Like several of his works, including his Concerto for Orchestra, Bela Bartok’s String Quartet no. 4 exhibits an arch form. As to resemble the symmetrical span of a bridge, the first and last movements of this five-movement work correspond, as do the second and fourth movements, with the third movement acting as the piece’s keystone. Unlike many of his contemporaries that eschewed the formal conventions of 18th and 19th century art music, Bartok used these conventions as a way to ground his works in the classical tradition while exploring new harmonic, melodic, and rhythmic possibilities. The arch form in particular is merely an expanded ternary form – ABCBA as opposed to ABA. In an arch form, the fourth section plays a pivotal role, as it is the first return of previous material. It is the piece’s tipping point, bringing the music back toward its grounded origins, rather than letting it take off on a flight of fancy. In the case of Bartok’s fourth string quartet, the fourth movement does act as a tipping point by utilizing thematic material from the second movement. However, the fourth movement is not a simple recap, but rather a transformation of the second movement’s major themes and material. Unlike in a more classical treatment of an arch form, the fourth movement utilizes a structure that is less of a parallel construction to the second, but more of one that casts the two movements as photonegative reflections of one another through a series of embedded symmetrical structures.¹

The Second Movement

In order to understand the fourth movement of Bartok’s fourth string quartet and its role in the overall form, we must begin with a brief overview of its analog in the piece, the second movement. The movement follows an altered ternary form – ABA’ with a coda. Played at a breathless tempo in 6/8 meter, the movement begins with a gradually rising and falling chromatic

¹ Or for those who read comic books/watch Seinfeld, the fourth movement is the Bizzaro World second movement.
theme (A-a, fig. 1) in the viola and cello. Bartok treats the theme in a fugal manner, bringing in a second iteration of the theme in the violins at m. 10 a perfect fifth higher than the first. A second sub-theme (A-b) enters at m. 20 – a diatonic alteration of the original statement. Over the next 34 measures, Bartok liquidates the theme into smaller fragments, in addition to introducing a motive that circles a given note and then gets stuck on it (fig 2).

The original chromatic theme returns at m. 54 (A-a’) entering this time in close stretto and in octaves rather than fifths, eventually liquidating and transitioning to the larger B section in the middle of m. 75.

The B section introduces a new composite theme in the violins – a sort of cambiata figure that circles a given note (B-a fig. 3), foreshadowed by the “stuck”
motive (fig. 2). The cambiata figure eventually gets subsumed into the clustered accompaniment figures at m. 102, introducing a new, rather tune-less, section. (B-b). This figure is eventually interrupted by a series of glissandos at m. 137, which is in turn developed into a series of rising and falling runs that utilize both diatonic and octatonic scales through m. 175 (B-c). At measure 175, fragments of the original theme from A return, beginning a retransition (B-d) that culminates with the return of the full A-a theme at m. 189. Curiously, this is not a traditional full recapitulation, as the first sub-theme (A-b from m. 20) fails to return. Bartok continually subverts the classic ternary model from here on out, suggesting a false coda at 213, utilizing material reminiscent of the cambiata figure (fig. 3). However, the material of this coda is further subverted, revealing a true coda at 223 built on diatonic liquidations of the of the movement’s original (A-a) theme.

Moving to the Fourth Movement – The A theme

With the basic form and thematic ideas of the second movement established, we can turn our attention to the fourth movement. At first glance, the relationship between the two seems tenuous at best. In terms of timbre, tempo, and meter, the movements have strong contrasts. The breathless tempo of the second (176-196 bpm) is dialed down to a statelier allegro (142 bpm). The 6/8 meter is transformed into 3/4. The mellifluous muted sounds are replaced by harsh pizzicatos. However, upon closer inspection, the strong, symmetrical relationship between the two movements becomes clear, right from the very beginning.

To start, let us look at the opening theme of the fourth movement (fig. 4) and compare it to the opening theme of the second. When observed in tandem, it is easy to see the similarity in terms of contour. Both themes move up and down by step, making smaller and smaller arches as
they progress. But when the melodies are reduced to just their pitch content (with repeated notes omitted, fig 5), the similarities become even more striking. For the first two rising and falling phrases within the themes, the contours line up completely, as if they are the same melody. The melodies ascend for seven notes then descend for five; then ascend for four notes and finally descend for five more. In this way, the theme of the fourth movement becomes a direct diatonic transformation of the second movement’s chromatic theme.

