

The Composition of Elliott Carter's *Night Fantasies**

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Elliott Carter's sketches provide a rich documentary record of the working methods of one of the great composers of the last hundred years. The present article is a study of the sketches for one of Carter's most fascinating and important compositions—*Night Fantasies*, for solo piano, completed in 1980. By examining the sketches it is possible to trace the basic outline of Carter's compositional process from his first thoughts about the piece to the finished score, and to witness the development of harmonic and rhythmic ideas that became the foundation of his compositional practice throughout the 1980s and into the 1990s.

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Carter's sketches for *Night Fantasies*, along with most of the sketches for his other works, are housed at the Paul Sacher Foundation in Basel, Switzerland. According to the Sacher Foundation catalog, there are 1001 pages of sketches for

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Night Fantasies. In addition, there are autographs of a draft version of the entire score (marked "Night Fantasies [/] Final Sketch"), a pencil fair copy on velum (marked "1st complete edition, April 14, 1980 correct[ed] April 21,"), and a blueprint on heavy cardboard of mm. 1-197 of the velum fair copy (marked "Early draft of 1st Part") containing various emendations, mostly dynamics.

The majority of the sketches are made on sheets of 24-stave paper, ca. $13\frac{1}{2}$ x 21 inches. Carter usually tore each sheet in half producing two sheets, $13\frac{1}{2}$ x $10\frac{1}{2}$ inches with 24 staves on both recto and verso of each sheet. There are also 72 sheets of sketches on $8\frac{1}{2}$ x 11 inch unlined paper, usually containing tempo modulations or other rhythmic notations.

Carter composed *Night Fantasies* between November, 1978 and April, 1980. He dated about half of the sketches, either by hand or with an adjustable date stamp. Most of the dated sketches are grouped in folders, one for each month from November, 1978 to November, 1979. A single folder contains sketches for December, 1979 and January, 1980. The remainder of the dated sketches are in a folder labeled "Dated Sketches (dates from different months on each page)." These are most often collections of several sheets which Carter grouped by subject and stapled together.¹ The undated sketches are divided into two folders which are labeled "Undated Sketches on King Brand 24-stave paper," and "Undated Sketches (24 stave paper with no brand name)."²

¹The arrangement of the sketches in folders probably was made by a librarian at the New York Public Library, where the materials were on deposit until Carter sold them to the Sacher Foundation in 1988. The labels on the folders are not in Carter's hand but they are in English, suggesting that the present arrangement was made before the sketches arrived at the Sacher Foundation, where materials are catalogued in German.

²I will refer to the locations of sketches using an abbreviation for the folder name and an item number. I have counted sketches stapled or taped together by Carter as a single item. For folders labeled by month I will simply give the month and the item number. I will use the abbreviation D<DM for the folder "Dated Sketches (dates from different months on each page)," UnKB for the folder "Undated Sketches on King Brand 24-stave paper," and UnNN for the folder "Undated

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In his preface to the score, Carter describes *Night Fantasies* as "a piano piece of continuously changing moods, suggesting the fleeting thoughts and feelings that pass through the mind during a period of wakefulness at night."³ In order to realize this conception, Carter decided to write a piece made up of many short, contrasting episodes. The large-scale rhythmic development is guided by a polyrhythm consisting of two streams of slow periodic pulsations. In the faster stream pulsations occur once about every five and one-half seconds; in the slower stream there is a pulsation about every seven seconds. The two streams coincide only on the downbeat of m. 3, and again on the last notes of the piece, twenty minutes later, forming a polyrhythm of 216:175 which is present throughout, renotated in a variety of different meters and tempi. The polyrhythm serves as a kind of formal and rhythmic skeleton, marking important moments of transition or arrival, and generating a wide variety of faster rhythmic patterns that occupy the musical surface.⁴

Harmonically, *Night Fantasies* is based on a collection of twelve-note "all-interval" chords, in which each of the twelve pitch classes and, between consecutive notes, each of the eleven intervals occurs exactly once.⁵ Carter treats these chords —

Sketches (24 stave paper with no brand name)." Handwritten dates appear in quotation marks; dates stamped in ink will be written in all capitol letters (i.e. JAN 01 1979).

