

Aspects of Motion in Elliott Carter's Second String Quartet

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In Elliott Carter's music the sense of goal-oriented motion becomes a prominent part of our listening experience. The composer's solutions in achieving this are strikingly original, but at the same time reveal general principles of the chromatic universe. Carter has always been especially concerned with enhancing the listener's perception of significant moments in his music. Carter writes about this issue as follows:

A work that does not take into account the listener's ability to distinguish sounds, to grasp, remember, and compare in some way their combinations, both sequential and simultaneous, in small durations, intermediate lengths, as well as over the whole composition, is very unlikely to hold a permanent interest for the listener.¹

The aim of this paper is to explore ways in which Carter is compositionally sensitive to these cognitive demands in the domains of pitch and pitch class. I will illustrate features in his Second String Quartet that contribute to the sense of motion over both shorter and longer spans.² The paper begins by

¹Elliott Carter, "The Time Dimension in Music," in Else Stone and Kurt Stone (eds.), *The Writings of Elliott Carter: An American Composer Looks at Modern Music* (Bloomington: Indiana University Press, 1977), p. 243.

²In the analytical literature, the Second String Quartet has been discussed from various perspectives in Jonathan Bernard, "The Evolution of Elliott Carter's Rhythmic Practice," *Perspectives of New Music* 26/2 (1988): 164–203; *idem.*, "Problems of Pitch Structure in Elliott Carter's First and Second String Quartets," *Journal of Music Theory* 37/2 (1993): 231–266; Robert Cogan and Pozzi Escot, *Sonic Design: The Nature of Sound and Music* (Englewood Cliffs, New Jersey: Prentice-Hall, 1976); Glenn Gass, "Elliott Carter's Second String Quartet: Aspects of Time and Rhythm," *Indiana Theory Review* 4/3 (1981): 12–23; David Harvey, *The Later Music of Elliott Carter* (New York and London: Garland Publishing, 1989); Andrew Mead, "The Role of Octave Equivalence in Elliott Carter's Recent Music: A Birthday Celebration," *Sonus* 14/2 (1994): 13–37; and David Schiff, *The Music of Elliott Carter* (London: Eulenburg Books, 1983).

describing some of the tools that Carter has developed for creating recognizable musical events and how these tools are applied in the Second String Quartet. I will focus on the following: first, the generation of pitch material from the two all-interval tetrachords and their various combinations, and second, the registral distribution of this pitch material. Register not only articulates the intervallic relations within collections, but also forms a frame within which events may evolve towards a goal.

Figure 1. Intervallic vocabularies and associated expressive characters of the four instruments (intervals in semitones).

Violin I:	3, 7, 14, 16	fantastic, ornate
Violin II:	4, 9, 11	laconic, orderly
Viola:	6, 10, 13	expressive
Cello:	5, 8, 15	impetuous

As is well known, each instrument in this quartet has its own vocabulary of intervals.³ These intervals are shown in Figure 1. Furthermore, the pitch material of the quartet is generated from collections belonging to the two all-interval tetrachordal collection classes, [0146] and [0137]. The seven possible eight-note collection types, to which Carter refers as chords, formed from combinations of the all-interval tetrachords, play an essential role in the pitch organization of the work. These eight-note chords form the first seven collection classes shown in Figure 2; their complements are given in the rightmost column. Carter mentions these chords in connection with the Double Concerto, the composition he was working on during the same four-year period in which he wrote the Second String Quartet.⁴ In addition

³Elliott Carter has mentioned this in "The Time Dimension in Music," in *The Writings of Elliott Carter*, p. 247. The intervals have been illustrated graphically in Bernard, "The Evolution," p. 184; Harvey, *The Later Music of Elliott Carter*, p. 220; and Schiff, *The Music of Elliott Carter*, p. 38.

⁴Elliott Carter, "The Orchestral Composer's Point of View," in *The Writings of Elliott Carter*, p. 295. The chart of these chords is reproduced in Harvey, *The Later Music of Elliott Carter*, p. 218, and in Schiff, *The Music of Elliott Carter*, p. 65.

to these seven, the work employs the complements of the two all-interval tetrachords. These two collection classes, indicated in Figure 2 below the first seven, are referred to as the "all-tetrachord octachords" in that all 29 tetrachordal collection classes are abstractly included within them. This property is unique to these two collection classes, making them akin to the all-interval tetrachords, which contain all dyad types, and the all-trichord hexachord. All of these collection types have been employed extensively by Carter.⁵ In addition to the nine eight-note collection classes shown in Figure 2, the Second String Quartet explores a repertoire of five- to seven-note collections resulting from merging two all-interval tetrachords with one to three pitch-class overlaps.⁶

Figure 2. Eight-note collection classes and their complements.

[0146] + [0146]	{	[01345689]	[0347]
or		[02345679]	[0235]
[0137] + [0137]		[01236789]	[0167]
[0146] + [0137]	{	[01234569]	[0134]
		[0134578t]	[0358]
		[0124678t]	[0268]
		[0134679t]	[0369]
		[01234689]	[0146]
		[01235679]	[0137]

⁵The theoretical background of the eight-note collection classes and their tetrachordal complements has been explored by Andrew Mead in his "Pedagogically Speaking: A Practical Method for Dealing with Unordered Pitch-Class Collections," *In Theory Only* 7/5-6 (1984): 54-66, and his "Pitch Structure in Elliott Carter's String Quartet #3," *Perspectives of New Music* 22/1-2 (1983-84): 31-61.

⁶Harvey has specified five- and six-member collection types resulting from overlappings of all-interval tetrachords in *The Later Music of Elliott Carter*, pp. 72-73.

