INTERACTIONS OF CONVENTIONAL AND NONCONVENTIONAL TONAL DETERMINANTS IN THE STRING QUARTETS OF BÉLA BARTÓK
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## ABSTRACI

Although there exists substantial literature on Béla Bartók's music, few sources address his tonal language in a penetrating, analytical way. Analyses often lack precision in demonstrating adaptations of conventional principles of tonal orientation in the often nontraditional contexts of Bartók's music, and are generally inconclusive in explaining the particulars of interaction between conventional and nonconventional tonal determinants. The present study seeks to demonstrate adaptations and interactions of specific conventional and nonconventional tonal determinants, taking these shortcomings into account.

In Chapter I, a brief but critical survey of approaches to tonality in Bartók is followed by a redefinition of tonality, which embodies both conventional and nonconventional determinants of centric orientation, many of the latter being analogues of the former. Progression and prolongation are cited as two fundamental processes by which tonal orientation is effected.

Because Bartók's string quartets span his compositional career, reflecting global changes in his musical language, they are particularly convenient for study. Chapter II introduces four categories of progression relevant to Bartók's quartets: conventionally functional progressions, nonconventional tonicizing progressions, fifth progressions, and linear progressions. Each is further subdivided, with discussion of the theoretical principles of classification, examination of the existing
literature where relevant, and illustration of the element of "progression in question, usually by excerpt from the quartets.

Chapter III takes Heinrich Schenker's theory of prolongation as a departure point for the study of nonconventional but analogous procedures in Bartók's quartets. Prolongation over foreground, mid-level, and large-scale spans is studied, and subcategories of mid-level prolongation in particular are discussed in relation to commentary by Wallace Berry, Craig Ayrey, and Arnold Whittall on this vital but problematic concept. Each prolongational determinant is exemplified in passages from the quartets.

The focus of Chapter IV is the final movement of Bartók's sixth quartet, the analysis of which illuminates details of interaction between conventional and nonconventional tonal determinants--such interaction being crucial in understanding Bartók's tonality as a unified system of functionally interrelated principles of centric orientation and structural coherence. Chapter V summarizes the findings of the analyses in Chapters II-IV.

## TABLE OF CONTENTS

## VOLUME 1

ABSTRACT ..... ii
LIST OF EXAMPLES ..... vi
ACKNOWLEDGMENTS ..... x
EDITORIAL NOTES ..... xi
CHAPTER
I. INTRODUCTION ..... 1
II. PROGRESSION IN BARTÓK'S STRING QUARTETS ..... 24
Introduction ..... 24
Conventionally Functional Progressions ..... 25
Functional progressions in tertian contexts ..... 25
Single conventional tonicizing progressions
in nontraditional contexts ..... 36
Tonicizing progressions concluding formal sections ..... 37
Tonicizing progressions initiating formal sections ..... 39
Mid-level functional progressions ..... 41
Nonconventional Tonicizing Progressions ..... 44
Contextual tonicizing agents ..... 44
Disposition note and disposition dominant ..... 47
Obliquely resolving tritone ..... 52
Fifth Progressions ..... 58
Descending fifths linking tertian harmonies ..... 60
Fifth progressions linking nonconventional
verticalities and nonsimultaneities ..... 65
Fifth relations between thematic transpositions ..... 72
Linear Progressions ..... 78
Inherently directed linear progressions ..... 83
Contextually directed linear progressions ..... 87
Motivically derived linear progressions ..... 98
III. PROLONGATION IN BARTÓK'S STRING QUARTETS ..... 109
Introduction ..... 109
Foreground Prolongation ..... 112
Mid-Level Prolongation ..... 116
Prolongation through conventionally functional harmonic progressions ..... 119
Prolongation through linear progression ..... 121
Prolongation through surface-exposed octave progression ..... 121
Prolongation through motivically derived octave progression ..... 123
Prolongation through linear unfolding ..... 124
Prolongation through oscillation and/or reiteration ..... 130
Oscillation of conventional daminant and tonic ..... 133
Oscillation of elaborative and referential elements ..... 135
Oscillation of disposition and referential elements ..... 139
Simultaneous prolongation of more than one referential element ..... 153
Large-Scale Prolongation ..... 162
IV. PROGRESSION AND PROLONGATION IN THE FINAL MOVEMENT OF BARTÓK'S SIXTH QUARTET ..... 169
V. CONCLUSION ..... 192
GLOSSARY ..... 201
SELECTED BIBLIOGRAPHY ..... 204

## LIST OF EXAMPLES

2.1. Quartet No. 1, I, mm. 1-8 ..... 217*
2.2. Quartet No. 1, I, mm. 8-16 ..... 218
2.3. Quartet No. 1, I, mm. 23-32 ..... 219
2.4. Quartet No. 1, I, nm. 65-71 ..... 220
2.5a. Quartet No. 5, III, mm. 3-9 ..... 221
2.5b. Quartet No. 5, III, mm. 92-93 ..... 221
2.6a. Quartet No. 2, I, mum. 171-180 ..... 222
2.6b. Quartet No. 2, II, mm. 6-9, 14-16 ..... 222
2.7a. Quartet No. 6, II, mm. 17-19 ..... 223
2.7b. Quartet No. 6, II, mm. 122-123 ..... 223
2.8. Quartet No. 1, III, mm. 156-160 ..... 224
2.9. Quartet No. 1, III, mm. 1-14 ..... 225
2.10. Quartet No. 5, II, mm. 1-4 ..... 226
2.11. Quartet No. 4, V, mm. 295-367 ..... 227
2.12. Quartet No. 5, II, mm. 6-7, 9-10, 19-22, 45-46, 54-56 ..... 228
2.13. Quartet No. 1, III, nm. 368-372 ..... 229
2.14. Interval structure of the lydian and phrygian octave patterns ..... 230
2.15. Quartet No. 6, IV, mm. 12-13 ..... 231
2.16. Quartet No. 5, I, mm. 23-25 ..... 231
2.17. Quartet No. 2, I, mm. 31-32 ..... 231
*All page numbers refer to Volume 2.
2.18a. Quartet No. 6, I, mm. 52-53 ..... 232
2.18b. Quartet No. 6, I, mm. 59-60 ..... 232
2.19. Quartet No. 6, I, mm. 80-82 ..... 232
2.20. Derivation of obliquely resolving tritones in the lydian and phrygian octave patterns ..... 233
2.21. Quartet No. 2, II, mm. 1-7 ..... 234
2.22a. Quartet No. 4, V, mm. 14-18 ..... 235
2.22b. Quartet No. 4, V, nm. 391-392 ..... 235
2.23. Quartet No. 3, Seconda parte, mm. 56-61 ..... 236
2.24. Quartet No. 6, I, mm. 81-99 ..... 237
2.25. Quartet No. 6, I, mm. 312-332 ..... 238
2.26. Quartet No. 6, I, mm. 342-354 ..... 239
2.27. Quartet No. 3, Prima parte, mm. 65-72 ..... 240
2.28. Quartet No: 5, III, mm. 39-53 ..... 241
2.29. Quartet No. 4, V, mm. 156-182 ..... 242
2.30a. Quartet No. 4, III, mm. 1-13 ..... 243
2.30b. Quartet No. 4, III, mm. 64-71 ..... 243
2.31. Quartet No. 4, II, mm. 1-12 ..... 244
2.32a. Quartet No. 4, IV, mm. 6-14 ..... 245
2.32b. Quartet No. 4, IV, mm. 35-37 ..... 245
2.33. Quartet No. 3, Seconda parte, nm. 103-149 ..... 246
2.34. Quartet No. 5, I, mm. 6-13 ..... 247
2.35. Quartet No. 5, I, mm. 11-25 ..... 248
2.36. Quartet No. 5, II, mm. 39-46 ..... 249
2.37. Quartet No. 4, V, mm. 102-143 ..... 250
2.38. Quartet No. 4, V, mm. 236-297 ..... 251
2.39. Quartet No. 1, III, mm. 115-122 ..... 252
2.40. Quartet No. 6, I, mm. 126-143 ..... 253
2.41. Quartet No. 5, III, mm. l-39 ..... 254
2.42. Quartet No. 4, V, mm. 183-195 ..... 255
3.1. Quartet No. 6, I, mm. 60-82 ..... 256
3.2. Quartet No. 1, III, nm. 107-112 ..... 257
3.3. Quartet No. 6, I, mm. 1-13 ..... 258
3.4. Quartet No. 4, V, mm. 374-385 ..... 259
3.5. Quartet No. 5, I, mm. 44-58 ..... 260
3.6. Quartet No. 6, I, nm. 141-157 ..... 261
3.7. Quartet No. 5, II, mm. 26-29 ..... 262
3.8. Quartet №. 3, Prima parte, mm. 76-83 ..... 263
3.9. Quartet No. 4, V, nm. 196-213 ..... 264
3.10. Quartet No. 2, III, mm. 47-55 ..... 265
3.11. Quartet No. 2, I, mm. 60-69 ..... 266
3.12. Quartet No. 5, I, mm. 23-29 ..... 267
3.13. Quartet No. 4, V, mm. 214-237 ..... 268
3.14. Quartet No. 6, I, mm. 352-390 ..... 269
3.15. Quartet No. 4, V, mm. 1-5, 11-18, 23-26, 29-34, 37-45 ..... 270
3.16. Quartet No. 4, V, mm. 47-49, 52-53, 56-61, 63-75 ..... 271
3.17. Quartet No. 4, V, mm. 75-79, 81-87, 89-92, 97-104 ..... 272
3.18. Quartet No. 4, V, mm. 320-332 ..... 273
3.19. Quartet No. 2, I, mm. 14-32 ..... 274
3.20. Quartet No. 1, I, nm. 33-53 ..... 275
3.21. Quartet No. 3, Prima parte, mm. 27-33 ..... 276
3.22. Quartet No. 3, Prima parte, mm. 35-43 ..... 277
3.23. Quartet No. 3, Prima parte, mm. 53-64 ..... 278
3.24. Quartet No. 6, I, mm. 31-60 ..... 279
3.25. Quartet No. 5, I, mm. 1-2, 8, 24-25, 44-45, 59-60, 126-127, 132-133, 146-148, 159-160, 167-168 ..... 280
4.1. Quartet No. 6, IV, mm. 78-86 ..... 281
4.2. Quartet No. 6, IV, mm. 1-13 ..... 282
4.3. Quartet No. 6, IV, mm. l-13 ..... 283
4.4. Quartet No. 6, IV, mum. 13-22 ..... 284
4.5. Quartet No. 6, IV, mm. 22-39 ..... 285
4.6. Quartet No. 6, IV, mm. 40-54 ..... 286
4.7. Quartet No. 6, IV, mm. 55-63 ..... 287
4.8. Quartet No. 6, IV, mm. 62-72 ..... 288
4.9. Quartet No. 6, IV, mm. 72-79 ..... 289
4.10. Quartet No. 6, IV, mun. 1-86 ..... 290

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This dissertation is dedicated to my mother, and to the memory of my father.

## EDITORIAL NOTES

Certain notational and editorial practices in this paper require preliminary comment.

Upper-case letters which denote conventional keys represent those of the major mode, while lower-case letters refer to minor keys. At times the qualifier major or minor will be given, in which case the tonic of the key will be upper-case for both major and minor (thus, $F$ major or F minor).

Roman numerals representing harmonic function are similarly grouped. Major and augmented chords are indicated with upper-case roman numerals, and minor and diminished chords with lower-case roman numerals. Depending on the mode of a designated key, some scale degrees have two inflections, each supporting a harmony of a different quality. In this paper, harmonies from the major and minor modes are designated as follows:

| Major: | I | ii | iii | IV | V | vi | vii |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | ---: |
| Minor: | i | ii | bIII | iv | v | bVI | bVII |

Roman numerals enclosed in quotation marks denote nontertian or nontraditional verticalities whose inferred roots function analogously to those of their conventional counterparts in the major-minor system.

Pitch-class is abbreviated PC and interval-class IC. Pitchclasses are denoted by upper-case letters (context will determine the distinction between PC and key). Registrally specific pitches are
designated according to the following octave classifications:


Often, a PC in the music is better understood as its enharmonic equivalent, particularly in linear step and PC-step successions; where this occurs, the PC letter which best denotes function is given first and is followed in parentheses by the PC which appears in the music [thus, $\mathrm{Eb}(=\mathrm{DH})$ denotes a $\mathrm{D} \#$ in the music, which functions as Eb ].

Many details in the music examples are identified with a reference number housed in the following enclosure: 0 . These numbers correspond to similarly denoted textual references.

## CHAPTER I

## INIRODUCTION

A complete list of sources dealing with Béla Bartók's music would indeed be extensive. If, from such a list, sources dealing in some detailed, analytical way with his music were extracted, the result would be a considerably shorter body of literature. And, although it is widely acknowledged that Bartók's music is "tonal" in some sense, few of the published analyses focus on aspects of tonality, so that a collection of sources dealing with the latter would be even more diminutive. Yet, with so few penetrating discussions of tonality in Bartók's music, there is little unanimity as to the means by which asserted tonal orientation is effected. For example, tonality in Bartók is at times represented by the adaptation of only certain general principles of the major-minor system, while at other times it is demonstrated through application of specific determinants associated with Heinrich Schenker. Moreover, tonality is often said to include nontraditional principles of PC-centricity along with those of the major-minor system. Analysis of tonality in Bartók's music (and that of other twentieth-century composers) is often imprecise in its details of affirmed adaptations of traditional principles, and inadequate in its explanation of particulars of interaction between conventional and nonconventional determinants. The issue of tonality in this music is thus challenging and intricate,
if not perplexing and enigmatic.
The concept of "key," as a reflection of tonality in music of the major-minor system, is often problematic when applied to twentiethcentury music. For example, David Gow claims that Bartók's second quartet
contains a classical key-relationship between the three movements: the outer movements are in A minor with the central movement in the subdominant . . . .

What can "in the key of A minor" possibly mean in this context? Gow goes on to acknowledge that the "final tonal centre is not stated at the beginning" and that "it is the way in which Bartók arrives at this final tonality which is so intriguing." ${ }^{2}$ He further explains that it isn't as though Bartók begins in one key and ends in another but, rather, that he
deliberately obscures not only the ultimate goal, but any clear tonal centre at the beginning ...allowing the tonality to emerge gradually as the ${ }_{3}$ quartet unfolds-we might call this process emergent tonality. ${ }^{3}$

It becomes clear from Gow's analysis that what he really means by "tonality" and "in the key of" pertain to brief and periodic--often only final--statements of a relatively exposed tertian harmony or diatonic collection. He notes, for example, that
there are only four moments in the whole [opening] section where the lower parts remain static long enough for the ear to hear them as clearly defined chords. ${ }^{4}$

[^0]And, although he states that events leading to such points of unequivocal conventionality are vital to the notion of emergent tonality, there is little detail in his analysis to suggest how such tonally unstable events--however vague because of the constant rhythmic shifting of chord-tones--are related to the ultimate goal. And it is precisely such relationships--not merely the presence of a "tonic" triad--which are fundamental to the establishment of tonal structure in major-minor music and in twentieth-century music asserted to be "tonal."

Colin Mason makes similar statements of conventional keyrelations in his analysis of Bartók's fourth quartet:

The main key of the work, in the two outer movements, is C. The second movement is in $E$, and the fourth is in A flat, respectively a major third above and below the main key of the work. ${ }^{5}$

Here, again, tonality and key are associated with a main PC or harmony exposed at structural junctures. Relationships between such focal points and their surrounding pitch events are, however, rarely identifiable with the degree of precision possible in the major-minor system. Thus, while the characteristic of centricity is apparent in Bartók's music, not all processes and relations common to the major-minor system are operable in Bartók, and the assertion of "key" is accordingly suspect.

Halsey Stevens is somewhat more careful in his characterization of tonal centers and keys. He notes in connection with the first quartet that its
${ }^{5}$ Colin Mason, "Tonality, Symmetry and Latent Serialism in Bartók's
Fourth String Quartet," The Music Review 18 (1957): 189 .
tonalities . . . are handled so freely that one is justified only in saying that they are "on"--not "in" this or that tonality. . . . By this it is understood that [these] keynotes serve as orientation points: that the music is organized around them, modally or chromatically, freely fluctuating, using the keynotes as points of departure and points of repose, affecting modulation from and back to them. 6

Stevens thus acknowledges the restricted role of "key" in these contexts by suggesting that music between points of tonal orientation is, even in the quasi-conventional first quartet, not clearly representative of a particular key in the strict sense. Stevens, however, continues his analysis without substantial reference to the particulars of pitch organization in passages between flashes of unequivocal conventionality.

In the opening remarks to his analysis of the first movement of Bartok's fourth quartet, Leo Treitler asserts that, although the PC-dyad C-E occurs at many structural points in the movement, neither the note $C$ nor the C-E dyad is "a tonality."7 He claims, rather, that it is "an arbitrarily chosen, static 'tonal center' which is not involved in any scheme for generating secondary tonal areas," and goes on to suggest that the dyad is a static "point of reference" to which other sections may be related. ${ }^{8}$ Treitler, like Stevens, is thus cautious in his assertion of tonality, acknowledging the limited extent to which tonal procedures are relevant in this context. And, although he notes that focusing on the "maintaining of a pitch or pitches as a point of refer-

[^1]ence" defines one viable approach to the work, he chooses to examine the manipulation of three four-note cells, of which two were originally identified by George Perle. ${ }^{9}$

One problem in dealing with traditional tonality in Bartók's music, revealed in the quotations cited above, concerns the extent to which principles of traditional tonality are asserted to operate. While certain of those principles are indeed relevant, allusions to the majorminor system are most often sporadic and complicated by the nontraditional contexts in which they occur. Because of this interaction of disparate factors of tonal organization, the adaptation of traditional elements must be systematically documented. For example, after suggesting that the final movement of Bartok's second quartet is one whose "approaches to tonal structure are stringent and definite," Wallace Berry stipulates and demonstrates three fundamental techniques of traditional tonal orientation relevant to the work:


#### Abstract

. . . emphasis upon the tonal center and its supportive functions by iteration, prolongation, stress, etc.; affirmation by quasi-functional harmonic and melodic elements resembling conventions of the tonal period (the quasi-dominant action continues to rely heavily upon the concept of leading-tone tendency and accustomed root movement); and [by] linear direction toward and indirect or direct encirclement of the tonic PC, especially at points of formal punctuation. ${ }^{10}$


In showing "quasi-functional" harmonic and linear approaches to, and
${ }^{9}$ The two four-note cells attributed to Perle are, in integer notation, $0,1,2,3$ (Perle's cell "X") and 0,2,4,6 (Perle's cell "Y"). For the derivation of these see George Perle, "Symmetrical Formations in the String Quartets of Béla Bartók," The Music Review 16 (1955): 310ff. Treitler labels a third cell, $0,1,5,6$ in integer notation, as cell "Z".
${ }^{10}$ Wallace Berry, Structural Functions in Music (Englewood Cliffs: Prentice-Hall, Inc., 1976), p. 148.
organization around, primary PCs, Berry demonstrates processes by which the movement's tonality is established and maintained--factors of structure indeed more far-reaching than mere sporadic points of relative tonal clarity. While other means of pitch organization may well be identified in the movement, this analysis focuses on identifiable factors of conventional tonal structure, establishing a vital structural frame which may be heard to interact with and complement other, less traditional interpretations.

Sources cited above have in some way approached tonality in Bartók's music through generally acknowledged factors of the major-minor system. Roy Travis has analyzed the opening movement of Bartók's fourth quartet with techniques specifically associated with Heinrich Schenker's systematic theory of traditional tonality. ${ }^{11}$ Through extensive quasiSchenkerian graphic representations, Travis's analysis reveals many interesting structural relationships in the movement. The analysis is not, however, without major theoretical problems, two of which I suggest here. First, in his attempt to adapt Schenker's notion of a "fundamental line" (i.e., Urlinie) ${ }^{12}$ to the piece, Travis distorts the original concept of that construct, while adding little to our understanding of the movement's large-scale structure. He posits a fundamental line spanning an $F \#-C$ tritone, the outer interval of a primary

[^2]whole-tone cell in the movement. ${ }^{13}$ The fundamental line as conceived by Schenker, however, is a linearization of the tonic triad (or a portion of the latter in the case of a $\hat{3}-\hat{i}$ descent), the constituent members of which are functionally directed by virtue of root relations inherent in the major-minor system. Although the linearized group of PCs in Travis's Urlinie defines a primary, recurrent "cell" in the movement, that cell is not the overall referential goal of the work, which is, rather, a C-major triad. The F\# at the head of Travis's Urlinie, in fact, resolves to $G$, the fifth of the cadential triad, as I will show in the next chapter. What Travis identifies as a fundamental line--a construct which, in traditional terms, linearizes a consonant event--is, in fact, a very mobile, unstable event, and one which I will demonstrate later to have a particular type of tonicizing function. Were the piece to end on the whole-tone cell delineated by the ostensible structural descent $\mathrm{F} \#$ to C , the analogy of the latter to a conventional Urlinie would be more accurate. As it stands, however, Schenker's concept of a fundamental line is somewhat misrepresented by Travis.

The second problem concerns the large-scale "harmonic" structure, asserted to articulate the movement's sonata form. Travis notes that the movement has been recognized "implicitly" as in sonata form but that the "relationship--essential to any sonata allegro design--which

[^3]obtains between tonal and formal articulation" has not yet been explained. ${ }^{14}$ Yet he proceeds to posit exposition, development, and recapitulation sections which prolong the dissonant tonic sonority. ${ }^{15}$ Although one might well not expect to find in this piece a conventional tonic-dominant "polarity" expressed at various levels of tonal structure, some form of harmonic departure in the exposition, and especially in the development, is surely vital to the notion of sonata. Moreover, such a harmonic departure would need to be tied to a system of hierarchical relationships, however contrived, in order to simulate corresponding relations in traditional sonata structure. What Travis posits, however, is a prolonged "tonic" throughout the entire work, until the final 28 bars, where a tenuous IV is said to occur. ${ }^{16}$ Although Travis identifies passages of prolonged "secondary" cells, these are not accorded significance as form-defining tonal departures, analogous to large-scale harmonic motions in the major-minor system. Furthermore, the asserted large-scale "I-IV-V-I" progression is, in traditionally tonal music, significant at higher levels because it is comprised of the most fundamental of harmonies in the major-minor system, and because it is applicable at the most foreground levels to effect palpable tonal orientation. This "nesting" process--whereby an acknowledged functional progression at the surface is heard to operate at increasingly higher

[^4]levels of structure--is clearly not a factor in this piece; the claimed large-scale "I-IV-V-I" progression in this context thus has little meaning.

It was suggested at the opening of the chapter that nontraditional determinants of centric orientation are often ascribed tonal significance in Bartók's musical language. Symmetry may be cited as one such determinant. Elliott Antokoletz has written extensively about that property as it relates to Bartók's music. ${ }^{17}$ Antokoletz acknowledges conventional means of tonal orientation in Bartók, but advances the view that, where a particular PC is established as the "primary tone of a traditional mode," the term "tonal center" is inaccurate. ${ }^{18}$ He notes further that the term tonal center is more ideally suited to the "establishment of a given sonic area by symmetrical organization of a conglomerate of pitches around an axis of symmetry."19 Antokoletz seeks to show how traditional and nontraditional (i.e., symmetrical) means of tonal establishment are "integrated by means of special interactions and transformations. " 20

[^5]Antokoletz's assertions of conventionality are based on factors discussed already: fragments of diatonic collections, functional tonicizing progressions, and leading-tone relationships. There is, however, a tendency in some of his analyses to regard briefly established tertian harmonies as distinct tonal areas, rather than integrating them into a single, underlying conceptual frame within which the established harmonies are functional components in a broader harmonic progression. ${ }^{21}$

It is Antokoletz's documentation of symmetrical structures, which are said to express referential tonal centers, which I will focus on here. After establishing a theoretical basis for symmetrical structures based on interval cycles, 22 interval couples, 23 and sum couples, ${ }^{24}$ the author proceeds to illustrate progressions of three fournote cells which establish and maintain a particular axis of symmetry. ${ }^{25}$ Isolating progressions of transpositionally equivalent cells, in which a referentially primary transposition is encircled symmetrically, and demonstrating contiguous and noncontiguous recurrences of cells

[^6]having the same symmetrical center indeed reveals aspects of pitch organization. In many cases, however, one is not convinced that the symmetrical center is perceived intuitively as referentially primary.

One of the most striking of such misinterpretations concerns Antokoletz's analysis of Debussy's "Voiles" (Preludes, vol. I). ${ }^{26}$ Antokoletz posits D (and the tritone D-G\#) as the tonal center based on the symmetrically central position of $D$ in the cadential $C-E$ dyad in $m$. 5 and at the end of the piece. He further states that the middle section has G\#--the tritone counterpart of D--as its axis because of the central position of that PC in the pentatonic collection, $\mathrm{Eb}-\mathrm{Gb}-\mathrm{Ab}-\mathrm{Bb}-$ Db , on which that section concentrates. The asserted D axis in the outer sections is problematic because it involves focal significance for a PC that is never exposed cadentially, as opposed to a dyad (C-E) which is given much greater prominence and would more likely be intuitively grasped as the primary element in the essentially whole-tone construction. The problems with interpreting the middle section around G\# are twofold: first, Eb (with Gb) is, like C-E in the outer sections, more obviously exposed as primary (through neighbour-note elaboration and durational emphasis in mm. 45-47); and second, the assertion that all three sections of an ABA form are centered around a single tritonal axis fails to account for any true sense of harmonic departure. ${ }^{27}$
${ }^{26}$ Antokoletz, Music of Bartók, pp. 6-8.
${ }^{27}$ He comes to the same conclusions with respect to the third movement of Bartók's fourth quartet (Music of Bartók, pp. 166-172). The outer sections of the movement are clearly based on the PC D. The middle section is clearly oriented to a C-E dyad, the $C$ of which is durationally

Where the symmetrically central element is perceived as focal, it is more often through surface factors of expression than symmetrical placement, although the latter may be heard as an element of corroboration. 28 For example, in the cell G\#-C\#-D-G, identifiable in much of Bartók's music, each of four orderings of these same four PCs yields a different semitonally related pair of PCs as its axis of symmetry. In the sum-3 ordering given above, the C\#-D dyad is axial. ${ }^{29}$ If rotated to D-G-G\#-C\#, the axial dyad is G-G\#--a tritone from that of the first. The remaining two "rotationally related" orderings--C\#-D-G-G\# and G-G\#-C\#-D-have axial dyads E-F and $\mathrm{Bb}-\mathrm{B}$ respectively. ${ }^{30}$ The potential problem in ascribing referential significance based solely on symmetry should in this case be obvious: four orderings of the same four PCs provide eight of the possible twelve PCs with potential primacy. Without additional surface indicators of emphasis and orientation, a particular referential PC would thus be difficult to apprehend. Al-

[^7]${ }^{28}$ paul Wilson, in his review of Antokoletz's Music of Bartók [Journal of
Music Theory $30 / 1$ (Spring, 1986): $113-121$ makes a similar claim:
"In the majority of pieces, whatever audible structural tonality is
present depends on the use of more traditional and familiar devices,
ranging from the perfect fifth at a cadence to an extended or
repeated bass pedal. This is true even where whatever symmetries
are present reinforce the audible tonality." (p. 120)
${ }^{29}$ The sum-3 derivation of the cell G\#-C\#-D-G (integers $8,1,2,7$ ) is as follows: $8+7=15$ ( $=3 \mathrm{mod} 12$ ) and $1+2=3$; an odd sum has two notes a semitone apart as its axis, here 1 and 2 or CH and D.
30 These rotations and orderings are shown in Antokoletz, Music of Bartók, p. 72 (Ex. 75).
though symmetrically central position may be said to reinforce orientation in relation to a given PC or PC collection already rendered focal through palpable exposure, it is problematic as a principal means of referentiality.

Problems in adapting traditional tonal principles to Bartók's music, some of which are raised in the foregoing paragraphs, apply to much music of the twentieth century. Many factors of tonal expression relevant to music of the common-practice period in general, and certain of those articulated by Schenker in particular, are simply not applicable to newer contexts. Other factors, however, are indeed relevant to our cognition of music subsequent to the common-practice period. Some principles--"particularized" within the conventional system--are often assumed to be applicable only to music of the eighteenth and ninteenth centuries or directly applied to newer contexts without adequate specification of the theoretical bases on which such applications rest. Tonicization through semitonal and descending-fifth motions are two determinants of the major-minor system in general which may be heard to function in the most nontraditional of contexts. Furthermore, "prolongation" and "structural levels" are two principles associated with Schenker which, conceived as general concepts, are subject to adaptation to (and particularization in) newer contexts. The central issue-whether in connection with a generally acknowledged factor of conventionality or a specific principle associated with Schenker--is precision of documentation of the means by which individual, potentially applicable principles are adapted to new contexts.

In addition to--perhaps at times in response to--the existent, large body of theoretical literature in which aspects of conventional tonality are problematically applied to twentieth-century contexts (and not just to the music of Bartók) is a growing list of sources addressing such problems. Travis's pioneering work in the late 1950s and early 60s on the application of Schenker's theory to twentieth-century music elicited immediate response. Ernst Oster wrote, with regard to Travis's notion of a "dissonant tonic sonority," that

Schenker's basic idea is the projection in time of the triad as given by nature. Mutilate this idea and substitute for triad `a particular tone, interval, or chord' (no matter how dissonant or far-fetched), and an 'explanation' for virtually anything can be devised. ${ }^{31}$

Edward Laufer, writing much more recently, suggests, in connection with the adaptation of Schenkerian principles to newer contexts, that

There is no triad to be prolonged: thus, some contextually derived associative sonority must take its place. The concepts of consonance and dissonance, as technically defined, therefore cannot exist, nor can, strictly speaking, the notions of passing and neighbour notes where these were dissonant events. Their attendant constraints, which provided motion and delays, must be compensated for by other kinds of embellishing and traversing motions. ${ }^{32}$

It would seem from these two comments that the problem with the concept of a nontraditional "tonic" harmony lies not so much in its interval structure--for any such element, with enough exposure in the ce.pacity of an elaborated, focal element, may be perceived as contextuxilly primary-but, rather, in the specification of new procedures, or

[^8]means of adapting conventional procedures, in the projection of that nontraditional tonic over time--"prolongation" in conventional terms, a necessary condition for the establishment and perception of large-scale tonal coherence.

With questions of applicable prolongational techniques momentarily aside, James Baker's comments with respect to Salzer's work in twentieth-century tonal structures, and Arnold Whittall's discourse on dissonance in Stravinsky's Rite of Spring would seem to support the notion of a (nonconventional) referential tonic. Baker criticizes Salzer for extracting nontriadic members from otherwise triadic collections and consequently eliminating the possibility that the original collections "might themselves constitute basic components of a nontriadic structure." 33 Whittall contends that "the 'norm' for the work as a whole [the Rite of Spring] is dissonant, not consonant" but that we hear that norm as an
> entity of fundamental structural significance, rather than something--called a dissonance--which nevertheless does not function as a dissonance functions in tonal music.
> . . . The 'norm' of Le Sacre is not one in which predominant dissonances imply unheard consonant resolutions-and it follows that such 'imagined' resolutions are unnecessary. ${ }^{34}$

The problem, then, lies not in the potential for a nontraditional tonic to be structurally focal but, as alluded to above, in the
${ }^{33}$ James Baker, "Schenkerian Analysis and Post-Tonal Music," in Aspects of Schenkerian Analysis, ed. David Beach (New Haven: Yale University Press, 1983), p. 156.
${ }^{34}$ Arnold Whittall, "Music Analysis as Human Science? Le Sacre du Printemps in Theory an Practice," Music Analysis l/l (March, 1982), p. 45.
projection of a that tonic--hereafter, referential element ${ }^{35}$--in whatever foreground form it takes. Baker says of Travis's analysis of Bartók's fourth string quartet that
. . . the fact that ostensibly 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). . . . Travis [does not explain] the relationship between these systems--if any--nor [does he] specify the operations whereby a structural balance between them is achieved. ${ }^{36}$

Craig Ayrey has expressed similar concern with regard to the relation
between dissonant referential tonics (my "referential elements") and the
processes by which they are projected:
. . . no attempt has been made to describe the specific techniques that prolong a dissonant sonority or produce a fundamental line, so that there has always been a certain discontinuity between the nature of background asserted and the means by which it is achieved. ${ }^{37}$

[^9]The employment of disparate means of tonal orientation is a vital feature of much twentieth-century music. Many composers in the twentieth century-particularly its first half--used patent factors of trađitional tonality as a means of providing recognizable points of orientation between which newer techniques of progression and prolongation were employed. Edward Cone says of the persistence of conventional patterns in music that "in an art both abstract and temporal they [conventional patterns] furnish signposts to aid the listener, who can neither turn back nor pause to look around him. ${ }^{38}$ It seems to me that the key to understanding this music lies in the study of ways in which disparate principles of orientation coexist and interact, not in the exclusion of traditional elements because of their ostensible "incompatibility" with nontraditional sonorities and processes. The details of interaction between conventional and nonconventional principles are in fact integral to the establishment of structural coherence in this music.

Concerning Ayrey's comments, the necessity for principles by which dissonant sonorities (i.e., nonconventional referential elements) are prolonged is indeed crucial; the generation of a fundamental line seems to me to be less important for this music, as it is a construct having little relation to the often highly variable intervallic structure of a primary referential element in any given piece. At times a single $P C$ is referential and is represented in a single piece by more

[^10]than one intervallic structure; at other times a particular intervallic structure is in its entirety referential throughout a piece. In either case, because of the nontraditional structure of the referential element, and especially because of the generative means by which it is elaborated, the conventional concept of fundamental line has little significance. This is not to say that nontraditional twentieth-century music is without some form of "background" structure, and Ayrey's comments regarding discontinuity between structural levels are $I$ think valid. But, again, it is in the details of interaction between disparate principles of pitch organization that the richness of much music of this century may be found.

Even in consideration of this brief survey of approaches to tonality in Bartók, it is abundantly clear that a fundamental problem in the analysis of twentieth-century music from the point of view of "tonality" is that of a requisite reaefinition and reevaluation of "tonal" principles as applied conventionally, and as operative in a given nontraditional idiom in general or in a specific corpus in particular (in this case the string quartets of Béla Bartók). Accordingly, I would propose that tonality be viewed as any principle or set of principles by which a particular PC or PC complex (i.e., a referential element) is established as primary in a given context and whose primacy is maintained at a particular level of structure. This definition recognizes centricity as a fundamental condition for tonality, with the principles of establishing such centricity as the differentiating features for various tonalities. Conventional tonality, for example, would thus be thought of as embodying one set of principles according to
which centricity is achieved, while the means of centric orientation in a piece by Bartók might consist of nonconventional determinants and conventional analogues (i.e., principles which are in some sense analogous to certain conventional procedures), as well as certain devices directly associated with the major-minor system. In lieu of a strictly segmented historical perspective of tonality, this broadened concept recognizes various tonalities, each characterized by a different, although not necessarily exclusive, set of interacting principles of pitch-class centricity. Each tonality is thus conceptually distinct by virtue of factors of tonal expression not found in the other.

Tonality, as conventionally understood and as broadly defined above, may be understood to embody two general and often interrelated processes, identified in this study by the terms progression and prolongation. The first involves principles which direct the listener from one event to another related, but different, event; and the second consists of principles which orient all events in a given context to a single event, thereby extending the temporal span over which the latter is heard as primary. These two general processes define broad categories of functional activity, each process being achieved in a variety of ways. One of the main tasks in arriving at an understanding of Bartók's tonal language is the precise specification of the means-conventional and otherwise--by which progression and prolongation are effected. The second and third chapters of the present study will,
accordingly, be devoted to the definition and demonstration of relevant principles of progression and prolongation in the quartets through excerpts from the latter. The final category of the third chapter examines passages where two or more referential elements are prolonged simultaneously, a process often referred to as "bitonality." Many factors of progression and prolongation discussed in the second and third chapters will be identified in these excerpts as interacting processes.

Exemplification of the ways in which conventional and nonconventional progressions and prolongations interact as determinants of tonal structure--be it in a context of a single referential element or one of several--must surely be considered fundamental to the understanding of Bartók's music as demonstrative of a "unified" tonal system. Explication of such modes of interaction occurs throughout Chapters II and III, particularly in the larger examples, and is one of the chief functions of Chapter IV, the detailed analysis of the sixth quartet's final movement. This particular movement will be examined phrase by phrase, facilitating the view of each as a dynamic interaction of several specific determinants of tonal orientation. Analysis of a complete movement such as this affords the opportunity to study Bartók's treatment of tonal coherence as the comprehensive relationship between surface detail, mid-level processes, and large-scale activities, thereby revealing the interactive functions of ostensibly opposing principles of tonal organization at different levels of structure.

Prior to the categorization and exemplification of aspects of progression and prolongation in Bartók's quartets in Chapters II, III,
and IV, it is important to note that, in the absence of a consistent underlying triadic basis and system of conventionally functional relations, there may be considerable diversity, within a single movement, in the intervallic composition of the referential element. According to Jim Samson, Bartók demonstrated that "a tonal argument need not be dependent upon triadic harmonies" and that, as a result, major composers in this century "did not equate tonality with major-minor keys or for that matter with the triad." 39 I would go so far as to suggest that the tonal reference in Bartók's music is often a single pitch or PC. To quote Bartók, "Hungarian art music is always based on a single fundamental tone, in its sections as well as in its whole." 40 But although a single PC is often referentially focal, the verticalities and collections associated with or representative of such structural PCs are, as indicated earlier, richly diversified.

Although this diversity will be demonstrated in the next three chapters, it might be said here that purely conventional, triadic expressions of the referential element define one end of the spectrum. Additional referential elements associated with the major-minor system, accorded significance in Bartók's Quartets, include major-third and minor-third dyads, and extended triads. The latter, although heard as dissonant (i.e., unstable) structures in the major-minor system (because
${ }^{39}$ Jim Samson, Music in Transition (New York: W. W. Norton \& Company, Inc., 1977), p. 33.

40 Béla Bartók, "The Relation Between Folk Music and Art Music," Béla Bartók Essays, ed. Benjamin Suchoff (London: Faber \& Faber, 1976), p. 371.
of the inclusion of sevenths, etc.), are in these instances often perceived as contextually stable relative to surrounding, often nontriadic events.

At the other end of the spectrum are nontertian verticalities functioning as referential elements. One particular verticality frequently accorded primary significance as an element of contextual stability is the perfect fifth. The lower note of the fifth retains its conventional capacity as "root" and the fifth may, in most cases, be represented by its inversion, the fourth (in which case the upper note functions as root). The intervallic superiority of the perfect fifth in the conventional major-minor system-as the outer, stable interval of the triad--may thus be considered applicable to much of Bartók's music. Occasionally, the perfect fifth is, as will be shown, the intervallic unit for verticalities of three or more members, analogous to the third in conventional triadic structures (e.g., C-G-D as a verticality). Verticalities of consecutive whole-tones or semitones may similarly be accorded contextual stability. This particular type of structure is termed homointervallic. ${ }^{41}$

One final basis for the representation of referential elements, relevant to Bartók's quartets, should be identified. In this case the referential element is not a verticality, nor is it considered a horizontalization of a verticality. Rather, it is a scalar pattern of which

[^11]the lydian and phrygian orderings of the diatonic collection, the pentatonic scale, and the major scale itself are examples. The middle movement of the fourth quartet will be shown to manifest this type of referential element--an element which is established over time and accordingly involves different criteria for the inference of progression and prolongation of such elements.