³Elliott Carter, preface to the score of *Night Fantasies* (New York: Associated Music Publishers, 1982).

⁴For a more detailed discussion see John F. Link, "Long-Range Polyrhythms in Elliott Carter's Recent Music," (Ph.D. diss., City University of New York, 1994), 1-11; 30-33; 66-113.

⁵For studies of all-interval chords see Stefan Bauer-Mengelberg and Melvin Ferentz, "On Eleven-Interval Twelve-Tone Rows," *Perspectives of New Music* 3, no. 2 (Spring-Summer 1965): 93-103; David Cohen, "A Re-examination of All-interval Rows," *Proceedings of the American Society of University Composers* 7, no. 8 (1972-73): 73-74; and Robert Morris and Daniel Starr, "The Structure

each of which spans five and one-half octaves — as a repertoire of harmonic possibilities. Each one contributes to a variety of different harmonic events, while maintaining its own unique spatial arrangement of pitches distributed across the entire range of the keyboard.

The large-scale harmonic and rhythmic design of *Night Fantasies* can be observed in the opening measures (see Example 1).

of All-Interval Series," *Journal of Music Theory* 18, no. 2 (Fall 1974): 364-389. Carter's use of all-interval chords is explored by David Schiff in *The Music of Elliott Carter*, 1st ed. (London: Eulenburg, and New York: Da Capo, 1983), 261-263, 299-300, and 316-318, throughout the 2nd ed. (Ithaca, NY: Cornell University Press, 1998), and in "Elliott Carter's Harvest Home," *Tempo* 167 (December 1988): 7-13. The issue of all-interval chords in Carter's *Night Fantasies* is taken up by Andrew Mead, "Twelve-Tone Composition and the Music of Elliott Carter," in *Concert Music, Rock, and Jazz Since 1945: Essays and Analytic Studies*, ed. Elizabeth West Marvin and Richard Hermann (Rochester, NY: University of Rochester Press, 1995), 67-102.

every 35 sixteenths. In the slower stream pulsations recur every 27 quintuplet eighths, marking each successive onset of a repeated iambic pattern of 9 + 18 quintuplet eighths. Harmonically, the passage is based on an all-interval chord (mm. 3-8), together with its inversion (mm. 8-11). The chords are connected by their four common tones — F#1, F3, C#5, and C7 (see example 2).

Example 2 - All-interval chord and its inversion
from mm. 1-11 of *Night Fantasies*.

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Because of their central role in *Night Fantasies*, it will be helpful to review the basic properties of all-interval chords. Their number and nomenclature vary somewhat in the literature; I will follow Bauer-Mengelberg and Ferentz, notating them as strings of eleven intervals, these being the intervals between consecutive pitches of a given all-interval chord. The operations P (the identity operation), I (inversion), and R (retrogression) are defined in the usual way. There is also an operation Q which may be thought of as exchanging the segment of an all-interval chord that precedes the interval 6 with the segment that follows it (see example 3).⁶

⁶The Q operation is discussed by Morris and Starr, "The Structure of All-Interval Series," 365-366. All-interval chords also are closed under the operation M5, or multiplication of each interval by 5

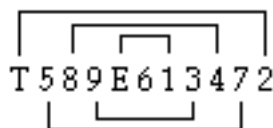
These operations may be compounded, and all are commutative, that is $IR = RI$; $IRQ = IQR$; and so on.

Example 3 - Operations on an all-interval chord

P = 7423198E65T
 R = T56E8913247
 I = 58T9E341672
 Q = 5T67423198E
 IR = RI = 276143E9T85 etc.

The all-interval chords Carter eventually decided to use in *Night Fantasies* are all RI-invariant, which means that the RI form of a given chord is equal to the chord itself.⁷ All such chords have a tritone in the central order position number six, and complementary intervals occupying complementary order positions (see example 4).