The fourth movement theme is not a perfect analog, however. If that were the case, we could map each pitch class of the second movement theme to exactly one pitch class of the fourth movement theme, which is not the case here (see the third vertical line in fig 5).

The link between these two opening themes is more than just an analogous contour. Despite the fact that the melodies use two distinctly different scales (chromatic and diatonic), they share an underlying sound through the emphasis of whole-tone pitch sets. In the second
movement A-a theme, the metrically-strong notes in the melody (F,G,A,B) form a four-note whole tone scale within the chromatic sound world. In the fourth movement A-a theme, Bartok does not use a typical diatonic scale, but rather a major scale with raised 4th and lowered 7th scale degrees. This scale occurs tonally as the fourth mode of the ascending melodic minor scale, and is usually referred to as the “Lydian dominant” scale in a jazz context. However, in his groundbreaking work on Bartok’s music, theorist Ernő Lendvaï refers to the scale as the “acoustic scale,” as the notes roughly correspond to the 8th through 14th notes of the harmonic series. Bartok’s affinity for this scale is not necessarily because of his interest in creating sonorities based on the harmonic series, but because the scale contains sets that also belong to two scales of limited transposition that appear through much of his work – the whole tone scale and octatonic scale. In the acoustic scale, there are five consecutive notes separated by whole steps from the 7th through 4th scale degrees. In addition, one can find an octatonic set (alternating whole and half steps) from the third through first steps in the scale (figure 6).

In the A theme of the fourth movement in particular, Bartok emphasizes the whole-tone quality of the scale through the extensive use of downward major third leaps at the end of the theme (the last bit of theme that stays with the listener), the only kind of third that occurs in a whole tone...

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scale. Thus in both the chromatic second movement A-a theme and the diatonic fourth
movement A-a theme, Bartok manipulates the pitch material to emphasize a whole tone scale,
thus creating a subtle shared harmonic world for the two movements.

In addition to similarities of contour and underlying pitch emphasis, the themes are both
treated in a fugal manner, with successive instances of the theme entering a perfect fifth above
the previous instance. In the second movement, the viola and cello enter with the theme in
octaves, starting on E. The violins then enter at m. 10 in octaves on B. The fourth movement
builds on this fugal relationship, introducing four instances of the theme rather than just two –
Bartok first presents the theme on Ab in the viola, then Eb in the 2\(^{nd}\) violin, then Bb in the cello,
and finally F in the first violin.

After the violin finishes its iteration of the fourth movement A-a theme, Bartok begins to
liquidate the material, as he did in a similar place in the second movement. In m. 37, Bartok
introduces rising and falling thematic fragments in close stretto (one beat separation) at the
octave in pairs – the high strings and lower strings paired off. This thematic development
exhibits a close link between m. 37 in the fourth movement and m. 54 (A-a’) of the second
movement. In this way, while the form of the second movement A section is aba’, the form of
the fourth movement A section is only aa’, the same form as second movement recap. This
relationship creates a palindromic form rather than a parallel one, suggesting the movements as
symmetric reflections of one another, an idea strengthened by the use of the acoustic scale,
which has symmetric whole tone and octatonic sections embedded within it. As we will see later
in the essay, this palindromic relationship is confirmed by the relationship between the first A
section of the second movement and the A’ section in the fourth movement.
This symmetric relationship also helps clarify the peculiar facets of the second movement A section. The A-b theme that enters at m. 20 and the ensuing instances of the “stuck motive” never return explicitly in the movement. However, much as the stuck motive foreshadows the first theme of the larger B section (the cambiata), the short diatonic projection of the A-a theme (A-b) now appears as a foreshadowing of the diatonic treatment of the A-a theme in movement four. In this way, the second movement A-b theme and stuck motive are invasions of the second movement exposition by other sections of the piece. While these invasions obscure the form of this section, they also act as glue, holding movements two and four together for the listener.