Carter's use of all-interval tetrachords as a source of his pitch material developed gradually, along with his preference for distinguishing the sonic qualities of intervals by assigning them to specific instruments or instrumental groups.⁷ About a systematic use of compositional methods in general, Carter writes:

As I see it, there is *first* of all a general desire for communication and only secondly a desire for what I call "making musical sense," which begins to employ a sort of rationalized or ordered system, and does so *only* to achieve the desired communication, which must therefore in every case be the prime and ultimate determinant of any musical system pretending to genuine *musical* rationality.⁸

The system based on all-interval tetrachords offers a tool with the ability to project any interval onto the musical surface. It also has the potential to give varying degrees of emphasis to specific intervals, by means of partitionings and by registral and instrumental distribution of the pitch material. Furthermore, such a system provides the possibility of allowing one combination of tetrachords to gradually evolve through time into another by changing one or more dyads.⁹ When this process coincides with changing distributions of intervals among the instruments, it offers a way to achieve rich internal relationships within the pitch domain. Prominent moments in this process may be punctuated by the use of specific registral and instrumental distributions of the pitch material. This, in fact, happens recurrently in the Second String Quartet. The eight-note collections of Figure 2

⁷Extensive discussions of the development of Carter's compositional practice in the domain of pitch can be found, in addition to Carter's own writings, in Mead, "The Role of Octave Equivalence," and Schiff, *The Music of Elliott Carter*.

⁸Allen Edwards, *Flawed Words and Stubborn Sounds: A Conversation with Elliott Carter* (New York: W. W. Norton, 1971), p. 80.

⁹Carter's way of thinking about his chordal material by adding and removing pitch classes from the basic chords is well illustrated in his *Harmony Book*. He discusses the issue in *Flawed Words*, p. 108, and in Jonathan Bernard, "An Interview with Elliott Carter," *Perspectives of New Music* 28/2 (1990), p. 201.

acquire significance in the quartet, in that they are the ones which most frequently punctuate prominent moments.¹⁰

While, importantly, registral distribution of pitch material projects the collections onto the musical surface to varying degrees of emphasis, register also has a significant role in outlining both small-scale and large-scale musical gestures. In shorter time spans, for example, registral boundary pitches reflect the unfolding, or participate in the forming, of all-interval chords. As we will see, long-range musical gestures are also carefully positioned within a registral plan. Thus, while in shorter spans register may provide a context within which the instruments unfold their individual intervallic vocabularies, in longer spans it forms a frame within which the all-interval material unfolds.

A brief overview of the form of the piece reveals that the Second String Quartet consists of an Introduction, four movements, and a coda. Three cadenzas—the first for viola, the second for cello, and the third for the first violin—separate the four movements. As was shown in Figure 1, each instrument has its own character and its own repertoire of rhythms and musical gestures, in addition to its repertoire of intervals.¹¹

The interaction of the instruments' individual characters shapes the form of the piece in important ways. The overall design of the work is characterized by instrumental separation and cooperation. Carter describes it as follows:

The separation of the instrumental characters is kept quite distinct throughout the first half of the work but becomes increasingly homogenized up to the *Conclusion*, at which point the separation reemerges.¹²

¹⁰Carter discusses his practice of using chordal material as "a harmonic frame" in *Flawed Words*, pp. 106–108. With respect to the Second String Quartet, the role of recurring referential sonorities is pointed out in Harvey, *The Later Music of Elliott Carter*, pp. 75–77, and Schiff, *The Music of Elliott Carter*, pp. 64–65. (Originally appearing as program notes.)

¹¹The characterizations of the instruments are described in Elliott Carter, "String Quartet No. 2 (1959)," in *The Writings of Elliott Carter*, p. 274.

¹²Elliott Carter, "String Quartets No. 1 (1951) and No. 2 (1959)," in *The Writings of Elliott Carter*, p. 278. (Originally appearing as program notes.)

In the cadenzas between movements the instruments do, however, maintain their own characters. A particular instrument leads each movement and lends its character to it. The material of the leading instrument is paraphrased, to some extent, by the other instruments and by the general cooperative plan of the piece.

The following analysis will focus on two main passages: the Introduction and the opening of the Allegro Fantastico. In the more homophonic Introduction, register defines the frame for the large-scale gesture within which the all-interval material unfolds. In the opening of the more contrapuntal Allegro Fantastico, both local and large-scale connections unfold within registrally defined spaces.

Introduction

Example 1 is a reduction of a single complete large-scale move taking place in the Introduction, described in terms of registral boundaries. Example 2 further sketches some of the most prominent moments in the unfolding of the all-interval material within these boundaries. The registral plan consists of two more or less equal halves (measures 1–17 and 18–34). In the first half, an opening passage (measures 1–6) leads to the initial pitch boundaries B \flat 3 and C \sharp 5 (indicated with black note-heads in Example 2). These boundaries are maintained (measures 7–17) in

Example 1. Registral boundaries throughout the Introduction.

Introduction

Vcl

Allegro Fantastico

[0123478] {e012367}

(4) (7) (17) (24) (27) (31) (35)

[0134679] {134679t}

the following passage of eleven bars. The second half (measures 18–34) consists of a registral expansion and contraction whose boundary pitches (black note-heads in Example 2) form overlapping all-interval tetrachords.¹³ The expansion and contraction coincide dynamically with a *crescendo* and *diminuendo*.¹⁴

