references in Antokoletz's book to cell structure in the final movement,[15] his work and that of Perle and Treitler has concentrated more on the first movement of this particular quartet.

In spite of the instrumental division after m. 11, described above, the two structural components—the referential fifth and the disposition-notes—are at certain points vertically aligned as they were in the beginning (for example, at Ex. 2, (d)). Continued interaction between these two structural components establishes a tonal-textural stratum over which a thematic element emerges in the violins, beginning in m. 15. As noted at (e), this theme can be interpreted as an unfolding of the tonicizing agent $\flat\hat{2}$–$\sharp\hat{4}$ within an unfolding of the referential fifth. Notation of the C–G fifth and the

[14]Antokoletz, *The Music of Béla Bartók*, 112.
[15]Ibid., 239–240 (Exx. 285–289) and 282–288 (Exx. 343–350).

Example 2 *continued*



D♭–F♯ tonicizing agent in the theme as "unfoldings" is meant to suggest that at the foreground level at which these events occur they are in fact prolongational in the conventional, Schenkerian sense, facilitated by the external resource of the lydian-phrygian polymode described above. In fact, it is precisely this external basis which justifies interpretations differing from those that might be derived through consideration of salience factors alone. In this particular thematic gesture, for example, G is far less exposed than F♯ and C is not even present; and, yet, F♯ and C♯ are said to be structurally inferior to G and C, respectively. When an external hierarchical basis is identified—and an interpretation like this clearly requires such a basis—it will invariably take precedence over more obvious surface factors of articulation and exposure.

The thematic statement in mm. 23–26 is a variation of that heard in mm. 15–18, the most significant of changes being its final pc, D♯. While that pc does not appear to play a role within the unfolding of the tonicizing agent in either of these two statements, its placement as a terminal melodic event in m. 26 exposes it as potentially significant. When included with the referential C–G fifth, D♯ contributes an enharmonically spelled minor third, thus suggesting a triadic level of pc organization. Subsequent transpositions of the thematic

material and departure-return pattern will reveal the octatonic scale to be the source for this triadic level. The interpretation of a triadic component within the theme is further reinforced by events at the end of the movement. For example, one important aspect of the final cadence is a motion from E♭ to E. This progression can be interpreted as the replacement of one modal constituent in the lydian-phrygian polymode by its counterpart in the other modal constituent of that larger construct, rather than as a chromatic "inflection" of a particular scale degree. Thus, while tonicization of C–G involves two modally self-contained disposition-pairs, $\flat\hat{2}$–$\hat{1}$ from the phrygian mode and $\sharp\hat{4}$–$\hat{5}$ from the lydian, this final progression fuses the two modal patterns of the polymode through a progression from a member of one pattern to the corresponding member of the other. This progression involves the third scale degree, which converts the referential open fifth into a triad that changes quality from minor to major (as a result of this final inter-modal resolution) and thus alludes to the traditional Picardy third.

In spite of the textural separation and rhythmic distinction of each component in the departure-return pattern, and the explicit melodic completion of the disposition-pair $\sharp\hat{4}$–$\hat{5}$ in the violins—all of which are important, initial factors of clarification—articulation of $\flat\hat{2}$ and $\sharp\hat{4}$ thus far occurs for the most part in vertical alignment with the primary C–G fifth in the viola, obviating explicit linear resolution of the former into the latter. That is, the departure-return pattern in this excerpt (the oscillation portion of the process) occurs over a reiterated C–G fifth. This means of course that even at the foreground, the departure component is accompanied by an underlying, referential C–G fifth. Strictly speaking, then, the prolongational significance of the foreground pattern—particularly the implicative potential in the tonicizing agent or departure component—is undermined because the "thing-to-be-prolonged" is in fact always present. While this is true, *foreground* prolongation could, in this instance, occur without the underlying reiteration of C–G precisely because of the external resource in the polymode defined above. The reiterated C–G fifth is a textural detail which neither strengthens nor weakens the prolongational significance of the foreground departure-return pattern.[16]

The first point of ultimate clarification of the hierarchical relationship between the two structural components of the departure-return pattern comes in the oscillation-reiteration stratum in mm. 29 and 30. Reference (f) in Example 2 reveals the registral consistency in the repeated progression of tonicizing agent to referential C–G fifth in the cello in those measures (as compared to (d) in Ex. 2), and the eighth-note rest which accompanies that fifth each time. These two factors clearly facilitate explicit and uncomplicated punctuation of the referential fifth in the oscillation-reiteration stratum in mm. 29–30 and, interestingly, initiate a tonally more explicit thematic variation, beginning in m. 31—the second stage of clarification. This tonal decisiveness in the theme stems from at least three factors. First, as indicated at (g), melodic resolutions of both $\flat\hat{2}$ to $\hat{1}$ *and* $\sharp\hat{4}$ to $\hat{5}$ are explicit in the theme, as compared to the earlier statement where only the resolution of $\sharp\hat{4}$ to $\hat{5}$ was explicit. Second, the D♯—which occurred within, but was not integral to, the unfolding of the $\flat\hat{2}$–$\sharp\hat{4}$ tonicizing agent in the first thematic statement—is absent, allowing only the disposition-pairs to sound. And third, as noted at (h), a direct and undecorated