**The B Section – First Themes**

At measure 45 in the fourth movement, the liquidating A section theme (A-a’) is suddenly halted by a series of strummed cluster chords in the viola and cello. The startling change in the accompaniment syntax shows that m. 45 marks the beginning of a new large section, B. In the pickup to measure 47, the next major theme (B-a) enters in the second violin followed closely by another entrance in the first violin – a clear variation on the cambiata (B-a) theme (fig. 3) from the second movement. At measure 65, these cambiata themes are replaced by a single chromatic texture, a clear analog to the second subsection of the second movement’s B section (B-b). Thus on the syntactical surface, the B section of the fourth movement follows a parallel form to the B section of the second movement.

However, just as the A section of the fourth movement uses different-yet-related pitch material from the concurring section of the second movement, the B section of the fourth movement also transforms the pitch material from the second. First, we will look at how pitch is utilized differently in the first themes of respective B sections. In the second movement, the cambiata motive in the two violins ascends gradually from m. 78 through m. 85. Over this span,
the main notes of the figure (the long, held notes) form a whole tone set from Eb up to A (fig 7). After holding at the top of this set from m. 85 through m. 89, the motive descends through the whole tone set again, this time moving all the way down to C# in m. 95. After a pair of glissandi, the motive ascends again, this time outlining a diatonic set – E, G, A, and B. So while the first theme of the second movement’s B section is chromatic when looked at motivically, it is treated in a way that suggests both whole tone and diatonic sound worlds.

In the respective A sections of the second and fourth movements, we found that the pitch content of the fourth movement A theme was altered in a way to illuminate a different character of the second movement A theme – the use of the whole-tone heavy acoustic scale in the fourth movement helped bring out the embedded whole-tone pitch set within the second movement theme. In the fourth movement B-a theme, a somewhat similar process occurs. When we look at the main notes of the cambiata B-a theme in fourth movement, they form a much smaller pitch set than the corresponding section in the second movement – the set F, G, Bb and C (fig 8). The sonic quality of this pitch set is rather ambiguous. It can belong to a host of diatonic scales, both major and minor, as well as a pentatonic scale. This particular pitch set does not set up a
definitive harmonic soundworld for the fourth movement B-a section in the same way that the embedded whole tone scales do for the second movement B-a section. Since the pitch material of the theme itself does not suggest a particular harmonic center, we must look at the thematic notes in tandem with the notes of the accompaniment to find one.

At the start of the B section in m. 45, the viola and cello play a series of strummed chords that form to make a complete chromatic cluster from A to D. Over this cluster, the two violins play notes that combine to form a complete chromatic cluster from E through Ab. When you combine these two clusters together, you get a nearly chromatic complement, minus Eb. This chromatic organization of pitch is continued in the next phrase, beginning in the middle of m. 55. The accompanimental voices create a chromatic cluster from D to G, while the melodic voices create a chromatic cluster from A to Db, thus combining to form a near chromatic complement again, this time minus Ab. The Ab is continually avoided until the last beat of m. 63, ushering in the cadential material of the next two measures. So while the cambiata theme emphasized diatonic and whole-tone qualities in the second movement, it becomes a photonegative reflection of itself in the fourth movement by emphasizing chromatic qualities instead.

The particular notes that Bartok leaves out of his chromatic pitch sets in this section shows how he reimagines the harmonic relationship between the A and B sections of classic ternary form. In a classic ternary form, the key of the B section is generally the dominant of the A section’s key. Instead of seeing this convention as a strict rule to be followed, Bartok sees the move from I to V as a way to refresh the pitch content of a piece. In the fourth movement of the fourth string quartet, the A section begins with a sort of Ab tonic (as the first note of the acoustic scale) that grounds each successive fugal instance of the A-a theme. In the final A-a’ theme of the section (m. 37), the two pairs of liquidating thematic material emphasize Ab (the
upper strings) and Eb (the lower strings). Because of this particular emphasis on these main notes, Bartok decided to leave them out in the beginning of the B section in order to create a sense of pitch refreshment without having to use a strict tonal system.

**The B Section – The clusters take over**

At m. 65 of the fourth movement after a brief pause, all four instruments enter to create a single chromatic cluster texture, just as in the second movement at m. 102. In terms of pitch content, these B-b sections are almost identical. The second movement version utilizes a chromatic pitch cluster from Ab-Eb, while the fourth movement version utilizes one from A-E. While these sections begin almost identically, they quickly break off and seemingly follow divergent paths. The second movement B section introduces two other sub-sections (b’ at m. 113 and c – the glissandos/runs – at m. 136) before moving to the retransition. The fourth movement B section appears to move right to the retransition from the B-b theme without any additional thematic material. Does this mean that the reflective relationship between the two movements breaks down at this point?