A consequence of such a diversity in structure of the referential element is that in some pieces a particular structure may be accorded primacy over others by virtue of factors of contextual stability and may be heard to evolve as such gradually from earlier forms. In other pieces, different intervallic structures in the capacity of referential element are difficult to hierarchize in any systematic way, such variety being heard as a fundamental means of harmonic diversity. At times, such diversity in the intervallic structure of the referential element will even be shown to replace the conventional function of tonal departure. Extreme diversity in structure of the referential element is thus integral to Bartók's musical language in general and his tonal system in particular, and it is a characteristic which will be manifest constantly as principles of progression and prolongation are examined in the next three chapters.

## CHAPTER II

## PROGRESSION IN BARTÓK'S STRING QUARTEIS

## Introduction

In the opening chapter, I suggested that a particular tonality is characterized by various interacting principles according to which a perceived sense of PC centricity is achieved, and that the two processes which generate tonal structure are progression and prolongation, each achieved in different ways depending on particularities of context. This chapter deals with four specific types of progression, the first of these fundamental processes. Each type is further divided into subcategories, with discussion of the requisite theoretical principles by which the classification is determined, critical examination of the existing literature where relevant, and illustration of the principle in question, usually by excerpt from Bartók's quartets. I do not wish to imply that the list is exhaustive and that other means of connecting different but related events are not relevant; the consideration of other principles, although surely vital to a complete understanding of Bartók's musical language in general and his tonal system in particular, is simply beyond the scope of the present study. The four categories of progression to which I focus attention are as follows: conventionally functional progressions (including conventional tonicizing progressions), nonconventional tonicizing progressions, fifth progressions, and
linear progressions.

## Conventionally Functional Progressions

It is important both stylistically and tonally that the musical language which characterizes Bartók's first and last quartets manifests a marked degree of allegiance to the conventional (albeit expanded) major-minor tonal system. The traditional principle of functionally related ${ }^{1}$ tertian structures is one which "frames" his total compositional output, suggesting, over the broadest span, a manifestation of form used at all levels of structure and in all compositional phases: the "arch." The return to relatively explicit traditional elements in the final quartet, however, carries with it the experience and accumulation of techniques used in the middle phases of development. Bartók's final works, thus, come "full circle," and represent meticulous refinement of compositional processes used throughout his life, as will be demonstrated in Chapter IV through analysis of the final movement of the sixth quartet.

Functional progressions in

## tertian contexts

To illustrate conventionally functional progressions and tonici-

[^12]zation patterns in the present chapter, I begin with four excerpts from the opening movement of the first quartet, a movement which perhaps best illustrates Bartók's allegiance to the tonal style of the late nineteenth century. Indeed, it is a movement which reveals a consistent tertian harmonic framework--beneath the surface polyphonic texture of ostensibly "independent" linear instrumental parts--characterized by functional relations and traditional means of tonicization. Amang the characteristics of this movement which may be associated with nineteenth-century practice--particularly that of Liszt, Strauss, and Wagner--are: (1) the appoggiatura approach to chord-tones; (2) irregular resolutions (in which notes of a dominant resolve one semitone too high or too low, thus yielding a tertian harmony different from that implied); (3) continuous tonal fluctuation; (4) multiple tonal implication; (5) tonal ambiguity; (6) major-minor mixture; and (7) harmonic substitution of constituents of functional progressions. As will be shown, these characteristics are integral to the tonal workings of the first movement and will be discussed in conjunction with aspects of progression and tonicization.

The specific excerpts from the first quartet's opening movement to which I will direct attention are mm. 1-8, 8-16, 23-32, and 65-end (Exx. 2.1-2.4). A general characteristic which will be demonstrated in these examples is the tertian harmonic framework which underlies the polyphonic texture. Although nonharmonic notes frequently mask that underlying triadic makeup, the latter is nonetheless apprehensible because of the frequent confluence of linear independent parts on conventionally tonicized consonant triads, which are most often further
emphasized by registral exposure, metric punctuation and dynamic intensity. To expose and identify tertian structures, not always immediately obvious in the movement's textures, system (a) in each of these examples indicates members of all tertian harmonies with open notes and "nonharmonic" (i.e., nontertian) notes with filled-in note-heads. [At higher levels of structure only tonicized harmonies will be designated with open notes, to symbolize structural superiority.]

Also apparent from this mode of representation is the prevalence of the aforementioned rhythmic displacement of harmonic constituents through appoggiaturas, suspensions, and anticipations. In Ex. 2.1, the most striking of such rhythmic shifts involve the tritones in mm. 2, 3, and 6, the tritone and its conventional resolution being a potent tonicizing device in the major-minor system, particularly in its ability to effect tonal orientation in a simple two-part texture, as in this excerpt. The tritones in question are circled on the score and, with their resolutions, are identified with double arrows, $\downarrow$, at (1), (2), and (3). As indicated, the resolutions occur in rhythmically and metrically weak positions, the first two at the end of beat four, and the third one at the end of beat two. These tritone resolutions, and the inferred functional harmonies approaching them, are verticalized on system (b), where they are also compressed into one octave to express more simply the inferred underlying voice leading. ${ }^{2}$

[^13]The weak rhythmic-metric placement of these tritone resolutions results in nonclosure and forward momentum: metric and tonal closure are at odds, creating a state of continuous flux. Two factors tend to weaken further the unaccented tritone resolutions in this passage. One is the motivic descending leaps, $\mathrm{F} \#-\mathrm{B}$ and $\mathrm{Eb}-\mathrm{Ab}$ on the first beats of mm. 3 and 4, following the first two tritone resolutions (see (4) and (5). These descending leaps imitate the opening thematic descending sixth, F-Ab (6), and ultimately attract attention over the immediately preceding tritone resolution in each case. The other attenuating factor concerns the third tritone resolution, in m. 6. The second beat of that measure, during which the resolution occurs, is subdivided into a dotted eighth-note and sixteenth, a pattern which tends to drive to the next beat.

The G-Bb dyad on the third beat of m. 6 is the first metrically strong confluence of simultaneous articulations on a conventionally consonant major or minor third thus far in the movement, as a suspension occurs in one of the parts on all previous first and third beats. Also, this $G-B b$ dyad comes at the end of a long step descent in the second violin ( 7 ) bypassing by one step the A of the tonicized F-A dyad. The G-Bb dyad is transformed in the ensuing ascending arpeggiation (m. 6) into an augmented triad which may be heard to function as a dominant of Ab minor ( 8 ), its resolution represented by the vertically aligned $\mathrm{Ab}-$ Cb third on the rhythmically weak final sixteenth-note of m .6 (9)-the same rhythmic placement, in fact, as the resolution to F during the second beat of that same bar. The $F$ major-minor triad, tonicized
repeatedly from the beginning of the movement, is thus subsumed, as VI/vi (see editorial notes), within Ab , and is directed to the rhythmically more emphatic dominant of $A b$ on beat three of $m$. 6. This mid-level progression ${ }^{3}$ is summarized on the top staff of system (c).

The lower staff of system (c) reveals a mid-level progression of slightly broader proportions, its goal harmony, punctuated more decisively than the preceding rhythmically weak Ab chord, delineating the end of the opening phrase. In this progression, the recurrent $F$ major-minor triad functions as bVI/bvi in A major-minor, the dominant of the latter articulated at the end of an ascending arpeggiation initiated by the $\mathrm{G}-\mathrm{Bb}$ dyad in m. 6. Notice that the $\mathrm{Ab}-\mathrm{Cb}$ dyad, interpreted above as representing an Ab-minor triad, is here enharmonically interpreted as the third and fifth of the dominant of $A$ (10). Tonicization of $A$ in m. 7 occurs most immediately through a conventional tritone (11), whose resolution is less persuasive as it omits the root in favor of the fifth.

The semitonal duality between Ab and A --each third-related to the opening and recurrent $F$ major-minor--established in this opening phrase is a relationship which will be shown to manifest itself to the very end of the movement. Also relevant to the rest of the A section is tonicization through the dominant prefix ${ }^{4}$ - dominant - tonic pattern

[^14]shown in this opening phrase to effect tonal orientation to D (12), Ab (13), and A (14) ).

The second excerpt begins in m. 8, immediately after the cadence on A. At this point the other two voices enter and repeat the imitative thematic content of the opening in a four-voice texture whose harmonic content is richer and, at times, different from that of the opening in tonal implications. Measures 8-10 (Ex. 2.2) correspond thematically and, in part, tonally to the opening three bars. The rhythmically delayed tonicization of $F$ at the end of $m .2$ is repeated at the end of m. 9 by way of a harmony which is in a sense a "fusion" of the dominants of F in mm. 2 and 6 , this fusion facilitated by the four-part texture: that is, the dominant at m. 9 (1) employs the conventional tritone, E and Bb , common to both precedent dominants, as well as the Db of the former and Gb of the latter.

The implication of $D$ at the end of $m .3$, indicated on the lower staff of system (b) of Ex. 2.1, does not occur in the analogous place in m. 10. In light of the Bb and Ab (m. 10), contributed by the two "nonthematic" voices (violins I and II), the functions of D and $\mathrm{Gb}(=\mathrm{F} \#)$ in the thematic parts are reinterpreted as scale degrees 7 and \#2 in Eb [i.e., the third and raised fifth in the dominant of Eb ( 2 ) in Ex.

[^15]2.2)]. Eb, were it to appear in $m$. 11 , would be the first conventionally tonicized triad on a strong beat. As indicated at (3), however, E occurs in place of Eb , effecting a type of deceptive resolution and resultant sense of mobility in the realm of tonal structure. ${ }^{5}$

This deceptive resolution--in which the leading-note of Eb resolves one semitone too high--effects a harmony with an entirely different implication. In fact, it is a V of F, as indicated at (4) in Ex. 2.2, and further initiates a progression along the descending circle of fifths, culminating on an explicit resolution to Db in m. 12 ( 5 ). Although aspects of prolongation are dealt with extensively in Chapter III, I acknowledge a particularly lucid instance of conventional harmonic prolongation in the present context. I am referring to the prolongation of C\#--enharmonically equivalent to Db just arrived at--in mm. 12-16, which concludes with a $V_{3}^{4}$, implying a return to Db . The functionally related harmonies which generate this prolongation are given below the bottom system of Ex. 2.2. In this reading, the A-major triad in m. 15 forms, with the conventional dominant seventh of $\mathrm{C} \#$ which precedes it, an unequivocal traditional deceptive cadence (6). ${ }^{6}$ Notice also the use of consecutive applied dominants in the connection
${ }^{5}$ It is interesting and I think significant that at the analogous point in the opening, m. 4, Eb does occur although it is not tonicized. Remember that a sense of resolution to D occurred just prior to the Eb at the end of m .3 , the Eb being absorbed into a nontonic tertian harmony out of which the motivic descending leap emerges [see the lower two staves of system (b) in Ex. 2.1].
${ }^{6}$ The importance of this shift to C\# will be fully realized in Chapter III, where the middle section of the movement is discussed in terms of prolongation of more than one referential element.
of $V I$ to $V(\widehat{7})$.
Measures 23-32 (Ex. 2.3) comprise a tonally symmetrical, but conventionally functional, drive to the movement's B section. This passage is symmetrical because the mid-level progression articulated by the tonicized triads ([1) ascends by minor thirds, the final component of the progression initiating the opening of the B section. The conventionally functional quality of the passage is demonstrated at a more foreground level, at which each tonicized triad in the minor-third cycle is approached through traditional, functionally directed harmonies. Although many chord-tones are rhythmically shifted through appoggiaturas and suspensions (as in the two previous excerpts), the mid-level tonicized harmonies occur on the downbeats of measures, creating a more distinct broadly spaced harmonic progression.

Moreover, each tonicized harmony is first a major triad, followed immediately by a version featuring the minor third (in addition to other "nonharmonic" notes). This is an example of major-minor mixture common to the nineteenth century, but is also, I think, a modulatory device. That is, the minor form of each tonicized major triad is pivotal: the Eb-minor harmony in m .25 is an enharmonic vi to the next mid-level referential triad, F\# (2), the minor form of which (m. 27) is vi of the ensuing tonicized A-major triad ( (3). The minor triad, vi, in these two instances thus functions as the dominant prefix in the conventional, three-element tonicizing progression alluded to earlier. The pattern ends here, however, as a recurrence of Eb (m. 30) precedes the final component of the minor-third cycle, $C$.

Another characteristic of nineteenth-century music is apparent
in the tonicization of these mid-level referential triads: the multiple tonal implication of the diminished-seventh chord. This harmony may, of course, refer variously to each of four keys a minor third apart, precisely the intervallic relation of the mid-level tonicized triads in this excerpt. In fact, recurrence of the same collection, functioning as the dominant of Eb and $\mathrm{F} \#$, sets up an expectation in the progression to A. The "expected" enharmonic equivalent is, however, avoided as a result of an "irregular" voice exchange between Bb and $\mathrm{G} \mathrm{\#}$, both of which pass through $\mathrm{A}: \mathrm{Bb}$ moves one semitone too far, to G , and $\mathrm{G} \#$ one semitone too far, to B (4). Although B is, in fact, required for an exact enharmonic equivalent of the dominant of Eb and $\mathrm{F} \#$, arrival on G in lieu of $G \#$ cancels the leading-tone, thereby rendering the collection less functional.

It is significant that, in light of this irregular exchange, the harmony preceding $A$ is not a dominant or dominant variant of $A$ at all, but a traditional dominant seventh of $C$--the root of the open fifth and subsequent minor triad (mm. 32ff.) which is the ultimate goal of the minor-third cycle as a whole and the initial harmony in the B section. Although characterization of the progression as deceptively referent to C would be dubious, it is perhaps not coincidental that the explicit Amajor triad in m. 15 was shown to function unequivocally in a deceptive progression (there as bVI in Db ) rather than as the goal of a conventional tonicizing progression. ${ }^{7}$ Articulation of $C$ at the end of the

[^16]opening section, m. 32, occurs through independent linear semitonal motion to members of the C triad, rather than through a recognizable conventional dominant, and thus represents a harbinger of what will become a prominent means of tonicization in the later quartets. This technique will be discussed later in this chapter in the category of linear progressions.

The fourth and final excerpt from the opening movement of the first quartet, Ex. 2.4, consists of the closing seven measures. The two-measure approach to the (French) augmented-sixth chord in m. 67, although triadic, is clearly nonfunctional in a conventional sense. The approach does, however, exhibit a device to be more fully examined later in the chapter: the contextually directed linear progression. In brief, this type of progression is comprised of step-related members, the connection of which is not governed by, or even necessarily reinforced by, any inherent functional implications in the underlying harmony, but is, rather, understood retrospectively-i.e., through realization of the contextual goal of motion, the latter exposed through patent factors of arrival such as agogic emphasis and rhythmic caesura. Here, the parallel thirds in the outer voices (the top voice involving oscillation between the first and second violins) systematically lead to the augmented-sixth chord, the arrival of which is further confirmed by rhythmic relaxation and resultant relative agogic emphasis.

The final cadence (mm. 67-71), expressing an Ab-minor triad through the conventional augmented sixth - cadential ${ }_{4}^{6}$ - dominant tonic progression, is unequivocal [system (b) of Ex. 2.4]. The paren-
thetical intrusion of A major at (1), and its relation to the cadentially confirmed Ab minor, however, deserve comment as there is not unanimity of interpretation in the literature. David Gow, in his view of the tonality of the movement and of the quartet as "emergent," asserts that

The third section--a modified repeat of the opening canon--ends on an old-fashioned half-close in A minor . . . even if Bartók's somewhat obscure notation of the final two bars would try to suggest otherwise! ${ }^{8}$

This key is said to be reinforced by the registrally and durationally emphasized $A$ major-minor triads in mm. 15 and 29, the appearance of which establishes a "basic dichotomy between two keys [ $F$ and A] a major third apart--something which will dominate the whole course of the quartet." 9 I have noted above the absence of explicit tonicization of these earlier A triads and have offered functional analyses in which they are regarded as deceptive resolutions; I interpret $A$ at the final cadence as deceptive in that it enters precisely at the point of resolution of $A b: V$, "tainting" the finality of $A b .^{10}$ Further, I have suggested that a conflict occurs already at the end of the movement's first phrase, but that the conflict is between Ab and A , in which the F majorminor harmony functions as $\mathrm{VI} / \mathrm{vi}$ and $\mathrm{bVI} / \mathrm{bvi}$ respectively. ${ }^{11}$ The
${ }^{8}$ David Gow, "Tonality and Structure in Bartók's First Two String Quartets," The Music Review 34/3-4 (1973): 260.
${ }^{9}$ Ibid.
${ }^{10}$ János Kárpáti, on page 179 of his Bartók's String Quartets (Budapest: Corvina Press, 1975), recognizes the structural motion to the Ab-minor triad here.
${ }^{11}$ Of A major and Ab minor--the two triads asserted here to be in opposition at the end of the first phrase and again at the end of the movement--the latter is of course more related conventionally to the
duality between Ab and A is shown in Ex. 2.4 to manifest itself again at the movement's close. The quartet as a whole indeed ends on $A$, but factors which obscure orientation to that referential PC earlier in the work are vital to an understanding of the concept of "emerging" tonality.

In the four excerpts just examined, the conventionally functional tertian framework is relatively consistent and, thus, represents a significant link with nineteenth-century tradition. The most important of functional progressions is, of course, that between the dominant and tonic, the basic tonicizing progression. Because this progression is the most direct means of tonal orientation, it occurs often as a recognizable pattern of tonal-cadential punctuation in contexts not otherwise as explicitly conventional. Temporally spaced points of tonal orientation, each articulated by this palpable cadential pattern, provide the listener with a structural frame of recognizable departure and arrival points for less traditionally ordered musical material, and may be heard to assist in ascribing contextual functionality to intervening nontraditional elements.

## Single conventional tonicizing progressions in nontraditional contexts

In addition to establishing a broadly spaced, conventionally articulated harmonic framework, against which other events may be

[^17]understood, the conventional tonicizing progression of dominant to tonic may conclude or even initiate a movement or section which is otherwise nontraditional.

Tonicizing progressions concluding formal sections. The fifth quartet's middle movement--a scherzo and trio which is essentially nontraditional in its details of tonal structure--concludes with a conventional cadence formula which provides a recognizable point of traditional tonal punctuation [system (a) of Ex. 2.5]. Although conventionally functional progressions of tertian harmonies of the type found here are uncommon earlier in the movement, the structure of the dominant used in this final cadence is, in one way, consistent with the interval structure of verticalities used in the scherzo. The primary theme of the scherzo, mm. 3-9, for example, is a succession of three arpeggiated, overlapping tertian collections (1), (2), and (3) which, when considered together, express, in the form of an extended verticality of thirds (4), the seven-note diatonic collection of $\mathrm{C} \#$ minor, the tonic triad of which concludes the movement. ${ }^{12}$ The concept of extended tertian structure at the opening may be said to account for the specific type of dominant used in the final cadence, which, as indicated at (6) in Ex. 2.5b, includes a seventh, ninth and thirteenth.

The tonicizing progression which concludes the opening movement of the second quartet has a basis in nineteenth-century tonality in the familiar augmented-sixth chord as a tritone dominant substitute.

[^18]However, Ex. 2.6a reveals that, in this particular excerpt, resolution of the augmented sixth to the root of the tonic triad (1) is not accompanied by resolutions of other chord members associated with the various, traditional augmented-sixth harmonies; rather, the augmented sixth occurs with "anticipations" of two members of one version of the tonic (2). The tonic harmony articulated in the upper three parts at this first resolution of the augmented sixth is an augmented triad built on $A$, as indicated by the open notes at (3) on systems (a) and (b). The cello begins in mm. 170-171 to arpeggiate the same augmented triad (4), but immediately shifts to a minor triad on the same root, $A$ (5). This arpeggiation occurs in its own textural stratum but may be heard as an underlying, concurrent--if "displaced"--resolution of the aforementioned augmented sixth in the violins. In m. 176, the augmented sixth occurs in the cello, the major third and augmented fifth of the tonic in the viola, and the arpeggiated minor tonic triad in the violins. Measures 177 to the end repeat the instrumental disposition of mm. 174-175. The textural-instrumental separation and exchange of the two qualities of tonic harmony in this excerpt, and the tonicization of the common root of both versions through the augmented sixth are summarized on system (b) of the example. ${ }^{13}$

I would suggest that, in the closing measures analyzed above, each triad version--the minor and the augmented--has a distinct function

[^19]over and above mere modal inflection of a single tonic harmony, and that those functions are indicative of nineteenth-century practice. The more consonant minor triad, for example, better represents a stable tonal conclusion to this opening movement, while the augmented version may be heard to represent a dominant of the referential PC, D, of the second movement, as summarized in Ex. 2.6b. ${ }^{14}$

Tonicizing progressions initiating formal sections. I have chosen four examples to illustrate different contexts in which a conventional tonicizing progression initiates less conventional content, the first of which comes from the opening of the Marcia in the sixth quartet (Ex. 2.7a). It is a simple progression which implies in a very general but direct way a tonal and rhythmic anacrusis into the movement's opening on B major, the latter explicitly represented here by the root, doubled at the octave in the first violin, with the third and fifth implicit in the inner-voice arpeggiation ( (1). The dominanttonic, arsis-thesis, progression also initiates the $A^{\prime}$ section in $m m$. 122-123 (Ex. 2.7b), where each member of the arpeggiated dominant is the root of a distinct harmony (2). The referential tonic to which the dominant resolves in m. 123 is also of a fuller texture than that of the

[^20]beginning, as here the third and fifth of the B-major triad are sustained with the root (3).

The second example, mm. 159-160 of the first quartet's final movement, initiates a scherzo-like section (Ex. 2.8). In scope, this example is not unlike the previous one: the dominant-tonic progression provides a conventional point of tonal orientation after which development of thematic and motivic content involves less traditional harmonic content. One detail of interest in these two bars concerns the relation between the melodic component in the viola [on staff (i) of the reduction] and the harmonic "accompaniment" in the cello [staff (ii)]. The progression $\mathrm{Ab}-\mathrm{Db}$ in the viola (1) and (2) occurs over a V-I progression in both Db ( (3) and A ( (4). In the first instance, $\mathrm{Ab}-\mathrm{Db}$ represents the root motion of the progression, scale degrees 5 to 1 (1]), and in the second, those same PCs (enharmonically spelled) represent 7 (the leading-tone in the dominant) and 3 (2).

In the opening fourteen measures of the same movement (Ex. 2.9), a conventional dominant-tonic cadence comes at the end of an expanded harmonic progression from iii (the details of expansion are to be discussed under prolongational techniques in the next chapter). The progression serves in a larger context to establish a point of familiar tonal punctuation as a basis for subsequent, less traditional directed motions (as in the beginning of the scherzo section in the same movement, just discussed). As indicated by the roman-numeral analysis below system (b), the tonicizing progression is expanded to dominant prefix - dominant - tonic, a pattern cited above, particularly in connection with the opening movement of the first quartet.

And finally, the opening four bars of the second movement of the fifth quartet illustrate a conventional I-V-I progression before less conventional material enters (Ex. 2.10). The referential element established in this tonicizing progression is not primary for the movement but is, rather, an auxiliary to the primary referential element, as will be discussed later. The progression is straightforward: each of the implied tertian structures is arpeggiated, and the voice leading involves PC-step connections, registrally compressed on system (b) and further summarized on system (c).

## Mid-level functional progressions

In concluding this study of conventionally functional progressions, I draw attention to two large excerpts, each of which articulates a basic, tonality-defining I-IV-V-I root progression of broad mid-level proportions at the end of a movement. One of these comprises mm. 354390 of the opening movement of the sixth quartet, a passage which will receive further attention in the chapter on prolongational devices. For present purposes, see system (b) of Ex. 3.14, where constituents of the broadly articulated functional progression are indicated.

The second is of comparable length and occurs in an analogous position in the final movement of the fourth quartet. The progression in question occurs in mm. 299-367, its constituents indicated by roman numerals below system (a) in Ex. 2.11. It will be noted that, although the root relations of the progression are conventional, the structures of the individual verticalities associated with the inferred roots are less traditional (unlike the tertian structure of constituents in the
broadly articulated progression cited in the foregoing paragraph). One such structure features the perfect fifth as the basic interval for homointervallic verticalities (hence the enclosure of roman-numeral indications in quotation marks). In mm. 296-299, for example, a reiterated verticality of fifths based on C occurs (1). This marks the end of a mid-level linear progression (to be examined later in this chapter), which in turn marks the structural return to $C$, the primary referential PC of the movement. The structural "IV" is similarly constructed in vertical fifths (2). Its connection to the preceding "I" and prolongation in mm. 323-332 also involve the perfect fifth as a primary referential harmonic interval and as an interval of root progression, but entail concepts to be dealt with later in the chapter and in the next chapter. I therefore reserve comment on those details until relevant theoretical concepts have been specified, at which point I return to this example.

In the connection of "IV" to "V", the latter also represented by an open perfect fifth (3), the G\#-D\# fifth in m. 345 (4) initiates an embellishing pattern ${ }^{15}$ involving motion to the A-E fifth in m. 357 (5)), after which a PC-step descent to G-D in the second violin of $m$. 363 (6) completes the "IV-V" progression. The G-D fifth ("V") is
${ }^{15}$ An embellishing pattern is a succession of at least four notes which, when expressed as PCs, can be shown to begin and end with the same note (prolongational), or begin and end with notes which are PC-step-related (progressive). Motion between endpoints of the pattern is as follows: a leap from the first note, followed by step or PC-step motion to the final note; step or PC-step motion away from the first note, followed by a leap to the final note; or step or PC-step motion away from the opening note and back to the final note.
subsequently sustained in the second violin until m. 367 , where the resolution to "I" takes place. The tetrachord G-A-B-C, the upper fourth of the C-major scale, bridges mm. 366 and 367 (7), and serves to connect linearly (and diatonically) the roots of "V" and "I" (the tetrachord extending the thematic element in an ascending direction after the characteristic F\#-G motion). The conventional tonicizing root progression is further punctuated by the fact that the sustained G-D fifth ("V") breaks off precisely at the arrival and subsequent sustaining of $C$ ("I") in the aforementioned tetrachord ([8]). The referential tonic is also represented by a fifth, the details of its inference involving theoretical concepts to be developed in the next section of this chapter. For present purposes the establishment of $C$ as the primary referential PC through a most conventional large-scale functional root progression should be reasonably clear.

In the examples offered above, I have demonstrated conventional functionality in the relation of constituent harmonies in progressions of various spans, at various levels of structure, and in various contexts. With regard to the last two excerpts, it might be argued that large-scale functional progressions are inferred merely by isolating certain pitch events which, given the nonconventional structure of intervening content, cannot be said to function as comparable events might in a traditionally tonal setting. Yet, such broadly articulated fundamental progressions at strategic formal junctures are, in light of their palpable association with conventional tertian contexts, appreciable as examples of Bartók's continued allegiance to tradition,
manifest in a variety of contexts throughout his compositional output, as we shall continue to see in the ensuing chapters of this study.

## Nonconventional Tonicizing Progressions

Within a more encompassing concept of tonality, in which the diversity of intervallic structure of the referential element is extensive, the component functioning in the capacity of the dominant--to be defined as a contextual tonicizing agent--is also, of necessity, to be construed more broadly. Before specific tonicizing agents can be identified, however, it must be noted that the two primary roles of the conventional dominant in the major-minor system are cadential and prolongational, each involving association with a referential tonic. Functional relations inherent in the major-minor system imply the tonic at the sound of the dominant (to such a degree, in fact, that in nineteenth-century music the tonic may never sound, although its identity is unequivocal). In the absence of the syntactic relations of major-minor tonality, however, the potential for a comparable degree of implication in a nontraditional dominant analogue is significantly compromised. I will show in the following examples that, although conclusive cadential punctuation through a functional chord-pair analogous to the dominant-tonic progression is rare in unconventional contexts, tonicizing progressions analogous to conventional elided cadences are frequent.

## Contextual tonicizing agents

A contextual tonicizing agent is a PC, verticality, or collec-
tion of PCs, which immediately precedes, and is subsequently associated with, an identifiable referential element. Clarity of exposure of the referential element to which such an agent is said to relate--through dynamic, metric, registral, and/or articulative emphasis--is a vital factor in the perception of a contextual tonicizing agent. Another condition concerns the degree of dissonance of the contextual tonicizing agent relative to the referential element, particularly when the latter is conventionally tertian, thereby providing a palpable basis for consonance-dissonance evaluation.

Apart from these surface factors of expression, two interrelated concepts figure importantly in ascribing the function of tonicizing agent to a particular element: retrospection and frequency of association. Retrospection pertains especially to the recognition of a particular contextual tonicizing agent when the latter occurs only once in a movement, a situation which occurs in Bartók's music, where principles of pitch organization often vary significantly from phrase to phrase. There are two scenarios in which retrospection is less critical to the inference of a contextual tonicizing agent, both of which involve the notion of frequency of association. In one situation, the tonicizing agent and referential element may be engaged in an oscillation pattern. In such cases, frequency of association is immediate and direct, but is also a prolongational determinant and will accordingly be discussed in the next chapter. In the other setting, the paired components, tonicizing agent and referential element, occur at more than one cadence or elided cadence. Here, it is frequency of association of the chordpair, temporally distributed throughout a section, that is sufficient to
generate expectation of the referential element at the occurrence of the contextual tonicizing agent. It is this latter type I wish to exemplify now in the second movement of the fifth quartet.

The progression from contextual tonicizing agent to referential element occurs at five points in this movement (Ex. 2.12). At each recurrence, the harmonic construction of the tonicizing agent is different from the preceding version; the referential element undergoes similar transformation as the movement unfolds. In the first instance, mm. 6-7, each constituent of the contextual tonicizing progression is a third: the contextual tonicizing agent, at (1), is $C-E$ (although $E$ in the viola is not vertically aligned with $C$ in the cello), and the referential element is D-F (2). In mm. 9-10 the tonicizing agent is a C major-seventh chord (3) and the referential element, still a twonote verticality, is the open fifth, D-A (4). The end of a tenmeasure prolongation of the tonicizing agent ${ }^{16}$ is marked by the verticality in m. 19, C-E-G-B (5), which resolves in m. 20 to a new version of the referential element: the D-major triad (6). This version of the tonicization progression is repeated in mm. 21-22 (7).

The fourth instance occurs at the end of the middle section, and

[^21]elides with the beginning of the $A^{\prime}$ section in m. 46. As indicated at (8), the tonicizing agent is comprised of $\mathrm{C}-\mathrm{Eb}-\mathrm{G}-\mathrm{Bb}$, a new configuration although still rooted on C. The referential element (9), on the other hand, is not new, but is, rather, a D-A fifth, heard at the analogous place in the opening A section. The final configuration of the tonicizing agent (10) is arpeggiated over mm. 54-55 and, in its C-E-G-Bb structure, is in a sense an amalgamation of previous versions. Coincident with this four-note version is a drastic reduction in complexity of the referential element which, in its final form, is the sole PC D, articulated at the end of a quasi glissando (11). Each version of the contextual tonicizing agent in the movement, then, is traditionally "rooted" on $C$, while each version of the referential element is on $D$, as summarized on system (b). The presence of these two PCs facilitates a perceived frequency of association such that, by the end of the movement, the expectation that $C$ will ascend to $D$ is firmly established as the primary tonicizing motion. ${ }^{17}$

Disposition note and disposition dominant
A special form of contextual tonicizing agent applicable to Bartók is one I refer to as a disposition dominant--a construct made up
${ }^{17}$ Salzer interprets the tonal structure of the movement differently; for him, the opening C\#, prolonged through upper and lower neighbours (amalgamated in my Ex. 2.10 into a single V) is the tonic, and the D element a "contrapuntal structural chord." In his reading, the recurrent C-D motions are lower-level, lower-neighbour motions to $D$, itself a structural upper neighbour to the primary C\#. See Structural Hearing, 2 vols. (New York: Dover Publications, Inc., 1952), vol. 2, pp. 209-2l3. On the other hand, in Bartók's String Quartets, Kárpáti asserts that the movement's tonality "solidifies only in the fifth bar on the basis of the cello's held D." (p. 231)
of disposition notes. ${ }^{18}$ The latter are PCs which are semitonally related to constituents of a referential element (from above or below). At the end of the third movement of Bartok's first string quartet (Ex. 2.13), for example, a whole-tone succession beginning on $\mathrm{Bb}_{3}$ ascends through two octaves and an augmented sixth, whereupon $G_{6}$ ascends by semitone to $A_{6}$ and $\mathrm{Bb}_{3}$ descends to $A_{3}$. Here, the notes which break the succession of whole-tones through semitonal resolution, A in both cases, are perceived as arrival points, presumably as a consequence of interruption and relative proximity, fortified in this case through association with the conventional resolution of the augmented sixth.

The tendency for disposition notes to resolve semitonally may be said to be reinforced if they replicate certain conventional tonicizing motions, such as the augmented sixth just noted, or if they are associated with unstable degrees of a lydian or phrygian ordering of the diatonic collection, two constructs frequently used by Bartók as bases for linear motion. When applied to these particular diatonic orderings, the criterion of semitonal interruption of a whole-tone succession--in which the second tone of the linear semitone is sensed as focal (as demonstrated in Ex. 2.13)--provides the potential for semitonal tonicization of the first and fifth scale degrees from both above and

[^22]below. ${ }^{19}$ In the ascending lydian ordering, for example, the pattern of whole-tones is broken after three and the semitone which follows emphasizes step 5 of the ordering. Similarly, in the ascent from 5 to 8 the pattern is broken after two whole-tones, simulating the conventional resolution of the leading-tone. The descending phrygian ordering reveals similar tendencies to degrees 1 and 5 but from above. That is, in the descent from 8 to 5 the whole-tone succession is broken after two and in the descent from 5 to 1 , after three.

The linear properties of these two particular diatonic orderings, as defined above, are indicated on systems (a) and (b) in Ex. 2.14. The complete "encirclement" of scale degrees 1 and 5 resulting from the composite of these two patterns is apparent on system (c) of the example. Specific disposition notes provided by these two diatonic orderings are b2 and b6 from the phrygian ordering and \#4 and 7 from the lydian ordering, of which b2 and \#4 are particularly important as they are not available from the major and minor scales. Bartók's idiomatic use of these particular diatonic orderings thus provides an important link with convention, and a new, but analogous basis from which linear tonicization progressions--disposition-note resolutions--may be perceived.

Disposition notes, in particular, are most characteristically employed as tonicizing agents in a prolongational capacity, as will be demonstrated in the next chapter. Disposition dominants, although simi-

[^23]larly employed, are also used at conclusive and elided cadences. A cadential disposition dominant tonicizes the referential triad at the end of the first phrase of the sixth quartet's final movement (Ex. 2.15). Although the lydian and phrygian patterns from which these disposition resolutions may be said to derive are not explicit here, they occur later in the movement, providing a basis for resolution of \#4 and b 2 in particular.

I have chosen four examples to illustrate various contexts in which the disposition dominant occurs in an elided cadence. In these examples, only the immediate tonicizing progression will be illustrated, although each comes at the end of a phrase-level progression or prolongation and will be reexamined later in this chapter or in the next in connection with other aspects of those processes. The first example occurs in the first movement of the fifth quartet. Measures 23-25 (Ex. 2.16) define the end of the transition from the first theme and its connection to the second theme. As indicated on system (b), each note of the reiterated disposition dominant resolves by semitone to a member of the referential element of the second theme. The arrival on the $C \#-D$ disposition pair will be examined later in the chapter.

The disposition dominant which resolves into the beginning of the second theme in the opening movement of the second quartet (mm. 3132) is indicated in Ex. 2.17. This dominant is like that demonstrated in Ex. 2.15 (the end of the first phrase of the sixth quartet's fourth movement) in that it embodies the final note of each polyphonic line just prior to the beginning of the second theme. Again, the larger context in which this tonicization progression occurs will be studied
later.
The final three examples of disposition dominants in elided cadences, Exx. 2.18a, 2.18b, and 2.19, are from the opening movement of the sixth quartet. The first two of these correspond to elided cadences at $\mathrm{mm} .52-53$ and 59-60, respectively, the larger context in which these occur being the focus of a more detailed study in the next chapter. Although a rest occurs between the two components of the cadential progression in Ex. 2.18b, the semitonal relation between those components clearly identifies the verticality arrived at in bar 59 as a tonicizing agent and its resolution to the verticality at m. 60 as a point of elision. The scale-degree analysis below system (b) (in Exx. 2.18a and 2.18b) reveals the similarity in structure of the two disposition dominants: the first progresses to a triad with a minor (as well as a major) third, with scale-degree progression 2 to 43 , while the second moves to a triad with a major third, with \#2 progressing to \#3.

In the third example, mm. 80-81, the resolution passes through a more conventional dominant before arriving on the tonic (Ex. 2.19). Both the passage preceding this excerpt and that which follows it will be studied further in this chapter and the next; suffice it to say at this point that the measures preceding bar 80 point to the primary referential PC of the movement, D, while the disposition dominant articulated at the very end of m .80 implies a sudden turn of events. As indicated at (1), the disposition dominant first resolves into a more conventional $V$ of $F$, the movement's secondary referential PC. Although scale degrees b6 and \#4 resolve to 5, that note is at first the root of
the aforementioned conventional dominant. The leading-tone (scale degree 7, articulated in the cello, m. 80) does not resolve until m. 82, and then only implicitly through PC-step motion to $F$ in the first violin, as suggested at (2). The disposition dominant in this instance, thus, not only links two phrases--through its elided resolution--but also effects tonal orientation to a secondary referential element.

Obliquely resolving tritone
The position and resolution of the tritone in the phrygian and lydian diatonic patterns is different from that of the major scale. The tritone's conventional resolution, of course, involves contrary motion: the semitone resolution of the leading-tone (as the third of the dominant) to the root of the tonic, most often accompanied by the descending resolution of the fourth scale degree (as the seventh of the dominant chord) to the third of the tonic. In the lydian ordering, however, the tritone is delineated by scale degrees 1 and \#4, and in the phrygian ordering by scale degrees b2 and 5, these particular tritones implying resolution to the perfect fifth defined by scale degrees 1 and 5, of which one member is already present in the tritone. Thus, in the unfolding of the lydian fifth, the disposition note \#4 breaks the ascending whole-tone succession by resolving to 5 , while scale degree 1 is common [system (a) of Ex. 2.20]; and in the unfolding of the phrygian fifth, the disposition note b2 breaks the descending succession of whole-tones by resolving to 1 , while scale degree 5 is common [system (b) of 2.20]. Thus, rather than resolving in contrary motion, as in
conventional procedure, the tritone resolves obliquely. The term oblique tritone resolution (or obliquely resolving tritone) is used in this paper to refer to these processes. While obliquely resolving tritones frequently occur without explicit statement of the lydian and phrygian orderings to which I relate them, these particular diatonic orderings are prevalent enough in Bartók's music that they may be understood to function as an underlying idiomatic basis which often motivates surface events, not unlike the major or minor scales in conventionally tonal music.

