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A Multifaceted Approach to Analyzing Form in Elliott Carter's Boston Concerto

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A MULTIFACETED APPROACH TO ANALYZING FORM
IN ELLIOTT CARTER'S BOSTON CONCERTO

By

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ABSTRACT

Elliott Carter’s recent chamber music miniatures have been afforded much analytical attention, but comparable studies on his late orchestral compositions are rare; literature that does address Carter’s symphonic pieces tends to focus on extremely local harmonic occurrences, long-range polyrhythmic structures, or non-technical formal descriptions rather than presenting detailed accounts of compositions *in toto*. The investigative methodologies at play typically utilize combinatorial and set-theoretical techniques (which makes sense given the extent of Carter's interest in such matters as evidenced by the *Harmony Book*) or, of late, transformational theory. The past thirty years of research have been critical to our understanding of Carter's music but, since the composer is still actively writing, lacunae inevitably exist.

The purpose of this dissertation, therefore, is twofold. (1) It analyzes a significant "late-late style" orchestral work by Elliott Carter, *Boston Concerto*, in its entirety, making analytical remarks about every major section of the composition. Scholars have heretofore either overlooked symphonic pieces from this period altogether or studied short excerpted passages out of context. In particular, this dissertation focuses on how larger formal units are opened, concluded, and attain climax. (2) In doing so, the dissertation advocates for a more malleable methodology of analyzing form and harmony in contemporary music, particularly by incorporating (as deemed suitable) observations about "sound-in-time" phenomenology, duration, registral space, narrative, timbre, and contour into structural models founded upon traditional set-theoretical and combinatorial concepts.
CHAPTER 1
INTRODUCTION AND METHODS

...You can look at a piece of a puzzle for three whole days, you can believe that you know all there is to know about its coloring and shape, and be no further on than when you started. The only thing that counts is the ability to link this piece to other pieces, and in that sense the art of the jigsaw puzzle has something in common with the art of go. The pieces are readable, take on a sense, only when assembled; in isolation, a puzzle piece means nothing – just an impossible question, an opaque challenge. But as soon as you have succeeded, after minutes of trial and error, or after a prodigious half-second flash of inspiration, in fitting it into one of its neighbors, the piece disappears, ceases to exist as a piece. The intense difficulty preceding this link-up – which the English word "puzzle" indicates so well – not only loses its raison d'être, it seems never to have had any reason, so obvious does the solution appear. The two pieces so miraculously conjoined are henceforth one, which in its turn will be a source of error, hesitation, dismay, and expectation.


1.1 Overture: On Elliott Carter Scholarship

After approximately seventy-five years of continuous creative activity, Elliott Carter is internationally lauded as one of America's most distinctive compositional voices in contemporary classical music.\(^1\) Twice the recipient of the Pulitzer Prize (for his Second and Third String Quartets in 1960 and 1973 respectively), his catalogue encompasses orchestral compositions, ballets, choral works, an opera, multiple concerti, song cycles, a landmark piano sonata, five string quartets, and several chamber miniatures.\(^2\)

Although he majored in English while an undergraduate at Harvard, Carter also studied with Walter Piston and Gustav Holst in his spare time, eventually earning a Master's degree in music from the same institution. Following the path of several of his countrymen, Carter left the United States in 1932 to study with famed pedagogue Nadia Boulanger for three years.\(^3\) Upon completion of his


\(^3\) Elliott Carter, A Labyrinth of Time, DVD. Directed by Frank Scheffer. Allegri Film BV, 2004.
studies in Paris, he returned to America to pen neoclassical and strongly lyrical compositions in the vein of Hindemith, Stravinsky, Barber, and Copland's populist works (e.g. *Holiday Overture* and *Symphony No. 1*). Carter's Woodwind Quintet (1948) from this era bears the unmistakable fingerprint of Boulanger's aesthetic sense and is dedicated to 'Mademoiselle' as an open acknowledgment of her influence; the second movement, a rondo tinged with jazz, combines the intense syncopation of early twentieth-century American vernacular musics with a rigorous contrapuntal framework.\(^4\) Despite the public successes of the Quintet and a few other compositions of similar fashion during the 1930s and 40s, Carter felt dissatisfied with many of his creations as he believed they were not representative of the musical style and quality of craft he sought.\(^5\)

In the mid- to late-1940s, however, Carter's musical language changed as the composer's preoccupations with exploring the manifold rhythmic and harmonic possibilities available in modern music began to affect the sound world of his creative output (see the Sonata for Cello and Piano from 1948). The forty-minute First String Quartet, written in the Sonora Desert of Arizona as part of a Guggenheim fellowship (1951), proved to be both the decisive break from Carter's more conservative roots as well as a veritable manifesto of American musical modernism. In it, the composer desired to write music "without traditional... structures such as antecedent-consequent pairs, sequences or ostinati, without imitative counterpoint and also without motivic development."\(^6\) A momentous performance of the First Quartet at the 1954 Congress of Cultural Freedom in Rome (attended by Luigi Dallapiccola, William Glock, and Goffredo Petrassi) did much to solidify Carter's European reputation.\(^7\)

The next three decades witnessed Elliott Carter's gradual rise on the international artistic stage. The completed works list of this time period, however, is comparatively short due mostly to Carter's aesthetic desire to systematically (perhaps even encyclopedically) exhaust certain possibilities of the twelve-tone and/or rhythmic universe in each new major composition. For example, the *Concerto for Orchestra* (1969) takes as its pre-compositional material all of the five-note set classes, each

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\(^4\) Schiff (1998), 13 and 96.


\(^6\) Schiff (1998), 57.

\(^7\) Schiff (1998), 55.
of which is eventually explored compositionally throughout the piece. With the completion of *Night Fantasies* for piano (1980), critics noted that Carter had entered his final style period with a narrowed focus on select set-class materials (concentrating on the two all-interval tetrachords, the all-triad hexachord, and all-interval twelve-note chords), a noticeable thinning of orchestral textures, and an increased attention toward shorter chamber scores. Around this time, several noteworthy documents of Carter scholarship were published celebrating the man and his developments in the domains of pitch and rhythm, including the first edition of David Schiff's monograph, John Link's dissertation, and articles by Jonathan Bernard and Andrew Mead.

Surprising and delighting contemporary music enthusiasts worldwide, Elliott Carter entered a creative Indian summer in the mid-1990s, prompting a reappraisal of his artistic trajectory and the coining of a new phrase, the "late-late style," to describe the composer's increasingly refined sound world. During the composition of the Fifth String Quartet (1995) and the epic orchestral triptych *Symphonia* (1993-96), Carter's musical voice became one of gradually rarified textures, smaller-scale utterances, a broader lyricism, and more clearly delineated formal constructions. A rhetorical fluency and heightened accessibility characterized Carter's creations leading up to his hundredth birthday; perhaps as a result of this general musical accessibility, audiences and critics alike have reacted positively to the "late-late" pieces of America's renowned centenarian. Now at 101 years old, Elliott Carter shows no signs of slowing as he accepts commissions, attends premieres, and attracts ever more fans of his music. The past two years (2008-2009) provide an ideal snapshot of Carter's fecundity, as he has composed *Tintinabulation* for percussion ensemble, a violin and cello duo, a concerto for flute with orchestra, *Wind Rose* for wind ensemble (a companion piece to 2007's string orchestra work *Sound Fields*), *Figment V* for marimba, song cycles, and others. He is currently working on a bass clarinet concerto.

Befitting Carter's prolonged and remarkable career in the arts, several scholars have written at length on the subject of his music and aesthetics. Perhaps principal among these is the composer, teacher, and author David Schiff (a pupil of Carter's at Juilliard). The second edition of Schiff's landmark book, *The Music of Elliott Carter*, is a broad survey of the extant chamber and orchestral compositions through 1998 and an invaluable "first-stop" resource for Elliott Carter devotees. The


9 Schiff (1998).
book is organized not chronologically but by genre: chamber music, vocal music, piano music, and orchestral music (including concerti). Since Schiff published the current edition in the late 1990s, and Carter continues to prolifically compose, many of the more recent significant works (e.g. Boston Concerto, Dialogues, Flute Concerto, etc.) are not covered in the latest version. The first edition of The Music of Elliott Carter, although nowhere near as comprehensive regarding literature as the second since it dates from 1983, is also recommended for its philosophical expositions on Carter’s music and modern composition.10 Also worthy of note is Schiff's 1988 article "Elliott Carter’s Harvest Home," which served as an update to the 1983 edition of the book (much of the material within was later used in the second edition of MoE).11 The essay briefly summarizes Carter's compositional approach in writing Triple Duo, Changes for guitar, Riconoscenza per Geoffredo Petrassi, Esprit Rude/Esprit Doux, Pentode (composed for Pierre Boulez and L’Ensemble InterContemporain), Fourth String Quartet, A Celebration of Some 100 x 150 Notes, Celebration, Oboe Concerto, and Enchanted Preludes.

John Link's dissertation, "Long Range Polyrhythms in Elliott Carter’s Recent Music" (1994), was the first of his major forays into Carter scholarship.12 Link studies the macrostructural rhythmic devices in Carter’s music from Night Fantasies (1980) to Anniversary (1989). The text considers the abstract properties of long-range polyrhythms, the types of polyrhythms Carter has favored in his recent work, and his decisions regarding their notation. The dissertation concludes with questions concerning the perception of long-range polyrhythmic structure by the listener and how an understanding of these structures makes for a more comprehensive musical portrait of the compositional language. Link is co-editor with Nicholas Hopkins of Carter’s Harmony Book,13 published in 2002 and is currently co-editing with Marguerite Boland a new volume of essays on the composer's complete oeuvre.14

12 John F. Link, "Long Range Polyrhythms in Elliott Carter’s Recent Music" (PhD diss., City University of New York, 1994).
14 According to a private conversation with John Link, Jonathan Bernard is writing a chapter on the early compositions, Stephen Soderberg is investigating the sketches of the earlier pieces that are in the Library of Congress, Annette Van Dyck-Hemming is writing about "The Defense of Corinth," and Felix Meyer is writing about the as yet unfinished Oboe and Harpsichord Sonata. Also, Steve Heinemann mentions in passing the very recent the Flute Concerto in his chapter for the essay collection and Boland will be authoring a chapter on the larger formal aspects of both the Boston Concerto.
Jonathan Bernard's multiple essays have contributed substantially to our understanding of Carter's compositional work. In "Spatial Sets in Recent Music of Elliott Carter," Bernard hypothesizes that the registral arrangement of harmonic subsets is as important to their identity as is their pitch class content. Pre-compositional decisions regarding registral distribution of harmonies and intervals are important in distinguishing major formal sections of a composition (e.g. the four "movements" of the Concerto for Orchestra). The assignment of harmonic identities to specific spans of the gamut also helps delineate various strands of stratified counterpoint (a technique used by Carter since the First String Quartet). The title of Bernard's article, "Problems of Pitch Structure in Elliott Carter's First and Second String Quartets," refers to problems encountered by potential analysts, not the composer. Based upon the large number of performances since their completion (and several comments regarding their musical nature by the composer), the First and Second String Quartets have attracted a disproportionate amount of attention from theorists who seek a consistent pitch syntax; Bernard posits that the consistent use of a wide array of smaller harmonic units (trichords and tetrachords) may be linked to the suggestion of "source" supersets.

Though the initial impression made by much of Carter's Third String Quartet is that of dense imbroglio, Andrew Mead demonstrates in "Pitch Structure in Elliott Carter's String Quartet No. 3" that through familiarity the piece soon reveals a fascinating web of pitch hierarchy and rhythmic patterns. The author asserts that the key to understanding how differentiation and association is accomplished in the Quartet is that movements (while not necessarily exhibiting a union of intervallic characteristics) may share collection-classes that are variously projected to emphasize a characteristic interval. The publication of this article was a landmark in Carter

and the ASKO Concerto (particularly the interaction of "return" and "progression/continuity" elements from a neo-Adornian perspective).


scholarship because it offered a promise that the seemingly entropic sound worlds created by the composer in his middle style period contained perceivable musical constructs.\textsuperscript{18}

More recently, Guy Capuzzo's research has examined set-class and transformational aspects of Carter's music. His dissertation, "Variety Within Unity: Expressive Ends and their Technical Means in the Music of Elliott Carter, 1983-1994," examines four of Carter's recent chamber compositions: \textit{Gra} for solo clarinet; \textit{Scrivo in Vento} for solo flute; \textit{Con Leggerezza Pensosa} for clarinet, violin, and cello; and \textit{Changes} for solo guitar.\textsuperscript{19} Capuzzo considers how the generative harmonic element in each of the compositions is realized and how this may be perceived by the listener. The text represents a comprehensive examination of pitch content, harmonic connectivity, and relationships modeled by Morris's complement union property (CUP).\textsuperscript{20}

1.2 Goals in Writing this Dissertation

From the aforementioned books and essays as well as several others, I believe the following general conclusions may be drawn about extant Carter scholarship.\textsuperscript{21} First, Carter's recent chamber music miniatures have been afforded much analytical attention, but comparable studies on his late orchestral compositions are rare; literature that does address Carter's symphonic pieces tends to focus on extremely local harmonic occurrences, long-range polyrhythmic structures, or non-technical formal descriptions rather than presenting detailed accounts of compositions \textit{in toto}.\textsuperscript{22} Second, the investigative methodologies at play typically utilize combinatorial and set-theoretical techniques (which is logical given the extent of Carter's interest in such matters as evidenced by the

\textsuperscript{18} See also Mark Sallmen, "A Flexible Approach to Ordering and Grouping in Atonal Music in General: Text-Music Relations in Elliott Carter's \textit{In Sleep, In Thunder} in Particular," (PhD diss., Eastman School of Music [University of Rochester], 1998).


\textsuperscript{22} Obviously, I make this observation in advance of John Link's forthcoming compilation of essays as well as a tome on \textit{Symphonia} being written by Jonathan Bernard.
Harmony Book) or, of late, transformational theory. The past thirty years of research have been critical to our understanding of Carter’s music but, since the composer is still actively writing, lacunae inevitably exist.

The purpose of my dissertation, therefore, will be twofold. (1) I will analyze a significant "late-late style" orchestral work by Elliott Carter, Boston Concerto, in its entirety, making analytical remarks about every major section of the composition. Scholars have heretofore either overlooked symphonic pieces from this period altogether or studied short excerpted passages out of context. In particular, I will focus on how larger formal units are opened, concluded, and attain climax. (2) In doing so, I will advocate for a more malleable methodology of analyzing musical materials and form in contemporary music, particularly by incorporating (as deemed suitable) observations about "sound-in-time" phenomenology, duration, registral space, narrative, timbre, and contour into structural models founded upon traditional set-theoretical and combinatorial concepts.

1.3 The Analysis of Form in Post-1945 Music; Ferrara's Model

Of course, such an undertaking requires grappling with several questions of great musical (and perhaps philosophical) import, not least of which are: "What is musical form?" and "How does one go about perceiving form in contemporary classical music in which traditional formal models may not be present?" Although the current study does not aim to definitively answer the former question and a synopsis of the multitudinous scholarly viewpoints on the issue is beyond the scope of this dissertation, I will nonetheless define musical form as differentiation perceived through time. It is the complex process by which we as listeners simultaneously (1) assess the properties of a sonic event, (2) compare that event to previously heard events both similar and dissimilar, psychologically evaluating large-scale patterns if possible, and (3) hypothesize immediate and distant futures.

23 The definition presented is a slight modification of a slightly pithier one proposed by Milton Babbitt in a private conversation with the author from 2003: "Form is perceived differentiation."

24 Music cognition scholar David Huron's current assessment is that memory has as much (if not more) to do with predicting the future as it does with actively summoning the past. See Huron's recent book Sweet Anticipation (Cambridge: MIT Press, 2006).
Throughout the twentieth century (and continuing into the twenty-first), composers have explored alternate approaches to short- and long-range temporal organization in their pieces; consequently, music scholars have "directed their attention to the fundamental procedures and relations, the 'basic principles,' that shape form in a variety of ways." Ian Bent, for instance, codifies form construction in terms of three processes: recurrence, contrast, and variation. Bent's sentiment echoes Roger Sessions's view of form as consisting of the interrelated principles of progression or cumulation, association (repetition), and contrast. Wallace Berry, writing approximately at the same time as Bent, presents introduction, statement, restatement, transition/development, and cadence to be the items on his slightly longer (and somewhat more temporally sophisticated) list of formal processes. Witold Lutosławski, in an essay on the difficulties of crafting convincing musical forms utilizing a post-tonal harmonic language, differentiates four distinct musical "characters" (or form-defining relationships) in Western classical music: narrative, transitional, introductory, and terminative. Lutosławski's characters correspond neatly with Berry's list with the curious exception of omitting "restatement."

Judy Lochhead's insightful assessment of Bent, Berry, Leo Treitler, and others' views of form leads her to emphasize the "extent to which form in music is a temporal construct." She goes even further, calling into question the absence of references to temporality in contemporary musical form studies:


26 Judy Lochhead, "Joan Tower's *Wings* and *Breakfast Rhythms* I and II: Some Thoughts on Form and Repetition," *Perspectives of New Music* 30, no. 1 (1992): 134.


31 Lochhead (1992), 134.
I want to suggest that much of our contemporary discomfort with thought about form stems from the failure to address its "forming" aspect. That is, discussions of form in general and analyses of specific formal instances often do not account for the "building-up" of a whole by the accumulation of parts. It is this failure to capture the forming of a temporal shape that is the source of unease about form, an unease born of the contemporary change from thing-oriented to process-oriented thought. The turn toward basic principles by recent authors reflects this change, but for various reasons study of form has not transcended its tendency to categorize musical "things."³²

Lochhead, then, espouses a process-oriented and therefore listener-centered, phenomenological philosophy when analyzing a composition; my definition of musical form outlined above, with the important modifier "through time" added to the noun "differentiation," is a positive response to and continuation of Lochhead's theoretical perspective.³⁴

An ideal model for my multifaceted analysis project (one sympathetic to incorporating a "form-through-time" phenomenology to musical form studies), then, is one conceived by Lawrence Ferrara in his book, Philosophy and the Analysis of Music.³⁵ Designated an "eclectic method," the author proposes a ten-step procedure encompassing the three broad approaches to musical analysis delineated in his text: conventional, phenomenological, and hermeneutic. In the final part of Philosophy and the Analysis of Music, Ferrara employs the eclectic method in his in-depth examinations of Béla Bartók's Opus 20, No. 3 and the third movement of David Zinn's Spanish Sojourn, demonstrating the malleability of his methodology, its applicability to modern and contemporary music, and the usefulness of integrating (or at least juxtaposing) multiple analytical tactics.

Step One in the process examines the piece under review within the context of the composer's personal history as well as music history in general, addressing questions such as, "When

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³² Lochhead (1992), 134-135.


³⁴ Lochhead maintains this position through her latest research which problematizes what questions analysis purports to "answer" and how those solutions are accomplished. See her article "'How Does it Work?': Challenges to Analytic Explanation" in Music Theory Spectrum 28, No. 2 (2006): 233-54.

and why was the composition written? How does the piece fit in to the composer's output? What are the important dates and style periods for the composer? Was the composer a significant artistic presence in his time period (i.e. why should the reader of the analysis care)? How were the composer's works influenced by other musicians, artists, authors, and so forth? What was the socio-political climate in which the composer wrote?"

A general acquaintance with the sound world and structure of the composition through preliminary "open listenings" is the goal of Step Two; here, conventional, phenomenological, and/or hermeneutic intellectual play is encouraged but not necessary. Ferrara notes that the second step "does not have to be reported in written form in the final analysis" as "much of the data... is preliminary and can be used by the analyst as seeds for further development" later on. However, I intend to divulge my "findings" as I believe this to be an illuminating step in the analytical process – to behold not only the final conclusions but to witness the impulses of sense and thought that eventually led to analytical deductions.

This prepares the analyst for the lengthy Step Three, wherein more conventional methods of analysis are implemented to attain a detailed portrait of musical syntax. In the context of contemporary post-tonal investigation, such analytical tools include but are not limited to set class assessments, combinatorics, contour comparisons, and transformational networks. In Step Four, the knowledge gained by Step Three is "suspended' from conscious attention to whatever degree possible" in favor of a phenomenological description of the sound-in-time. Ferrara notes that one's language may switch to "a more poetic style when appropriate" during this latest phase of analysis. For details on how to write accurately about sound-in-time experiences, Ferrara encourages consulting literature by Lochhead (particularly her dissertation) and Thomas Clifton.

Step Five communicates possible programmatic or text-related levels of meaning in the composition (if applicable). Here, the analyst should adopt a suitable literary method for the critical analysis of text; since Boston Concerto is an instrumental and not vocal work, Step Five will be my opportunity to provide possible preliminary narrative accounts of the composition in the manner of

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36 Ferrara (1991), 182.

37 A similar methodology is adopted in Snarrenberg's 1986 analysis of Webern. More on this in Chapter 3.

38 Ferrara (1991), 182.

Klein's writings on Lutosławski's Symphony No. 4. Step Six synthesizes the syntactical and sound-in-time information to corroborate insights into the listener's personal emotive reactions when perceiving the piece. Ferrara urges the analyst to "retain a reasonable amount of detachment from this level of [emotional] meaning in the work." Step Seven (following Heidegger's definition of art) explores the composer's onto-historical world through the lens of the analyst's attention to the composer's work.

At this point in the overall method, "open listenings" from Step Two return as Step Eight, this time allowing the strata of musical significance accrued from the previous phases to engage in a free-for-all polyphony of analytical meaning. The circular nature of analytical investigation is practically complete, however Ferrara offers two more steps as important addenda. Step Nine is a performance guide which should "aid performers in their overall understanding of the work and in making interpretive decisions... [the] analysis, marked by... insights into the work, is brought to fruition in this step." The analyst consequently engages with readerships beyond that of musicologists – those of professional performers and non-expert music lovers. Step Ten, lastly, is a reflexive meta-critique in which the analyst draws conclusions about the analysis completed, hypothesizes connections to a broader theoretical base, and assesses the (personal) successes and failures of the previous nine steps. For the present study, Step Ten will be an admittedly idiosyncratic essay detailing my involvement with the Boston Concerto, Elliott Carter's music, the field of music theory, and the act of writing my dissertation.

The organization of the bulk of my dissertation approximately follows that of Ferrara's "eclectic method": Step One corresponds to my Chapters 1.1 then 2.1 through 3.1, Step Two is reflected in Chapter 3.2, Steps Three and Four constitute Chapter 4, Chapter 5 and selected Appendices encompass Steps Five through Nine, and Step Ten is attempted in the introduction of


41 Ferrara (1991), 183. Although I concede that one's analytical remarks regarding personal emotive responses should be rooted in an understanding of musical syntax and "sound-in-time," I wonder what a heightened level of detachment achieves beyond the appearance of a certain positivist rigor.

42 As I continue to struggle with the intricacies of Heideggerian thought and its relationship to music analysis, this step as described by Ferrara in his book remains unclear to me. My "Step Seven" approximates Ferrara's method by providing an arena for the discussion of large-scale intertexts.

43 Ferrara (1991), 186.
my Chapter 6.⁴⁴ Steps Three and Four have been conflated for two reasons: to prevent multiple unwieldy accounts of what is a very lengthy composition and to introduce some of the "poetic style" of writing advocated by Ferrara's Step Four into the syntactical (conventional) analysis.

⁴⁴ See the table of contents of this dissertation.
CHAPTER 2
TWO PORTRAITS OF ELLIOTT CARTER

2.1 The Modernist (Background and Influences)

Elliott Carter was born on December 11, 1908, the same year that Henry Ford introduced the Model T, the U.S. Army first announced its intent to buy "flying machines," Monet painted "San Giorgio Maggiore at Dusk," Gabriel Lippmann won the Nobel Prize for introducing color photography, and ten days before the premiere of Schoenberg's landmark Second String Quartet. Considering this and his upbringing in a wealthy, cosmopolitan home that emphasized the Classics, one could almost imagine Carter was predestined to become a prominent figure in the modern world – musical or otherwise. Surrounded by an environment rich in culture, and given the financial means and advances in communications technology that allowed him to absorb such an environment, Carter amassed a list of artistic influences that would in varying degrees shape his idiosyncratic musical language over the course of seventy-five years. In the first part of this subchapter, some of the composers who have been a primary influence on Carter's style will be discussed including Charles Ives, Edgard Varèse, Nadia Boulanger, and the trio of Claude Debussy, Igor Stravinsky, and Arnold Schoenberg; in part two, non-musical influences taken from the fields of literature and film such as James Joyce, Wallace Stevens, Jean Cocteau, and Sergei Eisenstein will be mentioned. A brief conclusion will contemplate how Carter addressed the preceding influences and will suggest Carter's possible legacy in music history.

Elliott Carter's professional relationship with Charles Ives is problematic to assess. Throughout his career, Carter has alternately heaped both praise and scorn on the elder composer, sometimes within the same essay, lecture, or interview. Yet their personal relationship almost constantly remained one of mutual respect and appreciation, extending beyond Ives's death and beginning even before the two had been officially introduced: Ives famously assisted Carter's admission into Harvard in 1926 by writing a short letter of recommendation based upon his familiarity with an essay Carter had written for a school paper and his knowledge of the boy's sense
of humor and industriousness. In his oft-cited lecture/ interview "Shop Talk by an American Composer," Carter begins a long statement about his mentor with a summation outsiders have observed quite well: "My opinions about Charles Ives as a composer have changed many times since I first came to know him during my high school years...but my admiration for him as a man never has." The scores of Ives that Carter first admired (and continues to do so today) are the *Concord Sonata, Three Places in New England*, and some of the *114 Songs*; later, he acknowledged pieces such as the *Robert Browning Overture*, the *Fourth of July*, and movements from the Fourth Symphony despite Carter's reservations about the extensive use of quotation in those compositions. Indeed, the frequent quotation of raw material formed one of Carter's principal doubts about Ives's compositional language — the other being the large amounts of "undifferentiated confusion... during which many conflicting things happen at once without concern either for the total effect or for the distinguishability of various levels." Nevertheless, Carter continued to push for performances of Ives's works later in life, rescuing photostat copies of *The Unanswered Question* and *Central Park in the Dark* from the American Music Center and arranging for their "official" first performances in 1946.

One of the most famous examples of Carter's ambivalence toward Ives's creative output and musical aesthetics comes from the younger musician's published statements about the *Concord Sonata*. After exhibiting initial enthusiasm toward the piece, Carter's reaction to the Sonata cooled considerably after studying abroad and he expressed his criticism quite sharply in a series of articles in *Modern Music* in 1939 — a decision he regrets to this day. After the first performance of the work in New York City, Carter wrote the following:

...all the ingenious interpreting in the world [by John Kirkpatrick] could not dispel the fact that the sonata is formally weak... In form and aesthetic it is basically conventional, not unlike the Liszt Sonata, full of the paraphernalia of the overdressy sonata school, cyclic themes, contrapuntal development sections that lead nowhere... Behind all this confused texture there is a lack of logic which repeated hearings can

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47 I would be interested in knowing if the songs from the *114* that originally aroused Carter's interest as a young man referenced the New England geographic connection between Carter, Ives, *Three Places*, and *Concord*.

48 Carter, "Shop Talk."
never clarify, as they do for instance in the works of Bartók or Berg... The aesthetic is naive, often too naive to express serious thoughts, frequently depending upon quotation of well-known American tunes, with little comment, possibly charming, but certainly trivial.49

Ostensibly contradictory to the proclamation above, he goes on in the ensuing paragraph to praise Ives's statement of themes as "beautiful," including "a very funny" section on the tune "Hail, Columbia!" Carter concludes his report by asserting the present canonization of Ives as being "a little premature."

Notwithstanding his disappointment that Ives relied "on musical quotations for their literary effect" and was "unable completely to digest his experience as an American and make it into a unified and meaningful musical expression,"50 Carter borrows an extract from Ives's First Violin Sonata verbatim in his own career-changing 1951 String Quartet No. 1 and draws on it as a main theme ripe for development early in the first movement. Rather than hiding the reference, Carter marks the passage forte and places Ives's material in the lowest stratum of the musical texture, the cello; since the cello opened the work only measures before with a dramatic solo followed by a brief pause, the listener is quite attuned to its reappearance bearing the Ives quotation (see Example 2-1).

\[ \text{Example 2-1 – Ives quotation in Carter's First String Quartet, mm. 27-30} \]

Granted, Carter's selection of the quoted material fits the overall expressive and intervallic guidelines of the cello's material in the opening of the First Quartet without self-consciously breaking musical

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50 Carter, "Shop Talk"; the latter quote has curious overtones of Ezra Pound's Modernist credo "Make it new!"
continuity, but his decision to cite Ives so explicitly remains remarkable in a piece intended to be a definitive, uncompromising, and self-exploring work for Carter's own benefit (and his alone).\textsuperscript{51}

For a later example of Ives's influence on Carter's musical language, consider the genesis and composition of Carter's 1963-64 Piano Concerto. In the early sixties, Carter became intrigued and impressed by the contrapuntally dense scores of Penderecki, Ligeti, Xenakis, and others, finding that the "thick, packed, dissonant textures and vivid juxtaposition of whole clusters or constellations of notes" produced lively musical results.\textsuperscript{52} In conversation with David Schiff, however, the composer revealed that the inspiration for his massive string writing in the Concerto was the \textit{Fourth of July} by Charles Ives:

While composing the second movement [of the Piano Concerto], Carter left New York to Warsaw for a performance of the Double Concerto. His plane was grounded in London, however, and when he rang up some friends there he found out that at that very moment Frederik Prausnitz was rehearsing...the \textit{Fourth of July}. Carter arrived just in time to hear the rehearsal of the dense string passages in the Ives, which convinced him that he was on the right track in the Piano Concerto.\textsuperscript{53}

It is entirely possible that Carter was wishing to attribute inspiration to an older, personal, and American model in order to distinguish himself from his European peers in the '60s, but if we take his testimonial (and Schiff's recounting of it) at face value we find Carter drawing aesthetic encouragement from Ives while writing the piece for which he would achieve European renown and his greatest international accolades/infamy to that date.