Example 4 - The RI-invariant all-interval chord from the beginning of *Night Fantasies*.



modulo 12. See Bauer-Mengelberg and Ferentz, "On Eleven-Interval Twelve-Tone Rows," 99, n. 6, and Morris and Starr, "The Structure of All-Interval Series," 365-366. RI- and QI-invariant all-interval chords (discussed below) are closed under an operation by which the order positions of the intervals 3 and 9 are exchanged. See Mead, "Twelve-Tone Composition."

⁷This family of chords is mentioned by Bauer-Mengelberg and Ferentz, "On Eleven-Interval Twelve-Tone Rows," 97, n. 4, and described in more detail by Morris and Starr, "The Structure of All-Interval Series," 370. Because they define their operations on strings of pitch classes rather than intervals, Morris and Starr refer to such chords as "R-invariant."

Also of interest to Carter scholarship are the QI-invariant all-interval chords, in which a central tritone is flanked by a five-interval "wing" on either side. Complementary intervals occupy the same order position in each "wing" (see Example 5)

Example 5 - A QI-invariant all-interval chord.



In most of his works since *Night Fantasies*, Carter has preferred to use all-interval chords of the QI-invariant type.

The starting point of Carter's harmonic investigations for *Night Fantasies* was the printout of 1,928 all-interval chords made available by Bauer-Mengelberg and Ferentz in connection with their article.⁸ His method seems to have been simply to go through the list manually, looking for chords with particular characteristics, and to write them out in music notation, beginning on an arbitrary pitch, as he found them.⁹

⁸Bauer-Mengelberg and Ferentz, "On Eleven-Interval Twelve-Tone Rows." Carter has said that at the time he began working on *Night Fantasies* "I had for a long time that list of all-interval chords that was published in *Perspectives of New Music*. And I know quite well Bauer-Mengelberg who lives around the corner and whom I see often." (Interview with the author, 5/14/92.) Also see Carter's reference to the Bauer-Mengelberg and Ferentz article in his handwritten chart for String Quartet No. 3, reproduced in Schiff, *The Music of Elliott Carter*, 1st ed., 262-263; 2nd ed., 80-81.

⁹Referring to his list of RI-invariant chords Carter has remarked "I went through the Bauer-Mengelberg list and found [the interval] six in the middle and after that went through and found all these chords." (Interview with the author, May 12, 1992.) As we will see Carter's selection and ordering of the all-interval chords used in *Night Fantasies* went through several other stages as well.

The earliest table of all-interval chords among the *Night Fantasies* sketches is a group of five sheets of King Brand staff paper stapled together.¹⁰ There are two date stamps, JAN 02 1979 on 1r, and JAN 12 1979 on 3r. 4r contains the handwritten date "Jan 14, 1978," which is probably an error on Carter's part, of the type one often makes near the beginning of a new year. The table contains 23 all-interval chords arranged in systems of four measures each.¹¹ Each measure corresponds to one of the four forms of a given chord — P, R, I, and RI — in which Carter initially was interested. An $8\frac{1}{2} \times 11$ salmon-colored sheet, which was originally attached to these pages, contains the same 23 all-interval chords written as numbers indicating strings of intervals, with "T" substituting for the number 10 and "E" substituting for 11.¹²

Carter apparently chose the chords on these tables because they contain segments that form instances of the all-interval tetrachord [0,1,4,6]. On the staff paper table each twelve-note chord is written out beginning on A1, and the segmental [0,1,4,6]s are circled in red pencil. Also indicated are instances, both segmental and non-segmental, of the all-trichord hexachord [0,1,2,4,7,8].¹³ Though his initial interest seems to have been in particular subsets of the twelve-note chords, Carter was already taking note of the symmetries inherent in some of them. Chords number 1, 2, 3, 7, 9, and 10 are QI-invariant, which Carter notes on the salmon-colored page by writing the intervals after the central tritone below their complements, as in example 6.

¹⁰1/79, no. 7.

¹¹A complete listing of the all-interval chords that appear in the *Night Fantasies* sketches is given in the appendix.

¹²This page is currently in 1/79, no. 1. At some point its upper left corner got wet, leaving a salmon-colored mark on p. 1r of 1/79, no. 7. The two items also have matching staple holes and creases.

¹³For a discussion of this chord see James Boros, "Some Properties of the All-Trichord Hexachord," *In Theory Only* 11, no. 6 (1990): 19-41.