As with other types of disposition dominants, the obliquely resolving tritone may occur at both conclusive and elided cadences. An example of the former is found at the beginning of the second movement of the second quartet (Ex. 2.21). In fact, the opening six bars feature semitonally related tritones, the final b2-5 tritone of which resolves to a D-A fifth on the downbeat of bar 7. This type of cadential punctuation is repeated in $\mathrm{mm} .48,75$, and $111-112$. The last of these is particularly interesting because each of the two tertian components comprising the composite verticality in m. 112 ( Eb major and G minor) is tonicized through an obliquely resolving tritone.

The primary theme and final cadence of the fourth quartet's last movement are particularly interesting from the point of view of disposition-note resolutions in general and the obliquely resolving tritone in particular. The two excerpts are, in fact, intimately related, as I will show. The final cadence is also a summing up of many relationships of significance earlier in the movement--relationships which will be evident in discussion of the derivation and resolution of
the tritone, our principal concern here.
The thematic and accompanimental elements of the opening of the movement are summarized on staves (i) and (ii) respectively in Ex. 2.22a. The reiterative and acoustical prominence of the open fifth, apparent in the accompanimental viola, establishes that interval as the contextually stable expression of the referentially primary PC $C$, and further serves to confer functional significance on the semitonally related PCs, Db, F\#, and Ab , heard in the viola and cello and depicted on the bottom staff of system (a). 20 This is a case where, as suggested above, phrygian and lydian patterns, although not explicit, may be understood to generate the tonicization potential of such elements-particularly degrees b2 and \#4--when they are elaborative of the referential perfect fifth.

As indicated on staff (i), the theme includes the two most prominent disposition notes heard in the accompaniment, b2 and \#4, of which the latter is shown at (1) to resolve to 5 explicitly within the theme. The resolution of b 2 , on the other hand is only implied in the theme (2), although this b2 is associated with that of the accompanimental instruments, in which it does resolve explicitly. The theme is thus heard as incorporating members of both the tonicizing agent and

[^24]referential element, and derives its quality of mobility in part from this blend of contextually conflicting elements. Although the potential for an obliquely resolving tritone is present in the theme--because it includes both $b 2$ and 5--the absence of explicit resolution of $b 2$ in the theme, as noted above, undermines the perception of $b 2-5$ as a distinct element. The potential of the theme to generate such a construct, however, is exploited at the end of the movement, as will be revealed.

Before examining the final cadence and its relation to the opening theme, I recall Ex. 2.11, in which resolution to the final "I" of the "I-IV-V-I" progression may now be more fully comprehended. The return to "I" in m. 367 (Ex. 2.11) is preceded in m. 365 by a return to the primary theme at its original pitch level (see first violin and viola). And, as indicated above, although the theme does not express the referential C-G fifth explicitly, it at least implies that element through the express resolution of \#4 to 5. The implied resolution of b2 to 1 is explicit in the arrival of $C$ through the diatonic ascent in mm . 366-367 (7) in Ex. 2.11), coincident with the underlying motion from the G-D fifth in the second violin to $C$ in the first violin and cello (8) in Ex. 2.11). This fifth relationship will be shown to establish a precedent for the inference of a comparable conventional progression in the final cadence.

Reference (3) in Exx. 2.22a and 2.22b indicates that the tonicizing agent at the final cadence includes the exact PC content of the opening primary theme. $D \#$ is shown at (4) to resolve as scale degree \#2 to 3 ( E in the final referential element). Because of the vertical configuration of the tonicizing agent at this final cadence,
the disposition note \#4 and its resolution note 5 are vertically aligned (5). The resolution of \#4 is also linearly expressed in the motion from $F$ \# to $G$ from the tonicizing agent to the final referential element (6). Scale degree 5, in the tonicizing agent, may be heard to provide the potential for inference of a traditional descending-fifth motion, characteristic of the V-I progression, the precedent for this aspect of conventionality established in mm. 366-367 (the close of the large-scale traditional "I-IV-V-I" progression), recalled above.

The b2-5 tritone is more explicitly expressed at the final cadence than in the earlier theme, for here it is a vertical construct generated (ㄱ) and resolved (8) after the upper third (E-G) of the referential element has sounded in m. 392. Although the theme and final cadence corroborate the primary referential fifth and tonicizing agent, each reveals different details of resolution of the tonicizing agent: \#4 resolves explicitly within the theme, while b2 resolves implicitly, and in the tonicizing agent at the final cadence, \#4 resolves explicitly to the final referential element, and b2 resolves explicitly within the referential element.

Before leaving this excerpt for now, a final comment is warranted, concerning the isolation of b2 and 5 as a vertical construct in the final cadence discussed above. The b2-5 and l-\#4 tritones were said to derive from phrygian and lydian bases, frequent in Bartók, and were said to impart directive, contextual functionality regardless of whether or not those scalar references were explicit in the music. But what of the b2-5 tritone in this final cadence? Why draw attention to
that construct as a distinct element in lieu of simply asserting the instability of b 2 in relation to 1 ? The isolation of the $\mathrm{b} 2-5$ tritone as a construct to be resolved has, in this instance, to do with its emergence and prolongation leading into the final cadence. In that prolongation is the subject of the next chapter, I will postpone further discussion of this example until then, at which point I will reinforce the assertion of an obliquely resolving tritone.

To conclude this classification of contextual tonicizing agents, I cite mm. 56-60 of the third quartet's Seconda parte (Ex. 2.23) as an example of an obliquely resolving tritone in an elided cadence. Here the tritone and its explicit resolution occur after the linear-thematic element of the next phrase enters. Note, for example, the initiation of the theme in the viola [1] in the score and on system (a)], beneath which the tritone is reiterated [(2) in the score and on system (a)]. Only after the two thematic voices occur in contrary motion, mm. 58-59, does the vertical tritone resolve to a vertical D-A fifth ( (3). Although the tritone might here be interpreted as a quasi-stable event-Eb reinforcing the theme in the viola at (1) and transferring to the Ebtheme at m. 58 in the first violin, (4), and the $A$ of the tritone anticipating the upper note of the D-A fifth at m. 60 (5)--the linearregistral continuity of the tritone to the D-A fifth, preserved on system (b), supports interpretation of the tritone as a tonicizing agent resolving to the D-A fifth at (3). Additional examples of obliquely resolving tritones at conclusive and elided cadences will be demonstrated in the analysis in Chapter IV.

## Fifth Progressions

The fundamental importance of the perfect fifth in the overtone series is probably one important factor contributing to the tonicization potential of that interval when stated as the descending root relation of two adjacent triads. It is indeed a factor which was reoognized long before the common-practice period and may be assumed relevant after that period. It is also significant that the perfect fifth occurs as a stable vertical interval articulating the root and fifth of the tonic triad, the primary harmonic unit of the major-minor system. It might be said that, in the dominant-tonic progression, the fifth scale degree seeks to align itself vertically with the root of the tonic. In a general, but significant, way, the descending fifth may, in itself, be said to express a "dominant effect" which--as supported by the aforementioned factors--surely accounts to a great extent for the primacy of progressions along the descending circle of fifths as the ultimate in directed harmonic motion to the tonic. Each descending fifth, regardless of its distance from $I$, imitates, in a palpable way, the potent V-I root progression, "on its way" back to I. Given the structural function and recognizable quality of the fifth as an interval of directive significance in the major-minor system, it is indeed a suitable element of conventionality for extrapolation to nontraditional contexts. Bartók never really severed his ties with conventionality entirely and it is in part his use of the perfect fifth as an interval of functional "root" relation in numerous contexts and applications which reflects his manifest allegiance to tradition.

In this section I demonstrate three important categories of fifth progression and fifth relation through ten excerpts, the variety of which illustrates the breadth of application of this particular aspect of conventionality. The first of the three categories to be examined is progression along the traditional descending circle of fifths, the components of which are conventional tertian harmonies. In the three excerpts illustrating this first category, allegiance to tradition is twofold: in the use of triadic harmonies, and in the aforementioned dominant effect of the descending-fifth root relation in a functionally directive process. Two of the three excerpts in this category also reveal a significant aspect of interaction of great relevance to Bartók's tonal language: the root relation of a fifth--both ascending and descending--between adjacent verticalities, and the linear directed motion connecting those roots. As will be shown, the contextual functionality of the phrygian and lydian orderings of the diatonic collection is of utmost importance here.

The second category, related to the first, is that of fifth progression between nonconventional verticalities and nonsimultaneities. In these examples the concept of root requires qualification. Many such elements in Bartók's music are homointervallic in structure, the interval between constituents being the perfect fifth. Here, then, are elements composed of fifths moving by fifths. As indicated earlier, in such homointervallic collections the PC-lowest member, in an ordering based on duplication of the referent interval, is asserted to be root for the purpose of measuring intervals of progression--an assertion which has some acoustical justification in that the lowest member of the
fifth is reinforced by the upper note. When extrapolated to more than one fifth in a vertical structure, the lowest note of the PC-lowest fifth would assume the function of root. Where nontertian verticalities or nonsimultaneities are heard to be related by the interval of a fifth, as outlined above, descending-fifth relations might be said to imitate the dominant effect in a directed tendency toward a referential goal, while ascending fifths may be heard to represent motion away from such a reference point or at least negate any dominant effect.

The third category is that of the fifth as the interval of transposition between thematic elements. In the second category, nonsimultaneities are generally perceived as "arpeggiated" verticalities, whereas the nonsimultaneous collections in this third category are thematic statements not necessarily to be perceived as linear expressions of underlying verticalities. This type of fifth progression--where the interval of transposition is a fifth--is analogous to conventional imitative counterpoint in which "thematic" material often answers at the fifth. In one of the excerpts to be discussed in this category, the contextual functionality of the phrygian and lydian diatonic orderings will be seen to have significance.

## Descending fifths linking tertian harmonies

The three excerpts illustrating this first category are, appropriately, from the first movement of the sixth quartet, a movement which will be shown here and elsewhere to embody notable properties of conventional tonal orientation. Measures 80-81 of this movement were referred to earlier as an elided cadence in which the disposition dominant effec-
tively reoriented motion from the movement's primary referential element on $D$, to the movement's secondary element on $F$. Measures 81-94 of Ex. 2.24 indicate oscillation between the $F$ triad and its dominant, a device which will be examined more extensively in the next chapter. Measures 93-99 illustrate a progression of triads along the descending circle of fifths, which, after the V-I progression in $F$ at (1), begins at a rate of one harmony per bar (summarized in the roman-numeral analysis at (2). As denoted by the large flat and sharp symbols [mm. 93-99 of system (a)], the interval of root relation is filled linearly with a descending phrygian fifth or an ascending fourth (identical to the upper fourth of the lydian ordering and the major scale), providing a secondary factor of directed motion to that of the functional root motion of descending fifths. These linear components are a continuation from the initial measures of the excerpt (mm. 8lff.), discussed in the next chapter. One final detail concerning mm. 93-99 is noteworthy: the departure and arrival points of the cyclic progression are $F$ and $F \#$, respectively, and represent a large-scale III and \#III with respect to the primary referential triad of the movement, as indicated at (3). Elsewhere it will be noted that the referential D triad, takes both a major and minor third, at times simultaneously and at other times in close proximity; the cyclic progression noted here articulates the major and minor third of $D$ on a much grander scale.

Measures 312-332 of the same movement, Ex. 2.25, encompass the analogous passage in the $A^{\prime}$ section, where the descending-fifth cycle is more complex. Example 2.25 begins (as did Ex. 2.24) with an oscillation
between dominant and tonic, in this case in $F \#$, also to be studied in the next chapter. The conclusion of this oscillation does not reinforce the referential triad, here $F \#$, through a "final" V-I progression (as did the oscillation in Ex. 2.24); rather, as indicated at (1), the final progression in $\mathrm{F} \#$ is from $I$ to $V$. There is, however, at least a tentative suggestion of resolution to the tonic of $\mathrm{F} \mathrm{\#}$ in mm . 319-320. Here, the violins unfold a phrygian descent from F to Bb (2), representing a descending-fifth tonicization of Bb . This linear passage may also be interpreted enharmonically in $\mathrm{F} \#$ as a descent from the third of the dominant, $\mathrm{E} \mathrm{\#}(=\mathrm{F})$, through the root and seventh, $\mathrm{CH}(=\mathrm{Db})$ and $\mathrm{B}(=\mathrm{Cb})$, to $A \#(=B b)$, the third of $F \#$ on the downbeat of $m .321$. The linear motion in mm. 319-321, thus, looks both ways: back to $\mathrm{F} \#$ and ahead to Bb .

The root representation of the harmonies in the descending-fifth cycle, given on the top staff of system (c), indicates that the components are, at times, out of sequence, arrows above and below the staff denoting this. [Refer also to the roman-numeral analysis below system (b).] As already noted, the first tonicized constituent of the cycle, FH , is followed by an ascending fifth back to its dominant. Although a descending-fifth motion from $\mathrm{F}-\mathrm{Bb}$ was noted in the violins, mm. $320-321, \mathrm{Bb}$ is also followed by an ascending fifth to its dominant, the tonicization pattern once again left "open" (3). Furthermore, Bb and $\mathrm{F} \#$ are not adjacent in a descending cycle, 21 the details of this

[^25]reordering and others to be discussed. The tonicization of $D$ which follows includes both an ascending fifth from $I$ to $V$ and a descending fifth back to $I$, and from here the descending cycle is uninterrupted until the very close of the excerpt, where Eb is expected, though denied, at the beginning of the next phrase (m. 332).

With respect to anomalies in this phrase, I first direct attention to the bottom staff of system (c), which portrays an uninterrupted descending-fifth cycle from the opening tonicization of FH to the concluding, implied tonicization of Eb. In comparing the two staves of system (c)--the actual temporal order of the fifths in the music, and an uninterrupted "model"--it becomes obvious where "adjustments" occur. First, the B-E fifth which would connect $F \#$ to $A$ (4) is missing. This particular fifth will be shown in the next example to occur shortly after the excerpt in question, where it functions in an explicit descending-fifth progression back to the movement's primary D. Second, the $\mathrm{F}-\mathrm{Bb}$ fifth-which occurs temporally reversed in mm. 321-322--does not fit at this point in the cycle but, rather, should come in mm. 328329 (5). Third, concerning the $\mathrm{F}-\mathrm{Bb}$ progression in mm. 328-329, the tertian structure rooted on F is merely implied in m. 328 through the preceding $V_{2}^{4}$. The root is denied in the cello in favor of Gb ([6]), although resolution of the dominant seventh is explicit in the first violin ( (7). In fact, this tentative resolution to an F triad is analogous in approach to that of the tentative, final resolution to $\mathrm{F} \mathrm{\#}$ noted in mm. 320-321 (2).

The fourth and final detail concerns the descending-fifth motion to the cycle's concluding, implied Eb. Eb, in fact, occurs in the
cello already in m. 329--beneath an arpeggiated Bb triad in the violins (8)). The dominant and tonic of Eb are thus articulated simultaneously--telescoped into the same temporal span (9). There occurs, however, a palpable motion through the dominant seventh implying resolution to Eb in m. 332 (10). Rather than realizing this implication, the elided resolution into m. 332 is to $A$, a tritone away from the implied Eb. This is achieved quite simply through an enharmonic interpretation of the tritone which occurs in the dominant seventh of Eb . That is, D and Ab--scale degrees 7 and 4 in Eb-are also 4 and 7 in A, and it is their resolution to scale degrees 1 and 3 in $A$ which links the two phrases (11). It is interesting to speculate about the largescale tonal implication of such an abrupt shift. The analogous passage in the $A$ section moves from $F$ to $F \#$, III and \#III in $D$, while the passage discussed above moves from F\# to $A$, or \#III to V. As will be demonstrated in the next example, $V$ returns within another descendingfifth cycle and this time resolves to D:I, articulating the beginning of the final section of the movement.

The final excerpt to be discussed here as illustrative of a descending-fifth cycle of conventionally tertian harmonies is mm. 342354 of the same movement (Ex. 2.26). The example is uncomplicated and extremely apprehensible: the opening $\mathrm{Bb}-\mathrm{Eb}-\mathrm{Ab}$ progression is repeated up one semitone ("TIC+1" denotes "transposition by interval-class plus 1"), arriving in $m$. 351 on $A$, the dominant of $D$. Through one final descending fifth, this dominant resolves to $D$, the movement's primary referential tonic. Arrival on $D$ is indeed structural as it initiates
the large-scale, functional I-IV-V-I progression which concludes the movement, as discussed earlier in this chapter.

## Fifth progressions linking nonconventional

verticalities and nonsimultaneities
Four examples will be used to illustrate the second category of fifth progression, the first of which is mm. 64-72 of the third quartet's Prima parte (Ex. 2.27). This particular excerpt is illustrative of a technique which will be shown in Chapter III to figure prominently elsewhere in the same movement, but in a context where two referential PCs are simultaneously prolonged. The technique is one in which homointervallic elements constructed of fifths move by the interval of a fifth to generate still larger elements of fifths. In this excerpt, the progression is one of ascending fifths (expressed in the music as descending fourths), effectively avoiding the dominant effect so readily associated with the descending fifth. ${ }^{22}$ Also, the three-note components of the fifth cycle are arpeggiated, thereby generating lower-level fifth progressions of single pitches.

On system (a) of the example, the aforementioned arpeggiated components are verticalized and the fifth relation (TIC-5) linking each pair is indicated. The goal of the foreground fifth cycle of arpeggiated components is the verticality rooted on $F \#$ in $m .69$ ( $\mathrm{F} \#-\mathrm{CH}-\mathrm{G} \#$ ). The ultimate goal of the cycle, however, is the verticality on $C \#$ in $m$. 71, related to the foreground $F \#$ goal by TIC-5, as indicated at

[^26]Although FH and $\mathrm{C} \#$ are not the lowest sounding pitches in these two verticalities, each is the PC-lowest in its homointervallic fifth structure and is therefore asserted to be the "root." The latter function is reinforced in the first verticality by the motion from $F \#$ to $A \#$ in the cello (2), imbuing the sonority with a tertian quality. The analogous progression, C\#-E\#, and resultant effect occur in the second verticality, as indicated at (3). System (b) portrays a descending-fourth cycle from the PC-highest member of the cycle, Eb (also the highest sounding pitch), to the PC-lowest member of the cycle, D\#. The dotted slur at (4) indicates that this D\# closes the twelve-note aggregate arpeggiated in the cycle.

The second example in this category also features the generation of large homointervallic structures through the accumulation of independently elaborated fifths. The excerpt in question is mm. 39-53 of the trio section of the fifth quartet's middle movement, represented schematically in Ex. 2.28. The eighth-note thematic element in the first violin, m. 39, spans a perfect fifth, A to E. This interval is articulated at the beginning of the theme with the root (lowest member of the fifth) followed by its upper semitonal auxiliary and the upper member of the fifth preceded by its lower semitonal auxiliary, as indicated at (1). This pattern is then repeated in the three upper instruments at TIC+5 (expressed as descending fifths), noted at (2). The cello, not partaking in the thematic unfolding, will be discussed shortly.

System (b) summarizes the accumulation and progression of fifths defined by the various transpositions of the thematic element. It is
revealed on this system that by m. 44 a four-note homointervallic collection of fifths has accumulated, the whole of which descends by a fifth in m. 49 through the addition of the $C-G$ fifth to the bottom and elimination of the A-E fifth from the top. The process occurs once again in m. 50, at which point the bottom fifth is F-C. From m. 50 to m. 53 the top fifths are dropped until only the F-C fifth remains. The significance of this arrival, although not indicated in this example, will be treated in the next section, on linear progressions. For our purposes here, it is sufficient to note the means by which Bartók achieves the effect of a mid-level progression of descending fifths.

$$
\text { The arpeggiated D-F-A triad in the cello of m. } 53 \text { (3) }
$$

initiates a rhythmically augmented version of the primary theme of the large formal sections which frame the trio from which this excerpt comes. This augmented version may be said to be represented by the fifth D-A. As indicated on the bottom staff of system (a), C\# and Bb are reiterated in the cello part in mm. 40-5l and represent the "opposite" semitonal auxiliaries to those employed in the thematic fifths in the upper parts. ${ }^{23}$ Their resolution to the D-A fifth in m. 53 is shown at (4) on systems (a) and (b).

The middle section of the fourth quartet's final movement begins with a mid-level progression of open perfect fifths, their roots related by an ascending fifth. As noted elsewhere in this chapter, any given

[^27]phrase or segment in a work by Bartôk will generally involve an interaction of principles of organization, and this particular excerpt, mm . 156-196, is no exception. Although the overall progression is one of ascending fifths, there are important details of disposition-note resolution, linear progression through motivic transposition, and prolongation through linear octave unfolding. Some of these details are accessible in light of previous discussion in this chapter and will be addressed in conjunction with the fifth progression, while other details will come into clearer focus later in this chapter and in the next.

The excerpt in question encompasses mm. 156-182, given in Ex. 2.29. The three constituents of the mid-level fifth progression--D-A, A-E, and E-B--are beamed at (1) on system (c). Also noted on that system is that each is preceded by a lower semitonal auxiliary fifth (2), which is prolonged through a descending octave (3). Details of the octave transfers are given on system (a): each member of the auxiliary fifth, and of the goal fifth which generates the large-scale progression, is prolonged independently in a thematic element in either one of the violins or the viola.

Three additional details in this excerpt are of interest. The initial constituent of the large-scale fifth progression, the open fifth D-A, is approached through the lower semitonal auxiliary fifth C\#-G\#, which is employed in a dual role. For example, at the end of the $A$ section, $\mathrm{a} D \mathrm{D}-\mathrm{Ab}$ fifth was heard to function as an upper semitonal auxiliary to the primary referential C-G fifth. Here, the same auxiliary, enharmonically spelled, functions to elaborate a referential fifth a semitone above, articulating the beginning of a contrasting formal
section through a type of "modulation" away from the primary referential fifth of the movement. In that the C\#-G\# fifth serves a functional role of elaborating both the larger primary C-G fifth and the more local D-A fifth, it fulfills a "pivot" function in the aforementioned modulation. Moreover, each semitonal auxiliary fifth (except the first) also relates to the primary fifth which precedes it in a parallel manner. For example, G\#-D\#, the auxiliary fifth which precedes the second primary fifth, and to which it ascends by semitone, relates enharmonically as Eb-G\#, to the primary D-A fifth which precedes it (4); the same relation holds between the A-E fifth in m. 172 and the lower auxiliary fifth to the subsequent $E-B$ fifth ([5). This manner of tonicization-through b2 and \#4--is precisely that which is employed from the outset of the movement, as noted in Ex. 2.22 and will be noted again later in this chapter and in the next. System (d) of the example will also be dealt with later in this chapter.

It is also significant that, concurrent with the mid-level fifth progression, discussed above, is an element of stasis provided by the sustained G of the second violin (mm. 156-173) and first violin (mm. 174-182), the sustained $A$ of the cello (mm. 156-171 and 176-182), and the briefly sustained A-E fifth in mm. 172-175 of the viola. Examination of the score reveals that $A$ and $G$ in particular are approached through "grace-note" fifth-arpeggiations which, taken together, supply all but one member of the white-note diatonic collection (perhaps an expression of $C$, the referential PC of the opening section, which just ended). After the excerpt given in this example, an A-E fifth is sus-
tained (mm. 182-186), following which an E-B fifth occurs (mm. 196-200), the latter providing $B$, the $P C$ which was missing in the aforementioned white-note collection. In m. 206, $B$ is absorbed into the thematic fabric. As the sustained PCs change throughout this section, they generate a broadly articulated progression. Motion from the sustained A-E fifth to the sustained E-B fifth is particularly relevent as it projects over a broader span the progression between those two fifths in the thematic voices of mm. 166-182, discussed in Ex. 2.29.

The opening thirteen bars of the middle movement of the fourth quartet, given in Ex. 2.30, represent a carefully crafted "root" progression of a fifth. The root of each constituent in the progression is an inferred "tonic" in a diatonic ordering, as will be explained. Bars 1-5 introduce and sustain six PCs (1) which, when added to D-emphasized through recurrent durational exposure in the cello of mm. 6-9 (2) --articulate a diatonic collection (3). Although this collection is, conventionally speaking, that of an A-major scale, the PC A does not figure prominently in these bars. Rather, D is the PC which completes the seven-note aggregate and is consistently elaborated through neighbour-related PCs in mm. 6-1l of the rhythmically active cello part. I would assert on this basis that $D$ is the referential PC in these measures, the diatonic pattern being that of a lydian ordering. (Additional criteria in support of $D$ as the primary referential PC of the movement will be given.)

In m. 12, a shift of emphasis effects a change of implied tonic, particularly in light of the referential status ascribed to the lydian ordering of the diatonic collection. Specifically, m. 12 sees emphasis
on D\# (4), the latter superseding $D$ and creating, with the same six PCs in the upper three parts ([5), a lydian ordering with A as its root (6). This shift to A as primary is corroborated by its conventional root status in the cello's A-E fifth of m. 13. The single semitonal motion from $D$ to $D \#$ ( $\sqrt[7]{ }$ ) thus represents an implied root motion of a fifth: from D lydian to A lydian ( (8). 24 This may be construed as analogous to the motion from tonic to dominant which characterizes the first mid-level harmonic progression in many conventional formal units.

A comparable descending-fifth progression may be heard in the final eight bars of the movement to "balance" the opening ascending fifth discussed above. In bar 64, six of the seven notes of the Dlydian ordering return and are sustained (9) in Ex. 2.30b). Although absent at first, the tonic, D, arrives in m. 67 in the rhythmically active first violin (10) and completes the seven-note D-lydian referential ordering ( 11 ). Within the D-lydian pattern, the cello arpeggiates $E$ and A through two octaves, mm. 64-68 (12), representing the outer fifth of the dominant of $D$, the same representation of the dominant which occurred in the cello of m. 13
(13) in Ex. 2.30a), where it reinforced the motion to A lydian. D continues to be the focal point of the active first violin and is the final sounding PC of the movement. The implicit fifth motion from D lydian to A lydian at the opening is thus effectively balanced at the end with the partial arpeggiation of

[^28]the dominant of $D$ within the $D-1 y d i a n ~ o r d e r i n g . ~$

## Fifth relations between <br> thematic transpositions

Two of the three examples chosen to illustrate this final category of fifth progression are from the fourth quartet-one from the second movement and one from the fourth ${ }^{25}$--and the third is from the Seconda parte of the third quartet. The opening sixteen measures of the fourth quartet's second movement, of which mm. l-12 are shown in Ex. 2.31, comprise two statements of an arch-like scalar theme, the first in the viola and cello to m. 10 and the second in the two violins beginning in $m$. 10. The arch pattern of the theme consists of an uninterrupted ascending fifth filled in semitonally ((1), followed by a more broadly spaced descent back to the initial pitch, the details of which will be discussed following explanation of the mid-level fifth relation pertinent to this category. The highpoint of the first theme is the top note of the fifth it traverses. This in turn becomes the departure pitch for the second statement--the bottom note of its fifth. Although the descending portion of the arch will be shown to return to the opening pitch by the time the second statement begins, the two violins articulate a rhythmically augmented version of the ascending fifth, spanning mm. 1-9 (2). Completion of the rhythmically extended version

[^29]coincides with the beginning of the transposed statement in the violins, m. 10 (3).

Before leaving this excerpt, I will comment on the descent back to the lower note (i.e., "root") of the theme and a complementary interpretation of the opening ascent. Constituents of the mid-level descending fifth of the arch-theme (4) are pitches which initiate lower-level descents in the second half of the theme (i.e., they mark changes of direction in the "wavering" theme, these points indicated with arrows below the score). The arrival of the root, E, in m. 7 is followed by an oscillation between it and two inflections of the note above it--F and F\# (5). At (6) I have suggested that the beginning of a mid-level phrygian descent to E, generated through the aforementioned criterion of direction change, is construed as completed through interpretation of the E\# in $m .6$ as $F$ (7), the $F \#$ which immediately precedes the goal E being an "escape tone." The progression of the upper semitone to the tonic is then reinforced by those oscillations in mm. 7-10 indicated at (8). A complementary, ascending lydian fifth, may be inferred from the chromatic surface in mm . 1-3 (9) by ascribing an appoggiatura function to the PCs $F, G$, and $A$, based on their rhythmic position. That is, the omission of a downbeat in m. 1 points to the pitch on the second eighthnote, repeated on the third, as primary. If the second and third eighth-notes of subsequent patterns are similarly accorded significance, the rhythmically superior first and fourth eighth-notes assume the function of appoggiaturas and the lydian ascent at (9) is discernible within the semitonal construct. This inference of alternating structural and elaborative elements within an essentially undifferentiated
chromatic resource is advanced solely as an alternate interpretation, to complement the mid-level phrygian descent discussed above.

One final comment concerns the upper whole-tone auxiliary to the root E. The configurations in brackets at 10 and their reduction on the lower staff of system (b) reveal that, through consideration of appoggiaturas elaborating the lower points of direction change in mm. 4 and $6, \mathrm{~F} \#$ is a broadly articulated upper neighbour to the root E , this relation reiterated at (11. The duality between F and F\#--the former completing a phrygian descent and the latter a mid-level upper auxiliary to E--is expressed at the surface in mm. 7-10, where the two alternate as upper auxiliaries to E, as already noted at (5).

The opening of the fourth movement has been referred to as a diatonic version of that of the semitonal second movement. ${ }^{26}$ The relation between the two becomes apparent upon comparison of Ex. 2.31, just examined, with Ex. 2.32, the top staff of which shows a reduction of the thematic element heard in the viola, mm. 6-13. Although the theme here spans an octave (as distinct from the boundary fifth of the theme in the second movement), there is strong centrality of the fifth because of the explicit lydian ascent to scale degree 5 (as distinct from the lydian structure inferred from the chromatic surface in the earlier movement). The boundary interval of an octave is indicated at (1), and the lydian fifth at (2). Once again the theme is in the shape of an arch and, as in the earlier instance, the initial ascent is unembellished while the

[^30]subsequent descent to the opening pitch is interrupted by changes of direction, the return thus more broadly articulated, as will be discussed. First, it must be said that it is the lydian structure of the lower fifth of the octave, with its \#4-5 motion interrupting the wholetone pattern (as noted in the preceding section of this chapter), which emphasizes the fifth. The local orientation to scale degree 5 at the outset of the theme, is projected over a broader span as transposition of the next thematic entry (3) at m. 13) is at the fifth above (Eb) and, following that (4) in m. 20), at the next fifth above (Bb).

The descent back to the initial tonic of the scalar theme (5) is again comprised of pitches selected from the rhythmically active surface, here according to metric placement and position in the linear configuration of the theme. For example, D in m. 8 occurs on the downbeat of the bar and is followed by a leap, marking it as a local arrival point of a descending-step pattern; $C$ in m. 9 is similarly placed as the end of a descending-step succession, although not metrically punctuated. In bar 10 , the metrically emphasized pitch is Bb , which is prolonged through the brief embellishing pattern before resolving down to Ab . The Gb on the downbeat of m .9 , though not part of the descending fifth from Eb , has a structural function which is better understood if considered an octave lower than in its sounding register. As indicated at (6), it may be heard as the lower member of a whole-tone encirclement pattern around Ab , a pattern which is immediately repeated at the surface (7). Although the inferred descending fifth is not phrygian in composition, a descending phrygian fifth is employed in mm.

35-37 (Ex. 2.32b) to return to Ab after the aforementioned thematic transpositions (8).

The final example of fifth-related thematic transpositions, the roots or tonics of which articulate a broad fifth progression, consists of mm. 103-125 of the third quartet's Seconda parte (Ex. 2.33). (The score fragment given in this example continues to m .149 for reasons to be explained.) In this example, each subsequent transposition of the theme is at the fifth below the preceding one, contrary to the two examples just noted. Staff (a) shows the descending-fifth relation between the tonics of adjacent transpositions (the tonic enclosed in parentheses where its registral placement in the score is different from that required to illustrate the inferred descending-fifth relation). The cycle spans four fifths from $E$ to $C$, the last of these initiating a bitonal interaction, as will be explained. It is interesting that, because each thematic entry is imitated in a second part at a temporal interval of exactly one bar, the repeated arrival on $C$ in the second imitative voice--mm. 136, 140, and 143--is accompanied by $E$ in the primary part (summarized at (1), thus placing the tonic of the initial pitch level of the theme in vertical alignment with the tonic of the final transposition.

As regards the structure of the theme and the linear connection between transpositions, the former is consistently lydian, perhaps suggesting broad relations at an ascending fifth as in the earlier examples, while the connection, at least in the case of the progression from $E$ to $A$, involves the phrygian fifth, a construct defined earlier as one with a descending tendency, particularly suitable for linking a
theme to its transposition a fifth below. The phrygian descent in question begins with the tonic of the first theme, $E$, and arrives on $A$, the tonic of the first transposition (2). The progression to $A$ is further strengthened through resolution of the diminished seventh in the cello of m. 111 (3). Subsequent transpositions are not so systematically connected. In fact, (4) and (5) point out unequivocal tonicization of the "relative minor" key of two of the transpositions, producing a "counterpoint" of referential tonics.

One detail of particular interest concerns the way in which the texture, originally supportive of a single referential tonic at any one time (apart from brief sections of overlap due to the imitative expression of the thematic material and the two "relative minor" relationships noted above), comes to support the bitonal section beginning in m. 136. The transformation starts in m. 129, where the C-D-E-F\# portion of the C-rooted lydian theme in the upper parts is altered to F\#-E-D-C\# (6) . The fragment noted at (7) continues to retain elements of both $C$ and $C \#$ : note the G-F\# (scale degrees 5-\#4 in C) but also the D\#-C\#-B\# (degrees 2-1-7 in C\#). Suggestion of the semitonally related referential elements is maintained in mm. 136-145: as sumarized at (8), below the reiterated C-E third alluded to earlier, the C\#-E\# third passes through D\#-F\# in m. 140 to E\#-G\# in m. 143 in the manner of a filled-in arpeggiation of a C\#-major triad; the E\#-G\# upper third is reiterated in $m$. 145, where the C-E third is superseded by E-G (a direct arpeggiation within the $C$-major triad). The semitonal duality is at this point replaced by a whole-tone duality of referential tonics (9).

## Linear Progressions

Step relations are fundamental to musical coherence. Linear constructs are relevant to, and apprehensible at, diverse levels of structure and in both conventional and nonconventional contexts. This, however, is not to say that all such events are generated by the same underlying principles. In the major-minor system, for example, linear progressions are vital components possessing an important quality of directedness as a result of functional relations governing the underlying harmonic progressions which support such linear events. That linear and harmonic function are intimately related in the major-minor system is an important realization, particularly when it comes to ascribing function to ostensibly comparable linear constructs in nontraditional contexts. Wallace Berry, for example, states that linear function and tonal function "do not reflect, as is sometimes supposed, mutually contradictory or exclusive concepts." And further that

> except in relatively rare tonally "nonfunctional" elaborations, tonal function is of significance and in evidence (and an experiential reality) in foreground, immediate contexts at the same time that the series of harmonies may be of significance as a "spacefilling linear stream" of passing or neighbour auxiliaries.
> -. . linear and tonal functions nearly always appear in complementary conjunction in tonal music. 27

Later, in connection with a passage from Beethoven's Symphony No. 3 in which linear elaboration is in evidence, he underscores the inextricable relation between linear and tonal functions:

[^31]. . . purely linear factors are obvious and extremely persuasive (and they are accounted for); but tonal function is in no sense superseded by linear function, and tonal function is strongly felt, even very locally, in expansion of the tonal-harmonic resources of PC [pitch-class] content. ${ }^{28}$

At the beginning of this chapter, in connection with conventionally functional harmonic progressions, I noted that inherent directedness results in the listener's being able to relate particular functionally subordinate harmonic events to the underlying tonic of a passage. In that linear function is bound up with harmonic function, as I have suggested above, a comparable inherent directedness may be ascribed to linear events. We perceive each element in a linear construct as a member in, or directly associated with, an underlying, often only implied, harmony, the functional relation of the latter to the tonic dictating a comparable functional position of the linear event it supports.

Linear progressions in nontraditional contexts, however, rarely enjoy the quality of inherent directedness described above. In certain contexts, contrived systems of relations may be said to account for functional attributes comparable, if not analogous, to those of the major-minor system. Where such systems are relevant and appreciable, the listener can conceivably relate elaborative (i.e., contextually subordinate) events to some referential element, analogous to that process in the major-minor system. And, in light of such a system, aspects of contextual expectation and deception could be inferred. There are, for example, instances where Bartók employs the particular
${ }^{28}$ Ibid, pp. 34-35. (Berry's emphasis.)
intervallic patterns of the phrygian and lydian orderings as referential bases in which linear directedness and semitonal elaboration can be understood as inherent functional attributes. Nontraditional orderings of the diatonic collection, used in this way, may be said to be tonal analogues.

In addition to the alternate means of contextual functionality described above, various systems of organization, some very elaborate, may be conceived to account for relations in nontraditional contexts. Such systems embody functional elements--other than a referential element (i.e., tonic analogue) and a tonicizing agent (i.e., dominant analogue)--which are hierarchically related to the referential element through stated criteria. That is, they generate events which are neither tonic analogues nor dominant analogues but are understood as further subordinated in the same way that II, IV, and VI (and all their chromatic variants) are in the major-minor system, the latter functional harmonies and linear elements they support accountable as to their precise relationship to the referential element.

It is, however, perhaps more often the case than not that such analogues of dominant prefixes are not generally identifiable in nontraditional contexts. That is, there may well be recognizable tonicizing agents and referential elements, but events leading to those functional elements--although frequently "systematically" articulated in terms of particular contexts, as will be explained--are usually not capable of being hierarchically related to the goal of the progression. Although it is true that the ear will naturally tend to follow a pitch-step or

PC-step succession, without the syntax of the conventional tonal system, there is no way of telling how a particular constituent of a linear progression is related to the ultimate goal or, for that matter, what that goal is. When the succession ends, there is often little to suggest that it could not have continued further. In short, the conclusion of many such successions is marked by surface indicators such as registral exposure, agogic emphasis, and rhythmic caesura, rather than explicit or implicit functional relations. Only after the endpoints of these successions are exposed as primary through the aforementioned factors can a quality of functional directedness be attributed to the successions themselves. Their directedness is, thus, purely contextual and retrospectively realized.