In the biographical documentary \textit{A Labyrinth of Time}, filmmaker Frank Scheffer captures a moment in Carter's apartment one afternoon while the composer is diligently working with cellist Fred Sherry on the creation of his recent solo cello piece, \textit{Figment No. 2 – "Remembering Mr. Ives"} (2001). When explaining the title of the piece to the documentarian, Carter's respect for the older composer is still evident: "Mr. Ives was very much older than I was at the time that I knew him, so I

\begin{itemize}
\item \textsuperscript{51} On his own First Quartet, Carter has stated: "I decided for once to write a work very interesting to myself, and so say to hell with the public and with the performers too. I wanted to write a work that carried out completely the various ideas I had at that time about the form of music, about texture and harmony – about everything." Elliott Carter, \textit{Flawed Words and Stubborn Sounds: A Conversation with Elliott Carter}, edited by Allen Edwards (New York: Norton, 1971), 35.


\item \textsuperscript{53} Schiff (1998), 255-56.
\end{itemize}
called him Mr. Ives and never Charles." During the next scene in the film, Carter reveals his continued simultaneous affinity for and distancing from the *Concord Sonata* when discussing the compositional material of *Figment No. 2*:

"I used tiny bits of the *Concord Sonata* that I remembered... I didn't actually start by looking through it, because I haven't thought about it in a long time. So I just chose little things that to me suggested Charles Ives's music. For instance, this little hymn tune in the 'Alcott' movement is... [Carter plays the harmonized melody at the piano from memory] ...and it also ends with a minor third. [Fred Sherry plays a measure or two from *Figment No. 2* in response] Yeah, that's it..."

It is intriguing that Carter wishes to pay homage to Ives by re-arranging fragments of arguably his most famous work in one moment, yet in the next breath insists "he hasn't thought about it in a long time."

Carter also mentions that he wanted to pay tribute to Ives by writing a short chamber work since he had done likewise for two other composers in the recent past: *Statement – Remembering Aaron* for solo violin (dedicated to Copland, 1999) and *Fantasy – Rememebering Roger* for the same instrument (Roger Sessions, 1999). Although this is true, technically Carter has composed several chamber miniatures in the past decade or so before *Figment No. 2* to honor and celebrate the work of other composers – *Riconocenza* (1984) and *90+* (1994) for Goffredo Petrassi, *Esprit Rude/ Esprit Doux* (1984) and *Esprit Rude/ Esprit Doux II* (1994) for Pierre Boulez, *Gra* (1993) for Witold Lutosławski, *Inner Song* (1992) for Stefan Wolpe, and even *Con Leggereza Pensosa* (1990) for the author Italo Calvino all predate Carter's tribute to Ives. Perhaps this is not a deliberate "snub," but the reflection of an anxiety over creating a musical laud for a man who influenced Carter's work and personality so greatly.

Another composer who influenced Carter as a young man (and whose presence is still felt in his music) is Edgard Varèse. Carter explains that his continued fascination with Varèse's compositions comes from the latter's extraordinary musical vitality, his exciting approach to integrating large percussion forces into and independent from the orchestra in pieces such as

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54 Frank Scheffer, *A Labyrinth of Time*, timecode 19:15. Quotations from Scheffer's film are transcribed by the author.

55 Again, see Frank Scheffer, timecode 19:15.
Ionisation (1929-31), and the irregularities of durations in Varèse's mature works that lead to "what has been called a 'prose rhythm'." Even more importantly, it is the American composer's opinion that Varèse made an amalgam of the Stravinskian and Viennese rhythmic procedures in compositions including Déserts (1950-54) and adopted this durational structuring not as a way of furthering the almost hysterical expressivity sought by the Second Viennese School, but "rather as a way of producing a new rhythmic structure with a high degree of forward drive not resulting from regular beat patterns." Carter has also been interested in the highly sensitive manner in which Varèse's compositions include continuities based upon harmonic structures working concurrently with instrumental sonorities, regions articulated in registral space, and the play of rhythmic motives.

Nowhere in Carter's output is the influence of Varèse felt more than in the introduction of the Double Concerto for Harpsichord and Piano with Two Chamber Orchestras (1956-61). Each of the solo keyboard instruments is accompanied by its own ensemble (an agonistic gesture owing more than just a tip of the hat to Ives) as well as a bevy of percussion devices – bongos, bass drums, anvil, cowbells, gongs, tamtams, temple blocks, wood blocks, slap-stick, snare drums, soprano cymbals. The orchestration is one police siren and a kitchen sink away from Ionisation. Double Concerto is set in motion when the unpitched percussion rocks one end of the sound spectrum with seemingly undifferentiated noise, struggling to coalesce into the structural long-range polyrhythmic pulses featured in the composition (Example 2-2 is similar to David Schiff's chart of the polyrhythmic plan in the opening bars of the Concerto). From the protracted, savage waves of percussion, the listener is left momentarily wondering when the "concerto" part will begin. Single dyads very gradually emerge from the Big Bang, minor and major seconds reverberating and quivering like overtones from cymbal rolls. This is Varèse's futuristic compositional utopia realized.

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56 Scheffer, Labyrinth of Time, timecode 16:30.
58 Carter (1975), 148.
60 The technique here is reminiscent of Berg's Three Orchestral Pieces, but the overall rhetorical effect is quite different.
Other works in Carter's catalogue are imbued with Varèsiand ideals. The central portion of *A Celebration of Some 100 x 150 Notes* (1986) constantly rearticulates the same static, granitic all-interval twelve-note chord and sustained spatial boundary for dozens of measures at a *fortissimo* dynamic. Even in the Americana *Holiday Overture* (1944), the previously joyous threads of pentatonic and quartal materials reach a point of combustion one minute before the end, and the music becomes a horrific machine collapsing under its own weight. The result sounds like Copland imitating Varèse but in a way that could only be Carter's for its masterful transition into (and out of) that climactic moment. The comparison of Carter's sound masses to Varèse's suggests an interesting analytical approach, as the same examinations of the effect of spatial boundary motions on our perception of

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61 Carter also begins his one-act opera *What Next?* (1999) with a similar gesture, employing a ferocious clatter of unpitched percussion to introduce the hesitant singers and to musically depict a car crash. Leonard Bernstein also wrote a percussion racket to simulate a fatal automobile wreck in the first scene of his critically-panned opera, *A Quiet Place.*
form in Varèse's music that Jonathan Bernard writes about in his book may yield similarly positive results when applied to Carter. 62

Like many American musicians in the earlier half of the 20th century, Carter journeyed across the Atlantic to study with Nadia Boulanger; in Carter's case, his tenure in Paris lasted from 1932-35 and occurred at the insistence of Walter Piston. Even though he did not end up composing the music Boulanger would have imagined him creating by the end of his apprenticeship (initially hearing the First String Quartet, she reproved Carter by commenting on her disbelief that he "would ever write something like that"), his lessons with the famed pedagogue were defining experiences nonetheless. 63 Time spent with "Mademoiselle" was akin to entering a contrapuntal and intellectual boot camp. Comments on Carter's experience may be found in many sources, but the best summation is in his interview for Frank Scheffer's film:

I loved music anyhow, but she made me love it a great deal more and be much more aware of what was happening in music and what it was that made it so wonderful and so remarkable. She would make us learn to play the Well-Tempered Clavichord of Bach with [our] hands crossed. She was very serious about this typical French method of doing very complicated exercises in order to develop technique and this was something she said forced you to pay attention in a very intense way.

She gave us very strict counterpoint lessons. The discipline of writing counterpoint was a very important thing for me, that is we had to pay strict attention to every note that we wrote so that it fit into this very narrow system of rules and at the same time we had to discover how to make this sound like a piece of music – that it had a musical quality to it. It took us about two or three years of weekly lessons during the ordinary school year to arrive at this so it was really satisfactory.

Contrapuntal lessons involved first of all choosing a nice melodic line. After we learned how to do that, we would do two-part counterpoint... and then three-part counterpoint led to four-part counterpoint and five- and six- and seven- and then in musical performance [we would] do our examples of seven- and eight-part counterpoint. [My] big eight-part counterpoint was one that Nadia Boulanger asked me to copy so that she could use it as an example for other students because she thought so highly of it.

She was a very useful teacher to me. It was not something I would have ever learned if I had stayed in the United States... 64

64 Scheffer, A Labyrinth of Time, timecode approx. 27:00.
According to Schiff, the study of counterpoint under Boulanger (1) prompted Carter to think of music as a set of problems, each of which had multiple solutions and (2) taught him to conceive of melody, harmony, and rhythm in systematically related ways.65

Even though Carter destroyed all of the compositional endeavors from that time period (much like he had done with his Harvard-era pieces), a few works from the '40s bear the heavy stamp of his French instructor. *Elegy* (for cello and piano 1939, revised for string quartet 1946) matches the expansive landscapes of Copland (a fellow Boulanger pupil), but with distinctly bitter tonal shifts characteristic of Carter; the Woodwind Quintet of 1948 was specifically dedicated to Nadia Boulanger because the composer penned it hoping to "create music of the kind Nadia would have wanted me to write when I was her student."66 The Quintet is unmistakably Carter's creation, though, due to its Ivesian independence of musical *dramatis personae*, jazzy rhythmic profile, and humorously understated coda. After Carter's style changed permanently following the completion of the First String Quartet, his trademark preoccupation with coordinating the horizontal and vertical dimensions of music remained as did his fastidious compositional manner – a result of the rigorous training acquired in Paris.

In a 1969 essay on his mid-century change of compositional aesthetic, Carter writes:

…I began to question the familiar methods of presentation and continuation, of so-called “musical logic,” based on the statement of themes and their development. Certain…works, particularly those of Debussy, suggested a different direction. In considering change, process, evolution as music’s prime factor, I found myself in direct opposition to the static repetitiveness of most early twentieth-century music, against the squared-off articulation of the neoclassicists, and…against much of what is written today in which “first you do this for a while, then you do that.” I wanted to mix up “this” and “that,” make them interact in other ways than by linear succession. Too, I questioned the inner shape…of musical ideas – as well as their degrees of linking or non-linking. Musical discourse needed as thorough a rethinking as harmony had at the beginning of the century.67

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It comes as no surprise then that despite the thinning of textures and self-imposed limitation of pitch(-class) resources in his recent works, the composer still eschews repetition of large chunks of music and delights in the juxtaposition of disparate characters, melodies, and narratives. Carter's term for his free mature-period musical rhetoric (general avoidance of large-scale recapitulation, clearly delineated formal paradigms, and traditional thematic development) is "emancipated discourse," which serves a broader aesthetic analogue to Schoenberg's famous "emancipation of the dissonance." Among other sources, scores by Debussy, Stravinsky, and Schoenberg provided the inspiration for this principle.

In Carter's opinion, the need for "serviceable routines" such as themes and accompaniments, canon, fugue, sonata form, and development, was first challenged by Debussy in his later period. In particular, he cites the *Préludes* of 1910, *La Mer*, *Jeux*, and the late sonatas (for Cello, for Violin, and for Flute, Viola, and Harp). Regarding the latter, Carter has tried to emulate its "continuities of great freedom. Each movement...has many different speeds and different characters which nevertheless add up to a whole, not only because of a subtle sensitivity which contrasts things that seem to have some relationship of spirit, but also owing to...rather clear relationships of motives..." The Sonata owes its discourse to a formal plan without pre-fabricated paradigms from the past and to a carefully-constructed intermingling of associated musical elements patterned to elicit a desired psychological response. Carter drew comparable conclusions about and creative stimulation from Stravinsky's *Le Sacre du Printemps*, *Symphonies of Wind Instruments*, and the first part of the *Symphony in Three Movements* (which Carter frequently lists among modern compositions comprised of daring new formal processes) as well as Schoenberg's free atonal works (*Erwartung*, Five Pieces for Orchestra Op. 16) and final compositions (String Trio Op. 45 and the Violin Fantasy Op. 47).

Because of his omnivorous intellectual appetite, the influences on Carter's musical language have not only been derived from other composers but from disciplines as diverse as literature and film. The impact of cinematic art situates Carter as a man in touch with his century(-ies), since no other art form is so uniquely a product of modern thought; unlike dance, music, painting, sculpture,

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69 Ibid.


71 Lutosławski's views on formal analysis made him a kindred spirit of Carter. See Lutosławski (2007), 12-41.
literature, poetry, and theater, film is only made possible through relatively recent advances in technology and exhibits powerful means of shaping a narrative in ways no other medium can.

Through film, a nonlinear juxtaposition of elements is able to create new meanings not explicitly existing in the given cinematic elements. Early pioneers who championed nonlinear montage included Soviet director and experimenter Lev Kuleshov, who by 1918 had discovered a cognitive trick still named in his honor. The “Kuleshov Effect” consists of a presentation of three images, the first and last of which are identical. Oddly, when viewers behold the three images, they invariably describe the third image as being different from the first or attribute emotive characteristics to the third image that are influenced by the second (contrasting) image. Sergei Eisenstein, Kuleshov’s pupil and a famed director in his own right, used this cognitive ploy to great advantage in the nonlinear montages of his films October, Strike, and The Battleship Potemkin (Eisenstein’s term for this technique was "intellectual montage" and differed from classical Hollywood practices in its shunning of traditional linear narrative).

Carter's interest and thinking about musical time were "very much stimulated by the kinds of [montage] and continuity [found] in the movies of Eisenstein, particularly Ten Days That Shook The World and Potemkin, and such as are described in his books, Film Sense and Film Form." He describes the relationship between his music and Eisenstein's films as rooted in a "strong feeling of action that also is constantly recalling different parts of the past. A great deal of the texture and character of my music is like a film. If there are three or four things being played at once – while they all contribute to a general effect, the details are all rather different. This is something like the various shots that Eisenstein would show around a general central subject."

The seventh variation from Carter's Variations for Orchestra contains a straightforward musical interpretation of Eisenstein's montage theories from a relatively earlier (1955) Carter composition. Here, the composer breaks apart three strands of musical thought partitioned according to orchestration (woodwinds, brass, strings) and intersperses them (see Example 2-3).

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72 I wrote about this subject in an unpublished paper (2007) entitled "Elliott Carter’s Phenomenology and the Film Metaphor."

73 Carter, Flawed Words, 99.

74 Scheffer, Labyrinth of Time, timecode 49:31. Carter mentions the famous scene in Potemkin involving actions between masses of angry people and, simultaneously, a baby carriage tumbling down the palace steps where the revolutionary battle is taking place. The composer evidently has an eye for creative film editing – Brian De Palma famously paid homage to the same scene in his movie The Untouchables.
Thirty years later, Carter explored a more sophisticated, long-range approach to musical "cross-cutting" in his solo violin piece *Riconoscenza per Goffredo Petrassi* (1984). Once again the composer interlaces three individual musical strands to form a montage, but since the work is for a solo instrument the materials are differentiated by associations of intervals, rhythmic gestures, and character. Throughout *Riconoscenza* the three species of music, each with its own distinct developmental path, continually interrupt each other; the cross-cutting is so literal that when a music type resumes, it typically begins with the same pitches with which it previously ended. As the composition ensues, cross-cutting becomes increasingly rapid as any one music category is not allowed to reign for more than a few measures. This process intensifies until the point when, by the conclusion, the once intransigent intervallic and character profiles of the music types break down and a communion takes place as three compositional strands share materials and fuse into one. Carter is perspicuously performing the task that we as listeners might have been doing all along: actively imagining the cross-cutting as creating a *fourth* type of music – a music not performed by the

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75 Schiff’s term for Eisenstein's "intellectual montage" as used in a musical context, particularly Carter's: abruptly jumping between different musical ideas without transition. Schiff (1998), 39.
violinist or dreamt by the composer, but shaped in the mind of the perceiver. By doing so, Carter comes closer to emulating the appearance of several small gestures contributing to a cohesive structure that so fascinated the composer in Eisenstein's films.

Although not an instance of montage, the general formal plan for the First String Quartet was "suggested by Jean Cocteau's film Le Sang d'un poète." Cocteau's experimental 1930 cinematic experience begins with a slow-motion shot of a brick chimney being dynamited; the brief scene is interrupted and cut away from as the chimney collapses, whereupon the hallucinatory action of the main plot takes over (see Example 2-4). After the entire movie proceeds in a fashion entirely unrelated to the opening scenario, the shot of the chimney is resumed at the point which it left off, showing its mid-air disintegration and closing Le Sang with a shocking crash of bricks and mortar. Carter's composition exploits a similar interrupted continuity as the Quartet embarks with a passionate and extended cello solo, lasting almost a full minute. The "dream time" core of the First Quartet inhabits the listener's attention for thirty-five minutes, eventually concluding with a protracted violin cadenza that is an extension of the cello's opening salvo. Carter's involvement with the cinema evidently persists through his late-late period, since the plot of his only opera, What Next?, was inspired by his viewing of Jacques Tati's odd comedy Trafic (1971).

Example 2-4 – Still photo from Cocteau's Le Sang d'un poète

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In an effort to create "form as proceeding" rather than "shape as superinduced",\textsuperscript{78} Carter has also turned to literature – hardly surprising, considering he majored in English (not music) while at Harvard. The epic stream-of-consciousness shapes of James Joyce's novels excited the composer from an early age and impacted how Carter understood musical discourse. Joyce's creation of the "epiphanic moment\textsuperscript{79}" is a subject oft-mentioned by Carter in interviews and essays, such as this longer excerpt from \textit{Flawed Words and Stubborn Sounds}, predominantly because of the term's apparent misapplication to what was at the time a fashionable fascination with "moment form":

...no "moment" can have any meaning except as the result of its context, and can never be anything like the "epiphany" the word seems to imply...unless it has been led up to so that it constitutes a meaningful stage in a previously ongoing musical process. In Joyce's \textit{Dubliners}, in which the first conscious use of this technique in a literary work was made, it's very obvious that "epiphanies" occur always as a result of a situation in which the person who is experiencing the events finally recognizes, in a "moment of truth," what they all mean.\textsuperscript{80}

In an earlier essay on Debussy, Carter hypothesizes that the French composer's work is filled with emotionally-charged associative patterns and epiphanies rather than logical ones, mirroring symbolist poets such as Rimbaud and, later, Joyce's \textit{Ulysses} or \textit{Finnegans Wake}.\textsuperscript{81}

Carter's ubiquitous focus on Joyce's epiphanic constructions have led the composer and others to hypothesize the presence of "epiphanic forms" in modern music. Carter's multiple writings on the subject are somewhat opaque, as is David Schiff's definition – "a form where the relations between musical ideas are revealed non-linearly across a piece rather than in the form of theme and variation or development."\textsuperscript{82} I am uncomfortable with his inclusion of the word "non-linear" since it tends to undermine some of the arguments made by Carter about the importance of


\textsuperscript{79} "Epiphany" was adopted by Joyce to mean the sudden revelation of meaning though accrued insights and symbolic gestures.

\textsuperscript{80} Carter, \textit{Flawed Words}, 94.

\textsuperscript{81} Although the macrostructures superimposed upon smaller units of freer associative connections in \textit{Ulysses} reminds me more of Berg's \textit{Wozzeck}, for instance. See Carter, "Three Essays on Debussy."

\textsuperscript{82} Schiff (1998), 39.
continuity in assembling an epiphanic composition; my definition of epiphanic form, as I understand Carter's writings and intent, is a form wherein seemingly unrelated tableaux are linearly integrated in a stream-of-consciousness fashion that defies traditional teleologic thought; later in the form, a decisive moment usually occurs that connects previously-heard materials, simultaneously (1) casting sudden insight into hidden relationships between elements and (2) illuminating the structure as the whole. The defining epiphanic flash, then, corresponds in function to the apotheosis/\textit{peripeteia} complex presented in Michael Klein's narrative account of Lutosławski's Fourth Symphony.\footnote{Klein, \textit{Intertextuality in Western Art Music}, Chapter 5. Carter's ideal construction of constantly-evolving, disparate, yet interlocking \textit{tableaux} draws a parallel to Lutoslawski's "chain form."}

Carter's Second String Quartet (1959), in addition to its alternation between a pseudo-Classical four-movement architecture and various instrumental cadenzas, is large-scale evidence of Carter's epiphanic formal processes. The cadenzas periodically transpiring in the Quartet act as \textit{attacca} interludes connecting the "actual" movements in order to prevent breaks in the musical discourse; Carter's effort to maintain continuity is heightened by the other three string players persistently accompanying the soloist. After the \textit{Andante espressivo} yet before the finale the first violinist takes its turn as a featured performer, but this cadenza is truly unaccompanied, allowing the listener to focus intently on one isolated voice for the first (and only) time in the composition. The music's psychological time stops as the violinist steps outside the established temporal boundary of the Quartet. The wall of rhetorical flow that the composer fought so hard to establish has been effectively dismantled. Everything in the previous thirteen minutes has led gracefully to this segment, wherein the soloist begins an impassioned, flighty, virtuosic improvisation on material listeners first heard performed at the start of the first movement. The rhapsodic monologue whips itself into a frenzy culminating on a stratospheric A7, unexpectedly crashing into a \textit{fortississimo} quadruple-stop.

And then silence. Beats, seconds (seemingly minutes, hours) of silence fill the space where tones once were. Timidly, the soloist creeps back in with the (G♯, B, A, C) motive the listener has encountered a few times since the beginning of the quartet. Some more broken starts and the rest of the ensemble joins in with sustained tones and tremolos, gradually accelerating like a video in slow motion resuming normal speed, sweeping headlong into the final \textit{Allegro}. The epigrammatic progression of \textit{fortississimo} quadruple-stop, tonal lacuna, and minor-thirds motive constitutes the emotional epiphany of the Second Quartet. It is the instant, led to in illogical and labyrinthine ways,
that reshapes the discourse of the composition, wrangling all information acquired thus far, and after which the narrative path of the composition shifts. In Carter’s *Dialogues* for piano and orchestra (2003), written decades later, the episodic nature of the composition comes to a standstill when a tranquil English horn solo recalls a parallel moment heard at the onset of the concerto. It too is an epiphany, a fragment beyond the temporal narrative of the composition, acting as a harbinger of new material (in this case, the pianist initiates a filigree "coda" topic that both answers the English horn and is the material that will dominate the remainder of the piece).

Other literary figures have been the impetus for Carter's creative force over eighty years, including American poet Wallace Stevens, whose aesthetic notion of a "Supreme Fiction" – a fiction of conflicting subjectivities so insightful that it, if only temporarily, offers a glimpse of actual reality – found particular resonance with the composer as his style began to shift in the late '40s. A listener can think of the Second Quartet as Carter's attempt at such a Supreme Fiction, an endeavor to unite numerous temporal senses at once to give us hope into understanding the nature of "actual" musical time. On a less philosophical level, the composer's reliance on poetry to provide mottos, titles, and creative impulse for his major instrumental pieces should also be mentioned, ranging from the familiar (William Carlos Williams for the *Boston Concerto*) to the esoteric (17th-century metaphysical poet Richard Crashaw for *Symphonia: Sum Fluxae Pretium Spei*).

After returning from Paris to the United States in 1936, Elliott Carter settled in Boston as a choral conductor, wrote finely-crafted populist pieces for the Harvard Glee Club, and became active in leftist political and artistic communities. Two years after his repatriation, a significant opportunity came Carter's way when he was commissioned to write an epic score for Lincoln Kirstein and the Ballet Caravan. The composition he produced in 1939 (the same year as his parricidal review of the *Concord Sonata*) was *Pocahontas*, a piece epitomizing Carter's struggle to make sense of the influences he had gradually accrued over three decades. The contradictory nature of Carter's artistic loves created a perplexing melting pot of a score, mixing Fauvist thumps straight from *Le Sacre*, American popular/Broadway tunes (for the titular character), refined European neo-Classicism, Ivesian sound masses, and Elizabethan keyboard music. The New York premiere of *Pocahontas* was a critical and popular disaster for Carter, due in no small part to another first performance on the same concert – Copland's *Billy the Kid*. Perhaps, then, the famed critique of Ives in *Modern Music* was more of a self-reflection on the need to "digest" one's influences; at any rate, the
1940s proved to be the laboratory in which Carter began piecing apparently incongruent ideas together.

For a major composer, Carter has been (and continues to be) remarkably open about his influences, easily citing what passages in which works by what decisive figures (such as Stravinsky, Boulanger, Copland, Robert Lowell, Boulez, Varèse, Berg, Cocteau) either excite or bore him. From the '40s to the present date, Carter's question became not how to reject, copy, bury, destroy, cover, mimic, deny, or worship influences, but how to forge alloys. In writing his ambitious 1946 Piano Sonata, Carter entered a standoff with two other revered American works of the same genre – the *Concord* and Copland's. He found rejecting the past wholesale to be an nonviable solution, yet equally invalid was a full embrace of the mystical stillness and stylized Americana of Copland's work or the quotation found in the Ives. Carter chose to select features of both and to disregard what he found unappetizing. In setting Copland's pandiatonic hymns and angular dances against Ives's dramatic sensibility, Carter revealed "his grand ambition – to surpass both of them." In the world of piano literature he succeeded, as the Sonata was Carter's first work to enter any instrument's standard repertory; well-respected pianists have favorably compared Carter's opus to Liszt (Rosen), the *Hammerklavier* (Oppens), and Chopin (Schein).

I believe that Elliott Carter's position in music history will be that of a grand synthesist, placing him among the ranks of Witold Lutoslawski and Henri Dutilleux. Charles Rosen's estimation is more extensive:

> It seems to me that Elliott Carter has a very striking role, absolutely fundamental in the second half of the 20th century, one in fact which explains why his music becomes important a little bit later in his life than with other composers. *He is the only composer who actually synthesizes the two great traditions of the earlier part of the 20th century. [Carter is] the first composer to see to what extent the whole Stravinsky tradition... could be combined with all the great influences [of the Second Viennese School]... The solution was to reject most of the doctrine of both schools and something very original comes out which sounds very American and at the same time very specifically integrated into the European tradition. One thinks of [Carter] as coming out of these two traditions but the synthesis he makes of them is considerably in

84 Daniel Barenboim on Carter: "he [is one of the few modern composers who] doesn't feel that Mozart is old-fashioned or that Schubert is passé." Scheffer, *Labyrinth of Time*, timecode 5:00.


86 Schiff, tongue-in-cheek, calls the piece "Concord rewritten by Boulanger." Schiff (1998), 19.
advance of anyone else and also considerably more idiosyncratic, more characteristic, and more original than anyone else's synthesis of the music of the 20th century.\textsuperscript{87}

In the opening movement of the Cello Sonata (1948), which was the last of the four sections to actually be composed, Carter sought an explicit opposition between chronometric and psychological times, between a set of obsessive Stravinskian downbeats and Schoenbergian musical prose. The piano acts like a giant metronome (or rather metronomes), compulsively sounding single tones and dyads in strict pulse streams while the cello sings a fluctuating, Romantic melody emulating speech rhythms through irregular note durations. The contradiction in styles becomes the very substance of the piece and provides the dramatic discourse that will shape the form of the Sonata. All of Carter's compositions after the Cello Sonata are manifestations of his synthesizing spirit.

Aaron Copland summarized Elliott Carter's output as being the result of eclecticism when he quipped, "Carter has shaped a music of his own out of a wide knowledge of music of our time."\textsuperscript{88} While it is easy to notice a lack of individual compositional voice his from earliest efforts, the composer demonstrated his true aptitude later in life with the extraordinary ability to synthesize multiple tributaries of contemporary music as they arose during the past century – ranging from Varèse's experimentation with sound masses to Debussy's sensitive linking of minimal melodic materials. Like a master chef at a hotel buffet, Carter brought little new raw material to the table but fashioned an exquisite meal by choosing contradictory elements and fusing them in a way that had never before been considered. Carter's music is an imaginary neutral island floating in the middle of the Atlantic, trying desperately to reconcile Ives with Schoenberg, Eisenstein with Hart Crane, jazz with Joyce. Carter's legacy as a musical modernist is best captured in lines, coincidentally, by Wallace Stevens:

He had to choose. But it was not a choice
Between excluding things. It was not a choice
Between, but of. He chose to include the things
That in each other are included, the whole,
The complicate, the amassing harmony.\textsuperscript{89}

\textsuperscript{87} Scheffer, \textit{Labyrinth}, timecode 35:00 and 40:00. Italics my own.

\textsuperscript{88} Aaron Copland, \textit{Copland on Music} (New York: Norton, 1963), 177.

2.2 – The Materials (AITs, ATHs, AITNs, Aggregates)

Elliott Carter has utilized and explored a vast majority of sonorities available within the twelve-tone equal-tempered universe, but over the past six decades he has frequently focused on three types of pitch/pitch-class materials in particular: all-interval tetrachords, all-trichord hexachords, and all-interval twelve-note chords.\(^{90}\) This subchapter will outline the distinctive traits of these characteristic harmonies, describe their combinatorial potential, and offer brief illustrations of how each may contribute to the fabric of a composition. Carter's technique of defining formal boundaries by means of aggregate completion (particularly by chaining all-interval tetrachords) will also be discussed.