Example 6 - Carter's notation of QI-invariant all-interval chord no. 1 on the salmon-colored chart from January, 1979.

1	a	827E96
	B	4T513

Carter also notes the symmetry of the QI-invariant chords by writing the intervals of chord 1a vertically from low to high in the margin of the first staff paper page of the chord table and drawing lines connecting complementary intervals. Chords 12-23 on the table are RI-invariant, and Carter has drawn lines on the salmon-colored page connecting complementary intervals on all twelve of these chords.

Carter made a second copy of his initial table of 23 all-interval chords on January 22, 1979.¹⁴ He transposed the chords to begin on F#1, and partitioned the pitches of each one into various groupings: pairs of six-note chords formed by taking every other note, triples of four-note chords formed by taking every third note, and so on. On this table Carter gives pride of place to the RI-invariant chords: numbers 12-22 appear on page 1r and number 23, which appears on page 3r, is connected to the others by an arrow. Page 2r contains chords number 1-7 (except for number 5 which does not appear) and page 3r contains chords 8-11.

An important milestone in the composition of *Night Fantasies* was Carter's decision to use RI-invariant all-interval chords exclusively. The motivation for this choice may have been Carter's discovery of the Q operation, which is documented on a table of all-interval chords typed on the same $8\frac{1}{2} \times 11$ salmon-colored paper used for the first table, 1/79, no. 1.¹⁵ The new table begins with chords 1-11, which are separated from the chords that follow by a row of lower-case "x"s. The table

¹⁴1/79, no. 23.

¹⁵The new table is UnKB, no. 74.

continues with chords 12-23. Now, however, Carter has indicated that chord 21 is the Q form of chord 12 and that the ten new chords, which he has added and numbered 24-33, are the Q forms of numbers 13-23.¹⁶ Several additional chords, numbered 14a, and 34-40, appear below number 33.

At this point Carter decided to abandon the all-interval chords which are not RI-invariant, and to regroup the others in pairs, related by the Q operation. He wrote out the results in music notation, again starting each chord on F#1.¹⁷ On this table Carter has circled chord number 25 in light blue pencil and marked it "source," identifying for the first time his interest in the chord that became the basis for the opening of *Night Fantasies*, and a central referential sonority throughout the composition. He also added two new chords, numbers 41 and 42. Carter next recopied the table onto a single page, beginning with number 25, which is again circled in light blue pencil.¹⁸ Each all-interval chord together with its inversion is assigned a single catalog number, and each prime/inversion pair is followed by its Q-related forms. The table is date stamped FEB 18 1979, and contains two new chords, numbers 43 and 44.

Clearly by the end of February Carter had formulated many of his ideas about the all-interval chords he wanted to use, and how best to organize them. But his repertory was to undergo several subsequent transformations before it took on its final form. Carter made two significant tables of all-interval chords on April 8th. They seem to have been motivated by the desire to expand the pool of chords used in the piece. Carter produced the first table by returning to the Bauer-Mengelberg and Ferentz list, this time looking specifically for RI-invariant chords. When he

¹⁶On Carter's table the number of the Q form of each chord is listed in parentheses after its own number.

¹⁷UnKB, no. 84.

¹⁸D<DM, no. 6, p. 1r.

found one, he checked to see if it was already on the table from February 18th. If not, he added it to the new table, otherwise he omitted it.¹⁹

The second April 8th chord table is a re-copied and re-ordered version of the first. It lists chords 45-98, and there are sketches of additional chords, numbered 99-103, which are crossed out. This table was clearly meant as a continuation of the one from February 18th, which lists chords 12-44.²⁰ At this point Carter had found all 88 of the RI-invariant all-interval chords on which the harmony of *Night Fantasies* is based. They are numbers 12-98, plus number 14a.²¹

Carter's listing of all-interval chords did not reach its final state until almost three months later, when Carter decided to reorganize the chords and to renumber them from 1-88. This final listing, which was still in Carter's possession in the mid-1990s, is dated June 25, 1979. To facilitate the transition from the old to the new numbering, Carter compiled a concordance on July 3rd, which made it possible to look up the old number of a chord and find its new number.²² The concordance also documents Carter's awareness that all 88 of the all-interval chords are generated by only four hexachords — [0,1,2,3,4,5], [0,1,3,4,5,8], [0,2,3,4,5,7], and [0,2,4,5,7,9] — which are Carter's hexachords number 4, 3, 5, and 6, respectively. On the July 3rd concordance these hexachord numbers are indicated in light green pencil, and the

¹⁹The new table is 4/79, no. 6.