I refer to linear constructs of the type just described as contextually directed linear progressions--successions of step- or PC-step-related pitches and/or PCs which are comprehended as to directive potential only after their endpoints are otherwise punctuated as primary. I further advance the view that such progressions are vital and recurrent constructs in Bartók's music and indeed, in much twentieth-century music. ${ }^{29}$ The absence of systematically or analogically functional relations in such progressions--relations according to which one might hierarchize subordinate events in light of a particular goal or even predict what the goal will be--is not merely arbitrary; rather, it frequently effects a vital sense of tension, instability, and, ulti-

[^32]mately, mobility to a point perceived through other factors as an interim structural goal.

The variety in make-up of linear progressions is, as would be expected, extensive in Bartók's string quartets. Constituents of progressions consisting of scalar patterns, for example, are not necessarily "harmonized" at all, but directly and simply articulated and perceived. In mid-level, contextually directed linear progressions, criteria according to which pitches are selected from the overall texture and assigned membership in a linear construct often vary with each context. One frequently employed textural configuration from which palpable mid-level linear progressions may be inferred is the successive linking of step- or PC-step-related transpositions of a particular motivic pattern. Here, a referential member of one motive is heard to connect by step or PC-step to the analogous member in the next transposition and an extended, mid-level linear progression results, as often in sequential passages in traditional music. ${ }^{30}$ This type of linear progression--derived from successive transpositions of an identifiable motive or theme--is what I alluded to earlier as being "systematically articulated."

There are of course occasions in which other, less systematic factors expose pitch and PC events in such a way as to facilitate step connection to comparably exposed events which are temporally removed

[^33](i.e., noncontiguous). Registrai placement as the lowest or highest sounding pitch, for example, is often such a factor in music of all ages. Dynamic intensity, durational emphasis, and timbral quality are other such factors which may interact to expose and connect constituents of an appreciable mid-level linear succession. As already suggested, the possibilities are many, and criteria will have to be considered for each particular situation. Three broad classifications of linear progression will be dealt with here: those derived from diatonic octave patterns analogous to the major and minor scales (inherently directed), those consisting of exposed pitches and whose directive properties are retrospectively realized (contextually directed), and those which are contextually directed but whose constituents are inferred through successive transpositions of motivic material (motivically derived).

Inherently directed linear progressions
The lydian and phrygian orderings of the diatonic collection were discussed earlier as referential bases in which disposition notes to scale degrees 1 and 5 are deemed to have functional, directive significance. Semitonal intrusion into a whole-tone succession was suggested as the criterion according to which such tonicizing potential is inferred. Thus, in the context of these two particular patterns, a sense of inherent directedness may by ascribed to derivative linear progressions. Examples of this type of lydian-phrygian directed motion have already been noted as interacting elements of functionality in conventional harmonic progressions. In Exx. 2.24 and 2.25, for instance, passages from the opening movement of the sixth quartet were
shown to comprise an oscillation between a particular tonic and its dominant, followed by a progression along the descending circle of fifths in which the direction of the root motion is corroborated by lydian and phrygian linear fifths. And in Ex. 2.32, from the fourth movement of the fourth quartet, the lower fifth of the scalar theme was shown to comprise an ascending lydian pattern, a directed motion whose tonicization of the fifth scale degree was said to strengthen the root relationship of the theme and its subsequent transposition at the fifth above. Moreover, it was noted that the phrygian fifth provided an inherently directed linear connection back to the original pitch level after several transpositions.

I cite at this point a primary theme whose basic structure is arguably that of an ascending lydian octave pattern followed by an incomplete descending phrygian pattern, and whose directive and implicative properties derive to a great extent from those particular diatonic orderings. The theme is that of the opening of the first movement of the fifth quartet, mm. 6-13 of which are given on the top staff of system (a) in Ex. 2.34. The bottom staff of that system offers a partial reduction of the theme, in which elements exposed through metric, durational, articulative, and or dynamic means are connected by slurs.

The bottom staff of system (a) reveals a broad ascent through an octave connecting $\mathrm{Bb}_{4}$ in m. 6 to $\mathrm{Bb}_{5}$ in m. 12. But on what basis can the motion connecting the two occurrences of Bb , separated by an octave, be heard as directed from one to the other--i.e., as oriented to the PC

Bb ? Staves (b) and (c) offer different mid-level step progressions--a whole-tone and lydian scale, respectively--which may be inferred from the "exposed" pitches on the lower staff of system (a). It will be noted that mm. 6-10 articulate a mid-level whole-tone ascent, $\mathrm{Bb}-\mathrm{C}-\mathrm{D}-\mathrm{E}$, which is common to both patterns. Bb is exposed through reiteration, C and $D$ through strong rhythmic position relative to surrounding semitonally related pitches, and E through reiteration. As indicated on staff (b), a continuation of the whole-tone ascent, through $G b_{5}$ to $A b_{5}$, is inferrable in mm. 10-11 and again in m. 11 implying that completion of a whole-tone scale is imminent. And, such a whole-tone octave completion may be heard as confirmed by the $\mathrm{Bb}_{5}$ of m .12 (1), the criterion being the registral exposure of that event and the associated $\mathrm{Ab}_{5}$ of m. ll. It could, however, also be argued that, in light of the weak rhythmic position of Bb in m .12 , relative to the Ab which follows, octave completion through whole-tone ascent is in effect denied. The $A b_{5}$ in m. ll may thus be heard as connected to that of m. 12 , the latter construed as the extent of the whole-tone ascent, as suggested at (2).

Whether $\mathrm{Bb}_{5}$ in m . 12 is heard to complete the ascending wholetone scale or not, the homointervallic structure of that linear construct is problematic as each note is the same intervallic distance from its predecessor and successor; i.e., no constituent of the scale can be assigned primacy on the basis of its semitonal approach relative to surrounding whole-tone motion. The sense of expectancy of the Bb which completes the scale is contextual: based on the reiterative emphasis of $\mathrm{Bb}_{4}$ at the beginning and the subsequent whole-tone ascent from that pitch, expectation of $\mathrm{Bb}_{5}$ is heightened as the intervallic distance
to the octave decreases.
Staff (c) offers a further interpretation of implied octave completion from the $E_{5}$ in $m .10$ with reassessment of the quintuplet in m. 11. The rhythmically strong $\mathrm{F}_{5}$ ( m . 11 , third beat) represents an infiltration into the whole-tone pattern and may be heard to define a \#4-5 resolution within the lydian ordering (3). Octave completion through a lydian ascent is thus suggested by this unfolding of its lower fifth and is realized through the final ascent to $\mathrm{Bb}_{5}$ in m. 12 (4), even if closure of the octave is tentative, as the $\mathrm{Bb}_{5}$ in m .12 is rhythmically weak. ${ }^{31}$

Tonal and rhythmic-metric factors are, as often in conventionally tonal music, at odds at this point and it is the absence of coincident closure in the domains of pitch content and rhythmic position which, in part, effects a sense of continuation. Furthermore, the articulation of $\mathrm{Bb}_{5}$ is immediately followed by an incomplete phrygian descent to m. 13 (5), constituents of the descent occurring in succession, without lower-level elaboration. This demonstrates Bartók's technique of pairing descending phrygian and ascending lydian

[^34]constructs, presumably because of the intervallic disposition of those orderings, as discussed elsewhere in this chapter. The progression of $\mathrm{Cb}(=\mathrm{B})_{4}$ to $\mathrm{A}_{4}$ rather than to the contextually expected $\mathrm{Bb}_{4}$ (6) , however, represents a departure from the phrygian descent, resulting in a denial of closure on $\mathrm{Bb}_{4}-$-a detail which signifies the beginning of the transition into the second theme. Both the ascending lydian (and whole-tone) scales and descending phrygian scale thus retain a degree of openness, the former in terms of rhythmic structure and the latter in terms of PC content. In spite of relative openness, however, both diatonic orderings--lydian and phrygian--imply specific goals through their intervallic structures, and establish expectations in light of which departures and deceptions are understood.

## Contextually directed linear progressions

As in the foregoing analysis of inherently directed linear progression, factors of contextually directed linear progression have been alluded to in discussion of other aspects of progression. In Ex. 2.31, for instance, the opening theme of the fourth quartet's second movement was shown to comprise an arch pattern of semitonal motion spanning a perfect fifth. And this intervallic boundary was said to be enhanced through a rhythmically augmented ascending-fifth progression in the two violins, the conclusion of which coincides with the beginning of the transposition of the theme at a fifth above. Here the rhythmically augmented ascent of a fifth is chromatic, its constituents punctuated through articulative and rhythmic exposure: they occur as contiguous events, separated by rests, which further emphasizes them. As the
progression is not constructed of a pattern with inherent directive properties, it acquires contextual directedness retrospectively, in light of its elided conclusion at the start of the next theme, and associatively, in light of the more rhythmically active version of that fifth in the theme itself.

As suggested in connection with Ex. 2.34, the point of departure from the inferred phrygian descent initiates a transitional section leading to the second theme. In those transitional measures, 12-25, the cello in particular may be heard to define a mid-level, contextually directed linear progression to the root (C) of the tertian referential element on which the second theme is based (1) in Ex. 2.35). Criteria for the inference of constituents in the progression are basic: registral exposure (as the lowest sounding voice), and durational emphasis relative to surrounding pitches.

The upper parts in these measures, at least until m. 21, are developmental and tonally unstable owing to their transitional function. Measures 24-25 were cited earlier as an example of an elided resolution of a disposition dominant, and it is in the measures directly approaching the dominant that the upper parts assume correspondingly directed linear organization in counterpoint to the cello. In the first violin, for example, the linear progression from $\mathrm{Eb}_{4}$ in m .21 arrives in m. 23 on $D_{6}$ (2), which, at (3) (expressed as $D_{4}$ ) becomes one of the two disposition notes which make up the tonicizing agent of the second theme's referential $C$ minor. Its PC -step resolution is to $E b_{5}$, as indicated at (4), extending the Eb-D progression (2) to an octave (5) . The other member of the disposition dominant, CH , is the penul-
timate constituent of the cello's broadly spaced linear progression (1). More immediately, the cello's CH 2 of m .23 is, like its counterpart $D$ in the violin, the goal of a progression spanning a major seventh, here from $C_{4}$ in m. 21 (6). The resolution to $C_{2}$ in the cello of m. 25 ( $\sqrt{7}$ ) thus completes the aforementioned broader linear progression spanning the transition as well as the more immediate octave descent from m. 21 ( (8).

The second movement of the same quartet offers a contextually directed linear progression consisting of both pitch-step and PC-step connections, the constituents of which are exposed in a variety of ways. In Ex. 2.36, mm. 39-46 represent the approach to the movement's $A^{\prime}$ section, the cello part again providing a governing linear cohesiveness. And, as in the preceding example, registral placement and durational emphasis are two factors of exposure by which constituents of the midlevel PC ascent are articulated; these factors are supported here by dynamic intensities and, in the case of D\#, elaboration over an octave transfer (1).

One might be tempted to interpret the progression as one of a PC-step octave from $D_{2}$ in m. 39 to $D_{2}$ in m. 46: D is, after all, the referential PC of the movement and is tonicized in a variety of ways (Ex. 2.12). However, the progression actually begins with $\mathrm{CH}_{2}$, which is in a sense superseded by $C_{2}$ immediately before arrival on D in m. 46. There are several details which support such a view. First, $C$ is the acknowledged root of the contextual tonicizing agent employed throughout the movement (again, Ex. 2.12). Second, the dual inflection ( $C, C \#$ ) of
the lower neighbour to $D$ is manifest at other points in the music. The opening four bars, for instance, were shown in Ex. 2.10 to articulate a conventional I-V-I progression in C\#, the tonic of which immediately and directly resolves to $D$ in bar 4. Following this, the various forms of the C -rooted contextual tonicizing agent, cited above, further elaborate D. And immediately after the arrival on $D$ in $m .46$, an ascending succession of triads occurs, beginning on $C$ and moving through $E, G \#, B$, to C\#, the last of these sustained in mm. 48-52 (see the score). Although C is here momentarily displaced by C\#, a descending arpeggiated version of the tonicizing agent occurs in mm. 54-55; C\# is, thus, once again superseded by C. These instances are cited as support for the interpretation of the linear progression in mm. 40-46 as a connection of C\# to $C$ ( 2) , of which $C$ is consistently employed as the primary tonicizing agent.

The final two examples of contextually directed linear progression to be illustrated in this category come from the final movement of the fourth quartet. Each spans a descending tritone and serves to direct motion back to the referential tonic of the movement at a juncture in the formal scheme; the second progression is accordingly analogous to the first in both structure and function. The first excerpt is mm. 102-143, represented in Ex. 2.37. Although the context from which this progression emerges will be dealt with in considerable detail in the next chapter, it may be said at this point that an $\mathrm{F} \#-\mathrm{C} \#$ fifth is reached in m. 76 , where it is in a contextually functional interlocking relationship with the primary C-G fifth established at the beginning of the movement. The $F \#-C \#$ fifth, then, represents the
maximum degree of tonal departure in the movement, and it is from this point of optimum tonal opposition that the linear progression under discussion departs in m. 102.32

Measures $102-143$ represent the closing bars of the first $A$ section of a large ABA form; the arrival on the open fifth rooted on the movement's primary referential PC, C, in m. 143 is analogous to the tonic cadence at the end of the first section of a conventional ternary design. Appropriately, since harmonic expression here involves the open perfect fifth, each constituent of the tritone progression occurring in the cello, as well as those of other, less exposed linear progressions in the cello and viola, assumes that intervallic basis. The less exposed progressions derive from the registral disposition of elements in the patterns identified at (1) and (1a) in the score. That is, the first and third constituents of the pattern are either the same (1), fortifying a particular PC through reiteration, or they are step-related (1a), defining motion in one linear stratum. The middle element is always exposed in a higher register and is therefore step-related to analogous members of adjacent patterns, effecting a second linear stratum. The cello similarly defines two strata of linear activity, the lowest of which is the primary tritone progression.

Reference (2) in Ex. 2.37 identifies the structural tritone progression, the details of which will be discussed with those of the aforementioned interacting progressions. The cello's F\#-C\# fifth that

[^35]initiates the progression moves to and from the lower auxiliary fifth, E\#-B\#, in mm. 105 and 106, after which an upper embellishing pattern (3) advances the progression to F-C in m. 109. The viola reinforces the F\#-C\# fifth through reiteration ([4), the progression from the E\#B\# lower auxiliary fifth to the F\#-C\# fifth at (5) insuring that the aforementioned oscillating pattern in the cello is not construed as a structural descent of a semitone in the progression. Articulation of the $\mathrm{E}-\mathrm{B}$ and $\mathrm{Eb}-\mathrm{Bb}$ fifths--the third and fourth members of the broadly articulated tritone progression--involves a shift in interpretation of the basic pattern to one which is end-oriented, contrary to the opening motion which, for reasons already stated, focuses on the pattern's first element. In m. 112, for example, the $\mathrm{F}-\mathrm{C}$ fifth becomes upper auxiliary to $\mathrm{E}-\mathrm{B}$ in m .113 and $\mathrm{E}-\mathrm{B}$ at the end of that bar in turn becomes upper auxiliary to $\mathrm{Eb}-\mathrm{Bb}$ in m .114 . The absence of a "returning motion," analogous to the progression from the E\#-B\# fifth to the F\#-C\# fifth in the viola of m. 107, facilitates perception of the final fifth in each pattern as an element advancing the large-scale linear progression.

It is with respect to the next member of the tritone progression that the function and relationship of the subordinate progressions, occurring alongside the primary one, take on special meaning. The upper stratum of the viola consists of an embellishing pattern in which a D-A fifth leaps to F-C before moving down by PC-step to C-G in m. 117 (6)). The opening of the lower stratum of the viola has already been referred to; its continuation in mm. 112-113, (7), suggests a potential chromatic embellishing pattern returning to $\mathrm{FH}-\mathrm{CH}$, and in mm. 117 (8),

118, and 119, a truncated version could still be considered to imply a complete return to $\mathrm{FH}-\mathrm{CH}$, although that member of the progression has long been superseded. And, the upper stratum of the cello consists of a pattern not unlike the embellishing pattern in the top stratum of the viola: it, too, arrives on a C-G fifth, but in m. 114 (9). Thus, we have two linear events which, by m. 120, conclude on a C-G fifth and one which articulates a motion between $A-E$ and G-D.

Before explaining the relationship of these culmination points to the penultimate constituent of the tritone progression, I consider the relation between the verticality, $\mathrm{Db}-\mathrm{Ab}-\mathrm{Eb}$, repeated in the upper three parts in mm. 121-136 in rhythmic counterpoint with the cello's D-A-E verticality. In that each is step-related to the ultimate C-G goal, the former by semitone and the latter by whole-tone, each could be ascribed membership in the linear tritone progression as the second-last constituent. Or, both could be considered to fill that function, the oscillation between the two construed as changes of "inflection" rather than motion between opposing elements. The notation of $\mathrm{Db}-\mathrm{Ab}-\mathrm{Eb}$ in parentheses on the lower staff at 10 , and the dual stem to the large beam of the tritone progression at (11), suggest this twofold inflection of the penultimate constituent--an interpretation which is reinforced by juxtaposition of $D$ and Db at the very close of the section (12). Another factor of corroboration for this dual inflection is found in the independent encirclement and resultant elaboration of the Db-rooted and D-rooted verticalities, noted at


If a single constituent is to be heard as primary over the
other, however, it would undoubtedly be the D-rooted verticality: as suggested at [14], the $D b-A b-E b$ verticality of fifths in the upper three instruments might be construed as a lower auxiliary to the D-rooted complex, and the $\mathrm{Ab}-\mathrm{Eb}$ portion, enharmonically $\mathrm{Eb}-\mathrm{G} \#$, as an interlocking fifth to the D-A portion of the main constituent of the progression. And, although it could be suggested that the reverse relation--in which the $D$ is perceived as upper auxiliary to Db--would preclude hierarchization of the two, registral exposure of the D-rooted verticality, and dynamic and durational amplification of the PC D in mm. 140-142, justify a view of the $D$-rooted verticality as primary.

Regardless of how the relation between the $\mathrm{D}-$ and Db -rooted verticalities in mm. 121-136 is interpreted, the goals of the secondary progressions in mm. 102-120 may be perceived as related to the two verticalities in an auxiliary sense. The C-G fifth in the viola in $m$. 117, repeated until m .120 , and in the cello in m .114 , repeated until m. 119, is best not considered an anticipation of the goal of the largescale tritone progression, for this would contradict the effect of the intense exchange in mm. 121-136 leading into the unison arrival on C at the end of the section (m. 143). Rather, the C-G fifth might be construed as a lower auxiliary to the Db-rooted verticality ( 15 ). Both elements of the progression from A-E to G-D in the viola ( 8 ) may function as comparable semitonal auxiliaries to the Ab-Eb upper portion of the Db-rooted verticality (16). This encirclement of Ab through $A$ and $G$ is precisely the pattern of elaboration in the top voice in $m .133$ ( 17 ).

In this mid-level linear tritone progression, then, concurrent, ostensibly tonally independent progressions are seen to contribute to the primary progression through auxiliary elaborations, and demonstrable ambivalences of associative relations, enhancing the sense of resolution felt in m. l43. It must be restated, however, that the progression, however systematic in its organization and articulation, is nonetheless accorded directive significance in retrospect. It is in the context of conclusive arrival on the C-G fifth in m. 143 that previous events are ascribed commensurate function; the progression, in and of itself, is not inherently directed.

An analogous tritone progression occurs in mm. 242-281 (1) in Ex. 2.38). As in the previous excerpt, many interactive elements are relevant, although this context is much more of a stratified texture. The progression spans the bulk of the $A$ section (its goal, $C$, leading into the final coda), and features juxtaposition of elements in several strata--a technique of intense recapitulation of preceding material. Essentially, the tritone progression occurs in only one of the strata, but certain of the events in the other two are at times related, as I will show.

The stratum comprising the tritone progression is characterized by reiterated verticalities of predominantly homointervallic construction, the perfect fifth once again being the component interval. One detail common to the $\mathrm{Gb}-, \mathrm{F}-$, and Eb -rooted constituents of the progression is the inclusion of the lower semitonal auxiliary to the highest pitch of the verticality, as noted at (2), (3), and (4). The penultimate verticality of the progression is not homointervallic but,
rather, an octave CH in mm . 280-281. The aforementioned semitonal auxiliary relation--the auxiliary and its principal note sounding simultaneously in the first three instances--is a factor relating the last two elements of the tritone progression. Here, $C \#$ functions both as a lower auxiliary to $D$, which sounds at the top of the $C$-rooted verticality ( (5)), and (enharmonically) to its root (6). The reiterated Crooted verticality returns in mm. 296-299, initiating the large-scale "I-IV-V-I" progression illustrated in Ex. 2.11. The construction here is different from that at mm. 281-284 in that the highest pitch is $E_{6}$ (7) ; the preceding $D \#_{4}$ imitates once more the precedent of PC-semitonal elaboration.

The $D \#_{3}-C_{2}$ resolution at (8), enharmonically spelled, recalls the minor-third motive at the end of the $B$ section ( 9 ), which carries over to effect one of the aforementioned strata in the $A^{\prime}$ section. The continuity within this particular stratum is indicated by the beamed elements at (10. Following reiteration of the Gb-rooted initial element of the tritone progression, the first repetition of the motive at (9) occurs and is here untransposed (11). As noted at (12), the top note of the motivic minor third, $\mathrm{Eb}_{4}$, relates back to the top note of the Gb -rooted verticality, while the bottom note of the third, $\mathrm{C}_{4}$, looks ahead to the top note of the Gb -rooted verticality repeated in mm . 256-260 (13). Although subsequent transpositions of the minor-third motive are not so systematically related to constituents of the tritone progression, the continuity of descending minor thirds ( $C, A, F \#$ ), stemmed and beamed at 10 , articulates the root progression found in
the opening A section, as will be discussed in the next chapter. Thus, distinct strata in this closing section are at times interrelated and at other times related to primary materials found earlier in the work.

I now draw attention to the opening constituent in this progression, the Gb-rooted verticality in mm. 242-248. As in the duality noted at the penultimate element (mm. 121-142) in the tritone progression in Ex. 2.37, the upper three instruments are here separated from the cello's Gb-rooted verticality through a lack of continuity in fifthconstruction. That is, the top note of the Gb verticality is Eb and the bottom of the upper collection, F ; the absence of Bb interrupts the principle of homointervallic construction at this point. The rhythmic exchange between the two also emphasizes their independence (as compared to subsequent verticalities in the progression). The semitonal relation between their PC-lowest members--their roots--suggests a circular pattern of elaboration: $F$ as lower auxiliary to Gb ( 14 ), and Gb as upper auxiliary to F (15). Four factors of support for the Gb verticality as hierarchically superior might be cited: first, as earlier, the Gb verticality is exposed as the lowest registrally; second, the $\mathrm{Gb}-$ rooted verticality recurs in mm. 256-260 without the opposing F; third, the thematic element in the first violin in mm. 238-255 linearizes a Db -$\mathrm{Gb}(=\mathrm{CH}-\mathrm{F} \#$ ) fourth (the G of the theme being an upper auxiliary to the root Gb$)^{33}$ and fourth, association with the tritone progression at the analogous place in the opening $A$ section suggests a parallelism,

[^36]favoring Gb as the initial constituent in the final mid-level descending progression.

## Motivically derived linear progressions

This particular technique of effecting a sense of linear organization is used throughout Bartók's quartets but with varying degrees of strictness. Much of the first quartet, particularly its first movement, has already been shown to involve conventional procedures of tonal orientation and pitch organization. Even in this early work, however, we may note the seeds of what was to become a clearly defined and frequently employed principle of linear connection. Measures 115-122 of the final movement of the first quartet (Ex. 2.39) will serve to illustrate one manifestation of a motivically derived linear progression.

The function of the progression is one of climactic intensification in part attributable to ascending motion. Here, the increase of tension resulting from the ascent is supplemented by crescendo and accelerando. The motivic transpositions effect palpable step connections between noncontiguous pitches, although the overall progression is not without shifts in orientation. In mm. 115-116, for example, it is the lowest note of each arpeggiated triad which is deemed to constitute the progression. The final triad in m. ll6, however, is not steprelated to its predecessor in this way; rather, its lower note is the upper octave of the opening pitch of the progression. This particular triad thus serves two functions: first, to articulate the upper octave of the opening referential PC, as just noted, thereby prolonging that PC for the purpose of engaging in subsequent progressions (to be
explained), and second, to effect a shift of emphasis whereby the ascending progression initiated by the lower notes of previous ascending triadic arpeggiations is continued by the upper notes of subsequent descending triadic arpeggiations. This shift commences in m. 117, at which point ascending and descending arpeggios alternate until m. 119. Reference (1) shows that $\mathrm{DH}_{6}{ }^{- \text {-the }}$ top note of the descending arpeggios, and the octave-displaced continuation of the ascending progression--is prolonged, the upper note of each ascending arpeggio functioning as a lower auxiliary. The lower note of each ascending arpeggio, the octavedisplaced $F$ arrived at in $m$. 116 (where the pattern of step connections was broken) is shown at (2) to be prolonged, the lower note of each descending arpeggio functioning as an upper auxiliary.

With regard to the referential PC in m. 121 (i.e., invoking the notion of retrospection), the beginning of the recapitulation, the two PCs prolonged in mm. ll6-1l8 may be heard as upper and lower auxiliaries. Commencing with m. 119, the alternation between descending and ascending arpeggios ceases and a reiterated descending arpeggio sounds until the end of m. 120. This particular arpeggio represents a resolution of one of the aforementioned, retrospectively characterized auxiliaries: the top note, $E$, is heard locally as a resolution of the D\# prolonged in the preceding descending arpeggios, and, over a broader span, as the culmination of the step ascent from the beginning of this passage. The bottom note of the reiterated arpeggio, however, does not resolve the other prolonged auxiliary; rather, it moves a semitone in the opposite direction. Thus we have partial resolution, with $F$ superseded by F\# before resolving to E in m . 121, a move which temporarily
contradicts the implied resolution of the augmented sixth, F-D\#. Reference (3) illustrates this implied resolution of auxiliaries prolonged in mm. 116-118, and (4) summarizes what happens in the music: resolution of D\# with an "escape tone" between F and its note of resolution.

The opening movement of the sixth quartet contains numerous passages in which motivically derived linear progressions occur simultaneously in more than one strand of a polyphonic texture. Some of these examples will be cited in the next chapter, on prolongation, but for present purposes, I draw attention to mm. 126-143, represented in Ex. 2.40. Unlike in ostensibly comparable textures in music of the major-minor system--where an underlying functional harmonic unity is most often clearly discernible in spite of the rhythmic independence of individual parts--linear constituents in a contrapuntal context in Bartók's music tend to be truly independent, both rhythmically and tonally. Only at points of vertical alignment--junctures which mark phrase beginnings and/or endings through surface indicators such as rhythmic caesura, tempo change, dynamic change, etc.--are the multiple streams of linear activity heard to define appreciable, unified, functional verticalities.

In the excerpt in question, the verticality at the beginning of m. 137 represents the confluence of all but the lowest linear progression, eliding with the beginning of a new thematic section (the lowest progression, overlapping those thematic boundaries, concludes in m. 142, as will be discussed). The main criterion by which pitches are assigned significance in the linear progressions in mm. 127-136 is motivic articulation. The motive consists of two segments--e.g., in the
violins, mm. 127 and 128, respectively--which alternate until m. 132. The first note of each marks the interval of transposition, IC 1 or 2 , defining mid-level linear step progressions. For the most part, up to m. 132, the second violin doubles the first and the viola doubles the cello. After m. 132 there is some voice crossing (as far as the linear successions are concerned) and the inner parts progress independently of the outer parts with which they were initially associated. The linear progressions are stemmed and beamed on system (a), and the aforementioned crossings are indicated on system (a) by the crossed beams. System (b) offers a reduction of the linear progressions indicated on (a).

Although these progressions have been shown to be systematically articulated, their respective goals are not preestablished and are accordingly not "foreseeable." The significance of these contextually directed progressions is appreciated retrospectively, upon the awareness of arrival points in m. 137 as significant at some level of tonal structure and formal delineation. For example, the verticality at $m$. 137--the alignment of endpoints of the preceding independent linear progressions--also initiates a brief progression along the descending circle of fifths, of which the constituents are conventionally tertian ( (1)). The root of the initial harmony, D, recalls the primary referential PC of the movement while that of the final triad in the cycle, $F$, articulates the movement's secondary PC, this progression being significant at this point in the movement (near the close of the A section), as will be explained in the next chapter.

The criterion for inference of the linear progression in the
lower line of the cello is the same as that in the upper voices. Factors governing its extension over the thematic boundary include pattern interruption, octave completion, and functional harmonic arrival. The continuity of step successions in the lower line of the cello part is interrupted after arrival on $\mathrm{Bb}_{2}$ in bar 135 [system (a)]. As it turns out, the octave completion of the upper line in the cello-the $\mathrm{Eb}_{3}$ cf m. 137--is also the initial event in a descending line which, traversing the aforementioned descending circle-of-fifths progression (at (1)), arrives on $C_{3}$ in m. 142 (2). This $C$ may also be perceived as a continuation of the lower line in the cello (from $\mathrm{Bb}_{2}$ in m. 135) and an octave completion of that line in bar 127 (3). The octave completion of the extended cello line thus coincides with the arrival of the F-major triad as the goal of the circle of fifths, this coincidence being one factor marking the $F$ triad as a juncture of significance.

While the implication of F major is considerable, given its function as goal in two streams of activity outlined above, the stability of the F triad is compromised in the interest of ongoing continuity. One important event precluding stability is the avoidance of resolution of the leading-tone in the first violin in m. 142 ( 4 ). Two additional circumstances are the second-inversion at this point-a decisive consideration in the often functionally tertian context of this movement--and the arrival of $F$ in the middle of a thematic statement. Although these factors undermine any sense of structural finality, the status of the triad as a goal in two linear progressions and a
descending-fifth cycle suggests its broad importance. ${ }^{34}$
In Ex. 2.28, the trio of the fifth quartet's middle movement was studied for its organization of fifth-chords progressing by the interval of a fifth, and the A-E fifth, arrived at in m. 39, was shown to initiate a descending-fifth cycle. The approach to that initial constituent of the cycle, on which I will now focus attention, is a lucid example of a mid-level, contextually directed linear progression generated by step-related transpositions of a particular, identifiable motive or theme. Here, the motive is unfolded in the first violin in m. l of the trio ( 1 ) in Ex. 2.41). The remainder of staff (a) shows subsequent transformations and transpositions of the motive to m. 39. As shown at (2), the primary form of the motive traverses a fifth, alternately diminished, the latter representing secondary constituents in the progression.

The primary and secondary intervals are verticalized on staff (c) and one member of each tritone is indicated by a black note-head denoting its passing function, while the other is notated open, reflecting its membership in either the primary fifth which precedes the tritone or that which follows. Of the four stemmed, perfect fifths on staff (c) $-F-C, G-D, A b-E b$, and $A-E--$ the $A b-E b$ fifth is for two reasons an anomaly in this progression. First, the whole-tone relation between the initial two fifths is violated and, second, without consideration of

[^37]the $\mathrm{Ab}-\mathrm{Eb}$ fifth, the three remaining fifths, when concatenated, would yield a six-note, homointervallic collection, F-C-G-D-A-E, consistent with the type of fifth "accumulation" shown earlier to occur subsequent to m. 39 (see Ex. 2.28). I will return to this latter detail.

Staff (d) offers an interpretation in which the Ab -Eb fifth is not deemed primary at all, but is, rather, a vertical coincidence of two passing notes, suspended from or in anticipation of one note of a secondary tritone. As indicated at (3), the lower note of the Ab-Eb fifth, notated as G\#, is a suspension from the preceding tritone and passing tone between $G$ and $A$, the roots of two primary fifths. And (4) reveals a reverse procedure with respect to the top note of the Ab-Eb fifth, here notated as D\#: D\# is an anticipation and passing tone with respect to the A-D\# tritone connection of G-D to A-E.

The interpretation outlined above yields three fifths in the progression--F-C, G-D, and A-E--which, when vertically aligned, as at [5]. yields the aforementioned six-note homointervallic collection. A synopsis of the descending-fifth progression and accumulation which occurs in mm. 39-65 (detailed in Ex. 2.28) is shown between the brackets at (6), revealing that the top fifth of the six-note fifth-collection at (5) is that which initiates the fifth progression (7), while the lower fifth is that which concludes the trio (8). This relation between the step progression of the opening 39 measures and the balance of the trio, organized in fifth progressions, corroborates the interpretation on staff (d) of the $A b-E b$ fifth as subordinate to the other three whole-tone-related fifths.

The beginning of the middle section in the final movernent of the
fourth quartet was cited earlier (Ex. 2.29) as an example of mid-level progression by fifth. At the arrival of each constituent of the temporally spaced progression, but prior to approach to the next constituent, a brief contrasting thematic element emerges in the cello (Ex. 2.29). This gesture represents the primary thematic material of the $B$ section, contrasting with that of the A section not only in general contour and intervallic structure, but also in the means of tonal orientation, which is, here, one of linear connection achieved in part through motivic transposition.

Before examining the linear progressions indicated on staff (d) of Ex. 2.29 and their continuation in Ex. 2.42, it is necessary to note three aspects of the motive: first, it is comprised of four semitonally adjacent PCs (e.g., Eb, E, F and Gb in the first instance, mm. 162-164 of Ex. 2.29); second, the transpositions are not stated in the complete rhythmic configuration of the initial statement (mm. 162-164) and do not include all four PCs (in which case the rhythmic disposition of those PCs which are stated will provide the referential PC for determining transposition); and third, the motive, as first established in mm. 163164, is end-oriented, a characterization based in part on its occurrence at the final cadence of this movement and the first, where it is explicitly end-oriented, and in part on its recurrences, in which its rhythmically distinct end fragment represents a particular transposition of the entire motive. The final member (not necessarily the PC-lowest) is, in these recurrent--if incomplete--statements, thus sensed as focal, and may be heard to engage in higher-level (i.e., more broadly spaced)
linear step connections. 35
At (6) in Ex. 2.29 the first mid-level step connection is noted: Eb-D, the initial E notated with a flag to represent its subordinate, anacrustic status. Each of the two constituents in this linear progression corresponds to a statement of the motive, the second of which is complete in PC content but lacking the anacrusis. At (7) the progression is repeated but carried one step further to include a third statement of the motive, which is further truncated to include only the motive's final three-note fragment. The three constituents of this second linear progression correspond to the final notes of the three motivic statements. Although significance of the specific PCs involved in the progression is perhaps not so clear at this early stage in the middle section, examination of the $B$ section's final cadence, m. 237, reveals that the ultimate referential element of this middle portion is the PC C associated with its minor third, Eb. In this sense the ultimate referential PC in both the $A$ and $B$ sections is $C$ although the intervallic structures in which it is expressed vary significantly as do the principles of orientation toward those structures. The progression from Eb to C, initiated in mm. 162-165 and completed in 172-175, then, is a linear expression of the intervallic structure with which the
${ }^{35}$ In his analysis of the first movement of Bartók's fourth quartet, Roy Travis interprets a derivative of the motive cited here as end-oriented and identifies a linear progression (in mm. 43-46) based on the final notes of subsequent transpositions of the motive, not unlike the linear progressions exhibited here. See "Tonal Coherence in the First Movement of Bartók's Fourth String Quartet," The Music Forum 2 (1970): 303, 329330. Kárpáti similarly reveals linear continuities constructed of the final notes of end-oriented motives in the first and last movements of the fifth quartet. See p. 241 (Ex. 224) in Bartok's String Quartets.
primary PC C is ultimately associated at the end of the $B$ section (and it is a structure which becomes "inflected" in the final cadence, as was shown in Ex. 2.22).

Development of the B section's primary motive does not, however, end with the completed traversal from Eb to $C$. At the arrival of the third constituent of the broad fifth progression in m. 182, motivic material emerges in all parts (Ex. 2.42). System (a) of Ex. 2.42 denotes the final pitches of all motivic transpositions with a stem and the anacrustic beginning pitches with a stem and flag. On system (b), only the focal pitches of the transpositions are indicated and are here stemmed to adjacent transpositions showing the brief mid-level linear progressions. The first linear connection after the Eb-C progression discussed above occurs at (1), also taking off from Eb, here as D\#. In this succession, however, the second statement of the motive (2) is inverted; it arrives on $F$ and produces a mid-level ascent of a second, $D \#(=\mathrm{Eb})-\mathrm{F}$. In the second group of mid-level dyads, mm. 188-192, the second violin articulates a descending linear connection between endpoints of the two adjacent transpositions, again with D\# as its starting point (3). Each of the remaining instruments completes its mid-level dyad before the first violin articulates a major third (rather than a second) between endpoints of the two adjacent transpositions. The top PC is the new arrival point of the previous linear dyad, $F$, and the bottom is the PC which will become the arrival point of the second violin's step descent, C\#. The initial Eb-C progression in the measures preceding this excerpt and a summary of the linear fragments of this
section are given at (4). The two primary motions in mm. 183-195--i.e., after the Eb-C progression--are D\#-F and D\#-C\#, of which $F$ and $C \#$ are prolonged into the next section, as will be illustrated in the next chapter. It will suffice to note here that $F$ is extensively elaborated in the ensuing measures, after which it is the initial member of a broad descent of a third back to $D$, which in turn descends to $C$ at the final cadence of the $B$ section. $C \#$ does not eventually resolve to $C$ as might be expected, but is rather superseded by the aforementioned $D$ before resolving to $C .{ }^{36}$ The motivically derived linear progressions outlined in this example are essentially no different from those discussed earlier; what they lack in extent they make up in emphasis through intense rhythmic vitality, repetition, and superposition.

[^38]
## CHAPTER III

## PROLONGATION IN BARTÓK'S STRING QUARTETS

## Introduction

Music is a temporal art. Tonal music is a special kind of temporal art whose coherence relies to a great extent on particular relationships between contiguous and noncontiguous points of tonal import. The complex functional relations of the major-minor system facilitate varying degrees of perceptual orientation--at various levels of structure, over a variety of temporal spans--to a single tonic harmony. Principles according to which such tonal orientation may be understood were systematically illuminated and explicated by Heinrich Schenker, whose concept of prolongation was advanced as a fundamental process, operative at all levels of tonal structure in music of the common-practice period.

Schenker's prolongation--Auskomponierung or composing-out--has as its goal the horizontalization of an interval or chord, ultimately, though by no means exclusively, the tonic triad of a given piece. Already in his Harmony Schenker wrote that "The harmonic element . . . has to be pursued in both directions, the horizontal as well as the vertical."l The basic process by which this horizontalization of $a$

[^39](tertian) harmony may occur is arpeggiation, ${ }^{2}$ the "filling-in" of which defines the concept of linear progression. ${ }^{3}$ These two related prolongational processes are united in Schenker's contrapuntal "fundamental structure," which defines the "background" of a traditionally tonal piece and represents the latter's broadest of prolongations. ${ }^{4}$ Schenker writes:

Fundamental line is the name which I have given to the upper voice of the fundamental structure. It unfolds a chord horizontally while the counterpointing lower vqice effects an arpeggiation of this chord through the upper fifth.'