The vaunted all-interval tetrachords, abbreviated as AITs, have served a critical role in the pitch-class organization of Carter's mature compositions (here defined as his \textit{oeuvre} after and including the First String Quartet of 1951). Collections [0146] and [0137] are extraordinary among the twenty-nine four-note set-classes (assuming $T_n/T_nI$ equivalence) for including one and only one instance of the six interval classes – in other words, each has an ecumenical interval-class vector of $<111111>$. As a consequence, the two AITs are the only \textit{Z}-related tetrachords in Forte's catalogue, 4-Z15 and 4-Z29 (these set classes are listed as four-note chords #18 and #23 respectively in Elliott Carter's \textit{Harmony Book}).\(^{91}\) From a creative standpoint, all-interval tetrachords are extremely powerful due to their ability to provide almost limitless intervallic flexibility while maintaining harmonic uniformity; put differently, an industrious composer could construct a piece from a single tetrachord (or pair of tetrachords) but still have access to the expressive capabilities afforded by the entire spectrum of intervals. It is precisely this malleability that may account for why Carter has been fascinated with [0137] and [0146] for well over a half century.\(^{92}\)

The all-interval tetrachords may be partitioned in interesting ways. Example 2-5 demonstrates how each AIT bisects into trichords with residual singletons. Sets [0146]

\(^{90}\) Significant literature on Carter (including David Schiff's excellent book) still colloquially refers to [012478] as the "all-triad hexachord," although "all-trichord hexachord" would technically be a more precise term for this sonority.


\(^{92}\) For more information about AITs and the compositional spaces they may inhabit, see Capuzzo's dissertation, the second edition of Schiff's book, and Morris's article from \textit{Perspectives of New Music} 34 cited in Chapter 1.1. In particular see Adrian Childs's recent article on the subject, "Structural and Transformational Properties of All-Interval Tetrachords," \textit{Music Theory Online} 12, no.4 (2006).
Example 2-5 – Partitioning of AITs into trichords plus singletons

<table>
<thead>
<tr>
<th>[0146] = trichord + single pitch class</th>
<th>[0137] = trichord + single pitch class</th>
</tr>
</thead>
<tbody>
<tr>
<td>[016] + singleton</td>
<td>[016] + singleton</td>
</tr>
<tr>
<td>[026] + singleton</td>
<td>[026] + singleton</td>
</tr>
<tr>
<td>[014] + singleton</td>
<td>[037] + singleton</td>
</tr>
<tr>
<td>[025] + singleton</td>
<td>[013] + singleton</td>
</tr>
</tbody>
</table>

and [0137] similarly partition into [016]+singleton and [026]+singleton; the important presence of a tritone in [016] and [026] will be discussed briefly within the context of dyadic divisions. Navigating between different AIT types while maintaining a healthy number of common tones is quite easy because a full fifty percent of the possible "trichord plus singleton" partitions are shared between AITs. Even more attractive is the following simple device one may employ to maintain three common tones and shift to a contrasting all-interval tetrachord class: beginning with either AIT, if an embedded form of [016] or [026] is held invariant and the remaining pitch is transposed by a tritone, the result will always be an inverted iteration of the AIT type opposite of the initial one (e.g. C C♯ E F♯ [0146]; hold C C♯ F♯ invariant; E transposes at T6 to A♯; result is C C♯ F♯ A♯ or the "inverted" [0137]). One may extract half of all possible trichord classes (6 of 12) by 3+1 partitioning of AITs and that the [0137] includes a division into a major/minor triad plus a semitone or tritone above the root (a particularly useful property when writing for a string instrument or when one desires a very sonorous texture).

Perhaps the more familiar bisection of all-interval tetrachords in Carter's music is into two dyads. Example 2-6 graphically represents such parsing. From an [0146], one may extract [01]+[02], [04]+[05], or [03]+[06]; from [0137], [01]+[04], [02]+[05], or [03]+[06]. On a purely intuitive level (based upon common dyadic division), I view [0146] as being an AIT capable of stark oppositions, containing both a stringent partitioning of [01] combined with [02] while also grouping into a resonant fusion of [04] (thirds & sixths) plus [05] (perfect fourths & fifths).³³ Set [0137] is more of a

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³³ [0146] dyadic division might be an excellent time to recall György Kurtag's metaphor of "closed" versus "open" intervals.
"mixed bag," uniting the sharpness of [01] with the sweetness of [04] and the mild dissonance of [02] with the starkness of [05]. In Example 2-6, arrows highlight the shared [03]+[06] partitioning that both all-interval tetrachords have in common. When one imagines all-interval tetrachords as being comprised of dyads from different 3-cycles, the mutual [03]+[06] partitioning is logical and also explains in part why larger collections formed by fused AITs tend to exhibit striking increases in ic3 and ic6 interval class content (e.g. AITs can easily be used to construct octatonic collections).

In a manner of thinking, the all-triad hexachord [012478] is the six note analogue of the all-interval tetrachords. Just as AITs are singular among tetrachords for containing all six interval classes, the all-triad hexachord (ATH) is the only hexachord class of fifty from which one may extract each of the twelve trichord classes. Although a composer could hypothetically realize the six-note set as pentachords plus singletons, the more likely scenarios (and those recurrently drawn on by Carter in his compositions) feature textures that separate tetrachords/dyads and trichords/trichords. Examples 2-7 and 2-8 display the aforementioned partitionings respectively.

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94 This phenomenon was discussed in detail in the context of Carter’s music in a paper delivered at the Society for Music Theory National Conference 2009 by Michael Buchler and the author entitled "Elliott Carter and the Sorcerer's Stone: All-Interval Tetrachords as Musical Building Blocks."
DYAD | TETRACHORDS
---|---
[01] | [0124] | [0146] (AIT) | [0148]
[02] | [0156] | [0147] |
[03] | [0157] | [0126] |
[04] | [0167] | [0136] | [0127]
[05] | [0247] | [0137] (AIT) | [0148]
[06] | [0248] | [0147] |

Example 2-7 – All-triad Hexachord (ATH) divided into dyads plus tetrachords (2+4)

Example 2-8 – ATH divided into two trichords (3+3)

As demonstrated in Example 2-7, the all-triad hexachord does embed one iteration of each of the all-interval tetrachords. Nevertheless, in the twelve-tone equal-tempered system it is impossible to form an ATH by combining two AITs of (any variety) with an overlapping dyad. Proof of this is provided in Appendix 1. Concerning 3+3 (trichordal) partitioning, certain three-note chords will always leave the same complementary trichord when extracted from an ATH. In his dissertation, Guy Capuzzo wrote extensively on this topic and its expressive role in some later chamber compositions by Elliott Carter including *Gra* for solo clarinet and the trio *Con Leggerezza Pensosa* for clarinet, violin, and cello. As an example, we could remove an [048] augmented triad subset from an all-triad hexachord superset and always be left with an [016] trichord remainder. This property does not always work in the opposite direction though (i.e. it is noncommutative), since we could easily round out an ATH by holding some realization of an [016] in one hand and...
particular realizations of an [024], [048], [037], [026], or [014] in the other. Due to the prevalence of [016] as an ATH trichord subset, the five [016]+[xyz] partitions are listed as the top row of Example 2-8; not surprisingly, Carter repeatedly takes advantage of [016] as a means to connect various transpositions of the all-triad hexachord in his music. While I have not done enough research to support the following statement's applicability to Carter's works, it occurs to me that the [026]+[016] division of the ATH would be an efficient means to navigate between ATH and AIT harmonic spaces since [026] plus a singleton and [016] plus a singleton are the 3+1 scenarios in particular shared by the two all-interval tetrachords (refer back to Example 2-5).

Within the opening minute of Elliott Carter's short piano work 90+, the listener is treated to a crash course in the composer's all-triad hexachord combinatorial play. In mm. 6 and 7, a tetrachordal subset remains invariant while dyads gently patter in the middle of the piano's register and within the spatial boundary of the tetrachord. The sustained four-note set in this passage is a member of [0167], which must always be complemented by an [04] dyad to form an ATH according to Complement Union Property (CUP). In rapid succession, four transpositions of the all-triad hexachord are created via four dyadic pairs in addition to the [0167] (see Example 2-9).

Example 2-9 – Sustained [0167] + four [04]s = four ATH iterations (90+, mm. 6-7)

Reference Capuzzo's dissertation and Example 2-7 above.
Not content to simply explore possible ATH completions from a source tetrachord, the composer does so using all four ic4 intervallic possibilities within the span of an octave: an ascending minor sixth, a descending major third (spelled enharmonically), a descending minor sixth, and an ascending major third. Additionally, the eight tones (four dyads) forming the ATHs merge with the initial [0167] tetrachord to fulfill a chromatic aggregate without repeating a pitch class in the process.

A discussion of 3+3 all-triad hexachord partitioning in the same section of 90+ balances the preceding 4+2 illustration. Three measures after the previous example (mm. 10-11), the left hand intones a quiet augmented triad [048]. As mentioned above, any [048] joined with a complementary [016] generates an ATH. Through a dramatic right-hand gesture that grows and ebbs in intensity, Carter achieves just that threefold – three linear presentations of [016] (the last two of which share a common B3 and F5) sound with the augmented triad to establish three all-triad hexachord transpositions. Carter underscores the similarity between the [016] ATH-completing subsets by spacing each with the same pitch-space boundary of 18 semitones (an octave and a tritone separate G3/C♯5, B3/F5, and B3/F5). See Example 2-10.

![Example 2-10](image)

Perhaps most fundamental to the large-scale harmonic/formal organization of Elliott Carter's recent compositions is the all-interval twelve-note chord (or AITN). Simultaneities containing all twelve pitch classes have a notable history over the past hundred years in Western art music. There are examples in the repertoire from composers as diverse as Berg, Boulez, Lutosławski, Persichetti, and Salonen. However, beyond simply including the dozen pitch classes,
the aggregate chords found in Carter's compositions tend to possess characteristics that give them an immediately recognizable sonic profile; in particular, Carter favors twelve-pitch-class sonorities constructed so that each of the eleven unordered pitch intervals (from minor second to major seventh) is exhibited in a particular spatial configuration – hence the name: all-interval twelve-note chord. At least in the context of Carter's music, it is important to stress that "all-interval twelve-note chords" differ from "all-interval twelve note rows" since AITNs should principally be regarded as spatial referential structures rather than linear, sequential, cyclic, and/or serial presentations of the twelve pitch classes. Example 2-11 below is a sample all-interval twelve note chord (pitch classes from bottom to top: 5 1 7 0 4 2 3 A 9 6 8 B; intervals from bottom to top: 8 6 5 4 10 1 7 11 9 2 3).

Example 2-11 – A sample All-Interval Twelve-Note Chord

AITNs are so important to Carter's harmonic thinking after the 1970s that an entire chapter is devoted to them in his Harmony Book – the only such sonority to have its own section in the catalogue. Not even the all-triad hexachord or all-interval tetrachord receives such substantial treatment.

In fact, with the exceptions of certain portions within the longer theme from the Variations for Orchestra and later occasional works such as the Canon for 3 – In Memoriam Igor Stravinsky, Carter is not a composer who has used serial rows to any notable extent. See Mead (1995).

37
Although all-interval aggregate arrays are not new in practice or in the theoretical literature, Carter's interest in AITNs was first stimulated by Stefan Bauer-Mengelberg and Melvin Ferentz's 1965 Perspectives of New Music article on rows exhibiting eleven intervals. Carter contacted Bauer-Mengelberg, received a computerized print-out of the rows as a result, then began writing them out by hand as simultaneities (not as series). A few years later, Carter used all-interval twelve note chords as powerful generative structures and significant referential sonorities for the first time in his Third String Quartet (1971), perhaps as an effort to greater unify the incredibly dense contrapuntal texture of the composition. Since AITNs feature all eleven pitch class intervals in fixed pitch-space distribution, a composer can associate groups of intervals with specific registers and also with the instruments, tone colors, and tempi with which those intervals are presented; because of its unique nature, Carter can forge a typical all-interval twelve-note chord into a nexus of pitch space, long-range polyrhythms or other conflicting tempi, pitch class materials, dynamics, and orchestration. The very wide spatial configuration of all AITNs, 66 semitones, facilitates their perception and reinforces their usefulness as a referential simultaneity in a post-tonal harmonic landscape.

During the composition of Night Fantasies for piano (1978-80), Carter's work with AITNs reached a zenith and allowed him to explore a special subtype of those chords: symmetrical inverted AITNs. Symmetrical inverted AITNs (SI-AITNs) are so named because complementary intervals are distributed in opposite directions away from a central tritone within the chord – that is to say, the lowest interval in the bottom hexachord and the highest interval in the top hexachord will sum to twelve, as will the second highest and the second lowest, and so forth. Example 2-12 is a model SI-AITN from the introduction to Carter's Partita (the first movement of the 1990s orchestral


101 David Schiff likens the function of AITNs in Carter's mature music to that of a "tonic". Schiff (1998), 48-49.

102 John F. Link, "Long Range Polyrhythms in Elliott Carter's Recent Music" (PhD diss., City University of New York, 1994).
triptych, Symphonia). Complementary intervals fan out from the tritone (6) in the middle: 2+10=12, 7+5=12, 8+4=12, and so forth.

\[ \text{Example 2-12 – Symmetrical inverted AITN from the introduction to Partita} \]

In the few years following the completion of Night Fantasies, Carter turned his theoretical and compositional attention to a close relative of the symmetrical inverted AITN, the parallel inverted AITN (PI-AITN). Much like SI-AITNs, PI-AITNs possess a relationship between the intervals contained within their top and bottom hexachords, except in this instance complementary intervals are located in identical positions within the hexachords rather than reflecting around a middle tritone. Example 2-13 graphically illustrates a PI-AITN from the composer's 1986 orchestral miniature *A Celebration of Some 100 x 150 Notes*.

\[ \text{Example 2-13 – Parallel-inverted all-interval twelve-note chord from Celebration (1986)} \]
Working from the bottom of both hexachords surrounding the spatially central tritone, we may sum the intervals to twelve: 9+3, 5+7, 1+11, etc. PI-AITNs played a critical role in some of Carter's most notable works from the middle part of the 1980s including the Oboe Concerto and Penthode. Carter's technique of parsing complementary intervals into high and low registers in pitch space throughout the '70s and '80s is a sophisticated extension of the opposition of interval qualities found in his early 1960s Double Concerto for Piano and Harpsichord wherein the pianist plays "major" intervals throughout (major second, major third, etc.) and the harpsichord soloist performs "minor" versions of the same intervals.

The newest species of AITN that Carter has incorporated into his recent compositions is the group of "Link" chords. Around the time of Partita (1993) and the Trilogy for harp and oboe, Carter became interested in compiling a list of AITNs (PI-AITN, SI-AITN, or otherwise) that contained at least one contiguous subset of an all-triad hexachord (ATH). Coincidentally, fellow composer and theorist John Link was working on the same project but doing his work more quickly with the assistance of a computer. When Carter discovered that Link had already completed the task, he communicated his desire to see the results, which Link gladly shared. Since then, these special AITNs have borne the name of John Link in the literature on Carter's post-1990 music, including the second edition of Schiff's book and even more significantly Carter's own Harmony Book. Like Example 2-12, Example 2-14 is drawn from the opening of Partita and shows what might be the earliest use of a "Link" AITN in Carter's output. The AITN is not parallel inverted or symmetrical inverted (hence the lack of a central tritone between upper and lower hexachords) and that the two ATHs are the bottom six tones in the aggregate simultaneity (E, D♯, C, G♯, A, D = 012478) and the middle six pitches (G♯, A, D, F, G, C♯ = 012478). The Link chords allow the composer to utilize his favorite hexachord as a generator of more "foreground" harmonic and melodic events while managing those sonorities within the controlled context of larger-scale spatial sets and intervalllic distribution associations.
Although the musical applications of AITNs are limitless, the following excerpt from the conclusion of Elliott Carter's *Boston Concerto* (2002) will demonstrate an approach to AITN, ATH, and AIT interaction via simple embedding. Through the closing measures of the entire composition (shown in reduction as Example 2-15), the string family inhabits an AITN harmonic field by plunking rhythmically erratic pizzicato tones. As the piece winds to a close, six pitch classes disappear from the AITN leaving a residual ATH; mere moments after that, two more pitch classes are eliminated resulting in an \([0146]\) all-interval tetrachord. A brief silence interrupts before all string instruments, from contrabasses to first violins, converge on the ultimate tone of the concerto, B3. *Boston Concerto's* dwindling finale acts as a synopsis not only of that individual composition's featured sonorities, but as a collapsed "Russian doll" version of the harmonies championed by Elliott Carter over the past half century.

During a lecture at Brandeis University in the mid-1980s (after the Boston premiere of *Pentade*), Carter synopsized the essence of his latest compositional style as being a series of chorales whose chords were connected with "great attention to issues of common tones and voice leading."\(^{103}\)

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Carter was surely referring to the passages in his compositions that feature considerable overlap from one harmonic field to another. The all-interval tetrachords obviously provide ideal harmonic source materials since they each produce all six interval classes and, consequently, finding common dyads between sets is relatively unproblematic. In recent Elliott Carter compositions, AITs frequently form octatonic groupings which subsequently set up the completion of phenomenologically prominent, form-defining aggregates. Thus, examining chained successions of AITs and their assembly into aggregates becomes a useful tool for aurally navigating many passages in Carter’s music.

For a first illustration, we will examine the composer’s often-performed 1984 duo for flute and clarinet, *Esprit Rude/Esprit Doux*. Composed for Pierre Boulez’s sixtieth birthday, the piece begins with a musically enciphered version of the French composer’s last name: B♭ for B and O, C for U (or Ut), A for La, and E for E(z). This four-note collection becomes the material from which Carter fashions his duet; the four pitch-classes B♭, C, A, and E coincidentally form one of the AITs: \[0137\]. Although many passages from *Esprit Rude/Esprit Doux* are not related to either of the all-interval tetrachords, David Schiff notes that “the two [AITs] appear during the sustained parts of the piece as the harmonic link between the instruments.”

AITs, then, act like harmonic glue during moments when a listener might most easily perceive larger sets.

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104 Schiff (1998), 139-141.
Schiff moreover notices the overwhelming abundance of all-interval tetrachords in measures 43 through 47 of Esprit Rude. During this passage each wind instrument plays rapid dyadic tremolos that, when combined with the other player’s pitches, form all-interval tetrachords (a reduction is shown as Example 2-16). In addition to the saturation of [0146] and [0137] shown by Schiff, subsequent AITs form a chain in which each adjacent pair shares a common dyad and the AITs coalesce into multiple octatonic sets, notably at the onset and end of the section. As one can plainly see, most harmonies in this passage instantiate one of the two AITs (using the standard TaI equivalence model); even the odd-man-out [025] trichords are clearly subsets of [0146].

After the initial octatonic set is formed by chained AITs, the pitch classes needed to complete the aggregate are the diminished-seventh chord B, D, F, and A♭. These pitch classes eventually appear at the termination of the second AIT-forged octatonic group, whereupon this section of Esprit Rude/Esprit Doux ends (tremolos cease, new melodic gestures ensue, and the dynamic shifts from forte to pianissimo). In other words: dyads shape AITs, AITs shape octatonic sets, octatonic pairs complete the aggregate, and the attainment of the aggregate (signaled by a diminished-seventh chord that clearly contrasts with the previous AITs) helps signal the end of a formal unit. Furthermore, Carter often marks aggregate completions by placing the previously omitted pitch classes in salient registral extremes (for example, the ultimate pitch class, B, is the highest sounding tone in the passage and the “missing” D is located at the lowest end of the clarinet’s range).

Carter’s AIT gambit in Esprit Rude is remarkably similar to one employed ten years later in the fourth movement of String Quartet No. 5, a piece many believe ushered in the composer’s “late-late” style. J. Daniel Jenkins compellingly analyzed the majority of this movement in terms of [0124678a] octachord completion, based upon his careful research of Carter’s pre-compositional sketches held at the Paul Sacher Stiftung. He notes that an initial AIT gradually changes one pitch-class at a time, morphing into other tetrachords and rounding-out an eight-note set in the process (shown in Example 2-17). At the time, though, his insightful analysis stopped short of the movement’s ending – probably due to the absence of [0124678a] octachords in those concluding measures.

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105 J. Daniel Jenkins, "After the Harvest: Carter’s Fifth String Quartet and the Late Late Style" (paper presented at the Society for Music Theory National Conference, Nashville, Tennessee, November 2008).
Example 2.16 – Esprit Rude / Esprit Doux, mm. 43-47
Example 2-17 – String Quartet No. 5, mm. 86-91
Although the importance of that particular eight-note set to the structure of the movement is beyond question (Jenkins’s research is clearly convincing), observe that the octachord in discussion is a product of AIT combination: [0137] plus [0146]. The music, then, may be re-examined with a “bottom-up” approach through the lens of all-interval tetrachord fusion. Within this analytical framework, we resume where Jenkins concluded and explore a reduction of the final bars of the fourth movement (see Example 2-18). Instead of instances of set class [0124678a], all-interval tetrachords chain by shared dyads into an octatonic set within a quiet environment of long, sustained tones. Ten out of twelve available pitch classes have sounded when, by the final measure, only G♯ and D are needed to complete the aggregate. Suddenly, the cello unleashes a fortissimo quadruple-stop, sounding an AIT that includes the two remaining pitch-classes in a very low register; this dramatic gesture effectively ends the movement as the texture of the quartet changes and we begin the second interlude in the overall form. Interestingly, the cellist’s final AIT shares a common dyad with the first AIT in the phrase, completing a harmonic “loop” that could spiral forever like an Escher staircase. To summarize, the fourth movement of the Fifth Quartet exhibits a closure process remarkably like the tremolo passage from Esprit Rude. AITs form a chain which complete an octatonic set; the chain is broken seemingly for combinatoric reasons; and the aggregate is ultimately fulfilled by pitch classes emphasized through extreme registers, radically different dynamics, and a change in texture.106

One final example from a recent one-movement piano concerto, Dialogues (2003), will illuminate the importance of AIT successions in completing aggregates and, hence, articulating larger formal units in Elliott Carter’s compositions. In this case the phrase “AIT successions” was used instead of “AIT chains” since the all-interval tetrachords in this instance do not chain (i.e. share pitches) like the Esprit Rude and Fifth String Quartet excerpts. Example 2-19 is a reduction of measures 281-290 toward the end of Dialogues. After the music precipitously gains rhythmic momentum and surges forward with more impassioned gestures, the piano abruptly changes the course of the musical narrative by intoning a series of calm, protracted all-interval tetrachords after an initial fortissimo all-triad hexachord. These eight measures form a peaceful and timeless parenthesis in the midst of exuberant, coda-type activity.

106 Daniel Jenkins is currently working on an updated article version of his 2008 SMT paper wherein he analyzes the remainder of this portion of String Quartet No. 5, focusing on AIT combination but not aggregate completion.
Example 2-18 – String Quartet No. 5, mm. 105-110
Example 2.19 – Dialogues, mm. 287-290
Starting from the left of Example 2-19 and working forward in time, the listener initially hears six pitch classes. The first AIT in the piano is extracted from the initial ATH so no new pitch classes are introduced as the quiet interlude commences. Four tones answered by the orchestra do, however, include two new pitch classes, D and F♯, which are emphasized as the first and last tones in the motive. The piano’s next AIT incorporates yet another two pitch classes (B and F) which are orchestrationally emphasized as “outer voices.” The as-of-yet-unheard pitch class, G, is likewise positioned in an outer voice in the ensuing all-interval tetrachord. At this point in the passage, only C♯ remains to complete the aggregate. Instead of satisfying the collection immediately, the composer makes a listener wait through three more long chords before hearing the aggregate-defining pitch class, which sounds as the uppermost pitch in a retaliatory ATH played by the orchestra.107 Looking at the big picture, the aggregate is finally completed with the conclusion of the AIT- and ATH-rich passage, coinciding with a complete change in texture and rhythmic profile. This, in turn, ushers in the next section of the musical form – much like the aggregates from *Esprit Rude* and String Quartet No. 5 discussed earlier.

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107 Perhaps Carter delayed this critical moment to prolong the outside-of-time episode, almost doubling the length of the parenthetical interlude in discussion. I think this extra time makes the orchestral tutti *fortissimo* and the resumption of the energetic coda material even more shocking; I also appreciate that the final AIT is marked *pianissimo* instead of *piano* and that the melodic line leaps up a major seventh to E5 to heighten the contrast.
CHAPTER 3

BOSTON CONCERTO: FIRST ENCOUNTERS

3.1 Introduction to the Composition

The emergence of Elliott Carter's "late-late style" in the 1990s coincided with the composition of his magnum opus Symphonia: Sum Fluxae Pretiam Spei, a vast 45-minute orchestral work consisting of three movements playable either separately or as a unit. Partita (the first of the set) was completed in 1993, while Adagio Tenebrosa and Allegro Scorrevole were premiered in 1995 and 1997 respectively. The traditional "fast-slow-fast" general formal model of Symphonia, mirroring a similar conventional narrative structure found in Carter's 1990 Violin Concerto, may explain in part the popularity and critical acclaim afforded to the triptych. Apart from the classical nature of its long-range architecture, the almost-instantaneous status of Symphonia as the composer's autumnal orchestral masterpiece could also be attributed to Carter having eventually come to terms with the orchestra as a massive collective "instrument" rather than a magnified chamber group. As Schiff notes, "the orchestral writing [in Symphonia] is... more idiomatic in its demands than the earlier works... There are far fewer tempo and meter changes and less divisi writing in the strings."

Boston Concerto (2002), commissioned by the Boston Symphony Orchestra and dedicated to the composer's wife Helen, might be considered the follow-up or "sequel" to Symphonia since it was Carter's first composition for full orchestra (without an individual soloist) since the completion of the earlier piece in the late '90s. The post-millennial work stands as an example of Carter's latest style with its (ostensibly) straightforward formal design, thinner textures, and attractive lyricism. Though orchestrated for a standard-sized ensemble, the composition requires a typically Carterian large array of percussion instruments including log drums, maracas, guiro, wood chimes, and multiple snare drums. Boston Concerto's continuous seventeen minutes of music is divided into thirteen clearly delineated sections performed attacca and connected by the composer's signature

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108 Given its immense success (a rarity for contemporary modernist orchestral music), the controversy surrounding the New York Philharmonic's withdrawn commission for the effervescent Allegro Scorrevole seems especially embarrassing in retrospect. See Schiff (1998), 321.

metric modulations. It might come as a surprise to listeners familiar only with Carter's instrumental works from the 1960s and '70s, but the thirteen movements of the concerto coalesce into an easily-apprehensible ritornello form.

The world premiere performance, on April 3, 2003 with Ingo Metzmacher conducting the Boston Symphony Orchestra, was greeted with an overwhelmingly positive audience reaction as the crowd showered the featured composer with multiple ovations. The European premiere occurred later that summer on August 14, 2003 in London (with the BBC Symphony Orchestra, conducted by longtime Carter champion Oliver Knussen). On the latter concert, Boston Concerto was accompanied by first trans-Atlantic performances of John Adams's On the Transmigration of Souls and Chen Yi's Percussion Concerto. Sadly, the composition's dedicatee Helen Frost-Carter did not live to hear the European premiere as she passed away in May 2003 at the age of 95.

In the published score, the concerto begins with dedicatory lines excerpted from a poem by William Carlos Williams entitled "Rain": "As the rain falls/ so does...your love/ bathe every...open/ Object of the world –." Beyond serving as a touching gesture to his spouse, Carter's inscription gives the listener a significant advantage for perceiving the structure of the composition on a first hearing. The ritornello sections' musical material is differentiated by hard, plunking sounds of exotic percussion, xylophones, marimbas, and massive string pizzicati – fittingly evoking the reverberation of rain gently pattering on William Carlos Williams' urban rooftops. (As a sidenote, this might be the closest Carter has ever come to such an explicit musical onomatopoeia in his instrumental works.) Boston Concerto launches with a heavy fall of musical precipitation, eventually works its way to material featuring a specific portion of the ensemble, then repeats this pattern – alternating between the "rain" music and chamber music interludes. Paul Griffiths states that this "pattern is similar to that of the intervening ASKO Concerto: music of one kind, often using rather full resources,

110 Although not explicitly marked as movements, I will refer to the concerto's larger formal units as such for the sake of clarity.

111 In personal correspondence, composer Everette Minchew reported that the applause was nothing short of thunderous at the Boston premiere.

112 Tempo 57, no. 226 (October, 2003), 93.


114 David Schiff discussed the possibility of a connection to the raining scenes in Berg's Lulu in a personal conversation with the author.
is interleaved with episodes of different sorts for different ensembles.\textsuperscript{115} As an extension of Griffiths’s comment, the ASKO Concerto (1999-2000) could be regarded as the chamber ensemble trial-run for the Boston Concerto. The general formal outline of Boston Concerto is provided in Example 3-1.

