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## Bartók's Fourth String Quartet, Movement IV

### Introduction

Béla Bartók (1881-1945), the Hungarian composer perhaps known best for his six string quartets, his Concerto for Orchestra, and his six-volume set of piano pieces *Mikrokosmos*, was a highly influential figure in twentieth-century music. The Fourth String Quartet, written in the summer of 1928, exhibits a wide variety of musical styles showcasing Bartók's unique mastery of many different compositional approaches. As Halsey Stevens writes in *The Life and Music of Béla Bartók*,

“The Fourth Quartet comes close to being, if it does not actually represent, Bartók's greatest and most profound achievement. It is by no means easy to understand; it requires the most active sort of listening, and the passive listener is likely to find his head whirling in a welter of exciting but confusing sound. But once its arcana are discovered, there are few works of this century so meaningful or so rewarding.”

This paper examines the fourth movement, *Allegretto pizzicato*, of the Fourth String Quartet, offering insight on several of Bartók's musical devices.

### Large-Scale Structure of the Quartet

The Fourth String Quartet exhibits macrostructural symmetry in that the first movement is similar to the fifth and the second movement is similar to the fourth, while the third stands alone as the center of symmetry. As Bartók himself explained in his essay “Structure of the Fourth String Quartet,”

“The work is in five movements; their character corresponds to Classical sonata form. The slow movement is the kernel of the work; the other movements are, as it were, arranged in layers around it. Movement IV is a free variation of II, and I and V have the same thematic material; that is, around the kernel (Movement III), metaphorically speaking, I and V are the outer, II and IV the inner layers.”

The extent of “similarity” here ranges from duration to melodic and harmonic material as well as timbral similarity. In the case of the fourth movement, *Allegretto pizzicato*, the timbre is distinct from the other movements by virtue of the pizzicati throughout, while the second movement’s unique timbre comes from muted strings. It is further noteworthy that the first instance of the *Bartók pizzicato*, an extended technique wherein the player plucks the string hard enough that it rebounds on the fingerboard, is found in the fourth movement. Other techniques such as *sul ponticello* (bowing near the bridge as to bring out higher harmonics), strumming, tremolo, and arpeggiation, are used freely in the fourth movements to create a unique timbral signature. Both movements are formally structured as ternary scherzi. Bartók himself goes on to comment specifically on the structure of each movement, offering this formal analysis of the fourth movement:

**Movement IV.**—The structure of the fourth movement is as follows:

measures    1–44: Part One (the theme is identical with the main theme of Movement II.—there it moved within the narrow limits of the chromatic scale, here it is extended over the diatonic scale; accordingly, there the ambitus is a fifth, here an octave);  
                   45–87: Part Two (articulation: 45–64 corresponds to measure 78–101 of Movement II., 65–77 to 102–112 of II., 78–87 leads back to the recapitulation);  
                   88–112: Part Three (free recapitulation);  
                   113–124: coda.

**Figure 1.** Bartók’s analysis of the fourth movement of the Fourth String Quartet. Source: Suchoff, Benjamin. *Béla Bartók: Essays*. Lincoln: University of Nebraska Press. 1992.

This formal sketch will serve as a preliminary starting ground for this paper’s own analysis.

### Scalar Construction

Before analyzing the formal construction of the fourth movement, it is worth examining the material from which the melodies are formed. Bartók employs the use of a synthetic scale with the intervallic pattern W–W–W–H–W–H–W. The scale itself has various names, including

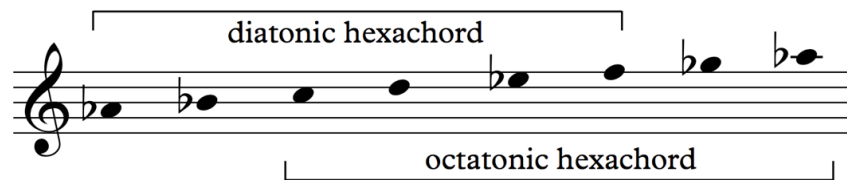
“Lydian dominant” and “Lydian  $\flat 7$ ” (especially in jazz terminology) due to its close resemblance to the Lydian scale, but the name that this paper will henceforth use is *acoustic* scale, coined by Ernő Lendvai in *Béla Bartók: An Analysis of his Music* for the reason that the notes roughly correspond to the 8<sup>th</sup> through 14<sup>th</sup> notes of the harmonic series. Figure 2 below compares various familiar scales to Bartók’s acoustic scale used in the fourth movement, picking  $A\flat$  as a reference pitch as the first statement of the scalar melody appears in  $A\flat$ .

