JOHN WEINZWEIG'S WOODWIND QUINTET:
A STUDY IN COMPOSITIONAL DEVELOPMENT AND SERIAL METHODS

by

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Abstract

John Weinzweig was the first Canadian composer to use techniques of serial organization in his compositions. Through his teaching, composing, and promotion of Canadian music, he has been influential in the development of Canadian music. Because of this, it is of interest to study one of his significant works, the *Woodwind Quintet* (1963/64). This work exemplifies Weinzweig’s serial techniques, including the use of row forms that share common segments (such as dyads, trichords, tetrachords, and hexachords), as well as an allusion to octatonic sounds.

This thesis approaches Weinweig’s work first from a serial standpoint, and then examines how the composer approaches the idea of motivic development within his work. Thorough analysis of twelve-tone relationships, themes, textures, and rhythms reveals how Weinzweig focuses not just on serial materials, but also on other aspects of composition.

Following a brief introduction about the composer and the piece, Chapter 1 examines the properties of the row used in the *Woodwind Quintet*. The discussion continues, in Chapters 2, 3, and 4, by examining each movement from a different analytical perspective, giving an overview of the work as a whole. Texture and instrumentation are the focus of the discussion of the first movement; segmentation is examined in the second movement; and rhythmic motives are studied in the third movement. Rotation, inversion, and other serial techniques are examined in the work as a whole. This thesis attempts to give an overview of Weinzweig’s compositional style
while discussing specific passages from the *Woodwind Quintet* and their unique manner of development.
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Introduction

John Weinzweig has often been called “the dean of Canadian composers,” an apt title, in my view, for his strong devotion to the development and propagation of Canadian music. Born in 1913 in Toronto, Weinzweig studied music at the University of Toronto and then at the Eastman School of Music in Rochester. He was interested in contemporary music from his early days of study, but opportunities to study recent music were limited at the University of Toronto when Weinzweig studied there. The music of Berg, Stravinsky, and others was more easily accessible at Eastman, which Weinzweig also found to be a more favourable environment for composing. In a 1975 interview, he remarked that “At Eastman I found, for the first time, a climate of creativity that was encouraged. It was the first time I had any composition guidance and that was from Bernard Rogers, a marvelous man.”¹ Weinzweig studied both composition and conducting at Eastman.²

Weinzweig returned to Canada in 1938 after completing his studies at Eastman. Over the years he has composed for the CBC and the National Film Board of Canada, has taught at the Toronto Conservatory of Music (now the Royal Conservatory of Music) from 1939-1943 and 1945-1960, and at the University of Toronto from 1952-1978, and has promoted his works and those of other Canadian composers. The latter two occupations were those in which he most distinguished himself: at the University of Toronto he taught many influential composers of the next generation, such as R. Murray

Schafer, Harry Freedman, Harry Somers, Murray Adaskin, Norma Beecroft, and Brian Cherney.\textsuperscript{3} Weinzweig helped to establish the Canadian League of Composers in 1951, and was a co-planner in the creation of the Canadian Music Centre in 1959. Weinzweig has been an active writer on Canadian music, with articles/editorials published in \textit{The Canadian Composer}, \textit{Canadian Review of Music and Art}, \textit{NOTATIONS}, and the \textit{Canadian League of Composers Newsletter}.\textsuperscript{4}

Weinzweig was the first Canadian composer to use serial compositional techniques, and he imparted this knowledge and experience to his students upon his return to Canada. He wrote the first Canadian twelve-tone work, the \textit{Suite for Piano no. 1}, in 1939.\textsuperscript{5} The \textit{Woodwind Quintet}, composed in 1963/64, is a relatively late work in his serial style. Other features of the \textit{Quintet} characteristic of Weinzweig's style are an emphasis on rhythm, and a "tight motivic organization, usually but not slavishly controlled through a personal application of serialism."	extsuperscript{6} These traits will be discussed in the following document, along with the various means by which Weinzweig develops his source material in each movement and in the work as a whole.

This thesis presents an assessment of the \textit{Woodwind Quintet} in the four following chapters: Chapter 1 examines the source material of the work (its twelve-tone row) to show its first appearances in the work, and to explore its properties of segmentation and interval content. In Chapter 2, Chapter 3, and Chapter 4, each of the three movements of

\textsuperscript{3} "Dr. John Weinzweig," \textit{Canadian Music Centre's Directory of Associate Composers} [on-line], Canadian Music Centre; available from http://www.musiccentre.ca/CMC/dac_rca/eng/u_/Weinzweig_Dr._John.html; Internet (last accessed 10 July 2002).


\textsuperscript{5} Henninger and Beckwith, "Weinzweig, John," 1392.

\textsuperscript{6} Ibid.
the *Quintet* will be discussed in terms of a specific musical feature emphasized by the composer. For each movement, the corresponding chapter will present an overview of each movement and its features, discuss selected passages, and examine the form. A table will indicate the overall form of each movement, the serial derivation of its subsections, and a brief description of each section.

Several notational conventions are used in this thesis. Pitch classes are indicated by their letter names, not by integers. Order positions (in the row) are often used to identify subsets, row rotations, and other kinds of serial information. Order positions will always be indicated by integers mod 12, with $t = 10$ and $e = 11$; order integers will be italicized within the document text (but not the figures). Order position sets and set classes will also be set in italic type. As is conventional, ordered sets will be indicated by angled brackets $<>$; unordered sets will be indicated by curly brackets ${}$. 

Because order positions are used throughout this thesis and identified in score excerpts, the derivations and direction of row forms are easily seen. For this reason, retrograde row forms are generally not identified with a separate label from the regular forms. Two means of labeling retrograde row forms are used: on musical examples, the regular row form label is indicated and order numbers show that it is in retrograde: $<e, t, 9, 8 \ldots 1, 0>$. In the text, commenting on such places, the (parenthesized) symbol (R) is sometimes included before the row-form label to indicate, without listing order integers, that the row in question is being retrograded.

Pitch-class sets (and set classes) will be labeled in the following way: a sequence of integers indicating the normal order of the set will be preceded by a parenthesized lettername indicating the pitch class in the "0" position of the normal order; a
parenthesized (I) is inserted if the set is to be read as “inverted,” descending from the “0” pitch class. Thus (C#) 014 = {C#, D, F} while (A)(l) 014 = {A, G#, F}. Both are representatives (or members) of SC (014). Forte labels are not used in this thesis.

Transformation and inversion operations are labeled according to Babbitt’s convention: \( \text{In}(x) = n-x \pmod{12} \) where \( x \) is a pitch-class integer, with the pitch-class C fixed as 0.

Octatonic collections will be referred to later in this document. The label OCT\((x, y)\) will be used to indicate a specific octatonic collection, where \( x \) and \( y \) represent two adjacent pitch classes within that collection. From this information, the octatonic collection in question can easily be reconstructed by the reader.

Figures, tables, row diagrams, and transformational networks are included in the body of the document. All of these examples are numbered by a number representing the chapter, followed by another number indicating the order of appearance within each chapter. For ease of reading, some figures have been repeated (this is usually indicated within the text).

All musical excerpts provided are in C-score: the transposing instruments, clarinet and horn, have their parts listed as heard, not as originally written for the musician. This has been done in order to more easily observe the pitch-class relations examined in this paper.
Chapter 1: Properties of the Row

All three movements of this work are based upon a single twelve-tone row, henceforth labeled P, and its derivations. P is shown in Row Diagram 1.1 with its order positions identified by integers mod 12 (with \( t = 10 \) and \( e = 11 \)):

Row Diagram 1.1

\[
\begin{array}{cccccccccccc}
\text{Order} & 0 & 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 & t & e \\
\text{Position:} \\
P: & C & Eb & E & A & Bb & C# & G# & B & G & F# & F & D \\
\end{array}
\]

The first fourteen bars of the work, provided in Figure 1.1, are derived from \( T_0(P) \) in an interesting but somewhat complex way. For the present we can observe from the ordered integers on Figure 1.1 that the oboe uses only the last tetrachord of P -- \( \{8, 9, t, e\} \) -- in various different orderings and rhythms. The other four instruments state the complementary octachord, consistently divided into two different tetrachords occurring as alternating simultaneities that are labeled X and Y beneath the music: X = order positions \( \{0, 1, 3, 4\} = (A) \ 0136 \), while Y = order positions \( \{2, 5, 6, 7\} = (G#) = (E)(I) \ 0358 \). Because tetrachords X and Y are not segmental order-position tetrachords, it is difficult to determine the row from this opening passage alone. We shall return to this interesting passage later to analyze it in the detail it deserves. For the present we shall move on to examine passages where P and its transformations are presented more clearly.
Figure 1.1: Bars 1-14, first movement
While order positions on **Figure 1.1** show how bars 1-14 can be derived from $T_0(P)$, they hardly offer proof that $P$ is in fact the referential row for the movement. To help confirm this assertion, bars 15-37 are examined in **Figure 1.2**.

**Figure 1.2: Bars 15-37, first movement**
Figure 1.2, con't
The first clearly-ordered form of the row is the retrograde of \( I_5(P) \) played by the flute in bars 16-18, which also plays a rotation of the retrograde in bars 22-24.\(^7\) **Row Diagram 1.2** provides \( T_0(P) \) and \( I_5(P) \) for comparison.

**Row Diagram 1.2**

\[
\begin{array}{cccccccccccc}
0 & 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 & t & e \\
\hline
T_0(P): & C & Eb & E & A & A\# & C\# & G\# & B & G & F\# & F & D \\
I_5(P): & F & D & C\# & G\# & G & E & A & F\# & A\# & B & C & Eb \\
\end{array}
\]

**Row Diagram 1.2** helps us to observe that \( I_5(P) \) and its retrograde share some consecutive dyads with \( T_0(P) \): \{F, D\} = \( I_5(P) \) \{0, 1\} = \( T_0(P) \) \{t, e\}; \{C, Eb\} = \( T_0(P) \) \{0, 1\} = \( I_5(P) \) \{t, e\}; \{C\#, G\#\} = \( I_5(P) \) \{2, 3\} = \( T_0(P) \) \{5, 6\}; and \{E, A\} = \( T_0(P) \) \{2, 3\} = \( I_5(P) \) \{5, 6\}. In general the pitch classes that compose these dyads have been heard together in bars 1-14: \{F, D\} was prominent in the oboe tetrachordal melody; \{C, Eb\} was found in the simultaneous tetrachord \( X \); and dyad \{C\#, G\#\} appeared in the simultaneous tetrachord \( Y \). The invariant segments do not necessarily stand out as independent entities, but it is interesting nonetheless that they are all preserved. Boxes shown on **Row Diagram 1.2** highlight these shared dyads.

In addition to the rotated-retrograde statements of \( I_5(P) \) in the flute on **Figure 1.2**, the clarinet and bassoon each present melodies of six pitch classes which also confirm \( P \) as the prime-form row. Row labels and order positions on the figure show how the

---

\(^7\) Throughout this thesis, order positions are given only for “forward” forms of the row and its transformations. Retrograde forms of the row are therefore indicated when those order positions appear in retrograde.
bassoon and clarinet figures are derived from the complementary hexachords of $I_7(P)$.

This row form is given along with $T_0(P)$ in Row Diagram 1.3:

Row Diagram 1.3

<table>
<thead>
<tr>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>t</th>
<th>e</th>
</tr>
</thead>
<tbody>
<tr>
<td>$I_7(P)$: G</td>
<td>E</td>
<td>Eb</td>
<td>Bb</td>
<td>A</td>
<td>F#</td>
<td>B</td>
<td>G#</td>
<td>C</td>
<td>C#</td>
<td>D</td>
<td>F</td>
</tr>
<tr>
<td>$T_0(P)$: C</td>
<td>Eb</td>
<td>E</td>
<td>A</td>
<td>A#</td>
<td>C#</td>
<td>G#</td>
<td>B</td>
<td>G</td>
<td>F#</td>
<td>F</td>
<td>D</td>
</tr>
</tbody>
</table>

$I_7(P)$ also preserves many of the consecutive dyads of $T_0(P)$: both row forms have

- $\{Eb, E\}$ in order positions $\{1, 2\}$,
- $\{A, Bb\}$ in positions $\{3, 4\}$ (these two dyads produce the tetrachord $\{E, Eb, Bb, A\}$ in order positions $\{1, 2, 3, 4\}$ of both row forms),
- $\{G#, B\}$ in positions $\{6, 7\}$, and
- $\{D, F\}$ in positions $\{t, e\}$. This last dyad was also a common segment between $T_0(P)$ and the flute's $I_5(P)$. In fact, by comparing $I_5(P)$ and $I_7(P)$ (Row Diagram 1.4), we can find their common segments (the appearance of these in the actual music will be discussed at a later point):

Row Diagram 1.4

<table>
<thead>
<tr>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>t</th>
<th>e</th>
</tr>
</thead>
<tbody>
<tr>
<td>$I_5(P)$: F</td>
<td>D</td>
<td>C#</td>
<td>G#</td>
<td>G</td>
<td>E</td>
<td>A</td>
<td>F#</td>
<td>Bb</td>
<td>B</td>
<td>C</td>
<td>Eb</td>
</tr>
<tr>
<td>$I_7(P)$: G</td>
<td>E</td>
<td>Eb</td>
<td>Bb</td>
<td>A</td>
<td>F#</td>
<td>B</td>
<td>G#</td>
<td>C</td>
<td>C#</td>
<td>D</td>
<td>F</td>
</tr>
</tbody>
</table>
I₅(P) and I₇(P) also have segments in common: {G, E} = I₅(P) {4, 5} = I₇(P) {0, 1}; {A, F#, Bb, B} = I₅(P) {6, 7, 8, 9} = I₇(P) {3, 4, 5, 6}; {F, D, C#} = I₅(P) {0, 1, 2} = I₇(P) {9, t, e}. The interaction between the three instruments emphasizes the latter of these: because the flute presents its row in retrograde, {F, D, C#} occurs at the end of both (R)I₅(P) and I₇(P) in the ordering <C#, D, F>. In particular, the <D, F> dyad is emphasized since it occurs at the end of the first flute statement (bar 18), and at the end of every clarinet statement (bars 22, 27-28, and 36-37). The C# is separated from the D by two other pitch classes (repeating in the clarinet).

The observations made in connection with Figure 1.2 help confirm our assertion of P as the appropriate row for the movement. Indeed, T₀(P) is the only row form derived from the unambiguous twelve-tone ordering in bars 16-18 of the flute that has the tetrachord {G, F#, F, D}, played by the oboe in bars 1-14, as one of its segmental tetrachords. The accompanimental tetrachords of bars 1-14 are not segmental; we will see later how the dyads of these tetrachords are segmental.

For reference, the complete list of derived row forms can be found in Figure 1.3, a tone-row matrix created from P.
Figure 1.3: Tone row matrix using P as the prime form row

<table>
<thead>
<tr>
<th></th>
<th>C</th>
<th>Eb</th>
<th>E</th>
<th>A</th>
<th>Bb</th>
<th>C#</th>
<th>G#</th>
<th>B</th>
<th>G</th>
<th>F#</th>
<th>F</th>
<th>D</th>
</tr>
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<tbody>
<tr>
<td>A</td>
<td>C</td>
<td>C#</td>
<td>F#</td>
<td>G</td>
<td>Bb</td>
<td>F</td>
<td>G#</td>
<td>E</td>
<td>Eb</td>
<td>D</td>
<td>B</td>
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<tr>
<td>G#</td>
<td>B</td>
<td>C</td>
<td>F</td>
<td>F#</td>
<td>A</td>
<td>E</td>
<td>G</td>
<td>Eb</td>
<td>D</td>
<td>C#</td>
<td>Bb</td>
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<tr>
<td>Eb</td>
<td>F#</td>
<td>G</td>
<td>C</td>
<td>C#</td>
<td>E</td>
<td>B</td>
<td>D</td>
<td>Bb</td>
<td>A</td>
<td>G#</td>
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<td>Eb</td>
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<td>C#</td>
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<td>G#</td>
<td>G</td>
<td>E</td>
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<td>E</td>
<td>F</td>
<td>G#</td>
<td>Eb</td>
<td>F#</td>
<td>D</td>
<td>C#</td>
<td>C</td>
<td>A</td>
<td></td>
</tr>
<tr>
<td>Bb</td>
<td>C#</td>
<td>D</td>
<td>G</td>
<td>G#</td>
<td>B</td>
<td>F#</td>
<td>A</td>
<td>F</td>
<td>E</td>
<td>Eb</td>
<td>C</td>
<td></td>
</tr>
</tbody>
</table>

To indicate further that P is used in all three movements, Figure 1.4 shows how bars 1-4 of the second movement are also derived from $T_0(P)$. This strictly "linear" sequential statement of P helps confirm it as the prime-form row for the work as a whole. The passage also shows an explicit segmentation of the row into trichords, a matter which will be examined a bit later.
Row P and its transformations have interesting properties of symmetry, interval content, and segmentation that Weinzweig explores in the *Woodwind Quintet*. The following discussion will examine several properties of the row and its transformations, and give an initial indication of how these are exploited within the *Woodwind Quintet*.

The transformations of P are often partitioned into two hexachords. A notable case in point is the clarinet/bassoon duet texture from the first movement, already shown in Figure 1.2, where it accompanies rotated statements of (R)Io(P) in the flute. Another example of this kind of texture occurs in bars 71-83 of the first movement, where the oboe and horn now present the hexachords of I0(P) against a three-voice canon built from canonic rotated statements of (R)T0(P) in the flute, clarinet, and bassoon. This passage, to be further discussed in Chapter 2, is provided in Figure 1.5. For the present we can observe how the oboe uses \{e, t, 9, 8, 7, 6\} from I0(P), and the horn uses its complement...
\{5, 4, 3, 2, 1, 0\} from I_0(P). Those two instruments also play in isorhythm, the other three instruments will be discussed in Chapter 2.

---

8 The term ‘isorhythm’ is used throughout this discussion; although the term can indicate successive exact repetitions of duration series, I am using ‘isorhythm’ in this thesis to indicate two or more instrumental parts that share the same rhythm.

9 The pitch-class sets and set classes brought out by the isorhythmic segmentation here are interesting. For example, in bars 71-73: \{e, 5, t, 4\} = (G) = (D)(I) 0347 and \{9, 3, 8, 2\} = (Eb) = (Ab)(I) 0235; these are both octatonic subsets. We also see \{8, 2, 7, 1, 6, 0\} = (C) = (E) = (Ab) = (C#)(I) = (F)(I) = (A)(I) 014589; this is commonly referred to as a ‘hexatonic’ collection. It is also interesting to observe that 6-related order positions are always paired isorhythmically (i.e. e with 5; t with 4; and so forth). These properties could be discussed at length; unfortunately there is not enough space to address these issues in detail in this document.
The hexachords of P (and its transformations) share several interesting features.