In the first half of the Introduction, significant moments feature eight-note collections drawn from the types listed in Figure 2. For example, the first moment in which the four instruments play together, measure 4, marks the formation of one of these eight-note collections, a member of the type [01236789]; the twelve-bar passage in which the pitch boundaries are maintained is framed by another, a member of the type [0134679t]. Example 3 more explicitly illustrates how these eight-note collections unfold during measures 7–9. After the appearance of melodic lines in each instrument, the last of the collections to be heard, {124578te}, reappears in measure 17. Not only does this collection close the eleven-bar passage, it also marks the initiation of the registral expansion. In this paper I shall refer to this particular octatonic pitch-class collection as “ROC1,” an acronym for the first of two Referential Octatonic Collections that serve such framing functions. Example 4 shows how ROC1 is partitioned in these two instances into dyads corresponding to the intervals assigned to each instrument and how these dyads form all-interval tetrachords. Despite the difference in pitch-class distribution among the instruments, the connections between the

¹³The form of the Introduction can be viewed from different perspectives. David Harvey (in *The Later Music of Elliott Carter*, pp. 85–86) describes the Introduction as presenting “a clear A–B–A’ form, articulated by both texture and register.... In the section identified as B (b. 18–27) the notion of registral extremes as structural determinants is replaced by that of focal pitch [B].” Cogan and Escot (in *Sonic Design*, pp. 59–71) view the Introduction as three space fields, A, B, and C, and they examine the sense of motion and stasis within and between these fields.

¹⁴Elizabeth West Marvin has developed the ideas of contour and dynamic contour and their relatedness in nontonal repertoire in “A Generalization of Contour Theory to Diverse Musical Spaces: Analytical Applications to the Music of Dallapiccola and Stockhausen.” In Marvin and Richard Hermann (eds.), *Concert Music, Rock, and Jazz since 1945: Essays and Analytical Studies* (Rochester, NY: University of Rochester Press, 1995), 135–171.

Example 3. Eight-note collections in measures 7–9 and 17.

Example 3 shows two staves of music. The top staff is in treble clef and the bottom staff is in bass clef. The key signature has one sharp (F#). The music consists of eighth-note chords. Above the staves, circled numbers indicate measure groups: (7-9), (10-16), and (17). The text "melodic lines" is written in the treble staff. Below the staves, chord diagrams are provided for measures 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, and 17. The diagrams are: [01235679], [01236789], [01235679], [0134679t] (124578te), [0134679t] (124578te).

Example 4. Partitioning of ROC1 into dyads.

Example 4 shows a single staff of music in treble clef. The key signature has one sharp (F#). The music consists of eighth-note chords. Above the staff, circled numbers indicate measure groups: (8-9) and (17). The text "ROC1" is written above the staff. Below the staff, chord diagrams are provided for measures 8, 9, 10, 11, 12, 13, 14, 15, 16, and 17. The diagrams are: [0134679t] (124578te), [0146], [0137], [0146], [0137].

two passages are emphasized by the fact that all of the pitch classes are played in the same registers in both statements of the collection.

The registral expansion and contraction of the second half of the Introduction is outlined in both the soprano and bass lines by seven-note collections comprised of overlapping all-interval tetrachords ([0123478] in the soprano and [0134679] in the bass, as indicated in Example 1).¹⁵ The outlining pitches forming these seven-note collections comprise the registral high and low extremes of those moments that most prominently feature complete eight-note chords. The texture in these moments is

¹⁵Referring to the Introduction, Harvey has pointed out (in *The Later Music of Elliott Carter*, p. 87): "Of particular importance [at measures 18–31] is the way in which, by intervallic articulation and by registral isolation, the cello presents linear statements of two AIT [all-interval tetrachord] compounds." Harvey mentions the collections {134679} and {013478} in the cello line.

further emphasized by strong dynamics and dramatic articulation. Shorter intervening passages occur that do not carry forward the registral line and are typified by softer dynamic levels. While they do unfold overlapping all-interval tetrachords, they do not necessarily form complete eight-note collections.

After the registral contraction, the Introduction concludes with a four-measure passage (measures 28–31) that reaffirms the initial registral soprano pitch boundary $D\flat_5$, together with G_3 in the bass. Within these registral boundaries, the texture primarily unfolds a single eight-note collection, a member of the type [01236789] (indicated in Example 5) which thereby stabilizes the musical motion. This concluding passage provides a further example of how a single collection may be projected in various intervallic combinations and distributed between the different instruments.

Example 5. Harmonic stasis between registral boundaries, mm. 28–31.

The musical score for Example 5 consists of four measures of music for Violin 1, Violin 2, and Viola. The notes are as follows:

- Measure 28: Vln 1 (D4, E4, F4, G4), Vcl (G2, F2, E2, D2), Vln 2 (D4, E4, F4, G4), Vla (D4, E4, F4, G4).
- Measure 29: Vln 2 (D4, E4, F4, G4), Vcl (G2, F2, E2, D2), Vln 2 (D4, E4, F4, G4), Vcl (G2, F2, E2, D2), Vla (D4, E4, F4, G4), Vln 1 (D4, E4, F4, G4).
- Measure 30: Vln 1 (D4, E4, F4, G4), Vcl (G2, F2, E2, D2), Vln 2 (D4, E4, F4, G4), Vcl (G2, F2, E2, D2), Vla (D4, E4, F4, G4), Vln 1 (D4, E4, F4, G4).
- Measure 31: Vln 1 (D4, E4, F4, G4), Vcl (G2, F2, E2, D2), Vln 2 (D4, E4, F4, G4), Vcl (G2, F2, E2, D2), Vla (D4, E4, F4, G4), Vln 2 (D4, E4, F4, G4).

Annotations below the staff:

- Measure 28: [0146] (under Vln 1), [0146] (under Vln 2), [01236789] (under Vln 2), {01236789} (under Vcl).
- Measure 29: [0146] (under Vln 2), [0146] (under Vcl), [01236789] (under Vln 2), {01236789} (under Vcl).
- Measure 30: [0146] (under Vln 1), [0146] (under Vcl), [01236789] (under Vln 1), {01236789} (under Vcl).
- Measure 31: [0146] (under Vln 1), [0146] (under Vln 2), [01236789] (under Vln 1), {01236789} (under Vln 2).