[16]An example in the music of Bartók where explicit reiteration and constant literal presence of the thing prolonged is not a factor is the closing measures of the final movement of his String Quartet No. 6. Beginning in m. 79, the movement's primary D–A fifth is prolonged through disposition-note tonicization, first by scale degrees ♭2 and ♯7 in the violins and viola, then by ♯4 in those same instruments, and finally by ♭2 (in the violins) and ♯4 (in the viola and cello) in m. 84.

arpeggiation of the referential C–G fifth begins this version of the theme and connects its two halves.

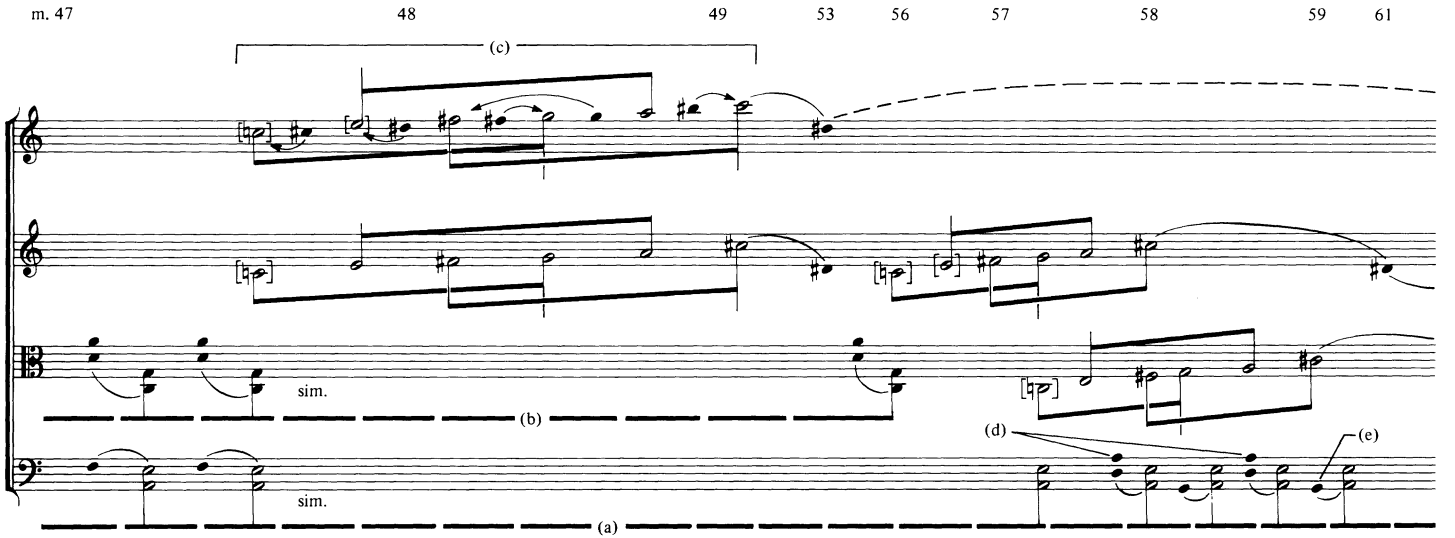
The thematic version with resolution of only one disposition-note returns in m. 37, but comparison of its concluding pitch with that of the thematic statements in mm. 15–18 and 31–34 reveals that the theme ends in m. 40 with D♯ instead of F♯. Like the terminal D♯ of m. 26, this one too suggests a triadic level of organization. But this particular D♯ also has important tonal implications regarding the secondary referential element soon to emerge. F♯ was understood in the initial statement as ♯$\hat{4}$, resolving to $\hat{5}$ of the referential C–G fifth. In this later statement, D♯ functions analogously as ♯$\hat{4}$ with respect to an A–E fifth (at (i)), and occurs in m. 44 with B♭ (or ♭$\hat{2}$ in A), both of which are vertically aligned with the A–E fifth that they tonicize (at (j)). This transposed and reiterated A–E fifth—superimposed with its own disposition-notes ♭$\hat{2}$ and ♯$\hat{4}$—is the secondary harmonic area of the A section.