The first hexachord of P belongs to SC (013467); with two degrees of symmetry, each form of this hexachord will map onto itself under some inversion operation. This
property is shared, necessarily, by its complement, which belongs to SC (012369). These complementary hexachords each map onto themselves under the same inversion operation. On $T_0(P)$, the respective hexachords $(A) = (E)(I)\ 013467$ and $(F) = (G#)(I)\ 012369$ are each invariant under $I_1$. Row Diagram 1.5 shows this invariance on $T_0(P)$ and $I_1(P)$. In fact, the first hexachords of $T_0(P)$ and of $I_1(P)$ are retrogrades of one another. Although this is not true of the second hexachords of these rows, there is another property that is true of both hexachords: the consecutive dyads in the row each map onto themselves or onto another consecutive dyad in the same hexachord, under the inversion operation in question. Therefore the dyadic partition of $T_0(P)$ involves the same pitch-class dyads as the dyadic partition of $I_1(P)$:

Row Diagram 1.5: Hexachordal and dyadic segmentation of $T_0(P)$ and $I_1(P)$

<table>
<thead>
<tr>
<th>Order position</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>t</th>
<th>e</th>
</tr>
</thead>
<tbody>
<tr>
<td>$T_0(P)$:</td>
<td>C</td>
<td>Eb</td>
<td>E</td>
<td>A</td>
<td>Bb</td>
<td>C#</td>
<td>G#</td>
<td>B</td>
<td>G</td>
<td>F#</td>
<td>F</td>
<td>D</td>
</tr>
<tr>
<td>$I_1(P)$:</td>
<td>C#</td>
<td>Bb</td>
<td>A</td>
<td>E</td>
<td>Eb</td>
<td>C</td>
<td>F</td>
<td>D</td>
<td>F#</td>
<td>G</td>
<td>G#</td>
<td>B</td>
</tr>
</tbody>
</table>

Hexachord A       Hexachord B

These properties of $T_0(P)$ and $I_1(P)$ are true of other transposition levels, and thus hold for any $T_n(P)$ and $I_{n+1}(P)$. Therefore generalizations can be made from the relations observed in Row Diagram 1.5; they are formulated below as strict relations among ordered sets of order positions on the row forms $T_n(P)$ and $I_{n+1}(P)$, and then among the unordered membersets of the dyadic and hexachordal partitions of those row forms:
For any index number \( n \), \( T_n(P) <0, 1, 2, 3, 4, 5> = I_{n+1}(P) <5, 4, 3, 2, 1, 0> \), and \( T_n(P) <6, 7, 8, 9, e> = I_{n+1}(P) <t, e, 9, 8, 6, 7> \).

Let \( D \) be the dyadic partition of \( T_n(P) \) and \( H \) be the hexachordal partition of \( T_n(P) \). Then \( D \) and \( H \) are both invariant under the inversion \( I_{n+1} \). Consequently, \( D \) is also the dyadic partition of \( I_{n+1}(P) \) and \( H \) is also the hexachordal partition of \( I_{n+1}(P) \).\(^{10}\)

The dyadic property in particular can lead to ambiguity about which row form is being used when the row dyads are presented as simultaneities. This occurs, for instance, in the third movement, bars 131-134 (\textbf{Figure 1.6}) and 135-143 (\textbf{Figure 1.7}, given shortly). In bars 131-134, the oboe and clarinet play in isorhythm and present (and repeat) the simultaneous dyads \(<\{G, Bb\}, \{F\#, Db\}, \{A, C\}>\); these dyads correspond to the first hexachord of either \( T_9(P) \) or \( I_{10}(P) \). Analytically, one is likely to conclude that this is the first hexachord of \( I_{10}(P) \), since the dyads of the first hexachord of \( I_{10}(P) \) correspond, in order, to the simultaneous dyads of the oboe and clarinet hexachord.

However, the cyclic repetition of the dyads casts some doubt on their first-to-last order, and it is also possible that the composer was using a retrograde of the first hexachord of \( T_9(P) \). The horn and bassoon do not clarify this ambiguity because they do not play the complement of the oboe/clarinet hexachord. The horn and bassoon instead present material treated in a similar manner: their dyads \(<\{D\#, C\}, \{E, A\}, \{C\#, Bb\}>\)

correspond to the first hexachord of either $T_0(P)$ or $I_1(P)$. These simultaneous dyads correspond, in order, to those of $T_0(P)$, but the possibility that they might actually derive from $I_1(P)$ is not completely discounted without further collaboration from the complementary hexachord. Another ambiguity arises as a result of these properties: it is not clear whether the horn/bassoon duet is to be heard as an inversion or as a retrograde transposition of the oboe/clarinet duet. Registral parallelisms between the two duets probably incline one to hear their relationship as an inversional one, but some ambiguity in the matter nonetheless persists.

Figure 1.6: Bars 131-134, third movement

The oboe/clarinet and horn/bassoon duets also have common pitch-class material in bars 131-134 (Figure 1.6). From their collections $<\{G, Bb\}, \{F\#, Db\}, \{A, C\}>$ and $<\{D\#, C\}, \{E, A\}, \{C\#, Bb\}>$, several things can be observed. Firstly, the two ordered collections of dyads map onto each other under $I_{10}$: in fact, the pitch classes $\{A, Bb, C,$
C#} occur in both collections, forming \((A) = (C#)(I) 0134\), also invariant under \(I_{10}\).\(^{11}\)

This tetrachord is reiterated at the end of the excerpt (and is also sustained across the bar line in bars 132-133), and is also a subset of the octatonic collection \(\text{OCT}(A, Bb)\).

Indeed, the combination of the oboe/clarinet and horn/bassoon collections results in \{F#, G, A, Bb, C, C#, D#, E\}, the entire \(\text{OCT}(A, Bb)\) collection. Octatonic materials are often incorporated into the twelve-tone materials of this work; the composer seems to have intentionally chosen sets incorporating octatonic materials. The use of these materials is discussed later in this chapter.

**Figure 1.7** shows bars 135-143, in which the same pitch classes are presented in a similar manner, but in a different instrumentation. In bars 136-138 the flute and oboe present \(<\{G, Bb\}, \{F#, C\}, \{A, C\}>\), while the clarinet and bassoon present \(<\{Eb, C\}, \{E, A\}, \{Db, Bb\}>\). In bars 141-143 these associations are reversed: the flute and oboe now present \(<\{Eb, C\}, \{E, A\}, \{Db, Bb\}>\), while the clarinet and bassoon present \(<\{G, Bb\}, \{F#, C\}, \{A, C\}>\). The same arguments hold true as in the discussion of bars 131-134: the dyads of each hexachord correspond best to the unordered dyads of the first hexachord of \(I_{10}(P)\) and \(T_0(P)\). Again the two hexachords combine to create an octatonic collection, and again the complement of neither hexachord is to be found in the texture.

Indeed, the horn material in **Figure 1.7** heard (in bars 138-141) between the two statements of the flute/oboe and clarinet/bassoon hexachords derives from \(I_4(P)\), not from any of the row forms that might correspond to the hexachords in question.

---

\(^{11}\) The oboe/clarinet duet and the horn/bassoon duet both present instances of SC (013467); these also map onto each other under \(I_{10}\). This set class is a subset of the octatonic collection.
As previously mentioned, the first hexachord of each row form belongs to SC (013467), a set class with two degrees of symmetry. As we have seen, its ordering in the row is also symmetrical. **Row Diagram 1.6** examines $T_0(P)$ to show this property:
Row Diagram 1.6: Intervals between consecutive pitch classes of $T_0(P)$

<table>
<thead>
<tr>
<th>Order position:</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>t</th>
<th>e</th>
</tr>
</thead>
<tbody>
<tr>
<td>$T_0(P)$:</td>
<td>C</td>
<td>Eb</td>
<td>E</td>
<td>A</td>
<td>Bb</td>
<td>C#</td>
<td>G#</td>
<td>B</td>
<td>G</td>
<td>F#</td>
<td>F</td>
<td>D</td>
</tr>
<tr>
<td>Directed interval from previous pitch class:</td>
<td>+3</td>
<td>+1</td>
<td>+5</td>
<td>+1</td>
<td>+3</td>
<td>-5</td>
<td>+3</td>
<td>-4</td>
<td>-1</td>
<td>-1</td>
<td>-3</td>
<td></td>
</tr>
</tbody>
</table>

The first hexachord, shown in $T_0(P)$, is ordered as a palindromic sequence of intervals: $<+3, +1, +5, +1, +3>$. For an inversion of the row, the direction of the intervals will be the opposite, $<-3, -1, -5, -1, -3>$, but the palindrome is maintained. The first and last pitch classes of this hexachord map onto one another under $I_1$; because of this relation, the first hexachords of any two rows $T_n(P)$ and $I_{n+1}(P)$ (in other words, any two row forms related by $I_1$) will be retrogrades.

Although Weinzweig does not exploit this property overtly, he does seem to be conscious of the interval direction required to create this palindrome. Bar 24 in the second movement (Figure 1.8) presents a melody in the flute created from the first hexachord of $T_0(P)$, with several repeated pitch classes. This melody is strictly ascending, and any repeated pitch classes remain in the same register. The melody within this bar also does not move by any interval larger than 5 semitones (between the E and A); the smallest possible intervals between consecutive pitch classes are used, thus producing the exact palindromic sequence of intervals listed above. This melody therefore displays the symmetry just discussed.
Also common within this work is the segmentation of row forms into trichords. The opening four bars of the second movement (see the discussion above accompanying Figure 1.4) emphasize this segmentation by presenting the four trichords of $T_0(P)$ melodically, each in a different instrument. This segmentation is interesting because the composer has designed the row so that all of the segmental trichords belong to SC (014). Trichordal segmentations and the use of SC (014) will now be examined.

The discussion will begin by examining $T_0(P)$ and its segmental trichords, given in Row Diagram 1.7:

Row Diagram 1.7: Segmental trichords of $T_0(P)$

<table>
<thead>
<tr>
<th>Order positions:</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>t</th>
<th>e</th>
</tr>
</thead>
<tbody>
<tr>
<td>$T_0(P)$:</td>
<td>C</td>
<td>Eb</td>
<td>E</td>
<td>A</td>
<td>Bb</td>
<td>C#</td>
<td>G#</td>
<td>B</td>
<td>G</td>
<td>F#</td>
<td>F</td>
<td>D</td>
</tr>
<tr>
<td>Labels:</td>
<td>(E)(I) 014</td>
<td>(A) 014</td>
<td>(G) 014</td>
<td>(F#)(I) 014</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trichord</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
<td>9</td>
<td>10</td>
<td>11</td>
<td>12</td>
</tr>
</tbody>
</table>
Since the four segmental trichords all belong to SC (014), the unordered trichords can be mapped onto each other under various transformations. The transformations which map the segmental trichords onto one another in T_0(P) are shown in the following transformational network:

Transformational Network 1.1: Trichord mapping for T_0(P)

More generally, for the transposed row forms T_n(P) the transformations will be as follows:

---

For the inverted row forms $I_n(P)$ the transformations will differ. The transposition and inversion operations mapping trichords to each other are listed below: for the transpositions, the index number is the complement of the corresponding transposition for $T_0(P)$ in Transformational Network 1.1; for the inversions, the index number is the complement of the corresponding inversion for $T_0(P)$ in Transformational Network 1.1 plus 2n:

- trichord 1 to trichord 2: $I_{(12-1)+2n} = I_{11+2n}$
- trichord 1 to trichord 3: $I_{(12-11)+2n} = I_{1+2n}$
- trichord 1 to trichord 4: $T_{(12-2)} = T_{10}$
- trichord 2 to trichord 3: $T_{(12-10)} = T_{2}$
- trichord 2 to trichord 4: $I_{(12-3)+2n} = I_{9+2n}$
- trichord 3 to trichord 4: $I_{(12-1)+2n} = I_{11+2n}$
Although the inversion operations within the transformational networks above differ depending upon $n$, the transposition operations within each network are not affected by $n$. Several relationships can be observed when the transformational networks for $I_n(P)$ and $T_n(P)$ are compared: $I_{1+2n}$ and $I_{1+2n}$ swap places from Transformational Network 1.2 to Transformational Network 1.3 between trichords 1 and 2, 3 and 4, and 1 and 3; $T_{10}$ and $T_2$ also swap places from trichords 1 to 4 and 2 to 3. In fact, because $T_{10}$ and $T_2$ are inverses, both these two operations relate the relevant pairs of trichords, depending on the direction of relationship; for example, in Transformational Network 1.2 $T_{10}$ maps trichord 2 onto trichord 3, while $T_2$ maps trichord 3 onto trichord 2. This emphasizes $T_{10}$ and $T_2$, and indeed those are the only two transpositional relationships among transpositionally-related trichords in any row form.

A simpler form of the transformational networks provided above gives the transformations between adjacent trichords; these are given below as Transformational Network 1.3: Trichord mapping for $I_n(P)$
Network 1.4 and Transformational Network 1.5. These new networks call attention the symmetries found in P and emphasize the $T_2$ and $I_{1+2n}$, transformations that will later be examined within the three movements of the *Woodwind Quintet*.

**Transformational Network 1.4:** Simplified trichord mapping for $T_n(P)$

```
T_2

<table>
<thead>
<tr>
<th>Trichord 1</th>
<th>Trichord 2</th>
<th>Trichord 3</th>
<th>Trichord 4</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$I_{1+2n}$</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$T_2$</td>
<td></td>
<td>$I_{1+2n}$</td>
<td></td>
</tr>
</tbody>
</table>
```

**Transformational Network 1.5:** Simplified trichord mapping for $I_n(P)$

```
T_2

<table>
<thead>
<tr>
<th>Trichord 1</th>
<th>Trichord 2</th>
<th>Trichord 3</th>
<th>Trichord 4</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$I_{1+2n}$</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$T_2$</td>
<td></td>
<td>$I_{1+2n}$</td>
<td></td>
</tr>
</tbody>
</table>
```
Weinzweig invokes $T_2$ and $T_{10}$ relationships within the *Woodwind Quintet* by using them in recapitulatory material (such as the relationship of the clarinet material in bars 1-8 and 182-191 of the third movement, to be discussed shortly) and also in the interaction between two seemingly unrelated melodic streams (such as the relationship between the flute and clarinet/bassoon material in bars 15-37 of the first movement, also to be discussed shortly). Why would the use of these particular transformations be an effective compositional tool? To answer this question, a pair of $T_2$-related row forms are examined in **Row Diagram 1.8**.

**Row Diagram 1.8**

Order position: 0 1 2 3 4 5 6 7 8 9 t e

$T_0(P)$: C Eb E A Bb C# G# B G [F# F D]

$T_2(P)$: D F F# B C D# Bb C# A G# G E

A pair of $T_2$-related row forms were previously examined in **Row Diagram 1.4** – $I_5(P)$ and $I_7(P)$, the row forms used by the flute and clarinet/bassoon in bars 15-37; a different pair of $T_2$-related rows are presented in **Row Diagram 1.8**. Both row forms share an unordered tetrachord, trichord, and dyad among their segments; these are indicated in **Row Diagram 1.8** by the use of matching boxes and ovals (similar – and
analogous – to those used in Row Diagram 1.4). When rows related by $T_2$ (or $T_{10}$) are used, they will present corresponding segments containing the same pitch classes.

Several passages in which this occurs will now be examined.

Bars 1-14 of the first movement (as already discussed in Figure 1.1) present an oboe melody with accompaniment in the remaining instruments, all drawn from $T_0(P)$. This material returns in bars 37-45, shown in Figure 1.9. The instrumentation and texture remain the same (a tetrachordal melody in the oboe with accompaniment in the other four instruments) but the pitch material differs: in bars 37-45 the oboe presents \{B, D, F, F#\} = (F#)(I) 0147, whereas in bars 1-14 the oboe presented \{G, F#, F, D\} = (G)(I) 0125: the use of B instead of G arises because $T_2(P): \{0, 1, 2, 3\}$ is presented instead of $T_0(P): \{8, 9, t, e\}$. These two tetrachords represent different set classes, but still share the trichord \{D, F, F#\}. The variation used here involves maximal – i.e. trichordal – pitch-class overlap (short of identity) between the two oboe tetrachords, and a switch in serial derivation from the last tetrachord of the row form to the first. It is an example of the manner in which $T_2$-related rows share pitch-class material: the third tetrachord of $T_0(P)$ (heard in bars 1-14) shares three of four pitch classes with the first tetrachord of $T_2(P)$ (heard in bars 37-45). The accompaniment materials follow a similar process. In bars 1-14 the accompaniment involved two alternating chords, $X = \{A, Bb, C, Eb\} = (A) 0136$, and $Y = \{G#, B, C#, E\} = (G#) = (E)(I) 0358$. In bars 37-45 the accompaniment also alternates two chords, \{C, Db, E, G#\} and \{D#, G, A, Bb\}. These two chords each share three of four pitches with one of the accompaniment chords of bars 1-14 and therefore will be labeled $X' = \{D#, G, A, Bb\} = (Bb)(I) 0137$ and $Y' = \{C, Db, E, G#\} = (C) 0148$.

The transformational networks previously discussed demonstrated how $T_2$-related trichords mapped on to one another; the tetrachord indicated in Row Diagram 1.8 could be interpreted as a segmental trichord with an added pitch class.
Again, although none of the accompaniment tetrachords are segmental tetrachords, three of four pitch classes from each tetrachord of bars 1-14 are retained in the tetrachords of bars 37-45.

Figure 1.9: Bars 37-45, first movement

In bars 15-37 of the first movement, previously discussed in connection with Figure 1.2, there is another $T_2$-relation. In this passage the flute presents rotated row
forms derived from (R)I₅(P) while the bassoon and clarinet present the two hexachords of I₇(P). These instruments are rhythmically independent, alternating with one another (each plays solo while the other two instruments rest), but the pitch-class materials between the flute and the bassoon/clarinet are remarkably similar:

Row Diagram 1.9

As illustrated in Row Diagram 1.9 with solid boxes, two corresponding locations within each row present the same trichord, in the first case differently ordered and in the second case identically ordered. These do not occur simultaneously in this passage, but it is easy for the listener to hear that both row forms end with the same trichord, <C#, D, F>. The trichord {A#, F#, A} is also a common segment in the flute and clarinet parts during this passage. In fact, {B, A#, F#, A} is a common segment of both row forms (see also Row Diagram 1.4 above; on Row Diagram 1.9 it is shown with braces), but the clarinet and bassoon subdivide (R)I₇(P) into hexachords, thus breaking up the tetrachordal segment, but nonetheless preserving the trichord.

There do not seem to be any T₂/T₁₀-relations in the second movement, but the third movement presents several instances. The third movement begins with a passage in which the clarinet plays rhythmicized repetitions of the first trichord from T₁₀(P), as heard in bars 1-8 (Figure 1.10).
The rhythmic motive used here (to be discussed in detail in Chapter 4) returns in bars 182-191, again in the clarinet, this time presenting the first trichord of $T_0(P)$. This passage is given in Figure 1.11. Unlike Figure 1.10, bars 182-191 present accompaniment played by the oboe, horn, and bassoon which each present one of the remaining trichords of $T_0(P)$. The two row forms that present the clarinet’s rhythmic motive in both passages, $T_{10}(P)$ and $T_0(P)$, are related by $T_2$; Row Diagram 1.8 and the accompanying discussion have already established that rows related by $T_2$ and $T_{10}$ share
several segments. In this case, the second trichord of $T_0(P)$ (heard in the horn in bars 182-187 and the clarinet in bars 188-189) shares \{Bb, C#\} with the first trichord of $T_{10}(P)$ (heard in the clarinet in bars 1-8).

**Figure 1.11: Bars 182-191, third movement**

![Musical notation showing the T2 relationship between $T_{10}(P)$ and $T_0(P)$]

The $T_2$-relationship between $T_{10}(P)$ and $T_0(P)$ is continued by the clarinet into the last bar of the work, bar 201 (Figure 1.12). Here the flute, oboe, horn, and bassoon present $T_1(P)$ as accompaniment while the clarinet plays the first hexachord of $T_2(P)$. The row form presented by the clarinet is, at first, ambiguous: the $\langle D, F, F# \rangle$ heard at
the beginning of the bar in the clarinet is a segmental trichord of both \( T_0(P) \) and \( T_2(P) \).

One might assume \( T_0(P) \) is being continued from the previous passage until hearing order positions \(<3, 4, 5>\) of the clarinet's final hexachord. The switch to \( T_2(P) \) in the clarinet emphasizes the \( T_2 \)-relation previously discussed. This, in addition to the return of opening material from both the third movement (the clarinet motive) and the first movement (the row form, \( T_0(P) \)), effectively concludes the work.