<table>
<thead>
<tr>
<th>&quot;Movement&quot;</th>
<th>Character/Materials</th>
<th>Primary Orchestration</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>&quot;Rain&quot; - plunking sounds and filigree</td>
<td>Tutti</td>
</tr>
<tr>
<td>II</td>
<td>\textit{Lento}, lyrical, sustained tones</td>
<td>Flutes and clarinets</td>
</tr>
<tr>
<td>III</td>
<td>&quot;Rain&quot; - plunking sounds and filigree</td>
<td>Tutti (pizz. strings)</td>
</tr>
<tr>
<td>IV</td>
<td>\textit{Maestoso}, colliding blocks of sound</td>
<td>Piano, harp, and vibraphone</td>
</tr>
<tr>
<td>V</td>
<td>&quot;Rain&quot; - plunking sounds and filigree</td>
<td>Tutti (pizz. strings)</td>
</tr>
<tr>
<td>VI</td>
<td>Contrapuntal &quot;two-part invention&quot;</td>
<td>Violas and contrabasses</td>
</tr>
<tr>
<td>VII</td>
<td>&quot;Rain&quot; - plunking sounds and filigree</td>
<td>Tutti (no brass)</td>
</tr>
<tr>
<td>VIII</td>
<td>\textit{Lento, sostenuto} - chorale</td>
<td>Brass choir</td>
</tr>
<tr>
<td>IX</td>
<td>&quot;Rain&quot; - plunking sounds and filigree</td>
<td>Tutti (heavy on pizz. strings)</td>
</tr>
<tr>
<td>X</td>
<td>Opposing trios</td>
<td>Double reeds</td>
</tr>
<tr>
<td>XI</td>
<td>&quot;Rain&quot; - plunking sounds and filigree</td>
<td>Tutti</td>
</tr>
<tr>
<td>XII</td>
<td>Contrapuntal</td>
<td>Violins and cellos</td>
</tr>
<tr>
<td>XIII</td>
<td>&quot;Rain&quot; - plunking sounds</td>
<td>Massive tutti</td>
</tr>
</tbody>
</table>

\textit{Example 3-1 – Outline of Carter’s Boston Concerto (2002)}

Reviews of Boston Concerto by music critics were largely positive. Composer, pianist, and New England Conservatory professor Rodney Lister concluded his summary of the Boston premiere as follows:

Set in the progress of a transparent and shimmering \textit{ripieno} music, played primarily by pizzicato strings, occasionally joined by winds and percussion, suggesting the rain of the Williams poem, are six episodes of long-breathed lyrical music featuring different sections of the orchestra. On reflection, these different episodes seem to be an alternate continuous – albeit continuously evolving – strand of argument to that of the first music, both of them generated and connected by a twelve-note chord heard at the very beginning of the piece. Carefully placed, very slight occasional interjections, often only a single chord or sustained note, create the implication that each of these strands is going on all of the time, but not always in the hearing of the listener. The entire piece is concise and elegant in conception and realization, and seems to glow with an inner light. Boston Concerto is evidence of Carter’s abiding

\textsuperscript{115} From public-domain program notes to Boston Concerto written by Paul Griffiths and found on the composer’s Boosey and Hawkes webpage, accessed on December 29, 2009.

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extravagant generosity in allowing us to join him in the adventure of his musical life.\textsuperscript{116}

Questions raised by Lister’s observations that may be addressed during the following analytical investigation include how the introductory twelve-note chord generates material and how sonic interjections may be "carefully placed" within the temporal discourse of the composition.

3.2 Open Listenings to the Overall Form

Before writing the initial "open listenings" to the entirety of Carter's \textit{Boston Concerto}, I must for the sake of honesty address a potentially misleading assumption. These open listenings are not my "first encounters" as the title of this chapter might suggest. Obviously, I would not have selected this piece as the focus of my dissertation had I not heard the work before and come to love it. I have encountered \textit{Boston Concerto} several times in its entirety since I first purchased a recording in 2006 (Knussen with the BBC Symphony Orchestra released by Bridge Records), heard fragments of movements while driving in my car, and repeated tracks on my iPod.\textsuperscript{117} I have acquired biases, favorite harmonies, gestures, and melodic lines. I had already mined the work for music theory conference presentation examples and analyses for doctoral preliminary examinations. I already had a feel for the form of some movements and yet remained baffled by others.

Rather, the two Ferraraesque open listenings presented in this subchapter attempt to model the sound-in-time experiences a musically trained person might have while listening to the \textit{Boston Concerto} via the Knussen/BBC Symphony Orchestra recording for the first time. Following the example offered by Robert Snarrenberg in his article "Hearings of Webern's 'Bewegt'"\textsuperscript{118} and Carter's own views on musical analysis,\textsuperscript{119} the ensuing paragraphs transcribe and catalogue naive impressions


\textsuperscript{117} Elliott Carter, \textit{Boston Concerto}, BBC Symphony Orchestra conducted by Oliver Knussen (Bridge Records 9184), compact disc recording.

\textsuperscript{118} Snarrenberg (1986).

\textsuperscript{119} "[The relationship between chords] raises the whole question of musical analysis, especially that of contemporary music. It has long seemed to me that the only way to analyze a piece meaningfully is to begin \textit{not} with anything that exists on paper, but with the detailed impression that the piece makes on an intelligent listener after many hearings. Any analysis of music has to be the analysis of the means by which a piece makes its expressive point and produces the impression one has of it. Thus any analysis presupposes that the piece to be analyzed is worth analyzing, in that it does
formed in subsequent encounters with the 17-minute orchestral composition without the aid of a score. One could conceive of the listening journals found in this dissertation as a type of phenomenological "guided tour," with the author pedagogically offering ways to hear aspects of structure that are later described in more technical terms.

**FIRST EXPERIENCE**

A burst of sound and strumming similar to multiple guitars starts *Boston Concerto*. Flourishes with tiny white dots of trumpets. Plinking precedes an elegant trumpet melody arching high. Jagged piano edges. Seems like repeated staccato sonorities are important.

Finally a bit of respite, with flutes and clarinets engaging in a lyrical chorale. What once started high has now descended, ever changing like a slowly-turning crystal in afternoon sunlight. The woodwinds melt into a highly dissonant middle-register chord while the strings enter on high. A pause then entrances the listener.

Marimba kicks things off again and the rain starts pouring. Repeated loud ensemble chords lead to a bit of a climax, from which drops of single notes evaporate.

Suddenly, harsh piano and vibraphone sounds crush their way into the discourse. Harp as well. Piano concerto with friends. The harp and vibraphone sound like the innards of the piano who have stopped being ghosts and become all too real... much like Boulez's *Sur Incises*. Harp glissando that has staggered intervals.

Rain resumes. More rain. Temple blocks and clarinet jagged lines make this rain music even edgier.

Leads to a sudden cantilena of violas. Clearly an all-triad hexachord at the start in the primary melody... intervals are easy to hear. The concerto is now a two-part invention, if Mahler had slipped into a universe without the forward march of time.

Piccolo and xylophone rain music. Seems to fit a pattern of the rain becoming brighter and harder as the piece progresses. Wham! - a snare drum interjection seems especially harsh.

Chord in the low brass is like a cold shower. It stops the piece dead in its tracks and the goings-on have now become a horror flick. Climax on a towering sonority with a major triad on top.

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in fact communicate something esthetically before one studies the printed score." Elliott Carter, *Flawed Words and Stubborn Sounds*, 118.

120 This procedure will be repeated for each individual movement before the analyses in Chapter 4.
Piano stubbornly strums the same note over and over, obsessively. Snare drum returns with a bloody passion. Emerging, the strings become rhythmically regular as if to answer the rhythmicity of the snare. The rain tries to gain momentum and when it fails, it simply becomes angry.

The double reeds now have their Stravinskian day, brittle and aged. A single high string note reminds us this is a diversion. More string dyads give the impression of a lingering reality, ready to strike back at any moment.

And it does. The rain seems more active this time, ready to engage multiple instruments of the ensemble.

The violins now mirror the two-voice string counterpoint from earlier. The result sounds more like a romantic outpouring with the cellos. The waves move up and down with more rapidity and certain tones become stuck in our consciousness and the composer repeats them over and over, like the stubborn piano note at the end of the brass movement. They ascend higher and higher. Spatial play?

Ligeti's rain. Repeated twelve-note chords tick away like a hundred metronomes before a collapse down to a single point. One hard note. B.

SECOND EXPERIENCE

The guiro at the opening of the piece is noticeable, as is the major second dyad in the pizzicato violins. These become minor seconds in the same register shortly in the trumpet. Note that the "lyrical trumpet fanfare" is an ATH. Piano solo plunking may be in frozen registers.

Flute trio sounds a bit like Copland... open intervals? [014] in the staccato trumpets. Minor second in the French horn recalls the minor seconds heard earlier in trumpet, Movement I. Hard to tell how many pitches are in the sustained string sonority.

Oboe sounds surprising here after the previous movement. A kind of kinetic energy is released in the repeated chords and the ensuing particles sound like a hard rubber ball thrown in an echo chamber.

Introductory vibraphone chords are Carter's favored all-interval tetrachords. Piano seems to accelerate and decelerate quite a bit. Mysterious harp chord out of the glissando... sounds Impressionistic!

Repeated brass chords here remind the listener of the repeated brass chords in Movement III.

The opening viola melody is reminiscent of Bartók or Dutilleux. Possible tonal overtones here? Notice the suspension resolve!
This rain music is heavily dominated by the piccolo. What relationships exist between the piccolo motives? How does this line form a continuity?

The perfect fifth from the trumpets at the onset of the brass movement is stark, empty, lonely, in anguish, setting up the remainder of the movement psychologically. Getting the impression that this movement is not only the temporal center of the work, but the emotional core.

The piano is throbbing with the A-flat and the pizzicato violins soon react with a perfect fifth above. Perhaps a twelve-note chord as the tutti climax of this movement?

The piano and harp accompany the attacks of the string sonorities in the reeds movement, making them sound like ticking clocks or chimes (very slow bell tolls). What is the pulse of these slow drones? The piano rebels to move the concerto out of this section back to the rain music.

The chirping winds in the rain music seem to be rising higher and higher.

The violin and cello movement comes out of nowhere! What a dramatic and unexpected jump-cut (film montage metaphor perfect for this moment). Counterpoint here contains multiple voices. A repeated tone is A5, perhaps an "elevation" of "stuck" piano A-flat from earlier?

Something is sinister yet joking about the low contrabassoon honking away at the lowest note of the AITNs. String instruments are the last survivors of the piece. Fitting to end with a pizzicato sound since the piece began that way.

Open listenings to the overall form of Boston Concerto will be continued in Chapter 5, after an analysis of each individual movement's syntax and sound-in-time is detailed in Chapter 4.
CHAPTER 4

BOSTON CONCERTO: SYNTAX AND SOUND-IN-TIME

4.1 Movement I (Measures 1-28)

FIRST EXPERIENCE

After the initial aggregate salvo, focus on the repeated major second interval that emerges from the opening chord. The staccato brass simultaneities seem to want to coalesce into a pattern getting shorter and shorter but this is thwarted. Soon after, the towering string arco chord seems like a turning point in the movement (AITN). A trumpet lyrical line is almost heroic. Temple blocks accompany the introduction of short piano notes. Note the general crescendo to the end of the movement.

SECOND EXPERIENCE

Notice the rapid expansion of pitch space after the opening major seconds. The trumpets terminate the mysterious string chord. The reeds and horns provide a Stravinskian commentary after the lyrical trumpet line, countering the heroism with something a bit more reserved, cool, and classical. Choppy pointillist brass dots embellish the temple block/staccato piano figuration (might these form a larger harmonic field?). Horn chords frequently augment larger string sonorities.

THIRD EXPERIENCE

A harp makes the initial major second motive softer. The sustained string chord in the middle of the movement has the same bass note as the opening big pizzicato barrage chord. Generally ascending contour of trumpet lyrical line may make it heroic, as there is only one descending interval. Piano "plinking" tones in frozen registers. The xylophone and piano chord at the temple block swell is harsh and similarly leads into the climax point (termination of movement, onset of second).

Example 4-1 is a harmonic reduction and synopsis of the entire introductory movement of Carter's Boston Concerto, based upon many of the events described in the listening experiences detailed above: the major second interval emerging from the opening simultaneity (m. 1), the "towering string arco chord" at measure 11, a "heroic" and "lyrical" trumpet solo shortly thereafter in measure 14, and the dense chords crescendoing into the start of the second movement. Obviously, several passages have been left out of Example 4-1 including the protracted section of staccato
Example 4-1 – Analytical overview of Boston Concerto, Movement I (mm. 1-28)
interjections after the spatial "sweep" in measure 4 (to be discussed shortly). Generally, the narrative of the first movement begins with a rush of energy, gradually dwindles and settles into a mysterious parallel-inverted all-interval twelve-note chord followed by a distinctive trumpet solo, then accrues energy again to the thick simultaneities that segue into Movement Two. Collectively, the events shape an inverted arch form (or inverted bell curve) present in many Carter orchestral scores including those predating the "late-late style."

A magnified view of Movement One's initial measures (the extreme left of the diagram in Example 4-1) is shown in Example 4-2. The invigorating burst of musical rain that sets *Boston Concerto* in motion does in fact manifest an aggregate harmony, however not one of Carter's favored all-interval varieties. The intervallic makeup of the chord (pitch intervals from bottom to top: 8, 7, 4, 7, 4, 3, 1, 6, 1, 6, 2) is actually more akin to the aggregates employed by Lutosławski, especially with the prevalence of a few repeated intervals (7 and 4 in the lower hexachord, 1 and 6 in the top). Interestingly, the only major second in the chord (or any iteration of ic2) is placed at peak of the simultaneity, allowing the listener to easily apprehend the recurring major second E-F sharp motive in measures 1-2 as having emerged from the downbeat harmony. Carter couples this salient dyad, noted in the listening journal, with other intervallic seconds in the top hexachord to form an [0146] all-interval tetrachord then an all-triad hexachord. In doing so, he provides a succinct "top-down" dissection of the spatial intervallic makeup and important harmonic subsets of the presented aggregate. The resumption of the complete twelve-note chord in measure 3 contextualizes the smaller harmonic units recently drawn from the aggregate. (Even though the initial harmony of *Boston Concerto* contains all twelve pitch classes and encompasses a contiguous all-triad hexachord subset, it is not a "Link" chord because it does not exhibit all eleven intervals.)

The next major sonic event in the movement ensues immediately after the progression detailed in Example 4-2, when the strings switch from pizzicato to arco playing as they impulsively (and greatly) expand the heretofore demarcated spatial boundary of the composition. The spatial territory explored so far via the primary aggregate chord was 49 semitones (F1 to F sharp 5). Following a short rest, the string family expands a collapsed 22-semitone range (C3 to A flat 4) to a massive 65-semitone boundary (F flat 1 to B6) in the matter of one beat. The arco string "sweep" soon rebounds from the sudden distention, but the 65-semitone boundary is a noteworthy experience for the

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121 See Schiff (1983).

122 For a summary on embedding techniques, see the section on AITNs in Chapter 2.2.
A series of interjections in measures 5-8 slowly wind the music harmonically to an all-interval twelve-note field in measure 9. Just as this harmonic region begins to increase in volume, the listener may wonder whether Carter has chosen this particular AITN as the simultaneity locus of Boston Concerto’s introductory movement. However, the chord, growing in intensity and flavored with angular woodwind and xylophone motives, abruptly ceases and is supplanted by a hushed tremolo string parallel-inverted AITN (marked as the "mysterious string chord" near measure 11 of Example 4-1). With its pianissimo volume and noticeably wide registral boundary, the arrival of the newer (for Carter more often preferred) harmony augurs a slight change in musical rhetoric as the wave of sonic energy initiating the concerto seems to be subsiding. To comment on the string family’s revelatory PI-AITN, the brasses respond with a non-contiguous ATH subset extracted from the aggregate (see Example 4-3 for detail).
Opening an orchestral composition with non-all-interval aggregates, expanding the registral space of the piece rapidly, then working toward an aurally salient highly-characteristic AITN (as occurs in Boston Concerto) is a typical compositional strategy for Elliott Carter. In an unpublished paper, Sarah Zipperer Gaskins and I explored precisely this formal gesture in a cross-section of Carter's later-period symphonic works, following up on a thesis initially presented by Ronald Caltabiano regarding the formal importance of spatial contractions in Carter's Partita (1993). Our joint research sought to represent graphically the orchestral “waves” created in registral space during longer spans of Carter's orchestral music and map that illustration onto other determinants of form (e.g. structural harmonies, orchestration, texture, etc.). Example 4-4 is a diagram taken from our

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123 Alan Theisen and Sarah Zipperer Gaskins, "Spatial Boundaries and Formal Partitioning in Elliott Carter’s Late Orchestral Compositions" (paper presented at the New Orleans Musicology/Theory Colloquium in May 2008).


125 The choices of metaphor here strongly evoke the language of Energeticist thinkers like Ernst Kurth, Hans Mersmann, Kurt Westphal, and Victor Zuckerkandl. This is in line with Carter's own views as he has referred to
co-authored essay; it demonstrates the spatial boundaries found at the onset of Carter's *A Celebration of Some 100 x 150 Notes* (1986). The upper and lower spatial boundaries show continuous lines of data representing the highest and lowest pitches within eighth-note divisions of the beat, while shaded areas indicate the presence of all-interval twelve note chords. The Y-axis is measured in semitones, with 0 being C1, 12 being C2, and so forth. The X-axis measures time with abbreviations for measure, beat, and eighth note subdivision (i.e. 9.1.1 is measure 9, beat 1, eighth note 1).

Example 4-4 is representative of a trend frequently found in the introductions of Elliott Carter's later orchestral music – a smaller spatial boundary expands rapidly, shrinks back briefly, then ultimately rests on an even-wider referential AITN before transitioning to the remainder of the composition. *Boston Concerto* (like *A Celebration*, *Partita*, and *Allegro Scorrevole* discussed in the paper) is no exception to this compositional inclination.

![Spatial boundary graph of A Celebration of Some 100 x 150 Notes, introduction](image)

*Example 4-4 – Spatial boundary graph of A Celebration of Some 100 x 150 Notes, introduction*

After the pivotal string PI-AITN, the movement does indeed lose some of its forward drive, exhausting much of its musical energy by the notable trumpet solo exactly halfway through the movement (m. 14). A tremolo string hexachord, recalling the sonority of the PI-AITN and capped architectonic perception in terms of waves of sound, of a "rhythm [containing] large-scale tension-building crescendi with periods of relaxation between." See Carter (1971), 90.
with a doleful G♯-minor triad, sets the stage for an arching six-note trumpet melody (see Example 4-5). The pitch classes played by the soloist constitute an all-triad hexachord but the particular partitioning and distribution of the ATH explains why I initially heard the tune to be "heroic" and "lyrical." The trumpet's ATH is divided into two trichords, [027] and [037], based upon the motive's contour (three notes ascending, a single descending minor third, and then the last three notes ascending again). The opening rising minor seventh and perfect fifth (B♭3, A♭4, E♭5) evoke a Coplandesque open-fourth/fifth spaciousness, while tones #2 though #4 outline a conventional root-position A♯ major triad (conflicting polymodally with the enharmonic A♭ minor accompaniment in the same register). As the solo melody concludes, though, a tonal shift transpires from A♯ major to first-inversion A minor in tones #4-#6; the pivot major and minor triads sharing the identical third could be modeled as a SLIDE transformation of the sort that are ubiquitous in much neo-tonal twentieth-century music. In due course, the motive escalates to a high A5 that functions much like an unresolved leading tone of the tune's opening B♭. The implied tonal side-slipping (A♭ major refuses to yield to G♯ minor, only to become A minor anyway), abandoned "leading tone," the trumpet's martial yet solitary timbre, the rugged upward climb of the melody, and the temporary disappearance of any orchestral support upon reaching the A5 all lend a poignant heroism to this central moment of the movement.

Example 4-5 – Trumpet solo and surrounding music, measures 14-16

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126 See David Lewin, *Generalized Musical Intervals and Transformations* (Oxford: Oxford University Press, 2007), 178 and 227. "We can also define more exotic operations on Klangs. For instance we can define an operation SLIDE that preserves the third of a triad while changing its mode: (F, +)SLIDE = (F♯, -); (F♯, -)SLIDE = (F, +)."
A5 is transferred from the soloist to the first oboe, as double reeds and horns intone a creaky three-chord chorale in response to the heroic gesture. From this point on, the movement will begin to accrue energy once more and the rhetorical upswing to the conclusion will be quite perceptible. The six pitch classes of the trumpet solo are identical to those of the brass ATH emerging from the critical PI-AITN; four out of those six are matching pitches (compare to Example 4-3). The melody in measure 14, then, is a linear composing-out of the all-triad hexachord harmony buried within the PI-AITN. Heroism, it seems, was a hidden characteristic of the pivotal aggregate simultaneity.

The pointillist piano droplets paired with the rolled temple block noted in the listening journal do indeed belong to an all-interval twelve-note chord – the first of several successive aggregates from this moment to the start of Movement Two (refer back to Example 4-1, measure 22). As the music's momentum intensifies, the strings wildly strum pizzicato triple- and quadruple-stops, filling out an eleven-note chord in measure 26 (again, see Example 4-1). Missing pitch class 1 (C#/D♭) is heard as the accented top note of a new aggregate chord when the harmony subtly changes after a crescendo; a brittle staccato jab from the piano and xylophone underscore this minor culmination. Through measure 28, twelve-note harmonic fields are omnipresent but they increasingly occupy more and more registral space as the movement rises to a forte dynamic.

The final and climactic aggregate of Movement One is distinguished by polychordal devices similar to those heard earlier in the trumpet solo (see Example 4-6). From the bottom of the twelve-note chord up, the listener could partition the simultaneity into a C-minor triad, a B♭-minor seventh chord, D-major triad, and a more ambiguous quartal configuration (perhaps conjuring E major). Superimposing or intertwining triads to assemble twelve-note structures is a common device in music by composers as varied as Vincent Persichetti, William Schuman, and Lutoslawski (for example, see the opening harmonic field of his Third Symphony). The resonance of such a stacked triadic configuration makes for a surprising yet aurally satisfying conclusion to Boston Concerto's opening ritornello section. In a broader context, these forte triad stacks constitute the final part of a movement-long inverted-sine-wave formal shape starting with an energetic Carterian harmonic synopsis and an aggressive spatial-expansion gesture (Examples 4-2 through 4-4), slowing to a standstill with the trumpet solo (Example 4-5), then gaining momentum to the final loud chords. Revisiting Example 4-1 will help summarize the preceding comments.
4.2 Movement II (Measures 29-73)

FIRST EXPERIENCE

A dyad high in registral space initiates a cross-cut from the previous rain music. Woodwind chorales in the clarinets and flutes slowly dissolve from blocks of sound to rarified lines, with individual instruments emerging and subsiding. As the winds form a tight/narrow spatial boundary, the strings comment with one widely-spaced sonority; the string chord is resonant and free in a way the tightly-packed wind chord is not – it is a romantic antidote to the coldness of the winds.

SECOND EXPERIENCE

As individual flutes and clarinets emerge, becomes evident that one larger line/melody is being formed in the exchange. The brass, pizzicato, and marimba interjections are acerbic and dry, made even more so by their intervalllic and spatial sparseness.

THIRD EXPERIENCE

The "larger line" being formed by the wind entrances has a beautiful long-range contour that meanders but has definite narrative highs and lows. After the string chord, the winds have a climactic outburst reminiscent of Ives's "Unanswered Question." The staggered re-entrances after this teleological goal slowly coalesce into block chords, echoing the opening sonorities of the movement.

Movement II is the first of Boston Concerto's "interludes" that features a limited section of the orchestral ensemble. In this case, the flute and clarinet trios intrude upon the previous rain ritornello without much of a transition, resulting in a theatrical shift in tone about a minute and a half into the overall composition. Two, then three flutes complete an all-triad hexachord harmonic
field before the clarinet family makes an appearance; meanwhile, a mumbling temple block provides a delayed aural continuity to the rain music that recently came to an abrupt end. Example 4-7 shows a harmonic synopsis of the first six measures of Movement II, wherein the two wind trios exchange a dialogue of trichords resulting in various hexachord simultaneities. The opposition is particularly evident since the trichords within an instrumental group change simultaneously but never coincide temporally with the rival trio.

Example 4-7

Trichords presented with open noteheads in Example 4-7 are performed by the flute group while filled noteheads are tones played by the three B♭ clarinets (the example is at concert pitch). The linkage technique present is similar to that frequently employed by Carter when connecting all-interval tetrachords with shared dyads (see Chapter 2.2), except in this instance three-note chords join to recurrently produce all-triad hexachords. Although not all six-note chords in measures 31-34 instantiate an ATH, all-triad hexachords become the dominant harmonic currency as the passage progresses. As the last five trichords trade hexachordal subset partners, they do so at increasingly shorter temporal durations – imbuing the ATH-chain a sense of forward propulsion ([036]+[026] = ATH, [026]+[016] = ATH, [016]+[048] = ATH, [048]+[016] = ATH). The conclusion of the formal subunit (mm. 31-34) capitalizes upon the [048]+[016] complement-union property of ATHs mentioned in connection with Example 2-8. The clear-cut trichords soon dissolve after measure 34 and the texture becomes a disjunct, Ivesian six-part contrapuntal fabric.

The climactic measures (mm. 69-73) at the end of the movement establish a larger formal framework when paired with the opening, as both units share unmistakable three-note block-chord
juxtaposition between the wind trios as well as ATH harmonic prominence/coupling (see Example 4-8 for a harmonic/spatial synopsis). Here, though, the formal process is the reverse of the introduction: rather than trichords fusing at exponentially faster rates and then disintegrating into a six-way conversation, pointillistic tones from an AIT field (mm. 66-69) congeal into three-note harmonies, ATH groups, and at last (after a whole movement) a temporally synchronized six-note woodwind chord in the final measure.

![Example 4-8 – Harmonic and spatial diagram of Movement II conclusion (mm. 66-73)](image)

Although the introductory measures of Movement II are harmonically consistent, the spatial shape of the segment is fairly nondescript; the conclusion, by contrast, has a readily discernible upsurge of spatial boundary from narrow to wide, illustrated in Example 4-8 with dotted lines. Starting in measure 69, the twin trios generally present trichords familiar to each instrumental family from earlier: flutes with [026]s and [048] and clarinets with numerous [016]s. As the ATH linkage tactic progresses and the dynamic intensifies the occupied pitch space also expands considerably, culminating with the climactic fortissimo C7 summit – both the highest tone and the loudest volume of the movement. Within a few measures, the spatial boundary of the featured woodwind family has rocketed from 14 to 46 semitones. Following a dotted-eighth note rest (shown in Example 4-8 as a caesura marking), the six soloists finally agree upon a rhythmically-synchronized ATH. This joyful, however transitory, display of unity functions dually as both an important formal and harmonic

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127 As in Example 4-7, filled trichords are played by the clarinet trio and open noteheads represent pitches intoned by the flutes.
experience: (1) the hexachord is spaced such that it collapses the extreme spatial boundary to just eight semitones, cueing the listener that a larger unit of the form has been summarized, consummated in both time and space and (2) the decisive chord features a timbre-sensitive ATH partitioning heretofore not encountered. Expressly, the flutes offer a quartal \([027]\) configuration suggesting a suspended G tonality (G4, A4, D5) while the clarinets respond with an \([037]\) A♭ minor triad (this particular \([027]+[037]\) instantiates an ATH).

Between the ATH "chorale" bookends, the majority of Movement II's two-minute span consists of a dense polyphonic web with sinewy tunes intertwining and overlapping. Throughout these thirty measures (mm. 35-65), Carter carefully places dynamic and Hauptstimme markings in the score to illuminate a distinct, prevailing melodic line that is passed rapidly from instrument to instrument in quasi-Klangfarbenmelodie fashion. Example 4-9 reconstructs the movement's fundamental contrapuntal line by compressing the salient fragments from each instrument into a single succession of pitches. By doing so, larger formal shapes begin to emerge from the longer central core of Movement II: an opening "wave of sound" ending with a steep, forte ascending gesture; a meandering section that plateaus before gradually cresting on a very high pitch; the ensuing spatial collapse in the wind concertino; and a short, busy outburst that is interrupted before attaining closure.

The initial portion of the Klangfarbenmelodie line is a miniature wave in pitch space from A♮4 up to B♭5 then back to G♯4 (enharmonically, the point of origin). Due to a spacious leap in the first flute, the primary contrapuntal line extends its range to G6 before plummeting to D3. From this freefall, the line initializes its first bid for a climax. As the melody begins to climb upward, the intervals increase in size, constructing an inverted pyramid: first a tritone (six semitones), then bounds of eight, ten, and fifteen semitones. In time, the momentum of the line dwindles and it can only manage one last push upward of a perfect fourth to alight on an impressive forte B6. To subtly underscore B as the apex pitch class, the composer outlines an enharmonically-spelled salient B-major triad in the melodic tones preceding the minor climax point (E♭5, G♭6, B6; see mm. 40-42 in Example 4-9).
Example 4.9 – Reconstructed single-line melody shared in mm. 35-65
In the aftermath of the valiant early push toward climax, the composite melody seems unsure of where to go next in the ensuing measures. Steadily, certainly more cautiously than before, the first and second flutes return the tune to the stratosphere around measure 51. To counterbalance the perpetual expansion of the upper spatial boundary, the lowest clarinet sets in motion a descent to the depths of its available tessitura (see m. 53). Although this second attempt at a rhetorical climax seems much more deliberate and planned than the first, the French horn interjects a minor second motive much lower in space than the winds during the outward push, forewarning an imminent registral collapse.

A spatial breakdown does indeed start in measure 58, but not until the flutes manage to peak a semitone higher than before (C7 – the previous record highpoint had been B6). The deflation in the wake of climax attempt #2 returns all six wind soloists to the center of the orchestral gamut. Accompanying the second failure and return to spatial "square one," the strings drone a single widely-spaced and sustained all-interval tetrachord (\{E, D, B, A\#\}, a member of [0146]) mentioned in the First and Second Experiences of my listening journal. Challenged by the facility with which the string family could inhabit a wide spatial boundary, the concertino of winds mounts its final effort to attain climax in the contrapuntal section of Movement II. The tones of the primary melody sound in succession much more rapidly in measures 63-64, delineating conventional diminished-seventh chords (3-cycles) a half step apart.\(^1\) Example 4-9 demonstrates these sonorities and their connections as unbroken and broken slurs. The rhythmic acceleration and diminished-seventh flurry appears set to attain the long-desired climactic contrapuntal moment, even reaching an A\#6, before being muted by an orchestra-wide silence. Now the individual tones at the onset of Example 4-8 begin to toll as the concertino coalesces into its temporal and registral communion to close the movement.