²⁰At some point the three pages that make up this table were separated. The page from February and the second of the two pages from April are taped together to form D<DM, no. 6; the first of the two pages from April is D<DM, no. 12r.

²¹Carter made several errors while compiling the first April 8th listing. Chords 22 and 38 appear on both the new and the old tables and five RI-invariant chords from the Bauer-Mengelberg and Ferentz list do not appear on either table. These errors were corrected when the table was recopied.

²²Sketches on unlined paper, no. 2.

bottom of the page, in the same light green pencil, Carter has written "change in numbering of all interval chords."

In Carter's final ordering, all-interval chords are grouped according to their similarities (see example 7).

Example 7 - The first four chords of Carter's final all-interval chord chart for *Night Fantasies*.

- 1) 274316E985T (T589E613472)
- 2) 134726T589E (E985T627431)
- 3) 274916E385T (T583E619472)
- 4) 194726T583E (E385T627491)

As was mentioned earlier, each chord together with its inversion is assigned a single catalog number. The numbering also pairs chords that are related by the Q operation: chord number 2 is the Q form of the second version (in parentheses) of chord number 1. Finally, note that chords 1 and 3 are related by Andrew Mead's "exchange three and nine" operation (call it \emptyset) by which the order positions of the intervals three and nine are exchanged (see note 6). All 88 of the chords on Carter's final table are thus arranged: the first of each group might be called "prime," the second is the Q form, the third is the \emptyset form, and the fourth is the Q \emptyset form. Of all the operations on RI-invariant all-interval chords described by various theorists, only the M5/M7 operation is not reflected in Carter's numbering.

The various tables of all-interval chords and their relatively unambiguous chronology are of great help in studying the *Night Fantasies* sketches. Whenever the old numbering of chords appears on a sketch, it must have been written before late June or early July, 1979. Sketches on which the new numbering appears must have been either written or renumbered after that point. There are many sketches on

which the old numbers are crossed out and the new ones added. These sketches also provide clues as to which materials from early in the compositional process Carter thought important enough to revisit after July. For example, the sketches from January, 1979 are mainly taken up with documenting the various subsets of the original collection of 23 all-interval chords. Of more than a dozen such tables, all of which were written using the old numbers, only one has the new numbers added.²³ This sketch is primarily an investigation of the subsets of chord number 1 (new numbering), the chord that begins *Night Fantasies*, which Carter marked "source" on the sketches from the middle of February.

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The development of a repertory of all-interval chords was not the only focus of Carter's attention during the early stages of his work on *Night Fantasies*. He also spent a considerable amount of time exploring how the chords might give rise to various kinds of smaller collections. One of Carter's earliest and most important harmonic ideas was to highlight smaller collections that feature a particular interval class. Throughout the year and a half he worked on the piece, Carter made frequent sketches marked "1/11," "2/10," "3/9," "4/8," or "5/7" indicating the interval class a given sketch is meant to highlight.²⁴

Of particular interest is a sketch Carter made before the final renumbering of all-interval chords.²⁵ The sketch is divided into five rows, each of which is labeled

²³1/79, no. 34.

²⁴Some of these sketches were written during the earliest stages of the composition. Many use the old numbering of all-interval chords, and one even uses an all-interval chord which is not RI-invariant. Several of the items in the D<DM folder are collections of sketches that feature a particular interval class. For example, D<DM, no. 8 features interval class 5, D<DM, no. 19 features interval class 2, and D<DM, no. 20 features interval class 4.