**Figure 1.12: Bar 201, third movement**

![Musical notation showing the trichords in different instruments.](image)

Shared trichords also occur in row forms related in other ways. As we have seen, two row forms that share the same unordered first hexachord can also map their trichords onto one other; **Row Diagram 1.10** gives one example of such a pair, \( T_0(P) \) and \( I_1(P) \).
Row Diagram 1.10: Swapped trichords between two rows sharing the same unordered first hexachord

T₀(P)  
\begin{array}{cccc}
C & Eb & E & A \\
A & Bb & C & G#
\end{array}

I₁(P)  
\begin{array}{cccc}
C# & Bb & A & E \\
E & Eb & C & F
\end{array}

The inversion swaps the first two trichords of these rows and strictly retrogrades them; the inversion also swaps the last two trichords as unordered sets. This process does not manifest itself directly in Weinzweig's music, but may be reflected by other means. Bars 5-8 of the second movement (Figure 1.13) stimulate an interesting discussion in this regard.

Figure 1.13: Bars 5-8, second movement, with segmental trichords

This passage presents two isorhythmic duets: flute with clarinet, and oboe with bassoon. In combination these instruments present T₀(P) as a series of simultaneous
dyads. **Figure 1.13** considers this passage from a trichordal perspective (trichord 1 is indicated in red, trichord 2 in blue, trichord 3 in green, and trichord 4 in purple). Trichordal segmentation is not the most apparent analytical means for this passage (consecutive dyads seem more obvious) but it does allow us to see more easily the relation to **Row Diagram 1.10** above. Specifically, segments of the row form are repeated before the entire row is completed. In bar 5 of **Figure 1.13** the following occurs: \(<\text{trichord 1, trichord 2, trichord 1}>\). Compare this to **Row Diagram 1.10**, above: by repeating trichord 1 after trichord 2, both the first hexachord of \(T_0(P)\) and the retrograde first hexachord of \(I_1(P)\) are presented. If Weinzweig was making use of exchanging trichords within \(I_{1+2n}\)-related rows, this is the most likely location.

The melodic formation of trichords brings out another relationship. Examine the flute and clarinet melodies in **Figure 1.13**: trichords occur in the first bar as order positions \(<1, 2, 5>\) in the flute and \(<0, 3, 4>\) in the clarinet. The associated pitch-class trichords, \(\{\text{Db, Eb, Fb}\}\) in the flute and \(\{\text{A, Bb, C}\}\) in the clarinet, both belong to SC (013), a set class that contains ic1 and ic3, significant intervals from P. More generally, other order-position trichords sometimes show a similar relationship: for instance, the pitch-class trichords corresponding with order positions \(\{0, 1, 3\}\) and \(\{2, 4, 5\}\) both form trichords of SC (036) (which contains two instances of ic3); likewise, the pitch-class trichords in order positions \(\{6, 7, 9\}\) and \(\{8, t, e\}\) both represent SC (025) (which also contains ic3). The latter two set classes discussed above, (036) and (025), result from the same pattern of order positions within each hexachord; one could call this an "order position set class" (OPSC), specifically OPSC (013) since this set involves two adjacent order positions and another order position separated by one intervening order position. It
is also interesting that the corresponding pitch-class sets in each hexachord are consistently related by a single inversion: \( I_{n+1} \) on \( T_n(P) \), and \( I_{n+1} \) on \( I_{n+1}(P) \). Row Diagram 1.11 shows \( T_0(P) \), with brackets indicating four representations of \( OPSC(013) \) and the set class of each corresponding pitch-class trichord.

Row Diagram 1.11: Distribution of order position set class trichords within \( P \)

<table>
<thead>
<tr>
<th>Order positions</th>
<th>SC(036)</th>
<th>OPSC(013)</th>
<th>SC(025)</th>
<th>OPSC(013)</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>Eb</td>
<td>E</td>
<td>A</td>
<td>Bb</td>
</tr>
<tr>
<td>G</td>
<td>Bb</td>
<td>C#</td>
<td>G</td>
<td>B</td>
</tr>
<tr>
<td>F</td>
<td>C#</td>
<td>G</td>
<td>F</td>
<td>G</td>
</tr>
<tr>
<td>D</td>
<td></td>
<td></td>
<td></td>
<td>D</td>
</tr>
</tbody>
</table>

Figure 1.13 illustrated the segmental trichords found within bars 5-8; Figure 1.14 illustrates how the order position set class \( (013) \) trichords just identified occur within this same passage: a dyad of the trichord occurs simultaneously in two instruments, with the third pitch in either the previous or following attack in one of the two instruments. In bar 6, for example, \( OPSC(013) \) is formed by order positions \( \langle 0, 1 \rangle, \{3 \} \) in the flute and clarinet on the first and second triplet-eighth notes, and also by order numbers \( \langle 2 \rangle, \{4, 5 \} \) in the same instruments on the second and third triplet-eighth notes (creating two SC (036) trichords). The same process occurs in the oboe and bassoon when they enter: \( OPSC(013) \) is formed by order numbers \( \langle 6, 7 \rangle, \{9 \} \) on their first and second triplet-eighth notes in bar 6, and \( \langle 8 \rangle, \{t, e \} \) on their second and third triplet-eighth notes in bar 6 (creating two SC (025) trichords). This process continues throughout this passage, and
is shown on Figure 1.14 by coloured boxes: red indicates order positions \(\{0, 1, 3\}\), blue indicates order positions \(\{2, 4, 5\}\), green indicates order positions \(\{6, 7, 9\}\), and purple indicates order positions \(\{8, t, e\}\).

Figure 1.14: Bars 5-8, second movement, with order position set class trichords

The *Woodwind Quintet* also emphasizes particular interval classes. **Row Diagram 1.12** replicates **Row Diagram 1.6**, listing the intervals between consecutive pitch classes of \(T_0(P)\):

**Row Diagram 1.12: Intervals between consecutive pitch classes of \(T_0(P)\)**

<table>
<thead>
<tr>
<th>Order position: (T_0(P):)</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>t</th>
<th>e</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>C</td>
<td>Eb</td>
<td>E</td>
<td>A</td>
<td>Bb</td>
<td>C#</td>
<td>G#</td>
<td>B</td>
<td>G</td>
<td>F#</td>
<td>F</td>
<td>D</td>
</tr>
<tr>
<td>Directed interval from previous pitch class:</td>
<td>+3</td>
<td>+1</td>
<td>+5</td>
<td>+1</td>
<td>+3</td>
<td>-5</td>
<td>+3</td>
<td>-4</td>
<td>-1</td>
<td>-1</td>
<td>-3</td>
<td></td>
</tr>
</tbody>
</table>
From this, we can see that ic1 and ic3 occur most often between consecutive pitch classes of the row, specifically four times each. Interval classes 5 and 4 also occur in the row, ic5 occurring twice, and ic4 occurring once. Several passages within the *Woodwind Quintet* emphasize the most frequent intervals, both consecutively in the row form and in other places where the pitch classes are not consecutive. These will be examined now.

Bars 37-52 of the first movement (*Figure 1.15*) present a tetrachordal oboe melody accompanied by two isorhythmic duets played by flute/clarinet and horn/bassoon; the four accompanying instruments present the remaining octachord out of row-form order. The passage is derived from $T_2(P)$, the row form corresponding to the oboe's tetrachord. We briefly examined the simultaneous accompaniment tetrachords $X'$ and $Y'$ earlier in connection with *Figure 1.9*. Now we will examine the individual instrumental voice leading in bars 37-45; a discussion of the entire passage will occur later in Chapter 2.
Figure 1.15: Bars 37-52, first movement

Melodic tetrad chord (B, F#, F, D)

Alternating flute/clarinet and horn/bassoon pairs

Alternating flute/clarinet and horn/bassoon pairs

Alternating flute/clarinet and horn/bassoon pairs
In bars 37-39 each accompaniment instrument plays a dyad: the flute plays the ic3 dyad \{\text{Db, Bb}\}, the clarinet plays the ic5 dyad \{\text{C, G}\}, the horn plays the ic1 dyad \{\text{G\#, A}\}, and the bassoon plays the ic1 dyad \{\text{E, D\#}\}. As noted in the last paragraph, these are three of the four interval classes that occur between adjacent members of \text{P}. In this passage, however, the clarinet and bassoon materials are not formed from adjacent members of the current row form: in \text{T}_2(P) the clarinet's \{\text{C, G}\} occur in order positions \{4, t\}, while the bassoon's \{\text{E, D\#}\} occur in order positions \{e, 5\}. The following bars, shown below in Table 1.1, by and large continue this sort of pattern:
Table 1.1: Dyads in the accompaniment instruments, bars 40-45, first movement

<table>
<thead>
<tr>
<th>Bar:</th>
<th>40</th>
<th>41</th>
<th>42</th>
<th>43</th>
<th>44</th>
<th>45</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Flute</strong></td>
<td>{C, G}</td>
<td>{C, Bb}</td>
<td>{Db, Bb}</td>
<td>{C, G}</td>
<td>{Db, Bb}</td>
<td>{Db, Bb}</td>
</tr>
<tr>
<td>Interval class:</td>
<td>ic5</td>
<td>ic2</td>
<td>ic3</td>
<td>ic5</td>
<td>ic3</td>
<td>ic3</td>
</tr>
<tr>
<td>Order positions:</td>
<td>{4, 4}</td>
<td>{4, 4}</td>
<td>{7, 6}</td>
<td>{4, 4}</td>
<td>{7, 6}</td>
<td>{7, 6}</td>
</tr>
<tr>
<td><strong>Clarinet</strong></td>
<td>{Db, Bb}</td>
<td>{Db, G}</td>
<td>{C, G}</td>
<td>{Db, Bb}</td>
<td>{C, G}</td>
<td>{C, G}</td>
</tr>
<tr>
<td>Interval class:</td>
<td>ic3</td>
<td>ic6</td>
<td>ic5</td>
<td>ic3</td>
<td>ic5</td>
<td>ic5</td>
</tr>
<tr>
<td>Order positions:</td>
<td>{7, 6}</td>
<td>{7, 6}</td>
<td>{4, 4}</td>
<td>{7, 6}</td>
<td>{4, 4}</td>
<td>{4, 4}</td>
</tr>
<tr>
<td><strong>Horn</strong></td>
<td>{E, A}</td>
<td>{G#, A}</td>
<td>{G#, A}</td>
<td>{E, A}</td>
<td>{G#, A}</td>
<td>{G#, A}</td>
</tr>
<tr>
<td>Interval class:</td>
<td>ic5</td>
<td>ic1</td>
<td>ic1</td>
<td>ic5</td>
<td>ic1</td>
<td>ic1</td>
</tr>
<tr>
<td>Order positions:</td>
<td>{e, 8}</td>
<td>{9, 8}</td>
<td>{9, 8}</td>
<td>{e, 8}</td>
<td>{9, 8}</td>
<td>{9, 8}</td>
</tr>
<tr>
<td><strong>Bassoon</strong></td>
<td>{G#, D#}</td>
<td>{E, D#}</td>
<td>{E, D#}</td>
<td>{G#, D#}</td>
<td>{E, D#}</td>
<td>{E, D#}</td>
</tr>
<tr>
<td>Interval class:</td>
<td>ic5</td>
<td>ic1</td>
<td>ic1</td>
<td>ic5</td>
<td>ic1</td>
<td>ic1</td>
</tr>
<tr>
<td>Order positions:</td>
<td>{9, 5}</td>
<td>{e, 5}</td>
<td>{e, 5}</td>
<td>{9, 5}</td>
<td>{e, 5}</td>
<td>{e, 5}</td>
</tr>
</tbody>
</table>

As indicated along the right side of the first staff on Figure 1.15, the flute and clarinet both use the (unordered) tetrachord \( Q = \{C, Db, G, Bb\} = (Db) 0136 \). The horn has the (unordered) trichord \( \{E, G#, A\} = (A)(1) 015 \), while the bassoon has \( \{D#, E, G#\} = (D#) 015 \); the horn and bassoon trichords share the dyad \( \{E, G#\} \) and combine to form \( R = \{D#, E, G#, A\} = (D#)(1) 0156 \). None of these is a segment of \( T_2(P) \). The intervals created in this passage nonetheless reflect those found consecutively in \( P \): ic5 occurs most often (9 times) and is played in every instrument; ic1 occurs 8 times, only in
the horn and bassoon; ic3 occurs 5 times, only in the flute and clarinet. Ic2 and ic6, which do not occur between consecutive pitch classes of P, each occur only once, ic2 in the clarinet and ic6 in the flute. Again, the most common intervals in this passage are those which are most common within P. Of course, as noted earlier, the simultaneous tetrachords labeled X’ and Y’ are also not row segments.

Bars 131-134 of the third movement, previously discussed in Figure 1.6 and recreated as Figure 1.16, also emphasize common intervals within P. As Figure 1.16 shows, the oboe and clarinet form an isorhythmic duet, as do the horn and bassoon. Each instrument melodically plays a (013) trichord, forming ic1, ic3, and ic2 as consecutive intervals. The order trichords are \{0, 3, 4\} and \{1, 2, 5\}; these are both of OPSC (014) and will always yield a pair of SC (013) trichords. The simultaneities within the isorhythmic duets are adjacent dyads within either T_9(P) or I_{10}(P) in the oboe and clarinet, and T_0(P) or I_1(P) in the horn and bassoon. The specific intervals formed from these simultaneities are ic3, ic5, and ic3 in the oboe and clarinet duet (dyads \{G, Bb\}, \{F#, Db\}, and \{A, C\}), and ic3, ic5, and ic3 in the horn and bassoon duet (dyads \{Eb, C\}, \{E, A\}, and \{C#, Bb\}). Interval classes 3 and 5 are thus emphasized as simultaneities, while interval classes 1, 2, and 3 are emphasized as melodic intervals; ic2 is the only one of these intervals that does not occur consecutively in P. Interval classes 1, 3, and 5, however, occur most often between the consecutive pitch classes of P.
The beginning of the first movement (originally provided as Figure 1.1 and replicated here as Figure 1.17) also emphasizes the use of these interval classes. In addition, this passage provides a good example of the use of tetrachords within the work and the process by which dyads are manipulated, which will now be examined in relation to this passage.
The first two bars of the accompaniment (flute, clarinet, horn, and bassoon) are a good passage in which to examine the interval content. Each accompaniment instrument
presents two different ic1 dyads melodically, but also combines with the other accompaniment instruments to produce the simultaneous tetrachords labeled X and Y on Figure 1.17. The four accompaniment instruments play isorhythmically, but two duets can be seen by comparing the pitch-class content. In bar 1 the flute and clarinet play the same two dyads, \{D\#, E\} and \{A\#, B\}, in total playing the collection \{A\#, B, D\#, E\} = (A\#)=(E)(I)0156, labeled V on Figure 1.17. The horn and bassoon likewise both play \{A, G\#\} and \{C, Db\}, to share the four-note collection \{A, G\#, Db, C\} = (G\#)=(Db)(I)0145, labeled W on Figure 1.17. The use of dyads is significant in this passage because the dyads are swapped between the instruments of each duet; this process is notated on Figure 1.17 in red.

Materials in bars 1-14 are derived from T_0(P); their distribution within the accompaniment material, however, does not correspond to the segmental tetrachords (as does the oboe melody, as discussed earlier). Order positions and coloured boxes on Figure 1.18 show how the first and second tetrachords of T_0(P) are distributed within the accompaniment material. Two dyads – one melodic, the other simultaneous – pair consistently to create the segmental tetrachords of T_0(P). The first tetrachord is shown by dyads \{1, 2\} and \{0, 3\} in red boxes; the second tetrachord involves the dyads \{4, 7\} and \{5, 6\} in blue boxes (two separate statements of these two tetrachords are divided by a dotted green line).
Although non-consecutive tetrachords are used in the opening, segmentation into consecutive tetrachords is fairly common elsewhere in the *Woodwind Quintet*. This is especially prominent in the first movement in the oboe and isorhythmic accompaniment texture, to be examined in Chapter 2. Weinzweig’s use of this segmentation is interesting because he uses not only the segmental tetrachords of $P$, but also tetrachords whose set classes are not represented by segments of $P$. We have seen instances of both types in the preceding figures. We will now explore these two types of tetrachords a bit further.

The set classes of the three segmental tetrachords of $P$ are $SC (0147)$ in order positions $\{0, 1, 2, 3\}$, $SC (0235)$ in order positions $\{4, 5, 6, 7\}$, and $SC (0125)$ in order positions $\{8, 9, t, e\}$. Set classes $(0147)$ and $(0125)$ have one degree of symmetry, while set class $(0235)$ has two degrees of symmetry. These set classes occur in $T_0(P)$ as shown on **Row Diagram 1.13:**
Row Diagram 1.13

Order positions: 0 1 2 3 4 5 6 7 8 9 t e

T₀(P): C Eb E A Bb C# G# B G F# F D

Labels: (E)(I) 0147 (G#) = (C#)(I) 0235 (G)(I) 0125

Tetrachord 1 Tetrachord 2 Tetrachord 3

Given the low degree of symmetry, these specific tetrachords will not generally occur as segments in any other row form; however, they do recur in other contiguous order positions in row forms of P. Specifically, SC (0147) occurs in order positions {0, 1, 2, 3} and {2, 3, 4, 5}; SC (0235) occurs in order positions {4, 5, 6, 7} and {t, e, 0, 1}; SC (0125) occurs in order positions {8, 9, t, e}, {3, 4, 5, 6}, and {6, 7, 8, 9}. SC (0146) is the only other set class that occurs more than once in adjacent order positions of P: it occurs in order positions {5, 6, 7, 8} and {9, t, e, 0}. Because of their frequency within P, these set classes are emphasized. Does the composer accentuate these tetrachords within the Woodwind Quintet? Bar 32 of the second movement and bars 117-130 of the third movement make use of these tetrachords as segmental tetrachords and will now be examined.

Bar 32 (given in Figure 1.19) acts as a transition between two different textures. In bar 31 the oboe and bassoon each present a dyad on the fourth quarter-beat; these dyads are continued into bar 32. The oboe and bassoon combined form \{F#, A, A#, B\}, tetrachord 3 of T₄(P). The other two instruments, flute and horn, each play a four-note melody constructed of two dyads, \{C, Eb\} and \{D, F\}, in alternation. Interestingly, these two dyads occur as the first two and last two pitch classes of I₅(P) and T₀(P), two row
forms that have previously been discussed.\textsuperscript{14} In this context, however, these four pitch classes in combination form \{C, D, Eb, F\}, tetrachord 2 of $T_4(P)$. The missing tetrachord 1 of $T_4(P)$ occurs as part of a melodic hexachord in the bassoon in bars 30-31.

\textbf{Figure 1.19: Bars 30-33, second movement}

\footnote{\textsuperscript{14} Specifically, $\langle C, Eb \rangle = T_0(P) \langle 0, l \rangle = I_5(P) \langle t, e \rangle$, and $\langle F, D \rangle = T_0(P) \langle t, e \rangle = I_5(P) \langle 0, l \rangle$.}
Bars 117-130 of the third movement (Figure 1.20) also present segmental tetrachords, in this case as isorhythmic accompaniment material derived from $T_e(P)$. The tetrachords occur as simultaneities played by the oboe, clarinet, horn, and bassoon, while the flute plays a melody derived from $I_s(P)$. The segmental tetrachords of $T_e(P)$ are presented in alternation in the following sequence, as observed on Figure 1.20: $<1, 2, 3, 2, 3, 1, 2, 3, 3, 1, 2, 3, 1, 3, 1>$; the different tetrachords are indicated on Figure 1.20 with coloured boxes, red for the first tetrachord, blue for the second tetrachord, and green for the third tetrachord. Consider this parsing of the sequence just presented:

$[123][23123][31231][31]$. Although this parsing does not correspond well to the chord rhythms, it presents an interesting ordering. This sequence could be interpreted as a series of overlapping rotations: the second group, for example, overlaps tetrachords 2 and 3 from the first group and rotates through the tetrachords, with the first tetrachord following the third; the third group overlaps tetrachord 3 and rotates through tetrachords 1, 2, 3, and 1; the fourth grouping overlaps tetrachords 3 and 1. Also of note are the fixed instrumental trichords occurring as the alternating tetrachords are reiterated: the oboe presents $(E)(I)015$, the clarinet presents $(C)(I)025$, the horn presents $(Ab)(I)016$, and the bassoon presents $(F#)(I)015$. In the last bar, however, the oboe and clarinet swap their usual pitches on the second quarter-note beat. In bar 124 the flute has $(C)(I)025$, a collection previously heard in the clarinet. No other collections repeat within this passage.
Non-segmental tetrachords also occur prominently within the *Woodwind Quintet*.