Example 3 begins in m. 47 and reveals a more complex structure, incorporating two referential elements. One is the C–G fifth, which will be shown to be subordinate in these measures (although it is primary with respect to the movement as a whole). The other is the A–E fifth, which is superior in these measures but hierarchically inferior in terms of the large-scale tonal scheme. Bartók uses an interesting technique of melodic elaboration to establish the A–E fifth as contextually superior to the C–G fifth in this section. The A–E fifth begins with its disposition-notes ♭$\hat{2}$ and ♯$\hat{4}$ (noted already at (j) in Ex. 2), although that tonicizing agent is not subsequently used in oscillation with the A–E fifth (as its earlier analogue was in the protraction of the C–G fifth at the outset), the disposition-note ♭$\hat{6}$ *is* heard to oscillate with $\hat{5}$ in the cello (see (a) in Ex. 3). The C–G fifth, by comparison, occurs here in oscillation with the less implicative octave-displaced, whole-tone upper-neighbor D–A fifth ((b)). The parallel resolution of D–A to C–G, the less frequent reiteration of the C–G fifth as compared to the A–E fifth, and the lower registral position of the A–E fifth are significant factors which tend to subordinate the C–G fifth.

Not only is the oscillation stratum more complex after m. 47—through its independent elaboration of the A–E and C–G fifths in the cello and viola—but the thematic element in the violins is correspondingly more complex. Here, the linear structure of the theme is extended so as to imply resolutions to three different fifths, shown as separate unfoldings (notated  rather than  for convenience) at (c) in Example 3. These multiple implications are based on the pattern established by the initial theme in mm. 15–16, where the C–G fifth was inferred from the succession C♯–D♯–F♯–G and reinforced by the oscillation stratum. Here, the lower four notes of the extended theme are exactly those of the original and thus imply a C–G fifth, reinforced in these measures by the secondary C–G fifth reiterated in the viola. The upper four notes of the extended theme, G–A–B♯–C♯ (of which G is common to both tetrachords), is an exact transposition of the original theme and thus implies a corresponding F♯–C♯ fifth, the latter explicitly stated in this enlarged theme because of the occurrence of F♯ in the lower four-note group.

In that the A–E fifth is, as explained above, contextually primary for this segment, the A in the extended theme is potentially referential. Although its fifth, E, is not present in the theme until m. 65, its lower disposition-note D♯(= ♯$\hat{4}$) is present already in m. 48 and represents the reverse pattern of the initial theme. That is, in the original, the fifth was present and the root implied by its upper disposition-note; here, the root is present and the fifth implied by its lower disposition-note (hence the E in square brackets at (c) in Ex. 3). Moreover, the A–E fifth receives triadic support: like the

Example 3. String Quartet No. 4, V, mm. 47–75

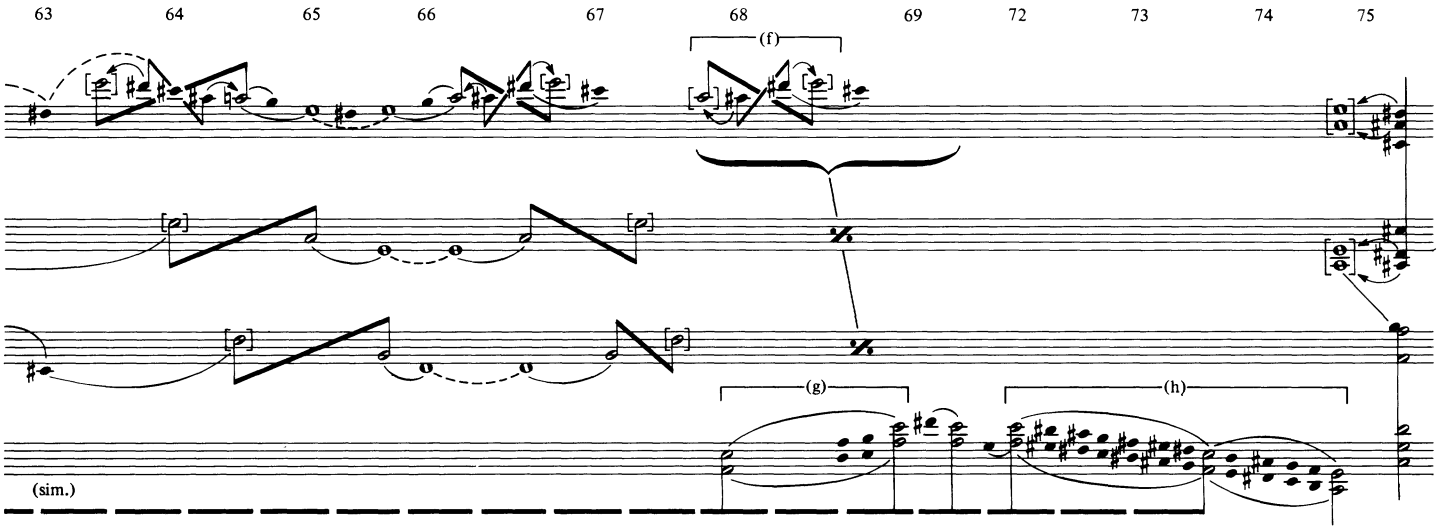


terminal D♯ in mm. 26 and 40, the terminal, registrally and durationally emphasized C♯ in mm. 49–52 and in m. 67 contributes a triadic major third to the underlying fifth, in this case the contextually primary A–E fifth. It is significant that the A–E and C–G fifths—explicit in the lower instruments as primary and secondary elements in this segment—are among the three implied in the thematic statements above. Implication of an F♯–C♯ fifth is important in light of later events, discussed below.