While this ultimate structure is the most skeletal representation of a piece's tonal scheme, Schenker notes that

> The life of the fundamental line and the bass arpeggiation manifests itself not only in the first [i.e., background] horizontal succession and in the first arpeggiation; it also expands through the middleground, through what I have called the voice-leading transformation levels, prolongations, elaborations, and similar means, in to the foreground. ${ }^{6}$

Components of the fundamental structure thus serve as the basis for lower level imitations--mid-level and surface-level prolongations--

Borgese (Chicago: University of Chicago Press, 1954; paperback edition, Boston: M.I.T. Press, 1973), p. 134.
${ }^{2}$ Heinrich Schenker, Free Composition, trans. and ed. Ernst Oster (New York: Longman, Inc., 1979), p. 10. Also, Oswald Jonas, Introduction to the Theory of Heinrich Schenker, trans. and ed. John Rothgeb (New York: Longman, Inc., 1982), p. 37.
${ }^{3}$ Schenker, Free Composition, p. 44. Also, Jonas, Introduction to Schenker, pp. 51, 62.
${ }^{4}$ Schenker, Free Composition, p. 4.
${ }^{5}$ Ibid. (Schenker's emphasis.)
${ }^{6}$ Ibid., pp. 4-5. (Schenker's emphasis.)
which, in their duplication of background structural events, create the ultimate in organic coherence.

Examination of conventional prolongation's essential properties, as they operate at various levels of structure, must surely be regarded as the first step in any meaningful extrapolation of the concept of prolongation to less traditional contexts, if, in fact, such extrapolation is justified. As a point of departure I cite a concise, if more general, interpretation of Schenker's concept of prolongation, given by Allen Forte and Steven Gilbert in a pedagogical book on Schenker's system of tonal analysis. It is a definition which is applicable to all levels of structure and it illuminates a quality which is implicit in Schenker's principle of composing-out. They define prolongation as
the ways in which a musical component--a note (melodic prolongation) or a chord (harmonic prolongation)--remains in effect without being literally represented at every moment. . . . a given harmony is prolonged so long as we feel it to be in control over a particular passage.

Whether linear or harmonic, immediate or of deeper implications, prolongation embodies according to this particular definition the implication of a primary event over a particular temporal span without literal and recurrent statement of that event. In the discussion which follows, I will suggest that, even in traditionally tonal music, the perceptibility of implication of an event without its literal restatement in fact varies over different temporal spans, and that this has important rami-

[^40]fications for the inference of prolongational structures in nontraditional contexts. As I will show, if we can speak of prolongation at all in less conventional contexts, it will have to be with a certain degree of latitude with respect to this property of conventional tonality.

## Foreground Prolongation

Prolongation at local levels is least problematic, for reasons which will be stated, and therefore serves as a convenient starting point. One manifestation of conventional prolongation which proliferates over the surface of most music of the major-minor system is linear motion "within" a triad--i.e., from one of its constituents to another--resulting in a horizontalization of the triadic structure. In a passing motion between the root and third of a triad, for example, qualities of tendency and implication in the intervening passing note may be accounted for with extreme precision by invoking strict rules of conventional dissonance treatment. Recognizing the dissonance of the second or ninth, against the underlying root, the listener expects the nonharmonic note to either continue to the next triad member--in which case the intervening note would be characterized as a passing tone-or to return to the chord tone--in which case it would be understood as a neighbour note. ${ }^{8}$ In either case the process is, at the foreground, over

[^41]in such a short time that the listener is not oriented away from the triad, and a sense of local prolongation may be said to be based purely on proximity. While this is true, prolongation is here underscored by rules of dissonance treatment which govern the motion of the intervening element--rules which generate a sense of implication even in this local event.

As demonstrated in Chapter II, many referential elements encountered in Bartók's music are tertian in structure and occur in contexts which are conventionally functional. In such instances foreground prolongations through passing and neighbour motions of the conventional type described above are relevant. In that this particular prolongational technique is basic and easily apprehended, illustration may be kept to a minimum. In Exx. 2.2 and 2.3 instances of foreground prolongational motion within a triad are bracketed in the score. The consonant tertian harmonic framework in these excerpts provides a basis for the inference of nonharmonic elaborative notes which, in accordance with rules of dissonance treatment, imply resolution in specific ways. In Ex. 3.1, motion within a chord over a slightly broader span is shown at (1). Here, a tertian basis is suggested by the explicit D-major triad on the downbeat of measure 60 , its root, sustained in the cello, providing a constant reference for the linear motions.

Foreground prolongation in the excerpts just noted is unproblematic because of the unequivocal tertian basis of the music; but what of prolongation over comparable spans in contexts more readily associated with Bartók's music--and that of other twentieth-century composers--
where referential elements are nontertian? Edward Laufer, commenting on the application of conventional prolongational procedures to nontertian contexts in general, asserts that

The concepts of consonance and dissonance, as technically defined, ... cannot exist, nor can, strictly speaking, the notions of passing and neighbour notes where these were dissonant events. Their attendant constraints, which provided motion and delays, must be compensated for by other kinds of embellishing and traversing motions. ${ }^{9}$

Strict rules of dissonance treatment associated with the major-minor system are indeed less applicable to nontertian contexts; however, unless a nonconventional referential element is comprised entirely of semitonally adjacent PCs, it is in principle possible to connect certain of its members by (PC-)step (i.e., "passing") motion. Arnold Whittall, for example, claims that, ". . . dissonances lack the capacity for substantial 'prolongation', since their possible functional significance within a fully layered harmonic hierarchy is so difficult to define[,]" but later acknowledges that, although extension of dissonant (i.e., nontertian) structures most readily occurs through textural and rhythmic factors, ". . . occasional horizontalization and neighbour-note motion . . . may suggest connections with traditional tonal techniques. ${ }^{10}$

In such nontraditional contexts, of course, "nonharmonic" notes are not governed by any particular rules of dissonance treatment and,

[^42]consequently, are not bound to resolve in any particular way. Such elements are thus devoid of inherent implication, analogous to that generated in the major-minor system, and cannot be said to generate conventional prolongations. In that constituents of an identifiable referential element are horizontalized and connected linearly, however, the process achieves the same end result as conventional prolongation, namely, extension of the span over which a particular element is heard to prevail. For this reason I think it appropriate to understand such a process as prolongational, if only "contextually" so (i.e., determined by context rather than by underlying conventional relations).

In surface-level (contextual) prolongations, the intervening, subordinate event is, by definition, neither inherently implicative of, nor inevitably directed to, a member of the referential element it expands. Rather, it may be understood more generally as a "departure" from an unequivocally identifiable primary element. Arrival on a member of the referential element would, in turn, be understood, not as a resolution in the conventional sense, but as "return" in a more general sense. I will put forward the view that, in order for a particular departure-return pattern to generate prolongations at higher levels of structure it must first be articulated at a level where the association is perceptibly appreciated.

Paul Wilson offers corroboration of this view. He finds, in Bartók's Op. 20 piano pieces, a "basic structural model" in "the establishment of a primary chord, a departure from that chord, and a return to it," and characterizes such a model of departure and return as an
"inherent hierarchical resource" which, when reiterated over different spans, may be said to generate "nested prolongational structures."ll Two important points are advanced here. The first, having relevance to the present discussion, concerns the characterization of a basic model of departure and return without any strict notions of dissonance treatment as demonstrative of a prolongational structure. The second concerns the concept of nested structures at various levels, a concept which is dealt with later.

Bartók's quartets offer many examples of foreground prolongational patterns of departure and return. But because these patterns are more often reiterated in succession--defining a specific type of midlevel prolongation discussed later in the chapter, in connection with Exx. 3.8-3.19--I postpone the discussion of examples until then.

## Mid-Level Prolongation

It is at higher levels of structure, beginning with that of the phrase and comparable spans, that the criterion of implication without literal and constant restatement--the essence of the definition of conventional prolongation given earlier--assumes greater significance because of the increased temporal distances between explicit articulations of the element being prolonged. In traditionally tonal music, the functionality of the major-minor system becomes all-important in mid-

[^43]level prolongations, while in music not based entirely on the majorminor system, comparable processes for maintaining the validity of a referential element are critical.

With respect to mid-level harmonic prolongation in the majorminor system, for a harmony to be "in effect" over or "in control" of a particular span, we must hear all other harmonies as subordinate but functionally related to the controlling harmony. In a progression along the descending circle of fifths, for example, the function of nontonic harmonies and their relation to the prolonged harmony can be discerned with precision, particularly as we near explicit statement of that primary event. Thus, in the mid-level progression I-III-VI-II-V-I-regardless of the textural configuration in which the progression is expressed--we can infer the primacy of I throughout because we understand that III, VI, II, and V relate to the initiating and concluding I in varying degrees of proximity along the functional circle of descending fifths. I is the reference to which the other harmonies are related and, insofar as it "controls" the span over which the six-chord progression occurs, it is said to be prolonged. This particular mode of prolongation reveals an important aspect of interaction in the majorminor system: functional progressions--the basic means of connecting one structural harmonic event to another--are, by definition, directed toward, and therefore implicative of, a particular tonic goal, and in this sense may be said to prolong that goal. Functional harmonic progression and harmonic prolongation are thus inextricably allied in the major-minor system.

Functional harmonic progression may also be understood to pro-
vide a basis on which linear prolongation is perceived. That is, although linear constructs may be heard to derive inherent directed tendency from the scalar resource of which they are part, their potential directedness is realized explicitly when they are heard against an underlying functional harmonic framework. Constituents of a linear progression are linked to their corresponding harmonies, the relationship of the latter to the tonic serving to impart functional significance to the former. Recall the quotation from Berry's Structural Functions cited in Chapter II, in which he suggests that linear and tonal function are not "mutually contradictory or exclusive concepts" but, rather, that they "nearly always appear in complementary conjunction in tonal music. ${ }^{12}$

The degree of separate identity of linear and harmonic progression and of functional progression and prolongation in major-minor tonal music is thus not so great as it is sometimes thought to be. In less conventional contexts, however, such distinctions are often very real. In Chapter II, I characterized linear progression in Bartók's quartets as a separate organizational determinant and noted that, often in twentieth-century music, there are analogues of the dominant and tonic components of the major-minor system but not of intervening, functionally related, dominant-prefix components (in the major-minor system, those harmonies which are functionally directed toward the dominanttonic progression). This has important ramifications for mid-level

12 Wallace Berry, Structural Functions, p. 30. (Berry's emphasis.)
prolongational structures in Bartók's musical language, as I will demonstrate here.

Four classifications of mid-level tonal expansion are discussed in this section. The term prolongation denotes expansion in which the intervening event is sensed as directed toward, and therefore implicative of, its goal (understood as conventional prolongation), as well as expansion in which no such inference of implication is justified, and in which constant recurrence of the contextually primary event is a factor (understood as contextual prolongation). The classifications are as follows: (1) prolongation through conventionally functional harmonic progressions, (2) prolongation through linear unfolding, (3) prolongation through oscillation and/or reiteration, and (4) simultaneous prolongation of more than one referential element (through the first three principles). As there is constant interplay between progression and prolongation--e.g., a progression generating a broader prolongation which, in turn, expands a component of a higher-level progression-principles of progression dealt with in Chapter II will at times be reexamined here for their role in prolongational processes.

Prolongation through conventionally functional harmonic progressions
It was suggested in the opening comments to this section that conventionally functional progressions in traditionally tonal music, in their directed approach to and implication of a tonic goal, serve to prolong that tonic between recurrences, or even in its absence. Indeed, it is a significant feature of the major-minor system that enriching details of voice leading need not be invoked for the comprehension of
such prolongational effects, for the very presence of a palpable functional harmonic framework is sufficient to evoke a strong sense of tonality. In Chapter II, excerpts from the first and last quartets served to demonstrate both the inference of tertian structures within a complex contrapuntal fabric, and the use of traditional root relations in effecting conventionally functional harmonic progression. Those same excerpts may be studied for their prolongational structures--structures arising largely from identifiable functional progressions, the two regarded as intimately related.

Examples 2.1, 2.2, and 2.3 furnish numerous instances of prolongation (in advance of explicit tonic arrival) through conventionally functional progressions. In Ex. 2.1, tonicizations of $F$ ( 15 ), D (12) , Ab (13), and A ( (14) involve basic, conventional harmonic progressions, usually consisting of a dominant prefix, dominant, and tonic. Because of the functionality of the progressions, the dominantprefix harmonies, though subordinate, are understood in light of their goals and may be said in a general way to prolong them. In Ex. 2.2, harmonic prolongations of $\mathrm{F}, \mathrm{Eb}$, and Db occur through conventionally functional progressions involving dominant-prefix chords followed by traditional dominant-to-tonic progressions [refer to the roman-numeral analyses on system (b)]. Example 2.3 is particularly illustrative of prolongation through patterns of functional harmonies beginning with a dominant-prefix harmony (rather than the prolonged harmony). The romannumeral analyses below system (c) reveal a ii-V-I pattern in Eb, a vi-ii-V-I pattern in F\#, and a vi-V-I pattern in A. In these progressions, conventional functionality accounts for mid-level prolongation of the
goal harmonies in advance of their arrival, in spite of the brief span over which they are focal, and regardless of the broader, fluctuant tonal scheme in which they participate. In the excerpts discussed above, then, conventionally functional root relations (both implicit and explicit) provide the basis for the inference of tonal orientation and attendant harmonic prolongations.

## Prolongation through linear progression

In Chapter II, linear progression was identified as an important means by which two disparate musical structures (e.g., PCs, pitches, or verticalities) are connected. Inherently directed and contextually directed were cited as the two main types of linear construct, their constituents selected from the overall texture according to various criteria of surface exposure--e.g., emphasis in the realms of dynamics, register, and duration, among others--or through motivic transposition by step. These linear constructs and criteria for pitch selection also apply to linear progressions which may, in turn, be heard to define midlevel prolongation. Two situations in which a linear progression may be heard at a higher level to define a prolongation are relevant to Bartok: in one of these, endpoints (single pitches or verticalities) of a progression are the same but separated by one or more octaves (hereafter referred to as octave progressions); in the other, different endpoints function as constituents of a single verticality (hereafter referred to as unfolding and prolongational progression).

Prolongation through surface-exposed octave progression. The
mid-level fifth progression which begins the $B$ section of the fourth quartet's final movement is noted at (1) in Ex. 2.29, and the semitonal auxiliary which precedes each constituent of the fifth progression is marked (2). Each of these auxiliaries is prolonged at a lower level of structure through a linear octave progression (3). There is little effort required for inference of the descending line because most pitches take part in the step succession, and those that do not are easily interpreted as local elaborations (e.g., neighbour and passing notes), as demonstrated on system (a).

As indicated at (8), each linear progression continues past completion of the octave--the point where the prolongation is realized-to arrive on the "opposite" (i.e., non-semitonally related) member of the constituent in the large fifth progression. In mm. 160-162, for example, the prolonged auxiliary is the C\#-G\# fifth and the constituent of the larger fifth progression to which it resolves by semitone (in PC terms) is the D-A fifth; through linear extension beyond the octave, however, C\# resolves to $A$ (rather than by semitone to D) and $G \#$ to $D$ (rather then by semitone to A).

Another instance of prolongation through surface-exposed octave progression may be noted in Ex. 2.35. Here, as in the excerpt just cited, there is little difficulty in selecting constituents of the linear construct from the texture because the octave progressions (5) and (8)) occur at the surface of the music, uncomplicated by lower-level elaboration (apart from the reiterative prolongation of the C\#-D dyad in mm. 23-24). It will be noted in this example that the prolongations cross formal boundaries: the octave progressions begin in the transition
to the second theme, and the point of octave completion--i.e., the point at which the prolongation is realized--coincides, or elides, with the start of the second theme. Expectation of octave completion increases as the octave is approached, and that keener sense of expectation, in turn, fortifies the quality of instability ascribed to the C\#-D dyad in mm. 23-24, increasing the tendency of the latter to resolve.

Prolongation through motivically derived octave progression. Two clear instances of motivically derived octave progressions which prolong their endpoints are indicated at (5) and (6) in Ex. 2.40. As noted in Chapter II, the two-bar motivic pattern is in two parts, each contributing pitches to a distinct linear progression. As in the previous example, the significance of prolongation through octave progression in this excerpt lies in the resultant overlap of formal divisions. That is, a clear change of texture and tempo occurs in m. 137, the linear progressions in the upper three parts culminating in that bar. The upper line of the cello part concludes on $\mathrm{Eb}_{3}$ at this same point, completing the octave from m. 126 (5). $\mathrm{Eb}_{3}$ is subsequently prolonged through a foreground lower-neighbour pattern until m. 139, where it initiates a descent to $C_{3}$ (2), this pitch completing a linearized octave in the lower line of the cello (6). It is this octave progression from $C_{2}$ to $C_{3}$ which provides thematic overlap--an event all the more significant because of the large-scale prolongational unfolding initiated by the cello's $C_{3}$ in m. 142, to be dealt with later.

The excerpt given in Ex. 3.2, from the third movement of the first quartet, illustrates prolongation through an octave progression
which involves both motivic transposition and factors of surface exposure. The opening ascending third in m. 108, C\#-D\#-E, is interrupted by the leap up to $G \#$, after which an embellishing pattern connects $\mathrm{F} \mathrm{\#}$ at the end of the measure to that on the downbeat of bar 109. This locally prolonged FH is thus perceived as the continuation of the opening thirdascent. $\mathrm{F} \#$ is subsequently further prolonged through upper and lower embellishing patterns in m. 109, its metrically strong arrival on the downbeat of m. 110 initiating a varied transposition of the two-part motive in mm. 108-109.

Measure 110 is a variation of m. 108: an initial ascent of a third--here F\#-G\#-A--is interrupted by a leap, after which B, the pitch which continues the initial ascent, is elaborated through an embellishing pattern leading to the downbeat of the next bar (compare (1) and (2). Measure 111 corresponds to m. 109 in its upper and lower embellishing patterns (compare (3) and (4) with one important change. This transposition of the last part of the motive is temporally extended--the meter now 3/2 rather than 2/2--and thereby facilitates inclusion of a passing tone (B\#) after the embellishing pattern completes its surface prolongation of $B$ ( 5 ). The result is that, unlike mm. 109-110--where the embellished pitch in m .109 is repeated on the downbeat of m .110 the embellished pitch in $m$. 111, $B$, passes through $B \#$ to arrive on $C \#$ on the downbeat of $m .112$. C\# is the opening PC of the passage, which, through varied motivic transposition and surface exposed pitch events, has been prolonged through an ascending octave progression (6).

Prolongation through linear unfolding. Conventional mid-level
linear unfolding, as operative in music of the major-minor system, occurs when two members of a single harmony are temporally separated and connected linearly, as in foreground motion within a chord, described earlier. In foreground unfoldings, however, passing notes are usually unharmonized, while, in mid-level unfoldings, they are often supported by harmonies of subordinate function relative to the prolonged harmony. The linearization of vertical interval structures over mid-level spans occurs often in Bartók's music but, because the texture is so often polyphonic--in which parts are relatively autonomous rhythmically and tonally ${ }^{13}$--mid-level unfoldings are rarely harmonized as such. They are more often set in counterpoint to other, tonally autonomous linear unfoldings. As regards criteria for identifying potential members of such linear unfoldings, surface exposure and motivic transposition are fundamental, often interactive, factors of articulation.

Although examples of linear unfolding in complex polyphonic textures will be cited, the viola solo which appears at the opening of the sixth quartet's first movement illustrates the concept of linear unfolding in an uncomplicated texture and is thus a suitable first example of this type of linear prolongation. The theme, given in Ex. 3.3, twice unfolds the b2-\#4 disposition pair to the movement's referen-
${ }^{13}$ By "tonally autonomous" I suggest that each line of the overall contrapuntal fabric is oriented to a particular referential PC, the confluence of these lines at cadences and comparable structural junctures articulating unified verticalities of individually prolonged elements. This is in marked contrast to conventionally tonal polyphony, where the individual lines, although rhythmically autonomous, are nonetheless fused into a single tonal implication.
tial fifth, D-A (1) and (2)..$^{14}$ In the opening unfolding (mm. 1-8), connection of A\# to C\# (mm. 2-4) occurs through a descending sixth (3) rather than a more direct ascending third: the descending sixth "represents" the PC "ascent" of a third (4). In fact, both unfoldings employ PC-step connections for the realization of linear constructs, as demonstrated in the registral compaction employed on staff (b). The dotted slurs at (5) and (6) identify the overall prolongation of Eb and G\# as b2 and \#4 with respect to the movement's primary D-A fifth ( 7 ), which enters later.

With reference to Ex. 2.22, I suggested that the inference of an obliquely resolving b2-5 tritone in the final cadence (mm. 391-392) was based on the prolongation of that tritone in the immediate approach to the final cadence. Example 3.4 illustrates the details of that prolonged tritone. In mm. 374-385 the viola doubles the first violin and the cello doubles the second violin, yielding a two-part imitative texture, indicated on system (a). Each of these two parts unfolds, and thereby prolongs, the b2-5 tritone (1) and (2) through a contextually directed linear progression (3) and (4) generated by the concatenation of two alternating motives (5) and (6). The first and last pitches of each of the two motives (in each of the two essential parts) are stemmed on system (a) as they are the pitches, selected from the overall texture, which make up the descending linear unfoldings of the tritone. The criterion for selection of these pitches from the overall

[^44]texture is simply their position as extremities of the motives. Each motive functions to effect a descending step, the linking of transposed descending steps generating a descending linear continuity. System (d) shows the "inversion" of the prolonged tritone, resulting from the simultaneous unfoldings. Example 2.22 may be reexamined for the position of the prolonged tritone in the final cadence and its oblique resolution in the final referential element.

Example 2.9 was cited earlier as an instance of a conventional tonicization pattern which serves to establish a referential triad in a direct and appreciable way, before less traditional means of tonal orientation become focal. In this particular excerpt, mm. 1-14 of the first quartet's third movement, the initial chord of the progression, the $I I I^{7}$, is prolonged through simultaneous linear unfoldings of its chord-tones. The upper two unfoldings--from the third up to the fifth (1)) and the third down to the root (2)--are direct, their constituents reiterated without lower-level elaboration. The unfolding of the seventh down to the fifth (3) is more complicated as it occurs within a more elaborate surface texture. The motive in mm. 5-6, for example, involves PC-step motion in realizing the overall accented, lowerneighbour motion $B-A-B$ (4). Because repetition of the motive in mm . $7-8$ is followed by reiterative prolongation of $G$ (5), A in m. 8 (6) assumes a passing function (as compared to its accented, lower-neighbour role in the initial statement of the motive). G eventually relates to the goal of the unfolding (G\#) as a semitonal lower neighbour (ㄱ) , and the $A$ of m. 8 may be heard to function as a passing tone over a broader
span ((8)). In this excerpt, then, thematic gestures (in the viola and cello) and accompanimental elements (in the two violins) are unified through their common function of unfolding intervals of the first constituent in the three-chord tonicizing progression.

Measures 44-58 of fifth quartet's opening movement are the focus of Ex. 3.5, which illustrates a mid-level unfolding of the outer fifth of the referential element, and one of comparable temporal dimension of the root to third of that same referential element. Foreground unfoldings are also an important feature of these measures as they contribute components of the aforementioned mid-level third-unfolding. The referential fifth of this thematic section, D-A, is articulated immediately and directly through foreground linear unfoldings at (1) (violins I and II). The final descending portions of these initial motives (2) arrive on Bb , the second constituent in the mid-level $\mathrm{A}-\mathrm{D}$ ascent (3). In the first repetition of the theme in the two violins (4), the first note ( $E b=D \#$ ) of the ascent to $A$ functions within the mid-level unfolding of D-F (summarized at (5)), and the last note of the descent from $A(i . e ., B)$ functions in the mid-level prolongational progression from $A$ to $D$ (6). The third thematic statement in the two violins (ㄱ) begins with $F$ (or E\#), which contributes to the $D-F$ unfolding. The second violin's descent ends on C\#--the penultimate constituent in the mid-level A-D unfolding--and the first violin's descent provides the culminating $D$ of that same mid-level event. Foreground unfoldings are also heard in the viola and cello and, like those of the violins, contribute to the mid-level prolongational progressions of $D$ to $F$ and $A$ to $D$, as shown at (8) and (9).

Although constituents of the mid-level prolongational progression of $A$ to $D(3)$ are reinforced by the foreground unfoldings discussed above, those constituents are more simply articulated as reiterated and sustained pitches in the viola and cello in mm. 45-55. The referential D-A fifth, linearized at the foreground in the opening measures of the excerpt, is projected as an ascending A-D fourth over the span of the entire third-theme section, thereby imparting coherence to that section. At the goal of the mid-level A-D unfolding, m. 55, the original D-A fifth is once again prolonged through reiterated foreground unfoldings (10), here against an underlying b2-\#4 disposition pair, prolonged through the same reiterative means (11). The dual prolongation, summarized at (12, provides a degree of tension in advance of the "development" section, which commences in m. 59.

In the final example of mid-level linear unfolding (as in the one just examined), the unfolded interval does not subsequently resolve to a more structural element; it is, rather, itself a structural event-specifically, the outer interval of the referential element of the large A section in the sixth quartet's opening movement. The unfolded fifth, between scale degrees 5 and 1 , is indicated at (1) in Ex. 3.6. Although, at the surface, the fifth is filled in chromatically, metric placement and durational emphasis invite reference to the stemmed pitches as more structural within the overall texture. The unfolded fifth is shown at (2) in its most skeletal form which, as suggested by the symbol at (3), is phrygian in structure--a feature which promotes descending motion. In that phrygian (and lydian) constructs are here conceived as inher-
ently directed, this particular prolongational progression is analogous to traditional unfoldings, in which inherent directedness derives from the major and minor scales. This mid-level phrygian fifth is duplicated elsewhere at the foreground, as alluded to in Chapter II (see, for instance, Exx. 2.24 and 2.25) and as will be further documented in the present chapter, along with details of the upper parts in this excerpt. 15

## Prolongation through oscillation and/or reiteration

Many passages in Bartók's music feature constant recurrence of a particular referential element, either through simple reiteration or in oscillation with another, subordinate, element. It was noted at the beginning of the chapter that foreground patterns of departure and return occur more often in succession than singly. In fact, when concatenated, these foreground patterns yield a larger pattern of oscillation. When, for example, the pattern $X-Y-X$ overlaps with another such pattern and this process is continued, an oscillation occurs:

$$
\begin{array}{rc} 
& X-Y-X \\
+ & X-Y-X \\
+ & \frac{X-Y-X}{}+ \\
\hline & X-Y-X-Y-X-Y-X
\end{array}
$$

Oscillation is simulated where a contrasting departure element is periodically articulated over a steady, reiterated element. The

[^45]departure-return pattern, although irregular, is nontheless identifiable:


The condition of "implication without literal presence"--a primary criterion for conventionally defined prolongation--is obviously inapplicable in these processes. And, yet, the overall effect of traditional prolongation--the extension of a span over which a particular element is sensed as focal--is achieved, albeit through less conventional means. In light of this circumstance, can the processes of oscillation and reiteration be properly regarded as prolongational?

Craig Ayrey's comments on Roy 'Travis's attempt to elucidate the means of prolonging a "dissonant tonic sonority" in Stravinsky's Rite of Spring address the validity of ascribing prolongational significance to similar basic processes in general. Ayrey asserts that
. . . it [the dissonant tonic sonority] can be effectively prolonged only by the most elementary techniques--usually a complete neighbouring-note progression or a passing note between two forms of the dissonant 'tonic' which must also redefine itself perpetually by saturating the texture with its particular sound. 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. ${ }^{16}$

Arnold Whittall expresses a similar view in connection with prolongation of "dissonant" structures:

[^46]". . . structural differentiation of dissonance in the absence of consonance may only be possible if degrees of prominence are very strongly asserted by contrasts between the repetition or sustaining of certain chords and their 'ornamental' extension."17

Each author identifies constant, literal restatement of a nontraditional element as perhaps the only means of extending the span over which such an element is to be heard as contextually primary, particularly in the absence of dissonance criteria associated with the majorminor system. The processes of reiteration and oscillation, while indeed basic, are considered in this study to be vital factors of midlevel prolongation in Bartók's musical language. Often, for example, a stream of activity, consisting of immediately apprehensible patterns of reiteration and oscillation involving a particular referential element, provides a degree of centric orientation-a sense of contextual "stability." Over this clearly established stratum, a second stream of activity may emerge as supportive of the referential element in the underlying stratum or in contrast to it. 18 This second stratum may itself take the form of an oscillation or reiteration pattern, in which case the overall texture will consist of two contrasting, but hierarchically equal components; or, it may take the form of a thematic gesture, in which case the overall texture may be characterized as a theme and (oscillatory) accompaniment.

It was explained earlier that mid-level oscillation may be

[^47]achieved through the concatenation of foreground departure-return patterns. The departure element in these foreground patterns may or may not be inherently implicative of the primary element which frames it. Implication is, for example, explicit and the prolongation reinforced where the subordinate component is a conventional dominant structure. Moreover, I referred in Chapter II to Bartók's lydian and phrygian orderings of the diatonic collection as "tonal analogues." Where those patterns are heard as a basis for linear organization, resolutions of scale degrees \#4 to 5 and b2 to 1 were said to be inherently directed, their tonicizing potential deriving from the semitonal departure from a whole-tone succession. If the departure element comprises such "active" degrees, it may be said to be inherently directed toward, and implicative of, the element comprised of notes of resolution. Prolongation is thus effected by a degree of contextual functionality different from, but analogous to, the characterization of dissonance treatment in the major-minor systern. Even in those patterns where the departure element lacks the analogically directive quality, discussed above, a sense of contextual implication is generated through successive statements of the pattern. The categories of oscillatory prolongation given below include patterns with inherently implicative departure omponents and those of nonimplicative status.

Oscillation of conventional dominant and tonic. Examples 2.24 and 2.25 present analogous passages from the $A$ and $A^{\prime}$ sections of the sixth quartet's first movement. Each passage opens with a referential triad, prolonged through oscillation with its conventional dominant. In

Ex. 2.24, the oscillatory prolongation spans mm. 81-94, at which point a descending circle of fifths begins (as explained in Chapter II). Until the final resolution to I (m. 94), scale degree 5 is held as a pedal in the bass, tonic elements in the oscillation occurring in second inversion, preventing a sense of finality. The large sharp and flat signs indicate connection of dominant and tonic roots through lydian and phrygian directed linear motion. As the reduction and verticalization of functional harmonies on system (b) reveal, the oscillation begins at a rhythm of one harmony per bar. Measures $85-89$ consist of a prolongation of V , and mm. 90-92 an extended tonic, thereby slowing the oscillation pattern. The original harmonic rhythm of one per bar returns at the end of the oscillatory prolongation as a final V-I occupies mm. 9394, the descending phrygian fifth once again connecting the root of V to that of I. Variation in harmonic rhythm within the oscillation is thus one important element of contrast in this otherwise straightforward prolongation; subtle changes in intervallic composition and in uppervoice configuration of the tonic and dominant components are other such elements.

The oscillatory prolongation in Ex. 2.25 occurs in mm. 312-320 and features a more consistent harmonic rhythm (one harmony per bar) than its corresponding passage in the A section. It also involves more root progressions, the dominant pedal sustained for only the first five of its nine bars. This shift midway through the prolongation--from oscillation above a pedal to root-position oscillation--is a factor of contrast, given the unyielding harmonic rhythm, cited above. Interest
in this basic oscillatory prolongation is further achieved through changing intervallic composition of tonic and dominant elements and the outer-part contrary motion beginning in m. 314. With respect to this contrary motion, note in particular the one-bar lydian connections of the roots of $V$ and $I$ in the cello of mm . 316-320. (12) ) in counterpoint with the single, rhythmically elongated, descending phrygian fifth in the first violin of mm. 316-319 (13). This rhythmic counterpoint is a third element of mobility in what would otherwise be a simple and static alternation of harmonic events.

A final example of conventional dominant and tonic harmonies in oscillation is taken from the second movement of the fifth quartet, specifically mm. 26-29. Here the conventional harmonies are more implicit than in the previous two excerpts, but the characterization of their conventional function is, I think, justified in the analysis. The excerpt in question is given in Ex. 3.7, where system (a) identifies unfoldings of $V^{7}$ and $I$, and system (b) verticalizes them.

Oscillation of elaborative and referential elements. In this classification of oscillatory prolongation, the departure element of the foreground pattern is not inherently implicative, although it acquires contextual implication through frequency of association with the referential element as the oscillation continues. In the first excerpt, mm. 76-83 of the third quartet's Prima parte, the recurrent elaborative element is a verticality of four PCs, stemmed upward and beamed at (1) in Ex. 3.8. The referential element prolonged through the oscillation is stemmed downward and beamed at (2). References (3) and (4) indicate
lower-level prolongations of the elaborative element, the first through a voice exchange, and the second through an embellishing pattern. 19

The oscillatory prolongation in mm. 196-213 of the fourth quartet's final movement (Ex. 3.9) takes place in the context of a thematic element, first heard in the second violin (mm. 196ff.), then an octave higher in the first violin (mm. 202ff.), and, finally, transposed in the cello (mm. 206ff.). The thematic structure supports a prolonged F-minor triad in its first two statements (1) and an Ab-minor triad in its third statement (2), the oscillatory elaboration comprised of upper and lower neighbour notes, ultimately providing encirclement of the triads' lower thirds. References (3) and (4) identify the first elaborative neighbour notes in the second violin's oscillatory prolongation; each of the other thematic statements begins in the same way.

Three details in this excerpt deserve comment. First, a lowerlevel prolongation of a G-minor triad at (5) functions as a large-scale upper neighbour to the mid-level prolonged F-minor triad, projecting one component of the foreground encirclement pattern over a broader span. Second, the significance of the unfolded $\mathrm{Ab}-\mathrm{Eb}$ fifth (G\#-D\# in the score), reiterated at (6) and (7), lies in its foreshadowing of the oscillatory, elaborative prolongation of the Ab -minor triad in the cello beginning in $m$. 206, this relationship indicated by the dotted beam at (2), which links these two events. And third, the sustained B in the cello (mm. 196-205) and viola (mm. 196-201) is another element of foreshadowing: that PC (enharmonically spelled) becomes in mm. 206ff. the

[^48]third of the prolonged Ab -minor triad. 20
In mm. 47-55 of the second quartet's final movement, the upper and lower fourths of a four-note, homointervallic verticality are prolonged independently through oscillation with elaborative components which, at a broader level, yield embellishing patterns in contrary motion and linear unfoldings of the two fourth-components of the passage's referential element. References (1) and (2) in Ex. 3.10 beam recurrences of the two fourths of the referential verticality. Reference (3) identifies elaborative departure components consisting of a single verticality, (4) points out a double-neighbour encirclement, and (5) identifies those departure elements which may be characterized as lower-level embellishing patterns. The oscillatory prolongation in this excerpt thus sustains vitality through variety in the structure and position of the departure element.

Because of the immediacy of oscillation, foreground departure elements may be heard as adjacencies at a higher level and, because they constantly change position, two larger patterns are created in the upper tonal-textural stratum (in the violins) and two comparable patterns in the lower stratum (the viola and cello). These are represented on system (b) of Ex. 3.10. The first pattern in each stratum is the

[^49]larger-level embellishing pattern alluded to above; this pattern (6) occurs in contrary motion in the the upper and lower strata. The larger patterns at (7) are the aforementioned mid-level linear unfoldings, also composed of foreground departure patterns considered as higher-level adjacencies.

In the final example of this classification of oscillatory prolongation, the elaborative departure element is once again an embellishing pattern, reiterated to effect a mid-level prolongation. The excerpt in question (Ex. 3.11) is mm. 60-69 of the second quartet's opening movement. Although the concept of embellishing pattern is itself straightforward, in this particular excerpt it appears in a more complex, but typically Bartókian, guise: it appears in each strand of the polyphonic fabric, embellishing a different member of a single referential element. In this way, a foreground, elaborative figure generates a texture which is more complex rhythmically, but unified tonally (because each prolonged PC is a member of the single, triadic referential element).

The F\# major-minor triad at the beginning of m .61 is the referential element whose root and fifth are subsequently prolonged as a vertical fifth (as at (1) ) the fifth is also prolonged independently as at (2). System (b) exhibits the higher-level arpeggiations of the referential triad which result from the independent foreground prolongations. References (3), (4), (5), and (6) expose relations in each instrumental part between the referential triad as expressed vertically in m. 61 and as articulated independently at the end of the prolongation
(m. 69). The first violin's C\#, for example, undergoes octave transfer and, through large-scale arpeggiation, returns to the original octave level in m. 69 (3), before descending through a foreground arpeggiation of the referential triad. The second violin's opening A\# is superseded by A at the end of the prolongation, articulating a large-scale inflection of the triad's third from major to minor (4). The vertically expressed minor triad in the viola of m. 61 is arpeggiated in that instrument in m. 69 (5), and the root of the triad, occurring in the cello of m. 61, is shifted down an octave in m. 63, where it remains for the balance of the prolongation (6).

Oscillation of disposition and referential elements. As suggested in Chapter II, disposition elements may occur in a variety of forms, from single PCs to more extensive verticalities, the common property being semitonal relation to the referential element or to one of its constituents. If there is a substantial underlying diatonic basis, such disposition elements may have an inherent tendency of resolution, analogous to that which characterizes certain elements in the major-minor system (e.g., the leading-tone and fourth scale degree when the latter is heard as the seventh over the dominant). Where no such underlying basis may be inferred, disposition elements are accorded such tendency retrospectively by virtue of semitonal proximity to a referential element. 21 Both properties are found in the reiteration of foreground

[^50]oscillatory departure-return patterns in the following excerpts.
The first is a simple example from the opening movement of the fifth quartet. Each note of a C minor-seventh chord is prolonged independently in mm. 24-29 (Ex. 3.12) through oscillation with at least one disposition note. Scale-degree indications are given at the beginning of each prolonged chord-tone (see beamed segments in the example). Reference (1) collects all disposition notes into a single six-PC verticality, showing the resolution of each member to a component of the referential chord. [Note that $B$ functions as scale degree 7 rising to $C$ and as $\mathrm{bl}(\mathrm{Cb}$ ) descending to Bb , the seventh of the referential chord; context demonstrates this dual function.] While there is no explicit scalar reference according to which disposition notes in this excerpt may be ascribed inherent tendency to resolve the way they do, the tertian structure of the referential element is a suitable, indeed recognizable, basis against which "nonharmonic" notes may be inferred.