Two examples will be briefly discussed.
Bars 1-14 of the first movement have recently been examined in the analysis of dyad presentation and prominent intervals. At this point I will remind the reader that the simultaneous accompanimental tetrachords are non-segmental tetrachords, created by joining members of melodic and simultaneous dyads.

Bars 192-198 of the third movement, shown in Figure 1.21, also present non-segmental tetrachords, here also derived from $T_0(P)$. In this passage the flute, oboe, and clarinet play isorhythmic accompaniment, while the horn plays a combination of melody and accompaniment and the bassoon plays a leaping bass part. The flute, oboe, clarinet, and horn alternate two tetrachords, labeled J and K on Figure 1.21: J = order positions \(\{0, 1, 7, 8\} = \{C, Eb, B, G\} = (B)0148\); K = order positions \(\{2, 4, 5, 9\} = \{E, A#, C#, F#\} = (F#)(I)0258\). These simultaneous tetrachords create sonorities for the listener that are not directly derived from melodic statements of $T_0(P)$, but rather formed mostly from segmental dyads of $P$: J contains two segmental dyads of $T_0(P)$, \{C, Eb\} and \{B, G\}, while K contains one segmental dyad of $T_0(P)$, \{A#, C#\}, and two other pitch classes. There are also two instances of SC (0236): the flute and oboe pair creates \((C#)(I)0236\), while the clarinet and horn pair create \((F#)(I)0236\). The flute/oboe pair maps onto the clarinet/horn pair under $T_5$, interesting since these two sets are derived from the same row form.
Apart from recurring hexachords, tetrachords, trichords, and other subsets of $P$, octatonic collections are also alluded to throughout the *Woodwind Quintet*, a result of the
composer's structuring of P. Octatonic subsets often emerge; for instance, the first hexachord of P represents set class 013467, a subset of the octatonic collection, SC (0134679t). Table 1.2 illustrates how a number of octatonic subsets occur within P; shaded cells identify the order positions that correspond with the octatonic subsets in question.

Table 1.2: Subsets of the octatonic collection within the *Woodwind Quintet* (and their order positions within P)

<table>
<thead>
<tr>
<th>Set class</th>
<th>Derivation</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>t</th>
<th>e</th>
</tr>
</thead>
<tbody>
<tr>
<td>013467</td>
<td>First hexachord of P</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0147</td>
<td>First tetrachord of P (also {2, 3, 4, 5}: see page 47)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0235</td>
<td>Second tetrachord of P (also {t, e, 0, 1}: see page 47)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>0136</td>
<td>Bars 37-45, first movement, flute and clarinet tetrachord</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>014</td>
<td>Segmental trichords of P</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>0137</td>
<td>Bars 37-45, first movement, simultaneous tetrachord (T_2(P))</td>
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<td></td>
</tr>
<tr>
<td>0358</td>
<td>Bars 1-14, first movement, simultaneous tetrachord</td>
<td></td>
<td></td>
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<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>0258</td>
<td>Bars 192-198, third movement, simultaneous tetrachord</td>
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<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>013</td>
<td>Bars 131-134, third movement, melodic trichords</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>036</td>
<td>Chapter 1 discussion, page 36, OPSC(013) trichords</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
These octatonic subsets are distributed throughout the work; several passages present especially clear octatonic sounds. Some passages, such as those in **Figure 1.6** and **Figure 1.7**, have already been discussed; others will now be examined.

Bars 19-24 of the second movement (see **Figure 1.22**) provide another instance of the kind of “octatonic sound” one sometimes hears in the piece. These bars present an interestingly florid flute melody accompanied by two isorhythmic duets in the oboe/clarinet and horn/bassoon. The accompaniment material in bars 19-23 consists of order positions \{2, 3, 4, 5\} of \(I_3(P)\): the resulting set \{F#, F, D, B\} = (F#)(I)0147 is drawn from the first hexachord of this row, and must therefore be an octatonic subset, in this case of \(\text{OCT}(F, F\#)\). The melody material in bars 19-23 in the flute is formed from the remaining pitch classes of \(I_3(P)\), order positions \{6, 7, 8, 9, t, e, 0, 1\}. These pitch classes, \{A, Bb, C, C\#, D\#, E, G, G\#\}, form a collection closely related to the octatonic scale \(\text{OCT}(A, Bb)\): if G\# were replaced with F\#, that octatonic collection would result. \{G\#\} appears as a lower neighbour note to \{A\} in this passage (the only exception being bar 22, in which \{G\#\} precedes \{A\} but is an octave below its neighbour position), and as such could be treated as an ornamental note rather than an actual member of the collection. Six of the eight pitch classes presented in the flute, \{A, Bb, C, C\#, D\#, E\} (which form a subset of the octatonic collection \(\text{OCT}(A, Bb)\)) are also the pitch classes of the first hexachord of \(T_0(P)\). In fact, in bar 24 the flute plays the first hexachord of \(T_0(P)\),
and therefore reinforces the sense that the flute in bars 19-23 was octatonic – or very nearly so.

Figure 1.22: Bars 19-24, second movement

T₀(P) and I₃(P) are related by significant shared material, as shown in Row Diagram 1.14.
Two ordered trichords are found in both row forms, in order positions \( <3, 4, 5> \) and \( <9, t, e> \) of each row. Weinzweig makes use of this fact in bars 23 and 24: the last three pitch classes in each bar are the same (pitch classes \( <A, Bb, C#> \)) even though they are taken first from \( I_3(P) <9, t, e> \) and then from \( T_0(P) <3, 4, 5> \). The first unordered dyad of each row form is also the same: \( \{C, Eb\} \). The similarities between \( I_3(P) \) and \( T_0(P) \) are exploited to make bar 24 transition material between those two row forms.

Octatonic sounds are also created within the work through the use of dyads: the segmental dyads of \( P \) often present intervals common within the octatonic collection. Interval class 3 is especially prominent here due to a previously-examined property: the hexachords of the row map onto themselves under \( I_1 \). This is shown on Row Diagram 1.15, below.

\[\text{Row Diagram 1.14}\]

<table>
<thead>
<tr>
<th>Order positions:</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>t</th>
<th>e</th>
</tr>
</thead>
<tbody>
<tr>
<td>( I_3(P) ):</td>
<td>Eb</td>
<td>C</td>
<td>B</td>
<td>F#</td>
<td>F</td>
<td>D</td>
<td>G</td>
<td>E</td>
<td>G#</td>
<td>A</td>
<td>Bb</td>
<td>C#</td>
</tr>
<tr>
<td>( T_0(P) ):</td>
<td>C</td>
<td>Eb</td>
<td>E</td>
<td>A</td>
<td>Bb</td>
<td>C#</td>
<td>G#</td>
<td>B</td>
<td>G</td>
<td>F#</td>
<td>F</td>
<td>D</td>
</tr>
</tbody>
</table>

\[\text{Row Diagram 1.15}\]

\(t\) 15 This is the same relationship as discussed in connection with Transformational Network 1.1, 2, 3, 4, and 5 (pages 23 through 26).
Row Diagram 1.15: \( T_0(P) \), interval classes between members of segmental dyads, and cycles of the \( I_1 \) transformation

\[
T_0(P): \begin{array}{cccccccc}
C & Eb & E & A & Bb & C# & G# & B & G & F# & F & D \\
\end{array}
\]

Interval class between dyads:

\[
3 \quad 5 \quad 3 \quad 3 \quad 1 \quad 3
\]

As shown in Row Diagram 1.15, \{C, Eb\} maps onto \{Bb, C#\} and \{G#, B\} maps onto \{F, D\} under \( I_1 \) (and vice versa). The segmental ic3 dyads are therefore maintained under the inversion in question.

Several previously-discussed passages make use of segmental dyads of \( P \), and therefore feature ic3 as a prominent interval. These include bars 131-134 of the third movement (Figure 1.6), bars 135-143 of the third movement (Figure 1.7), bars 1-14 of the first movement (Figure 1.1, Figure 1.17, and Figure 1.18), and bars 19-24 of the second movement (Figure 1.22, although its dyadic accompaniment was not examined in detail in this chapter).

Several properties of the tone row \( P \) have been examined in this chapter. Weinzweig uses the intervallic and segmental properties of the row to unify the pitch material in this work. In the upcoming chapters, numerous passages will be discussed in further detail to give an overview of the important features of each movement.
Chapter 2: The First Movement and its Characteristic Textures

In the first movement of the Woodwind Quintet, form is often established through differences in texture and instrumentation in addition to differences in the melodic and pitch-class materials employed. Table 2.1 presents the structure of the first movement from this perspective. The table gives several types of information: the location of each section in the score; a label for each formal division; an overview of the texture, instrumentation, pitch-class distribution, and row forms; and a brief description that elaborates the information provided in the previous columns. The formal division labels A1, A2, B1, B2, and so forth distinguish two broad kinds of music, with upper-case letters indicating (repeating) material and numbers indicating which statement occurs (i.e. “2” means it is the second occurrence of that particular material); this is in correspondence with the information given in the “Specific Instrumental Components,” “Number of pitch classes,” and “Row forms” columns.

The legend for the table also identifies the characteristic textures in the movement: TET(x) signifies a texture in which a segmental tetrachord occurs as the melody in instrument x, often with simultaneous tetrachords that are not segmental tetrachords of the row in the other four accompanimental instruments; ISO(xy...) signifies a texture in which the instruments x, y play an isorhythmic accompaniment; ROT(x) signifies a melodic texture involving one or more rotations of a row form; HEX(xy) signifies a texture in which two hexachords that are complements of each other occur interact in instruments x, y; and D(xy) signifies a texture in which instruments x, y play in isorhythm, forming a duet.
Table 2.1: A brief overview of the first movement

Legend:

TET(x) = tetrachord texture: a segmental tetrachord occurs as the melody in instrument x, with simultaneous tetrachords that are not segmental tetrachords of the row in the other four accompanimental instruments.

ISO(xy...) = isorhythmic accompaniment: the instruments indicated play an isorhythmic accompaniment (often paired with the tetrachord texture).

ROT(x) = rotatable melody: a rotated row form occurs as the melody in instrument(s) x.

HEX(xy) = hexachordal interaction: two hexachords that are complements of each other occur in instruments x and y.

D(xy) = isorhythmic duet: instruments x and y play in isorhythm, forming a duet.

Flute = (F), oboe = (O), clarinet = (C), horn = (H), bassoon = (B).

<table>
<thead>
<tr>
<th>Bars</th>
<th>Formal Division</th>
<th>Specific Instrumental Components</th>
<th>Number of pitch classes</th>
<th>Row Forms</th>
<th>Description of Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-14</td>
<td>A1</td>
<td>TET(O)\textsuperscript{16}</td>
<td>4</td>
<td>T\textsubscript{2}(P)</td>
<td>The oboe melody presents rhythmic variation, with tetrachordal accompaniment in the remaining instruments.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ISO(FCHB)</td>
<td>4\textsuperscript{2}</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15-37</td>
<td>B1</td>
<td>ROT(F)</td>
<td>12</td>
<td>(R)\textsubscript{2}(P)</td>
<td>The rotated rows in the flute alternate with the clarinet and bassoon hexachords.\textsuperscript{17}</td>
</tr>
<tr>
<td></td>
<td></td>
<td>HEX(BC)</td>
<td>6\textsuperscript{2}</td>
<td>\textsubscript{1}(P)</td>
<td></td>
</tr>
</tbody>
</table>

\textsuperscript{16} The idea of a tetrachord played by a melody instrument with simultaneous accompanimental tetrachords in the remaining instrument is expressed by the label "TET(x)". Because of this, the label "ISO(X)" is not required, but I am including it nonetheless to more clearly show the segmentation and row form in the accompaniment.

\textsuperscript{17} In this document, (R) will indicate the presentation of a row form in retrograde; however, order positions as shown in this document will always be written with respect to the non-retrograde form. Therefore the order positions for a melodic presentation of a retrograde row will occur as <e, t, 9, ..., 3, 2, 1>. 
<table>
<thead>
<tr>
<th>Bars</th>
<th>Formal Division</th>
<th>Specific Instrumental Components</th>
<th>Number of pitch classes</th>
<th>Row Forms</th>
<th>Description of Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>37-52</td>
<td>A2</td>
<td>TET(O)(^{18})</td>
<td>4</td>
<td>T(_6)(P)</td>
<td>The oboe plays a melody, as in A1. Unlike A1, the accompaniment instruments alternate between isorhythmic tetrachords and isorhythmic dyads in instrument pairs. Like A1, alternating tetrachords occur as simultaneities in the accompaniment.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>D(FC)</td>
<td>2(^2)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>D(HB)</td>
<td>2(^2)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>52-71</td>
<td>B2</td>
<td>ROT(F)</td>
<td>12</td>
<td>T(_6)(P)</td>
<td>The rotated rows in the flute alternate with the clarinet and bassoon phrases with some overlap. The clarinet and bassoon have an almost exact repetition of their material from bars 15-37; the flute presents different rotations than in bars 15-37.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>HEX(BC)</td>
<td>6; 6</td>
<td>I(_5)(P)</td>
<td></td>
</tr>
<tr>
<td>71-83</td>
<td>B3</td>
<td>ROT(F)</td>
<td>12</td>
<td>T(_6)(P) in canon</td>
<td>Canon in the flute, clarinet, and bassoon using rotations of T(_6)(P), creating both melodic and simultaneous statements of the row and its subsets (to be discussed). The oboe and horn are isorhythmic but somewhat melodic.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ROT(C)</td>
<td>12</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>ROT(B)</td>
<td>12</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>HEX(OH)</td>
<td>6; 6</td>
<td>I(_5)(P)</td>
<td></td>
</tr>
<tr>
<td>83-87</td>
<td>B4</td>
<td>ROT(F)</td>
<td>9</td>
<td>T(_6)(P) (incomplete)</td>
<td>The flute plays rotated row fragments of T(_6)(P), similar to its previous B1 material, while the bassoon plays fragments of its I(_5)(P) hexachord phrase.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>HEX(B)</td>
<td>6</td>
<td>I(_5)(P) (incomplete)</td>
<td></td>
</tr>
<tr>
<td>88-92</td>
<td>A3</td>
<td>TET(O)</td>
<td>4</td>
<td>T(_6)(P)</td>
<td>The oboe melody and tetrachordal accompaniment present unordered fragments of bars 1-14 (A1).</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ISO(FCHB)</td>
<td>4(^2)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\(^{18}\) See comments for footnote 16.
Table 2.1 shows the two families of material, labeled A and B. Family A includes material in which a melodic tetrachord is heard with isorhythmic accompaniment, presenting a single row form; family B includes material in which a melody drawn from a rotated row form occurs in alternation with two hexachords from a different row form. The interaction between these two families is reminiscent of both sonata and rondo forms: rondo form is suggested in the alternation between A and B families; sonata form is alluded to by the manner of thematic exposition and development. Specifically, material introduced in bars 1-37 is varied and developed in bars 37-83, with fragments of the opening material returning to close off the movement (bars 83-92). In spite of these qualities, the overall form is neither sonata nor rondo, but involves alternation and variation of the A and B material.

Bars 1-14 present the first thematic material of the movement (see Figure 1.17). As previously explained, the oboe repeats its tetrachord in various orderings, while the other four instruments play isorhythmic accompaniment chords derived from the complementary octachord; this instance will be labeled A1. This characteristic texture returns in two places: in bars 37-52, in a varied form labeled A2 on Table 2.1; and in bars 88-92, labeled A3 on the table. This type of instrumental interaction is listed as TET(O), ISO(FCHB) on Table 2.1, and the corresponding partition components are shown as 4 and $4^2$. As we have seen in Chapter 1, the accompaniment uses two distinct types of tetrachords: two distinct, alternating simultaneous tetrachords X and Y, involving order positions \{0, 1, 3, 4\} and \{2, 5, 6, 7\} respectively; and two distinct instrumental tetrachords V (in the flute and clarinet) and W (in the horn and bassoon), involving order positions \{1, 2, 4, 7\} and \{0, 3, 5, 6\} respectively. V and W appear in two
different orderings in their respective instrumental parts up through bar 9: V appears as $<1, 2, 4, 7>$ in the flute and (rotated) as $<4, 7, 1, 2>$ in the clarinet; W appears as $<0, 5, 3, 6>$ in the horn and (rotated) as $<3, 6, 0, 5>$ in the bassoon. These can be considered rotationally complementary since the first dyad of the flute is the second dyad of the clarinet, and vice versa, and the same relation obtains between in the horn and bassoon.

Bars 1-14 also present an interesting rhythmic development in the oboe solo. Figure 2.1 shows three of the oboe statements (bars 3-4, 5, and 6-7), aligned vertically to show their rhythmic relationships. In the music, these statements are separated by rests, and each are differently aligned against the notated metre, as shown by the bar lines on the figure. Each statement presents the third tetrachord of $T_0(P)$, \{G, F#, F, D\}, but in varying lengths and with different rhythms. When aligned as in Figure 2.1, each variant of the original motive can be seen as an overlay and variation of the original presentation: the rhythm of the motive is basically the same as in the original occurrence, but is developed first by truncation, and then by anticipating and lengthening certain rhythmic values, and by extension. However, the pitches in the second and third occurrences present essentially the same rhythms (attack points) as those of the first statement in bars 3 – 4 even though their metric placement may differ; the one exception is the D in bar 6, which anticipates the D’s from the first two statements, but is sustained into its “original” position, and is similarly terminated by the entrance of an F4.
This sort of process is continued in bars 7 – 11; Figure 2.2 shows the oboe in bars 7-13, rhythmically aligned. The tetrachord \{G, F#, F, D\} is still used, but its ordering and rhythm is varied even further. Again, for ease of comparison, the three oboe statements in bars 7-13 are vertically aligned on Figure 2.2 to show their rhythmic relationships. Like bars 1-7, the three oboe statements vary the melody and rhythm (bar 7-8, 9-11, and 11-13). The statements of bars 9-11 and 11-13 each present a palindromic melody: the pitches are \langle G4, F#4, F4, D4, F4, F#4, G4 \rangle.
This material is varied and developed beginning in bars 37-52. This is shown in Figure 2.3, a duplication of Figure 1.15. In this variant of A1, called A2, the oboe again has the melody and the remaining instruments accompany with simultaneous tetrachords. The developmental variation occurs here in two ways. First, there is shared pitch-class material between the oboe in A1 and A2 (the two oboe tetrachords share 3 of 4 pitch classes, specifically \{F#, F, D\}) as well as between the accompaniment chords in A1 and A2: X and X’ share \{A, Bb, Eb\}, and Y and Y’ share \{G#, C#, E\} (previously examined in Chapter 1 in the discussion of T2/T10-related materials). Second, and more important in the context of the previous formal discussion, the texture within the accompaniment changes in bars 37-52. Here the accompaniment alternates between isorhythmic tetrachords and dyads in two isorhythmic duets. In bars 41, 44, and 46-50, the flute and clarinet isorhythmically play \{4, 7\} then \{6, t\}, while the horn and bassoon isorhythmically play \{9, e\} then \{5, 8\}; the duets are in rhythmic opposition to the other, unlike A1, in which four instruments were isorhythmic. Instrumental dyads also occur in each duet fragment; the order position dyads \{7, 6\}, \{4, t\}, \{9, 8\}, and \{e, 5\} are heard in each of the flute, clarinet, horn, and bassoon, swapping between these instruments. As well, these dyads also swap members; in bar 41, for example, the dyads \{7, 6\} and \{4, t\} each swap one of their members to become \{7, t\} and \{4, 6\} in the flute and clarinet. The same process occurs with the other two dyads: \{9, 8\} and \{e, 5\} become \{9, 5\} and \{e, 8\} in the horn and bassoon of bar 43.
Figure 2.3: Bars 37-52, first movement

- Alternating flute/clarinet and horn/bassoon pairs

Melodic tetrachord {B, F#, F, D}
The rhythmic variation of the melody used in bars 1-14 is not as clear in bars 37-52: the tetrachordal oboe melody repeats, this time with variation in the order of its pitch classes. This, in turn, affects the metric placement: unlike bars 1-14, the same pitch classes do not occur in the same metric positions. There are emphasized intervals within this tetrachord; the melody often leaps from B4 to D4, an interval of 9 semitones, leaps up 3 semitones from D4 to F4, leaps up 4 semitones from D4 to F#4, and moves by semitone from F4 to F#4 (and vice versa).