Returning to an earlier analytical thread, the climactic C7 and critical final ATH of the movement in measures 72-73 actually dovetail with a rhythmically brisk marimba figure playing pitch classes complementary to the last woodwind chord (woodwind pcs: G, A\#, A, B, D, E\#; marimba pcs: C, D\#, E, F, G\#, B\#). The solitary emergence of a highlighted percussion solo acts a seamless transition as the marimba commences the rain-music once again.

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\(^1\) Two complete non-overlapping 3-cycles creates an octatonic set which, as has been demonstrated in Chapter 2.2, has a familiar relationship with the all-interval tetrachords.
4.3 Movement III (Measures 74-90)

The first recurrence of Boston Concerto's ritornello music, found in movement III, is representative of Carter's later-period scorrevole passages – the music moves at a blisteringly quick pace with gestures and single tones flying by, like a twenty-first-century rendering of Berlioz's Queen Mab Scherzo with a finger on the "fast-forward" and "play" buttons simultaneously.

FIRST EXPERIENCE

A sequence of exchanges between strings, marimba, and winds starts the movement. A long marimba solo in the middle register features a single repeated pitch that connects to the brass. As part of an overall crescendo, a larger chord (perhaps an AITN) repeats. A sense of time is suspended as individual pointillistic tones eminate from the chord. The general form of the movement is summarized: surge, apex, release.

SECOND EXPERIENCE

Even on a repeated hearing, one does not necessarily expect the timbre of the oboe solo. The single pitch in marimba connects to stopped horns, before a flurry of winds descend. Strings use pizzicato again and swell to wide climax chord. The disconnected tones after the climax sound like hocket. Woodwinds ascend this time as movement ends, to a very high registral space (like end of Allegro Scorrevole by Carter).

THIRD EXPERIENCE

In the opening measures, effortless transitions between strings, winds, horns, and marimba materials. The marimba solo is dense and focuses on a few pitches, chromatically packed together. The rhythm of climactic AITN sounds like it could almost be at home in a typical meter, which may reinforce its salience. A loud brass perfect fourth after the climax is curiously reminiscent of sol-do.

Example 4-10 is an exploratory map that graphically recreates elements from the three sound-in-time experiences with Movement III detailed above. For the sake of clarity, I have also included on this diagram analytical notes to be discussed throughout this subchapter. The form of measures 74 through 90 is an episodic series of exchanged gestures (featuring a long marimba solo) leading to a climax (differentiated by dynamics/pitch space) and terminating with fragmentation of

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129 Example 4-10 is modeled after graphic analysis concepts presented by Judy Lochhead in her previously-cited article "'How Does it Work?': Challenges to Analytic Explanation" (2006).
Example 4-10 – Sound-in-time experience of Movement III
the musical fabric. In this sense, the movement's architecture conforms to a paradigm fundamental to most Western music: an anacrusis leading to an epicrusic point, the epicrusis (or ictic) moment, and the apocrusic dissipation.\(^\text{130}\) As listeners, our mental organization of musical successions into an anacrusic/ictic/apocrusic model roughly mirrors the principles of a well-crafted Aristotelian tragedy: i.e., that a formal unit should have a beginning, middle, and end.\(^\text{131}\) Although atypical temporal schemata may be in action at short-range levels during this ritornello, the overarching integration of Aristotelian formal principles in my hearing connects the movement to the formal procedure of other movements in the *Boston Concerto* (especially Movement VIII discussed later).

Systems 1 and 2 of Example 4-10 illustrate episodic passages that transpire before the culmination. The string pizzicati introducing the movement consist of quadruple-stop [0137] all-interval tetrachords, morphing into the inverted [0146] AIT by means of [026] invariance. In this case, (A\#3, F\#4, E5) remain constant while D\#5 moves down a tritone to A4. The two pizzicato AITs combine, delineating an all-triad hexachord field explored by the marimba, in turn touching upon an [0137] AIT in the trumpets and trombone, and proceeding to the oboe solo's ATHs in measure 77. The ostensible surprise at encountering a double-reed instrument as an extension of Carter's game of harmonic "tag" might be informed by a listener's familiarity with the prior movement (II), wherein the flutes and clarinets led the musical discourse for a full two minutes while the oboe remained completely reticent (the oboe also sounds incredibly anemic in its upper register, particularly following a crescendo by seven brass instruments). My experience during the previously described moment echoes the quality of protention expressed by Thomas Clifton in his book *Music as Heard*;\(^\text{132}\) I consciously anticipated an immediate future while living through a phenomenon (and simultaneously recalling the recently-departed past).

A sporadic exchange between double-reeds and strings introduces the lengthy marimba feature dominating the first half of the movement. The "few pitches, chromatically packed together" perceived in the listening journal are chained all-triad hexachords sharing an E4/B4 dyad, each successively shrinking the amount of registral space occupied by the mallet percussion instrument. A repeated C\#5, emphasized by being the terminal pitch of the marimba's solo and the

\(^{130}\) Snarrenberg (1986), 391.

\(^{131}\) Lochhead (1992), 133.

\(^{132}\) Clifton (1983).
goal of a measure-long crescendo, becomes the crowning tone in a marcato AIT offered by four horns. C♯5 (notated as G♯5) falls within the higher range of the brass instrument and its sound carries a significant stinging quality, allowing this tone to remain prominent in the listener's memory. A tumbling cascade of woodwinds, this time including the flute and clarinet, issues yet another assortment of all-interval tetrachords before the movement climaxes. The sequence of [marimba → brass → woodwind] in measures 79-83 expands the abridged relay of the same instrumental alternations heard earlier in measures 76-77; therefore the first half of the movement can be further subdivided into two units as shown in Example 4-10 (systems 1 and 2).

The remainder of Movement III contains the "epicrusis and apocrusic" portions as posited above, respectively mapped in the third and fourth systems of the diagram. Violent string triple-stops resume where the "wind cascade" left off, hurriedly expanding registral space from 15 semitones in the middle of the orchestra's available range (m. 84.1) to a space of 20, 31, 39, and 45 semitones (in mm. 84.2, 84.3, 84.3, and 84.4 respectively). The entire orchestra engages in the mêlée, reiterating a 66-semitone-wide AITN via a triplicate burst of a three-note rhythmic motive. In tandem with increased dynamics, wider spatial boundary, and tutti texture, approximate rhythmic periodicity stresses the ictic nature of measure 85 in relation to the movement as a whole. The two-note fortissimo motive on the last beat of the epicrusis culminates in the climactic gesture in addition to forging a pitch association from earlier. Approached by perfect fourth leap in the horns, the high C♯5 in the motive connects in our memory to the same tone emphasized so prominently in measures 82 and 83. C♯5 after the AITN is a resounding affirmation of the identical pitch submitted for approval by the marimba and horns in the music leading up to the climax. By passing C♯5 in the marimba (m. 82) to the characteristically piercing upper range of the horn, the composer assists the listener in creating the correlation later in the same movement by imbuing that pitch with a distinctive tonal color.

The five apocrustic bars (mm. 86-90) instantaneously dispel the attained climax with a drastic drop in volume and a texture consisting of an ATH-rich single melodic line distributed in many instruments across several octaves. Our perception of the rhythmic vitality and weight of the ictus is retroactively shaped by a complete contrast in musical character that emerges between measures 85 and 86. Since the hocket figuration consists mostly of the climactic three-note motive at the same speed (sextuplets at tempo marking 90 = M.M. 540), the impression achieved is that of the massive AITN reverberating across time long after it has passed. A 540 beat-per-minute pulse, established
at the outset and carried through most of the movement, loses steam when the woodwinds and horns perform sixteenth notes (M.M. = 360) and eighth-note triplets (M.M. = 270). The clarinets make one last attempt to muster musical energy and keep the movement going at its prior pace, but they instead join part of a larger ascending gesture enacting a metric modulation. Moreover, the rising motion scored for clarinets and flutes is an inverted analogue to the "wind cascade" at the end of the movement's first half (see system 2 of Example 4-10).

4.4 Movement IV (Measures 91-119)

FIRST EXPERIENCE

The vibraphone's registral expansion and ensuing collapse leads to a brief piano outburst. The texture is unusually brittle and dry. A violent harp sonority is followed by pointillistic musings by the piano and vibraphone, leading to the climax.

SECOND EXPERIENCE

The vibraphone introduction seems like a bell ringing, expanding in registral space. After the pizzicato string gestures, the individual concertino chords seem to rapidly coalesce into larger-scale sonorities (perhaps aggregates). The downward-spiraling harp figure clearly initiates the coda with a densely packed harmony.

THIRD EXPERIENCE

The vibraphone and piano interact in the movement's opening, spatially working in tandem to introduce the movement. The piano often plays very widely spaced harmonic dyads and often emphasizes extreme spatial territories throughout.

Of the "concertino" movements in Carter's *Boston Concerto*, Movement IV is decidedly the most pointillistic in texture and features a long middle section whose overall narrative shape is difficult to discern even after multiple listenings. Gone are the long-breathed woodwind *Klangfarben* arches of Movement II, replaced with tinnitusnabular outbursts and isolated three- and four-note gestures chimed by the vibraphone, piano, and harp soloists. Nonetheless, the introductory and terminative sections of Movement IV (mm. 91-95 and 112-119 respectively) exhibit typically Carterian formal strategies of initiation and closure.

133 The concertino group of Movement IV is highly reminiscent of the ensemble featured in Pierre Boulez's contemporaneous masterpiece *Sur Incises* (1996/98). Boulez's Grawemeyer-Award-winning work features three pianos, three harps, and three mallet percussionists; the timbral conceit is to proliferate the sonic resources of the piano.
Example 4-11 is a reduction of the introductory five measures of Movement IV, with the omission of some slight residual flute and violin gestures that spill over a few beats from the previous ritornello movement. Starting from a simple minor third D\textsubscript{4}/F\textsubscript{4} in the middle of the orchestral range, the vibraphone soloist peals a set of accented all-interval tetrachord simultaneities, each of which occupies an increasingly larger swath of registral space: 3 semitones (with the initial [03]) 6, 11, 14, then 23 semitones. The pianist rhythmically counters in call-and-response fashion with its own succession of spatially-expanding tetrachords: an [0236] spread over 15 semitones, then two [0137] AITs of 17 and 19 semitones in order. As a result, a registral multiple-wedge process transpires. The ever-increasing vibraphone space with its gradual ascent, coupled with the general expanse of space inhabited by the piano while moving the total registral space downward, creates an massive overall "crescendo" shape outward from the center of the gamut (shown at the top of Example 4-11 – the spaces occupied are 19, 28, 34, 37, 45, 52, and 61 semitones).

As has been discussed previously, the technique of opening a composition/movement with the systematic development from a very narrow spatial boundary to a very wide one is common in Carter's music. With the culmination of the extension procedure, the pianist shifts harmonic materials from AITs to an ATH, allowing Carter two more pitches to create an even denser
simultaneity to signal the achievement of the wedge. Not shown in Example 4-11 but nonetheless
important is the harp’s incessant D#4/E4 \textit{bisbigliando} pedal point that is present when the
vibratone and piano are carving the large wedge in registral space; this persistent harp tone acts as
a spatial anchor, allowing the listener to more readily perceive and contextualize the push in opposite
directions from the other two solo instruments. After the registral space has been extended, first the
vibratone then the piano intone angular melodic figurations in measure 94. The pianist’s flashy
eruption reaches its apex with a repeated G4/D6 dyad. To accompany this perfect-twelfth interval,
the vibratone returns to block tetrachords (specifically, two different realizations of [0137] AITs).
When combined, the vibratone tetrachords and the piano’s continual dyad generate two ATH
completions, forging a suitable harmonic communion/conclusion to the fourth movement’s
introductory episode (again see mm. 94-95 of Example 4-11).

Having explored how the opening of Movement IV, I now turn my analytical attention to its
conclusion. The final passage may be subdivided into two units of roughly equal length: the
movement’s climax (mm. 112-115) and a coda/transition (mm. 116-119). Example 4-12 synopsizes
harmonic events in the climactic measures ("str." and "P/V/H" notate music played by strings and
piano/vibratone/harp, filled noteheads indicate chords actually sounded as simultaneities while
open noteheads symbolize general harmonic fields made manifest through time, and the arrows
point to a phenomenon concerning pitch class C#/D that will be discussed shortly).

\textit{Example 4-12 – Movement IV, mm. 112-115}
With the interjection of a *mezzo-forte* pizzicato string simultaneity in measure 112 (topped with a C♯ in all of the first violins), the concertino clangorously outlines two distinct non-all-interval twelve-note chords. I hear the second (m. 113) as more resonant than the first, since the initial one contains dense spacings in both the bottom and top hexachords. While steadily increasing in volume, the three soloists delineate one more large harmonic area in measure 114; this effort comes close to being an aggregate field but it lacks pitch classes F♯ and G. The concertino’s highest pitch is a stratospheric C♯7, which we may hear as an octave transference from the pizzicato C♯6 that initiated this passage. Before the soloists can round out a twelve-pc unit, the orchestral strings hastily submit their closely related simultaneous version of the harmonic field just offered. This chord (downbeat of m. 115) has nine pitch classes, seven of which are identical pitches to the previous field, but with two critical differences: (1) the G needed to complete the concertino aggregate field is saliently located at the very top of the simultaneity and (2), as a result, C♯ is forced from its spatial high tower and has plummeted from the ultimate tone to a registral nadir (demonstrated with an arrow in Example 4-12). From this nine-note harmonic adaptation, three pitch classes are now required to complete an aggregate: D, F♯, and G♯. When the concertino resumes its discourse at a climactic fortissimo volume, the piano and harp present three dyads, each of which contain one of the missing pitch-classes: first a low G♯1, then F♯5 (accompanied with a C♯7 that corrects the spatial "error" of the string orchestra version), and finally D4.

Having secured the climax of the movement, the harp plays a leisurely two-octave downward glissando in measure 116 that relaxes the volume of the music, relieves some of the accrued tension, and inaugurates a brief coda. In the listening journals at the beginning of this subchapter, I noted that the glissando had a "spiraling" quality. Throughout the course of the movement, the harpist is called upon to gradually tune the strings of the instrument in a very peculiar manner, resulting in some strings actually sounding higher than those positioned contiguously above them. Consequentially, a glissando played on the instrument will not forge a "straight" line through registral space, but will have a zig-zagging ("spiraling") contour. Example 4-13 demonstrates the written glissando and directions in the score with an enharmonic reinterpretation to better show the line's contour. Furthermore, the first six pitch classes of each seven-note grouping form a realization of an all-triad hexachord.
Example 4-13 – Specially-tuned harp glissando that initiates coda in m. 116

Example 4-14 – Movement IV, coda (mm.116-119)

Example 4-14 is a harmonic reduction of the movement's coda, starting with the special harp glissando magnified in Example 4-13. After reaching the C#4 in the middle of the orchestral gamut (enharmonically spelled above as B3), the harp quietly plunks delicate all-triad hexachord figuration in a constant sixteenth-note rhythm, creating a curiously timeless, floating sensation after the bustle of the previously-encountered climax. When the other soloists join, they both play resonant instances of ic5 (the vibraphone a perfect fourth, the piano a perfect fifth) that are extracted from the harp's ATH. It does not take long before the harp and vibraphone enter the mix and,
dynamically swelling to fortissimo, start filling-in a larger (both in terms of registral space and pitch class content) harmonic field. The pianist responds to these gestures and adds one final ic5 to the coda, a B1/F♯ dyad crafting another obvious spatial boundary wedge. Much like in the recent climax section, the concertino’s effort at an aggregate field comes up one pitch class short, this time missing C♯. In fact, C♯ has been absent the entire coda. On the downbeat of measure 120, the string orchestra grants the listener an accented pizzicato C♯, completing a delayed aggregate, timbrally marking the return of the ritornello for the upcoming Movement V, and subsequently ending the present movement. Again, the phenomenologically-prominent attainment of a total aggregate at a major formal boundary is a common closure technique employed by Carter in his late-late style music (see earlier parts of this chapter and Chapter 2).

The salience and obvious extreme registral maneuvering of C♯ throughout the climax (see Example 4-12) now retroactively seems to be Carter’s way of calling attention to a pitch class that would soon afterward be completely denied during the coda, making its return in the middle of the orchestral gamut at the juncture between Movements IV and V that much more noticeable. The importance of C♯ or D♭ in the terminative eight-measure segment of Movement IV and the onset of Movement V also recalls its role as a critical referential pitch class in the previous ritornello Movement III (see Chapter 4.3). Thus, a greater continuity is constructed between two of Boston Concerto’s ritornello movements (III and V) due to a significant associative pitch class.

Before moving on, let us examine one final passage from Movement IV – the short segment I described in my listening journal as "pointillistic musings by the piano and vibraphone, leading to the climax" following a "violent harp sonority." Example 4-15 is a reduction of the piano and vibraphone parts in measures 110 and 111. This material connects an exclamation of massive, fortissimo harp clusters with the final eight bars analyzed above in Examples 4-12 through 4-14. In Example 4-15, filled noteheads are motives played by the vibraphone while open noteheads are those played by the piano, and arrows simply help illuminate motivic contours.
Example 4-15 – Measures 110-111, piano (open notehead) and vibraphone (filled notehead) motives

Without orchestral accompaniment, the piano and vibraphone perform quick pointillistic bursts in this two-measure bridge. The vibraphone starts with three dyads, quickly shaping an all-interval tetrachord that soon completes an all-triad hexachord. The piano responds with an augmented triad extracted from the vibraphone's initial ATH and sharing the same down-up contour. A typical ATH chain ensues, with the two solo instruments conversing in motives exhibiting alternating contour directions: down-up or up-down. As the cycle winds to a close and Carter begins the climactic passage proper (recall Example 4-12), the concertino presents an instance of [012568] that complements the last-heard ATH. Accordingly, an aggregate will be formed to terminate this bridge material and Carter (as is customary) chooses to emphasize the aggregate-completing pitch class (D) as the lowest-sounding pitch class of the entire segment. When the harmonic material changes to the ATH complement to set up the aggregate, the motivic contour changes to unidirectional shapes (i.e. up-up and down-down). Subtle though as they may be, these slight alterations in contour and register play an important role in delineating harmonic shifts and formal shapes in Carter's music.

4.5 Movement V (Measures 120-139)

FIRST EXPERIENCE

The C#4 that terminates the prior movement and a gradual acceleration of gestures push toward an early wave of climactic energy. From here, temple blocks begin nervously twittering while icy jabs of brass pop in to object. The clarinets play frenetic material but seem oddly in "the background."
SECOND EXPERIENCE

The acceleration to the first energetic high point starts in the strings in the middle of the orchestral gamut and moves upward. The first climax seems really dissonant in spacing, unlike any climax chord heard previously in *Boston Concerto*. The temple blocks and brass chords in the longer second section of the movement may have a longer-range temporal interaction.

THIRD EXPERIENCE

Now acquire a sense of proportions in this movement: the first section is significantly shorter than the second and the first climax, as a result, seems a bit premature coming after the climax of Movement IV. Like the first high point of Movement V, the second apex at the very end of the movement features a "climax harmony" decidedly different from anywhere else. This second (and most important) climax seems reminiscent of Ligeti's middle-period works.

As described in the above "listening experiences," the fifth movement of *Boston Concerto* consists of two parts of unequal length, each terminating with a distinctly dissonant *forte* or *fortissimo* harmonic field. The first section, lasting only five measures (mm. 120-124), ends with a gradually crescendoing repeated chord in the horns, trombone, and trumpets while the second (from m. 125 to m. 139, three times longer than the first) attains a suitable climax not only for the section but the movement as a whole. Example 4-16 is a harmonic reduction of the first section's apex chord, partitioned into the two tetrachords played by the horns and trumpets/trombone and the other pitches covered by the remainder of the orchestra (pizzicato strings, clarinets, and double reeds).

Example 4-16 – First apex chord of Movement V, m. 124
The penetrating, bright tones of the cylindrical brass instruments (including a high \( A_4 \) in the first trombone) constitute an \([0146]\) all-interval tetrachord while the horns volley a resonant \( F_4\) major-triad-plus-tritone \([0137]\)-type AIT. The pitch class content of both tetrachords is mutually exclusive. The peak tone in the horn is \( C_5\), familiar to the listener not only as the pitch class central to Movement IV's formal closure but also as the specific pitch level and orchestration of \( C_#\) that was saliently featured at the climax of Movement III (the preceding ritornello movement, see Chapter 4.3). Since Movement V's earliest climactic point occurs relatively soon into the movement and shares these pitch memory cues with Movement III, it is easy to hear the opening of Movement V as struggling to reacquire the narrative thread abandoned at the end of Movement III when the clangorous piano/vibraphone/harp concertino took over to initiate Movement IV.

Although the remaining non-brass members of the orchestra do play some of the pitches belonging to the two AITs, they also add four distinct tones of their own to complete an aggregate harmonic area. Therefore, the apex sonority in measure 124 contains all twelve pitch classes without octave replication – a compositional strategy for constructing structural harmonies which should not come as a surprise by this point in the concerto. What is somewhat unexpected is the extremely tight spatial distribution of the harmony (even for one of Carter's non-all-interval twelve-note chords). The simultaneity forming the initial attempt at a narrative climax in the movement crushes all twelve pitch classes into a mere 22 semitones, predictably resulting in an intervallic profile rife with minor/major seconds and a few thirds. Of the eleven pitch intervals in the chord, nine are some sort of second, effectively creating an overwhelmingly brash harmony. Another aspect of this particularly marked chord's construction is its vivid reliance on whole-tone subsets: the bottom four pitches all belong to the odd whole tone collection while the middle four tones come from the complementary even whole tone set. However one chooses to partition Movement V's first apex aggregate simultaneity, to this point in it Boston Concerto it remains phenomenologically unique as a climactic harmony.

The foremost climax of the movement, heard in the final measure of the longer second part (m.139), revisits the sound world originally explored by the apex just discussed in Example 4-16. This time, however, the woodwinds and strings outline three dense harmonic fields through shrill fortissimo sixteenth-note-triplet figures. Example 4-17 synopsizes these rapidly-moving harmonic regions, each of which occupies approximately a single beat of musical time. For the sake of clarity in the diagram, the harmonies are not written as block chords but are spelled out linearly and aligned
to show common pitch content more clearly; the left-hand column labels the chord present in measure 139 beat 1, beat 2, and beat 3 from top to bottom respectively.

The high woodwinds (flutes, clarinets, and oboes) plus the string family (minus the violas and basses) erratically twitter to generate three intensely cacophonous and discordant simultaneities constructed predominantly out of stacked minor and major seconds (with just a few gaps of minor thirds and the minor sixth at the bottom of measure 139.2). The effect is one of a free jazz mass improvisation, Ligeti's 1960's texture pieces, or even Ives's exuberant Fourth-of-July-style orchestral fireworks. If the character of the movement's preliminary apex chord was shocking, measure 139's harmonic language takes the concept to a new extreme and produces a raw sound unlike any previous focal moment in *Boston Concerto*. The chords swirl in a frenzy of rhythmic motion; the first, extending from A₃ to F₆, exhibits all twelve pitch classes almost by default and the second (whose boundaries extend a bit higher in registral space from G♯₄ to G₆) similarly exhausts all possible pitch classes.

The third, though, which has the highest registral placement and simultaneously the smallest overall registral boundary, is missing pitch class A from its cluster configuration. Although this pitch class is admittedly difficult to detect as being absent from the ultimate climactic sonority, the lately silent violas intone a heroic, unaccompanied, *fortissimo*, long unison A₄ to complete the aggregate and begin Movement VI with an impassioned melodic arch. This dramatic and pivotal
narrative/formal shift is set up as a study in contrasts: harried rhythmic activity versus a sustained sound, strident winds versus earthen strings, dense and dissonant tone clusters versus a solitary consonant pitch, material very high in the gamut versus the middle of the orchestral range (note that the final chord in measure 139 not only leaves absent pitch class A for the violas, but also moves the lower spatial boundary of the climax sonorities up to B4 – clearing a registral pathway for the violas to enter under the bottom of the chord). The unique chords in measure 139 serve a double narrative purpose: (1) as a singularly severe and tension-filled harmonic event to conclude Movement V (or even the entire composition up to this point) and (2) as a method to sufficiently prepare the arrival of a very new type of lyrical melodic material in *Boston Concerto*.

Movement V’s second major section does not only stand out for its arresting climax, but also for containing the first instance of an audible "long-range" polyrhythmic structure in the composition. Present on the musical surface from the very first beat after the minor apex in measure 124, the double pendulum runs throughout all fifteen measures of the second section until the climactic chords just described in measure 139. Beyond providing a metric grid around which the strings and clarinets navigate and play their ritornello filigree in the second section, the polyrhythm also transforms and lends a sense of inexorability to the movement's furious climax. I placed "long-range" in quotation marks above because the polyrhythm only lasts (at least audibly) for fifteen bars. It therefore does not have the same structural effect as those in middle- or even late-period Carter compositions. Additionally, one of the strands in the polyrhythm has an uneven, malleable, "limping" proportional quality that will be discussed shortly. Perhaps, then, an alternative term might be "medium-range variable polyrhythm." At any rate, Example 4-18 demonstrates the proceedings.

The bottom staff of Example 4-18 diagrams one of the strands contributing to the polyrhythm, played by four temple blocks then wood blocks in the final measure. The percussionist performs a set of seven sixteenth-note triplets starting in beat one of measure 125 (the onset of Movement V’s second section). Similar temple block gestures emerge periodically from this point forward; although the length of the flourishes varies, a new salvo arrives like clockwork every 28 sixteenth-note triplets in 4/4 time (i.e. every 4.66 beats). The perceived tempo established therefore is a remarkably slow M.M. = 19.286 (given the movement’s notated metronome marking of 90). The brass instruments articulate their own sequence of unhurried pulses, asymmetrically alternating between 13 and 9 beats in length. After a [016] trichord that serves as a quick anacrusis to the
Example 4-18 – Polyrhythmic structure throughout Movement V second section, mm. 125-139
strong-beat ATH in measure 126, ensuing brass harmonies are typically [0146] all-interval tetrachords (with a five-note ATH subset and complete ATH again at the end of the passage).

As the majority of the movement progresses against the backdrop of the polyrhythmic frame, the two pulse streams do not coincide temporally. Only in measures 136-137, when the percussion section plays its longest run of notes (ten in all), do the two intersect for the first time – the pendulums are coming closer to a permanent synchronization. Although previously prohibited, the pulse streams cross at this moment. From here on, the percussion blocks play longer figures than before (10, 8, and 8 as opposed to generally 7s and 6s) and the brass rhythm breaks its pattern to produce a shorter pulse length of 9 beats (instead of the expected return to 13). Momentum builds as the polyrhythmic waves sound simultaneously again shortly thereafter amid the frenetic climactic chords shown in Example 4-17. The manifestation of the "medium-range polyrhythm" is altered to drive forward toward (and consequently reinforce) the climactic harmonic event in measure 139.

4.6 Movement VI (Measures 140-163)

FIRST EXPERIENCE

A sinewy, Bartókian unison viola melody struggles as it reaches upward, attaining a high climactic point before plummeting. It stutters as it reconstitutes itself, peaking again before settling on a low cadence point. The expansiveness of the viola melody is remarkable in the context of Carter's entire mature output.

SECOND EXPERIENCE

Notice many of the conflicting tonal readings or allusions present in the long-winded opening viola melody. The movement as a whole has a sense of nostalgia, wistfulness. As in the open listenings from Chapter 3.2, one may perceive a surprisingly tonal cadence point that is briefly touched upon then discarded.

THIRD EXPERIENCE

This movement represents a definitive narrative shift in Boston Concerto, with la grande ligne flowing gracefully in the same instrumental group for a minute and a half. Listen carefully for the "tonal cadence" toward the end – a dominant seventh that resolves conventionally (complete with suspension) then continues in a twisted and chromatic fashion.
Movement VI is indeed unlike anything heard previously (or will be heard henceforth) in Elliott Carter's *Boston Concerto*. The movement is a testament to the composer's ability to construct tuneful, sweeping melodic arches. Starting with the aggregate-completing A4 that terminates the climactic woodwind clusters at the end of the previous movement (see Example 4-17), the violas sing a powerful air that spans all of Movement VI. Supporting this focal melody, the basses provide an underlying counterpoint, making the whole into an Expressionist two-part invention. With the exception of some very infrequent light all-interval tetrachord jabs from the brass and other strings, the violas and basses are left to their own devices to interact relatively undisturbed. The unrestrained viola line in Movement VI is the most emotionally forthright, timbrally continuous melodic statement encountered by the listener in the entire seventeen-minute Concerto. Its direct quality is made even more palatable and heartfelt coming after the aggressively pointillistic textures of the prior concertino movement (Movement IV: piano, vibraphone, and harp). The movement suggests a sense of loss, nostalgia, and tragic passion – a sense that antique musical languages and methods are being sought, yet subverted. Aside from the viola tune's (contextually) conjunct nature, some of the tonal qualities inherent in the melody and its contrapuntal interaction may explain the nostalgic affect I project onto the movement. The analytical narrative provided in this subchapter will explore a few instances in Movement VI that may contribute to the emotional state just described.