In mm. 65-80 of the sixth quartet's opening movement, as in the excerpt just studied, oscillatory prolongation of a referential element occurs by way of rhythmically independent prolongations of its individual components (see Ex. 3.1). Prolonged PCs are stemmed and connected with dotted beams on system (a): for example, $C \#$ and $A$ in the first violin, A in the second violin, A and E in the cello, and C\# and A in the viola from m. 75. The departure element in each case is a disposition note but, as in the previous excerpt, beyond intervallic proximity, there is no inherent basis for "expecting" its semitonal resolution. As the oscillation proceeds, each will, of course, accrue a sense of contextual tendency and association through frequency of occurrence.

This movement's primary referential tonic is D (major-minor) and its secondary referential tonic $F$ (major). The independently prolonged PCs in this passage are constituents of an underlying dominant triad in D, as suggested by the roman-numeral analysis below system (b) and the verticalized harmony at (2). Through enharmonic reinterpretation of C\# (scale degree 7 in D ) as Db ( b 6 in F ), and through articulation of B in the cello at m. 80, the resolution of $\mathrm{D}: \mathrm{V}$ is denied and tonal motion reoriented to $F$ ( 3 ). In this example, then, the element prolonged through oscillation is itself subordinate to a more primary referential element, whose explicit arrival is, as noted above, denied at this juncture.

The closing measures of the $B$ section in the fourth quartet's final movement (Ex. 3.13) demonstrate a similar situation--one in which certain of the prolonged components are themselves subordinate to a more structural element, to which they later resolve. In addition to these prolonged subordinate elements, the primary referential PC is itself prolonged, as will be explained. The excerpt in question, mm. 214-237, features techniques of prolongation other than the disposition-note oscillation under immediate discussion; these will also receive brief attention.

The motive at (1) is used in mm. 183-195 of the same movement (see Ex. 2.42). It is, in fact, a characteristic figure in the $B$ section, in contrast to the A section's oscillation-reiteration structure involving the b2-\#4 disposition pair, discussed later in this chapter. The motive defines a descent of a minor second, suggested at
(2) and (3) (Ex. 3.13), of which the first note may be heard as an appoggiatura to the second. When the motive is reiterated, an oscillation of a disposition note and a primary note results. In these instances, however, the primary note is subordinate at a higher level of structure, as it ultimately resolves to the B section's primary referential element. Thus, oscillations achieved through reiteration of the motive prolong scale degree 2 (4) with respect to the referential C-Eb third in m. 237, and scale degree b6 (5).

Two additional factors of prolongation in this excerpt are worthy of note. First, the thematic element, responsible for prolonged triads in the measures preceding this excerpt (Ex. 3.9), returns in the violins in mm. 220-227 (Ex. 3.13). Here, the elaborated element is a $\mathrm{Bb}-\mathrm{minor}$ triad (6), the root and third of which function at a higher level as lower neighbours to the root and third of the C-minor triadic referential element of the entire B section, arriving first in m. 227 ( (7)). The second detail involves prolongation of the $B$ section's primary referential element subsequent to its "early" arrival in m. 227 (early in the sense that, as explained above, disposition notes to that referential element undergo prolongation until m. 236, resolving only in m. 237). Prolongation of the primary $\mathrm{C}-\mathrm{Eb}$ third in mm. 227-237 involves two elements: a simple but sporadically articulated scale-degree 7 (8), and two successive mid-level embellishing patterns (9) and (10)). The simplicity of the technique of oscillation is in this excerpt offset by the rhythmic independence of individual prolongations and the tonal independence resulting from the simultaneous prolongation of tonicizing elements against that of the referential element itself.

Measures 141-157 of the sixth quartet's opening movement (Ex. 3.6) come at the end of the A section of the large ABA form and prolong, through mid-level unfolding and oscillation of foreground dispositionnote resolutions, an F-major triad, the movement's secondary referential tonic, which made its first appearance in m. 81 (the end of Ex. 3.1). The mid-level phrygian unfolding of the outer fifth of the referential F-triad ( 2 in Ex. 3.6, discussed earlier) may be understood to provide a functional diatonic basis for the inference of foreground directed resolutions of b6 to 5 and b2 to 1 , while the foreground lydian ascent in the violins in mm. 153-154 establishes a similar basis for resolutions of 7 to 1 and \#4 to 5.

The final thirty-nine bars of the sixth quartet's first movement (Ex. 3.14) were referred to in Chapter II as to a large-scale, conventionally functional I-IV-V-I progression. Here, the progression may be examined for techniques of prolongation of the main harmonic components of that broadly articulated progression. In mm. 355-362, for example, the two violins prolong the root and fifth of the tonic $D$ triad through oscillation with particular disposition notes--scale degrees 7 and b2 tonicizing the former (1) and \#4 and b6 tonicizing the latter ( (2). The minor and major third of the triad are simply sustained in the two lower instruments.

Although the remaining harmonies in the large-scale functional progression employ different means of prolongation, these principles are familiar as they were discussed earlier; in order to understand this closing section more fully, the remainder of the progression, with its
individual means of prolongation, will be discussed briefly. Apart from the sustaining of elements of IV in the violins and cello, two simple factors of prolongation are relevant: the embellishing pattern at (3), and the foreground motion within a chord at (4) (the latter followed by a foreground arpeggiation of IV). The prolongation of $V$ is in two parts, the first of which occupies mm. 375-381 with an oscillation between a conventional, cadential tonic ${ }_{4}^{6}$ [whose upper notes are indicated with a diagonal slash (5)] and a root-position $V$; components of each of these two harmonies are not always in vertical alignment. The second part spans mm. 382-388, in which upper parts of a third-inversion dominant-seventh chord are prolonged through foreground unfoldings as indicated graphically on system (a). Reference (6) points out the dominant's change in position resulting from these superimposed unfoldings.

The first one hundred and four measures of the large A section in the fourth quartet's final movement are the focus of the next three examples, which illustrate consistent use of prolongation through oscillation of disposition and referential elements. The movement begins with an unsettled verticality consisting of a C-G fifth, complicated by the addition of Db and $\mathrm{F} \mathrm{\#}$ ( (1) in Ex. 3.15). János Kárpáti regards this type of structure as a "mistuned fifth," 22 a characterization which, in my view, fails to account for the basis of its unstable quality. As I will demonstrate, this opening sets into immediate and harsh opposition

[^51](through superposition) two functionally distinct omponents: a referential fifth ( $\mathrm{C}-\mathrm{G}$ ) and an inherently directed disposition pair ( $\mathrm{Db}-\mathrm{F} \#$ ). This distinction begins to emerge after m. 11 and especially after m. 14. Beginning in m. 12 the two components are separated in timbre, the referential fifth reiterated in the viola, in occasional oscillation with b6, another disposition note (2), and the disposition pair in oscillation with the referential fifth in the cello (3). In spite of this instrumental division, the two components are at certain points vertically aligned as they were in the beginning (e.g., (4). The disposition-note relation of b2-\#4 to 1-5 is summarized at (5). Continued interaction between these two components establishes a tonaltextural straṭum over which a thematic element emerges in the violins, beginning in m. 15. As this theme was the subject of Ex. 2.22 in the previous chapter, it need only be said that the theme is supportive of the underlying tonal basis in its implication of the referential fifth through linear articulation of the b2-\#4 disposition pair (of which \#4 is heard to resolve explicitly in the theme itself). Reference (6) details the relation of the theme to the underlying reiterated referential fifth and disposition pair.

As noted above, in the oscillation-reiteration stratum (viola and cello) articulation of the b2-\#4 disposition pair always occurs in rhythmic alignment with the $\mathrm{C}-\mathrm{G}$ fifth in the viola, obviating explicit linear resolution of the former into the latter. This linear resolution is, however, expressed unequivocally in mm. 29 and 30, where the disposition pair is followed by the C-G fifth in the same part (7). Comparison of those junctures, marked with vertical arrows, with that at
4) reveals the eighth-note rest which accompanies the C-G fifth in the later occurrences, facilitating explicit and uncomplicated punctuation of the referential fifth before a variation of the violins' theme is presented.

It is interesting that tonal clarification in the oscillationreiteration stratum, just referred to, initiates a tonally more explicit thematic variation, beginning in m. 31. This tonal decisiveness is due to the fact that, as indicated at (8), linear resolutions of both b2-1 and \#4-5 are explicit. The thematic version with partial resolution returns in m. 37, but comparison of its concluding pitch with that of the initial statement of the theme in mm. 15-18 reveals a difference: specifically, the theme ends in m. 40 with D\# instead of F\#. Although apparently of only minor consequence, this turns out to have important tonal implications regarding the secondary referential element soon to emerge. F\# was, of course, understood in the initial statement as \#4, resolving to 5 of the C-G primary referential fifth. In this later statement, D\# functions analogously as \#4 in A (9), and occurs in m. 44 with Bb (i.e., b 2 in A ), both of which are in vertical alignment with the A-E fifth that they tonicize (10). This transposed referential element, the A-E fifth, superimposed with its b2-\#4 disposition pair, marks the secondary referential element of the A section. It will be noted that a C-G fifth continues to be reiterated along with the A-E secondary referential fifth but this will be discussed in the context of prolongation in the measures following arrival of the A-E fifth, the subject of the next example.

Example 3.16 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 prolongation to establish the A-E fifth as contextually superior to the $C-G$ fifth in this section. First, the A-E fifth begins with its b2-\#4 disposition pair (noted at 10 in Ex. 3.15) and, although that tonicizing agent is not used in oscillation with the A-E fifth (as it was with the C-G fifth at the outset), the b6 disposition note is heard to oscillate with scale degree 5 (1) in Ex. 3.16). This disposition-note tonicization of the A-E fifth projects it as contextually primary for these measures. The C-G fifth, by comparison, occurs here in oscillation with the less implicative whole-tone upper-neighbour $D-A$ fifth (2). 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 additional factors which tend to subordinate the $\mathrm{C}-\mathrm{G}$ fifth.

Not only is the oscillation stratum more complex after m. 47-through its independent prolongation 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, beamed at (3). These multiple implications are based on the pattern established by the initial theme, mm. 15-16, where the C-G fifth was easily 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 here by the secondary C-G fifth reiterated in the viola. The upper four notes of the extended theme G-A-B\#-C\# (the G is "pivotal" as it is common to both tetrachords) is an exact transposition of the original theme and thus implies a corresponding F\#-C\# fifth, the latter explicit in this enlarged theme because of the occurrence of FH in the lower part of the theme. In that the A-E fifth is contextually primary for this segment, the A in the extended theme is potentially referential. Although its fifth, E, is not present in that theme, its lower disposition note D\#(=\#4) is present 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 (3). 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. Implication of an F\#-C\# fifth is important in light of later events (specifically at m. 76, analyzed in Ex. 3.17).

After the C-G fifth is dropped from the oscillation stratum ( m . 56), the the A-E fifth is elaborated in the same way that the C-G fifth was subordinated to the $A-E$ fifth in mm. 43ff. Specifically, m. 58 initiates an oscillatory prolongation of the A-E fifth in which the departure elements are not disposition notes but, rather, fourth-related
fifth-chords ${ }^{23}$ (4) and whole-tone neighbours (5). Measures 68-75 comprise an octave transfer of the A-E fifth ( (6) and a final descending motion back to the C-G fifth of the opening ( $(7)$ ).

The passage which begins with this ostensible return to the primary C-G referential fifth of the opening is analyzed in Ex. 3.17. As at the opening of the movement, the C-G fifth is here reiterated in the viola [(1) on systems (a) and (b)], with its b2-\#4 disposition pair reiterated in the cello. As noted. at (2), however, the latter disposition pair is here notated as an F\#-C\# fifth. In fact, each fifth (C-G and $\mathrm{FH}-\mathrm{CH}$ ), when enharmonically spelled, may be heard to function as the other's b2-\#4 disposition pair, as suggested at (3). Explicit articulation and continued prolongation of the F\#-C\# fifth in mm. 75-102 confers meaning on the implication of that fifth in the expanded theme of mm . 56ff. (noted above in Ex. 3.16) and confirms that fifth as a structural component in the large-scale harmonic scheme of the A section, particularly in light of the structural linear progression back to the C-G fifth initiated by the F\#-C\# fifth in m. 102 (discussed in connection with Ex. 2.37).

Three additional details in this excerpt are noteworthy. First, while the A-E fifth is connected linearly to the C-G fifth in mm. 72-75 ((7) in Ex. 3.16), implication of the A-E fifth continues in mm. 75-86 through recurrence of its b2-\#4 disposition pair [ 4] on systems (a) and (b)]. Second, beginning in m. 81, the thematic component is heard at

[^52]two different pitch levels in the two violins (5), thus continuing the implication of the C-G fifth, but adding comparable suggestion of a G-D fifth and, thus of a larger homointervallic verticality, C-G-D. Such a view is particularly significant in light of the extended homointervallic fifth-verticalities encountered at the end of the movement, where they articulate a large-scale "I-IV-V-I" progression (as noted in Ex. 2.11, and as will be demonstrated in Ex. 3.18 with respect to the "IV" of this progression).

And third, the final note of thematic statements has been shown to have an important function: in the first statement the \#4 of the $\mathrm{C}-\mathrm{G}$ fifth concluded the theme, and in m. 40 the concluding D\# was said to be a "modulatory" device, functioning as \#4 to the A-E fifth, which was to arrive some three bars later. Consistently applied analytical criteria would thus interpret the E\#-A\# in mm. 84 and 98 as F-A\#, a b2-\#4 disposition pair to an E-B fifth, the resolution to which is only implied in m. 84 (6), but explicit in mm. 98-101 (7). With the brief arrival of the subdominant in the opening measures, and the E-B fifth just noted, a seven-note diatonic circle of fifths is complete: F-C at the beginning; C-G, the primary fifth; G-D implied with C-G in mm. 81ff.; D-A used as an elaborative element in the prolongation of both the C-G and A-E fifths; A-E as the contextually primary fifth in mm. 43ff.; and finally E-B just prior to arrival on the F\#-C\# fifth that initiates the tritone progression back to $\mathrm{C}-\mathrm{G}$ to close the A section. The relationship of the F\#-C\# fifth, within this "diatonic" structure will be commented on in the section on large-scale prolongation.

The next excerpt also comes from the fourth quartet's final movement and illustrates a technique of implication found to be of significance earlier in the movement: implication of the melodic interval of a perfect fifth through a b2-\#4 disposition pair, expressed linearly in the content of thematic statement. ${ }^{24}$ Reference (1) in Ex. 3.18 beams recurrences of a homointervallic verticality of fifths, with $F$ as the lowest pitch (the "root"). 25 Between those verticalities are thematic statements which--according to the criteria established at the beginning of the movement, in connection with the first thematic entry-imply, through a b2-\#4 disposition pair, various perfect fifths. These implied, linearized fifths are beamed on system (a) and represented vertically and superimposed on system (b), each note tied to one member of the recurrent "IV". Thematic gestures in the viola and cello of mm. 324-327 are more complex as each implies two fifths (see (2) and (3). Oscillatory prolongation in this excerpt, then, involves alternation between homointervallic verticalities-implied through the superposition of implicative thematic statements--and homointervallic verticalities which are explicit and which contain those elements implied by the thematic gestures.

In the final example of prolongation through oscillation of disposition and referential elements, alternation in any single instru-

[^53]mental part is not extensive but, as the oscillation pattern occurs in imitation, prolongation is effected. The excerpt is mm. 14-32 of the second quartet's opening movement (Ex. 3.19) of which mm. 19-27 illustrate the aforementioned technique of oscillation; the remaining measures serve to establish the larger context in which the oscillatory prolongation occurs. An interesting shift of emphasis may be interpreted in these measures as regards the disposition and prolonged elements. In mm. 19-23, for example, the following factors suggest the primacy of the B-F\# fifth (and the subordinacy of the C-G fifth) : the extensive arpeggiation of a B-major triad in mm. 14-18, culminating in a durationally emphasized $B$ in the cello (1); the rhythmic emphasis of $B$ as compared with the anacrustic C-G-C arpeggiation, which precedes each arrival of $B$ (2) and all subsequent analogous points); and the extensive lower-level prolongation of the B-F\# fifth through foreground arpeggiation (3) and surface-level motion within a chord (4). In spite of such support, however, the return to $C$ at (5), (6), and especially (7) suggests that mm. 19-23 prolong the C-G fifth as primary for the span. Reference to the score reveals that a rest follows these rearticulations of $C$, and that (6) and (7) mark the end of a phrase. The "cadential" C at (7) is accompanied in the viola by a conventional 2-b3 appoggiatura resolution [Eb playing a dual role as the major third of $B$ (i.e., D\#) and as the minor third of C].

The new phrase, beginning in mm. 23-24, opens in the same way as the first. Here, however, prolongations of the $B$ triad--through surface motion within the chord ( (8)) and reiteration of chord-tones (9)--are
more substantial and, more importantly, fail to return to elements of the C triad. Compare, for example, the concluding pitch of the motion at (4) with that at (8). In mm. 23-27 the B triad takes precedence. As suggested at 10, the $B$ triad moves to a dominant of $A$, which resolves immediately (m. 28). The shift of emphasis between $C$ and $B$ in the phrases of mm. 19-23 and 23-27 thus creates a large-scale PC-step motion $C-B-A$, the $B$ serving at this level as a passing element (11). The large-scale motion of a third, between $C$ and $A$, is replicated in the progression from $A$ to $F \#$ in mm. 28-32, the details of which are straightforward.

Simultaneous prolongation of more than one referential element
Many passages in Bartók's music appear to support or articulate more than one referential element simultaneously, such passages often being characterized as "bitonal." Within a more encompassing view of tonality, the concept of bitonality is not necessarily contradictory, for it is conceivable that principles of tonicization and prolongation may be applied to two different referential elements at the same time. If a strictly unified tonal structure is to be posited, however, one reference would have to be shown to take precedence over the other. But it is often the case in Bartók's music that there is little to suggest the primacy of one element, short of lower registral placement of one with respect to the other(s). It is quite possible, however, that in such passages the composer is using simultaneously prolonged referential elements in developmental, transitional, or episodic contexts, where hierarchization and simple perceptual separation are dubious and tonal
orientation ambiguous. In other passages, criteria for asserting the importance of one element over the other(s) are demonstrable. The analysis of passages with simultaneously prolonged referential elements, then, involves three steps: (1) documentation of specific techniques by which multiple referential elements are established and prolonged, (2) explanation of the relationships between elements where a primary element is not identifiable, and (3) specification of hierarchical principles where one element emerges as focal. The examples which follow will take these factors into account.

Simultaneous orientation to several referential elements is apparent in mm. 33-43 of the opening movement of the first quartet (Ex. 3.20). In one instance, bitonality is illusory, resulting from "residue" of one referential element extending past the initial stages of orientation to the next. In another instance, one of two simultaneously sounding referential elements alludes to an event which occurs later in the piece. In each case hierarchization of apparently conflicting referential elements is reasonable and perceivable.

C major-minor is convincingly projected in mm. 33-40 through a sustained and reiterated C-G fifth in the cello (1) and the reiterated, unfolded fifths in the first violin (2). A C\#-minor triad is prolonged in mm. 33-38 through successive linear connections of its chord-tones (3). The roots of these two referential triads, C and CH ; while suggesting a bitonal conflict, represent a point of overlap of two large-scale progressions. $C$ is the culmination of a mid-level progression of ascending minor thirds, illustrated in Ex. 2.3, while C\# is the first harmony in a cycle of descending fifths that continues through $\mathrm{F} \#$
to B, as will be explained. The issue of hierarchy does not arise, as one harmony marks the end of a formal section, the other defining the beginning of a new section, while the two overlap. ${ }^{26}$

Already in $m$. 38 the second violin is beginning to assert an FH major triad (4). In m. 39 the viola joins the projection of that harmony through reiterated linear motions connecting chord-tones of the F\# triad ([5), and in m. 40 the first violin's unfolded fifths may be heard as supportive of $F \#$ as well (6). The cello of mm. 40-41 (ㄱ) confirms an unequivocal orientation to $F \#$. The function of the $F \#$ harmony is that of a conventional dominant of $B$, which arrives in m. 43 through the root-motion of an ascending fourth in the cello (8). Yet, B, as a referential harmony, is short-lived, in spite of its substantial approach: the next measure features an abrupt, though not completely unprepared, motion to Bb . Preparation comes from the unfolded fifths in the first violin of mm . 40-41 (9), earlier interpreted enharmonically within the F\# harmony. The beam at 10 illustrates this connection; and continues at (11) to reveal an explicit confirmation and prolongation of Bb just prior to the return of the A section. Devices of prolongation include the, by now common, unfolded fifths in the violin (12), foreground unfolded descending fifths in the second violin

[^54](133), and reiterated chord-tones in the cello (14).

One of the fundamental characteristics of the third quartet, from which the next three excerpts are taken, is its nearly consistent orientation to two referential elements. Some passages in the Prima parte feature simultaneous prolongation of two referential elements in contexts where there is little to suggest primacy of one over the other as, for example, mm. 27-32 (Ex 3.21). Allowing the rootfunction conferred on the PC-lowest member of a homointervallic fifth collection, the cello reiterates a referential element whose root is G [1] on systems (a) and (b)]. Applying the same criterion to the first violin and viola results in interpretation of a prolonged F\# [ (2) on systems (a) and (b)]. The inference here is underscored by the "tonal answer" in the violin: the viola rises from $\mathrm{CH}_{4}$ to $\mathrm{FH}_{4}$ (3) and the violin rises from $\mathrm{FH}_{5}$ to $\mathrm{C} \#_{6}$ (4). A semitone root relation between two independently prolonged referential elements is thus established. The second violin wavers between $G$ and $A b$ and, although this does not provide a direct link between the two referential roots, it does so indirectly: G is, of course, one of the roots, and Ab (as G\#), although not the root of the prolonged element in the first violin and viola, is the PC in the violin which is most often metrically and agogically emphasized (5). The passage ends with an inferred descending-fifth progression from $G$ to $C$ (6). Although the F\# element is temporarily absent, it emerges immediately after the cadence in m. 33, as will be discussed in the next example.

In fact, the next phrase, mm. 35-43, begins with the dual refer-
ential elements, C and F\#, prolonged in the lower instruments through the same means employed in mm. 27-32. As indicated in Ex. 3.22, m. 40 is a point of harmonic change: the $C$-rooted referential element moves from the cello to viola (1) and the F\#-rooted element in the viola moves to C\# in the cello ( (2). The semitone relation in m. 27, F\#-G, has thus been transposed a tritone to $\mathrm{C}-\mathrm{C} \#$ in m .40 , the tritone relation in m. 33, C-F\#, being a pivot (F\# common to the first semitonal duality and C common to the second).

The structure of the violin parts in mm. 36-42 and their relationship to the underlying dual referential elements are not immediately apparent. As regards their structure, the reduction of these parts on system (b) reveals that each prolongs a single PC through a large-scale embellishing pattern, the details of which are given on system (a). Comparison with the score will show that durational emphasis is the primary criterion for pitch selection in the analysis. Regarding the relationship of each violin part to the prolonged referential elements in the lower parts, the first violin's prolonged A\# is the PC-highest member of the C\#-rooted collection in m. 40 (3) and the second violin's $A$ is the analogous member in the C-rooted collection of m. 35 (4) and the "missing" member of the c-rooted collection at m. 40 (5). The individual PCs prolonged in the two violins thus relate to one or the other prolonged element in the lower two instruments, providing tonal unification between two disparate textural strata.

The main focus of Example 3.23, from the third quartet's Prima parte, is the explicit and simultaneous prolongation, in mm. 5764, of a Db/C\# homointervallic verticality and a D-major triad, C\#-D
being the movement's most fundamental of semitone relations. ${ }^{27}$ Prolongation of $\mathrm{Db} / \mathrm{C} \#$ occurs in the viola and cello (1) and that of $D$ in the violins (2). References (3) and (4) indicate that the first principle of prolongation, in each case, is that of an embellishing pattern. Db recurs before D in m .59 and is briefly prolonged through a neighbour to its upper fifth (i.e., the motion $A-A b$ at (5). This motion, in fact, becomes the only factor of prolongation with respect to the $\mathrm{Db} / \mathrm{CH}$ referential element; recurrences of this motion are noted at (6). Prolongation of the $D$-major triad is more extensive: at (7), for example, the final verticality in the preceding embellishing pattern functions as a tonicizing agent, and at [8, a different verticality serves in that capacity. In connection with this final tonicization of $D$, oscillation with the referential element strengthens the contextual-dominant function of the tonicizing agent.

Considering the approach to this dual prolongation, the verticality in m. 56 may be perceived as the superposition of a lower auxiliary to $D$ (9) and a partial upper auxiliary to $D b$. The latter is partial because the root Db sounds in anticipation (10), the auxiliary motion elaborating only the two upper notes of the Db referential element (11). While it may seem odd to regard a homointervaliic verticality as superior to the inferred triadic auxiliary element-particularly in light of the triadic structure of the referential element in the two violins--subsequent prolongation of the homointerval-

[^55]lic Db element corroborates such a view. In fact, this is an important factor of interpretation in light of which the opening bars of this excerpt may be better understood.

Without knowledge of the ensuing prolongation of Db and D , the opening four bars of the excerpt may be heard to prolong an F -major triad in the violins ( 12 ) through neighbour encirclement, and an Ebminor triad in the viola and cello (13) through similar means. In light of the last eight bars of the excerpt, however, the first verticality, in m. 53, may be reinterpreted as lower auxiliary to a prolonged G-major triad in the violins ( (14), superimposed over a partial upper auxiliary to a Gb homointervallic verticality in the viola and cello (15). The immediate approach to Gb and G and to Db and D are thus transpositionally related, and the former (i.e., Gb and G ) are prolonged through embellishing patterns not unlike those used to prolong the latter at (3) and (4). Although the temporal order of events is such that the prolongation of Db and D would be perceived as beginning with a transposition of the opening four bars, prolongation of Gb and G can only be fully appreciated after the more substantial and complete prolongation of Db and D . At a higher level of structure the prolonged Gb and $G$ are related to Db and D through the same interval of progression (IC 5) as indicated at (16).

The final example of simultaneous prolongation of multiple referential elements, from the opening movement of the sixth quartet (Ex. 3.24), is a convenient excerpt to end this section on mid-level prolongation because it also demonstrates substantial and often complex
interaction of many of the techniques discussed above. The excerpt is oriented to three triadic referential elements, characteristics of each being present from the outset and apparent even at points of relative clarity with respect to any single referential element. This is partly so because, as shown below, the three referential elements share common notes:

$$
\begin{aligned}
& \text { G\# --- B --- D\# } \\
& \begin{array}{rl}
\mathrm{B}-\mathrm{D} / \mathrm{D} \# & \mathrm{FH} \\
\mathrm{D}-\mathrm{FH} & \\
\text { - }
\end{array}
\end{aligned}
$$

This scheme of overlapping triads represents the order in which each emerges as focal although, as suggested above, elements of at least two of the three often emerge together. Interaction between $\mathrm{G} \#$ and B , for example, is immediately apparent. The large-scale linear motion from $D$ to $B$ at (1) suggests primacy of the $B$-minor triad, as it defines an unfolding of the root and third of that triad (2), its root reinforced in the cello of m. 32. Although B returns in the cello in m. 35, it does so as the bass of a first-iniversion $G \#-m i n o r ~ t r i a d ~(3), ~ t h u s ~$ representing the first point of triadic overlap. The end of the $D-B$ unfolding at (2) can be heard to participate in a voice exchange with the cello (4), further illuminating the G\# triad through its resultant root-position at (5).

The second violin and cello of $\mathrm{mm} .36-42$ continue to suggest the G\# referential triad through their rhythmically offset linear progressions from G\# to B, shown at [6), and denoted at (7) as prolongational unfoldings. The mid-level progressions are motivically derived, as they result from successive transpositons of a motivic gesture stated in the cello ( (8) and inverted in the second violin (9). This motive spans
a seventh in the cello in mm. 36-38 and 38-40, the bottom note of the seventh participating in the larger step progression and resultant unfolding. However, in the third statement of the cello motive, mm. 4142, the interval traversed is a sixth and is, itself, a prolongational progression (10), albeit one at a lower level. It is, in fact, an important unfolding--one which serves to bridge the larger prolongational progressions in the cello and second violin which, as already noted, are offset. The cello arrives on B (m. 41) before the second violin (m. 42), and while the latter is "catching up" the former engages in the aforementioned prolongational progression of a sixth. Arrival of B (with D\#) in the second violin (m. 42) thus coincides with completion of the foreground unfolding of B to $\mathrm{G} \#$ in the cello (11).

As regards elements of the $B$ major-minor referential triad during this expression of $\mathrm{G} \#$ minor, the sustained B in mm . 36-41 in the first violin is transferred to the second violin's B-D\# third in m. 42 (12). Although this supports the G\# triad, as noted above, it could also be heard to relate to $B$, particularly in light of the brief, midlevel unfolding of $\mathrm{A} \#$ to $\mathrm{F} \#-$-components in the dominant of B --in mm. 4143 (13). In fact, it is in mm. 41-44 that large-scale events in support of $B$ begin to emerge. While vestiges of the G\#-minor element disappear after m. 42, elements of the D-major referential triad begin to interact with the B major-minor element, as will be explained.

Measure 41 initiates two constructs relating to B : a mid-level unfolding of $B$ to $D$ in the cello ( 14 ), and a large-scale unfolding of that same interval in the first violin (15). The first of these is
denoted with a dotted symbol because, as suggested by the slur at the motion from B to D may also represent a connection of referential triads on those roots. The larger prolongational progression culminates on an elided cadence in m. 53, punctuating the B major-minor referential triad, and occurs over lower-level events which suggest both B and D. For example, the first violin unfolds A to C\# (17) which, with the prolonged $E$ in the second violin, represents the dominant of $D$, a functin which is further realized by the resolution of CH to D in the first violin at the cadence in mm. 52-53. Coincident with, but rhythmically independent of, this prolonged dominant of $D$ is a comparably unfolded dominant of $B$ (18) and, although the latter may be heard to resolve one bar early (19), its constituents are either repeated or transfared to other parts for resolution at the cadence in m. 53 (20). While satisfying the expectation of $B$, this cadence is conventionally deceptive with respect to $D$, which is not stated explicitly until m. 60 (as indicated in Ex. 2.18b). The measures connecting the two cadences are uncomplicated and do not require comment.

## Large-Scale Prolongation

The intimate bond between functional progression and prolongetion, referred to at the beginning of this chapter, is further manifest in the generation of large-scale tonal coherence. Consider, for example, two of the most common large-scale conventional tonal patterns as they occur in numerous formal schemes: I-V-I and i-III-V-i. The tonally contrasting section frequently occurs in the dominant, returning to the tonic at the return of the opening material. Sonata form is
based on the tonic-dominant polarity, although the development section, by definition, will touch, however, tentatively, on many referential harmonies. In minor, the middle section of a three-part form will often articulate motion from III to V in advance of the tonic accompanying the return of opening thematic material. The point here is that these large-scale tonal patterns, if heard as foreground progressions, clearly prolong a single tonal area through functional relationships in the major-minor system. Thus, tonality-defining progressions which, at the surface, define prolongations, are often projected over an entire piece, providing tonal unity through a large-scale prolongational progression.

Surely the most attractive aspect of the type of prolongation discussed above--a feature which truly separates traditionally tonal music from that which may be characterized as tonal in some purely contextual sense-is the degree of tonal orientation possible prior to explicit occurrence of the tonic reference, even, in fact, in its absence. If, for example, the large-scale plan were vi-V-I or III-V-i, the fact that those patterns are unequivocal, tonal-orienting progressions at levels where orientation is most palpable provides a functional basis on which to ascribe tonal direction, tonic expectation, and, ultimately, prolongational significance to the broadly articulated pattern.

I suggested at the beginning of this chapter that this degree of implication and. expectation inherent in the major-minor systern, while theoretically relevant at many levels of structure, may not be equally perceptible over broader spans. Functional progressions effecting pro-
longation at the phrase level, for example, are indeed perceptible, while those over a broader span, although often functional in the same sense as those within phrases, are appreciated "conceptually." That is, because of our knowledge of functional relations according to which constituents of the large-scale progression are ordered, we "understand" such a progression to be directed and implicative of its large-scale goal; we do not, however, necessarily "hear" the progression as an articulated succession of adjacent, functionally related events. Therefore, functional directedness and resultant prolongation within the phrase are, in traditionally tonal music, quite real and perceptible, while large-scale functional progressions and attendant prolongations, although grasped conceptually, are of uncertain perceptual identity in actual experience.

The ramifications of this situation for large-scale structure in nontraditional contexts are indeed formidable. If a large-scale progression in a conventional context is understood conceptually but is not necessarily perceptible, then a comparable, systematically articulated large-scale progression in a nontraditional context may be accorded some degree of analogous structural significance. The conventional largescale progression is accorded prolongational status because of the precedent set at foreground and middleground levels, where similar progressions yield palpable prolongations. ${ }^{28}$ For a nontraditional

[^56]large-scale progression to acquire analogous prolongational significance, a comparable, perceptible foreground or mid-level precedent, linking progression and prolongation, must be apparent as an element of the tonal structure of the particular piece. ${ }^{29}$

The large-scale tonal structure of much twentieth-century music, while systematic in its organization, is more problematic as to prolongation. Recurrences of primary referential elements over extreme temporal distances are often just that: recurrences. Recurrences of a tonic triad over comparable spans in major-minor music, on the other hand, are often achieved through broadly articulated functional patterns which, at perceptible levels, are prolongational. Two examples from Bartók's quartets will serve to demonstrate large-scale structures which may be accorded prolongational significance by virtue of a perceivable prolongational precedent established at much lower levels. One occurs over a the first of three large formal sections and the other over an entire movement.

The first example comes from the final movement of the fourth quartet, analyzed in some detail in this chapter and in the preceding. Example 3.15 revealed prolongation of the primary referential C-G fifth
based on the common usage of that pattern in the major-minor system in general. (Cf. note 29.)
${ }^{29}$ This is consistent with Paul Wilson's concept of "nesting," mentioned in the quotation given earlier; refer to note 11. Compare this to note 28. In nontraditional contexts, the presence of a foreground precedent is required for extrapolation of prolongational significance at higher levels, as we rarely have a clearly defined referential basis outside a given work on which large-scale contextual functionality and prolongational validity can be ascribed.
through oscillation with its b2-\#4 disposition pair; Exx. 3.16 and 3.17 illustrated motion to an interlocking of C-G and F\#-C\# fifths, each fifth functioning as a b2-\#4 disposition pair in relation to the other; and Ex. 2.37 focused on a large-scale linear progression of a tritone, which links the F\#-C\# fifth of the aforementioned point of interlock to the primary C-G fifth which concludes the large A section.

Large-scale prolongation in this excerpt involves projection of the primary referential fifth, $\mathrm{C}-\mathrm{G}$, over the entire 148 -measure A section. As noted above, the section begins and ends with the C-G fifth, but on what basis might the entire section be said to "prolong" that particular fifth? The principle of large-scale articulation of a foreground or mid-level prolongation pattern concerns the b2-\#4 disposition pair (i.e., Db-F\#). This tonicizing agent is employed consistently at the foreground in mm. 1-42 to prolong the C-G fifth through oscillation, and emerges in m. 75, enharmonically spelled, as a tonal event of structural import. Although, as noted above, $\mathrm{C}-\mathrm{G}$ and $\mathrm{FH}-\mathrm{CH}$ interlock, $\mathrm{FH}-\mathrm{CH}$ may be understood as the main event here, because it initiates the aforementioned large-scale tritone progression back to the $\mathrm{C}-\mathrm{G}$ fifth. As noted above, in a conventionally tonal piece, the dominant serves to tonicize and prolong the tonic at the foreground but also over broader spans, as, for example, when functioning as a key-area in the middle section of a ternary design. This movement illustrates an analogous relationship within its $A$ section: the $D b-F \#$ disposition pair prolongs the C-G fifth at foreground and middleground levels, and acquires associative, prolongational significance at those levels. That disposition
pair is similarly understood at its structural arrival in m. 75, where it serves to prolong the primary C-G fifth at a higher level of structure.

The second example spans the opening movement of the fifth quartet. The large-scale harmonic plan of many conventionally tonal pieces eventually breaks down to I-V-I and it is a vital feature of the major-minor system that the prolonging component at this level is precisely that which occurs at every level from the immediate surface upwards. This "nesting" process is surely one of the most compelling aspects of tonal unity and coherence in music of the major-minor system. The components of the large-scale structure of the movement in question function within a mid-level construct employed at the beginning to prolong the referential PC of the first theme (also that of the entire movement). As discussed in connection with Ex. 2.34, that theme is a mid-level ascending scalar construct with characteristics of a wholetone scale and a lydian pattern rooted on Bb .30 The theme, with its octave completion, may thus be understood to prolong Bb .

Large-scale prolongation of Bb is generated through a key-scheme which projects the dual scalar pattern over the whole movement. Example 3.25 shows the opening measures of each of the three main themes as they occur in the exposition and recapitulation sections. These three themes have already been examined in various degrees of detail and it need only be noted here that, in the recapitulation, they occur in reverse order
$30_{\text {The }}$ assertion of root in connection with the whole-tone scale is of course based on context, as that succession is symmetrical and therefore, in and of itself, rootless.
and are inverted--a detail which further enhances the symmetrical structure of the movement. System (a) shows the referential PCs of the themes, which as indicated at (1), comprise the whole-tone structure of the opening theme (2). Dual emphasis of $E$ and $F$ at the end of the development section (mm. 126-127 in Ex. 3.25) may be heard to represent completion of a large-scale ascending lydian fifth (3), also apparent in the structure of the first theme. A scalar pattern, which serves to prolong the movement's primary referential PC over a phrase-level span, is thus projected over the entire movement in large-scale prolongation of Bb .

## CHAPTER IV

PROGRESSION AND PROLONGATION IN THE FINAL MOVEMENT OF BARTÓK'S SIXIH QUARTET

As suggested by the foregoing analyses, particularly with regard to those excerpts used to demonstrate more than one determinant of tonal structure, the musical language of Bartók's quartets features complex interactions between different types of progression and prolongation. And, as in conventionally tonal music, components of mid-level progressions are at times prolonged at a lower level, and at other times midlevel progressions themselves reflect higher-level prolongations. Thus, there is interaction between determinants functioning within phrases, but also important relations between events occurring at different levels of structure, over various temporal spans, both contiguous and noncontiguous. To fully understand the richness of Bartók's tonal language requires a view which takes into account such complex interactions. Accordingly, the fundamental goal of the present chapter is to illuminate interactions between determinants of tonal structure within particular phrases or other segments, and to elucidate interactions of determinants across the complete movement as they contribute to a sense of overall tonal coherence and unity.

By way of introduction to the analysis, it may be said that the final movement of the sixth quartet features an amalgam of tonal deter-
minants, some associated directly with convention and others analogous to certain conventional procedures. One of the first general aspects of conventionality encountered in the movement is the abundant use of tertian harmonies, which often progress according to functional root relations associated with the major-minor system. Tonicization through the conventional dominant and a host of dominant substitutes well within the practice of the nineteenth century (e.g., diminished-seventh chords and harmonies akin to the augmented sixth) is perhaps the most significant of functional progressions employed in this music.