A texture contrasting to bars 1-14 appears in bars 15-37, shown previously in Figure 1.2 and duplicated in Figure 2.4. This texture is labeled B1 on Table 2.1. In bars 15-37, the flute plays rotated forms of (R)I₃(P), while the bassoon and clarinet each play a complementary hexachord from I₇(P). The three instruments alternate with one another, creating a succession of solo phrases. This texture is labeled ROT(F); HEX(BC) on Table 2.1, and its associated partitions identified as 12 and 6².
Figure 2.4: Bars 15-37, first movement
The flute plays three rotated statements of (R)I_5(P) in this passage. Each rotated row-form statement begins one order position ahead of the previous rotation of (R)I_5(P):
the first statement begins with order position \{e\}, the second with order position \{t\}, and the third with order position \{9\}. The first statement occurs in bars 16-18, presenting the twelve pitch classes of (R)I₅(P) once: \(<e, t, 9, ..., 1, 0>\). The second statement occurs in bars 22-24, and is rotated by one position: \(<t, 9, 8, ..., 0, e>\), again with each pitch class occurring only once. The third statement, bars 28-30, presents eight different pitch classes, rotating to start from order position 9: \(<9, 8, 7, ..., 3, 2>\); in this statement pitch classes E, G, G#, and C# are repeated (order positions \{5, 4, 3, 2\}).

When development and variation of this material first occur in bars 52-71 (labeled B2 on Table 2.1), it presents fragments of rotated rows and complementary hexachords. This section presents material similar to B1 except that the row form used by the flute has changed: in B1 the flute presented rotations of (R)I₅(P), while in B2 it presents rotations of T₀(P). Row Diagram 2.1 examines the relationship between these two rows.

Row Diagram 2.1

(R)I₅(P): \[
\begin{array}{cccccc}
Eb & C & B & Bb & F# & A & E & G & G# & C# & D & F \\
\end{array}
\]

T₀(P): \[
\begin{array}{cccccc}
C & Eb & E & A & Bb & C# & G# & B & G & F# & F & D \\
\end{array}
\]

As Row Diagram 2.1 illustrates, the two row forms share four dyad segments. In fact, when the non-retrogrades of both row forms are examined, the relationship is even more striking: order positions \(<0, 1>\) in one row form have the same pitch classes as order positions \(<t, e>\) in the other row form (and vice versa); and order positions \(<2, 3>\) in one row form have the same pitch classes as order positions \(<5, 6>\) in the other row form.
(and vice versa). These correspond to the cycles of $I_5$. The row forms are closely related because of this property; and in particular, $T_0(P)$ begins and ends with the same unordered dyads as $(R)I_5(P)$. This is similar to the material involved in the $T_2$-relation of $(R)I_5(P)$ and $I_7(P)$, discussed in Chapter 1.

The next development of B material presents several new developmental processes. Bars 71-83 (labeled B3 on Table 2.1) vary the B idea in several ways: all instruments play simultaneously, with the flute, clarinet, and bassoon presenting rotations of $(R)T_0(P)$ and the oboe and horn presenting complementary hexachords of $(R)I_0(P)$. This passage, previously examined as Figure 1.5, is duplicated in Figure 2.5. B1, on the other hand, presented the flute, clarinet, and bassoon in alternation with one another.
The flute in bars 15-37 presents rotations of (R)I₅(P) while bars 52-71 and bars 71-83 present rotations of (R)T₀(P). In all three passages, rotated statements of one row form are accompanied by hexachords of a different row form. In B₃, however, the
rotated row material is presented by the flute, clarinet, and bassoon in canonic imitation, while the complementary hexachords occur isorhythmically in the oboe and horn. Moreover, a different transformational relationship is observed between the rotated row form and the accompanying hexachordally-treated one. And in B3, unlike in B1, the two complementary hexachords do not occur in alternating phrases, but are now played isorhythmically.

The canonic treatment of the rotated row forms in bars 71-83 (Figure 2.5) also creates an interesting feature: because of the way in which the composer has aligned the flute, clarinet, and bassoon, simultaneous trichords formed from adjacent order positions result. These can be heard in bar 73, bar 75, bar 78, bar 80. Let us examine the first occurrence in bar 73: the second, third, and fourth eighth durations of the bar each present a simultaneous trichord, involving order positions \{3, 4, 5\}, \{2, 3, 4\}, and \{1, 2, 3\}. Each trichord shares two pitch classes with the previous trichord, creating a sense of overlap. Table 2.2 illustrates the order positions of \(T_0(P)\) in the flute, clarinet, and bassoon (with empty cells indicating rests) in order to show the resulting simultaneous trichords.

Table 2.2: Order positions of \(T_0(P)\) in bar 73, first movement

<table>
<thead>
<tr>
<th>eighth-note position:</th>
<th>1st</th>
<th>2nd</th>
<th>3rd</th>
<th>4th</th>
<th>5th</th>
<th>6th</th>
<th>7th</th>
<th>8th</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flute:</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clarinet:</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>e</td>
<td>t</td>
</tr>
<tr>
<td>Bassoon:</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>e</td>
<td></td>
</tr>
<tr>
<td>Order position trichords:</td>
<td>{3, 4, 5}</td>
<td>{2, 3, 4}</td>
<td>{1, 2, 3}</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
This process is reminiscent of the overlapping tetrachords of the third movement discussed on page 49 of Chapter 1.

Bars 71-83 are climactic in textural density, and in other ways that are visible from Figure 2.5: it is the only section in which all instruments play simultaneously; it presents continuous eighth-note motion, and is therefore the most active section of this movement; and it contains the highest pitch of the movement, D6 in bar 77 of the flute. It also occurs approximately three-quarters of the way through the movement; this is not necessarily climactic, but there is a sense that this passage is leading toward the end of the movement. All of these traits combine to emphasize this passage more than any other in this movement. This is therefore the climax of the movement.

Weinzweig concludes the first movement by reiterating material from the beginning of the work, repeating the textures, pitch-class distribution, and motives. This decreases the intensity created by the climax and leads to the conclusion of the movement. This concluding process begins in bar 83 and continues until the end of the movement, at bar 92. Bars 83-87, labeled B4, present a fragmented variation of B1 and will not be discussed in detail except to illustrate the relationship between the two row forms used: Row Diagram 2.2 (replicating Row Diagram 1.3 of Chapter 1) gives these two row forms, $T_0(P)$ and $I_7(P)$. 
Row Diagram 2.2

\[ T_0(P): \begin{array}{cccc}
C & Eb & E & A \\
A & Bb & C# & G# \\
G & F# & F & D \\
\end{array} \]

\[ I_7(P): \begin{array}{cccc}
G & E & Eb & Bb \\
Bb & A & F# & G# \\
C & C# & D & F \\
\end{array} \]

As shown by the boxes above, there are four dyads that retain the same order positions within both row forms: in fact, each dyad is found in retrograde in the second row form (as noted in Chapter 1, the dyads \{Eb, E\} and \{A, Bb\} combine to form the tetrachord \{E, Eb, Bb, A\} in order positions \{1, 2, 3, 4\} of both row forms). This is similar to the relation noted earlier between the rotated rows of the flute in B1 and B2.

Bars 88-92, labeled A3 (given as Figure 2.6), also present a fragmented variation of A1: the accompaniment material is a truncated restatement of A1, constructed by piecing together earlier fragments from the opening. Bars 88 and 89 correspond to bars 1 and 3 (respectively), bar 91 is slightly modified from bar 1 (the last attack is missing and the rhythm is changed for the third attack), and bar 92 is an enharmonically-respelled and rhythmically-modified variant of bar 10. There is no accompaniment in bar 90, which makes the single oboe statement stand out. The oboe in this passage plays material from bars 7-8 (see Figure 2.2) but with the first note elongated. This variation of A1 is an effective way to remind the listener of the opening by concluding the movement with the same materials and developmental processes as the opening passage. The movement ends with semitone motion in all four isorhythmic instruments in bar 92, suggesting a final cadence.
The first movement effectively emphasizes contrasts in texture and instrumentation that appear throughout the movement. The second movement, while still using concepts of texture introduced in the first movement, uses solo melodic material more frequently. The use of certain segmentations of the twelve-tone row is also emphasized, as will be seen in the following chapter. But there has been no unambiguous melodic statement of $T_0(P)$ within this movement; the listener must wait until the opening of the second movement to hear this.
Chapter 3: The Second Movement and Segmentations of the Row

The second movement is more texturally uniform than the first; while the first movement had significant changes in instrumentation from one subsection to the next, the subsections of the second movement lead into one another, often retaining a similar texture type but changing the instrumentation. For example, bars 9-15 present a solo horn melody accompanied by a duet in the clarinet and bassoon, which leads into bars 16-18, where a solo flute melody is heard accompanied by two duets: one of oboe and clarinet, and the other of horn and bassoon. Both passages contain a solo melody and an accompanimental duet. The second movement will be analyzed more from the viewpoint of segmentation (what types of segmentation are used in each subsection). Table 3.1 presents an overview of the second movement, similar to that provided in Chapter 2 for the first movement.
Table 3.1: A brief overview of the second movement

Legend:

S(x) = Solo melody texture: a solo melody is played by instrument x.

(FN) indicates that the preceding superscript refers to a footnote in the document.

<table>
<thead>
<tr>
<th>Bars</th>
<th>Formal Division</th>
<th>Specific Instrumental Components</th>
<th>Number of pitch classes</th>
<th>Row Forms</th>
<th>Description of Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-4</td>
<td>A1</td>
<td>S(C) 3</td>
<td></td>
<td>T₃₂(P)</td>
<td>Individual presentations of trichords, each instrument solo.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>S(F) 3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>S(O) 3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>S(B) 3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5-8</td>
<td>B1</td>
<td>D(FC) 2₆</td>
<td></td>
<td>T₃₂(P)</td>
<td>The isorhythmic duets in flute/clarinet and oboe/bassoon are segmented into dyads.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>D(OB) 2₆</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9-15</td>
<td>C1</td>
<td>S(H) 3</td>
<td></td>
<td>T₃₂(P)</td>
<td>The clarinet and bassoon play an isorhythmic duet presenting trichords 1 and 2 of T₃₂(P); the horn melody, in its first entry of the movement, presents trichords 3 and 4 of the same row. The horn and clarinet swap trichords 1 and 3 in bars 12-15.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>D(CB) 3; 3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16-23: 16-18</td>
<td>D1</td>
<td>S(F) 4²</td>
<td></td>
<td></td>
<td>Dyads occur in the accompaniment, while the flute presents a melody involving two separate tetrachords.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>D(OC) 2³</td>
<td></td>
<td>I₃(P)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>D(HB) 2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bars</td>
<td>Formal Division</td>
<td>Specific Instrumental Components</td>
<td>Number of pitch classes</td>
<td>Row Forms</td>
<td>Description of Content</td>
</tr>
<tr>
<td>------</td>
<td>----------------</td>
<td>----------------------------------</td>
<td>-------------------------</td>
<td>-----------</td>
<td>------------------------</td>
</tr>
<tr>
<td>19-23</td>
<td></td>
<td>S(F)</td>
<td>8</td>
<td></td>
<td>The flute melody is based on an eight-note segment of the rotated row form. The missing four pitch classes make up the dyadic accompaniment (one of the dyads in oboe/clarinet duet is doubled in the horn/bassoon duet).</td>
</tr>
<tr>
<td></td>
<td></td>
<td>D(OC)</td>
<td>2^4</td>
<td>I₆(P)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>D(HB)</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>24</td>
<td>(transition)</td>
<td>S(F)</td>
<td>6</td>
<td>T₆(P) (incomplete)</td>
<td>The pitch material presents the first hexachord of T₆(P), but is similar to the I₆(P) melody presented in the previous section.</td>
</tr>
<tr>
<td>25-31</td>
<td>A2</td>
<td>S(O)</td>
<td>12</td>
<td>T₄(P)</td>
<td>A melody occurs in the oboe with a countermelody in the bassoon.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>S(B)</td>
<td>12</td>
<td>T₆(P)</td>
<td></td>
</tr>
<tr>
<td>32</td>
<td>B2</td>
<td>D(FH)</td>
<td>4</td>
<td></td>
<td>This material acts as a conclusion of the material from the previous section since the pitch classes are retained from the last quarter-note beat of 31. The flute and horn present tetrachord 2 of T₄(P) while the oboe and bassoon present tetrachord 3 of T₄(P).</td>
</tr>
<tr>
<td></td>
<td></td>
<td>D(OB)</td>
<td>2^2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>33-40</td>
<td>D2</td>
<td>S(C)</td>
<td>12</td>
<td>I₆(P)</td>
<td>The clarinet melodically presents rotations of the row form. Duets in the flute/oboe and horn/bassoon present isorhythmic tetrachords which are segmental in bars 33-37, and non-segmental (but formed from consecutive order positions) in bars 38-40. Thus five different tetrachords are presented in the passage.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>D(FO)</td>
<td>4^²</td>
<td>I₆(P)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>D(HB)</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>41-42</td>
<td>D3</td>
<td>S(C)</td>
<td>3</td>
<td>T₆(P) (incomplete)</td>
<td>This acts as a transition and anticipates the clarinet/bassoon material of the next section.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>S(B)</td>
<td>3</td>
<td>I₆(P) (incomplete)</td>
<td></td>
</tr>
<tr>
<td>43-49</td>
<td>D4</td>
<td>S(H)</td>
<td>8</td>
<td></td>
<td>A pseudo-isorhythmic flute/oboe accompaniment presents a combination of T₆(P) dyads and independent melodic material (the dyads can combine with the horn to form isorhythmic trichords; the horn and the duet double pitch classes). The clarinet/bassoon duet presents isorhythmic accompaniment.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>D(FO)</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>D(CB)</td>
<td>3^²</td>
<td>T₆(P)</td>
<td></td>
</tr>
</tbody>
</table>

16 There may be an error in the score at this point. This is discussed in further detail in connection with Figure 3.11 on page 104.
<table>
<thead>
<tr>
<th>Bars</th>
<th>Formal Division</th>
<th>Specific Instrumental Components</th>
<th>Number of pitch classes</th>
<th>Row Forms</th>
<th>Description of Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>50-56</td>
<td>A3</td>
<td>S(H)</td>
<td>2</td>
<td>No specific row form</td>
<td>The overall texture disintegrates from the materials of the previous section (bars 43-49). The flute and oboe present fragments of $T_4(P)$. The isorhythmic clarinet/bassoon duet plays shortened melodic fragments of $T_4(P)$. The horn is less active.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>S(F)</td>
<td>6</td>
<td>$T_4(P)$ (incomplete)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>S(O)</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>D(CB)</td>
<td>3; 3</td>
<td>$T_4(P)$ (incomplete)</td>
<td></td>
</tr>
</tbody>
</table>
Although there are fewer types of textures, the changes between these textures occur more often than in the first movement: seven changes of texture occurred in the first movement (listed in Table 2.1), whereas eleven occur in the second movement (listed in Table 3.1). In addition, there are a greater number of row forms used in the second movement: the first movement uses five transformations of P: $T_0$, $T_2$, $I_5$, $I_7$, and $I_0$. The second movement uses seven: $T_0$, $T_1$, $T_4$, $T_5$, $T_8$, $I_0$, and $I_3$. Of these seven transformations, four were not heard in the first movement: $T_1$, $T_4$, $T_8$, and $I_3$ (the transformations $T_0$, $T_5$, and $I_0$ are used in both movements). The second movement mostly uses transpositions of P, while the first movement used inversions of P to a relatively greater degree. $T_3$ and $T_4$ relationships occur frequently among these row forms, and will be discussed at a later point.

Formal divisions are determined by a combination of textures, instrumentation, and row segmentation. There are four prominent textures within this movement: multiple melodies (often interacting contrapuntally); two isorhythmic duets; or solo melody accompanied by an isorhythmic duet; a texture related to the latter involves solo melody accompanied by two isorhythmic duets. These four textures generally correspond to the formal labels A, B, C, and D, respectively, although there are a few exceptions in cases where the pitch materials are obviously related to a different formal section. One such example occurs in bars 41-42. This is labeled D3 on the table even though the texture consists of two solo instruments: the pitch material in this section anticipates the next section, bars 43-49, which does depict the D texture. All textures involve some combination of solo and duet passages, but some texture types return in sections corresponding to different labels (D(CB), for example, occurs in C1, D4, and
A3). The formal labels refer to the combinations of textures, not the individual texture types themselves. To clarify, examine B1 and B2 on Table 3.1: both consist of two isorhythmic duets; however, the instrumentation in B1 is D(FC), D(OB), whereas the instrumentation in B2 is D(FH), D(OB).

Texture type and segmentation type are not always consistently associated, but segmentation type does help define sections. In fact, change in segmentation is often used to contrast adjoining sections. Segmentations of the aggregate used in this movement are segmental dyads (often used as accompaniment), segmental trichords, and segmental tetrachords. Hexachords are also used, but more sparingly than the other segmentation types.