Within the overall plan of the registral expansion, the pitch material unfolds from one combination of the all-interval tetrachords to another, as demonstrated in Example 6. Initially, the expansion emerges out of the framing collection of measure 17, {124578te}, or ROC1. After the dyads $G_4-C\sharp_5$, $D_4-C\sharp_5$, and $A\sharp_3-G\sharp_4$ secure pitches of this collection at measure 18, the register then expands with the three loud dyads in the cello and the first violin's clearly-articulated $B-F\sharp$. As the expansion continues through measures 19–21, intense dyads seem to react to each other, yielding yet another eight-note collection from Figure 2, specifically a member of the type [01345689]. The beginning of the registral expansion coincides with the

instruments presenting the wider intervals of their intervallic vocabularies.¹⁶

At measure 21, a sudden *piano* gesture leads into an eight-note collection of the type [01234569] that further expands the register. From this point on, the music “welters through” overlapping all-interval tetrachords sounding in soft dynamics, within a narrower registral range, only to reach an explosive moment at measure 24 in which the registral extremes are achieved. At this moment, accented *forte* dyads prominently state an octachord of the type [01236789].

A few observations, illustrated in Figure 3, will indicate some of the more general ways in which Carter's characteristic use of pitch material (based on overlapping all-interval tetrachords and their further combinations) offers opportunities to create musical processes that smoothly evolve from one musical situation to another. As the figure shows, the instruments may maintain dyads, but they become paired differently. The dyads may be passed between instruments or inverted into another member of the same dyadic collection class. Also, as shown by the dotted lines of Figure 3, the dyads may be anticipated and echoed in the intervallic relationships either within one instrumental line or between two. We will have further examples of these principles in the discussion of the first movement.

¹⁶This is mentioned also in Cogan and Escot, *Sonic Design*, pp. 67–68, and in Gass, “Elliott Carter's Second String Quartet,” p. 13.

Example 6a. Allegro Fantastico, measures 17–28.

(17) Vln 1,2

Vla, Vcl

(20)

(23)

(26)

mp *mf* *f* *ff sub.* (*f sempre*)

ff sub. *p sub.* *p* *mp* *pp*

pp < mp *f* *ff* *f*

Example 6b. Use of eight-note chords from Figure 2 through measures 17–28.

The musical score consists of two systems of four staves each. The first system covers measures 17-23, and the second system covers measures 24-28. Each system includes a treble and bass clef staff for each of the two instruments. Measure numbers 17, 19, 22, 23, 24, 25, and 27 are circled. Annotations include guitar fingering diagrams (e.g., {124578te}, [0134679t]) and eight-note chord sets (e.g., {125678te}, [01345689]).

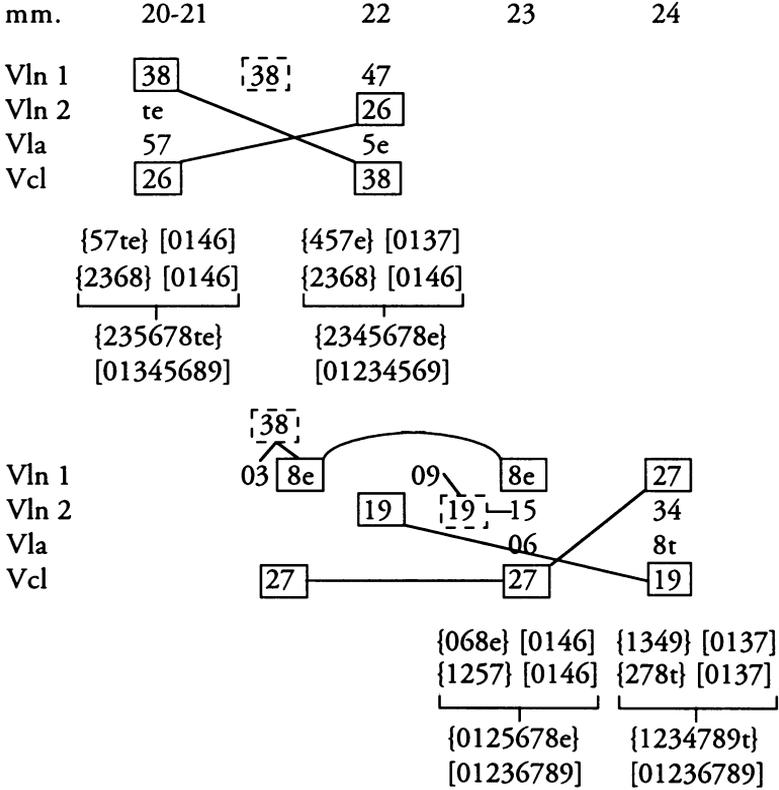
System 1 (Measures 17-23):

- Measure 17: {124578te} [0134679t] = ROC1
- Measure 18: {128t} {569e} {0347}
- Measure 19: {57te} {2368}
- Measure 20: {57te} {2368} {59e0}
- Measure 21: {0347} {049t} {e236}
- Measure 22: {2345678e} {0235689e} {023469te}
- Measure 23: [012345689] [01234689] [01345689]

System 2 (Measures 24-28):

- Measure 24: {1257} {68e0} {1349} {278t}
- Measure 25: {059e} {3467} {469t} {379t} {0289} {1367}
- Measure 26: [0134] [0146] [0137]
- Measure 27: {0125678e} [01236789] {1234789t} [01236789]
- Measure 28: {0345679e} [01234689] {01236789} [01236789]

Figure 3. Pairing of dyads between instrumental lines.