²⁵UnKB, no. 28.

with an interval class and a symmetrical trichord or tetrachord associated with that interval class: [0,1,2] for interval class 1, [0,2,4] for interval class 2, [0,3,6,9] for interval class 3, [0,4,8] for interval class 4, and [0,2,5,7] for interval class 5. The first column of the table locates these set classes in all-interval chord number 1, and the second does the same for all-interval chord number 3. The remainder of the table locates other collections that prominently feature a single interval class in a variety of all-interval chords. This idea can be heard in the finished composition in the various partitions of chord number 1 that feature a particular interval class. At the beginning of the piece (shown in example 1) chord number 1 and its inversion are the background for a texture that prominently features interval class 5. When chord number 1 returns in mm. 38-39 it features interval class 4, and in mm. 439-441 it features interval class 1.

Similarly, Carter sometimes uses a single all-interval chord as the background for a contrapuntal dialog between two interval classes, as in mm. 150-156 in which interval class 2 (represented by set class [0,2,4]) and interval class 4 (represented by set class [0,4,8]) are emphasized within all-interval chord number 1.

As he explored the harmonic characteristics of his all-interval chords, Carter also made numerous short musical sketches to see how these characteristics might take shape in a variety of different piano textures and expressive contexts. These brief musical fragments were part of the dialectical process by which Carter composed *Night Fantasies*. The sketches document a constant give and take between the investigation of abstract properties and the exploration of how such properties can be musically realized. On the same day he compiled the February 18th table of all-interval chords, for example, Carter also wrote out the sketches excerpted in example 8.²⁶

²⁶2/79, no. 26r.

Example 8 - Early sketch of *Night Fantasies* mm. 33-35.

Example 8a

Musical score for Example 8a, showing two staves (treble and bass clef) with notes and rests. Measure numbers 13, 17, and 16 are indicated below the staves.

Example 8b (brackets and set-class analysis added)

Musical score for Example 8b, showing two staves (treble and bass clef) with notes and rests. Brackets and set-class analysis are added below the staves. The analysis includes set classes (012478) and (012678) labeled as "all-trichord", and (013679). Measure numbers 33 and 32 are indicated.

Example 8c

In the first excerpt (example 8a) Carter wrote out three instances of the all-trichord hexachord $[0,1,2,4,7,8]$ drawn from all-interval chords number 13, 17, and 16 (old numbers).²⁷ Further down the page (example 8b) he sketched a succession of note heads from all-interval chords number 18, 32, and 33 (old numbers), again giving priority to the all-trichord hexachord.²⁸ Finally, he fit the previous sketch into a polyrhythmic scheme of six quintuplet sixteenths in the right hand against five (occasionally six) sixteenths in the left, resulting in a passage that eventually found its way almost unchanged into the finished score (mm. 33-35).²⁹

Carter continued to compose a variety of individual short fragments of music throughout 1979. When he felt he had accumulated enough of them, his next task was to think about how they might be arranged to give the composition a sense of

²⁷The third of these hexachords made its way into the finished score in mm. 30-31.

²⁸Brackets and set class analysis added.

²⁹The sketch is identical to the score up to the third beat of m. 34, at which point the details of the rhythm begin to diverge, while the harmony remains the same.

long-range continuity. At some point he began assigning a number, written and circled usually in purple pencil, to more than 70 of the fragments. Then he simply pinned them to the wall of his studio and rearranged them until he found an ordering he liked.³⁰

Carter used the re-ordered fragments as a starting point for the composition of the draft score. They gave him a rough idea of what the piece would be like, but he clearly felt that more revisions were necessary. As he worked, he discarded about half of the fragments and added a great deal of other material, some from earlier sketches, some newly composed.

A particularly striking example of the kind of revisions Carter made while working on the draft score involves a passage that begins in m. 432, and continues to what is arguably the climax of the entire piece in m. 473. The dramatic and continuous buildup created in these measures was the result of Carter's careful reworking of at least five purple-numbered fragments initially composed months apart.

The first part of this passage began as a series of three fragments —numbers 65, 24, and 58 — written on strips of staff paper which Carter taped together to form a continuous sketch.³¹ Example 9 gives fragment 65, the beginning of fragment 24, and the first part of fragment 58.