If we look closely at the B-b theme of the fourth movement, there is one particular aspect that differentiates it from the analogous section in the second movement. In the second movement, this theme is extremely connected. Even when instruments enter and exit, they do so without interrupting the diaphanous texture. In the fourth movement, the theme contains numerous accented interruptions that eventually coalesce into cadential material in m. 76. These loud interruptions do not appear out of nowhere. In fact, they are an important characteristic of the B-c thematic material from the second movement (see m. 147, 151, 165-68). Because of this fact, we can see the B-b theme of the fourth movement as a condensation of the B-b and B-c themes of the second movement. It is as if in the development process from negative to
photograph, a part of the photograph got smudged, creating one object where there had previously been two. Because of this condensation of thematic material, the reflective relationship of the second and fourth movements holds through the B section.

**From Retransition to Recap**

At first glance, the transitions from the B section to the A’ sections from the second and fourth movements are closely related by how they utilize melodic fragments from the A-a themes. In the second movement at m. 175, the second violin plays short falling chromatic gestures while the viola responds with short rising chromatic gestures. It is as if the A-a theme has been chopped up and divided between the two instruments. This gesture acts as a classic retransition, clearly setting up the return of A material by prolonging a particular harmonic gesture. However in the fourth movement at m. 78, the second violin and cello play a rising and falling gesture that appears like the first two measures of the A-a theme, before being interrupted by sul ponticello accents that are reminiscent of the interruptive accents from the B-a theme. This process repeats from m. 80 through 83, and is followed by a phrase from m. 85 through 87 distilled from the descending major third motive utilized in the A-a theme. The transition to the fourth movement recap is thus more similar to a classical *development* than a retransition in how it juxtaposes important elements of both themes. This peculiar gesture continues to emphasize Bartok’s process of using classical forms as a starting point, then consciously subverting them to create a novel, yet grounded form.

In the fourth movement, the recap begins with what at first appears as a full restatement of the A-a theme. Looking at the melody in the first violin, the contour of the A-a theme returns, as does the acoustic scale starting on the “tonic” of Ab. However, this recapitulation does not resemble the opening A theme as first presented. At the beginning of the piece, the theme is
presented in full before a second instance is presented a perfect fifth above. Here, the theme presentation in the violin is followed one beat later by a presentation in the cello at the octave. Rather than resembling the opening A-a theme (fig. 4), this recap resembles the A-a’ theme of the movement, first presented at m. 37. Once again, this curious treatment of thematic material suggests a different relationship between the second and fourth movement rather than mere parallelism. However, this relationship must be defined by what follows this return of the A-a’ theme.

From m. 88 through 101, the relationship between the two melodic voices – violin I and cello – remains the same, with the cello following the violin in strict imitation at the octave. At m. 102, the violin II and viola become the melodic instruments, working in a similar relationship to the violin I and cello – the violin follows the viola a beat later in strict imitation at the octave. However, the sound of the thematic material in this section contrasts sharply with what came before. Instead of continuing to use the acoustic scale, this statement of theme utilizes a more typical diatonic scale, specifically the Db major scale (except for one d natural in the viola in m. 105). In addition, while all of the previous presentations of the theme began with an ascent followed by descent, this presentation begins with a descent followed an ascent, suggesting some sort of inversion. As shown below in figure 9, this presentation of theme most closely resembles a retrograde inversion.

![Figure 9](image-url)
The large opening contour followed by smaller contours is replaced by a smaller contour followed by a larger one.

So if the first sub-section of the fourth movement recap is a return of the a’ theme, what should we call this diatonic, retrograde-inversion presentation of the movement’s main theme? I would argue that this sub-section can be described as the missing A-b theme from the fourth movement’s opening section. Remember in the second movement A section, we had a thematic form of aba’, where the b theme was the diatonic projection of the chromatic a theme. In the fourth movement, the form of the opening section was just aa’, resembling the form of the second movement’s recap. Just as the second movement’s b theme was a diatonic projection of the a theme, the fourth movement’s major diatonic projection of the acoustic-scale-centered theme can be seen as another photonegative reflection of an event in the second movement. There is no other direct analog of this gesture within either movement.