Example 4-19 – Possible interpretations of the viola melody's opening, mm. 140-143
Example 4-19 presents three possible hearings of the prominent viola line's first few measures. The first hearing (Example 4-19, top) demonstrates the aggregate completion on A4 that carries over from Movement V (discussed previously). As the melody moves higher into spatial territory, the next six pitches outline an instance of Carter's favored all-triad hexachord compressed in registral space, \{B, C, C#, E♭, F♯, G\}.

The next hearing posits a tonal rendering of the theme. Since it is presented with little accompaniment (even the basses do not enter until measure 142, the third measure of the passage excerpted in Example 4-19), a listener may effortlessly hear an A-major scalar unit following the protracted focal pitch A4 that chromatically slips to A minor with the arrival of C5. The melody then shifts to a remote tonal region a tritone away by outlining an E♭ major/minor tetrachord; the last two notes in the middle example could be regarded as a B♭ major subset, the dominant (scale degrees 7 and 5) in the recently acquired E♭ area. The final interpretation shown (bottom) presupposes the significant focal pitch A being once again the start of an A-major scale segment but this time proceeding to two discrete triads: C minor (a decidedly jarring tonal motion from A major) and D♯/E♭ minor. The interchangeability of interpretations one could prioritize is facilitated by the uniform durations of the pitches. Except for the initial A, all tones are five sixteenth notes long (establishing a metronomic pulse of 48, derived from the notated tempo of M.M. = 60). Since no one tone is longer than the others and all are of the same dynamic, none may seem more important than any other. At any rate, the two tonal readings I offer both freely recall triadic tonality, possibly looking back to the late Romantics, while at the same time utilizing shifts of tonality that suggest a phenomenally eerie or decaying sonic world. Progressions from A major to A minor then to E♭ major/minor or of A major to C minor to E♭ minor are certainly effective at evoking feelings of anguish, mystery, or the uncanny.

The movement's first large-scale formal segment/phrase of the viola melody, spanning measures 140 to 147, is constructed in a manner reminiscent of rhetorical gestures present in older

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134 The first few notes of this melody (a mass of violas playing an A, leaping up to C♯ a major third above, then filling in the gap chromatically) can be heard as a slight allusion to the opening of Bartók's Music for Strings, Percussion, and Celesta. This may explain why I described the tune as being "sinewy" and "Bartókian" in the first listening journal.

135 A major triad and the minor form of its lowered mediant share no common tones and two of the three pitch classes are a semitone away from a member of the other triad. This relationship has been described as a "near-hexatonic pole" by David Smyth in his paper "More About Wagner's Chromatic Magic" presented to the annual meeting of the Society for Music Theory, Nashville, Tennessee 2008. According to Smyth, this tonal relationship is frequently employed in Wagner's operas (and other late Romantic repertoire) to symbolize conflict or the uncanny. Considered tonally, the excerpted viola passage in Carter's Boston Concerto achieves a similar sonic result.
Western art music. Example 4-20 shows the eight-measure phrase and how it may be partitioned into smaller formal units. The first subunit consists largely of material recently analyzed in Example 4-19, but with a few additional pitches that pull the melodic arch all the way down to C3, typically the lowest open string on the viola (without alternate tuning). The shape of the melody in this subunit is a conventional curve and features relatively narrow intervals except in the approach to the C3 terminus. The next subunit consists of two disjunctive motivic fragments, all-interval tetrachord and all-triad hexachord iterations respectively, noticeably separated from the previous unit and each other by short sixteenth-rest pauses. Here, the previously coherent and graceful aria begins to liquify. The final fragment of subunit #2 connects to the last subunit (#3) that contains a smearing glissando and a rapid set of spatial curves before settling on repeated and lingering low E3s. Reinforcing the cadential importance of these E3s, the basses play pitch classes B and G♯ effectively creating a composite E-major triad (not shown in Example 4-20).

To summarize the formal process that transpires during the total first phrase of the movement: a long-breathed, lyrical melody unfurls for approximately five measures; craggy fragments related harmonically to the melody break apart the continuity of the prior tune; and a rapidly undulating segment precipitously concludes the whole phrase with a protracted low E harmonized as a stable major triad. Therefore, the viola phrase resembles a classical hybrid sentence structure paradigm: a tuneful presentation unit (albeit without a repeated basic idea) followed by motivic fragmentation leading to a cadential gesture. Between the tonally uncanny characteristics of the melody’s opening gesture and the familiar discursive model present in the entire eight-bar formal phrase, it seems Carter is deliberately interjecting the spirit of older compositional languages into his Boston Concerto.

Turning to the tonal cadential moment heard later in the movement in the three sound-in-time listening experiences, Example 4-21 shows a reduction of the two-part concertino lines in this succinct passage, measures 154-155. Six measures of knotty counterpoint emerge from the E-major cadence presented at the end of Example 4-20. The music seems to be settling back to a comfortable piano dynamic when both concertino string groups crescendo to forte in measure 154, calling the listener's attention to a new wave of polyphonic interaction.

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136 Although tonal readings on long temporal scales become rather suspect in a piece with a consistently chromatic post-tonal syntactic profile such as Boston Concerto, it is nonetheless interesting to observe that the eight-bar phrase starts on focal pitch A, the presentation unit ends on C (the mediant of A), then ultimately cadences on an E-major triad (the dominant of A) suggesting a half cadence that frequently punctuates classical sentence structures.
Example 4-20 – "Sentence structure" in the viola melody's initial section, Movement VI
Example 4-21 – Tonal cadence point created by contrapuntal interaction, mm. 154-155

The violas intone a perfect fourth leap upward from a low D3 to G3 while above them the basses sustain a C4. A minor seventh interval D3/C4 becoming a G3/C4 fourth through oblique motion sounds strongly like a two-voice D dominant-seventh chord moving to tonic in G major with a suspended fourth above the bass on the latter harmony. The basses drop a semitone to B3 according to common-practice voice leading principles, resulting in what sounds like an authentic cadence in G major. Uncharacteristic of tonal harmony, however, the basses then leap down to C♯ while the violas maintain their G3. Soon, the G3 descends stepwise to F creating an altered suspension that (enharmonic spelling aside) could be construed as marking a tonal shift to C♯.

Moreover, the subsequent viola tones are F♯, B, and A♯ (sounding the same as G♯), transforming the harmonic area into a dominant seventh chord of F♯. It is here that Carter's excursion into or reminiscence of old-fashioned musical styles disappears as contrapuntal weaving more representative of the composer's mature style resumes.

The tonally-loaded concertino music analyzed in Example 4-21 is presented completely without orchestral accompaniment (apart from an extremely muted pianississimo string AIT on the last beat of measure 155), allowing the listener to recognize with confidence Carter's quotation (or rather paraphrase) of older tonal syntactical gestures. The sudden crescendo to forte to the obvious dominant-prepared suspension and resolution above G implies that the composer was quite aware of the tonal game being played and soon thereafter dismissed. The whole excerpt comes off as a
wistful, tenuous throwback to late Mahler – of one who reaches into the past but cannot bear to continue looking back.

4.7 Movement VII (Measures 164-189)

FIRST EXPERIENCE

Two violent string chords are residual sonorities from the previous concertino movement. The timbres are unusually harsh and brittle, with piccolo and xylophone playing dominant roles in the texture. The final gesture of the movement greatly expands the registral space of the composition.

SECOND EXPERIENCE

The percussion, piccolo, and xylophone motives move by at such a rapid pace that it is difficult to hear their relationships or connect any group of notes with the percussion clusters. Three noticeable fortissimo percussion attacks underline a set of simultaneities at the end of the movement, perhaps closing out a spatial region.

THIRD EXPERIENCE

The first string chord remaining from Movement VI is incredibly resonant, conceivably a major triad spacing of an all-interval tetrachord. The opening xylophone solo hovers around the same pitches throughout. However, the xylophone solo at the end occupies quite a wide spatial boundary.

The ritornello music of Movement VII consists of an array of blisteringly quick motives played by the entire orchestra but focusing in particular on the xylophone, piccolo, unpitched percussion, and pizzicato strings (no brass play in this movement). Much of the music sounds improvisatory, like selected members of the ensemble wanted to independently practice their parts for upcoming portions of the Boston Concerto; in a narrative sense, Movement VII denies the intensely lyrical previous movement. The rapid exchange of motivic material and fragmentary nature of the musical surface makes perceiving larger formal units difficult, as does the lack of a strong and definitive overall climactic point encountered in the previous ritornelli. However, Movement VII's opening (mm. 164-169) and closing (mm. 186-189) sections exhibit some interesting features worthy of comparison and discussion. Example 4-22 is a side-by-side reduction of the introductory and terminative material in the movement.
Although Movements VI and VII overlap by a few measures (fragments of the piccolo ritornello matter can be heard as early as measure 161), the violas and basses definitively conclude their discourse in measure 166 with a consecutive pair of accented fortissimo tetrachords. First, the violas project their simultaneity as a resonant and open-spaced G♭ major triad with a C capstone, creating an [0137] AIT iteration. The basses follow suit with their own all-interval tetrachord, a manifested [0146] created by stacking various fourths. Carter cleverly creates the latter AIT harmony {E, A, D♯, G} by utilizing the open strings of the bass (tuned in fourths) with only one string chromatically altered. The resonant phenomenal quality of both string AITs helps mark them
as concluding sonorities for Movement VI. The initial principal ritornello idea is a xylophone solo spanning measures 167 to 169. Within a relatively narrow and static spatial boundary (15 semitones), the mallet percussionist performs a melodic line comprised of AIT and ATH iterations, some of which overlap.

The end of the movement (shown in the bottom system of Example 4-22) also includes a longer xylophone soloistic line, but preceding this dramatic monologue is a progression of three orchestral chords underscored by loud unpitched percussion strokes that shape one of Carter’s characteristic form-terminating spatial boundary collapses. All-triad hexachord and all-interval tetrachord materializations gradually inhabit less and less registral space as the ritornello movement decrescendos into inaudibility. Meanwhile, to counter the evaporating orchestral music, the xylophone launches one last bravura gesture starting fortissimo but ultimately resigning itself to the same pianissimo fate as the remainder of the ritornello. Like the opening xylophone solo in measures 167-169, every note of this flourish (m. 188) is a constituent member of a discrete or imbricated AIT or ATH. The coda gesture, however, hurriedly cuts through a very wide spatial territory of 40 semitones, concluding with a stratospheric C8 (the highest available pitch on a piano). The whispered C8 is the uppermost pitch encountered in Boston Concerto; after its appearance, the composition comes to a standstill for two entire beats of silence. The work has come to a spatial/formal impasse and is in need of a "reboot." The grand pause leaves the listener a motionless and tranquil moment to wonder: Where can the piece go from here now that it has "maxed out" the available registral space?

Movement VIII answers this question with a brooding brass chorale.

4.8 Movement VIII (Measures 190-219)

FIRST EXPERIENCE

The opening chord is chilling and distant, with bright punctuation provided by the piccolo and percussion. A slow crescendo builds to a harsh trumpet sonority followed by a moment of respite in the horn family. Gradually, the process begins anew and a second, overall narrative climax is reached.

SECOND EXPERIENCE

The temporal distances between the beginning of Movement VIII, the first minor
climax, the later major climax, and the end of the movement seem "classical."
Relative to everything heard before in Boston Concerto, the tenebroso chorale of this
movement is noticeably darker in tone and expansive in scope.

THIRD EXPERIENCE

The percussion and piccolo outburst that intrude upon the brass surface increase in
length with each recurrence, seeming desperate to comment on the proceedings.
The second climactic chord is curiously resonant in the upper portion of the
simultaneity.

Coming after the metallic sonorities, rain music, and athletic counterpoint of Movements
IV-VII, the onset of Movement VIII elicits a sensation much like watching the protagonist in a
horror film swing open a creaky door – after a short pause the music restarts with a registrally low
all-triad hexachord sustained in the horns, trombones, and tuba, providing a chilling contrast to the
brisk, ethereal lightness that immediately preceded it. Movement VIII is a dense chorale for the
brass family divided into two waves of material, each starting piano and inexorably working its way to
a forte climax. The length of the first portion is 46 beats while the second is 74 beats at the same
tempo, meaning that the ratio of the larger unit to that of the smaller and to the movement as a
whole (74/120 = 0.617) closely approximates the Golden Ratio (0.618). Example 4-23 provides a
wide-angle view of the harmonic plan in this portion of the Boston Concerto. Dotted measure lines
mark the delineation of important subsections usually coinciding with aggregate completion, ties
denote tones that are sustained through a formal subunit, dotted lines connecting chords show
significant motions/connections in pitch space, and slurs indicate tones that are attacked separately
but are sustained as a harmonic unit. The two large sections of Movement VIII are represented in
the top and bottom systems individually. Referring to Example 4-23 will help contextualize the
foreground reductions in the following discussion.

The "chorale" portion of Boston Concerto is saturated with all-triad hexachords and all-interval
tetrachords. Example 4-24 is a reduction of measures 190 through 196 (corresponding to the left
half of Example 4-23, top system).

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137 In his 2009 SMT paper "Maximizing the Miniature: Signature Chords and Covert Means in Elliott Carter's Latest
Example 4-23 – Overview of Movement VIII
Example 4-24 – Measures 190-196 in Movement VIII

To better represent orchestration, I have partitioned the first ATH (heard as a simultaneity on the downbeat of measure 190) into two trichords – the augmented triad toward the far left of the diagram is scored for the horns alone while the tuba and trombones combined perform the [016] subset. "ATH" in parenthesis indicates a nearly-complete ATH iteration.

Twice in this brief passage, Carter develops tightly integrated chains of multiple all-triad hexachords employing trichords as pivots from one ATH transposition to the next, but the composer also interrupts the otherwise smooth progressions with violent interjections. The first forte outburst, scored stridently for mallet percussion, piccolo, piano, and high pizzicato strings, realizes an all-interval tetrachord [0137] that incorporates three pitch classes excluded from the initial ATH chain in measures 190-192: G, A♭, and D. In measure 196, a six-pitch-class eruption provided by the xylophone and piccolo slices through the musical fabric, not only locally complementing the all-triad hexachord currently presented in the brass but completing the chromatic aggregate of the tones heard since the prior interruption four measures ago. Excluding the first chord in this passage the ATH chorale does not vary wildly in its inhabited pitch space, marking the percussive aggregate-completing sonorities as "outsiders" in the established registral space.

The culmination of Movement VIII's first major section is represented in Example 4-23 (top system, right half). In measure 197, Carter successively affixes four interval-class-4s (eight notes total, generally in the form of minor sixths) to an [0167] tetrachord harmonic cornerstone – first A4
and F5 in the trumpets, then D4/B4 in the horns, G♯1/E♯3. The result, in addition to being a twelve-note chord, represents a combinatorial trick explored by Carter in his piece 90+ for piano (discussed previously in Examples 2-7 and 2-9). Namely, each of the ic4s added separately to a source [0167] produces its own manifestation of the all-triad hexachord: (C, C♯, F♯, G)+(A, F)=ATH, (C, C♯, F♯, G)+(B♭, D)=ATH, (C, C♯, F♯, G)+(B, E)=ATH, and (C, C♯, F♯, G)+(G, E)=ATH. As this accumulated harmony crescendos toward a climax it is terminated by an eighth-rest luftpause and replaced with three brash [0167] tetrachords (tuba and horns, trumpet and trombones, xylophone), constructing a simultaneity rich in perfect fourths and fifths, tritones, and minor seconds. As mentioned initially in Chapter 4.1, generating a twelve-note sonority from a combination of one or two intervals creates a sound world more closely related to Lutosławski than one typically associated with Carter. With 45 semitones enveloped, the two dense chords in measures 198-200 constitute the widest registral space demarcated by the brass thus far.

Carter underscores the transition to the second phase of Movement VIII with an unexpected shift to a piano dynamic and a dramatic collapse in texture and spatial boundary to a single point – A4, intoned by a lone hornist. Two other horns join, adding a G4/D4 dyad that is subsequently dovetailed with the same interval scored for trumpets and trombone. In measure 204, C4 and A4 fuse with the previously-sounding G/D4 to fashion an [0146] all-interval tetrachord divided into the familiar ic6/ic3 opposition. Recalling the possible 4+2 partitions of the all-triad hexachord shown in Chapter 2.2, a composer must add an [01] dyad to an [0146] AIT to create an ATH. Carter gives the listener precisely this [01] dyad in the guise of a semitone F4/G4 heard in the first trombone part, accentuated by a small dynamic increase from piano to mezzo-piano (the only shift in volume in five measures); because the second trumpet prolongs the F4, the friction caused by the minor second as it produces the ATH is quite noticeable.

The remarkably static pitch-class content of measures 201-205, coupled with very soft dynamics and a narrow registral space in the middle of the orchestral gamut, gives the passage a sense of profound calm. As in section one, the xylophone provides a commentary on the unbroken brass ATH by contributing complementary pitch classes (in this instance, the hexachord D, D♯, E, G♯, A♯ and B complete the collection of twelve pitch classes). Despite spatial separation, the all-

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138 As an aside, the soft-edged lontano [026] trichord formed by the three horns coming out of the larger dissonant chord is reminiscent of Ligeti’s Hamburg Concerto.
triad hexachord and the xylophone complement are closely associated as they occupy the same nine-semitone registral space. Comparing the latest disruption in measure 206 with those in measures 192 and 196, a pattern forms wherein the subsequent gestures external to the brass family increase in length – from a single eighth-note triplet, to an entire beat, to a beat and a third.

Directing the listener to the apex of the second section (and also that of the entire movement) Carter shapes another chain of all-triad hexachords. These are portrayed in Example 4-25.

![Example 4-25](image)

*Example 4-25 – ATH chain, Boston Concerto measures 206-209*

In addition to linking ATHs, the occupied registral space steadily expands from nine semitones (i9) to thirty-one (i31). Eventually, pitches accumulate into a towering 54-semitone-wide twelve-note chord at the core of measures 211-213. Although the aggregate simultaneity is not an AITN of any species (a 66-semitone space is impractical given the range limitations of the brass family alone), two aspects seem noteworthy: (1) The top three tones of the stack form an E₃ major triad, lending a conspicuously bright quality to the harmony. Carter scores the members of the major triad not solely for the C trumpets but for two trumpets plus a French horn, allowing the horn player to play the root on a high E₃5 (written B♭5), lending an additional edginess to the chord. (2) The twelve-note chord's middle hexachord is the exact ATH (A₂, C₃, F₃, B₃, D₄, F♯₄) highlighted in the initial chain at the movement's outset (see Example 4-24 and Example 4-23).

Precisely this ATH unites the brass aggregate chord with the climactic downbeat of measure 214. Once again, the composer does not utilize an all-interval twelve-note chord, but with a registral space of 61 semitones (the widest registral space in Movement VIII) and scored for the entire forces.
of the orchestra (including an arresting snare drum and woodblock hit) the moment unmistakably stands out as the climax of this portion of the Boston Concerto. Unlike the hasty end to the climax of part one (m. 201), the focal point at the conclusion of the movement is allowed to subside gradually in the remaining measures. True to form, the ultimate harmony is an all-triad hexachord but with a peculiar difference: an unadorned root-position E♭ minor triad, the primary trichord of the ATH, sounds for a whole beat by itself. Even though the context is far from functional harmony, it is nonetheless interesting to ponder the tonal implications of a closing E♭ minor chord coming fast on the heels of the parallel major triad that capped an aggregate in measures 211-213.

4.9 Movement IX (Measures 220-243)

FIRST EXPERIENCE

A stubborn piano note establishes a steady pulse at a moderate tempo; a similar "stable beat" theme is adapted by the pizzicato string ritornello. Soon into the movement, a thick chord accompanied by snare drum offers an early apex point. Material a moment later tries to do the same, but unconvincingly. A towering, resonant chord in the final measures is reiterated.

SECOND EXPERIENCE

The overall rhythmic character of this movement is quite peculiar compared to others in the concerto: one can tap one's foot along with many passages quite easily! The overall formal proportions of this ritornello recall those of Movement V.

THIRD EXPERIENCE

Become aware of the tonal nature of the climactic sonority; triads arranged in the chord link this simultaneity not only to the initial apex in this movement but also to the chord at the end of Movement I.

The overall formal strategy and proportions present in Movement IX are much like those of a ritornello heard previously in Movement V. Movement V's twenty measures were partitioned into a short introduction terminating with a chord containing a peculiar sonic profile (five measures) and a longer portion that ends with a movement-defining climactic simultaneity whose phenomenal characteristics were foreshadowed in the previous section's apex (fifteen measures). Movement IX follows this arrangement precisely and although the section lengths are modified ever so slightly (six
and eighteen measures respectively) the proportion remains the same (i.e. the latter is exactly three times longer than the former).

Example 4-26 – Trichords extracted from aggregate field, mm. 221-225

After a quick bar of transition from Movement VIII featuring the pianist stubbornly pulsating an A\textsuperscript{4}, the pizzicato tones in the next five measures (mm. 221-225) inhabit the same twelve-tone harmonic field. A general crescendo pushes the music toward an apex from m. 223.2 to m. 225.3, culminating in the string orchestra heatedly strumming triple-stop trichords extracted from the omnipresent aggregate harmony. Example 4-26 demonstrates the compressed, frozen-register harmonic field containing all twelve pitch classes (top of diagram) and the three-note chords played by the various orchestral groups during the \textit{forte} high point. Many of the triple-stops are
conventional major, minor, or augmented triads or have similar referents to more traditional tonal musical languages. The second violins, for example, progress from a D augmented triad to an E$b minor triad (which then tonally side-slips to the parallel E$b major). Meanwhile, the violas and cellos also present familiar trichord constructions (a root-position E dominant-seventh chord missing its fifth and a C♯ augmented triad).

In measure 225, the apex reaches its most fervent point as the percussion section rhythmically reinforces the strings with thunderous bass drum, temple block, and high snare drum strokes. Almost as an effort to summarize the unified harmonic region of Movement IX's brief opening section in the wake of the percussion accompaniment, all four string parts arpeggiate their registra lly respective trichord in the aggregate field; as a result, each voice plays a tonally laden three-note gesture concurrently with the others. From bottom to top, the listener perceives a C♯-minor triad in root position, a D-minor figure, a fragment of a C seventh chord, and a B-major arpeggiation alighting on "tonic." Though the aggregate simultaneity is comprised of stacked "tonal" trichords, only three of the four are actually triads. The resonance of the triadic construction is nonetheless undercut by the closed spacing and root relationships of tetrachords (the roots of the adjacent tonal three-note subsets are separated by minor/major seconds).

![Example 4-27 – Measure 238 chord, recalling apex in measure 225](image)

Following the harmonic synopsis in measure 225 without delay, the second (and larger) section of the movement ensues. Of its eighteen measures, m. 238 includes a sudden and concise...
attack of pizzicato triple-stops backed by three percussion instruments. Even though this momentary surge is far too ephemeral and insufficient to constitute the section's (and movement's) true climax, its orchestration and harmonic content nonetheless recall the first section apex described above (see Example 4-26). Example 4-27 explores the pitch content of measure 238's incisive jab and its relationship to the prior high point.

Obviously, the ictic chord in measure 238 shares all pitch class content with the former sonority but only one pitch is identical – the phenomenally prominent top tone B5. Still, the tonal trichord partitioning and arrangement of the first apex is retained and actually amplified into a wider registral space. The root and fifth of C♯ minor as well as the root and third of D minor both move down an octave; missing the minor third E, the C♯/G♯ dyad appropriates F from the D dyad to form a much more resonantly spaced major triadic sonority. Likewise, the pitches in the top hexachord of measure 225 expand to more widely spaced triads (with the incomplete C seventh chord now acquiring a solid E5 to yield a full major triad). The "recollection" (and consequent mutation) of the early apex harmony in measure 238 achieves two formal effects at the same time. Firstly, it reminds the listener of the defining sonic characteristic of the initial climactic chord (i.e. stacked "tonal" triadic construction) and secondly, through its wider distribution in registral territory, it foreshadows an even greater spatial boundary in the movement's forthcoming climax.

Measures 240-242 comprise Movement IX's narrative pinnacle with a twelve-note field dynamically swelling to forte in the string section, then reiterated at fortissimo by the full resources of the orchestra. The majestic climactic simultaneity illustrated in Example 4-28 carries tonal implications in its genetic makeup much like the initial apex.

![Example 4-28 – Climax chord of Movement IX, mm. 240-242](image)
Due to the chord’s relatively unambiguous partitioning of tonally-charged and sparsely distributed trichordal subsets, the whole achieves a significant acoustic resonance not encountered with the apex harmony around measure 225. The upper hexachord consists of two minor triads whose roots are a tritone apart; had pitch classes D and A½ been positioned a bit differently in the lower hexachord, the same would have been said of the bottom six notes (except with two major triads with roots a tritone away). Even so, the spatial layout written by Carter provides largely the same effect.

By combining two complementary instances of [037] (that is, two major or minor triads that share no pitch classes), one can only generate four hexachordal set classes that are self-complementary: [014589], the hexatonic collection; [024579], the major hexachord; [013679], an octatonic subset that is divisible into two triads of identical quality with roots a tritone apart; and [023579], the Dorian hexachord, which may be partitioned into two minor triads with roots a whole step apart (or in inversion two major triads with roots a whole step apart). A bit less abstractly (and more to the point at hand), the options are somewhat limited if one wants to combine four complete major/minor triads with no overlapping pitch classes into an aggregate chord whose top and bottom hexachords are the same set class. In Movement IX’s climactic chord, Carter utilizes one of the available choices with set class [013679]; earlier in Boston Concerto, the composer employed a comparable scheme at the harmonic/dramatic high point of Movement I which contains two [023579] hexachords (compare Example 4-28 with Example 4-6). Due to their limited number, the presence of triad-saturated, aggregate-generating, self-complementary hexachords connects the climactic harmonic field of Movement IX with that of Movement I.

To summarize, Movement IX, coming about two-thirds of the way through the entirety of Boston Concerto, adopts a formal/proportional model presented approximately a third of the duration into the composition (ritornello Movement V) and fuses it with a climactic harmonic idea first heard at the onset of the piece. Coming after the lengthy, brooding brass chorale of Movement XIII, such a précis might indicate to the listener that Boston Concerto has passed a pivotal moment in its composite formal arc and is headed for its conclusion.
4.10 Movement X (Measures 244-280)

FIRST EXPERIENCE

The oboes begin their concertino activity with a loud ascending major second motive, recalling the prominent major second that started the composition. The bassoons counter with their own music before the two reed families merge. Sustained string dyads come like widely spaced consonant road mile markers.

SECOND EXPERIENCE

Notice an interesting pitch class connection between the first motive of the introductory oboe phrase and the initial tone of the opening bassoon phrase. Of the few arco string intervals, the original sounds at the onset of the combined double-reed music. The sustained string dyads, of which there are five, seem to accelerate as the movement progresses.

THIRD EXPERIENCE

The sustained dyads provide a framework for an experience of the movement. The intervals mentioned are always traditionally consonant and perhaps form a long-range counterpoint. The last of these is registrally prominent and lends a sense of luminescence to the conclusion of the movement.

Movement X is an analog to the much earlier Movement II in that it features a six-voice contrapuntal texture created by a concertino group consisting of a woodwind subfamily (in this case the double reeds: two oboes, an English horn, and three bassoons). Two introductory phrases, one by the higher three soloists the second by the bassoon faction, span seven measures from 244 to 250 before the separate trios join forces until the beginning of Movement XI. Once this union occurs in measure 251, a series of five quiet sustained dyads in the first violins, basses, piano, and harp sporadically chime throughout the remainder of the movement – buttressing and contextualizing the reedy contrapuntal discourse. Positioned after the harmonically and formally reflective previous ritornello movement, one might hear Movement X by extension as having a somewhat "recapitulatory" character by connecting it to Movement II.

Example 4-29 is a reduction of the pitch content of the introductory formal unit offered by the oboes and English horn in measures 244-247. Beginning with a unison B♭5 then diverging as the first oboe ascends to C6 while its partner sustains the original tone, the two oboes expressively sing a major second motive. The English horn completes an iteration of an all-triad hexachord with
a four-note melody, whose C♯5 carries over to the next subphrase. By measure 247, all pitch classes of the aggregate have sounded except for B. As the third and final subphrase of the trio's introductory phrase commences, B is featured completely unaccompanied in the first oboe, sustained for almost a whole measure, and intensified dynamically along with the other pitches. When this B4 falls a half step in coordination with a unified change in trichord harmony, the phrase terminates and the bassoons submit their preparatory musical material.

Example 4-29 – Reduction of mm. 244-247

Example 4-30 – Opening of bassoon intro phrase and "union" material
Example 4-30 shows the first measure of the bassoon trio introductory phrase followed shortly thereafter by the "union" material that fuses all six concertino instruments and commences the movement proper. The initial four bassoon tones instantiate one of Carter's favored all-interval tetrachords. The isolated two-note dyad ushers in this new instrumental grouping: the oboe head motive in measure 244 began with a major second alighting on pitch class C (see Example 4-29 again), whereas the opening bassoon interval expands from C down four semitones to G♯.

A few measures later (m. 250), as the two trios form a larger concertino unit, the initial motive sounded by the oboes combines the head motives heard at the inception of the twin introduction phrases: B♯ to C weds with C down to G♯ (or A♯ enharmonically) to produce a C/B♯/A♯ scalar idea. Therefore, the listener is afforded a motivic signal that a communion between oboes, English horn, and bassoons will soon materialize. As the concertino launches the bulk of its lengthy contrapuntal discourse, it employs an ATH chain rotating around a sustained {D♯, A, E} trichord; recall that a similar device was employed in the parallel formal juncture found in Movement X's sister movement, Movement II (see Example 4-7). Carter chooses the most ubiquitous of ATH trichord subsets, [016], to be sustained by the bassoons, allowing for a great set class diversity of ATH-forming three-note complements in the higher reeds ([024], [014], and [026] respectively; see Example 2-8).