We have observed features of the overall flow of the pitch material within the registral plan. Let us now examine in more detail the individual instrumental lines within the characteristically homophonic texture of the Introduction. We will examine how linear events, regulated by the vertical elements described above, create a wealth of connections and associations that contribute to the sense of progression and motion. Examples 7a and 7b show two structurally significant passages from the beginning of the Introduction: the moment when the four instruments play together for the first time (Example 7a), and the moment when they play their first melodic utterances within the initially established pitch boundaries, B \flat 3 and C \sharp 5 (Example 7b).

Example 7a. Melody in second violin, measures 4–9.

Example 7a shows the musical score for the second violin part in measures 4–9. The score is written in 4/4 time and includes parts for Vln 1, Vln 2, Vla, and Vcl. The second violin part (Vln 2) is the focus, starting with a circled '4' above the first measure. The score includes various performance markings such as *pizz.* (pizz. normale), *molto espress.*, *arco*, *mf*, *piu f*, and *pp*. Pitch sets are indicated below the staves: {014567te} and {01236789} for Vln 2, {03478e} + {26} for Vln 1, and {e035} [0146] for Vla and Vcl. An annotation 'overlapping all-interval tetrachords' points to the Vln 2 part.

During measures 10–16 all of the instruments except the fanciful first violin play melodic lines that closely resemble each other. The punctual second violin starts the passage, followed by the viola and cello both forming ascending *crescendo* lines that rebound down from their climactic penultimate pitches; the viola articulates the gesture in its expressive manner, while the cello is more impetuous in its accelerating ascent. These melodic lines can be seen to have developed from previous utterances. In Example 7b we may see how, for instance, the second violin's melody in measures 11–12 can be heard as evolving from its initial melodic statement at measures 4–5, somewhat modified by events in the interim (measures 6–9). Similar processes are observable in the viola and cello parts.¹⁷

¹⁷Some more specific features of the passage's pitch structure are explored in Harvey, *The Later Music of Elliott Carter*, p. 87.

Example 7b. Measures 10–16.

10

Vln I

Vln II

Vla

Vcl

pizz

f

sf

mf

mf

f marc.

mf sub.

p

molto espr.

13

Vln I

Vla

Vcl

mp

f

mf

mp

mf

p

pp

mp

mf

leggero con fantasia

p

pp

The capricious first violin plays very contrasting material at measure 15 (Example 7b), but in measures 21–25 (Example 7c) one can hear belated and elaborated echoes in the first violin part of the other instruments' concordant interplay. The first violin presents a large-scale projection of the six-attack ascents heard earlier in the viola and cello (Example 7b), each of which also rebounds similarly from a climactic penultimate pitch. While the shape of the gesture echoes the lines in the viola and cello, the pitch-class content of the ascent paraphrases the melodies in the second violin; the pitch classes featured at the beginning of the first violin's ascent were featured earlier in the second violin, in measures 4–5 (the second violin's first melodic statement) and measures 11–12.

The first violin's gesture leads to the final high point of the Introduction. The end of the rise, together with the dyad G \sharp –B played in the middle register, anticipates the first violin's initial statement in the Allegro Fantastico, which is shown in Example 7d. In addition, the dyads A–C and G \sharp –B form the first violin's

Example 7c. First violin melody, measures 21–25.

Example 7c shows the first violin melody from measures 21 to 25. The score is in 3/4 time. Measure 21 is circled. The first violin part features complex rhythmic patterns with triplets and slurs. Fingerings are indicated as (03478e), (26), and (09). Dynamics include *p sub.*, *pp*, *p*, *mp*, and *pp*. Articulation includes accents and slurs. The second violin part is shown below, with dynamics *p*, *mp*, and *pp*.

Example 7d. First violin at beginning of Allegro Fantastico.

Example 7d shows the beginning of the *Allegro Fantastico* movement. The score includes staves for Vln 1, Vln 2, Vla, and Vcl. Measure 35 is circled. The first violin part starts with a *f marc.* dynamic and a tenuto mark. The second violin part starts with a *pizz.* dynamic and a *f* dynamic. The viola and cello parts provide harmonic support.

characteristic motif, persistent throughout the work.¹⁸ The entrance of the motif is prepared by the final chord of the Introduction; as shown in Example 7d, the first violin's *marcato* figure picks up four of the pitches of the accompanying *pianissimo* chord.

Allegro Fantastico

The texture changes in the Allegro Fantastico, the first movement proper. The first violin becomes the soloist, introducing its whimsical *bravura* nature. The movement's initial large-scale motion consists of the opening twenty measures. I will focus first on how the fluid contrapuntal texture articulates significant moments of this large-scale motion and, second, how within this passage smaller events evolve, gradually building up momentum towards the culminating chords of measures 49–51.

Example 8 sketches the shape of the passage. The first violin is the leading instrument as the passage opens, its phrases played almost alone. When all of the other instruments have joined the texture (in measures 41–43), the complete octatonic collection is comprised by the totality of pitch material. In the ensuing contrapuntal texture, the resulting interplay among the instruments eventually leads to the prominently-stated octachords. I will first describe connections that frame this initial large-scale motion. The discussion will illustrate how the beginning and the goal of the motion (the culminating chords) are articulated by the use of the pitch and pitch-class material.

As was the Introduction, this passage is framed by an octatonic collection. I will refer to this particular octatonic collection, {0235689e}, as ROC2 (an acronym for the second Referential Octatonic Collection). ROC2 is formed at the point in the movement in which all four instruments play together for the first time, measures 41–43. As indicated in Example 9, this same collection is then prominently stated as the last of the three

¹⁸The anticipation of the first violin's motif at measures 22 and 23, together with the motif's varied returns later in the movement, are pointed out by Mead in "The Role of Octave Equivalence," pp. 25–27.