$A\flat$ Lydian scale (W–W–W–H–W–W–H)	$A\flat-B\flat-C-D-E\flat-F-G-A\flat$
Whole-tone scale on $A\flat$ (W–W–W–W–W)	$A\flat-B\flat-C-D-E-G\flat-A\flat$
$A\flat$ acoustic scale (W–W–W–H–W–H–W)	$A\flat-B\flat-C-D-E\flat-F-G\flat-A\flat$
The viola’s scalar outline, mm. 6-12 (W–W–W–H–(W–H)–W)	$A\flat-B\flat-C-D-E\flat-(F)-G\flat-A\flat$ (F disappears after m. 9)

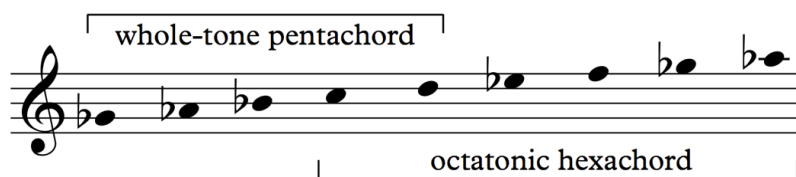
**Figure 2.** Comparison of various scales to Bartók’s acoustic scale. While the whole-tone scale can be generated by a 2-cycle, a 2-cycle can only partially complete the acoustic scale.

The fourth row of the table presents an interesting possibility: can a bias for certain pitches change the perception of the scale to tilt it towards interpretation as a more familiar scale?

Figures 3 and 4 show familiar pitch collections embedded within the  $A\flat$  acoustic scale.



**Figure 3.** Diatonic and octatonic collections contained in the  $A\flat$  acoustic scale.



**Figure 4.** Whole-tone and octatonic collections contained in the  $A\flat$  acoustic scale (when starting with  $G\flat$ ).

Indeed, the fugal subject of the fourth movement uses the acoustic scale in such a way that different scales are implied by favoring different subsets of the scale.

The image shows a musical score in 3/4 time. The top staff is labeled "Acoustic scale ..." and contains a melodic line starting with a "vla" (vibrato) marking and a "p" (piano) dynamic. The bottom staff is labeled "Whole-tone pentachord" and contains a series of chords, each marked with a "pp" (pianissimo) dynamic. The key signature has one flat (B-flat).

**Figure 5.** Favoring a particular subset of the acoustic scale results in creating a whole-tone pentachord.

Source: Yust, Jason. "Applications of DFT to the Theory of Twentieth-Century Harmony." *Mathematics and Computation in Music: 5th International Conference, MCM 2015, London, UK, June 22-25, 2015, Proceedings (Lecture Notes in Computer Science)*.

The concept in use here is not dissimilar to that of a nexus set, wherein a certain "mother" set is a representative for a set complex consisting of all subsets in relation with the given nexus set. In this case, the  $A\flat$  acoustic scale can be thought of as the nexus set with the whole-tone, diatonic, and octatonic chords comprising particular subsets of it. Bartók uses the various subsets of the acoustic scale to imbue certain passages with a diatonic, octatonic, or whole-tone feel in certain areas, e.g., the coda as shown by Elliott Antokoletz in Figure 6.

The image shows a musical score for the coda, starting at measure 120. The tempo is marked "Tempo I (tranquillo)". The score is in 3/4 time and features four staves. The first two staves are marked "Sostenuto" and "ff" (fortissimo). The third and fourth staves are marked "p" (piano). The score is divided into sections: "octatonic" (measures 120-121), "octatonic" (measures 121-122), and "diatonic" (measures 122-123). The final section is marked "(non arp.)" and "sf" (sforzando). The key signature has one flat (B-flat).

**Figure 6.** Octatonic and diatonic collections in the coda, mm. 120-122 Source: Antokoletz, Elliot. *The Music of Béla Bartók: A Study of Tonality and Progression in Twentieth-Century Music*. Berkeley: University of California Press. p. 238.