The second movement begins with the quintet's first strictly linear presentation of T₀(P). In bars 1-4, this row form is segmented into melodic trichords, each presented by a different instrument (clarinet, flute, oboe, and bassoon, respectively), as shown by Figure 3.1 (a duplication of Figure 1.4). These four bars act as an introduction to the movement and a similar texture reappears in bars 24, 25-31, and 50-56, to be discussed shortly. Bars 1-4 present the first occurrence of A material, a texture in which solo melodies occur without accompaniment. Section A1 is defined by the solo melody texture, the use of T₀(P), and the use of trichordal segmentation (as illustrated on Table 3.1).
Figure 3.1: Bars 1-4, second movement

Figure 3.2 shows how bars 5-8 are characterized by counterpoint between two isorhythmic duets, corresponding to formal type B on Table 3.1. The duets create a ‘complementary’ rhythm: when one duet is rhythmically active, the other is not (see bars 6, 7, and 8). The resulting pattern of triplet eighths alternating with longer notes (quarter notes, half notes, or dotted half notes) allows for a nearly continuous presentation of triplet eighth-notes in this passage. The first quarter-note beat of bar 7 creates a break in this rhythmic continuity: all four instruments hold their pitches for the first quarter duration, subsequently tied to the next triplet eighth note. Shorter disruptions to the rhythmic continuity occur in bar 6 (beat 2), bar 7 (beats 2, 3 and 4), and bar 8 (beats 2 and 3). The simultaneous tetrachords that occur during these disruptions are forms of SC (0347), as shown below Figure 3.2. In fact, the two different SC (0347) tetrachords that occur are related by $T_2$ and $T_{10}$, the common transpositional relationship first discussed in Chapter 1.
The analysis accompanying Figure 1.13 and Figure 1.14 demonstrated how two different types of trichords could occur in bars 5-8. Figure 3.2 presents the same four bars without these annotations. In this context, we see the consecutive dyads of $T_0(P)$ presented as simultaneities, contrasting with the trichordal segmentation of the same row form in bars 1-4. In bars 5-8 the order position dyads $\{0, 1\}, \{2, 3\}, \{4, 5\}, \{6, 7\}, \{8, 9\}, \{t, e\}$ are heard. Each isorhythmic duet presents these dyads, although the members of the duets play either member of the order position dyad. Note, for example, that the flute plays order positions $\{1, 2\}$ as its first two notes in bar 5. These occur in bar 6 in the clarinet; the clarinet in turn plays order positions $\{0, 3\}$ as its first two notes in bar 5,
which occur in the flute at the beginning of bar 6. The only exception to the use of the specific order position dyads listed above occurs in the bassoon in bar 7 and is indicated on Figure 3.2 with an asterisk: here the order position dyad \{0, 2\} occurs in the oboe and the bassoon. This creates the simultaneities \(<\{0, 1\}, \{2, 0\}, \{4, 5\}\> in bar 7 within the oboe and bassoon parts. If the order position \{3\} was used instead of \{0\}, a hexachord would be presented by the oboe/bassoon duet in bar 7: \(<\{0, 1\}, \{2, 3\}, \{4, 5\}\>$. It is possible that the \{0\} at this location is an error by the composer; \{3\} = A is only one ledger line away.\(^{20}\)

The C material occurs in bars 9-15; this passage is shown in Figure 3.3. This material is closely related to the D family: material from the C family involves a solo melody accompanied by one isorhythmic duet, whereas material in the D family involves a solo melody accompanied by two isorhythmic duets. In the C1 statement of bars 9-15, the clarinet and bassoon play an accompanimental isorhythmic duet while the horn, in its first entry of the movement, plays a melody. As in the previous A1 and B1 sections, T\(_0\)(P) is still the only row form used. The isorhythmic duet might suggest a dyadic interpretation, as in bars 5-8, but in fact the consecutive trichords of T\(_0\)(P) are reappearing from bars 1-4. The first two trichords appear first in the accompaniment as two trichords (order positions \{0, 1, 2\} in the clarinet and \{3, 4, 5\} in the bassoon) then the second hexachord is played by the horn in bars 10-12 (order positions \{6, 7, 8\} and \{9, t, e\}). In bar 12, the clarinet switches to the trichord \{6, 7, 8\} while the bassoon continues with \{3, 4, 5\}, and the horn now substitutes \{9, t, e\} and \{0, 1, 2\} for \{6, 7, 8\} and \{9, t, e\}. Effectively, the clarinet and horn have exchanged \{0, 1, 2\} and \{6, 7, 8\}.

\(^{20}\) Another possibility is that the composer mis-read the clef: C4 occurs in the same position on the bass clef as A5 does on the treble clef.
The circulation of trichords in this passage is reminiscent of the opening of Arnold Schoenberg’s *Fourth String Quartet*, given in Figure 3.4. The twelve-tone row used in that work is given below with order positions:

\[ \begin{align*}
0 & & 1 & & 2 & & 3 & & 4 & & 5 & & 6 & & 7 & & 8 & & 9 & & t & & e \\
\end{align*} \]
In the Schoenberg quartet the first violin presents a melodic statement of the row while the second violin, viola, and violoncello present isorhythmic accompanimental material. Each attack of the accompaniment presents one of the segmental trichords of the row; in the first bar, for example, the three attacks present \( \{Bb, D\#, F\} \), \( \{Ab, E, C\} \), and \( \{F\#, G, B\} \), trichords 2, 3, and 4 respectively, while the first trichord occurs in the first violin in bars 1 and 2. This process is repeated in bars 2, 3, and 4-6: the first violin presents the next melodic trichord in the row while the accompaniment instruments present the other three trichords. This is indicated in Figure 3.4 through the use of coloured boxes. Weinzweig’s circulation of trichords in the quintet passage is not as strict as Schoenberg’s: in bars 9-13 (Figure 3.3) Weinzweig has the first trichord in the clarinet, the second trichord in the bassoon, and the remaining two trichords in the horn melody. The first trichord returns in bars 14-15 of the horn (also in Figure 3.3), but the process of circulation does not continue beyond this point: the next section, bars 16-23, is based upon a different segmentation.
Figure 3.4: Schoenberg's *Fourth String Quartet*, first movement, bars 1-6

- = trichord 1 (order numbers \{0, 1, 2\})
- = trichord 2 (order numbers \{3, 4, 5\})
- = trichord 3 (order numbers \{6, 7, 8\})
- = trichord 4 (order numbers \{9, t, e\})
Bars 16-23, shown in Figure 3.5, present the first occurrence of D material (labeled D1), in which three components now occur simultaneously: a duet between the horn and bassoon, another duet between the oboe and clarinet, and a solo melody in the flute (essentially a flute melody with accompaniment). This section is based upon dyadic segmentation, but sometimes smaller equal segments are combined into multiples, as in bars 16-17, where one finds four dyads and a tetrachord (two consecutive dyads). Two different but related segmentations occur in this passage: bars 16-18 segment the aggregate into four dyads in the duets and two tetrachords in the solo flute, while bars 19-23 segment the aggregate into two dyads in the duets and one octachord in the flute. The accompanimental duets occur mostly as isorhythms, with exceptions in bar 17 (oboe) and bar 23 (clarinet); they present the consecutive dyads of \( I_3(P) \), played simultaneously as indicated by order positions and coloured boxes on Figure 3.5. This is similar to the B1 material of bars 5-8, as previously discussed in association with Figure 3.2, which also used simultaneous consecutive dyads – in that case dyads of \( T_6(P) \). Both passages use the order position dyads \( \{0, 1\}, \{2, 3\}, \{4, 5\}, \{6, 7\}, \{8, 9\}, \{t, e\} \) as simultaneities in their isorhythmic duets. The D family combines aspects of A, B, and C: solo melodic material from A, simultaneous dyads as previously heard in B, and the “solo melody with isorhythmic accompaniment” texture heard previously in C.
Figure 3.5: Bars 16-23, second movement

(continued from bar 19) (exactly repeated)

= order numbers 0, 1
= order numbers 2, 3
= order numbers 4, 5
= order numbers 6, 7
= order numbers 8, 9
= order numbers t, e
Bars 16-23 also present rhythmic and melodic repetition in the accompaniment; this is illustrated on Figure 3.5 with brackets below the staff and the labels ‘x’ and y’. These represent the repetition of smaller (‘y’) and larger (‘x’) segments in bars 19-21 and 21-23. The literal repetition of the accompaniment and the independent solo flute implies a ‘vamped’ accompaniment to an improvised solo such as one might see in jazz.

In bars 16-23 the flute melody is virtuosic, presenting segments of I₃(P). It presents the first segmental tetrachord in bar 16 (order positions {0, 1, 2, 3}), a second tetrachord from order positions {6, 7, 8, 9} in bar 18, and an octachord from order positions {6, 7, 8, 9, t, e, 0, 1} in bars 17-23. The flute and accompaniment combine to present the aggregate: the accompaniment plays order positions {4, 5, 6, 7, 8, 9, t, e} in bars 16-17; order positions {e, t, 0, 1, 2, 3, 4, 5} in bars 18-19; and order positions {2, 3, 4, 5} in bars 20-23.

The transitions between sections and individual themes are smoother in the second movement than in the first; one reason for this is the repetition of row forms between sections. This can be seen from Table 3.1: in the Row Forms column all but two sections contain a row used in the previous section (the two exceptions are bars 16-23 and bars 33-40). Transitions between sections in this movement are also smoothed by the use of related thematic material. One example occurs in bar 24: to discuss this passage portions of the previous section (bars 16-23) and the following section (bars 25-31) must also be examined, and so bars 22-27 are given in Figure 3.6.
The transitional material in bar 24 contrasts with the material in the previous section. In bar 24 only six pitch classes are presented, in the solo flute. $T_0(P)$ is used in both the first section and the transition; there are also similarities in the melodic material.

The flute melody (continued from Figure 3.5), is still using the octachord $\{6, 7, 8, 9, t, e, 0, l\}$ of $I_3(P)$ in bars 22-23. In bar 24, the last gestures of the melody are derived from
the first hexachord of $T_0(P)$, making an echo of the melody in bars 19-20, which also started with $<C, Eb>$ and which shares the same contour. There are other similarities, however, between the row forms used in each passage. $I_3(P)$ and $T_0(P)$ are given in Row Diagram 3.1, with boxes indicating shared dyads and trichords.

Row Diagram 3.1

$I_3(P)$: 
\[
\begin{array}{cccc}
Eb & C & B & F# \\
& & & F \\
& & & D \\
& & & G \\
& & & E \\
& & & G#
\end{array}
\]

$T_0(P)$: 
\[
\begin{array}{cccc}
C & Eb & E & A \\
& & & Bb \\
& & & Db \\
& & & G# \\
& & & B \\
& & & G
\end{array}
\]

Two ordered trichords occur as segments in both $I_3(P)$ and $T_0(P)$: $<A, Bb, Db>$ and $<F#, F, D>$. The first of these trichords is used to forge the transition between bars 23 and 24 (because bar 24 only presents the first six pitch classes of $T_0(P)$ the latter trichord is not heard there). The relationship of $<A, Bb, Db>$ between bars 23 and 24 is quite striking: these pitch classes occur in the same register and are also rhythmically similar.\(^{21}\) The first hexachord of $T_0(P)$ neatly summarizes aspects of the preceding $I_3(P)$ music, making bar 24 sound both cadential (due to the use of repeated material and sparser instrumentation) and liquidative in respect to the previous passage. In respect to the following passage, however, it acts as a transition by introducing the first six pitch

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\(^{21}\) These four pitch classes are also presented in the second quarter-beat of bar 23, with order positions \{8, 9\} one octave higher and \{t, e\} reversed. The repetition of order position \{e\} one octave lower in the clarinet helps to orient the listener to the new register. The repetition in the flute is indicated on Figure 3.6 in red.
classes of $T_0(P)$ in the flute, thus preparing for their repetition, at $T_4$, in the oboe in bar 25.

Before discussing the passage that begins at bar 25, a few comments will be made about the overall form of the second movement. The musical material from bars 25-56 contrasts with the previous material in several ways, and therefore bars 1-23 and 25-56 will be analyzed as two larger sections, with bar 24 acting as a transition. In bars 25-56 multiple row forms occur simultaneously, whereas in the first section no row forms were presented simultaneously. Aggregates do not occur in bars 32 or bars 41-42, in contrast with the aggregates presented in every subsection of the first section. The construction of aggregates differs as well; in the first section there was a greater use of dyads, trichords, and tetrachords, while in the second section segmentations such as decachords (seen in bars 43-49) and collections in which pitch classes are repeated (such as bars 33-40, in which five different tetrachords occur in the accompaniment). Like the first section, however, the second section begins and ends with unaccompanied melodic material labeled as type A on Table 3.1: in bars 25-31 the solo oboe and bassoon interact contrapuntally; in bars 50-56 the flute, oboe, and horn present solo material accompanied by a duet in the clarinet and bassoon. This differs from other occurrences of A material because of the isorhythmic duet, but retains its A character because four different parts (one being the combination of clarinet and bassoon) are still heard. The formal divisions of the second section will now be discussed with these properties in mind.

In bars 25-31, shown in their entirety in Figure 3.7, there is a contrapunatal interplay between the oboe and bassoon. Like the transition in bar 24, the material here consists of solo melodies, a texture labeled A2 on Table 3.1. One might consider
classifying this material into a different family (the texture differs significantly from A1 in bars 1-4); however, the use of solo melodies and the counterpoint created by these has a distinct sonority that is easily heard. The A1 material (which plays melodic fragments in alternation instead of simultaneously) is, in my view, a variation of the A material heard later in the movement; it has been labeled A1 because it is the first occurrence of this material in this movement.

Figure 3.7: Bars 25-31, second movement
In this passage the oboe plays a complete statement of $T_4(P)$ while the bassoon plays a complete statement of $(R)T_6(P)$, and later also plays $T_4(P)$. This is the first point in the second movement at which two different row forms occur simultaneously; two different aggregates are presented. These two row forms also share pitch-class material, as shown on Row Diagram 3.2:

Row Diagram 3.2

\[
T_0(P): \begin{array}{cccccccc}
C & Eb & E & A & Bb & C\# & G\# & B & G & F\# & F & D
\end{array}
\]

\[
T_4(P): \begin{array}{cccccccc}
E & G & G\# & C\# & D & F & C & Eb & B & Bb & A & F\#
\end{array}
\]

$T_0(P)$ occurs in retrograde in this passage, which means that there are three ordered dyads and one unordered dyad in common: $<G\#, C\#>, <Bb, A>, <D, F>$, and $\{C, Eb\}$. By placing these two rows in counterpoint the same dyads are heard between the oboe and bassoon, creating an echo effect.

A second instance of transition material occurs in bar 32. Specifically, the pitch material is carried over from bars 25-31 and an increase in the number of voices prepares the listener for bars 33-40, where all instruments play. The oboe and bassoon repeat the pitches they had played in the last quarter-beat of bar 31 (forming the third segmental tetrachord of $T_4(P)$), while the flute and horn enter with the second segmental tetrachord of $T_4(P)$, $\{C, Eb, D, F\}$, in isorhythm. The flute and horn play this tetrachord as two ascending ic3 dyads, the flute as $<C, Eb, D, F>$ and the horn as $<D, F, C, Eb>$. Figure 3.8 shows bars 30-33. Interestingly, this dyadic alternation is reminiscent of bars 1-14.
(especially bar 1) of the first movement, previously examined in Figure 1.1, Figure 1.17, and Figure 1.18, in which the accompanimental instruments similarly swap their melodic dyads.

Figure 3.8: Bars 30-33, second movement
This transition also presents a brief moment of liquidation: order positions \{8, 9\} and \{t, e\} of $T_4(P)$ are repeated in the last quarter beat of the bassoon and oboe, respectively, in bar 31. The interval classes formed by each of these, ic3 by the oboe and ic1 by the bassoon, occur prominently within the row forms of P (previously discussed in Chapter 1). The repetition in both the flute/horn duet and the oboe/bassoon duet emphasizes this bar and presents a cadence (through repetition), as was the case in bar 24, the previous transition. This would be the recapitulation in a sonata form; in the Woodwind Quintet bars 33-56 conclude the work by a return to D and A material, soon to be discussed, which could also be interpreted as a recapitulation. The movement continues with a break in bar 33 in the flute, oboe, horn, and bassoon, while the clarinet begins a solo melody leading into a completely new texture.

In bars 33-40, shown in Figure 3.9, there is a return to the D material. In this variant, labeled D2, the flute and oboe create an accompanimental isorhythmic duet, as do the horn and bassoon. Here it is the clarinet that plays a virtuosic melody, with large leaps, extremes of range, and a rapid tempo (much like the D1 flute melody in bars 16-23). These features can be seen in bar 34. The leap of 11 semitones between Gb5 and F6 is large with the upper pitch, the F6, in the clarinet's altissimo register, a pitch difficult to leap to and hard to tune on the Bb clarinet. A higher pitch occurs in bars 37-38: F#6, another pitch approached by a difficult leap of 11 semitones and hard to tune. These elements of texture are similar to those of bars 16-23 with the exception of the instrumentation: in bars 33-40 the clarinet plays the virtuosic melody instead of the flute. Bars 33-40 are based on a single row form, $(R)I_0(P)$; the clarinet melodically presents a
complete aggregate of this row form, while the accompaniment instruments present simultaneous tetrachords.

**Figure 3.9: Bars 33-40, second movement**

Leap of ic11 to F6

F#6, highest pitch in the passage
Due to these similarities between bars 16-23 and 33-40, it is worthwhile to compare their row forms. **Row Diagram 3.3** gives \((R)I_0(P)\) and \(I_3(P)\).

**Row Diagram 3.3**

\[
\begin{array}{cccccccc}
(R)I_0(P): & Bb & G & \boxed{Gb} & F & Db & E & B & D & Eb & Ab & A & C \\
I_3(P): & Eb & C & B & \boxed{F\#} & F & D & G & E & G\# & A & Bb & Db \\
\end{array}
\]

There are two ordered dyads in common between these two row forms: \(<Gb, F>\) and \(<Ab, A>\). These row forms do not share as many common segments as other rows compared so far, but their common dyads do belong to the same interval class, ic1. The two large leaps discussed in the previous paragraph involve the \(<Gb, F>\) dyad (the leap in bar 34 leaps between the two pitch classes of this dyad, whereas the leap in bars 36-37 leaps to the \(F\#\), then falls by semitone to \(F\)). The second dyad, \(<Ab, A>\), is not emphasized within this passage. In bars 16-23, however, the \(<G\#, A>\) is emphasized through the octatonic relation discussed in Chapter 1 (the \(G\#\) always relates by semitone to \(A\) and is not a member of the octatonic collection being used), while the \(<F\#, F>\) dyad occurs repeatedly in the oboe as accompaniment. Overall, however, the relationship between \((R)I_0(P)\) and \(I_3(P)\) is weak.

Bars 41-42 begin a process of build-up that continues to the end of the movement. This passage can be seen in **Figure 3.10**, which gives bars 40-44. The clarinet and bassoon begin the build-up in bars 41-42 by presenting motives that each begin with \(Ab\),
the last pitch class of the previous section; they also each present the first segmental trichord of a row, $T_g(P)$ in the clarinet and $I_0(P)$ in the bassoon. $I_0(P)$ is the row form used in bars 33-40, while $T_g(P)$ occurs in the clarinet and bassoon from bars 43-56 (the end of the movement). Because of the solo melody texture in this passage, one might consider this a member of the A family; however, since this passage introduces material that is continued through bars 43-49 to the end of the movement (namely, the clarinet motive), this acts as an introduction to the D material of the next section. As such, it is labeled D3 on Table 3.1.
The clarinet is joined by the bassoon in isorhythm from bar 43; they each present a segmental trichord of $T_8(P)$ (bars 43-49 are presented in Figure 3.11). In a sense this is reminiscent of the opening bars of the second movement, but there are significant differences between the two passages: in bars 43-56 only two segmental trichords are presented, while in bars 1-4 all four segmental trichords were heard; in bars 43-56 the
two segmental trichords of $T_0(P)$ occur simultaneously, whereas in bars 1-4 the segmental trichords of $T_0(P)$ each occurred as a melodic solo; in bars 43-56 the clarinet and bassoon repeat the first pitch class of their motives, while in bars 1-4 the trichordal solos did not repeat any pitch classes. These differences are significant enough that the listener would not hear the relationship between bars 1-4 and bars 43-56; other passages, to be discussed shortly, have stronger similarities to bars 43-56.
Although bars 43-49 are labeled D4 because of their texture (solo melody accompanied by two isorhythmic duets), there are several similarities between the bars 43-49 and bars 9-15, seen previously in Figure 3.3. Bars 9-15 present a horn melody with clarinet and bassoon accompaniment, while bars 43-49 present a similar texture with
the addition of the flute and oboe. As previously discussed, the clarinet and bassoon in bars 43-49 present a repetitive and isorhythmic accompaniment consisting of the first and second trichords of $T_8(P)$ (order positions \{0, 1, 2\} in the clarinet and \{3, 4, 5\} in the bassoon). This is similar to the first statement in bars 9-16 where the clarinet and bassoon present the first two trichords of $T_0(P)$. The pitch-class relationship between these two passages is not very strong, however: the first hexachords of $T_0(P)$ and $T_8(P)$, share only two of their six pitch classes, \{C, A\}.