Example 8. Registral shape and chordal vocabulary, measures 35–54.

The image shows a musical score for Violin I, measures 35 to 54. The score is written on a single staff with a treble clef and a key signature of one sharp (F#). The music is divided into several sections with annotations:

- Measures 35-40:** Labeled "lower three parts" and "total opt'l texture". A bracket groups these measures with the chordal codes {0235689e} and [0134679t].
- Measures 41-43:** Labeled "total opt'l texture". A bracket groups these measures with the chordal codes {0235689e} and [0134679t].
- Measures 46-48:** Labeled "Vln 1's melodic peaks". A bracket groups these measures with the chordal codes {0123569t} and [01345689].
- Measures 49-50:** Labeled "Vln 1". A bracket groups these measures with the chordal codes {124578te} and [0134679t].
- Measures 51-54:** Labeled "Vln 1" and "melodic peaks". A bracket groups these measures with the chordal codes {0235689e} and [0134679t].

Dynamic markings include *f*, *ff*, *pp*, and *ppp*. The score also includes a circled measure number 54 at the end of the staff.

Example 9. Framing function served by ROC2.

(41-43) Vln 1 Vln 2 (51) Vln 1 Vla

Vla Vcl Vcl Vla

[0134679t]
{0235689e}
= ROC2

[0134679t]
{0235689e}
= ROC2

culminating chords at measure 51. Although the spacing of the two collections is different, the connections are emphasized by registral and dyadic references. In both chords, the upper registral extreme is $E\flat_5$ ($D\sharp_5$), below which the soloistic first violin plays the dyad F_4-C_5 . In the culminating chord, the lowest note is $G\sharp_2$, where in the initial chord the cello had played A_2 . In both chords, however, the dyad $G\sharp-F\sharp$ appears as a minor seventh.

As we will see, the statements of ROC2 at measures 41–43 and at the culmination—where it is conjoined with two other chords—are moments that compress together significant aspects of the pitch material of the passage. Example 10 highlights a set of important “outlining pitches” for this section. These pitches serve either as registral boundaries or to initiate or conclude phrases; they are given further emphasis by duration and articulation. First, the outlining pitches of the opening phrases of the solo violin foreshadow the complete iteration of ROC2 at measures 41–43. As indicated in Example 10, these outlining pitches in fact form the ROC2 collection (the one exception being the $B\flat_5$ in the interruptive chord at the beginning). Thus, the soloistic opening phrases of the first violin not only introduce

the instrument's *bravura* nature, they also anticipate, in intricate ways, the entrance of ROC2 in measures 41–43.¹⁹

The violin phrase immediately following this passage (measures 43 and 44) derives its outlining pitches from ROC2 in an even more direct way. Example 11a reveals that the initial and concluding pitches of the violin phrase (B4 and D#5), restate the dyad played by second violin as part of ROC2 immediately before. Furthermore, the phrase has, as its lowest and highest extremes, pitch-classes A and D#, which form the boundary pitch classes of ROC2 as well. As shown in Example 11b, boundary pitch-classes A and D# remain prominent in the following phrases (measures 45–48), leading to the culminating chords.

Example 11. Measures 42–48.

a.

Vln 2 (42) Vln 1 (43)

piz. *p* *espr.*

Vln 1 Vla

Vcl

8+

{0235689e}
= ROC2

b.

Vln 1 (45)

p *mf marc. sub.* *f* *mf*

Vln 1 (47)

mf *f*

¹⁹A detailed discussion of the pitch construction of the solo violin's opening phrases is given in Bernard, "Problems of Pitch Structure," pp. 255–63, and Mead, "The Role of Octave Equivalence," pp. 22–25. A graphic analysis of the passage is given in Harvey, *The Later Music of Elliott Carter*, pp. 247–49.

There is a second way in which the solo violin's opening flourishes are connected to ROC2 and to the culminating passage. The initial phrases of the solo violin are verticalized to become the culminating chords, as shown in Example 12. The chord at measure 49 reflects the initial solo violin phrase of measures 36 and 37. The middle pitches of the chord (E \flat 4–G \flat 4–B \flat 4–D5) recall prominent pitches of the violin phrase; the connection is emphasized by the preservation not only of pitch class but also of register. The remaining pitch classes of the melody (A, C, and D \flat /C \sharp) are played in different registers in the widely-spaced culminating chord. Moreover, the cello accompanies the melody with A2, a pitch also found in the cello part of the culminating chord. The pitches of the following melodic line, from measure 37 up to the slur in measure 39, may be identified with the last of the culminating chords, the *fortissimo* chord in measure 51, which is again ROC2. All of the notes of the melodic phrase, except for F \sharp , are played simultaneously in the same register in the chord; G \sharp , which accompanies the solo violin melody, becomes the lowest pitch in the chord.

Example 12. Comparing first-violin phrases and culminating chords.

first violin melodies

culminating chords

(36-37) (49) (37-39) (51)

Vcl

Vla

{01345689}
{0123569t}

{0134679t}
{0235689e}
= ROC2

With the sounding of ROC2 at measures 41–43, all of the accompanying instruments have joined an interplay with the solo violin. The collective contrapuntal fabric helps to create the

Example 13. Contrapuntal passage (measures 41–49) leading up to the culminating chords.

The musical score is arranged in four staves: Violin I (Vln 1), Violin II (Vln 2), Viola (Via), and Violoncello (Vcl). The time signature is 3/4. Measure 41 begins with a forte (f) dynamic in the Violin I part, which then moves to piano (p). The Viola part is marked *pizz.* (pizzicato) and *p*. The Violoncello part starts with a piano (p) dynamic. Measure 42 features a *molto viv.* (molto vivace) marking in the Violoncello part. The score is filled with complex contrapuntal textures, including numerous triplets and slurs across all parts. Dynamic markings vary throughout, including *f*, *mf*, *p*, *mp*, *espr.* (espressivo), and *mf marc.* (mezzo-forte marcato). The passage concludes with culminating chords in measures 48 and 49.