### Formal Construction

The scherzo part of the movement, mm. 1-44, is characterized by a fugato based on the acoustic scalar melody in Figure 5. Similar to the second movement's tonal expansion in two layers of fifths, the pitch centers of each instrument's fugal entrances in the first theme group outline four fifths generated by  $A\flat$ , namely,  $A\flat-E\flat-B\flat-F$ . Figure 7 below charts the fugal entries of each instrument.

mm. 1-5	introduction/accompaniment (rhythmic figure with $A\flat-E\flat-G-D$ tetrad)
m. 6	atop preexisting accompaniment, viola introduces acoustic scalar melody in $A\flat$
m. 13	second violin enters fugato with acoustic scalar melody in $E\flat$
m. 20	cello enters fugato with acoustic scalar melody in $B\flat$
m. 27	first violin enters fugato with acoustic scalar melody in F
m. 37	fugal subject in stretto across all four instruments with intervals of 1-2 beats, metrically emphasizing $A\flat$ and $E\flat$

**Figure 7.** Fugal/formal analysis of the (first) scherzo of the fourth movement.

The trio, mm. 45-87, introduces a new motif, henceforth referred to as the *cambiata theme* (due to its resemblance to the figuration of a nota cambiata), centering around a pitch with the notes a chromatic step below and above it, and this figure is imitated canonically at the ninth. The rapid entrances and irregular imbrication contrast with the more predictable fugal style of the scherzo. Figure 8 below provides a formal analysis of the trio.

mm. 45-47	introduction/accompaniment (alternating $A-B-C\sharp$ and $B\flat-C-D$ cluster chords in viola and cello)
m. 47	second violin introduces cambiata theme centered on F
m. 48	first violin introduces cambiata theme centered on G (a ninth above)
m. 54	second violin restates cambiata theme centered on $B\flat$

m. 55	first violin restates cambiata theme centered on C (a ninth above)
m. 65	imitation is abruptly replaced by homophonic chromatic texture, alternating A–E–B $\flat$ –D and B–D $\sharp$ –C–C $\sharp$ tetrads
m. 78	Scalar fragments appear in the second violin and cello, leading gradually to a recapitulation of the acoustic scalar melody in m. 88

**Figure 8.** Formal analysis of the trio.

The harmonic space occupied by the music in the trio section is noteworthy: the strummed cluster chords in mm. 45–47 form a chromatic cluster from A to D, while the two violins that play the cambiata theme atop it outline a near-chromatic complement spanning E to A $\flat$  (missing E $\flat$ ). The chromatic organization continues across the second transposition of the cambiata theme beginning in m. 54: the viola and cello inhabit a chromatic cluster from D to G while the melodic voices create a chromatic cluster from A to D $\flat$ , thus combining to form a near-chromatic complement again (this time minus A $\flat$ ). The A $\flat$ , which assumes a function not dissimilar to a tonic, is then withheld until the final beat of m. 62, allowing the two-bar transition to the homophonic texture in m. 65 to act as a quasi-cadential gesture reestablishing the centrality of A $\flat$ . The exclusion of E $\flat$  and A $\flat$  from the chromatic space (while being emphasized in the final stretto of the fugato) is diametrically opposed to the traditional harmonic organization of ternary form, wherein the B section occupies the dominant pitch space of the A section—here, harmonic organization is refreshed precisely by omitting those notes. At m. 65, the chromatic homophonic texture consists of three-bar phrases of eighth notes emphasizing A–G–F–E $\flat$  (an E $\flat$  Lydian tetrachord) interrupted at the end of each phrase by a *forte* or *fortissimo* F–F $\sharp$ –G chord. The linear motion here can be thought of as generated by a 2-cycle, but it is perhaps not copacetic to apply cycles to an analysis of this movement as cycles only account for strict subsets of the scalar material (e.g. the first Lydian tetrachord). Insistent repetition of the F–F $\sharp$ –G chord from m. 76 onward punctuated with fragments of the acoustic scalar melody serves as a transition

from the trio into the recapitulation of the scherzo. As Bartók mentioned in his essay, mm. 78-87 “lead back to the recapitulation,” and indeed the manner in which this is achieved is not unlike a Classical development: crucial elements from the scherzo’s fugal theme and the trio’s cluster sonorities are juxtaposed in these bars leading to the recapitulation proper.