One particular feature of this movement's tonal structure that has analogy in conventional practice, particularly of the nineteenth century, is that of ambiguity of the overall tonality of the movement. In the sixth quartet's final movement, the primary, referential triad comes into focus only gradually as the piece unfolds. David Gow, in his analysis of Bartok's first string quartet, has referred to this process as "emergent" tonality. ${ }^{1}$ Inextricably tied to this concept is the condition of retrospection, discussed in previous chapters. For example, the emergence and confirmation of the referential triad at the end of the movement imparts functional significance to previous midlevel points of centric orientation.

The primary referential triad of the movement requires preliminary explanation prior to analysis. To be more exact, there are two referential triads in the movement, although the problematic element of

[^57]conflict associated with "bitonality" is not evident here. Rather, the movement's tonal duality may be understood to have a more conventional precedent, namely the relative and parallel major-minor relationships. The two referential triads will be shown to be $D$ major-minor and $F$ major; the parallel relation holds between $D$ major and $D$ minor and the relative between $D$ minor and $F$ major. Explication of how one referential triad emerges as structurally superior is reserved for the analysis which follows.

In this movement, conventional and nonconventional tonal determinants often occur in sharp juxtaposition within phrases and from one phrase to the next, requiring the listener to evaluate the structure according to different principles of organization. Accordingly, the phrase will serve as the applicable formal unit for the study of how these various tonal determinants are deployed throughout the movement. However, unlike phrases in conventionally tonal music, which most often conclude with a cadence of some sort, phrases in this movement rarely feature such terminating patterns of tonal punctuation. Some phrases have internal points of tonal orientation, and others articulate a particular nontonic harmony the function of which is that of a component in mid-level functional harmonic progression (i.e., at a level beyond that of the phrase). Phrase delineation is most often effected through surface changes in texture, tempo, and dynamics, as well as intervening rests and rhythmic caesuras--factors which, in much twentieth-century music not reliant on the syntax of major-minor tonality, assume vital structural significance.

In light of emergent tonality and retrospection, discussed above
and in previous chapters, brief examination of the end of the movement will afford a perspective in which to understand phrase-level referential elements encountered from the outset. Upon gaining such an understanding, we can appreciate the tonal ambiguities expressively integral to the music as it unfolds in its proper temporal order while retaining a sense of heightened, often contextual, expectation involving largescale relations disclosed in analysis. Progressions and prolongations throughout the movement will thus be evaluated on the basis of their contribution to deliberate tonal ambiguity or the process of emergent tonal clarification, two valid structural elements in the movement's tonality.

It is apparent from Ex. 4.1 that the final measures of the movement ultimately focus on the aforementioned tonal duality between $D$ major-minor and F major, these two referential triads exposed and prolonged through recurrent disposition-note elaboration of their individual chord-tones. The analysis of scale degrees, as represented below systems (a) and (b), reveals consistency in the use of b2, \#4, b6, and 7. Also apparent is the oblique resolution of the $\mathrm{b} 2-5$. tritone in the final articulation of $D$ in the two violins ( (1). These particular disposition notes and the obliquely resolving tritone were shown in previous chapters to acquire directive potential from the lydian and phrygian orderings of the diatonic collection which, although not stated explicitly here, will be shown to occur explicitly earlier in the piece.

In the process of examining interactions of various tonal determinants from the beginning of the movement, allusions to, and direct
expressions of, elements in the tonal duality by which the movement is finally understood will be disclosed. Example 4.2 reveals that there is, in fact, no suggestion of $F$ and an only tentative implication of $D$ in the opening phrase of the movement. The phrase begins with a concentration on $A$, by way of a succession of functional progressions employing harmonies from both major and minor modes, and it ends--with one of the few definitive cadences in the movement-on a C -minor triad, exposed through factors which will be summarized. Concerning the opening implication of A major-minor, two procedures figure significantly in complicating otherwise pure conventionality: one is the occurrence of passing tones and resolutions of tendency tones a semitone "too high" or "too low"; and the other, often the result of the first, is the aforementioned intermixing of major and minor resources. The first violin's Db and Eb in m. 2 are not diatonic to the underlying A minor but are, rather, a semitone below respective diatonic constituents. The same situation occurs in the second violin, m. 4, and in the cello, m. 8. The inflections in brackets and squares above these three instances on system (a) are those required to render the notes diatonic to the underlying harmony, the squares being used for those which would become chord-tones as a result of the inflections. The result is a triadic structure which is "tainted," so to speak, by conflicting semitonally related nonharmonic notes. ${ }^{2}$

[^58]Major-ininor mixture is applied to the submediant harmony, which occurs as vi (i.e., a minor triad on scale degree 6) as well as bVI (i.e., a major triad on scale degree b6). At the beginning of m. 3, for example, vi from A major occurs. Not only is the opening in A minor, but the verticality sounding at the end of $m$. 2 ( (1)) is a $V$ of bVI (i.e., the VI found in the minor mode). Thus we have the dominant of bVI resolving to vi. This exact progression returns in mm. 7-8 as indicated at (2). Here, then, is a case of complete harmonies resolving one semitone "too high" with a resultant blend of major and minor harmonic resources, a unique type of deceptive progression and resolution.

Example 4.2 also indicates that, apart from local tonicization of the C-minor triad in m. 13, through a disposition dominant ( 3 ), there is little if any diatonic implication of that key earlier in the phrase. Although vertical alignment of the four parts on a consonant triadic sonority, a climax of dynamic intensification, and extreme registral separation of the outer pitches, are among the factors which help expose the $c$-minor triad in $m .13$ as an arrival point, none of these characteristics implies early in the phrase that this particular outcome is probable.

This, however, is not to say that arrival of the C-minor triad in m. 13 is without preparation. As the top two staves of system (a) in Ex. 4.3 show, the first violin and cello--the thematic voices--may be heard to form a two-voice counterpoint which is systematic in approach to the $C$-minor triad at the end of the phrase. The approach is systematic because of the consistent use of two foreground patterns: one comprised of a chromatic passing note and a chromatic, incomplete upper
neighbour note, resulting in a semitone encirclement of the next structural pitch in the linear progression (1); and the other, a descending sixth, which at (2) effects linear connection of D to F\#, "compensating" for the absence of an ascending step connection of $D$ to $F \#$ at (3). Concatenation of the encirclement and descending-sixth motives in the upper voice yields a step progression connecting $C$ to Eb (4), which may be understood as a large-scale unfolding, and resultant prolongation, of the minor third of the final triad. In that the overall progression acquires functional significance upon its conclusion, it is an example of a contextually directed linear progression as defined in the second and third chapters.

The linear organization of the cello part is more complex as it involves two progressions: a PC ascent from F\# to E (5)--again derived from the linking of transposed thematic-motivic material--and a descent from $E$ to $C$ (6). In the first of these progressions, the descendingsixth motive from the first violin (2) occurs twice: at (7), the lower note of the sixth, $B$, may be construed as an incomplete upper neighbour to the next structural note in the progression (Bb); and at [8, the lower note (E) represents, on the one hand, the durationally emphasized final member of this F\#-E progression, and on the other, the initial member of the descending E-C progression. The ascending progression from $\mathrm{F} \#$ to E may be interpreted as an unfolding and prolongation of the F\#-E interval in the disposition dominant which resolves at the end of the phrase (9). Through repetition and transposition of a one-bar motive ( 10 , in the score), the descending $\mathrm{E}-\mathrm{C}$ progression articulates
a 1-1-2 IC pattern (11), which is a temporally expanded version of the IC pattern in the first violin's opening motive (12). The procedures outlined above exemplify two important aspects of interaction between determinants of tonal orientation: the generation of linear progressions through successive, often step-related, transpositions of primary thematic and motivic material--as in the outer voices of this opening phrase-and the relation between contextually directed progressions and prolongational linear unfoldings where pitch extremities of the former are disposition notes defining endpoints of the latter, as in the unfolding of FH -E.

Before considering subsequent phrases I offer a different, though not incompatible, interpretation of tonal organization and centric orientation in this opening gesture--an interpretation which brings to light an element of implication of the phrase-ending $C$-minor triad back in m. 7, and uncovers mid-level projection of an important and recurrent foreground motive. The middle staves of system (b) in Ex. 4.3 interpret the outer voices of this opening phrase as successions of foreground, unfolded thirds. A whole-tone relation is noted at 13 and a "rotation" at 14. In this rotation, the D-F\# third pivots about an F\# axis to yield an F\#-A third, which in turn moves up by step (15), as at (13). Were the concluding third of this second rotation (G\#-C) to pivot about its axis (C), the original C-Eb third would occur (16) ). This implication of C minor is, of course, unfulfilled until the end of the phrase ( 17 ).

The element which appears in place of the implied C-Eb third in m. 7 is an A-C third (18), which is subsequently connected to the $\mathrm{C}-\mathrm{Eb}$
third of the cadence through an intervallically augmented, large-scale projection of the foreground motive identified at (1). As indicated at (19), the pattern involves a passing element and an incomplete upper neighbour to the final third. In the foreground pattern which begins the movement, the passing element moves by semitone, thereby decorating a whole-tone step ( $C$ to $D$ ), whereas in the augmentation the passing element moves first by whole-tone, then by semitone, resulting in an overall traversal of a minor third ( $A$ to $C$ ). The semitonally related incomplete upper-neighbour motion--Eb-D at the end of (1)--is retained in the motion $C \#$ ( as Db ) to C . The cello part is regarded in this alternate interpretation in much the same way as represented on system (a).

The opening phrase, then, relies on conventional determinants of tonal structure-functionally related tertian harmonies and traditional means of tonicization--as well as less conventional devices--harmonic resolution and voice leading a semitone "too high" or "too low," intervallic unfolding and prolongation through large-scale contextually directed linear progressions, and tonicization of the final referential triad through a disposition dominant. The relationship of this opening phrase (and the referential triad with which it ends) to the overall tonal duality of D major and F major, however, is one which will come into focus only upon examination of subsequent phrases.

The second phrase, mm. 13-22 (Ex. 4.4), is less concerned with underlying chromatic tonal procedure and triadic structure than with the type of independent linear continuity and contextual directedness asso-
ciated with the outer parts in the first phrase. Here, the motivic foreground encirclement pattern at (1) in Ex. 4.3 is used to effect a mid-level step descent in the outer parts (1), followed by an ascent in the three upper parts (2) and a continued descent in the lower part (3). These linear progressions culminate at the end of the phrase, m. 22, marked by the collection (reading up) E-C\#-A\#-G\#. Reference (4) reveals the large-scale voice exchange between $E$ and $G \#$ in the first violin and cello. This phrase is more systematic than the first phrase in that the encirclement pattern is used consistently in all four parts. Also, the opening of the phrase is more implicative of its arrival point because of the aforementioned voice exchange. These details render the phrase prolongational in overall design and serve to demonstrate further the interaction between linear progression, prolongation, and motivic structure.

System (b) illustrates the verticalities which, although not conventionally tertian, are nevertheless significant in the present context. As indicated, the individual lines produce offset IC 4s descending by IC 2, mm. 13-17, followed by offset IC 2 collections ascending by IC 2. The end of system (b) indicates that the two violins move only a semitone to the cadential sonority; were they to move a whole-tone, as does the viola (and as suggested by the established pattern), the sonority at (5) would result. This collection, although denied, is a more conventional $V$ of $D$, one of the two main referential triads. System (c) is a more detailed view of the harmonic flow in mm. 16-22 which results from the superimposition of linear components; it reveals a common-tone procedure whereby connection of adjacent vertica-
lities is rendered smooth and gradual.
As a result of the pattern departure discussed above, whereby semitonal motion to the cadential sonority replaces the normative wholetone connection, the cadential sonority may be construed as dominant to both $D$ and $F$, the two referential triads confirmed at the end of the movement. As a dominant in F major, i.e., $\mathrm{E}-\mathrm{G} \#-\mathrm{Bb}-\mathrm{Db}$, the "root" is the bass note E and produces; with the C root and bass of the first phrase's final verticality, a large-scale whole-tone encirclement of the ultimate goal D (the whole-tone encirclement an expansion of the foreground semitone encirclement pattern at (1) in Ex. 4.3). As a dominant in $D$ minor, i.e., $C \#-E-G \#-B b$, it creates, with the cadence of the first phrase, a chromatic PC-step approach to the primary goal D in terms of root relations C-C\#-D, the other component in the foreground encirclement pattern. Although $D$ in these two large-scale motivic imitations of the opening foreground pattern has not yet emerged as focal, the largescale unfolding of the initial part of the pattern suggests that exposure of $D$ as a point of tonal focus is imminent.

It is, in fact, in the third phrase, mm. 22-39, that $D$ and its major-triad affiliates $\mathrm{F} \#$ and A finally begin to emerge, albeit gradually. First, there is the apparent C\#-D completion of the second vio-lin's.F\#\#-C by the viola and cello in m. 25, indicated at (1) in Ex. 4.5. I say apparent because it turns out to be the beginning of $a$ tritone transposition of the theme from mm. 22-24 (2). Rhythmic elongation of the C\#-D dyad, however, tends to give, through agogic accent, an initial, if only tentative, feeling of arrival on D. Fol-
lowing this, at (3), coincidence of $D$ in the violins and $F \#$ in the viola and cello further suggests $D$ major, even if the feeling of arrival is offset by the cello's $F \#$ occurrence in the middle of a thematic gesture. This confluence of $D$ and $F \#$ completes an inflected voice exchange between the two violins and the viola and cello. The inflection concerns the upper note, $F$, of the first verticality in the exchange (D-F), which is superseded by F.\# in the second verticality ([4), thereby demonstrating the parallel major-minor relationship alluded to at the opening of this chapter. In m. 29 (5) the articulation of $D$ major is stronger yet, as it comes on the downbeat of the measure, with the root preceded by a trill on E (the second scale degree), and the fifth now preceded by its leading-tone G\#. Finally, in mm. 35-36 the D-major referential triad is stated explicitly and is prolonged for two bars. Components in this gradual emergence of D major are summarized on system (b) of Ex. 4.5 which, when compared to the score, reveals the increasing temporal distance separating occurrences of the emerging referential triad. The first hint of $D$ is in $m .25$, then $m$. 26, m. 29, and finally mm. 35-36 (one-, three-, and six-bar intervals, respectively). Also noteworthy is the fact that the gradual emergence of $D$ major within this phrase reflects a comparable emergence of tonal clarity occurring over the movement as a whole.

System (c) of Ex. 4.5 reveals that mm. 31-34--the measures immediately preceding the resolute arrival of $D$ major in mm. 35-36-comprise a prolongation of $V$; note, in particular, the extended \#4 disposition note--G\#--in the cello of these measures (ㄱ). Also apparent on system (c) is the fact that the version of $V$ articulated in
m. 34 is, with Bb , the exact sonority which ended the second phrase. A large-scale connection between the two seems relevant as it ties in the arrival point of the second phrase to the important arrival on $D$ in mm . 35-36 and completes the two large-scale motivic patterns initiated by the cadences of the first two phrases. The whole-tone encirclement pattern is noted at (8), and the chromatic passing motion at (9). This, then, is an example of interaction between phrase-length referential elements and large-scale motivic parallelism.

The phrase, however, does not conclude with this patent expression of the $D$-major triad but, rather, passes through it, concluding on a verticality which could be construed as another version of the dominant of $D$, particularly in its outer-voice augmented sixth, Eb-C\# (Db in the score). The cello's descending step motion from $\mathrm{A}_{3}$ in m. 35 to $\mathrm{Eb}_{3}$ in m. 39 , of which $A_{3}-\mathrm{FH}$ in mm. 35-36 supports the prolongation of $D$ discussed above, would seem to suggest continuation to $D_{3}$, as this would complete an unfolding of the outer fifth of the $D$ triad, prolonged in mm. 35-36, and would result in a larger-scale prolongation of that primary referential triad. Such an arrival, however, is delayed until later.

The brief phrase which follows, mm. 40-45, provides a degree of symmetry and thematic closure as it is a restatement of the opening theme at its original transposition (see Ex. 4.6). ${ }^{3}$ The brief phrase is

[^59]not, however, closed tonally. The theme is harmonized triadically but nonfunctionally; roots of the underlying harmonies move for the most part by ascending step, arriving on a verticality comprised of the major third and fifth of the referential D-major triad, as well as the flattened second scale degree, a disposition note to the root $D$ (1). This nonharmonic element forms, with the fifth of the referential triad, one of the obliquely resolving tritones discussed in Chapter II, and provides a sense of impetus into the next phrase. Resolution of the tritone is rhythmically displaced through arpeggiation of the referential D major-minor triad, as indicated at (2).

The next phrase, mm. 46-54; may be understood to divide into two segments, each defined by an arpeggiation of the the D major-minor triad in one of the violins, indicated at (3) in Ex. 4.6. Accompanying this, in the cello, is another attempt at a descending fifth from $A_{3}$ to $D_{3}$. Both the major and minor thirds of $D$, occurring in the arpeggiated triads in the violins, occur in this incomplete descending fifth in the cello (4]), representing another manifestation of the parallel majorminor relationship characterizing the tonality of the movement. The linear descending fifth, were it completed, would reinforce the prolongational function of this phrase. Again, however, the fifth is stopped short, its concluding pitch, $\mathrm{E}_{3}$, reinterpreted from scale degree 2 in D to 7 in F. With the inflection of the viola's $\mathrm{Bb}_{2}$ ( $\mathrm{A} \#$ in score) to $\mathrm{B}_{2}$ in the cello, resolution of the final verticality of the phrase is effectively redirected from D to F--the movement's other referential triad. The phrase-linking, three-note motive involving this inflection
of Bb is marked (5) in Ex. 4.6.
Completion of the linear step progression initiated by the inflection and subsequent redirection of Bb is to C , the root of the dominant of F . And it is this dominant which initiates the prolongation of F major in mm. 55-60 of the next phrase (Ex. 4.7). This particular motive recurs immediately in the lower line of the first violin (1), where it comprises scale degrees 4-\#4-5 in $F$, and is redirected in mm. 59-60 (2), where it articulates scale degrees \#4-4-3, also in F. The order of the $\mathrm{B}-\mathrm{Bb}$ dyad thus dictates the direction of the motive and the goal note: scale degree 5 in ascent and 3 in descent.

A tonal determinant of perhaps greater significance than the three-note motive just cited is used in the prolongation of $F$ and beyond to $m .63$, the end of the first half of this phrase. It involves explicit statement of the lower fifth of the lydian and phrygian orderings of the diatonic collection, constructs discussed in Chapter II. In this phrase, phrygian and lydian fifths in the second violin span $\mathrm{C}_{5}$ to $\mathrm{F}_{4}$, connecting the roots of the two functional harmonies in the prolongation of F , while the fifths delineated by $\mathrm{E}_{4}$ and $\mathrm{A}_{3}$ in the viola connect the thirds of those harmonies. These are indicated on system (a) with large sharp and flat symbols. This oscillation of dominant and tonic elements, enriched by phrygian and lydian fifths, effects prolongation of the $F$ triad in a manner reminiscent of certain passages the opening movement of the same quartet (Exx. 2.24 and 2.25). In m. 59 the lydian and phrygian fifths, linking $l$ and 5 in $F$, are transposed down a semitone, suggesting $E$ (3). A brief instance of overlapping bitonality occurs here: prolongation of $F$ continues for one measure while a new
referential PC, the significance of which will be realized in the next segment, emerges.

Analogy with the opening movement involves more than the oscillatory prolongation described above: below the emerging referential PC E, the lower three instruments resolve to F one final time and continue to progress along a circle of fifths tonally independent of the implication of E in the upper part. (Both excerpts from the first movement, referred to above, continue with descending circle-of-fifths progressions.) The oscillatory prolongation of $F$ and subsequent circle of fifths are summarized on system (b) of Ex. 4.7. The final arrival of $E$ in the first violin in m. 63 coincides with Eb in the cello--the last element in the circle of fifths-as indicated at (4).

E and Eb of m. 63--goals of distinctly different tonal processes from m. 59--initiate independent textural and tonal components in the second half of the phrase, as indicated in Ex. 4.8. E, for instance, begins a descending arpeggiation of the dominant of $F$ (1), relating back to the prolongation of that referential triad in the previous part of the phrase. On repetition of the arpeggiation (2), the inclusion of CH renders the tertian collection more flexible in that it now potentially functions also as dominant of $D$, the other primary referential triad in the movement (3). And, although the dual dominant function of this arpeggiated harmony is not realized through explicit resolution in this particular phrase, there is at least a tentative suggestion of $D$ at its end (m. 7l) through a partial resolution of the dominant. Thus, as suggested at (4), C\# and A\#(as Bb)--disposition notes 7 and b6 in D--
may be heard to resolve to $D$ and $A$, while $E$ and $G$, the other two members of the dominant, are held over to the recapitulatory phrase beginning in m. 72 ( 5 ).

The cello's $\mathrm{Eb}_{2}$ in m. 63 initiates an independent contextually directed linear progression to $\mathrm{Ab}_{2}$ ([6), the latter articulating the beginning of the recapitulation. The endpoints of this ascending-fourth progression, $E b_{2}$ and $\mathrm{Ab}_{2}$ (the latter as $\mathrm{G} \#$ ), have potential significance in the overall tonal plan, as they will be shown to function ultimately as b2 and \#4 in D, a disposition pair extensively documented as important in Bartók's tonal language. In that this linear progression connects two disposition notes, later to be considered a harmonic element, the progression is better understood as an unfolding and resultant prolongation of the disposition pair. This prolongational function will become more evident upon recurrence of the unfolding in the next phrase. It might also be noted that all four disposition notes to $D$ and $A--$ the outer fifth of one of the two referential triads in the movement-are represented in this phrase. And, of these, the two available from the major and minor scales--i.e., 7 and b6-may be heard to resolve, albeit tentatively, while resolution of b2 and \#4, from the phrygian and lydian diatonic patterns, is deferred until later. Anticipation of the resolution of b2 and \#4 is intensified through this delay, and support for the phrygian and lydian constructs as underlying references for directed motion is reinforced.

A sense of recapitulation may be felt in the phrase beginning in m. 72 (Ex. 4.9) because of its use (in the first violin and viola) of the encirclement motive from movement's opening (to be discussed). The
phrase extends the ascending fourth in the cello of the preceding phrase through an ascending perfect fifth, $\mathrm{Ab}_{2}-\mathrm{Eb}_{3}$, also in the cello (1). Reference (2) represents this linear progression as a prolongational unfolding of the b2-\#4 disposition pair in D--an "inverted" reiteration of the unfolding in the previous phrase. This $\mathrm{Ab}-\mathrm{Eb}$ ascending-fifth manifestation of the b2-\#4 pair is further emphasized through its reiteration, in mm. 75-78, by way of a PC descent back to G\# (3), also represented on system (b) as an unfolding (4). Upon completion of this final unfolding, b2 and \#4 resolve to D and A (5), initiating the prolongation of $D$ and $F$ major in the final phrase of the movement. Correspondences in this symmetrical unfolding of the b2-\#4 disposition pair are shown between systems (a) and (b) in Ex. 4.9. Another example of interaction between linear progressions and prolongational unfoldings of disposition pairs is apparent here.

Two further details in this phrase are worthy of note. First, in the PC descent back to $\mathrm{G} \#, \mathrm{~Eb}$ and CH (mm. 75 and 76) are punctuated as the roots of major-minor triads (6), and these roots further imply D through their semitonal relation to that PC. The fifth and major third of the Eb triad are the goals of the motivically derived step progressions in the first violin and viola (7) and (8)), referred to above. And, second, in the first violin, m. 75, the descending minorthird motive, F-E-D, from mm. 24-29, returns and is compressed and transposed in mm. 76-78. In mm. 77-78 the first notes of successive transpositions of the compressed pattern effect the whole-tone PC ascent F\#-G\#-A\#-C (9) which, if continued with one more entry, would extend
to $D$; this represents a further element of contextual implication.
As noted, the minor-third motive is here transposed and compressed, and it is through these processes that the final entry, $\mathrm{C}-\mathrm{B}-\mathrm{Bb}$ in $m$. 78, is transformed into a retrograde version of the motive from mm. 54-55, the latter used in an elided cadence in which the motion was redirected from $D$ to $F$ through the motive's scale degree interpretation as 4-\#4-5 in F. This, then, would be a case of lateral interaction within the thematic-motivic stratum: the alteration of one motive results in its being transformed into another. Here, the transformed motive functions as a voice-leading device, just as the original did, in that the Bb on which it ends ultimately functions as scale degrees b 6 in D and 4 in $F$. It is the resolution of this disposition note, with that of \#4 to 5 in $D$, which initiates the final phrase, analyzed in Ex. 4.1. This Bb is also redirected--as it was earlier--through B to C as scale degrees 4-\#4-5 in $F$, resolving one measure after the prolongational final phrase begins (2. in Ex. 4.1). This effects an elision of the type noted from mm. 54 to 55. The $\mathrm{Bb}-\mathrm{B}-\mathrm{C}$ linear motive is heard one last time in an inner voice of the harmonic progression linking $D$ and $F$ in the final cadence ( 3 in Ex. 4.1). The details of this final prolongational segment were discussed at the beginning of the analysis and need not be repeated here.

From the foregoing phrase-by-phrase analysis it is possible to assemble a summary of primary determinants and procedures of tonal orientation in the movement, representing them on a single graph to show the large-scale deployment and interaction of these aspects in the movement as a whole. In that some phrases employ more than one device
or procedure, it would prove advantageous to represent each determinant on a separate system. The resulting, stratified representation, if followed one system at a time during a hearing, would reveal relations between adjacent and nonadjacent recurrences of each determinant. If viewed vertically as the piece unfolds, such a representation would illustrate the interaction of various devices employed in a given phrase. A comprehensive study of a skeletal framework such as this--one taking into account both horizontal and vertical dimensions--would provide the listener with a complex matrix of relations within and between phrases by which large-scale coherence is achieved.

Example 4.10 is a graphic representation of the type described above. Each phrase in the movement is represented on one or more systems, determined by the specific tonal principles it has been shown to demonstrate. Here, the phrase-length representations are skeletal versions of the analyses presented earlier. The bottom system indicates large-scale pitch connections and tonal relations, the constituents of which are drawn from the skeletal reductions in the top five systems. As a means of concluding the analysis, this example will summarize significant points of interaction which have been referred to above, and will provide a basis for the hierarchization of the two primary referential triads in the movement.

References (1), (2), and (3) indicate interactions between thematic-motivic recurrence and motivically derived, contextually directed linear progressions in the first and second phrases and in the recapitulatory phrase beginning in m. 72. The two important instances
of interaction between linear. progressions and disposition notes, where the function of the latter was ascribed to endpoints of the former, are indicated at (4) and (5). An interaction between large-scale motivic parallelism and large-scale tonality-defining harmonic progressions was shown to occur in the opening three phrases, coincident with the first gradual emergence of $D$ as root of a referential triad; this interaction is indicated at (6). Reference (7) identifies the lateral interaction involving transformation of the motive at m. 24 into the one at 55, the point of transformation being $m$. 78, the beginning of the final phrase. And, an interaction might be noted in mm. 55-63 ( (8) between the prolongation of F through oscillation of conventional dominant and tonic harmonies, and the connection of the roots of those harmonies through the less conventional phrygian and lydian patterns.

One final and very important mode of interaction concerns the tonicizing agents employed in the movement. It was noted at the beginning of this chapter that one element of conventionality in the movement was its use of the traditional dominant and a number of what I referred to as dominant substitutes, harmonies comprising alterations of degrees from the major and minor scales. One important result of extensive alteration, addition, and inflection of chord tones is an increased semitonal relation between the tonicizing agent and the tonic. Bartók uses conventional dominant variants of the type described above, beginning with the first phrase, where a conventionally functional tertian framework is in evidence, and extending well into the piece after such a framework has been abandoned. Bars 12, 22, 34, 39, and 52, for example, indicate a dominant function on the top system of Ex. 4.10. In each of
these cases--marked (9)--a thick, dotted, vertical line extends down from the dominant to a collection on the third staff, indicating that the semitonal relation of the members of the dominant can be explained through means other than alteration of conventional dominant forms. Specifically, they may be heard to derive from the underlying referential phrygian and lydian octave patterns, shown to be operative at the surface of the music in mm. 55-63. In this derivation, they are not altered notes at all but are "diatonic," so to speak, to the phrygianlydian composite pattern, a pattern which comprises two orderings of the seven-note diatonic collection, intersecting only at scale degrees 1 and 5.

This particular type of interaction, then, concerns a dual interpretation of these tonicizing agents: apprehensible, on the one hand, as conventional, if altered, dominants in the opening quasiconventional context, and on the other hand appreciable in light of diatonic, though nonconventional, referential octave patterns. The latter derivation serves as a basis for the generation of individual "contextually diatonic" disposition notes such as b2 and \#4, two tendency notes not available in the major-minor system without invoking the notion of "alteration."

The bottom system of Ex. 4.10 shows the large-scale oscillation of sections in $D$ and $F$, the two primary referential triads, and provides sufficient ground to assert the superiority of $D$ over $F$ in this dual tonal relation. $D$, for example, is first to emerge as focal, this initial orientation complemented by the large-scale motivic parallelism
at (6). Further, the most substantial section in F, mm. 55-65, occurs between more lengthy sections in $D$ and is, as a result, heard as a departure from $D$ to a secondary tonal area. And finally, the last phrase of the movement is, as noted earlier, more consistently oriented to $D$, the final motion to $F$ being a reflective reference to the movement's secondary referential triad.

## CHAPTER V

CONCLUSION
At the beginning of this paper it was asserted that, although there exist a great number of sources dealing with the music of Béla Bartók, few address the concept of tonelity in a truly penetrating, analytical way. It was further stated that those sources that deal with tonal structure are often imprecise in their specification of the means by which conventional principles of tonal orientation are adapted to the often nontraditional contexts found in Bartók, and inadequate in their explanation of how conventional and nonconventional tonal determinants interact to effect a unified, coherent system of relations.

In seeking to illustrate factors of tonality in Bartók's string quartets--a medium which spans his compositional career, reflecting the most significant and representative changes in his musical language--the foregoing study has taken as a point of departure a broadly conceived concept of tonality which views PC centricity as a fundamental property, achieved through interactions of conventional and nonconventional determinants, thereby embracing a concept of tonality freed from its strict historical association with the common-practice period. It was asserted that the devices and processes by which tonal coherence is achieved may be classified broadly into progression and prolongation, the subjects of detailed investigation and exemplification in Chapters II and III
respectively.
It was noted that the musical language of Bartók's early quartets embodies many properties of the late nineteenth century: e.g., irregular resolution, continuous tonal fluctuation, multiple tonal implication, tonal ambiguity, modal mixture, and harmonic substitution. Excerpts from the first quartet's opening movement, for example, were cited as demonstrative of these properties in a relatively consistent, conventionally functional tertian framework. It was also noted that the most functional of progressions--that between the dominant and tonic--is found in many of Bartók's otherwise nontraditional contexts, where it serves to articulate identifiable points of tonal orientation, between which less conventional principles of pitch organization are operative. Often, such conventional patterns are used to punctuate the beginning and/or end of less traditionally structured sections or movements. Conventionally functional root relations were shown to govern tonallyorienting harmonic progressions over broad spans, where constituents of those progressions are nontertian.

The basic progression of dominant to tonic was shown to be the basis for tonicizing progressions employing dominant and tonic analogues, the former referred to as contextual tonicizing agents and the latter as referential elements. Among the disparate referential elements identified are single PCs, verticalities of superimposed fifths (termed homointervallic), and entire diatonic collections. The contextual tonicizing agent was demonstrated to have commensurate variety in intervallic structure. It was explained that, in the absence of functional relations inherent in the major-minor system, most contextual
tonicizing agents acquire comparable implicative properties through retrospection--i.e., after their goals are punctuated through patent factors of surface exposure--and through frequency of association with a particular referential element.

A special kind of tonicizing agent in Bartók was termed a disposition dominant, and defined as one whose constituents are semitonally related to members of the referential element with which it is associated and to which it progresses. The tendency for resolution was shown to be fortified if such a dominant's component disposition notes were inherently "unstable" by virtue of their position in a particular ordering of the diatonic collection, of which the major and minor scales and phrygian and lydian modes were accorded particular significance. Interruption from a predominantly whole-tone succession was cited as the primary criterion whereby semitonal motions in the phrygian and lydian patterns have tonicizing function. A tonicizing agent referred to as an obliquely resolving tritone, shown to have a basis in the phrygian and lydian patterns cited above, was identified as an important construct as it commonly resolves to a perfect fifth--a harmonic interval of relative contextual stability and referential significance in Bartók.

The perfect fifth as an interval of root motion, particularly in a descending direction, is fundamental to the major-minor system. Through its palpable association with the conventional progression of dominant to tonic, the descending fifth retains its directive potential in passages where the structures erected on contextually designated roots moving by that interval are themselves nonconventional. Bartók's
manifest allegiance to tradition is represented in part by his use of the perfect fifth as a melodic interval of root motion in a variety of contexts, supporting disparate harmonic structures. Progression of tertian harmonies along a descending circle of fifths, for example, was shown to imbue certain passages in Bartók's quartets with an unequivocal sense of conventionally functional directed motion. In other excerpts, the perfect fifth was identified as the inferred root motion between nontraditional verticalities. A third deployment of the perfect fifth was found in the interval of transposition of thematic gestures in imitative textures (not unlike similar procedures in major-minor music of the common-practice period).

Linear progression is the fourth and final classification of progression dealt with in Chapter II. It was suggested that, in the absence of inherent tendencies associated with the major and minor scales, linear constructs in nontraditional contexts are often accorded directive significance only in retrospect, after the goal of the succession is realized as primary through other, more patent factors of punctuation and emphasis. This type of construct was referred to as a contextually directed linear progression--a progression whose step and PC-step organization is the sole factor of directive potential. Because lydian and phrygian patterns were advanced as analogues of the major and minor scales, linear progressions whose structure imitates those octave patterns were termed inherently directed. Components of these two types of mid-level progression--contextually directed and inherently directed--are selected from the surface according to factors such as
dynamic stress, metric placement, durational emphasis, and registral exposure. Where constituents are accorded membership in a linear progression based on their analogous position in concatenated transpositions of a particular motive (frequently the case in Bartók), the linear constructs were said to be systematically derived.

Chapter III dealt with foreground, mid-level, and large-scale prolongational processes, using Heinrich Schenker's theory of prolongation in major-minor music as a point of departure for the derivation of analogous and comparable though nontraditional procedures. It was said that traditional foreground motion within a chord is relevant to those passages of the quartets which exhibit a conventionally functional tertian harmonic basis; mid-level harmonic prolongation was also shown to be of significance in these particular sections. The traditional concept of mid-level linear unfolding, in which a vertical interval is horizontalized, was identified as relevant, the directive potential of such a linear construct at times based on its lydian or phrygian structure.

Apart from these prolongational principles, understood as analogues of conventional procedure, it was in connection with mid-level spans in nontraditional contexts that alternative concepts of expansion techniques were identified as relevant. Reiteration and oscillation were identified as two such processes of expansion. Often, these methods of expansion articulate one tonal-textural stratum, over which a second stratum emerges. The superimposed layer may be tonally supportive of or opposed to the underlying stratum. It may also take the form of a pattern of reiteration and/or oscillation, thereby defining an
overall texture of comparable strata, or it may present a thematic gesture, resulting in a "theme with accompaniment" textural configuration.

The final classification of prolongation, in fact, deals with excerpts which support more than one referential element simul-taneously--through the dual reiteration/oscillation format described above, but also through other means defined for previous classifications. Structures supporting more than one referential element are often termed "bitonal." In this section simultaneously prolonged elements are shown to be at times the result of overlapping tonal-formal boundaries. In some instances, dual referential elements can be hierarchized, while in others the difficulty of perceptual separation and hierarchization may be understood as a transitional or developmental device, employed deliberately to effect tonal mobility.

Some examples in Chapters II. and III were used to illustrate more than one tonal determinant: some of these demonstrated disparate types of progression, others illustrated different elements of prolongation, and still others revealed factors of progression and prolongation. That such a multidimensional view of these passages is possible--even necessary--attests to the complexity and vitality of Bartók's music. Indeed, most of his music consists of interactions between conventional and nonconventional progressive and prolongational determinants of tonal orientation, and it is only through recognition of the relationships between such interactive elements that a thorough understanding of Bartók's tonal language is possible.

Chapter IV presented an analysis of the sixth quartet's final movement with a view of such interactions as its specific goal. Each phrase was studied individually for progressive and prolongational determinants, and for its role in sustaining tonal ambiguity or effecting tonal clarity. The movement was found to employ many of the devices and processes studied in Chapters II and III. For example, contextually directed and inherently directed linear progressions are of vital importance to the language of the movement, at times effecting prolongational unfoldings. Conventionally functional progressions of tertian harmonies and descending-fifth progressions were accorded significance as conventional means of directed motion. Of the contextual tonicizing agents relevant to the movement, disposition notes, disposition dominants, and obliquely resolving tritones were found to be the most common. Aside from prolongation through conventionally functional progressions and linear unfoldings, the contextual prolongational processes of oscillation and reiteration were shown to play a minor role. Phrygian and lydian scalar patterns were seen to be at times explicit in their interaction with descending- and ascending-fifth progressions, serving as an underlying basis according to which special directive potential was ascribed to the frequently used disposition notes b2 and \#4. A final comprehensive sketch of this movement was used to illustrate interactions between disparate tonal determinants employed simultaneously, as well as interactions of particular devices as employed recurrently throughout the movement. This particular mode of represen-
tation facilitated a view of the piece as a unified structure of interrelated and not merely coexisting tonal elements.

In this study, I have elected to focus on a restricted number of classifications of progression and prolongation in Bartók's string quartets. These specific classifications were chosen because they are either direct adaptations of certain traditional properties or analogues of those properties. That is, the classifications identified here have strong relation to convention, in spite of their varied appearances and nontraditional contexts in which they occur in Bartók's music. Furthermore, I have documented interrelations between these conventional and quasi-conventional progressions and prolongations, suggesting factors of overlap where conventional determinants serve as identifiable prototypes for less conventional devices.

Although I have focussed on certain basic traditionally tonal motions--e.g., those of the descending fifth and the semitone--other, perhaps less conventional principles of tonal organization and centric orientation are undoubtedly of commensurate validity. Some such principles (symmetry, for example) have been alluded to in the foregoing study, although they have not been of immediate concern. References to sources dealing specifically with those nonconventional means of pitch organization have been given throughout the study and are found in the selected bibliography. What remains for a complete understanding of Bartók's musical language is a study of interactions between conventional principles and analogues--some of which are identified in the present paper--and less traditional means of tonal organization. The
resultant intricate matrix of interactive properties would illuminate junctures simultaneously reinforced by conventional and nonconventional elements, as well as those exposed primarily through traditional means and those best understood through newer, nonconventional determinants. Bartók's musical language would indeed be better understood through precise and thorough documentation of the changing balance of emphasis on conventional and nonconventional principles. It is hoped that, by focusing on interactions between conventional and quasi-conventional determinants of tonal orientation, this study has taken a preliminary step on the way to such a comprehensive view of the music of this most important twentieth-century composer.