Let us now consider how, in the detail of the contrapuntal texture, the individual lines and the interactions between them contribute to a sense of motion towards their goal. In these interactions the first violin has a leading role, and its conduct affects the behavior of the other instruments. The accompaniment consists of short melodic gestures, marked as “important secondary parts,” and indicated with brackets in the score. On the one hand, these melodic gestures imitate the gestures in the first violin; on the other hand, they serve to compress significant pitches and pitch classes of the preceding texture. Since the instruments maintain their own individual intervallic vocabularies, the imitation is achieved through contour, pitch and pitch-class references, and connections created by dynamics and articulation.

The three bracketed melodies leading to the culminating chords are shown separately in Example 15. Two of the melodies are played by the viola (Examples 15a and b) and one is played by the cello (Example 15c). At measure 46 the viola seems to respond immediately to the four-note accented motif in the solo violin with a four-note *marcato* figure. (This figure, in turn, is a variant of the characteristic motif heard in the solo violin at the outset of the *Allegro Fantastico*.) The melodies exhibit the same contour, but they explore their own intervals and rhythms. The dyads of the two melodies form three overlapping all-interval tetrachords of type [0137], as indicated in Example 15a. (A quick comparison with Example 14 reveals that the pitch material of the imitation is embedded within the overall stream of overlapping all-interval tetrachords.) The pitch-class content of the bracketed

Example 15a. [0137] tetrachords from dyad combination.

46

Vln I

f

Vla

mf marc. > *mp*

[0137] [0137] [0137]

Example 15b. Interaction between violins and viola.

Example 15b shows musical notation for Vln 1, Vln 2, and Vla. Measure 45 features Vln 1 with a triplet of eighth notes (p) and Vln 2 with a quarter note (p). Measure 46 features Vln 1 with a triplet of eighth notes (mf) and Vln 2 with a quarter note (mf). Measure 47 features Vln 1 with a quarter note (mf) and Vln 2 with a quarter note (mf). The viola part in measure 47 features a triplet of eighth notes (mp espr.) and a quarter note (mf).

Example 15c. Outer parts in quasi-imitation.

Example 15c shows musical notation for Vln 1 and Vcl. Measure 48 features Vln 1 with a quarter note (f) and Vcl with a quarter note (f).

melody is derived from the preceding texture. For example, the middle dyad of the viola melody, G \sharp 3 and A4, restates two of the pitches of the viola part in the preceding measure. Moreover, the tritone of the viola melody, A–D \sharp , comprises the pitch classes of the registral extremes of the appearance of ROC2 in measures 41–43, as well as the low and high extremes of the melodic line of the first violin through measures 43–47.

Example 15b illustrates another way in which the melodic flourishes of the solo violin seem to affect the behavior of the accompanying instruments, within the framework provided by the unfolding all-interval tetrachords. The two outer dyads of the viola's melody in measure 47, B \flat 3–A \flat 4 and G4–A3, restate the boundary pitches of the three-note melodic figures of the solo

violin at measure 45. The viola's middle dyad, D–C♯, appears in the second violin part in measure 45.

In the final *crescendo* lines at measure 48 that lead to the culminating chords, the bracketed five-note melody in the cello (Example 15c) imitates the first violin part in contour, dynamics, and articulation. Significantly, the violin gesture combines two dyads heard before (measures 35 and 46) in its characteristic motif, G♯4–B4 and F♯5–A5. Furthermore, one can hear ways in which the melodic lines of the first violin and cello at measures 45–47 adumbrate both the gestural shape and pitch-class content of the imitative *crescendo* entries of measure 48, as shown by a comparison of Examples 15c and 16. In these interactions, the foreground rhythm, articulation, and dynamics are critical in shaping both the minutiae of the musical surface and the overall effect of the passage.

The actions of the instruments within this intricate contrapuntal fabric could be summarized as follows. After the viola's prompt response in measure 46 to the motif heard in the first violin, the cello begins its imitation. Meanwhile, the viola reacts yet again to the first violin's flourishes, this time with the *espressivo* melody in measures 47 and 48. This is followed by the imitative *crescendo* lines in the solo violin and the cello that lead into the culminating chords.

Example 16. Outer parts, measures 45–47.

The musical score for Example 16 shows the outer parts for measures 45-47. The top staff is a continuation of a melodic line from a previous page, ending at measure 44 with a circled '12'. The Violin I part (Vln I) begins at measure 45 with a circled '45'. It features a dynamic of *p* (piano) at the start, followed by *marc.* (marcato) and *mf* (mezzo-forte) in measure 46, and *f* (forte) and *mf* in measure 47. The Violoncello part (Vcl) begins at measure 45 with a circled '4'. It features dynamics of *mp* (mezzo-piano) and *mf* in measure 46, and *mp* and *mf* in measure 47. Fingerings are indicated as (78), (4), and (3) for the cello part. Articulation marks (>>>) are present above the violin part in measure 46.

Example 17a. [0137] tetrachords formed by first violin's registral boundaries; cello dyads recalled.

The image displays two musical staves from Carter's Second String Quartet. The top staff is the first violin (Vln I) part, and the bottom staff is the cello (Vcl) part. Both staves feature a tetrachord [0137] indicated by a bracket above the notes. The Vln I part includes measures 48 and 49, with dynamics ranging from *f* to *mf*. The Vcl part includes measures 51 and 52, with dynamics ranging from *ff* to *pp*. The score is written in 3/4 time and includes various musical notations such as slurs, accents, and dynamic markings.