After the C–G fifth is dropped from the oscillation stratum (m. 56), the A–E fifth is elaborated in the same way that the C–G fifth was subordinated to the A–E fifth, beginning in m. 43. Specifically, m. 58 initiates an oscillatory protraction of the A–E fifth in which the departure elements are not disposition-notes but, rather, fourth-related "fifth-chords"[17] ((d) in Ex. 3) and whole-tone neighbors (see (e)). Additionally, m. 68 initiates a version of the theme in the violins and viola which is less explicit in its unfolding of the underlying A–E fifth than earlier statements. As indicated at (f), both the A and E are only implied (that is, neither of the disposition-notes $\flat\hat{2}$ and $\sharp\hat{4}$ is resolved in the thematic component). These changes in the expression of A–E—first in the makeup of the departure component of the departure-return pattern and then in the theme itself—clearly spell the

[17]These are the verticalities which functioned as whole-tone neighbors in the protraction of the C–G fifth in its secondary capacity (that is, as subordinate to the A–E fifth).

Example 3 *continued*

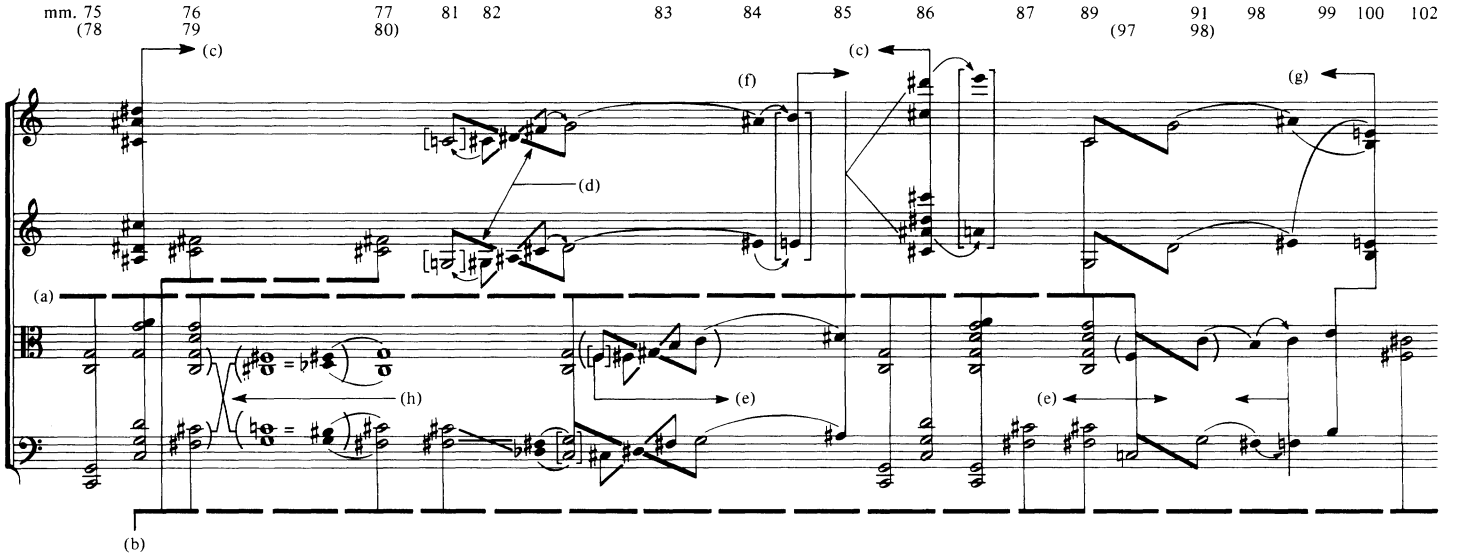


beginning of the end of the A–E fifth's control and suggest that a shift in tonal orientation is imminent. Measures 68–69 comprise an ascending octave transfer of the A–E fifth (refer to (g) in Ex. 3) and mm. 72–75, a final descending motion back to C–G—an apparent return to the referential fifth from the movement's opening—at (h).

The passage which begins with this ostensible return to the primary C–G fifth from the opening—mm. 76–102, analyzed in Example 4—is truly climactic, as it expands the concept of implied, superimposed fifths from the preceding section (mm. 45–74) in a way which both recalls and foreshadows structural events elsewhere in the movement. As at the opening of the movement, the C–G fifth is here reiterated in the viola (see (a) in Ex. 4), with its disposition-notes $\flat\hat{2}$ and $\sharp\hat{4}$ superimposed and reiterated in the cello. As noted at (b), however, the latter vertically aligned disposition-notes are here notated as an F♯–C♯ fifth, the significance of which is discussed below. And there is continued implication of A–E, from the preceding section, through its disposition-notes $\flat 2$ (A♯ = B♭) and ♯4 (D♯), which are vertically aligned in mm. 75, 78 (not shown in Ex. 4), and 86 (see (c) in Ex. 4).