³⁰Interview with the author, 5/14/92.

³¹D<DM, no. 14.

Example 9 - Excerpts from purple-numbered fragments 65, 24, and 58.

♩. 94.5?

1/11

65

94.5

JUN 26 1979

JUN 26

24

58

8 bass

The music in fragment 24 (dated JUN 26 1979) begins in m. 445. The sketch was transposed down two half steps, but is otherwise identical to the version in the

score. Fragment 65, on the other hand, was revised considerably to become mm. 438-445. An echo of the music in fragment 58 (dated AUG 14 1979) is heard in m. 449 of the score, but Carter rejected the rest of it in favor of fragment number 4 (dated MAR 02 1979) which contains the music found in mm. 451-453. The majority of the rest of the passage, mm. 457-470, appears on fragment number 61 (dated AUG 14 1979). New material was composed to form mm. 432-438, 448-450, 454-457, and 471-473.³²

Example 9 also gives some idea of how Carter implemented the composition's overall rhythmic design. Although the idea of using a long-range polyrhythm preceded the composition of the purple-numbered fragments, very few of the latter were planned to fit a specific place in the polyrhythm. This approach allowed Carter maximum flexibility when it came to working out the order of the fragments for the finished piece. Only after he had a clear idea of the dramatic continuity of an extended passage did Carter decide how it would be aligned with the polyrhythmic pulsations.

Carter also had to contend with notational constraints. The accurate notation of a pulsation at a given tempo requires the use of a specific beat division.³³ When pulsations from both streams are present (as they almost always are) two different beat divisions are required. If the beat divisions Carter had used for a particular fragment did not match those required for the accurate notation of the pulsations, the fragment had to be rewritten. This was the case for fragment number 65, which Carter rewrote for the draft score by substituting the necessary sixteenths and quintuplet sixteenths for the original sixteenths and triplet eighths. Other fragments,

³²The process of assembling the various drafts of this passage was a laborious one. The music in mm. 432-473 was worked out on at least nine sketch pages (in addition to the pages containing the purple-numbered fragments) before it was copied into the draft score.

³³See Link "Long-Range Polyrhythms," 8-33.

such as number 24, were initially composed using the appropriate beat divisions, and required little or no revision.

The final stage of the composition of *Night Fantasies* was the preparation of the velum fair copy. Carter probably began this task before the draft score was finished due to the proximity of the first performance, which was given by Ursula Oppens at the Bath Festival in June, 1980. Oppens has said that she received the score one-third at a time,³⁴ and the blueprint of m. 1-197 of the fair copy, which is among the autograph materials, is probably a copy of the first installment. The fair copy was finished on April 14, 1980.

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Carter's sketch materials contain a wealth of information about his music and his compositional methods. In the case of *Night Fantasies* the sketches document the development of a number of harmonic and rhythmic strategies, including the partitioning of twelve-note chords into smaller collections based on shared interval class or set class membership, and the use of long-range polyrhythms, which have become central to Carter's compositional practice in his more recent works. The sketches also provide a unique glimpse of the workings of a creative imagination that prizes both analytical abstraction and unrestrained flights of fancy, reminding us of the imaginative leap that underlies even the most well-documented structure.

³⁴Interview with the author, 6/5/92.

Appendix:
Table of Elliott Carter's Numbering of Twelve-Note
All-Interval Chords Used in *Night Fantasies*

Twelve-note all-interval chords listed with a five-digit interval string are RI-invariant. They may be written out in full by adding a 6 at the end of the string, followed by the string's retrograde inversion. for example:

27431 = 27431 + 6 + E985T = 274316E985T.