The effect of these explosive chords is one of immense recollection, as suggested by Example 17a. While the passage continues the streams of the preceding events, it also recollects significant events over various spans of time. In addition to the fanciful flourishes of the solo violin that are intricately reflected in the chords, the cello line reassembles, in a straightforward manner, all of its dyads from the previous eleven measures (measures 35–45), together with the initial dyad of the viola part. The passage also summons up ROC2, {0235689e}, as the last of the chords, highlighting it with a *fortissimo* dynamic marking. As mentioned above, the chord is first heard at measures 41–43, where not only was it foreshadowed in the preceding texture but also initiated the contrapuntal processes that eventually lead to the culmination.

ensuing events, evoke through their dyadic divisions a particular eight-measure passage from the Introduction (measures 23–30) featuring the same succession of registral extremes followed by contraction.

Example 18. (a) Central culminating chord; return of ROC1.
 (b) Sketch of passage recalled from Introduction.

(a)

(b)

$\{124578te\} = \text{ROC1}$
 $\{1257\} + \{48te\}$
 $\{278t\} + \{145e\}$
 $\{0123578t\}$
 $\{0123578t\}$
 $\{14578e\}$
 $\{025789te\}$
 $\{02345679\}$
 $\{0289\} + \{57te\}$

$\{1257\}$ $\{278t\}$ $\{0289\}$

Although our consideration of the culminating passage is hardly complete, I hope the preceding has suggested some ways in which a wealth of relationships are synthesized over various spans of time, yet hierarchized so that ROC2 prevails throughout. In this music, such moments of return and coalescence serve not only as goals of musical motion but also as novel musical

situations that initiate further processes of change within the continuous evolution of events.

A final example illustrates how the connections are carried further in the music. ROC2 recurs in an elaborate contrapuntal passage in measures 80–82. This passage is one of the structurally prominent moments of the *Allegro Fantastico*; it takes place just before the end of the first part of the movement and features the registral extremes of the movement. First, the *ben in fuori* melody of the leading first violin, shown in Example 19a, echoes in many ways the rich network of relationships and connections created at the beginning passage of the *Allegro Fantastico*, which has been explored above. The pitch classes of the melody are those of ROC2, with an additional B \flat . Through this collection, the *ben in fuori* melody reflects, among other passages, the solo violin phrases from the opening of the *Allegro Fantastico*. The B \flat 6 that does not belong to the collection echoes the idea of “registral exception” discussed in reference to Example 10, where a chord containing B \flat 5 interrupted the beginning of the phrase in measure 35, the first measure of the *Allegro Fantastico*.

Example 19a. First violin, measures 80–82.

Additionally, as shown in Example 19b, the contrapuntal texture accompanying the first violin passes through both ROC2 and its complement, {147t}. At measure 80 the four instruments together form ROC2, and at measure 81 the second violin together with the viola and cello again form ROC2. The pitch classes over the barline of measures 80–81, together with the first violin’s B \flat , form the complement of ROC2, {147t}. Thus, the distinctiveness of the sustained B \flat 6 not only reflects the initial measure of the movement but also echoes the chordal statement

and the registral distribution of ROC2 and its complement in measure 51.

To conclude, I would like to emphasize that it is not only the echoing or reflecting of specific moments of the opening passage that is significant, but that through this echoing a wider network of relationships is evoked, one which is gradually created and established at the beginning of the movement. In the Second String Quartet the use of all-interval tetrachords and their various combinations offers opportunities to establish these relationships and, further, to hierarchize them. In listening to this music, it is possible to become aware of a rich density of resonance between the detail of the musical surface and the deeper levels of the music. It is the interactions between these different levels that finally contribute to the richness and depth of this music, and to its remarkable sense of motion.

Example 19b. ROC2 and its complement.

Vln 1
 Vln 2
 Vla
 Vcl

(51) (80) (81)

{0235689e} {147t} {0235689e} {147t} {0235689e}

= ROC2 = ROC2 = ROC2

In the foregoing my aim has been to illustrate how, in his Second String Quartet, Carter's idiom and compositional vocabulary arise from his concerns for the listener's ability to follow and grasp the events in the music, how he is then able to situate these idioms within a wider framework of relationships,

and how these features contribute to the sense of musical motion. While Carter's solutions may be unique, they do share common features with several other composers. As pointed out by George Benjamin and Andrew Mead, Carter's compositional idiom may be compared, for example, to that of Arnold Schoenberg.²¹ For both Carter and Schoenberg, the sense of progression in music is essential. Both have developed specific means of creating musical processes with rich internal relationships within coherent material that offer opportunities for the large-scale shaping of a work.

In general, compositional systems, methods, or tools, are the result of a deeper concern for creating compelling pathways through richly diverse, yet coherent, material. As Bruce Samet has pointed out in connection with Babbitt's music, and specifically his composition *Du*:

[T]hat what he [Babbitt] was concerned with, was working out a chain of interval relationships; so that this serial gee-whiz [the abstract pitch-class arrays] is an entirely fortuitous result of that other, aurally concrete, coherence-making activity.²²

The exploration of various solutions to the achievement of compositional coherence, diversity, motion and continuity by this century's composers may help us to comprehend more deeply the potentials inherent in the chromatic universe.

²¹Mead has presented this idea in "Twelve-Tone Composition and the Music of Elliott Carter," in Marvin and Hermann (eds.), *Concert Music, Rock, and Jazz since 1945*, 67–102. George Benjamin expressed this idea in lectures at the Centre Acanthes composition course, Villeneuve-lez-Avignon, France, 1992.

²²Bruce Samet, "Since 'Science,'" a paper presented at the Annual Meeting of Society for Music Theory, Cincinnati, 1991.