The theme in the first violin, beginning at m. 81, is a restatement of the original (from mm. 14ff.) and thus implies C–G. By extension, its transposition down a fourth, unfolding simultaneously in the second violin, implies G–D (see (d) in Ex. 4). Taken together and verticalized, these two fifths comprise the chord C–G–D. Although not expressed (vertically) at this point in the movement, this "chord in fifths"

Example 4. String Quartet No. 4, V, mm. 75–102

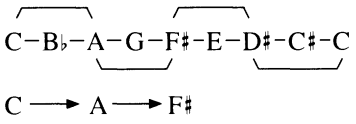


is particularly significant in light of F–C–G, heard at the beginning of the movement, and other, more extended examples encountered toward the end of the A section, beginning in m. 121, and especially at the end of the movement itself, beginning in m. 296. The simultaneous implication of F–C with C–G at (e) in Example 4 recalls the progression from C–D♭–F♯–G to F–C–G at the opening of the movement, and foreshadows the latter simultaneity, which begins again at m. 323, towards the end of the movement. And, finally, E–B, implied at (f) and confirmed at (g), concludes a seven-note diatonic circle of interlocking fifths, F–C–G–D–A–E–B, each fifth of which has served in either a referential or elaborative capacity.

In spite of this complex juxtaposition and superposition of fifths beginning in m. 75, however, C–G and F♯–C♯ are protracted through oscillation and reiteration and clearly emerge as the main structural opponents in this climactic section. In fact, each fifth (C–G and F♯–C♯), when enharmonically spelled, may be heard to function as the other's disposition-notes $\flat\hat{2}$ and $\sharp\hat{4}$, as suggested at (h). Although the "figure-ground" arrangement of the two fifths—intensified by the aforementioned "interchange" relationship—creates ambiguity concerning structural differentiation in these measures, three details support the local primacy of F♯–C♯.

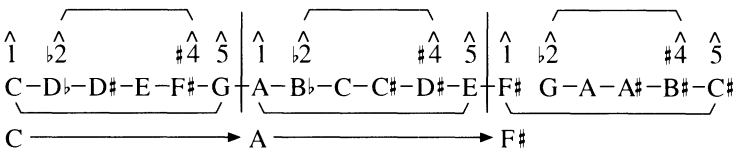
First, as indicated in Figure 1, F♯–C♯ is a logical arrival point: its root marks the next point of symmetrical subdivision in the octatonic scale, after the fifths rooted on C and

Figure 1.



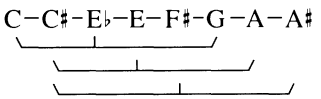
A, protracted earlier in the movement. If the ascending octatonic scale is extended through another statement, as shown in Figure 2, this symmetrical basis for the arrival on F♯ is expressed in a different way. Second, the octatonic scale, as mentioned earlier, becomes the basis of a triadic

Figure 2.



level of organization. The triads were inferred by grouping the terminal pcs of certain thematic components with the protracted fifth which occurred beneath them: C–E♭–G, followed by A–C♯–E. In the section under discussion, thematic components arrive on A♯ in mm. 85, 94, and 98, that pc functioning analogously as the triadic third within the underlying F♯–C♯ fifth. As the F♯ triad completes the octatonic

Figure 3.



scale, indicated in Figure 3, its outer fifth may be accorded superiority over the competing C–G fifth. Thus, the octatonic scale accounts for the root relationship between components in the mid-level harmonic progression, and contributes a triadic quality to each tonicized fifth in that extended progression. It is important to keep in mind, however, that the lydian-phrygian polymode is the underlying basis for the structural differentiation between referential fifths and tonicizing agents, and for the local prolongation of those referential fifths. The third element of support for the local primacy of F♯–C♯ comes from the fact that in m. 102—immediately following the completion, with E–B, of the aforementioned diatonic circle of fifths—the F♯–C♯ fifth initiates a 40-measure structural descent back to the C–G fifth at the end of the A section.

While the octatonic scale was said to account for the root relationship between components in the mid-level harmonic progression from the opening C–G fifth to the climactic F♯–C♯ fifth (mm. 76–102), no such musical construct can be shown to control the descent back to the primary C–G fifth at the end of the A section. Rather, that progression is essentially chromatic, touching on all pcs from F♯ down to C, though with greater emphasis on some than on others. But even the emphasized pcs in the descent fail to articulate a systematic scalar configuration such as, for example, the phrygian mode, which would seem to be an obvious choice