The horn presents melodic material in bars 43-49, a similar texture to bars 9-15, while the addition of flute and oboe is unique to bars 43-49. The flute and oboe present accompanimental material that alternates between isorhythmic dyads and short independent melodies: isorhythmic dyads occur in bars 44, 45, and 48, while independent melodic material occurs in bars 46, 47, and 49. The flute and oboe isorhythms interact with the horn materials in places such as the second eighth duration of bar 44, the second eighth duration of 45, and the second and fourth quarter durations of bar 48 where they together present trichords of $T_1(P)$. The melodic materials of the horn are also derived from $T_1(P)$, although bar 47 presents a possible error in the score (see footnote 19): in bar 47 the horn trichord is not an ordered trichord from $T_1(P)$, as expected, but rather $T_6(P)$, a row form that has not yet occurred in this movement. The pitch classes found at this point would occur if one were to forget to transpose the third trichord of $T_1(P)$ for the French horn. The pitches involved are marked with asterisks in bar 47 on Figure 3.11. The build-up discussed in conjunction with bars 41-42 increases here: all instruments are playing, presenting two different row forms, $T_8(P)$ and $T_1(P)$. 
Bars 50-56 in Figure 3.12 begin to disintegrate the process begun in bar 41. The clarinet and bassoon continue their pitch materials throughout bars 50-56 and are the two instruments that conclude the movement. The flute, oboe, and horn materials differ from their counterparts in bars 43-49. Specifically, the flute and oboe play three short bursts of material derived from $T_3(P)$: the flute in bars 51, and the oboe in bars 50 and 52. The horn plays the pitch classes B, Bb, and Eb, which do not form a segmental trichord of any row form derived from $P$. All three of these instruments finish before the final two bars and play much more sporadically than in the previous subsection, bars 43-49 (Figure 3.11). Bars 41-56 are a continuous section, unified by the repeated clarinet and bassoon material, the repeated notes in the horn heard in bars 45 and 54, and a growth and dispersion of density over the course of the passage. The texture is thinned to finish the movement; this thinning acts as both a final cadence and a transition to the next movement (the third movement begins with solo clarinet).
The use of smooth transitions and of cohesive thematic materials, achieved through gradual changes in row forms and textures, figures prominently in the second movement. This allows the listener to hear the movement as much more unified than the previous movement, which employed more abrupt changes of texture and pitch material. It is interesting that the second movement should be much more aurally unified since it is
a link between the outer two movements. Will the third movement be as unified in form and texture? Let us now examine this movement.
Chapter 4: The Third Movement and its Rhythmic Motives

We have examined thus far the use of contrasting textures in the first movement of the *Woodwind Quintet* and the use of contrasting segmentation within subsections of the second movement. The repetition of rhythmic motives is a significant attribute of the third movement of the *Woodwind Quintet*, and as such the analysis of these rhythmic motives and their context will be the focus for the discussion of this movement. A table provided at the end of the discussion of this movement lists the sectional divisions with their instrumental components, row forms, segmentations, and a brief description of their content, including the source of rhythmic motives.

The recurring rhythms in this movement are often built from repeated cells or variants of previously-heard rhythms; this is true of the first and second movements as well, but is especially emphasized in the third movement. The present discussion will examine several families of rhythms, providing a general description of each family, its usual context, and how its variants are related (providing only a superficial overview of the relations between rhythmic motives in this movement). After this, selected passages from the movement will be discussed in detail, with excerpts provided from the score, to show how the motives are varied through instrumentation, rhythmic variation, and pitch content (this latter section will provide the analysis of the movement).

The first two passages in the movement present distinct but related rhythms. The first passage, heard in bars 1-8, presents a clarinet solo characterized by the rhythm (henceforth labeled “RC1”) as a repeated cell. The passage includes an alternation between 2/4 and 3/8; in the latter the rhythmic cell is truncated to to fit
into the last eighth-note beat of the 3/8 bar (the 2/4 and 3/8 bars both begin with a pair of
slurred sixteenth notes, a rest, then a staccato sixteenth note). This pattern is repeated,
and then followed by a cadential rhythmic variant. The rhythms for the entire phrase
(bars 1-8) are as follows:

Rhythmic Motive 1

We shall henceforth refer to the rhythm identified by the brace on bars 1-2 as “Rhythmic
Motive 1” (RM1). Bars 1-8 are essentially an ostinato on RM1.

The second passage occurs in bars 9-24, and presents a compound rhythm built
from two characteristic rhythmic cells:  and  (henceforth referred to
as “RC2” and “RC3,” respectively), played as an isorhythmic duet by two instruments in
combination with a beat-marking counterrhythm in a third instrument (usually bassoon
but occasionally horn). This ensemble usually occurs as the accompaniment to yet
another melodic part. The two-part rhythm described above occurs in bars 10-11 as
follows, and is henceforth labeled “Rhythmic Motive 2” (RM2).

---

22 Various means for describing melodic motivic relationships are used in this chapter; they are similar to
those found in Lora L. Gingerich, “A Technique for Melodic Motivic Analysis in the Music of Charles
Another rhythm, also heard in bars 9-24 and henceforth identified as "**Rhythmic Motive 3** (RM3), is built from the same two rhythmic cells but occurs in solo melodies. This rhythm is played first by the flute (in bar 12), then imitated – with different pitches – three quarter notes later by the oboe. In this particular passage, the melodies are played over **RM2** as accompaniment, which continues unabated in bars 9-17. The following example is taken from the flute, bars 12-13:

Although the four eighth notes could be interpreted as a variant of the four sixteenth-note motive in bar 7, the underlying eighth-note pulse will not be treated here as derived from previous material (nor will it be treated as a separate motive). A similar rhythm will be examined shortly as **RC4**.

The other important rhythmic motives of this movement can all be derived from **RM1**, **RM2**, and **RM3** either as variations, as combinations, or as composite rhythms.
The process by which this occurs will now be examined for the major rhythmic motives of the movement.

The component cells of RM1, RM2, and RM3 create several composite rhythms that occur in the third movement of the *Woodwind Quintet*. The first is given in the diagram below; the new rhythmic cell will henceforth be labeled "RC4":

\[
\text{RC1:} \quad \begin{array}{c}
\text{RC2:} \quad \begin{array}{c}
\text{RC4:} \quad \begin{array}{c}
\end{array}
\end{array}
\end{array}
\]

RC1 combined with RC2 produces attacks on every sixteenth note. This results in RC4.

(RC4 is also reminiscent of the four eighth-note motive derived in RM3)

This composite rhythm occurs in two rhythmic motives in the *Woodwind Quintet*’s third movement. The first of these is heard in bars 25-30, in which repeated sixteenth notes generate an isorhythmic accompaniment. An example of this rhythmic motive, henceforth labeled "**Rhythmic Motive 4**" (RM4) is given below (this particular example shows the rhythm of the accompaniment in bars 26-27):

\[
\text{Rhythmic Motive 4}
\]

(RC4 (modified) RC4 RC4 (modified) RC4)
The first quarter beat presents a modified version of $RC_4$ in which only half of the sixteenth notes are presented (with a rest substituting for the two missing notes); this cell is also similar to $RC_3$ because both employ a rest on the downbeat. The second quarter beat presents $RC_4$ without modification. The combination of these two forms of $RC_4$ is repeated to form $RM_4$.

Bars 51-54 present another rhythmic motive based on $RC_4$. A melody and countermelody occur in this passage with isorhythmic accompaniment (the melody returns in several locations in this movement and will be discussed in detail later in this chapter). The rhythmic motive begins in the melody, and is soon reinforced by a shorter version of the same rhythm, beginning five eighth-durations later, in the countermelody. It occurs as follows in bars 51-54 (and will henceforth be labeled “Rhythmic Motive 5” or $RM_5$):

![Rhythmic Motive 5](image)

Brackets are included on $RM_5$ to show how the upper part of this rhythmic motive has been derived. The same rhythmic cell (labeled “$RC_5$”) occurs twice and is indicated by the first two brackets. This is derived from bars 7-8, seen in $RM_1$: in bars 7-8 four sixteenth notes are tied to a quarter note, which is in turn tied to the first of a set of four sixteenth notes. In the first bracketed statement above, the rhythm has been
modified by merging the quarter note and final four sixteenth notes of the original motive into a single duration; the second bracketed statement is similar, but its longer duration is a dotted-quarter note. The third bracket surrounds a statement in which a series of attacks occurs at every dotted-quarter interval, henceforth labeled "RC6." This rhythmic motive is often heard with a specific ordering of pitches, to be discussed later in this chapter.

Another composite rhythm is created through the two parts of RM2. This is illustrated in the diagram below:

The rhythmic cell is repeated three times in the example given above. This cell, henceforth labeled "RC7," is used to form another rhythmic motive in the *Woodwind Quintet*'s third movement. One example of this occurs in bars 131-134, where two isorhythmic duets present similar rhythms in counterpoint. The rhythms of these two duets are presented below, a motive that will be labeled "Rhythmic Motive 6" (RM6):
Rhythmic Motive 6

\[ \begin{array}{c}
\frac{3}{4} \quad \text{upper line} \\
\frac{3}{4} \quad \text{upper line}
\end{array} \]

This motive could also be derived from RM5, as shown below:

(Rhythmic Motive 5), upper line

(Rhythmic Motive 6), upper line

In this interpretation the two groups of four sixteenth notes seen in RM5 are truncated to two groups of two sixteenth notes in RM6, indicated by the first and third brackets on each rhythmic motive. Along the same line, the durations of the two quarter notes tied together are halved to produce two tied eighth notes, indicated by the second bracket on each rhythmic motive; the material shown by the fourth bracket on each rhythmic motive is similar, with a dotted quarter shortened to a quarter duration.

This motive is also used earlier in the work; in bars 36-41 two of the three instruments present a repeating pattern of \( \text{\textfrac{3}{4}} \). As can be seen in RM6, a similar process occurs in bars 131-134, the only difference being that the eighth note of this cell in bars 131-134 is tied to varying durations. In the upper line of RM6, RC4 is tied to an eighth note in bar 131, to a quarter note in bar 133, and to a quarter-note-plus-sixteenth in
bar 134; in the lower line \textbf{RC4} is tied to an eighth note in bar 133 and a sixteenth note in bar 134. In bars 131-134 \textbf{RM6} is used in isorhythm to create a transition; bars 36-41 (given in \textbf{Figure 4.1}), on the other hand, use this motive to create counterpoint.

\textbf{Figure 4.1: Bars 36-41, third movement}

In this passage, all three instruments play melodies derived from $T_{10}(P)$. In bars 37-40 the flute presents a melody based on \textbf{RM6}; this is echoed by the clarinet beginning on the last eighth note of bar 37. From bars 40-41 the flute and clarinet play interval classes 3 and 4 in rhythmic unison. The oboe’s material in bars 36-41 is loosely based on the melodic motive to be associated with \textbf{RM5} in a later passage (to be discussed); \textbf{RC5}, associated with \textbf{RM5}, is seen in bars 39-40. For these reasons this passage anticipates the main statement of \textbf{RM5} in bars 42-59. This will be discussed in more detail later in this chapter.

Another motive is inspired by the use of changing metre. The clarinet in bars 1-8 presented an alternation between 2/4 and 3/8 metre. This alternation recurs elsewhere in the movement, and generates another rhythmic motive based on the triple metre. Bars
60-62 present an alternation between 2/4 and 3/8 metre: the 3/8 bar presents solo oboe material in which three eighth notes (four, including the eighth at the end of bar 61) are heard without accompaniment. This can be seen in Figure 4.2. Bar 63 (not shown) returns to a 2/4 metre; the interjection of a single 3/8 bar continues intermittently to the end of this section (bar 95). An overview of the subdivisions within this section is given on Table 4.1 at the end of this chapter.

Figure 4.2: Bars 60-62, third movement

Triple groupings are used within notated 2/4 passages as well. Instead of changing the time signature, however, the composer writes triplet quarter notes or a rhythm with a similar attack pattern, as seen in bars 106-116 (given in Figure 4.3). This has a different rhythm than the 3/8 metre; it is reminiscent of the 3/8 metre because of the triplet groupings, but the effect is different since the 2/4 metre (without triplets) continues in the accompaniment.
Another significant rhythm occurs in bars 117-130, given in Figure 4.4. This rhythm occurs as a combination of two cells: one consisting of a single eighth note, the other consisting of varying durations of rests. The material heard in this passage is characterized more by its texture than the other motives presented in this movement:
instead of employing a repeating rhythmic pattern, this motive uses simultaneous eighth-notes in between two or more instruments that act as an accompaniment. These eighth notes are separated by varying numbers of rests, and their articulation is usually accented. In bars 117-130 of Figure 4.4, 8 out of 11 cases present a half-note interval between attack points: the exceptions occur in bars 117-118, with an interval of a dotted-half note between attack points, bar 124, with an interval of a quarter note between attack points, and bars 125-127, with intervals of five eighth notes and then three eighth notes between attack points. The overall effect is one of shifting metres (mostly involving 3/4 and 2/4), which are generally syncopated against the notated metre. This energizes the dialogue between the accompaniment and the solo flute. One could also interpret the accompaniment in this passage as being repeated, marked with brackets underneath the staff on Figure 4.4. This repeated motive is varied by compression, truncation, and syncopation. This is stylistically similar to bars 16-23 of the second movement; both passages present a repeated accompaniment with solo flute in an improvisational style. Bars 117-130 of the third movement, however, present variation in the accompaniment, whereas bars 16-23 of the second movement simply restated the accompaniment material.
This analysis will continue by discussing selected examples of these rhythmic motives and how they are developed within the movement. Bars 1-8 are significant in the rhythmic and serial derivation of other passages; they are given in Figure 4.5. In this
passage, the clarinet begins the movement with a solo in which the first trichord of $T_{10}(P)$ is repeated. As previously discussed, this material is the basis for **RM1**. Bars 9-24 introduce **RM2** and **RM3**, and continue the trichordal segmentation of $T_{10}(P)$. Bars 9-24 in particular are interesting for their segmental properties: the instruments involved in presenting **RM2** play trichords 2 and 3 of $T_{10}(P)$ as simultaneous trichords in alternation, while the instruments presenting **RM3** play trichords 1 and 4 melodically. This is shown on **Figure 4.6** through the use of coloured boxes: purple represents trichord 1, blue trichord 2, green trichord 3, and red trichord 4.

**Figure 4.5: Bars 1-8, third movement**

![Musical notation for Bars 1-8, third movement](image-url)
The rhythmic motives presented in this passage are developed in two sections. In bars 9-18 of the flute and oboe the rhythm is that given as **RM3**; the two instruments alternate **RM3** "out of phase" (the flute starts during beat 1, the oboe starts during beat
2), so that they overlap. In bars 19-24 the rhythm is varied. Specifically, the

\[ \text{cell} \] cell is retained, but is tied to a longer duration (in the flute this is tied to a quarter note in bars 18, 19, and 21, an eighth note in bar 22, a dotted-eighth note in bar 23, and another quarter note in bar 24; in the oboe this is tied to an eighth note or its equivalent in bars 18-19, and breaks with this pattern in the remainder of the passage) instead of to the first of a group of six eighth notes. The development of \text{RM2} has a similar fragmentation: the motive occurs in bars 9-18 as given for \text{RM2}, but in bars 19-24 varying durations of rests are inserted between the constituent cells of this motive.

Bars 42-59 develop \text{RM5} and the melody associated with it; this passage is anticipated by material in bars 36-41, discussed previously with Figure 4.1. The melodic motive soon to be associated with \text{RM5} first occurs in the oboe in this section: \( <\text{F#}, \text{A}, \text{F}, \text{E}, \text{Eb}> = \text{T}_{10}(\text{P}) <6, 7, 8, 9, t> \).

This serial motive is adopted by the horn at the first literal statements of \text{RM5}, bars 42-45 and 46-50 (which can be seen in Figure 4.7). The horn is accompanied by a countermelody in the bassoon beginning with the same rhythm but on the second eighth beat in the bar instead of the first (similar to the flute/oboe displacement in the preceding example). The horn pitch-class sequence is similar to the oboe’s statement of bars 36-41 except the pitch class \{G\} has been substituted for the oboe’s original \{A\}.\footnote{As in previous row-form discrepancies, this may be an error on the part of the composer. It is, however, repeated four times (in bars 42, 43, 46, and 47) in the same form, which implies that the G is an intentional substitution by Weinzweig.} This substitution changes the pitch class and intervalllic content, but the contour of the two motives remains the same. In this passage a variety of row forms and fragments emerge: a modified \( \text{T}_{10}(\text{P}) \) fragment occurs in the horn, as just examined; the first hexachord of \text{T}_{9}(\text{P}) occurs in the bassoon; and accompanimental material occurs in the flute and oboe.
derived from the first hexachord of $T_{11}(P)$. This material states three row forms, each a semitone transposition from one of the others.

Figure 4.7: Bars 42-50, third movement

The next statements of $\text{RM5}$ occur in bars 51-54 and 55-59, seen in Figure 4.8. Here the flute plays the oboe's former melody, now derived from $T_0(P)$, and the clarinet has the bassoon’s former countermelody, now derived from $T_{11}(P)$. Aside from the changes in transposition level, this passage is similar to bars 42-50: the rhythm is the same in both passages as well as the interaction of parts (a melody stating $\text{RM5}$, a countermelody in the same rhythm, and an accompanimental isorhythmic duet). In fact, the horn and bassoon in bars 57-59 are retrogrades of the flute and oboe, respectively, in bars 44-46. Bars 51-59 present $\text{RM5}$ in its original form, with an ic3 as its first interval (the horn statement in bars 42-50 has an ic2 as its second interval). Without the difference caused by this one particular interval, the melody and countermelody in bars
51-59 would be $T_2$ transformations of bars 42-50, presenting fragments from $T_0(P)$ and $T_{11}(P)$ in bars 51-59 instead of $T_{10}(P)$ and $T_9(P)$.

**Figure 4.8: Bars 51-59, third movement**

RM2 reappears in bars 63-66 (flute and clarinet duet with horn), 68-70 and 74-76 (clarinet and horn duet with bassoon), and so on, up through bar 85, with varied instrumentation throughout the passage. As in bars 9-24, the rhythm occurs in two parts: two instruments isorhythmically play the rhythm based on RC2 and RC3 ($\frac{7}{4}$ and $\frac{7}{8}$) of RM2 while either the bassoon or horn plays the complementary part ($\frac{7}{4}$ and $\frac{7}{8}$, and so forth, with the eighth notes on the beat). Between bars 68-85, short sections based on RM2 alternate with short sections in which the bassoon plays a solo melody based on other material. **Figure 4.9** shows a representative excerpt, bars 68-80.
This material culminates in bars 81-85, where the two instrumentations listed above alternate with one another. The intensification caused by the accelerated alternation (the statements of RM2 are shorter in duration) creates a climax. This passage is given in Figure 4.10. The remaining bars of the larger section (bars 68-95, as given on Table 4.1 later in this chapter) vary this material and dissipate the tension created by the climax.
The rhythmic properties of bars 117-130 have already been discussed in conjunction with Figure 4.4; however, the serial properties also merit discussion. Bars 117-130 present I_8(P) as a flute melody with accompaniment chords derived from T_6(P). These row forms are given in Row Diagram 4.1.

Row Diagram 4.1

I_8(P): G#  F  E  B  Bb  G  C  A  C#  D  Eb  F#

T_6(P): F#  A  Bb  Eb  E  G  D  F  C#  C  B  G#

The shortest common segment between these two row forms is the 10-pitch-class segment from \{1...t\}; both rows start and end with \{F#\} or \{G#\}. This is the first passage examined in this thesis involving two rows, used simultaneously, that do not have any segmental dyads, trichords, tetrachords, or hexachords in common; the only similarity between these two row forms is that \{G\} and \{C#\} occur as order positions
{6} and {9}, respectively, in both row forms (which is not that unusual since a similar effect will happen between any row forms related by an even inversion). This passage occurs near the centre of the work in two ways: bars 100-101 are the centre of the movement (which has 201 bars in total), and according to this division this section would occur near the beginning of the second half. However, another division according to the metric and serial content occurs in bar 135: metric instability occurs in bars 135-149. Perhaps the dissimilarity of row forms in bars 117-130, in a sense an "instability" of row-form relations, anticipates this metric instability. Admittedly, there is little other evidence to substantiate this, especially since the serial processes within the passage are quite consistent: the flute presents a melody from I_9(P) while the remaining four instruments play segmental isorhythmic tetrachords of T_6(P).