Simultaneously with the arrival of the true six-part double reed polyphony in measure 251, the first of five glacial, prolonged, widely spaced intervals sounds in the string/piano/harp "accompaniment." Although seemingly unobtrusive, these dyads provide long-range sonic markers with which to gauge the progress of the movement as a whole. Example 4-31 illustrates the five dyads, the measures in which they sound, and the number of beats between consecutive attack points.

All five dyads are traditionally consonant: F♯/C♯, perfect fifth; A♯/C, major third; E/G♯, major third; E/C, minor sixth; and B/D♯, major third. In addition, the emphasis on contrary and oblique motions within each voice adheres in at least one respect to accepted norms of voice leading. These two characteristics working in tandem (and obviously contrasting against the knotty double-reed polyphony) give the sustained tones a ghostly, ephemeral, yet peculiarly familiar quality – almost as if they are shattered remnants, distorted specters of an ancient and distantly

\[139\] By reducing the number of octaves within each interval, one can play Example 4-31 as a two-voice contrapuntal frame at the piano. The result sounds oddly like a late Renaissance chromatic composition by, for instance, Gesualdo.
remembered musical language from centuries ago coming to intrude upon the all-triad hexachordal proceedings.

Example 4-31 – Five sustained accompaniment dyads in Movement X

Beyond just their phenomenological qualities, the temporal positioning, registral arrangement, and pitch collection properties of the dyads all serve a critical role in shaping the overall form of Movement X. As the movement progresses, the distances between the dyads' attack points become shorter and shorter, lending a palpable sense of propulsion to the music and driving the section to its conclusion. Although no structural polyrhythm is present, compare this process to the long-range temporal stream collisions toward the end of Movement V. Also, sustained dyads #2, 3, and 4 all share pitch class content within the same augmented triad (or 4-cycle): E, C, and G♯/A♭. The pitch classes of the ultimate dyad seem distinctive, then, as they belong to a different 4-cycle and are necessarily a half-step away (B/D♯) from the A♭/C/E complex we have been used to hearing throughout the majority of the slow-moving sustained-dyad counterpoint. Underscoring the aurally striking tonal shift and overall gradual acceleration prominent by the end, the fifth dyad is furthermore the interval placed highest in the orchestral gamut as well as the shortest (i.e. it has the smallest spatial boundary). By the time this development culminates, the concertino group is ready to provide the movement's climax and terminate this section of Boston Concerto. Therefore, the simple "accompaniment" provided by the various stringed instruments, more than merely supplying resonant dyads, helps dramatically cue the listener that the form of Movement X is drawing to a close.
4.11 Movement XI (Measures 281-304)

FIRST EXPERIENCE

This ritornello seems to match the others in texture but employs the entire ensemble consistently. The music seems rushed, almost incapable of expressing its thoughts cogently. Tempi in the introductory measures of the movement seem to speed up then relax going into the middle segment.

SECOND EXPERIENCE

Movement XI lacks any of the obvious climaxes one might be used to hearing by this stage of familiarity with the Boston Concerto. Instead, the music is a set of uniformly quiet bursts – rapidly dashing motives and filigree. Thickly spaced yet light and staccato brass chords punctuate the terrain and give the listener something more substantive to latch on to throughout the form than the woodwinds.

THIRD EXPERIENCE

After the dance-like string introduction, follow the dense brass chords to make sense of the overall scope of the movement. These chords are resonant and lush, but still move with a sense of hyperactive urgency that characterizes the ritornello as a whole. The final measures of the movement contain a plunking, chirping quality in the woodwinds.

Following the pattern established throughout Boston Concerto, Movement XI is a ritornello. As far as this section is concerned, though, predictability ends there. The twenty-four measures of Movement XI present a feverish Joycean stream-of-consciousness dialogue of compressed motivic fragments spread across multiple orchestral groupings; the "fast-forward" mentality of Movement III described earlier now reaches a tutti apotheosis. Individual harmonies change at an almost imperceptibly rapid rate over the course of the movement, as does the temporal landscape – pulse stream identities emerge and vaporize in a constantly shifting musical foam. Varied manifestations/mutations of Carter's favored set classes (AITs, ATHs, and the like) flash by at a manic velocity, creating the impression that the composer was trying to cram a century's worth of observations and obsessions with the material into one minute of a single composition. Unlike previous ritornello movements (III, V, and IX, for example), the motivic electron-cloud buzz of Movement XI does not feature one grand, teleological long-range ictus point or blatant narrative climax. Yet, that does not mean that the overall discourse is without shape or form. Investigating
selected thoughts recorded in the listening journals will help bring into focus some of the formal and phenomenological impulses existing in Movement XI.

Despite having a diverse array of rhythmic configurations, I hear(d) the movement's opening eight measures (mm. 281-288) as possessing a general temporal profile that starts briskly, accelerates, then settles down considerably (i.e. slower than the initial tempo). This effect is not created by an extended accelerando/ritardando or multiple tempo/notated meter shifts controlled by the conductor (techniques employed by Carter in earlier large ensemble scores such as the Variations for Orchestra); instead, the notated tempo and meter remain constant over the span of the movement. The perceived metric/temporal flow is another matter, however. Example 4-32 reduces the harmonic and rhythmic content of the three primary, consecutively sounded pulse streams I recognize in the opening measures of Movement XI.

The first stream to rise to the musical surface is played by the pizzicato strings starting in measure 282. Although the lines in the score look like a group of jagged syncopated figures, the metrical organization sounds like a completely customary compound meter due to a series of notated accents every three sixteenth notes. Reinforcing the compound subdivision of the pulse stream is the relatively higher registral placement of the pitches on those accents (the most notable exception is at the end of this pulse stream, when the metrical accents are intoned by only a single unison line that descends and is ready to be overtaken by the next stream). The musical character is reminiscent of a gigue moving at a moderately fast pace (groupings of three sixteenth notes at quarter note = 90 produces a perceived pulse of M.M. = 120). Harmonic change is swift as various transpositions of all-interval tetrachords (sometimes imbricated) saturate the passage. In Example 4-32, the presence of either [0146] or [0137] instantiations is highlighted by brackets above the staff and boxes.

Without delay after the "AIT gigue" concludes, the trumpets and trombones commence the second pulse stream (see Example 4-32, m. 283). With every four sixteenth-note sextuplets stressed both by conventional accent marks and by registral shifts on those particular chords, the meter now sounds like steady sixteenth notes at M.M. = 135 – a marked increase in the perceived global tempo of the movement. Furthermore, the muted fanfare articulating the second pulse stream is (1) the earliest of the "dense brass chords" recorded in the listening experiences as helping to shape the form of the movement as a whole and (2) laden with all-triad hexachords (which will be discussed shortly). Subsequently, a third stable pulse becomes apparent and frames the proceedings in
Example 4-32 – Reduction of introductory pulse streams in Movement XI, mm. 281-288
Example 4-33 – Recurring six-note simultaneity brass harmonic fanfares in Movement XI
measures 287 and 288. As shown in the diagram, the string family (with some assistance from the piano and some winds) quietly marks every five sixteenth notes with more AIT's, carving out a new temporal grid of M.M. = 72. Though this last stream is performed at a piano dynamic level and is competing with rapid motives in the clarinets, oboes, English horn, and flutes, it remains audible simply because of its intransigent rhythmic regularity and the straightforwardness of its musical materials/contour – namely, a harmonized stepwise ascending chromatic scale. My preliminary listening intuitions are confirmed: the first eight measures of Movement XI consist of a temporal counterpoint that starts playfully at a moderately fast tempo (M.M. = 120), speeds up suddenly (M.M. = 135), then decelerates (M.M. = 72).

We now return to the "dense brass chords" in an effort to explain why I perceived them as "resonant and lush" yet "urgent" and also to explore why I regarded them as being integral to my modeling of the movement's form. Example 4-33 reduces the five occurrences of the thicker brass sonorities (the proximity of the last three could warrant their grouping into a larger unit). All five brass fanfares are permeated with all-triad hexachord iterations (with the exception of two passing six-note set classes in the first fanfare and two residual AITs in the same gesture). Example 4-34 charts the trichordal partitioning of every ATH presented in Example 4-33. Regarding the all-triad hexachords as comprised of two distinct trichords (rather than tetrachords plus dyads) is justified by the consistent registral separation of the ATHs into two brass subfamilies playing three notes each (trumpets always get the top trichord, horns or trombones get the bottom trichord).

<table>
<thead>
<tr>
<th>Meas. #</th>
<th>Partitioning: [bottom trichord] + [top trichord]</th>
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</thead>
<tbody>
<tr>
<td>283</td>
<td>[027] + [037], [037] + [016], [027] + [037], [013] + [015], [016] + [048], [037] + [016]</td>
</tr>
<tr>
<td>291</td>
<td>[036] + [026], [016] + [048]</td>
</tr>
<tr>
<td>300</td>
<td>[037] + [027], [016] + [048], [037] + [027], [037] + [027]</td>
</tr>
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<td>301</td>
<td>[015] + [025], [016] + [026], [016] + [037]</td>
</tr>
<tr>
<td>302</td>
<td>[027] + [037], [048] + [016], [027] + [037], [037] + [027], [016] + [048], [024] + [016]</td>
</tr>
</tbody>
</table>

Example 4-34 – Trichord partitioning of brass fanfare ATHs in Movement XI

Of the twenty-one all-triad hexachords found in the recurring brass fanfares in Movement XI, eleven (just over half) contain a contiguous iteration of a conventional [037] major/minor triad. Of these, eight (about three-quarters) utilize [027] as their trichordal ATH complement. Therefore, many of the all-triad hexachords exhibit instrumentally-emphasized division into three-note subsets
with highly resonant interval class content; another way of thinking about these fanfares is that they are highly likely to highlight ics 3, 4, and (especially) 5. Some of the ATHs unambiguously are the result of a triad and a set of stacked fourths (see beginning of fanfare #1 and toward the end of fanfare #5). No wonder, then, my ear was attracted to these brass gestures in my initial listenings and I categorized them as having an experientially "lush" quality.

Understanding (or perceiving) when the fanfares transpire allows listeners to gain a sense of temporal perspective, to know where one is in the movement – especially on repeated hearings. The first of the five fanfare gestures happens in the introduction (the first part of Example 4-33 and the second introductory pulse stream in Example 4-32 represents the same music), while the second fanfare briefly emerges a little under the halfway point in Movement XI. Fanfares #3, 4, and 5 cluster toward the end, however, in the last five measures of the movement. They are impetuous sounding in close proximity, especially when compared to the large amounts of temporal space separating fanfares #1 and #2 and also fanfares #2 and #3, signaling that a larger formal unit is accelerating toward its termination. Also consider the graceful composite "soprano" melodic arch fashioned by joining all of the fanfare motives: the relatively conjunct line starts on D5, tries to ascend for a moment, then settles down to B♭4 by the end of fanfare #1; reaches its lowest point with the two-note motive in measure 291; followed by a deliberate, measured ascent from that lowest point to the highest pitch of the melody (A5) on the final note of the ultimate fanfare. Such an attractive (and teleological) melodic shape, coupled with the hastening of when the gestures sound through time, help the listener coalesce/contextualize the stream-of-consciousness rhetoric of Movement XI into a more familiar (or at least goal-directed) formal construct.

Example 4-35 – Movement XI AITN, m. 304
The movement's last measure (m. 304) encompasses a short-lived all-interval twelve-note chord as one final brass hexachord fuses with pitches "chirped" by the woodwinds (see the third listening experience above). Example 4-35 is a reduction of this simultaneity. As shown in the diagram, the tops of the hexachords in the aggregate chord pair pitch intervals $2/11$ and $8/5$ respectively; this fact may seem insignificant at this moment but will gain some relevance in Chapter 4.13. Though I list measure 304 as ending Movement XI, its ritornello music spills over into measure 305 with a nine-pitch-class harmonic field inhabited by a quiet trumpet tune and pianissimo tremolo wind dyads. Without any sense of what will happen next, Boston Concerto jarringly cross-cuts to the subsequent concerto music as the violins and cellos definitely conclude Movement XI by completing the aggregate (with the required pitch classes E, G♯, A♯) and initiating Movement XII, a process shown in Example 4-36.

4.12 Movement XII (Measures 305-343)

Spaced with A♯ situated between an intensely high E/G♯ major tenth, the string trichord is a loud and luminous (almost E-major) start to the concerto segment.

![Example 4-36 – Transition aggregate between Movements XI and XII](image)
Much like the woodwind sextet of Movement X recalled/recapitulated that of Movement II, the string subfamily concertino group in Movement XII links with the viola/bass soloists of Movement VI. Whereas the former was a nostalgic two-part invention, the latter string movement is a three-part (violins I and II, cellos) sinfonia brimming with exuberant passion. Allowing the expressivity and contrapuntal interplay of the new string contingent to attain full prominence, Carter completely abandons any accompaniment material except for a few sparse orchestral intrusions. For this one subchapter, I will break with the practice of transcribing three listening journals since every time I heard the movement in discussion I concentrated on two particular moments in order: (1) a succession of persistently reiterated A5 pitches, played and continually reharmonized by the concertino group and (2) a noticeably protracted, widely spaced pianissimo trichord following the previously described passage of A5s.

On the downbeat of measure 325 the first violins play an accented and sustained A5, the first of five such identical pitches that chime over the next seven measures by the concertino. The harmonic/intervallic support beneath these As (the A5 is always the highest sounding tone spatially) constantly metamorphizes and consequently recontextualizes a single pitch over the span of several measures. In a few instances, the A5 is coupled with an F5 to produce a falling third motive. This practice recalls a similar technique developed by Carter in the second movement of his orchestral triptych Symphonia – Adagio Tenebroso (1994). In that composition, a motive based on an alternation between pitch classes C and A, first encountered as an ascending minor third solemnly intoned by the muted trumpet and flutes in measure 2, resurfaces several times only to be incessantly restructured as a member of dissimilar harmonic fields.\textsuperscript{140} Example 4-37 is a reduction of the five A5 harmonizations ("the immovable la") at the heart of Boston Concerto's Movement XII.

A5 is first harmonized (in m. 325) by one of Carter's favored all-interval tetrachords, [0146], but with a spatial distribution that makes it sound like a D$\flat$ seventh with a Romantic raised fourth-scale-degree suspension (A5) waiting to fall to the third of the chord. Considering the A5 falling to an F5 in the same voice (perhaps imitating a scale-degree 4/scale-degree 2 embellishment of a resolution never to occur) and the cello holding a minor seventh double stop (the only instance of any concertino double stop in the entire movement) underscores the richness of the present sonority and its longing quality. The following harmonization (m. 326), by contrast, contains only the barest

\textsuperscript{140} For a brief discussion of this procedure in Allegro Scorrevole, see Schiff (1998), 319-321. Another possible connection might be to the re-imagined contexts offered by Debussy of the famous C$\sharp$-G tritone motive in Prélude à l’après-midi d’un faune.
Example 4-37 – Constant reharmonization of the pitch A5, mm. 325-331
of intervals – a perfect eleventh, a perfect twelfth, and a compound minor second (displaced two octaves). Now a sense of emptiness eminates from the stark intervallic skeleton.

As fuller harmonizations return in measures 327-330, Carter contextualizes the immovable A5 with as many three-note set classes as possible. The variegated trichordal harmonic landscape supporting the A is exciting, as nine of twelve available set classes pass without repetition over the span of a few measures. The only three-note set class that does repeat comes at the very end of the passage, when two old-fashioned root-position triads sound: first D major then a dramatic downshift to D minor. I hypothesize a narrative for this remarkable passage that follows A5 as a tension-riddled non-harmonic tone over a D# seventh chord, then as the unwavering pedal over hollow intervals, and finally as the stationary cornerstone as the music cycles through most of the three-note set classes finally terminating with some sort of tonal context – but it is a lamenting D major to D minor chromatic side-slip. It seems the nostalgia from Movement VI has not quite dissipated.

The "immovable la" episode has a larger formal function, however, in leading to the movement's climax. After the final A5 has been harmonized a few ways, all three string voices immediately diminuendo and simultaneously move in divergent directions in registral space (the second violins inhabit the center of the orchestral gamut). By the middle of measure 332 the
concertino has reached a mystical, prolonged *pianissimo* trichord that concurrently achieves the highest tone, the lowest concertino pitch, and the widest spatial boundary in the movement. The "A5" episode, then, was a method for the composer to acclimate the listener's attention to a fixed point toward the middle portion of registral space; as a result, the rapid sweeping outward of spatial boundary culminating in the hushed trichord in measure 332 seems even more spectacular. It is, in effect, a "whisper climax," a pivotal moment supplied not with a bang. Example 4-38 is a reduction of Movement XII's apex.

Although there are other moments in the movement that are louder and/or more rhythmically driving, I nonetheless regard the passage shown in Example 4-38 as the true climactic point of Movement XII for several reasons: (1) the spatial considerations detailed above working in conjunction with the previous A5 passage; (2) the individual simultaneity is held for a longer duration than any other sonority in the movement as a whole; and, most compellingly, (3) the pitch classes constituting the climax form a C-E-G♯ augmented triad, the same 4-cycle utilized for a majority of the string accompaniment dyads in Movement X. The apex of Movement XII leads the listener to retroactively reconsider the widely-spaced dyads from the preceding concertino movement as test runs for the present climax – both in terms of pitch class content and spatial distribution. Furthermore, in forging such a strong connection between the backward-looking Movements X and XII, we can now envision a larger collection of movements (X, the manic ritornello XI, XII, and by proxy XIII) as being a larger-scale recapitulatory group in the overall form of *Boston Concerto* (with Movement XIII as an elongated coda).

![Example 4-39 – Movement XII, terminal phrase]

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Example 4-39 – Movement XII, terminal phrase
After the pinnacle harmony of measures 331-333 dissipates and the three-voice contrapuntal music resumes its course, the listener encounters once again the principle of delayed aggregate completion as signaling a formal juncture (see Example 4-39). Starting in measure 339, a composite melodic arch is shared among the three concertino voices. Slowly, the tally of twelve pitch classes is completed, excluding only E. When the cellos take over in measure 343 to complete the phrase, they push toward a mighty fortissimo E2, concurrently issuing the lowest pitch of the phrase, satisfying the aggregate, and opening a spacious registral boundary that the brass family inhabits at the onset of Boston Concerto's last movement.

4.13 Movement XIII (Measures 344-358)

FIRST EXPERIENCE

A harsh guiro scrape sets up a powerful brass chord that inhabits a wide space carved out by the string section. The tutti ensemble plays a succession of slowly shifting towering chords in erratic ticking rhythms. By the end of the movement, only a single pitch remains to be played after a short pause.

SECOND EXPERIENCE

The listener becomes very aware of the rapidly collapsing spatial boundary at the conclusion of the composition. It is fitting that the last sound of the piece be a pizzicato string tone since pizzicato sonorities have played such an integral role in the ritornelli sections of the concerto.

THIRD EXPERIENCE

The highest string note that carries over from the previous movement remains the uppermost pitch in several of the harmonies in Movement XIII, before shifting upward toward the end of the piece.

Boston Concerto concludes with Carter's ritornello evocation of William Carlos Williams’s rain (Movement XIII), but by now the rainstorm has fizzled into a gentle patter. The final section features the entire orchestra joining to create the plunking sounds. Although the rhythmic profile of this passage is erratic and teetering on the edge of a beautiful, natural chaos, the orchestral fabric is strongly unified harmonically with a progression of parallel-inverted all-interval twelve-note chords. Example 4-40 is a harmonic and spatial synopsis of the last movement.
Example 4-40 – Harmonic and spatial synopsis of Movement XIII
The tail end of the violin/cello counterpoint from Movement XII spills over into the start of Movement XIII, and the materials are related – the penultimate movement's final tones in the strings (E₂, C₆, and B₆) outline a roomy spatial boundary that the brass family soon fills with an aggressively-articulated all-triad hexachord. Taken as a whole this collection comes quite close to forming an aggregate simultaneity, especially when the trumpets and tuba add pitch classes A and E₃ in salient registral extremes after a crescendo to fortissimo. No F in any octave may be heard here, though Carter does offer this pitch class immediately after in a prominent position as the lowest pitch of the movement's first parallel-inverted all-interval twelve-note chord (m. 345, but commencing m. 344 beat 4.2).

The orchestra diligently intones the PI-AITN for quite some time, with the exception of the trumpets and trombones. When this group finally announces its arrival in measure 347 it strikes an accented ATH, after which the texture within the PI-AITN thins steadily, including the withdrawal of the extremes of the chord (F₁/B₆). When the boundary tones return seconds later, the move heralds a shift in intervallic distribution within the AITN as the interval stack has been completely inverted. Distances between pitches are reconfigured again soon thereafter, with top and bottom hexachords inverting independently of each other into the valedictory AITN. In addition, Carter transposes the boundary of this parallel-inverted AITN up a minor third, achieving two notions simultaneously: the former boundary pitch classes become the middle tritone (and vice-versa, F/B ↔ G♯/D) and the exact pitch-class content and ordering of the original AITN's hexachords is preserved (albeit in opposite registers than originally presented). Carter's intervallic shuffle game is diagrammed at the bottom of Example 4-40 under the respective PI-AITNs.

Interval pairs 2/11 and 8/5 hold prominent positions in the featured AITNs throughout Movement XIII: first, in the innermost location on either side of the pivot tritone (6); then again on the inside but having switched top and bottom hexachords; and ultimately as the uppermost and bottommost interval pairs in the entire last AITN. These intervals, 2/11 and 8/5, were adjacent couples within the short-lived all-interval twelve-note chord present in the terminal measure of the previous ritornello movement (Movement XI, see Example 4-35). We may consider the antecedent AITN at the end of Movement XI, outlined with woodwinds and erratic sixteenth-note rhythms as well, to be the proto-AITN of those cultivated in the finale (though obviously without parallel-inverted status).
The last parallel-inverted AITN in the array creates a delicate and convincing sense of closure to the *Boston Concerto*. From within this AITN, Carter both summarizes the significant harmonies featured throughout the composition and collapses the registral space of the piece. Beginning at measure 352, the string and woodwind families iterate the all-interval twelve-note chord diagrammed in Example 4-40. After only one measure, two significant sonorities arise within the context of the AITN: an extracted AIT sounds in the muted horns (the last we hear of the brass) and the woodwinds articulate one final hexachord before dropping out for the remainder of the piece (m.355 beat 2), as the strings finish the composition. The latter is principally interesting because, although the woodwind hexachord is not a privileged ATH, the [013679] set-class is a particularly AIT-rich hexachord compared to all others: [013679] is self-complementary and may be constructed by overlapping two [0137]-type AITs with a shared tritone interval or two [0146]-type AITs that likewise share a tritone. Therefore, Carter silences two of the major orchestral families in the *Boston Concerto* with AIT-rich chords, allowing the pizzicato string instruments to end the work as they began it.

While this cadential process is in motion, the strings remain stubbornly strumming the pizzicato AITN. Over the span of four bars, the composer begins eliminating pitch-classes from the aggregate, removing six from the AITN to create a resulting ATH. From that ATH, two more evaporate leaving only an [0146]-type AIT. The residual all-interval tetrachord persists until a temporary stillness punctuates the penultimate measure. Obviously, Carter could have chosen to extract any of the numerous ATHs from the parent AITN in order to close out *Boston Concerto* (and consequently any number of AITs and final pitches), but the subsets he eventually chose form a gradually shrinking pitch space, roughly collapsing around the center of the referential AITN. The AITN is 66 semitones wide and reduces to an ATH spaced over 42 semitones, which reduces further to an AIT occupying 27 semitones of pitch space (in each case, the amount of spatial reduction from the previous sonority is a uniform 64%). The ATH, AIT, and final tone all spatially surround (or are members of) the AITN’s central tritone B3-F4 (remember that all parallel-inverted AITNs feature a tritone separating the top and bottom hexachords). Furthermore, the registral spaces of the dwindling ATH and AIT are identical to those of the brass all-triad hexachord of measure 344 (27 semitones) and their ensuing accentuated tritone (42 semitones) from the front end of the movement. After all the combinatorial maneuvering has settled and the register has narrowed to a point, the final *pianissimo* B3 raindrop hits the pavement as the storm recedes into the distance.
CHAPTER 5

*BOSTON CONCERTO*: REPRESENTATION, FEELING, GUIDE

5.1 Programmatic and/or Narrative Aspects

*Boston Concerto* lacks an accompanying programmatic text with a plot in the tradition of nineteenth-century tone poems; the poetic excerpt by William Carlos Williams that serves as the composition's epigraph provides little bearing on how listeners might perceive the work (with the exception of the obvious "rain music" connection mentioned previously). The brevity of the poem might, however, be reflected in the epigrammatic nature of the thirteen connected movements of the composition. That the piece was lovingly dedicated to the composer's wife of several decades may account for the shamelessly lyrical and nostalgic qualities of some sections in the concerto (e.g. Movement VI), the conventional triadic construction of many aggregate simultaneities throughout, as well as the graceful, gentle conclusion in Movement XIII.

5.2 Personal Emotive Reactions

Due largely to the array of musical characters presented in *Boston Concerto*'s thirteen movements, my emotional state varies widely over the course of seventeen minutes of listening. I find Movements I, III, and V to be joyous and life-affirming in their manic speed and energy, with the concertino interludes (Movements II and IV) offering commentary. My attitude changes suddenly from Movements VI through IX, as the nostalgic *cantabile* viola/bass digression and dark brass chorale alters the tone of *Boston Concerto*; what was once filled with brio has now taken on a more somber tone. The relative rhythmic stagnation of Movement IX reinforces my perception that the piece's plot arc has worked its way to a troubled cul-de-sac. My emotional state does not quite change until the bravura counterpoint of Movement XII forcefully accrues musical momentum, trying heroically to regain a positive outcome for the concerto's narrative. The coda (Movement XIII), with its harmonic stasis and tender rhythmic patter, invites me into a state of Zen-like calm. There was, after all, no need for stress or worry – the unison single pitch reassures me that even the most dynamic of situations finds repose.
5.3 Possible Intertexts

Ferrara's "eclectic" analytical method allows space for an exploration of the onto-historical world of the composer offered by the composition under examination (following Heidegger's conception of phenomenology). Since such matters are not the focus, and are frankly beyond the scope, of the present study, I will take this moment to recount some of the (admittedly completely subjective) possible intertexts I perceive in Boston Concerto.

I agree with Paul Griffiths's assessment (see Chapter 3.1) that Boston Concerto is essentially a large-ensemble amplification of the ritornello formal scheme explored by Carter a few years earlier in the ASKO Concerto. However, explicit references to other works by Carter end here. Instead, I find myself hearing allusions to compositions by other high modernist composers such as Boulez (Sur Incises in Movement IV), Ligeti (Hamburg Concerto in Movement XIII), Ives (clusters in Movement V), Bartók (Movement VI), and Lutosławski (aggregate constructions throughout). Naturally such comparisons speak as much (if not more) about my musical experiences than Elliott Carter's, but perhaps the bridges between Carter's Boston Concerto and the wide variety of modernist music listed above reinforce the notion of Carter as a synthesist of post-tonal compositional trends. More on this concept will be discussed in Chapter 6.

5.4 Open Listening to the Overall Form Continued (Continued from Chapter 3.2)

THIRD EXPERIENCE

A burst of energy followed by an expansion of spatial territory opens Boston Concerto, then the music works its way to a moment of stasis on a PI-AITN. The tonally-loaded and lyrical trumpet solo seems to comment on the reserved nature of the introductory PI-AITN. Resonant climax chords abruptly give way to flute and clarinet trichords.

A melodic line outlined by the wind concertino creates a series of massive arches, each of which tries to out-perform the last. The spatial territory swells and collapses suddenly as the rain music ritornello returns.

The third movement flutters by, but now my ear latches onto the repeated C±5 in the marimba, acting as an anchor. As the forcible dance-rhythm of the climax ceases, I easily catch the C±5 in the horns that recalls the prior marimba solo and the movement coheres into a unit. I now seem ready for another concertino.
Again, I notice the spatial expansion that serves as an introductory gesture to Movement IV as the piano and vibraphone move in opposing directions in registral space. As the movement enters its terminal phrase I try to hear the pitch class C♯ as it is featured at the top and bottom of massive (almost) aggregate chords, but I don't quite succeed. Instead, I am anticipating the specially-tuned harp glissando that cascades in a downward freefall; this gesture seems much more critical in signaling the collapse and end of the movement.

I do, however, catch C♯ as it concludes the aggregate and starts Movement V and I'm struck by the understated humor of the moment. Movement V passes in a blur as I try to hear relationships between the multitude of motives, but I rely on the polyrhythm presented by the brass and percussion to provide a larger formal framework. As a result, this movement seems "comfortable"... I can relax and wait to perceive the pendulum swing back and forth, enjoying the interplay of wind gestures against a slower-moving frame.

Even though I expect it, the sudden blast of the unison viola A4 at the opening of Movement VI remains an emotionally charged event. My heart swells as the opening viola line climbs higher and higher only to plummet just as suddenly. I hear the G-major resolution in the movement and smile at such an isolated, antique rhetorical gesture and am saddened when the music moves on: the past has passed and is no more.

Movement VII makes me feel nervous, as wave after wave of musical energy washes past my ears. Coming after the clear counterpoint and emotional frankness of Movement VI, the harsh xylophone and piccolo melodies move me to a fit of anxiety. By the time of the final mad ascent in registral space, my brain cannot seem to process the chattering dialogue.