The scherzo is recapitulated at m. 88 with the first violin and cello replacing the fugato structure by a two-part octave canon in diminution on the pitch center of  $A\flat$ . Some traditional contrapuntal devices of are used in the recapitulation, outlined in Figure 9 below.

m. 88	the first violin and cello start a two-part octave canon on the acoustic scalar melody in $A\flat$ while the inner two instruments continue chordal accompaniment in the character of the trio
m. 102	the textures switch and the inner two instruments take on the fugal theme in octave imitation in $D\flat$ ( <i>major</i> rather than acoustic, as $D\sharp$ characterized the acoustic scale); furthermore, the melody descends before ascending, suggesting retrograde inversion
mm. 106-107	the outer two instruments join the thematic statements to create a four-voice polyphonic texture
m. 112	the first violin begins a coda consisting of a simple descending diatonic figure $C-B\flat-A\flat$ resolving to $C-B\flat-G\flat$
m. 124	final nine-note chord, $A\flat-B\flat-C-D\flat-D-E\flat-F-G\flat-G$ , contains the entire $A\flat$ acoustic scale with chromatic inflections of $D$ ( $D\flat$ ) and $G\flat$ ( $G$ )

**Figure 9.** Formal analysis of the recapitulation of the scherzo.

A comparison of the viola lines from m. 6 and m. 102 shows that the transformation is very close to (but not exactly) a retrograde inversion.

viola, m. 6

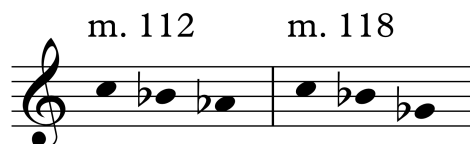
viola, m. 102

The image shows two musical staves for the viola. The top staff is labeled 'viola, m. 6' and contains a melodic line in G-flat major (one flat). The bottom staff is labeled 'viola, m. 102' and contains a melodic line in D-flat major (two flats). A dashed horizontal line spans across both staves, indicating a comparison between the two themes. The notes in m. 102 are a retrograde inversion of the notes in m. 6, with some chromatic alterations.

**Figure 10.** Comparison of the viola’s acoustic scalar/ $D\flat$  major themes, m. 6 and m. 102.

As explained in Figure 1, the contrapuntal transformations here are justified by their parallel in the second movement of the quartet, staying faithful to the preservation of large-scale symmetry.

The coda presents a curious phenomenon of moving from a motive of relative harmonic stability to a motive of *less* harmonic stability, counterintuitive to the traditional function of a coda.



**Figure 11.** The coda's two motivic cells.

The first motive, introduced in m. 112 in the first violin, can be thought of as an extreme condensation of the acoustic scalar theme from the scherzo, preserving the whole-tone intervallic structure. But the second motive outlines a tritone and is therefore less sonically consonant, suggesting that it ought not to be a cadential destination at the end of the movement. In “Developing the Musical Negative: an analysis of the fourth movement of Bartók's String Quartet no. 4,” Kevin Laskey posits that “Bartók is trying to orient our ears away from hackneyed, Germanic tonal resolutions and point it toward mathematically ideal resolutions instead.” So what makes the second motive (i.e., the goal of the coda) mathematically ideal in spite of its tritonal span? The intervallic pattern of whole step–major third is found naturally in the acoustic scale (scale degrees 1, 3, and 4; 4, 7, and 1; and 7, 2, and 3) but is *not* found naturally in diatonic major, minor, or modal scales. Therefore, the second motive is strictly justified by the adherence of the movement to the governing acoustic scale, denying its subservience to more familiar scalar structures as suggested by the metrical emphases on different pitches in the fugato of the scherzo. Laskey suggests that in this way, “Bartók argues that the tonal system as practiced in his day is a false representation of true mathematical beauty and attempts to reflect this system back on itself to reveal a pure musical expression.”



## Harmony and Tonality

Some theorists, including Halsey Stevens in *The Life and Music of Béla Bartók*, do not believe that the harmony of the Fourth Quartet is significant or even analyzable:

“The harmonic idiom of the Fourth Quartet can hardly be called harmonic at all. The coincidence of sounds at any point is so completely dependent upon the horizontal motion of the voices that it seems illogical to analyze them vertically.”

Stevens also goes on to say,

“The emphasis throughout the quartet is polyphonic, and there are innumerable canons, but curiously, in spite of its tremendous contrapuntal energy, there is in this quartet no fugue or fugato—only the canons and a vast amount of freely imitative writing.”

But clearly there is not consensus on this point, as this paper interprets the formal organization of the scherzo as a fugato! Naturally, a definition as loose as that of a fugato (“in the style of a fugue, but not in strict or complete fugal form,” according to Oxford English Dictionary) will engender debate.