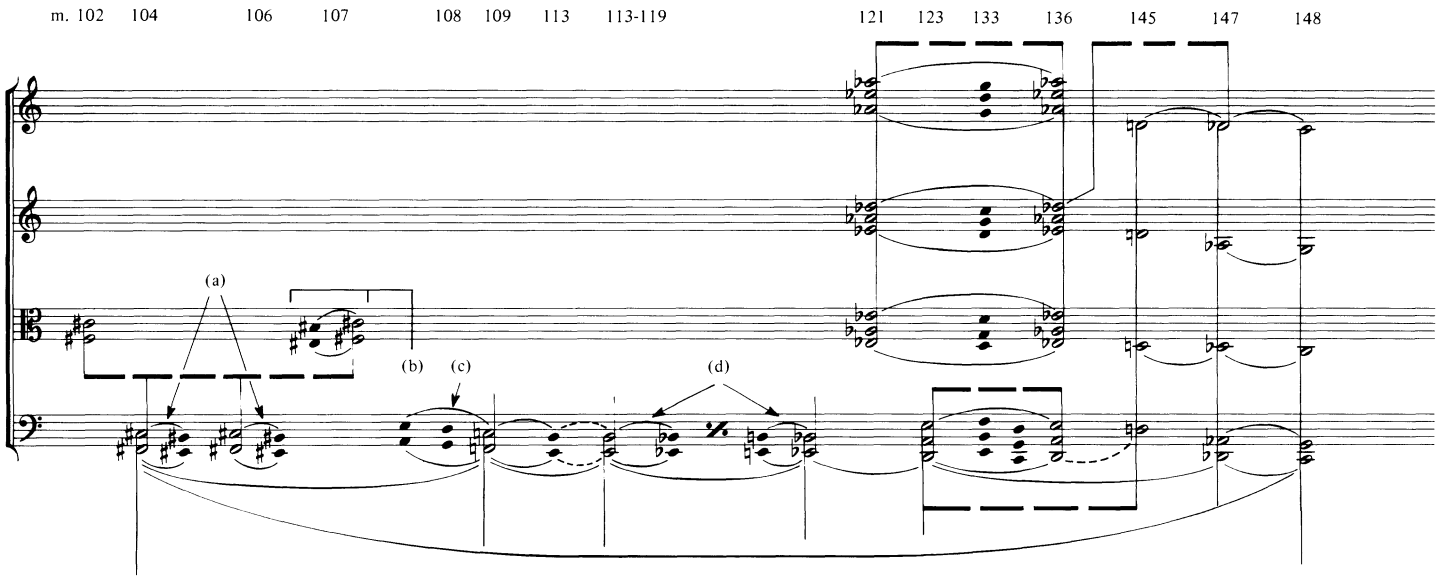
given its descending tendencies, featured elsewhere in the movement.

The semitonal neighbor is exploited in this descent and, in fact, is used to create ambiguity in the progression. As indicated at (a) in Example 5, for instance, the primacy of the fifth on F♯ is maintained through a repeated motion to its lower neighbor, the fifth on E♯; reiteration of F♯–C♯ in the viola in mm. 102–107, and especially its complete lower-neighbor elaboration at (b), insures that the departure patterns in the cello are not construed as structural semitone descents in the large-scale tritone progression. The first structural descent does not occur until m. 109, with F–C—the goal of a brief embellishing pattern, (c), comprised of fifths on A, G, and F.

The departure pattern in mm. 112–113, from F–C to E–B, recalls the initial cello pattern in mm. 104–105, but differs from the latter in two respects: first, it is not repeated in the cello, which would simulate a return to F–C and qualify the E–B fifth as a lower neighbor; second, there is no supporting "returning motion" in the viola, analogous to that which occurred in m. 107 in the protraction of F♯–C♯. As a result, the final, neighboring fifth in the pattern (E–B) may be interpreted as an anticipation of the next structural component in the large-scale descent—the E–B fifth which initiates the descending pattern to E♭–B♭, at the end of m. 113.

Although this motion from E–B to E♭–B♭ in mm. 113–114 is a transposition of the previous pattern, from F–C to E–B, the second fifth (E♭–B♭) is not an anticipation of the

Example 5. String Quartet No. 4, V, mm. 102–48



initial component of the next descending pattern: a motion from E♭–B♭ to D–A, consistent with previous patterns, never occurs. Rather, the situation is more like the protraction of F♯–C♯ in mm. 104–106, where a repetition of the departure pattern (represented by ⟋ in Ex. 5) simulates a returning motion, resulting in an extended protraction of the initial fifth. In this case, the descent from E–B to E♭–B♭ is repeated four times over mm. 115–119, suggesting the local primacy of the E–B fifth. Through repetition of the motion from E–B to E♭–B♭, however, both fifths could be heard as structural through a figure-ground type of processing, not unlike that suggested above in connection with the simultaneously protracted C–G and F♯–C♯ fifths. That is, as the pattern is repeated, it can be considered alternatively as a beginning-accented pattern and an end-accented pattern, (d), yielding a different locally primary fifth in each case.