No.	New	Old			
			37	41352	4523E
			38	25314	21734
1	27431	315T469E728	39	41952	52941
2	13472	5T8E3672419	40	25914	52341
3	27491	4E7T3681529	41	4E532	14925
4	19472	58T9E341672	42	235E4	14325
5	4523E	4618T97E523	43	4E592	45E92
6	19T78	5E3672418T9	44	295E4	29E54
7	4529E	142956E8T37	45	45E92	3254E
8	13T78	569241T873E	46	29E54	187T9
9	589T1	19T856E3247	47	45E32	34721
10	1T985	59241673T8E	48	23E54	12743
11	583T1	1825E43796T	49	49712	385TE
12	1T385	592E4	50	21794	12749
13	34721	27491	51	43712	4529E
14	12743	13472	52	21734	13T78
14a	—	4791T	53	35812	45T13
15	385TE	21794	54	21853	31T54
16	12749	37TE4	55	374ET	54E23
17	3T781	27194	56	21859	32E45
18	187T3	589T1	57	538ET	21853
19	3254E	3E872	58	21497	35812
20	187T9	4E532	59	598ET	21859
21	52941	4E295	60	21437	374ET
22	14925	1T385	61	4791T	278E9
23	52341	3T781	62	2E358	3145T
24	14325	19472	63	4731T	45T19
25	3E872	27431	64	2E958	3E278
26	278E3	49712	65	479E2	4ET79
27	3145T	4ET73	66	2E974	35218
28	T5413	49172	67	473E2	54E29
29	49172	1T985	68	2E374	3T187
30	27194	278E3	69	4ET73	5TE83
31	43172	235E4	70	37TE4	38ET5
32	27134	583T1	71	4ET79	5TE89
33	4137T	187T3	72	35218	34127
34	259E8	2E358	73	5TE83	4137T
35	4197T	19T78	74	38ET5	259E8
36	253E8	43712	75	5TE89	41352

			Intervals	New	Old
76	34127	25314			
77	54E23	41952			
78	32E45	25914	12743	14	48
79	54E29	538ET	12749	16	50
80	3T187	21497	13472	2	14
81	45T13	4197T	13T78	8	52
82	31T54	253E8	142956E8T37	—	7
83	45T19	45E32	14325	24	42
84	3E278	23E54	14925	22	41
85	592E4	479E2	1825E43796T	—	11
86	4E295	2E974	187T3	18	33
87	4E235	598ET	187T9	20	46
88	532E4	21437	19472	4	24
89	—	4731T	19T78	6	35
90	—	2E958	19T856E3247	—	9
91	—	43172	1T385	12	22
92	—	27134	1T985	10	29
93	—	473E2	21437	60	88
94	—	2E374	21497	58	80
95	—	4E592	21734	52	38
96	—	295E4	21794	50	15
97	—	4E235	21853	54	57
98	—	532E4	21859	56	59
			235E4	42	31
			23E54	48	84
			25314	38	76
			253E8	36	82
			25914	40	78
			259E8	34	74
			27134	32	92
			27194	30	17
			27431	1	25
			27491	3	13
			276143E9T85	—	4
			278E3	26	30
			278E9	28	61
			295E4	44	96
			29E54	46	44
			2E358	62	34
			2E374	68	94
			2E958	64	90
			2E974	66	86
			3145T	27	62
			315T469E728	—	1
			31T54	82	54
			3254E	19	45
			325E79T8164	—	5
			32E45	78	56
			34127	76	72

34721	13	47	5TE89	75	71
35218	72	66	5E3672418T9	—	6
35812	53	58			
374ET	55	60			
37TE4	70	16			
385TE	15	49			
38ET5	74	70			
3T187	80	68			
3T781	17	23			
3E278	84	64			
3E872	25	19			
41352	37	75			
4137T	33	73			
41952	39	77			
4197T	35	81			
43172	31	91			
43712	51	36			
4523E	5	37			
4529E	7	51			
45T13	81	53			
45T19	83	63			
45E32	47	83			
45E92	45	43			
4731T	63	89			
473E2	67	93			
4791T	61	14T			
479E2	65	85			
49172	29	28			
49712	49	26			
4E235	87	97			
4E295	86	21			
4E532	41	20			
4E592	43	95			
4E7T3681529	—	3			
4ET73	69	27			
4ET79	71	65			
52341	23	40			
52941	21	39			
532E4	88	98			
538ET	57	79			
54E23	77	55			
54E29	79	67			
569241T873E	—	8			
583T1	11	32			
589T1	9	18			
592E4	85	12			
598ET	59	87			
5T8E3672419	—	2			
5TE83	73	69			

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