While the fourth movement of the Fourth String Quartet does not adhere to Classical diatonicism, several gestures imply a governing pitch center of  $A\flat$ . Firstly, the use of the  $A\flat$  acoustic scale with scalar figures beginning on  $A\flat$  give a modally centristic feel local to that phrase. More substantially, the harmonic accompaniment to the melodic scalar figures is a double inflected open fifth on  $A\flat$ , namely, the combination of the dyad  $A\flat-E\flat$  and  $G-D$ , set class (0156). When the second violin enters with the fugal subject on  $E\flat$ , the aural perception is almost like that of a fugal answer in the dominant key, stemming out of a governing tonality of  $A\flat$ . Various devices in the trio section also contribute to the implicit elevation of  $A\flat$  to the position of tonal center, this time through chromatic adumbration and complements.

Beyond the tonal gestures in the movement, there is a strong bias toward secundal intervals, an interval which is characteristic of the first half of the Lydian mode. The pitch

centers of the cambiata theme in the trio are F–G and B $\flat$ –C respectively. The quarter note chords that repeatedly interrupt the chromatic homophonic texture in mm. 65–88 (the end of the trio leading up to the recapitulation of the scherzo), F–F $\sharp$ –G (set class (012)), are entirely secundal. As Colin Mason comments in “An Essay in Analysis: Tonality, symmetry and latent serialism in Bartok's fourth Quartet,”

“The harmonic system of the fourth Quartet...[shows] the almost complete displacement of the harmonic interval of the third, the basic interval of the harmony of all Bartok's other works, by the second.”

Even though there is not a proliferation of vertical sonorities (as in the third movement of the quartet, for example), the harmonic organization of the fourth movement is far from trivial.

### Metrical Considerations

The rhythm of the opening figure contains local asymmetries to offset the key signature of 3/4, but dynamic accents across larger phrases provide another level of rhythmic dissonance.

**Figure 12.** Microstructural and macrostructural metrical units created by the combination of agogic and notated dynamic accents. Source: Kárpáti, János. *Bartók's String Quartets*. Budapest: Corvina Press. 1975.

The lengths of the longer accented phrases are 5 beats–6 beats–7 beats–8 beats–6 beats–4 beats, exhibiting linearly upward motion of the phrase lengths: 5→6→7→8. Polymetrical independence is realized through the liberation of the rhythm of the accompaniment from the rhythm of the melody—note that the strong beats of both align only once in Figure 11.

“Bulgarian rhythm,” which is simply the use of asymmetrical rhythmic groups within measures, is present in the syncopation of the second violin and cello, though the tempo is considerably slower than is typical in traditional uses of Bulgarian rhythm (e.g., in Bartók’s *Mikrokosmos*).

The salience of the notated 3/4 meter, despite remaining unchanged throughout the entire movement, is not particularly strong, as syncopations constantly offset the perception of three as a phrasal arbiter. The scalar thematic material in the scherzi often enters after a single eighth rest on the downbeat of a bar, further contributing to an irregular rhythmic soundscape.

The image shows a musical score for four staves, numbered 65. The top staff is marked with a box containing the number 65. The first three staves are marked with the dynamic *ppp* (pianississimo) and the fourth staff is marked with *f* (forte). The music is in 3/4 time and features dynamic accents on the 'and' beats, which offset the 3/4 time signature. The score is divided into four measures, with the first three measures containing the main melodic lines and the fourth measure containing a final chord. The notation includes various rhythmic values, including eighth and sixteenth notes, and rests.

Figure 13. An example of dynamic accents on “and” beats in the homophonic section of the trio, mm. 65-68, offsetting the 3/4 time.

## Conclusion

Overall, a close look at the fourth movement of Bartók's Fourth String Quartet reveals a strong attention to detail with regard to large-scale symmetry as a principle of formal organization. Other more familiar characteristics of Bartók's musical style are also present, including modality, folk elements, and extended pizzicato techniques, but the overarching governing principle remains symmetry. Tonal gestures underlie the harmonic organization of several sections, modality and octatonicism is implied in fugal passages, and even centuries-old contrapuntal processes (e.g., retrograde inversion) are employed masterfully, but the musical material is ultimately organized by the rigorous framework of the quartet rather than serving as a pastiche. An equally assiduous analysis of the second movement of the quartet would be instructive in illuminating the motivation for the structural organization of the fourth movement, given that two movements are constituent corresponding pieces of a larger cohesive work in arch form.

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