Contextual
tonicizing agent

A PC, verticality, or collection of PCs which immediately precedes, and is subsequently associated with, an identifiable referential element.

Contextually directed linear progression

Disposition dominant

Disposition note

Daminant prefix
A succession of step- or PC-step-related pitches and/or PCs which are comprehended as to directive potential only after their endpoints are otherwise punctuated as primary.

A verticality comprised of disposition notes.
A PC which is semitonally related to a constituent of a referential element (fram above or below).

Harmonies (other than the tonic) which precede the dominant in a functional progression. They are most commonly root related to the dominant by whole-tone (e.g., IV/iv, VI/vi), by semitone (e.g., vii of V, augmented sixth), or by descending fifth (e.g., ii, $V$ of $V$ ).

Embellishing pattern

Functional

A succession of at least four notes which, when expressed as PCs, can be shown to begin and end with the same note (prolongational), or begin and end with notes which are PC-step-related (progressive). Motion between endpoints of the pattern is as follows: a leap from the first note, followed by step or PC-step motion to the final note; step or PC-step motion away from the first note, followed by a leap to the final note; or step or PC-step motion away from the opening note an back to the final note.

Functionally related and functionally directed harmonies are those whose root relations effect orientation to a particular tonic in the major-minor system. The term "functional" without further qualification thus means conventionally functional.

Homointervallic verticality or collection

Inherently directed linear progression

Mid-level progression/ prolongation

Motivically derived linear
progression
A contextually directed linear progression whose constituents are inferred through successive transpositions of motivic material.

Obliquely
resolving tritone
A tritone comprised of scale degrees 1 and \#4 or b2 and 5, the former furnished by the lydian ordering of the diatonic collection and the latter by the phrygian ordering. The lydian-derived tritone commonly resolves to the perfect fifth built of degrees 1 and 5 (with scale degree 1 in common), and the phrygian-derived tritone to the same fifth but with scale degree 5 in common.

Prolongational
progression
Referential element

See Unfolding.

The analogue of a conventional tonic triad. "Referential" denotes the function of such a sonority as the tonal "point of reference" to which other pitch events are related as subordinate in some contextually defined manner (explained in each case). "Element" suggests the variety of "sonorous qualities" which the reference may take. For

Tonality Any principle or set of principles by which a particular PC or PC complex (i.e., a referential element) is established as primary in a given context and whose primacy is maintained at a particular level of structure.

Unfolding A progression in which two members of a harmony are temporally separated and connected linearly. Also referred to as a prolongational progression.

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## TABLE OF CONTENTS

## VOLUME 2

LIST OF EXAMPLES ..... 210
GRAPHIC SYMBOLS ..... 214
MUSIC EXAMPLES ..... 217
EXAMPLE AND TEXTUAL REFERENCES TO QUARTET MOVEMENTS (LISTED IN CHRONOLOGICAL ORDER) ..... 291

## LIST OF EXAMPLES

2.1. Quartet No. 1, I, mm. 1-8 ..... 217
2.2. Quartet No. 1, I, mm. 8-16 ..... 218
2.3. Quartet No. 1, I, mm. 23-32 ..... 219
2.4. Quartet No. 1, I, mm. 65-71 ..... 220
2.5a. Quartet No. 5, III, mm. 3-9 ..... 221
2.5b. Quartet No. 5, III, mm. 92-93 ..... 221
2.6a. Quartet No. 2, I, mm. 171-180 ..... 222
2.6b. Quartet No. 2, II, mm. 6-9, 14-16 ..... 222
2.7a. Quartet No. 6, II, mm. 17-19 ..... 223
2.7b. Quartet No. 6, II, mm. 122-123 ..... 223
2.8. Quartet No. 1, III, mm. 156-160 ..... 224
2.9. Quartet No. 1, III, mm. l-14 ..... 225
2.10. Quartet No. 5, II, mm. l-4 ..... 226
2.11. Quartet No. 4, V, mm. 295-367 ..... 227
2.12. Quartet No. 5, II, mm. 6-7, 9-10, 19-22, 45-46, 54-56 ..... 228
2.13. Quartet No. 1, III, nm. 368-372 ..... 229
2.14. Interval structure of the lydian and phrygian octave patterns ..... 230
2.15. Quartet No. 6 , IV, mm. 12-13 ..... 231
2.16. Quartet No. 5, I, nm. 23-25 ..... 231
2.17. Quartet No. 2, I, nm. 31-32 ..... 231
2.18a. Quartet No. 6, I, num. 52-53 ..... 232
2.18b. Quartet No. 6, I, mm. 59-60 ..... 232
2.19. Quartet No. 6, I, mm. 80-82 ..... 232
2.20. Derivation of obliquely resolving tritones in the lydian and phrygian octave patterns ..... 233
2.21. Quartet No. 2, II, mm. 1-7 ..... 234
2.22a. Quartet No. 4, V, mm. 14-18 ..... 235
2.22b. Quartet No. 4, V, mm. 391-392 ..... 235
2.23. Quartet No. 3, Seconda parte, mm. 56-61 ..... 236
2.24. Quartet No. 6, I, mu. 81-99 ..... 237
2.25. Quartet №. 6, I, mm. 312-332 ..... 238
2.26. Quartet No. 6, I, mm. 342-354 ..... 239
2.27. Quartet No. 3, Prima parte, mm. 65-72 ..... 240
2.28. Quartet No. 5, III, mm. 39-53 ..... 241
2.29. Quartet No. 4, V, mm. 156-182 ..... 242
2.30a. Quartet No. 4, III, mm. 1-13 ..... 243
2.30b. Quartet №. 4, III, mm. 64-71 ..... 243
2.31. Quartet No. 4, II, mm. 1-12 ..... 244
2.32a. Quartet NO. 4, IV, mm. 6-14 ..... 245
2.32b. Quartet No. 4, IV, mm. 35-37 ..... 245
2.33. Quartet No. 3, Seconda parte, mm. 103-149 ..... 246
2.34. Quartet No. 5, I, mm. 6-13 ..... 247
2.35. Quartet No. 5, I, mm. 11-25 ..... 248
2.36. Quartet No. 5, II, mm. 39-46 ..... 249
2.37. Quartet No. 4, V, mm. 102-143 ..... 250
2.38. Quartet No. 4, V, mm. 236-297 ..... 251
2.39. Quartet No. 1, III, mm. 115-122 ..... 252
2.40. Quartet No. 6, I, mm. 126-143 ..... 253
2.41. Quartet No. 5, III, num. 1-39 ..... 254
2.42. Quartet No. 4, V, mm. 183-195 ..... 255
3.1. Quartet No. 6, I, mm. 60-82 ..... 256
3.2. Quartet No. 1, III, mm. 107-112 ..... 257
3.3. Quartet No. 6, I, mm. 1-13 ..... 258
3.4. Quartet No. 4, V, nm. 374-385 ..... 259
3.5. Quartet No. 5, I, mm. 44-58 ..... 260
3.6. Quartet No. 6, I, mm. 141-157 ..... 261
3.7. Quartet No. 5, II, mm. 26-29 ..... 262
3.8. Quartet No. 3, Prima parte, mm. 76-83 ..... 263
3.9. Quartet No. 4, V, mm. 196-213 ..... 264
3.10. Quartet No. 2, III, mm. 47-55 ..... 265
3.11. Quartet No. 2, I, nm. 60-69 ..... 266
3.12. Quartet No. 5, I, nm. 23-29 ..... 267
3.13. Quartet No. 4, V, mm. 214-237 ..... 268
3.14. Quartet No. 6, I, mm. 352-390 ..... 269
3.15. Quartet No. 4, V, mm. 1-5, 11-18, 23-26, 29-34, 37-45 ..... 270
3.16. Quartet No. 4, V, mm. 47-49, 52-53, 56-61, 63-75 ..... 271
3.17. Quartet No. 4, V, mm. 75-79, 81-87, 89-92, 97-104 ..... 272
3.18. Quartet No. 4, V, mm. 320-332 ..... 273
3.19. Quartet No. 2, I, mm. 14-32 ..... 274
3.20. Quartet No. 1, I, mm. 33-53 ..... 275
3.21. Quartet No. 3, Prima parte, mm. 27-33 ..... 276
3.22. Quartet No. 3, Prima parte, mm. 35-43 ..... 277
3.23. Quartet No. 3, Prima parte, nm. 53-64 ..... 278
3.24. Quartet No. 6, I, mm. 31-60 ..... 279
3.25. Quartet No. 5, I, mm. 1-2, 8, 24-25, 44-45, 59-60, 126-127, 132-133, 146-148, 159-160, 167-168 ..... 280
4.1. Quartet No. 6, IV, mm. 78-86 ..... 281
4.2. Quartet No. 6, IV, mm. 1-13 ..... 282
4.3. Quartet No. 6, IV, mm. 1-13 ..... 283
4.4. Quartet No. 6, IV, mm. 13-22 ..... 284
4.5. Quartet No. 6, IV, mm. 22-39 ..... 285
4.6. Quartet No. 6, IV, mm. 40-54 ..... 286
4.7. Quartet No. 6, IV, mm. 55-63 ..... 287
4.8. Quartet No. 6, IV, mm. 62-72 ..... 288
4.9. Quartet No. 6, IV, mm. 72-79 ..... 289
4.10. Quartet No. 6, IV, mm. 1-86 ..... 290

## GRAPHIC SYMBOLS

## Abbreviations:

d.d. = disposition dominant
$\begin{aligned} \text { TIC+5 }= & \text { ascending transposition by interval class 5. (descending } \\ & \text { transpositions denoted by a minus sign) }\end{aligned}$
D: \#4-5 = progression of scale degrees as related to the indicated referential PC
5) = referece number 5, corresponding to the text (where the number is similarly enclosed)

Note-heads:

- nonharmonic notes $\longrightarrow$| in tertian textures at initial |
| :--- |
| levels of distinction between |
| structural and elaborative |
| notes |

$0 \quad=$ harmonic notes

- = subordinate harmonic elements and single pitches and PCs
in tertian and nontertian textures and at all levels of structure
0 = referential elements (i.e., structural harmonic elements and single pitches and PCs)
$\mathrm{d}=$ enharmonic equivalent of a note given in the score
(•) $\quad=$ PC (i.e., a note indicated on the graph in a different octave from its placement in the score)
[.] = inferred PC, not actually present at that place in the score


## Accidentals:

A natural-sign will be given only where the immediately preceding note is an inflection of the same PC.
[\#] = inferred accidental
\# = inferred accidental which transforms the given nonharmonic note into a chord-tone
$\longrightarrow=$ phrygian-fifth descent
$\#$
$=$ lydian-fifth ascent
= double sharp (the conventional "x" reserved for enharmonically spelled notes as indicated above)

## Stems:



## Slurs and beams:

$\longrightarrow$ = connection of hierarchically superior notes (filled by step, PC-step, or leap)
$\cdots=$ recurrences of the same pitch or PC
$\underset{R}{d}=\underset{\text { linear continuity }}{ }$ order of notes in score is reversed on graph for inference of
[-] = broadly spaced recurrences of the same element
D= unfolding (i.e., linearization) of a vertical interval

+ $A=$ arpeggiation of a triad referred to in text
$\bigcup=$ specific motive referred to in text

Ex. 2:1. Quartet No. 1, I, mm. 1-8.


Ex. 2.2. Quartet No. 1, I, mm. 8-16.

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iFi bIII vi $\mathbb{Z}$ Ifipp IV $\mathbb{Z} \quad$ I
(b) (2)

$\frac{D^{b}}{C}$ iii
(5) III $\overline{\text { I I }}$
$\frac{\bar{Z}}{\bar{Z}} \frac{6=1}{\frac{1}{3}}-$
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Ex. 2.3. Quartet No. 1, I, mm. 23-32.

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Ex. 2.4. Quartet No. 1, I, mm. 65-71.


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Ex. 2.5a. Quartet No. 5, III, mm. 3-9.


Ex. 2.5b. Quartet No. 5, İII, mm. 92-93.

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Ex. 2.6a. Quartet No. 2, I, mm. 171-180
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Ex. 2.6b. Quartet No. 2, II, mm. 6-9, 14-16

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Ex. 2.8. Quartet No. 1, III, mm. 156-160.


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Ex. 2.9. Quartet No. 1, III, mm. 1-14.


(a)

(b)


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Ex. 2.10. Quartet No. 5, II, mm. l-4.

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Ex. 2.11. Quartet No. 4, V, mm. 295-367.


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Ex. 2.12. Quartet No. 5, II, mm. 6-7, 9-10, 19-22, 45-46, 54-56.


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Ex. 2.13. Quartet No. 1, III, mm. 368-372.


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Ex. 2.14. Interval structure of the lydian and phrygian octave patterns.


Ex. 2.16. Quartet No. 5, I, mm. 23-25.

mm. 12


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(a)


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Ex. 2.17. Quartet No. 2, I, mm. 31-32.

(a)


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Ex. 2.18a. Quartet No. 6,
I, mm. 52-53.

mm. 5253


Ex. 2.18b. Quartet No. 6
I, mm. 59-60.


5960


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Ex. 2.19. Quartet No. 6, I, mm. 80-82.


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Ex. 2.20. Derivation of obliquely resolving tritones in the lydian and phrygian octave patterns.


Ex. 2.21. Quartet No. 2, II, mm. 1-7.


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Ex. 2.22a. Quartet No. 4, V, mm. 14-18.

mm. 14


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Ex. 2.23. Quartet No. 3, Seconda parte, nm. 56-61.


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Ex. 2.24. Quartet No. 6, I, mm. 81-99.
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Ex. 2.27. Quartet No. 3, Prima parte, mm. 65-72.


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Ex. 2.28. Quartet No. 5, III, mm. 39-53.

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Ex．2．29．Quartet No．4，V，rm．156－182．


（b）





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Ex. 2.30a. Quartet No. 4, III, mm. 1-13.


Ex. 2.30b. Quartet No. 4, III, nm. 64-71.


Ex. 2.31. Quartet No. 4, II, mm. 1-12.


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Ex. 2.32b. Quartet No. 4,
IV, mm. 35-37.



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Ex. 2.33. Quartet No. 3, Seconda parte, mm. 103-1'49.


Ex. 2.34. Quartet No. 5, I, mm. 6-13.


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Ex. 2.35. Quartet No. 5, I, mm. 11-25.

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Ex. 2.36. Quartet No. 5, II, mm. 39-46.

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Ex. 2.37. Quartet No. 4, V, mm. 102-143.


Ex. 2.38. Quartet No. 4, V, mm. 236-297.


Ex. 2.39. Quartet No. 1, III, mm. 115-122.


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Ex. 2.40. Quartet No. 6, I, mm. 126-i43.


Ex. 2.41. Quartet No. 5, III, nm. 1-39.


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Ex. 2.42. Quartet No. 4, V, mm. 183-195.


Ex. 3.1. Quartet No. 6, I, mm. 60-82.
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Ex. 3.2. Quartet No. 1, III, mm. 107-112.


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Ex. 3.4. Quartet No. 4, V, mm. 374-385.



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Ex. 3.6. Quartet No. 6, I, mm. 141-157.


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Ex. 3.7. Quartet No. 5, II, nm. 26-29.


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\end{array}
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Ex. 3.8. Quartet No. 3, Prima parte, mm. 76-83.

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Ex. 3.9. Quartet No. 4, V, mm. 196-213.


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Ex. 3.10. Quartet No. 2, III, mm. 47-55.


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Ex. 3.11. Quartet No. 2, I, mm. 60-69.
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Ex. 3.13. Quartet No. 4, V, mm. 214-237.



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Ex. 3.16. Quartet No. 4, v, rm. 47-49, 52-53, 56-61, 63-75.




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Univesal pdition.
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Ex．3．17．Quartet No．4，V，rm．75－79，81－87，89－92，97－104．

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 Marn


Ex. 3.18. Quartet No. 4, V, mm. 320-332.

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(b)



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a)


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Ex. 3.21. Quartet No. 3, Prima parte, mm. 27-33.


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Ex. 3.22. Quartet No. 3, Prima parte, mm. 35-43.


Ex. 3.23. Quartet No. 3, Prima parte, mm. 53-64



Ex. 3.25. Quartet No. 5, I, mm. 1-2, 8, 24-25, 44-45, 59-60, 126-127,



126

RECAPITULATION
THEME III



THEME I


DEVELOPMENT:

$$
\begin{aligned}
& \frac{f}{f}
\end{aligned}
$$



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Ex. 4.1. Quartet No. 6, IV, mm. 78-86.



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Ex. 4.2. Quartet No. 6, IV, mm. 1-13.

(a)

(b)



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Ex. 4.4. Quartet No. 6, IV, mm. 13-22.


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Ex. 4.5. Quartet No. 6, IV, mm. 22-39.


Ex．4．6．Quartet No．6，IV，mm．40－54．

| ${ }_{0}^{\text {Piajammanto }}$ |  |  |  |  | Molto traquillo |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | 号 | 雼需 | 青 |  |  | 事告 |  |  | － | － | ， | 1 |
|  |  |  |  |  |  |  | 1 |  |  |  |  |  |  |
|  |  |  | ${ }_{p p p}$ | O－ | \％${ }_{0}$ | － |  |  |  |  | \％ |  | P |
| ， |  |  | J | 考号 | Pror | $\delta$ |  | J | Tu | 事 |  | － | \％1 |
| \％ |  |  |  |  | $\checkmark$ |  |  | 1 |  |  |  | ， | \＃ |
| mm． $40 \quad 41$ | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 | 51 | 52 | 53 | 54 |




Béla Bartók－STRING Quarter vi
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Ex. 4.7. Quartet No. 6, IV, mm. 55-63.


Béla Bartók - STRING Quarter vi
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Ex. 4.8. Quartet No. 6, IV, mm. 62-72.


Used by permission of Boosey \& Hawkes (Canada) Ltd.

Ex. 4.9. Quartet No. 6, IV, mm. 72-79.



## EXAMPLE AND TEXIUAL REFERENCES TO QUARTET MOVEMENTS

(LISTED IN CHRONOLOGICAL ORDER)
Quartet No. 1:

$$
\begin{aligned}
& \text { I - }(2.1,217), 26,120 \text { i }^{*}(2.2,218), 30,113,120 ;(2.3,219), 32, \\
& 113,120 ;(2.4,220), 34 ;(2.13,229), 48 ;(3.20,275), 154 . \\
& \text { III - (2.8, 224), 40; (2.9, 225), 40, 127; (2.39, 252), 98; (3.2, } \\
& \text { 257), } 123 .
\end{aligned}
$$

Quartet No. 2:

$$
\begin{aligned}
& \text { I }-(2.6 a, 222), 38 ;(2.17,231), 50 ;(3.11,266), 138 ;(3.19,274), \\
& 152 . \\
& \text { II }-(2.6 b, 222), 39 ;(2.21,234), 53 . \\
& \text { III }-(3.10,265), 137 .
\end{aligned}
$$

Quartet No. 3:
Prima parte $-(2.27,240), 65 ;(3.8,263), 135 ;(3.21,276), 156$; (3.22, 277), 156; $(3.23,278), 157$.

Seconda parte - $(2.23,236), 57 ;(2.33,246), 76$.

Quartet No. 4:
II - (2.31, 244), 72, 87.
III - $(2.30,243), 70$.
IV $-(2.32,245), 74,84$.
*Example number and page number in Volume 2 are given in parentheses, followed by page numbers of textual references in Volume 1.

Quartet No. 4 (continued):
V-(2.11, 227), 41, 55; (2.22, 235), 54, 126, 145; (2.29, 242), 67, 106, 122; (2.37, 250), 90, l66; (2.38, 251), 95; (2.42, 255), 107; $(3.4,259), 126 ;(3.9,264), 136 ;(3.13,268), 141 ;(3.15$, 270), 144, 165; (3.16, 271), 147, 166; (3.17, 272), 149, 166; (3.18, 273), 151.

Quartet No. 5:

$$
\begin{aligned}
\text { I }- & (2.16,231), 50 ;(2.34,247), 84 ;(2.35 ; 248), 88,122 ;(3.5, \\
& 260), 128 ;(3.12,267), 140 ;(3.25,280), 167 . \\
\text { II }- & (2.10,226), 41 ;(2.12,228), 46 ;(2.36,249), 89 ;(3.7,262), \\
& 135 . \\
\text { III - } & (2.5,221), 37 ;(2.28,241), 66 ;(2.41 ; 254), 103 .
\end{aligned}
$$

Quartet No. 6:

```
I - (3.14, 269), 41; (2.18, 232), 51; (2.19, 232), 51; (2.24, 237),
    61, 83, 133; (2.25, 238), 61, 83, 133; (2.26, 239), 64; (2.40,
    253), 100, 123; (3.1, 256), 113, 140; (3.3, 258), 125; (3.6,
    261), 129, 143; (3.14, 269), 143; (3.24, 270), 159.
II - (2.7, 223), }39
IV - (2.15, 231), 50; (4.1, 281), 172, 187; (4.2, 282), 173; (4.3,
    283), 174; (4.4, 284), 177; (4.5, 285), 179; (4.6, 286), 181;
    (4.7, 287), l83; (4.8, 288), 184; (4.9, 289), 185; (4.10, 290).
    188.
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[^0]:    ${ }^{\text {l }}$ David Gow, "Tonality and Structure in Bartók's First Two String Quartets," The Music Review 34/3-4 (1973): 259.
    $2_{\text {Ibid. }}$
    $3^{3}$ Ibid.
    ${ }^{4}$ Ibid., p. 260.

[^1]:    ${ }^{6}$ Halsey Stevens, The Life and Music of Béla Bartók (New York: Oxford University Press, 1964), pp. 171-172.
    ${ }^{7}$ Leo Treitler, "Harmonic Procedure in the Fourth Quartet of Bartók," Journal of Music Theory 3/2. (1959): 294.
    ${ }^{8}$ Ibid.

[^2]:    ${ }^{11}$ Roy Travis, "Tonal Coherence in the First Movement of Bartók's Fourth String Quartet," The Music Forum 2 (1970): 298-371.
    ${ }^{12}$ Heinrich Schenker, Der freie Satz, trans. and ed. Ernst Oster (New York: Longman, Inc., 1979), p. 4.

[^3]:    ${ }^{13}$ The primary whole-tone cell here is Perle's cell "Y" (note 9), here comprised of PCs F\#, E, D, and C. Travis shows this horizontalization in its most concise form in Ex. 1 and in more elaborate settings in subsequent examples.

[^4]:    ${ }^{14}$ Travis, "Tonal Coherence," p. 301.
    ${ }^{15}$ See, for instance, his Exx. 2 a and 2 b , Ex. 3, and Ex. 6. ${ }^{16}$ Travis, "Tonal Coherence," p. 300 (Exx. 2a and 2b) and p. 308 (Ex. 3).

[^5]:    ${ }^{17}$ Elliott Antokoletz, The Music of Béla Bartók (Berkeley: University of California Press, 1984); "The Musical Language of Bartók's 14 Bagatelles for Piano," Tempo 137 (June, 1981): 8-16; "Principles of Pitch Organization in Bartók's Fourth String Quartet," In Theory Only 3/6 (September, 1977): 3-22.

    18 Antokoletz, Music of Bartók, p. 138.
    19 Ibid.
    ${ }^{20}$ Ibid.

[^6]:    ${ }^{21}$ See, for instance, Ex. 166 (Music of Bartók), in which $F$ minor may be heard ultimately as a large-scale bvi in A major; Ex. 170, in which Antokoletz's A major and C\# minor may be heard as Db aeolian (natural minor) and Db phrygian (with the Ebb), corroborating the Db which he notes is explicit at one bar before rehearsal 7; and Ex. 172, where the C\# minor may be heard at a higher level to be iii in $A$, the traditionally tonicized goal of the opening phrase.
    ${ }^{22}$ Antokoletz, Music of Bartók, p. 68.
    ${ }^{23}$ Ibid., p. 69.
    $24_{\text {Ibia. }}$, p. 70.
    25 The three cells (referred to in note 9) are, in integer notation, $0,1,2,3 ; 0,2,4,6$; and 0,1,5,6.

[^7]:    exposed in mm. 47-49, and, with $E$, durationally exposed and elaborated in mm. 5l-54; m. 55 concludes the middle section with the sole C-E dyad. And yet, he once again posits $D$ as the central PC, denying any sense of harmonic departure in the three-part form.

[^8]:    31. Ernst Oster, "Re: A New Concept of Tonality(?)," Journal of Music Theory 4 (1960): 96.

    32 Edward Laufer, review of Der freie Satz, by Heinrich Schenker, in Music Theory Spectrum 3 (1981): 161.

[^9]:    35 The term "referential element" is used throughout this study to represent the analogue of a conventional tonic triad. "Referential" denotes the function of such a sonority as the tonal "point of reference" to which other pitch events are related as subordinate in some contextually defined manner (explained in each case). "Element" suggests the variety of "sonorous qualities" which the reference may take. For example, the terms "referential verticality" and "referential PC" will be used where further distinction or precision is required in specifying the form of the referential element. The first of these terms refers to a verticality heard as focal, while the second denotes the single most fundamental and focal PC in a given context. "Referential element" is thus a global term including both specific types described above. And, while a conventional tonic triad is an example of a referential element, the latter term is reserved for those of a nontriadic structure, or of a triadic structure of a nonconventional basis. "Tonic triad" will thus be retained for examples dealing with conventionally triadic textures.

    36 James Baker, "Schenkerian Analysis," p. 158.
    ${ }^{37}$ Craig Ayrey, "Berg's `Scheideweg': Analytical Issues," Music Analysis 1/2 (July, 1982): 195-96.

[^10]:    $38_{\text {Edward }}$ Cone, "The Uses of Convention: Stravinsky and His Models," in Stravinsky: A New Appraisal of His Work, ed. Paul Henry Lang (New York: W. W. Norton \& Company, Inc., 1963), p. 21.

[^11]:    $41_{A}$ "homointervallic" verticality or collection is one whose constituents, when expressed as PCs, may be arranged such that they are separated by the same interval; in such arrangements, the lowest PC (i.e., the "PC-lowest" constituent) is designated as "root" for the purposes of defining "root relations" in structural progressions.

[^12]:    ${ }^{1}$ In this study, functionally related and functionally directed harmonies are those whose root relations effect orientation to a particular tonic in the conventional major-minor system. The term "functional" without any further qualification thus means conventionally functional. If elements in a contrived system of pitch relations serve in capacities analogous to conventionally funtional harmonies, they will be referred to as contextually functional.

[^13]:    ${ }^{2}$ The chord positions indicated on systems (b) and (c) are of course not true to the actual music. In compressing the harmonies for the purposes indicated, the registral positions are adapted in order to clarify implied voice leading.

[^14]:    ${ }^{3}$ In this study, mid-level refers to progressions and prolongations whose constituents are noncontiguous and frequently elaborated by intervening pitch and PC events. Mid-level progressions and prolongations occur over brief segments as well as passages of a much broader temporal span.
    ${ }^{4}$ Dominant prefix refers to harmonies (other than the tonic) which precede the dominant in a functional progression. They are most

[^15]:    commonly related to the dominant by whole-tone (e.g., IV/iv and VI/vi), by semitone (e.g., bVI, vii of $V$, augmented sixth), or by descending fifth (e.g., ii, $V$ of $V$ ). Most phrases of music in the major-minor system can be heard to articulate a pattern of tonic-dominant prefix-dominant-tonic; frequently (especially in the nineteenth century) either or both tonics may be absent, the dominant prefix - dominant progression being sufficient to imply a particular tonic.

[^16]:    7 I will show in the next example that Bartók "plays" with this tentative exposure of A right to the very end of the movement.

[^17]:    opening F minor (as the parallel minor of the relative major). The strength of this relationship--in favor of $A b$ minor rather than $A$ major--at this point in the quartet is, I think, an important detail in the "energing" tonal structure of the work as a whole. Kárpáti offers corroboration of this view (Bartók's String Quartets, p. 179).

[^18]:    ${ }^{12}$ The referential CH minor is further reinforced in this opening through the mid-level arpeggiation, $C \#-E-G \#$, each note of which is articulated as the first note of a lower-level arpeggiated triad in mm. 3-8 ([5]).

[^19]:    ${ }^{13}$ The dual modality of the referential tonic appearing here is suggestive of a similar point of major-minor mixture in mm. 28-29 of the same movement (see score), this being another aspect of tonal practice common to the nineteenth century.

[^20]:    14 In Bartók's String Quartets, Kárpáti does not identify a distinct function to the two triadic structures; rather, he suggests that the augmented triad provides support for the "A tonality" through its A and $C \#$ and that $F$ "has only a colouring function" with respect to the fifth
    (E) of the tonic triad. (p. 190) He states further that
    "the augmented triad in the upper voices is coloured into A tonality by the little melody in the cello. The notes $A$ and $E$ dominate, and they are given colour by C, C sharp, and F without any feeling of the tonality disintegrating." (pp. 190-191)

[^21]:    $16_{\text {Although prolongation }}$ is the subject of Chapter III, I will describe briefly the details of the prolongation referred to here. The C-G fifth is prolonged through motion to the G-D fifth in m. 13, the latter repeated in m. 19 before returning to C-G (see the score). Its prolongation is thus conventional--through an upper fifth, analogous to a traditional I-V-I motion. The G-D fifth, however, is itself prolonged through an encirclement pattern (i.e., a double neighbour motion): G-D to its upper nieighbour $A-E$ in m. 15, A-E to $F-C$ (the lower neighbour of $\mathrm{G}-\mathrm{D}$ ) in m .17 , and from the lower neighbour $\mathrm{F}-\mathrm{C}$ back to $\mathrm{G}-\mathrm{D}$ in m .19.

[^22]:    ${ }^{18}$ The term disposition note is a derivative of William Benjamin's "disposition-pair," originated in connection with the music of Debussy. See his "pour les Sixtes: An Analysis," Journal of Music Theory 22/2 (1978): 261.

[^23]:    ${ }^{19}$ This is particularly relevant because the perfect fifth often functions as a primary referential element in Bartók's music.

[^24]:    ${ }^{20}$ Although the function of DH in the theme is not immediately clear at the beginning, it will be shown in the next chapter to have a "modulatory" disposition-note function in the opening section. Over a broader span the D\# retains its disposition-note function but in a different relation to its note of resolution, as will be explained.

[^25]:    ${ }^{21}$ It is the earlier analogous descending-fifth cycle, where the constituents are in order, which sets the precedent for this cycle, establishing a basis on which its constituents may be judged to be out of order.

[^26]:    22This circumvention of dominant effect is particularly appropriate for this movement, which represents Bartók's most extensive departure from tradition.

[^27]:    ${ }^{23}$ That is, $C \#$ approaches the lower note of the $D-A$ fifth from below while Bb approaches the upper note from above. Earlier, the lower note of each fifth was approached from above and its upper note from below in a configuration referred to as a b2-\#4 disposition pair.

[^28]:    24The lydian pattern itself has been shown to be a construct which tends toward its fifth scale degree. Here, that relation is manifest over a broader span--in the motion from D lydian to A lydian--and will be revealed as significant in other excerpts.

[^29]:    ${ }^{25}$ The second and fourth movements of this quartet are related in thematic structure, this aspect of symmetry being relevant to the first and last movements as well. The middle movement is itself ternary in form. The whole thereby illustrates the utmost in symmetrical design on a broad level.

[^30]:    ${ }^{26}$ Halsey Stevens, The Life and Music of Béla Bartok (Oxford: Oxford University Press, 1953), p. 189.

[^31]:    ${ }^{27}$ Wallace Berry, Structural Functions in Music (Englewood Cliffs, N.J.: Prentice-Hall, Inc., 1976), p. 30. (Berry's emphasis.)

[^32]:    ${ }^{29}$ They will also be shown in the next chapter to serve in a prolongational capacity as, for example, when they span an octave or unfold an interval later verticalized in a harmonic progression.

[^33]:    ${ }^{30}$ In traditional sequences, for example, the endpoints are functionally related, but the connecting harmonies--those effecting the sequential motion--are frequently nonfunctional, serving solely to connect the endpoints linearly and systematically.

[^34]:    $31_{\text {Kárpáti }}$ cites the prominent $\mathrm{Bb}-\mathrm{E}$ tritone in the opening theme as an example of a "mistuned fifth," suggesting it may have been transformed from a perfect fifth, the latter too "flat and uninteresting" (Bartok's String Quartets, pp. 143-144). In such a reading, the tritone assumes a contextually stable quality. I regard this particular tritone as unstable, implying an oblique resolution to a perfect fifth; in this interpretation, the tritone retains qualities of tension and mobility comparable to those attached to the tritone in the major-minor system. While it is true that the tritone receives much more emphasis than its resolution (here and in other instances in Bartok), it nonetheless must be acknowledged that it does often resolve (conventionally or obliquely) and is therefore not to be viewed as stable in and of itself.

[^35]:    ${ }^{32}$ The connection of $\mathrm{F} \#$ in m .76 to that in m .102 will be discussed in Chapter III.

[^36]:    33 This theme--with its potential for, and realization of, multiple tonal implications--will be the focus of extensive study in Chapter III.

[^37]:    ${ }^{34}$ As I will show in the next chapter, subsequent measures, leading to the close of the A section, reveal an unequivocal prolongation of, and ultimate arrival on, a root-position $F$-major triad, the movement's secondary referential triad.

[^38]:    ${ }^{36}$ See, for example, mm. 222ff. of Ex. 3.13, where D becomes the focal PC of reiterated motivic, mid-level dyads, and is treated as scale degree 2 at the final cadence of the section.

[^39]:    $\mathrm{l}_{\text {Heinrich Schenker, Harmony, ed. Oswald Jonas, trans. Elisabeth Mann }}$

[^40]:    ${ }^{7}$ Allen Forte and Steven E. Gilbert, Introduction to Schenkerian Analysis (New York: W. W. Norton \& Company, Inc., 1982), p. 142.

[^41]:    ${ }^{8}$ The resolution can, of course, coincide with a new harmony, but this would not yield a foreground prolongation. Should the harmonic motion continue in a functional manner, a higher-level prolongation could result, as will be explained later in this chapter.

[^42]:    ${ }^{9}$ Edward Laufer, review of Free Composition, by Heinrich Schenker, translated and edited by Ernst Oster, in Music Theory Spectrum, 3 (1981): 161.
    ${ }^{10}$ Arnold Whittall, "Music Analysis as Human Science?," Music Analysis 1/l (March, 1982): 44.

[^43]:    ${ }^{11}$ Paul Wilson, "Concepts of Prolongation and Bartók's Opus 20," Music Theory Spectrum 6 (1984): 88.

[^44]:    14 János Kárpáti notes the semitonal expansion of the opening theme's EbAb to the primary $\mathrm{D}-\mathrm{A}$ fifth of the movement; see Bartok's String Quartets (Budapest: Corvina Press, 1975), p. 250.

[^45]:    $15_{\text {These }}$ lower-level, phrygian-fifth progressions are heard over restricted spans which enhance their directive quality, and this in turn establishes a "precedent" for such patterns of inherently directed motion over broader levels. This notion of foreground precedent and largescale duplication will be dealt with in the third major section of this chapter, on large-scale prolongation.

[^46]:    ${ }^{16}$ Craig Ayrey, "Berg's `Scheideweg': Analytical Issues," Music Analysis 1/2 (July, 1982): 196.

[^47]:    ${ }^{17}$ Arnold Whittall, "Music Analysis as Human Science?," Music Analysis 1/1 (March, 1982): 44. (Emphasis mine.)
    ${ }^{18}$ This, in fact, is the tonal-textural configuration which, in Bartók's music is often cited as an expression of bitonality.

[^48]:    ${ }^{19}$ See Glossary for definition of embellishing pattern.

[^49]:    ${ }^{20}$ Although B is, from the outset of this excerpt, supported by E-suggesting orientation to E--this fifth marks the completion of the "white-note" diatonic collection initiated by sustained pitches in m. 151. This detail was discussed in connection with Ex. 2.29, at which point it was noted that the final PC required to complete the diatonic collection is $B$. In the excerpt under discussion (Ex. 3.9), $B$ is the final PC of that collection to remain sustained, until, as noted, it is absorbed into the elaborated Ab -minor triad.

[^50]:    $21_{\text {Retrospection }}$ and disposition-note resolutions were discussed in Chapter II under "Contextual tonicizing agents" in the section on Nonconventional Tonicizing Progressions.

[^51]:    ${ }^{22}$ János Kárpáti, Bartók’s String Quartets, (Budapest: Corvina Press, 1967), pp. 143ff.

[^52]:    ${ }^{23}$ These are the verticalities which function as whole-tone neighbours in the prolongation of the C-G fifth in its secondary capacity (i.e., as subordinate to the A-E fifth).

[^53]:    ${ }^{24}$ Examples 3.15, 3.16, and 3.17 revealed this type of implication over a stratum of reiterated and explicit disposition-note resolutions; Ex. 3.17, in particular, begins the superposition of multiple implications relevant to the measures under immediate discussion.
    ${ }^{25}$ This $F$. verticality is the "IV" in a large-scale "I-IV-V-I" progression referred to in Ex 2.11.

[^54]:    ${ }^{26}$ Antokoletz views this C/C\# duality as a reference to the A major-minor tonic triad he asserts to be primary in the work. This assertion is, like David Gow's, based on periodic points of vertically aligned articulations of the A major-minor triad and the half cadence in A which ends the movement. See his The Music of Béla Bartók (Berkeley: University of California Press, 1984), p. 145. Elsewhere in this paper I have given alternate interpretations of the function of the periodic A triads and the final cadence. See my Exx. 2.1-2.4 and 3.20.

[^55]:    ${ }^{27}$ The movement begins with a superposition of $C \#$ and $D$ and ends with superimposed fifths on the roots C\# and D.

[^56]:    ${ }^{28}$ Because of our experience with the major-minor system, the perceptible prolongational precedent need not even be a recurrent factor in the foreground harmonic structure of the piece in which it is said to effect large-scale prolongational significance. That is, we can ascribe meaning to a large-scale functional (prolongational) harmonic pattern

[^57]:    $l_{\text {David Gow, "Tonality and Structure in Bartok's First Two String Quar- }}$ tets," The Music Review 34/3-4 (1973): 259.

[^58]:    ${ }^{2}$ It might be noted that it is the strict presentation and transposition of the primary motive that results in notes which "conflict" with the asserted tertian harmonies.

[^59]:    ${ }^{3}$ The thematic material to this point has been used as the basis for the introductions to the first three movements. In the movement under examination, however, this thematic section takes up forty-five of the total eighty-six measures and is thus integral to the movement proper, and not merely introductory.

[^60]:    Béla Bartók - STRanc quikrter I
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