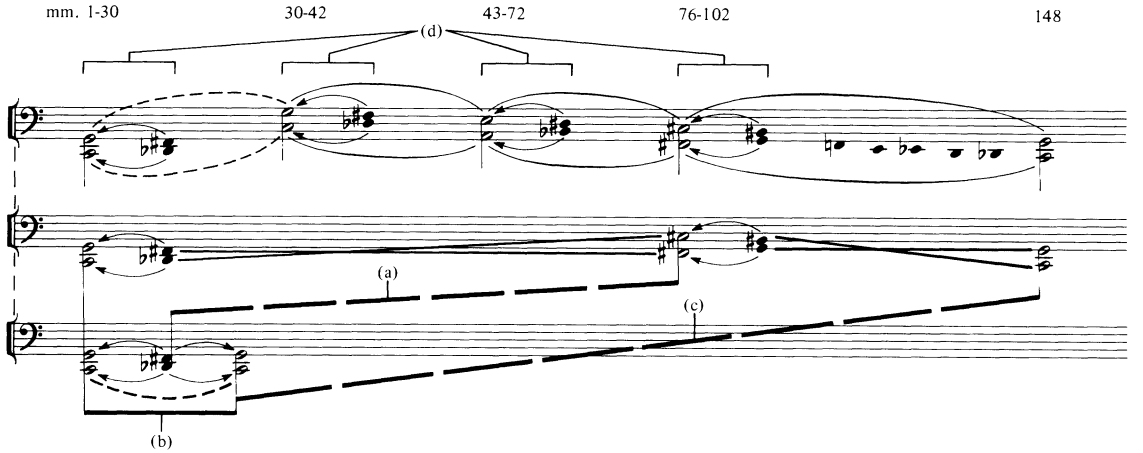
A different kind of duality of scale degree occurs in mm. 121–136, where the chord in fifths D♭–A♭–E♭ is "inverted," reiterated, and elaborated through encirclement in the upper three instruments, while a "root-position" chord in fifths on D is reiterated and elaborated through encirclement in the cello. Although another figure-ground arrangement presents itself, here between D♭ and D, the root-position configuration and lower registral placement of the latter verticality are factors which enhance its superiority over the chord on D♭. The tension between D and D♭ as upper auxiliaries of C, however, continues to the arrival of the structural C–G fifth in m. 148: the sustained octave D in mm. 145–147 is at the last possible moment replaced by the D♭–A♭ grace-note fifth at the end of m. 147.

It is now possible to discuss patterns and processes which operate at the higher levels of structure in the A section and to speculate on their prolongational significance. As was noted above, F♯–C♯, protracted as the locally primary fifth in mm. 76–102, figures prominently at the most fundamental level of structure. This fifth not only represents the most significant of departures within the A section's large-scale harmonic scheme, generated by the octatonic scale, but, more significant, it creates an important large-scale nesting relationship spanning that entire formal section.[18] As was noted above, F♯–C♯ is the enharmonic equivalent of the tonicizing agent in the opening departure-return pattern, which established C–G as the referential element. As (a) in Example 6 demonstrates, protraction of F♯–C♯ some 75 measures into the movement is thus a large-scale projection of the earlier tonicizing agent, and not merely a later restatement of an arbitrarily derived departure component. Moreover, the eventual return of the more primary C–G fifth at the close of the A section completes the temporally expansive statement of the initial, foreground, prolongational departure-return pattern (the latter identified at (b) on Ex. 6, and the large-scale projection of the final referential fifth of the pattern at (c)). Thus the highest level of structure in this A section is prolongational; it not only imitates a foreground model—which, for some theorists, is sufficient for the articulation of a prolongational structure—but imitates one which, through externally defined criteria for hierarchization, is itself prolongational.

Throughout the foregoing analysis, mid-level spans supporting C–(E♭)–G, A–(C♯)–E, and F♯–(A♯)–C♯ have been

[18]This interpretation is very different from one which presumably would follow from the "axis system" of Ernö Lendvai, as explicated in his *Béla Bartók: An Analysis of His Music* (London: Kahn and Averill, 1971) and in his *The Workshop of Bartók and Kodály* (Budapest: Editio Musica, 1983). Lendvai regards chords based on tritone- and minor third-related fundamentals as equivalent in function: "A pole is always interchangeable with its counterpole [specifically, its tritone-related counterpart] without any change in its function" (*Béla Bartók: An Analysis of His Music*, 4). In this case, the fifth rooted on F♯ would not be viewed as a maximum "departure" at all, but rather as a "surrogate tonic." In the present analysis, the F♯–C♯ fifth is opposite in structural function to the referential C–G fifth, not equivalent in function.