If we take this subsection of the fourth movement recap to be notated as b, then the form of the recap thus far is a’b. Looking back to the second movement, this form appears to be a retrograde, or rather a mirror image, of the second movement’s A section. However, at measure 112, where one would expect the a theme to finally reappear, we find a new theme, a simple diatonic descent from C to Ab that is continually repeated. Without a true analog to this gesture in either the second or fourth movements, it is clear that this theme introduces the fourth movement’s coda. So instead of creating a true palindromic reflection of the second movement’s A section in the fourth movement’s recap, Bartok halts the process before completion. Just as developing a photograph from its negative can yield inconsistencies from the source material, so does the fourth movement contain formal inconsistencies that cannot be neatly explained by this photonegative relationship with the second movement.
Overall though, it is clear to see that these reflective structures are at play throughout the entire piece on different architectonic levels. At the highest formal level (excluding the codas), the second and fourth movements appear as mirror images:

\[
\text{2}^{\text{nd}} \text{ movement} \quad \text{4}^{\text{th}} \text{ movement} \\
A \ B \ A' \mid A' \ B \ A
\]

At the next highest architectonic level, the “A” sections in both movements also appear as mirror images:

\[
\text{2}^{\text{nd}} \text{ movement A section (m. 1-75)} \quad \text{4}^{\text{th}} \text{ movement A section (m. 88-112)} \\
a \ b \ a' \mid a' \ b \ (\text{process interrupted by coda})
\]

Even at the much lower architectonic levels such as pitch use, there are suggestions of symmetry and photonegative reflection, such as the use of the acoustic scale (that includes subsets that belong to the symmetrical whole-tone and octatonic scales) and emphasizing both chromatic and whole-tone aspects of the same theme in analogous sections, as if one scale were black in the negative and white in the actual photograph (and vise versa).

A Coda for the Codas

Like the piece as a whole, the codas of the second and fourth movements do not seem to have much in common at first glance. Their thematic materials seem only tangentially related to the rest of their own respective movements, much less each other. However, despite the surface differences, the codas of the second and fourth movements play much the same role and use the same basic processes. Notably, both movements end quietly, and the codas act as a means of letting the air out of the balloon so to speak. They achieve this through dynamic changes certainly, but also through how they distil and condense the material of the entire movement into elemental forms. The second movement coda, beginning at m. 223, utilizes almost all of the
movement’s major gestures at some point, including short diatonic descending figures (A-b), chromatic figures that circle a note (B-a), thin static textures (B-b) glissandi (B-c), and quiet held-out notes (B-b’). The coda thus completes a process of disintegration, continually recycling the material until there is nothing left to recycle.

While the fourth movement coda is not as densely packed as its second movement counterpart, it too completes the movement’s disintegration in an efficient manner. Over the course of the section, beginning on beat 2 of m. 112, a descending motive of three whole steps eventually resolves to a motive of a whole step plus major third, the whole motive outlining a tritone (fig 10).

This first motive is an elemental condensation of the A-a theme – a motive as small as one can make that retains the whole-tone character of the original theme. But the resolution to the next motive presents a curious problem: to tonally-trained ears, this second motive is more dissonant than the first, as it outlines a tritone.

Why would Bartok move from resolution to tension to end a piece? Just as throughout the rest of the movement, Bartok is attempting to reverse the expectation of how a piece of music from the classical tradition should work. Instead of resting on a point of sonic consonance, Bartok instead wishes to rest on a point that codifies the deep symmetrical structures of the movement. This particular combination of intervals – a major second and major third – naturally occurs three times in the acoustic scale: scale degrees 1, 3, and 4; 4, 7, and 1; and 7, 2, and 3. This combination also does not naturally occur in the common diatonic major and minor scales.
By ending in this way, Bartok is trying to orient our ears away from hackneyed, Germanic tonal resolutions and point it toward mathematically ideal resolutions instead. This curious resolution sums up the form of the fourth movement of the string quartet and its photonegative relationship to the second movement. Bartok 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.
Bibliography