The beat of silence before Movement VIII starts leaves me breathless, as does the glacial pace of the brass chorale. The harmonic uniformity of the first climax lends a certain stability to the musical rhetoric, but the second climax almost moves me to tears. It is terrifying, and the E♭ major triad that caps the apex simultaneity seems like a forced consolation.

The triadic construction of many sonorities in Movement IX relieve some of the accrued tension as I start reflecting on the phenomenal similarities between these chords and those from the start of *Boston Concerto*.

The development of head motives in the introductory measures of Movement X give me a sense of order being re-established, as does the obvious concertino timbral "recapitulation." I am able to focus my attention on the five string accompaniment dyads and their acceleration; not only am I able now to hear the forward propulsion of the form of the movement, but I stretch myself to hear the pitch-class connection of these dyads to the registral apex I know is coming in Movement XII. Consequently, I am assessing a much larger formal grouping that I did not in my previous open listenings.
The "soprano line" in the brass ATHs of Movement XI gives me a sense of predictability leading into Movement XII. The aggregate-completing E-G♯-A♯ trichord that starts the violin/cello concertino movement seems radiant in its efforts at producing a "whole tone major triad." The augmented-triad spatial climax after the repeated A5s instills in me a sense of achievement as the chord seems to stretch out into temporal and registral infinity. I think this may be another of Carter's Joycean epiphanies – a snapshot outside of time that was foreshadowed previously, sums up the events of the piece, and signals that the form must now conclude.

As the coda movement rain music plunks away, I simply let myself sink beneath the harmonic waves and enjoy the protracted spaciousness of the slowly-shifting simultaneities. When the final spatial collapse occurs, I exhale a sigh of relief that the form has been closed properly, the tension dissipated.

Example 5-1 is a chart similar to Example 3-1 in that it synopsizes the musical materials of thirteen movements of the Boston Concerto. Since it is based upon the analytical remarks and theoretical framework contained in Chapters 2.1 to 5.4, a new column has been added now that includes a brief summary of the general formal outlay of each movement.

<table>
<thead>
<tr>
<th>Mvt.</th>
<th>Materials/Orchestration</th>
<th>General Formal Strategy(-ies)</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Ritornello - tutti</td>
<td>Inverted sine wave (energy: high-low-high)</td>
</tr>
<tr>
<td>II</td>
<td>Lento - flutes/clarinets</td>
<td>Block chord passages bookend a long composite melody</td>
</tr>
<tr>
<td>III</td>
<td>Ritornello - tutti (pizz.)</td>
<td>Anacrusic/ictic/apocrusic model (with C♯ referential pc)</td>
</tr>
<tr>
<td>IV</td>
<td>Maestoso - piano/harp/vib.</td>
<td>Spatial expansion opening, C♯ motion at climax, C♯ aggregate completion closure</td>
</tr>
<tr>
<td>V</td>
<td>Ritornello - tutti (pizz.)</td>
<td>Two phases: short (with C♯ referential pc) &amp; long (with variable polyrhythm); unique cluster climax</td>
</tr>
<tr>
<td>VI</td>
<td>Contrapuntal - violas/basses</td>
<td>Tonal referents and sentence; tonal &quot;cadence&quot;</td>
</tr>
<tr>
<td>VII</td>
<td>Ritornello - tutti (no brass)</td>
<td>Spatially compressed introduction; Spatially expanded conclusion (G8 termination followed by G.P.)</td>
</tr>
<tr>
<td>VIII</td>
<td>Lento - brass chorale</td>
<td>Long movement in two phases: short &amp; long (Golden ratio)</td>
</tr>
<tr>
<td>IX</td>
<td>Ritornello - tutti (pizz.)</td>
<td>Two phases: short &amp; long</td>
</tr>
<tr>
<td>X</td>
<td>Trios of double reeds</td>
<td>Introductory phrase precedes composite melody; accompaniment dyads accelerate the form</td>
</tr>
<tr>
<td>XI</td>
<td>Ritornello - tutti</td>
<td>Brass fanfare composite melody forms an inverted arch; proto-AITN</td>
</tr>
<tr>
<td>XII</td>
<td>Contrapuntal - violin/cello</td>
<td>Repeated A5; whisper climax recalls Mvt. X; aggregate closing</td>
</tr>
<tr>
<td>XIII</td>
<td>Ritornello - massive tutti</td>
<td>AITN maneuvering; large-scale spatial collapse coda</td>
</tr>
</tbody>
</table>

Example 5-1 – Outline of Boston Concerto, revisited (after Example 3-1)
The overall ritornello form of *Boston Concerto* now offers multiple pairings, connections, and large-scale groupings. Orchestration and musical material similarities provide some long-range pairings: Movements II and X with wind trios; and VI and XII with string counterpoint. Movements X and XII, then, are recapitulatory and "backward-looking" in formal function. Of the thirteen movements, a surprising number toward the middle portion of the composition have an easily apprehensible two-phase formal design: Movements V, VIII, IX. It is tempting to view a continuously performed odd-numbered succession of sections as some sort of arch form (particularly in music within the past century). However, fanning outward from a "central" Movement VII does not provide much promise for a Bartókian arch structure. It is worthy of note, however, that the spatial highpoint of the entire composition (the C8 that concludes the xylophone solo at the end of Movement VII) and the relatively sizeable silence that occurs immediately afterward transpires during the exact middle movement of *Boston Concerto*.

It is possible to hear the thirteen movements of *Boston Concerto* grouping into three sizeable units: Movements I-V (an introduction/exposition connected further by a C♯ referential pitch class); Movements VI-IX (a dramatic turning point followed by a solemn chorale); and Movements X-XIII (recapitulation of earlier materials and coda). During the recapitulation section of this hypothetical threefold grouping, the concertino movement instrumental groupings even appear in the same order that they did earlier (first woodwind trios then string counterpoint). Many of the movements in the composition (or at least medium-sized formal units) utilize aggregate completion and spatial expansions/contractions (introduced in the theoretical Chapter 2.2) as significant introductory and/or terminative formal markers.\(^\text{141}\)

\(^{141}\) See Appendix 2 for a performance guide to *Boston Concerto*, corresponding to Ferrara's Step Nine.
CHAPTER 6
CONCLUSION

"Analysis is only productive if we react to it."

– Pierre Boulez

6.1 Critique

At this point, Ferrara’s model prescribes that I engage in a meta-critical discussion of my analytical experience. Since such a discussion necessarily entails dropping the (thin) veil of theoretical objectivity (and/or including efforts at intersubjectivity), I will henceforth frame my comments as an open letter to the reader.

In my research, I sought to follow Carter's views on analysis – beginning with "the detailed impression that the piece makes on the intelligent listener after many hearings" and including discussion of "large-scale tension-building crescendi with periods of relaxation between." Consequently, I believed an appropriate methodology for analytically engaging with one of Carter's major late-late-style orchestral compositions would have at its root a sound-in-time account of my phenomenological awareness of the piece and only later move on to detailed syntactic observations using more conventional analytical tools. My research on the Boston Concerto was intended to amalgamate phenomenological, narrative, and spatial accounts of the composition with set-theoretical approaches.

However, there were invariably problems that arose in the course of my work. Thinking about the thirteen movements of the concerto in terms of traditional theoretical tactics (such as set-classes, spatial boundaries, and combinatoriality) was not difficult, primarily because my previous scholarship into Carter's late period music gave me the framework to understand his music in those terms. I came to my formal academic studies of Boston Concerto knowing a certain set of compositional techniques common in pieces Carter has written in the past twenty years. However,

142 See Chapters 3.2 and 4.1.
when those techniques were not evident on the musical surface, I quickly grew frustrated and struggled to find ways to re-frame my analytical argument. Subchapters 4.6 and 4.7 were especially difficult since the approaches I chose in analyzing Movements VI and VII are rarely employed when discussing atonal compositions. I delayed writing those two subchapters until late into my rough draft process because nothing I wrote seemed convincing; I had a feel for their sound-in-time but distilling that experience through a syntactical sieve eluded me.

I was also inclined to seek conventional Aristotelian anacrusic/ictic/apocrusic formal paradigms despite knowing that Carter ostensibly tries to circumvent such models in much of his earlier work. I am still not sure whether those narrative arcs are present in many of the movements of *Boston Concerto* or whether I am merely projecting my own biases on the formal architecture present in the composition. This issue is intertwined with my efforts to experience with fresh ears some of the sections of the piece I had examined prior to my dissertation project. My understanding of Movements III, VIII, and XIII will always seem a little separate and distant from the others in the piece because of the detailed information regarding their syntax I possessed before I ever attempted my first encounters Chapter 3.2. Unfortunately, there is no way to resolve this dilemma.

My greatest hurdle/disappointment was integrating my sound-in-time/phenomenological/experiential approaches with conventional analysis. The listening journals before each subchapter in Chapter 4 initially seemed like a bad variety of Allen Ginsberg’s poetic stream-of-consciousness rants and did not reflect how I actually heard the movement at hand. I struggled to convey the complexity of musical form that a listener would encounter through time. Eventually I compromised and only chose a few key moments to mention in my experience journals as a sort of preview to the following analytical narrative. This tactic allowed me to focus on the larger formal scope of the movements and forced me to engage directly with the musical surface. But the problem remains: how can I replicate in writing the *process* of creating a formal architecture as a listener perceives it in time and not spiral into complete solipsism?

One night while reflecting on my latest battle with music analysis, I decided to relax by watching a classic movie – Akira Kurosawa’s 1950 mystery drama *Rashomon*, which tells the woeful story of a woman’s rape and the murder of her samurai husband. As the crime investigation unfolds, the viewer is presented four different accounts of the tragic event as told by the assailant, an
objective narrator/witness, the wife, and the dead samurai (channeled through a psychic medium). The predicament is that the four tales, though relayed by characters all intimately and directly related to the crime, are mutually contradictory. Perhaps the participants, even though they all swear they are telling the truth, cannot accurately recall what happened because of their emotional/intellectual proximity to the event and also the time that has passed between the crime and the recollection. The observer of Kurosawa’s masterpiece is left to reconcile the accounts and devise a composite reality constructed out of multiple widely divergent narratives.

Rashomon provides an analogy for the issues I have been struggling with in my dissertation. Every analytical subchapter required a mediation between the synchronic (the "listening journals" and my phenomenological reaction to the music) and the diachronic (the paragraphs of remarks I made regarding my thoughts on the form and content of the work). Ultimately, I had to consider each of my (imperfect) hearings and forge a unified composite analytical narrative to present to the public – my version of the events. Having multiple analytical tools from which I could pick and choose in a malleable theoretical methodology gave me considerable freedom in building my formal narratives and facilitated the bridging of the synchronic with the diachronic. As much as we scholars may wish to articulate and communicate our ephemeral, sound-in-time experiences of music to others via the documented word, the time the writing process takes guarantees this goal will be unattainable.

6.2 On Looking Forward to More Carter Scholarship

Elliott Carter is a twentieth-century composer who escaped the twentieth century. His life span encompassed Mahler’s Ninth Symphony, World War I, prohibition, the premiere of Porgy and Bess, World War II, Appalachian Spring, Le marteau sans maître, the Berlin Wall, the "British Invasion," the first moon landing, Nixon in China, Nixon in China, Ligeti’s piano etudes, the Gulf War, and Corigliano’s First Symphony; unlike so many others of his far-removed generation, he reached the threshold of January 1, 2000 and kept working. Returning to Charles Rosen’s assertion that Carter was the only composer who synthesized the two most dominant compositional languages in pre-1945 post-tonal music, those of Stravinsky and of the Second Viennese School, it is possible to amplify/emend that bold statement to include the wealth of trends in post-45 music including the

143 Rosen’s words. See Chapter 2.1.
"return" of tonal gestures and generally Aristotelian formal constructs. Boston Concerto was Carter's first symphonic essay (without an individual soloist) of the twenty-first century. Consequently, it is difficult for me not to hear the piece as Carter's testimonial and commentary on an expansive swath of music history.

Regarding Elliott Carter as a (the) Great Synthesist and Boston Concerto as a contemporary manifestation and apotheosis of that aesthetic impulse, examining the piece within the framework of a deliberately malleable analytical methodology makes sense and produces a variety of musical results respecting the composition's formal construction and harmonic language. This is, of course, exactly what I have sought to accomplish in this dissertation. I studied a significant "late-late style" orchestral work by Elliott Carter in its entirety, making analytical remarks about every major section of the composition – since scholars have heretofore either overlooked symphonic pieces from this period altogether or studied short excerpted passages out of context. In particular, I focused on how larger formal units opened, concluded, and attained climax. In doing so, I advocated for a holistic methodology of analyzing form and harmony in contemporary music, particularly by incorporating observations about "sound-in-time" phenomenology, duration, registral space, narrative, timbre, and contour into structural models founded upon traditional set-theoretical and combinatorial concepts.

The musical elements discussed in the preceding chapters may be applied to other large-scale Elliott Carter compositions from the past fifteen years that have eluded the music-theoretical literature. Carter's numerous recent concerti for solo instruments (including clarinet, flute, piano, and cello) and orchestra, for instance, seem especially ripe for analytical investigation and could reaffirm concepts explored in my dissertation. Example 6-1 is a reduction of eleven measures (mm. 428-439) from the coda to Carter's Cello Concerto (2001). The orchestra boldly plays a fortissimo all-interval twelve-note chord at the end of a seven-measure climactic outburst while the cello remains reticent (who would hear the low string soloist at any rate?). As the accompaniment quickly fades away, the cello resumes its energetic allegro fantastico material in measure 429. Supplemenating the soloist's virtuosic passagework, the orchestra provides a sequence of staccato pianissimo tetrachords
Example 6-1 – Elliott Carter's Cello Concerto (2001), cadential spatial collapse, mm. 428-439
that sound like clockwork every four beats. In the wake of the roaring symphonic climax, these four-note chords initiate a long-range spatial collapse to effectively close out the registral space of the entire composition and bring the piece to a close. As one might expect, each of the four-note simultaneities is a realization of an all-interval tetrachord.

This cadential spatial collapse wedge even surpasses the one heard in the coda to Boston Concerto, since it spans a lengthy eleven measures and folds down at a remarkably even pace in terms of temporality (every four beats) and spatial boundary (the majority of the occupied spaces shrink by five or four semitones from the previous iteration). Although I have not analyzed all of Carter's pieces from the past two decades, I believe that this may be the composer's most impressive systematic long-range registral minimization that functions as a terminative formal device. As the collapse reaches its conclusion on an instantiation of an all-triad hexachord (a subtle shift in harmonic materials), so does the orchestra's musical narrative for the composition as a whole—a mere three pianississimo tones remain to be played by the accompaniment, isolated and at the edge of audibility. The piece is, ostensibly, over. However, the cellist resumes a fiery, rhapsodic, and ultimately playful cadenza, apparently unaware that the massive supporting orchestra has given up and walked away. A narrative conflict is presented, then, in the finale of Carter's Cello Concerto: the listener has received an obvious indication that the piece has concluded in the form of an epic spatial collapse, but the soloist willfully undermines this script, continues undeterred, and thumbs its nose at the ensemble with a final pizzicato flourish. Balance is one of the most difficult aspects of writing for cello and orchestra; Carter solved the climax problem by writing a dual narrative thread—one that wraps the musical discourse up tidily, and another that persists as if nothing had ever happened.

Examining Carter's "late-late style" works with text also reveals compositional techniques similar to those employed in Boston Concerto (and introduced in Chapter 2). I will therefore comment briefly on a movement from Carter's 1999 song cycle Tempo e Tempi for soprano and chamber ensemble. The fourth song, "Una Colomba," sets a poem by Italian modernist Giuseppe Ungaretti consisting of a single arresting image: (liberally translated) "I hear a dove from other floods." The supple vocal melody, with echoes of Kurtágian brevity, is completely crafted from two imbricated all-triad hexachords (see Example 6-2 for an analytical reduction of the entire movement). The introductory murmuring clarinet counterline, playing compressed chromatic filigree reminiscent of Bartók's night music, unfolds pitch classes complementary to the singer's first ATH. Eleven of
Example 6-2 – "Una Colomba" from Tempo e Tempi (1999), sketch of complete song
twelve pitch classes of the aggregate have been exhausted by the final syllable of the opening phrase "D'altri diluvi" ("From other floods..."). To subtly yet effectively highlight the eventual inclusion of the final pitch class (E♭) at the midpoint of the poem, Carter scores an E♭₃ in the lowest possible register of the clarinet, departing rather surprisingly from the established narrow pitch bandwidth of the composition. As has been demonstrated in this dissertation, Carter in his more recent music often employs non-pitch-class parameters such as register, dynamics, and texture to draw attention to aggregate conclusion. In response to both the presence of relative pitch-class newcomer E♭ and the recently colonized lower pitch space, the vocal line surges upward with a glorious series of perfect fourths on the eponymous word of the poem, "colomba," in due course climaxing on an E♭ and simultaneously balancing out the demarcated spatial boundaries in the process.

After the apex, the remainder of the song subsides with more of Carter's favored set-class materials; another ATH and AIT await the listener, but the manner in which those materials are partitioned and distributed creates a cadential gesture with perhaps unanticipated tonal implications. The ultimate vocal ATH is split into an [027] (the stacked fourths motive just discussed) and a descending [037] minor triad. (Incidentally, when one removes an [027] from an ATH the residual set is always a conventional major or minor triad.) The clarinet's four tones instantiate an iteration of [0137], {0, 4, 6, 7}, in which the final A♭ overlaps the soprano voice in pitch space and connects the terminal sound of the song with the identical opening pitch. More specifically, though, an E-minor triad unfurls the lingering text of the poem while the rising instrumental accompaniment penultimately offers an E♭₄ "leading tone" satisfied by restful E⁴ in the next measure. The protracted E-minor arpeggiation (landing on "tonic") is altered at the instant the voices overlap – A♭₄ above the prolonged E⁴ evokes an E-major Picardy-third cadence point. What does this say for the overall narrative of such a fragmentary song? Complementary to Ungaretti's text, the invariant A-flat4 has been recontextualized in a short time from a meandering, lonely chromatic locus into a resonant Picardy-third signifier of hope – much like a single lost dove, an ordinarily doleful image, becomes the harbinger of stability and rebirth in the Biblical flood narrative.

In his novel *If On a Winter's Night a Traveler*, Italo Calvino writes, "This is what I mean when I say I would like to swim against the stream of time: I would like to erase the consequences of certain events and restore an initial condition. But every moment of my life brings with it an accumulation of new facts, and each of these new facts bring with it consequences; so the more I seek to return to
the zero moment from which I set out, the further I move away from it." A comparable situation exists with music analysis. The longer we spend listening to and investigating the construction of a single piece by Elliott Carter (or anyone for that matter), we create an ever-growing plurality of formal and narrative pathways, some of which overlap and contradict. A promising strategy is to heed our sound-in-time experiences, fuse those to a pliable analytical methodology encompassing as many theoretical tools as possible, and document the ever-mutable form a composition takes in our musical minds.

### APPENDIX 1

<table>
<thead>
<tr>
<th>Forte Number</th>
<th>Prime Form</th>
<th>AIT Content</th>
<th>Common tones interval class</th>
<th>Complement</th>
</tr>
</thead>
<tbody>
<tr>
<td>6-9</td>
<td>[012357]</td>
<td>0137=[0137]; 1257=[0146]</td>
<td>ic6</td>
<td>Self-complementary</td>
</tr>
<tr>
<td>6-16</td>
<td>[014568]</td>
<td>0146=[0146]; 0568=[0137]</td>
<td>ic6</td>
<td>Self-complementary</td>
</tr>
<tr>
<td>6-22</td>
<td>[012468]</td>
<td>0146=[0146]; 1248=[0137]</td>
<td>ic3</td>
<td>Self-complementary</td>
</tr>
<tr>
<td>6-27</td>
<td>[013469]</td>
<td>0146=[0146]; 1349=[0137]</td>
<td>ic3</td>
<td>Self-complementary</td>
</tr>
<tr>
<td>6-30</td>
<td>[013679]</td>
<td>0179=[0146]; 1367=[0146]</td>
<td>ic6</td>
<td>Self-complementary</td>
</tr>
</tbody>
</table>

| 6-Z4         | [012456]   | 0146=[0146]; 0256=[0146] | ic6 | Pairs with 6-Z37 |
| 6-Z37        | [012348]   | 0238=[0137]; 1248=[0137] | ic6 | Pairs with 6-Z4 |
| 6-Z6         | [012567]   | 0256=[0146]; 1257=[0146] | ic3 | Pairs with 6-Z38 |
| 6-Z38        | [012378]   | 0137=[0137]; 0238=[0137] | ic3 | Pairs with 6-Z6 |
| 6-Z26        | [013578]   | 0137=[0137]; 1578=[0137] | ic6 | Pairs with 6-Z48 |
| 6-Z48        | [012579]   | 0179=[0146]; 1257=[0146] | ic6 | Pairs with 6-Z26 |

| 6-Z13        | [013467]   | 0146=[0146]; 1367=[0146] | ic5 | 6-Z42 (not on list) |
|              |            | 0137=[0137]; 0467=[0137] | ic5 |             |
|              |            | 1367=[0146]; 0467=[0137] | ic1 |             |
|              |            | 0146=[0146]; 0137=[0137] | ic1 |             |
| 6-Z23        | [023568]   | 0256=[0146]; 2368=[0146] | ic4 | 6-Z45 (not on list) |
|              |            | 0238=[0137]; 0568=[0137] | ic4 |             |
|              |            | 0256=[0146]; 0238=[0137] | ic2 |             |
|              |            | 2368=[0146]; 5680=[0137] | ic2 |             |
| 6-Z49        | [013479]   | 0179=[0146]; 3479=[0146] | ic2 | 6-Z28 (not on list) |
|              |            | 0137=[0137]; 1349=[0137] | ic2 |             |
|              |            | 0179=[0146]; 1349=[0137] | ic4 |             |
|              |            | 0137=[0137]; 3479=[0146] | ic4 |             |
| 6-Z50        | [014679]   | 0146=[0146]; 0179=[0146] | ic1 | 6-Z29 (not on list) |
|              |            | 0467=[0137]; 1679=[0137] | ic1 |             |
|              |            | 0146=[0146]; 1679=[0137] | ic5 |             |
|              |            | 0467=[0137]; 0179=[0146] | ic5 |             |

This chart displays all six-note set classes containing two all-interval tetrachords that share exactly two common tones. Set [012478], Carter's favored all-triad hexachord, is not one of these hexachords.
APPENDIX 2

Based upon the analytical notes made in this dissertation, the following is a brief and non-exhaustive guide for conductors who are preparing/rehearsing *Boston Concerto* for public performance.

Movement I: Bring out the flute and clarinet dyads in measure 1, as they reinforce the E-F# dyad that introduces the opening string harmonic progression. Carefully balance the PI-AITN in measures 10-11, as this sonority is unique to the movement and provides a framework from which the composition's characteristic harmonies are extracted. The lyrical trumpet solo can be played with a greater sense of rubato, allowing the intervals projected from the ATH to mingle "tonally" with the accompanying harmony; also, the solo concludes on A5 (the same critical pitch reharmonized in Movement XII) so perhaps lingering on this note may help make a very long-range association with the end of the composition. Again, be careful with balance in the final aggregate of Movement I so that the tonal references contained within may be clearly distinguished.

Movement II: The shift to a slower tempo at the onset of this movement allows for time to properly overlap the trichords in measures 29-34, assisting the listener's perception of the ATH chain. *Hauptstimme* markings should be strictly observed so that the composite single-line melody shared by the concertino instruments may materialize. In the final measure of the movement no single tone of the wind hexachord should dominate, letting the dissonant rub between the notes (and consequent terminal collapse in spatial bandwidth) become evident.

Movement III: During the marimba solo, one might perhaps indicate to the percussionist that the repeated C♯5 be performed at a dynamic even louder than the indicated *forte* in an effort to connect this referential pitch to the later C♯5 in the horns. When that pitch does indeed return in measure 85 as a fanfare "stamp" after the climax, do not allow the string pizzicato triple-stops to overwhelm the horns. During the pointillistic episode in the wake of the climactic measures, keep the tempo steady or pressing forward slightly so that the individual repeated tones might more easily merge into larger harmonic groups (ATHs).

Movement IV: The opening measures of Movement IV should feature equal dynamic participation from the vibraphone and piano, letting the characteristic opening of registral space be
heard; also, the repeated G4/D6 in measure 95 should be accented heavily by the pianist during its brief existence so the ATH iterations have a chance to resonate. The staccato articulations on the concertino motives in measures 110-111 could be softened a bit so the listener could perceive the contour of each burst (and therefore hear the important changes in motivic shape that occur as the passage progresses). The ever-moving pitch class C♯ should be emphasized as its position in registral space alters throughout measures 112-115. Take as much time as possible with the specially tuned harp glissando in measure 116; in fact, this gesture could be performed so slowly as to not seem like a sweeping glissando at all. The spatial expansion at the end of Movement IV should be perceptible without any further assistance from the conductor, but be sure the second violins audibly sound the C♯4 that completes the aggregate that terminates the movement (it would be easy for this note to get lost in the mix as it is isolated to a small group of players and marked piano).

Movement V: One of the conductor's primary responsibilities in Movement V is maintaining a steady tempo during the second section, consequently stabilizing the long-range variable polyrhythmic structure presented by the brass and percussion. Especially since the intersection of the pulse streams (paired with the subtle change in how frequently the brass pulse sounds) helps demarcate formal closure in the movement, coordinating the polyrhythm with clocklike accuracy is essential to the architecture of this segment of Boston Concerto.

Movement VI: Movement VI is one of the emotional cores of the composition and should be performed as such. Although one should not be too free and rubato with the tempo (otherwise, for example, the viola pulse in the opening measures will not seem steady), a conductor may highlight certain moments by subtly slackening the beat below the notated M.M. = 60. The "G major cadence" in measure 154 should be stretched out a little so the listener has a chance to perceive it (also increasing the dynamics here might not be a bad idea).

Movement VII: Since the xylophone and piccolo trade the melodic line frequently throughout this movement, focus on connecting these two instruments through tempo and matching dynamics (i.e. the dynamic level at the end of one gesture should match that of the beginning of the next motive group). The final beat of silence before the start of Movement VIII could be exaggerated slightly depending upon the size of the hall, "letting the air clear" before the brass enter with their dark chorale.

Movement VIII: Here the conductor should take special note of the dynamic profile of the movement. Since Movement VIII consists of two very large sections whose formal shape is largely
articulated by dynamics, the conductor should monitor the volume of the brass instruments with
great attention so as not to peak too early and telegraph the climactic moments. The 54-semitone-
wide twelve-note chord at the core of measures 211-213 has a particularly bright quality due to the
E♭ major triad that caps the simultaneity; the conductor should bring this interesting three-note
segment of the harmony out, but should be on alert about its intonation (the root is played as a high
written B♭5 in the horn).

Movement IX: The two climactic harmonies in Movement IX feature tonally "loaded"
subsets that should be called to the attention of the listener (as we have discussed in previous
movements). The aggregate field in measures 221-225 in particular can be illuminated by making
sure each member of the string orchestra is playing with utmost rhythmic accuracy, ensuring that the
triads and incomplete seventh chords that are extracted from the twelve-note total will sound as
separate elements.

Movement X: The head motives in the introductory measures of Movement X should be
accented (first the B♭/C in the oboes, then C/G♯ in the bassoons) so that the scalar motive
(C/B♭/A♭) occurring at the union of the concertino trios can be heard as being significant. The five
accompaniment dyads scattered throughout the movement, though quiet, must nonetheless be
salient if they are to be regarded as formal guideposts. Be sure to give each dyad its full duration;
also, one could choose to accent the final accompaniment dyad a little more than usual to emphasize
its unique qualities (highest and shortest in the movement).

Movement XI: Since the interplay of varying pulse streams (M.M. = 120, 135, and 72) plays
such an important role in defining the narrative of the opening of Movement XI, a rock-steady
tempo with rhythmic precision from the orchestral players is critical. The highest tones ("soprano"
melody) of each of the brass ATH instantiations should be readily perceivable, since this melodic
arch does much to articulate the form of the movement as a whole.

Movement XII: Each of the five reharmonized A5s should be distinctly accented with
special attention to the generally subito forte dynamic profile. As the "immovable la" passage gives
way to the spatial climax of the augmented triad (see Example 4-38), I would relax the tempo greatly
– allowing the listener to enjoy both the D-major/D-minor triadic shift in measure 331 and the
referential and ethereal sonority of the registral apex. As the cellos take over the final melodic
phrase at the movement's conclusion, make sure their tones are played at a true fortissimo so they are
not covered by the sustained violins.
Movement XIII: The cadential spatial collapse that concludes Boston Concerto should be conspicuous; therefore, ensure that all string players are at a uniform dynamic level in measures 354-358. I might also take a little extra time before the final B3 in the ultimate measure, making the surprising ending even wittier.
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BIOGRAPHICAL SKETCH

Alan Theisen received his doctorate in music theory at Florida State University in 2010 and completed undergraduate and graduate degrees in music at the University of Southern Mississippi; starting in the fall semester of 2010, he will be post-doctoral scholar and visiting assistant professor at Indiana University (Bloomington). Research interests include form in post-1945 music, narrative approaches to analysis, and interactions between analysis and performance. Theisen was awarded the Best Student Paper prize at the 2008 meeting of Music Theory Southeast for his essay "From Piano to Orchestra (and Back) with Boulez’s Notations pour orchestre."

Theisen performed at two World Saxophone Congresses (Montreal 2000 & Minneapolis 2003), is a journalist for the online periodical Sequenza21, and chaired the Music Theory Forum at FSU for two years. Also active as a composer, Theisen’s pieces have been played across the United States and in Europe. He is currently satisfying several overdue commissions.