Example 6. String Quartet No. 4, V, mm. 1–148; large-scale tonal motion and pattern projection



referred to as "protractions" rather than prolongations. This was deliberate, as their characterization as prolongations requires qualification beyond that which was offered in defense of the prolongational validity of the departure-return pattern and the nesting process. But speculation as to the prolongational significance of the processes which generate those spans—oscillation and reiteration—is in order. While these particular processes have been discussed in the theoretical literature, they have not received unanimous support as valid prolongational determinants. On the one hand, Straus argues that "It is important not to confuse prolongation with mere contextual reinforcement or repetition. Prolongation exists precisely when the prolonged object is *not* literally present."[19] This is indeed a vital requirement for a "syntactical" theory of prolongation. And it is one which was insisted upon and satisfied in the theory defined above as relevant both to the foreground and to the highest level of structure in the Bartók excerpt—that is, at those structural levels where abstract musical constructs *are* identifiable. But a certain degree of latitude concerning patterns and processes—and the raw materials on which those determinants are based—is necessary when dealing with post-tonal music. Consideration of prolongational structures not based entirely on patterns and processes associated with the major-minor system may reveal details and relationships in post-tonal music that might otherwise remain unaccounted for through a "strict-constructionist" point of view. And one element of flexibility is the acceptance of prolongational structures based on salience conditions if abstract musical constructs and attendant patterns and processes are *not* available. In this light, Craig Ayrey's comments are apropos. He suggests that a prolonged "dissonant tonic sonority" must

[19]Straus, "The Problem of Prolongation," 2; emphasis in original.

"redefine itself perpetually by saturating the texture with its particular sound" and then continues: "If this is the case, then (as for tonality, which is not determined only by the omnipresence of triadic forms) an identification of prolongational techniques is required, and although the Schenkerian concepts of prolongation and structural repetition remain, the techniques need not resemble Schenkerian models."[20] The use of oscillation-reiteration of a foreground pattern to generate palpable mid-level structures based on salience in the Bartók excerpt can be considered one such non-Schenkerian prolongational technique.[21]

In the Bartók excerpt analyzed above, foreground prolongation is based on the departure-return pattern and large-scale prolongation on the nesting process, this pattern and process having ample precedent in the major-minor system. Appropriately, they are premised on the lydian-phrygian polymode—an abstract musical construct which is analogous to the conventional major and minor scales. Mid-level prolongation, on the other hand, is generated by the less conventional oscillation-reiteration process. It is fitting, then, that the harmonic progression connecting the "roots" of the components prolonged at the middle structural level is furnished by the less traditional octatonic scale.

[20]Ayrey, "Berg's *Scheideweg*," 196.

[21]Interestingly, Jonathan D. Kramer, in his analysis of the music of Stravinsky, notes a similar kind of prolongational process linking foreground pattern to mid-level prolongation. Speaking of "extended passages based on single chords or on the alternation of two chords," Kramer notes that "the foreground not merely prolongs but actually sustains middleground harmonies. . . ." ("Discontinuity and Proportion in the Music of Stravinsky," in *Confronting Stravinsky*, ed. Jann Pasler [Berkeley and Los Angeles: University of California Press, 1987], 174–194). In this music, and in the Bartók under discussion, foreground prolongation is achieved through pattern, while mid-level prolongation is generated by process (that is, by the reiteration of the foreground pattern). Large-scale prolongation in the Bartók excerpt involves pattern (departure-return) *and* process (nesting).

The fact that criteria for prolongation at the foreground and at the highest level of structure are said to be syntactical and conceptual in nature, while those for prolongation at the middle level are said to be psychological and perceptual in nature, may well be problematic from a purely "structuralist" point of view. For example, James Baker criticizes Roy Travis and Milton Babbitt for their analyses of Bartók's music, arguing that "The fact that opposing systems are seen to operate at different levels of structure in these analyses is at odds with the very concept of structural coherence as established by structuralists (including Schenker)." Baker notes further that, in Babbitt's and Travis's analyses, the relationships between the diverse levels of structure and the means by which a balance between opposing systems is achieved are left unexplained.[22] This implies, however, that were such problems adequately addressed in a situation of diverse organizational systems at different levels, the apparent contradiction in structural coherence would be eliminated; or, at the very least, ostensibly opposing systems could be seen to interact and achieve coherence and continuity in ways which are comparable to, if different from, those which occur in traditionally tonal pieces. In the final movement of Bartók's String Quartet No. 4, the interrelationships between abstract musical constructs employed at various levels, the integration of the foreground departure-return pattern into the oscillation-reiteration process which generates mid-level spans, and the framing of those mid-level spans by the large-scale, nested departure-return pattern result in a strongly unified structure. And this amply demonstrates that Bartók's creative intuition was matched by his control of structural detail.

[22]Baker, "Schenkerian Analysis and Post-Tonal Music," 158.

ABSTRACT

Post-tonal prolongations require flexibility concerning acceptable patterns and processes. Analysis of the first 148 measures of the final movement of Bartók's String Quartet No. 4 identifies a departure-return pattern as the vehicle for foreground prolongation, and the nesting of that pattern, to span the entire passage, as the means for large-scale prolongation. The "lydian-phrygian polymode" is shown to hierarchize components in the departure-return pattern. Oscillation-reiteration of the foreground pattern at three different scale degrees connects constituents of the large-scale pattern, this process defined as a non-Schenkerian, but nonetheless viable, prolongational technique.