Bars 154-174, given in Figure 4.11, present an alternation between two groups of repeating materials, leading towards the end of the movement. The first group consists of oboe and clarinet, which play short mostly-isorhythmic duets (the first bars of each of these passages presents solo clarinet), each instrument presenting a trichord of T_5(P) in repetition. They use a rhythm which could be derived in two ways: firstly, from RC6 (\(\text{\textbullet\textbullet\textbullet}\) ), characteristic of RM6; secondly, as a modification of the clarinet's opening motive (in fact, the same order positions, \{0, 1, 2\}, occur in the clarinet in both passages). The following diagram illustrates this derivation:
The short oboe/clarinet duets occur in bars 154-156, 160-164, 167-169, and 170-172. The second component in the texture consists of flute, bassoon, and horn, which play a three-bar passage that also uses RC6 (among others); this material is heard in bars 157-159, 164-166, and 172-174, with one instrument added each time. The flute, bassoon, and horn material acts like cadential material due to its repetition and the unison F# on the last eighth-beat of each segment.
Bars 175-181 continue the flute, bassoon, and horn material, with variations in length (cadencing on a unison F# in each statement, as in bars 154-174), but the oboe and clarinet now present new material. The clarinet plays material based on the flute variant
of $\text{RM3}$ in bars 12-16 (in counterpoint with the oboe) with only slight modifications in bars 175-179 (again in counterpoint with the oboe). Figure 4.12 shows bars 175-181 for comparison with the flute in Figure 4.6. The oboe states a melody that derives from two different sources: in bar 175 it is derived from bar 13 (similar to the flute, whose material is from bars 12-16), whereas in bars 176 and the second statement in bars 178-179 the serial derivation is like earlier statements of $\text{RM5}$. The main difference between $\text{RM5}$ and this statement is the rhythmic compression: the half-note durations of previous statements become eighth-note durations here. The oboe’s material in bars 178-179 states the same pitch classes as the flute statement in bars 51-52, although in a different rhythm. This statement is introduced in bar 176 by the same motive beginning two semitones higher.

**Figure 4.12: Bars 175-181, third movement**
Figure 4.13 presents bars 182-191. RM1 returns in bars 182-189; like its first statement, it is heard in the clarinet. The clarinet plays segments of $T_0(P)$ in bars 182-189 (bars 182-191 present all but the final pitch class of $T_0(P)$; $\{e\}$ occurs in the bassoon in bar 191), while in bars 1-8 it played the first trichord of $T_{10}(P)$. This is an appropriate change of row form since the movement (and thus the entire work) is nearing its conclusion: $T_0(P)$ appeared at the beginning of the entire work, and having it appear at the end would help to round out the three movements. In bars 182-189 the clarinet is accompanied by isorhythmic oboe, horn, and bassoon gestures repeating the RC5 rhythm in two different metric alignments: $\begin{array}{ll} J & J \\ J & J \end{array}$. Bars 190-191 continue the clarinet solo with material whose rhythm and serial derivation correspond to earlier statements of RM5; it once more states the same pitch classes as the flute in bars 51-52 (and consequently bars 178-179 as well). These short statements beginning on G# (or Ab) present the second segmental hexachord of $T_0(P)$, the prime form row, and like the material of bars 182-189 help to bring the work back to its initial pitch collection. Lastly, the way in which the trichords are used in bars 182-187 is tidy: the first trichord of $T_0(P)$ occurs in the melody, with trichord 2 in the horn, trichord 3 in the oboe, and trichord 4 in the bassoon (the last three instruments in isorhythm). Bars 188-191 do not, however, continue the use of trichords: the clarinet plays hexachords while the accompaniment presents simultaneous trichords in bars 188-189 and a melodic trichord (played by the horn) in bar 189.
Bars 192-200 (given in Figure 4.14) present material derived from RM2. Here the accompaniment plays a variation of RM2 alternating between 2/4 and 3/8 metre: the rhythm is modified from RM2 in the 3/8 bars, which present $\frac{8}{3} \begin{array}{c} 3 \end{array}$ instead of $\frac{8}{3} \begin{array}{c} 4 \end{array}$. The former is derived from the latter as follows:
Like the statement of bars 9-24, this is a two-part rhythm, with the bassoon in alternating rhythm. The horn in this passage is mostly isorhythmic with the flute, oboe, and clarinet, but also presents independent material during their rests, functioning as accompaniment and melody simultaneously. This is the only time in the movement that all instruments present material derived from RM2, and the resulting energy leads into the conclusion in bar 201.
The final bar of the work, given in Figure 4.15, presents a few surprises: the 5/8 metre rarely appears in this movement (although it is not necessarily heard as such because of the rests on the first two eighth notes – the only other instance of 5/8 occurs in bar 143), and the row form used for the accompaniment is at first difficult to determine.
Bar 201 has been composed in a similar style to bars 1-14 of the first movement (previously discussed with Figure 1.1 and Figure 1.17): a melody is played by one instrument, against tetrachords (composed of melodic and simultaneous dyads) playing an isorhythmic accompaniment in the remaining instruments. In bar 201, the clarinet plays the melody (derived from the first hexachord of $T_3(P)$) in consecutive sixteenth notes. The remaining four instruments make up the accompaniment: the flute and oboe play the first hexachord of $T_1(P)$ as three simultaneous dyads, in consecutive eighths; the horn and bassoon play the second hexachord of $T_1(P)$ in a similar way, as simultaneous dyads on three consecutive eighth notes. Weinzeig effectively creates unity within the Woodwind Quintet by returning to the same compositional technique used at the beginning of the work. As well, he uses common order-position set classes, another technique used earlier in the work (previously discussed in Chapter 1); the flute and oboe each present $OPSC (014)$ and SC (013), while the horn and bassoon each present SC (026) but different order-position set classes.

Figure 4.15: Bar 201, third movement
This chapter will conclude with a table giving a brief overview of the third movement, and a discussion on the overall form of the movement. Table 4.1 is given below.
Table 4.1: A brief overview of the third movement

Legend:

(FN) indicates that the preceding superscript refers to a footnote.

BS = bass part or other supporting accompaniment part

ISO = isorhythmic

<table>
<thead>
<tr>
<th>Bars</th>
<th>Formal Division</th>
<th>Specific Instrumental Components</th>
<th>Number of pitch classes</th>
<th>Row Forms</th>
<th>Rhythmic Motives</th>
<th>Description of Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-8</td>
<td>Introduction (A1)</td>
<td>S(C)</td>
<td>3</td>
<td>$T_{10}(P)$ (incomplete)</td>
<td>RM1</td>
<td>Trichord 1 of $T_{10}(P)$ is repeated, presenting the first rhythmic motive.</td>
</tr>
<tr>
<td>9-24</td>
<td>B1</td>
<td>S(F)</td>
<td>$3^2$</td>
<td>$T_{10}(P)$</td>
<td>RM2 and RM3</td>
<td>The isorhythmic clarinet and horn combine with the bassoon to form trichords 2 and 3; flute and oboe have alternating melodies, both using trichords 1 and 4, which are a variation of the accompaniment rhythm.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>S(O)</td>
<td>$3^2$</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>D(CH)</td>
<td>$3^2$</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>BS(B)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25-30</td>
<td>C1</td>
<td>S(H)</td>
<td>2; 6</td>
<td>$T_{10}(P)$ (incomplete)</td>
<td>RM4</td>
<td>The horn plays a melody; the flute and oboe are isorhythmic in bar 25, joined by the clarinet and bassoon in bars 26-30.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>D(FO)</td>
<td>$2^2$</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>D(CB)</td>
<td></td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>31-35</td>
<td>(transition)</td>
<td>S(C)</td>
<td>6</td>
<td>$I_2(P)$ (incomplete)</td>
<td>A variation of RM2</td>
<td>Bars 31-35 act as a transition. Since only one hexachord of the row is presented in the clarinet, the row form used is ambiguous (as previously discussed); for now it is assumed that the non-retrograde is the correct form.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>D(HB)</td>
<td>2</td>
<td>$T_{10}(P)$</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bars</td>
<td>Formal Division</td>
<td>Specific Instrumental Components</td>
<td>Number of pitch classes</td>
<td>Row Forms</td>
<td>Rhythmic Motives</td>
<td>Description of Content</td>
</tr>
<tr>
<td>------------</td>
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<td>----------------------------------------------------------------------------------------</td>
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<tr>
<td>36-59:</td>
<td></td>
<td></td>
<td>3</td>
<td></td>
<td></td>
<td>The entire section is based upon the returning sixteenth-note motive. The texture and</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>3</td>
<td>T_{0}(P)</td>
<td></td>
<td>instrumentation, however, change more often, swapping the motive between various</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>4^{2}(FN)</td>
<td>(incomplete)</td>
<td></td>
<td>instruments. Various row forms are used, often in fragments.</td>
</tr>
<tr>
<td>36-41</td>
<td>D1</td>
<td>S(F)</td>
<td>3</td>
<td>T_{0}(P)</td>
<td>A variation of RM6</td>
<td>Three lines occur contrapuntally, each presenting one segmental trichord of the row.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>S(O)</td>
<td>3</td>
<td>T_{0}(P)</td>
<td></td>
<td>In the oboe, a melody similar to the recurring motive of this section appears.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>S(C)</td>
<td>4^{2}(FN)</td>
<td>T_{1}(P)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>42-50</td>
<td>D2</td>
<td>S(H)</td>
<td>6^{2}(FN)</td>
<td>T_{0}(P)</td>
<td>RM5</td>
<td>The two solos interact contrapuntally, while the isorhythmic flute and oboe present</td>
</tr>
<tr>
<td></td>
<td></td>
<td>S(B)</td>
<td>7</td>
<td>T_{0}(P)</td>
<td></td>
<td>accompanimental dyads. The rhythmic motive is used in the solo instruments.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>D(FO)</td>
<td>2^{1}</td>
<td>T_{1}(P)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>51-59</td>
<td>D3</td>
<td>S(F)</td>
<td>7</td>
<td>T_{0}(P)</td>
<td>RM5</td>
<td>Bars 51-59 present material similar to bars 42-50, with different instrumentation and</td>
</tr>
<tr>
<td></td>
<td></td>
<td>S(C)</td>
<td>7</td>
<td>T_{1}(P)</td>
<td></td>
<td>some transposed pitch material (up ic2). Also, the 7-note collections of the flute and</td>
</tr>
<tr>
<td></td>
<td></td>
<td>D(HB)</td>
<td>2^{1}</td>
<td>T_{1}(P)</td>
<td></td>
<td>clarinet each consist of one segmental hexachord plus an extra pitch class.</td>
</tr>
<tr>
<td>60-62</td>
<td>Transition</td>
<td>S(O)</td>
<td>6</td>
<td>T_{s}(P)</td>
<td>Derived from RM5</td>
<td>This short passage introduces the oboe solo of bars 63-67.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>D(CB)</td>
<td>4</td>
<td>(incomplete)</td>
<td>RM6</td>
<td></td>
</tr>
</tbody>
</table>

24 In this particular passage, the order position trichord \{3, 4, 5\} occurs; however, in bars 40-41 order position \{0\} occurs instead of \{4\}. This is possibly another error by the composer: the two pitch classes for these notes occur closely on the staff: G\# occurs below the second ledger line, whereas A\# occurs on the second ledger line. With this correction, the clarinet would only play the \{3, 4, 5\} trichord. However, a similar “error” occurs in the horn, bars 42-50; since this process occurs more than once these two instances may be an intentional substitution by the composer.

25 See footnote 24: order positions \{6, 3, 8, 9, t, e\} occur in this passage instead of \{6, 7, 8, 9, t, e\}.
<table>
<thead>
<tr>
<th>Bars</th>
<th>Formal Division</th>
<th>Specific Instrumental Components</th>
<th>Number of pitch classes</th>
<th>Row Forms</th>
<th>Rhythmic Motives</th>
<th>Description of Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>63-67</td>
<td>B2</td>
<td>S(O) 6</td>
<td>D(FC) 3</td>
<td>T_d(P) (incomplete)</td>
<td>RM2 in the accompaniment with a variation of RM6 in the melody.</td>
<td>This material presents an accompaniment similar to bars 9-24 with a different melody.</td>
</tr>
<tr>
<td>68-95</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>(68-79)</td>
<td>B3</td>
<td>S(B) 8</td>
<td>D(CH) 3</td>
<td>T_d(P) (incomplete)</td>
<td>A variation of RM5 occurs in the solo bassoon with RM2 in the accompaniment.</td>
<td>Trichord 1 of T_d(P) alternates with I_d(P) solo material in the bassoon (the bassoon participates in both groups and is thus listed twice in the &quot;specific instrumental components&quot; column).</td>
</tr>
<tr>
<td>(80)</td>
<td>(transition)</td>
<td>ISO(FCB) 3; 3; 3</td>
<td>I_d(P) (incomplete)</td>
<td></td>
<td>Triple rhythm (3/8 metre $^{26/5}$)</td>
<td>The instrumentation and segmentation of this bar differ from the surrounding materials. Of note are the pitch classes in the flute and clarinet: they seem to be playing melodic trichords, except that their final pitch classes are swapped.</td>
</tr>
<tr>
<td>(81-85)</td>
<td>B4</td>
<td>D(FO) 3</td>
<td>BS(H) 3</td>
<td>T_d(P) (incomplete)</td>
<td>RM2</td>
<td>Two groups consisting of an isorhythmic duet plus bass present trichords 1 and 2 of the row form in alternation. The duet groupings are continued into the next passage.</td>
</tr>
</tbody>
</table>

26 As discussed on page 115 of this chapter.
<table>
<thead>
<tr>
<th>Bars</th>
<th>Formal Division</th>
<th>Specific Instrumental Components</th>
<th>Number of pitch classes</th>
<th>Row Forms</th>
<th>Rhythmic Motives</th>
<th>Description of Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>(86-89)</td>
<td>E1</td>
<td>S(B)</td>
<td>6</td>
<td>I₈(P)</td>
<td>A variant of RM₆ in the bassoon.</td>
<td>The melody presents a variation of a previous rhythm, and presents the complementary hexachord to the accompaniment.</td>
</tr>
<tr>
<td>(90-95)</td>
<td>E2</td>
<td>S(B)</td>
<td>10</td>
<td>I₈(P) (incomplete) T₄(P) (incomplete)</td>
<td>No previously-examined rhythm is related to this passage.</td>
<td>Bassoon melody is reminiscent of the previous passage. The isorhythmic accompaniment presents eight pitch classes in total, as melodic lines of five pitch classes (pitch classes are doubled between instruments).</td>
</tr>
<tr>
<td>95-130</td>
<td></td>
<td>ISO(FOCH)</td>
<td>5; 5; 5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(95-105)</td>
<td>F1</td>
<td>S(F)</td>
<td>6</td>
<td>I₇(P)</td>
<td>Fragments of RM₄ and RM₆ occur in the melody. The accompaniment plays the sparse eighth note texture discussed on page 117.</td>
<td>I₇(P) occurs in retrograde, with the first hexachord in the accompaniment and the second hexachord in the flute melody.</td>
</tr>
<tr>
<td>(106-116)</td>
<td>F2</td>
<td>S(F)</td>
<td>9</td>
<td>I₇(P)</td>
<td>Sparse eighth note texture discussed on page 117 in the accompaniment; triplet rhythm discussed on page 115 incorporated into the melody.</td>
<td>The solo flute plays all pitch classes of the row except f₉, t, e, while the accompaniment plays all pitch classes of the row except f₆, 7, 8. Together they form the aggregate, with hexachord 1 heard in both parts.</td>
</tr>
<tr>
<td>(117-130)</td>
<td>F3</td>
<td>S(F)</td>
<td>12</td>
<td>I₆(P)</td>
<td>Sparse eighth note texture discussed on page 117 in the accompaniment.</td>
<td>The melody and accompaniment present two different aggregates, one melodically and one as three simultaneity tetrachords.</td>
</tr>
<tr>
<td></td>
<td>ISO(OCBH)</td>
<td>4³</td>
<td>T₆(P)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bars</td>
<td>Formal Division</td>
<td>Specific Instrumental Components</td>
<td>Number of pitch classes</td>
<td>Row Forms</td>
<td>Rhythmic Motives</td>
<td>Description of Content</td>
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</tr>
<tr>
<td>131-134</td>
<td>(transition)</td>
<td>D(OC)</td>
<td>$3^2$</td>
<td>$T_0(P)$ or $I_{10}(P)$ (incomplete)</td>
<td><strong>RM6</strong></td>
<td>Contrapuntal interaction of two isorhythmic duets, oboe/clarinet and horn/bassoon. The 013 trichord occurs prominently here: the prime form, inversion, retrograde, and retrograde inversion all occur in this brief passage. The row form is difficult to determine because only the first hexachord in each isorhythmic duet is stated (each instance of hexachord 1 occurs in two different row forms, discussed in Chapter 1).</td>
</tr>
<tr>
<td></td>
<td></td>
<td>D(HB)</td>
<td>$3^2$</td>
<td>$T_0(P)$ or $I_1(P)$ (incomplete)</td>
<td><strong>RM6</strong></td>
<td></td>
</tr>
<tr>
<td>135-147</td>
<td>B5</td>
<td>S(H)</td>
<td>$6^*$</td>
<td>$I_0(P)$ (incomplete)</td>
<td>Elements of the sparse-eighth-note texture discussed on page 117, <strong>RM2</strong>, and the triplet motive discussed on page 115.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>D(FO)**</td>
<td>$2^1$</td>
<td>$I_{10}(P)$ (incomplete)</td>
<td><strong>RM6</strong></td>
<td>*Solo horn presents the first hexachord of $I_0(P)$ except in bar 146, where it presents the extra pitch class {F}. **The accompaniment is mostly in isorhythm; however, in bars 143-145 the flute and oboe play different rhythms, as do the clarinet and bassoon. The bassoon also plays short melodic solos derived from various row forms.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>D(CB)**</td>
<td>$2^1$</td>
<td>$T_0(P)$ (incomplete)</td>
<td><strong>RM6</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>BS(B)</td>
<td>?</td>
<td>$I_{1}(P), I_{10}(P)$</td>
<td><strong>RM6</strong></td>
<td></td>
</tr>
<tr>
<td>148-152</td>
<td>C2</td>
<td>S(H)</td>
<td>$4$</td>
<td>$T_0(P)$</td>
<td>A variant of <strong>RM4</strong> in the melody.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>ISO(FOCB)</td>
<td>$4^4$</td>
<td>$T_0(P)$</td>
<td><strong>RM6</strong></td>
<td>Tetrachords occur both melodically and simultaneously in this passage. All are derived from $T_0(P)$, but are not always segmental tetrachords (they are formed from adjacent order positions, however)</td>
</tr>
<tr>
<td>153</td>
<td>(transition)</td>
<td>S(F)</td>
<td>$4$</td>
<td>$T_{10}(P)$ (incomplete)</td>
<td><strong>RM6</strong></td>
<td>This bar acts as a break between two sections: the flute plays four pitches, with a beat of rest in all instruments.</td>
</tr>
<tr>
<td>154-174</td>
<td>G1</td>
<td>S(F)</td>
<td>$6$</td>
<td>$I_0(P)$ (incomplete)</td>
<td><strong>RM6, RM5</strong>, and the triplet rhythm</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>S(B)</td>
<td>$6$</td>
<td>$T_1(P)$ (incomplete)</td>
<td><strong>RM6</strong></td>
<td>Extensive counterpoint occurs in this passage and the next, where each solo instrument presents a different row form. Repeated material in the flute, horn, and bassoon creates cadences.</td>
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<tr>
<td></td>
<td></td>
<td>S(H)</td>
<td>$6$</td>
<td>$T_2(P)$ (incomplete)</td>
<td><strong>RM6</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>D(OC)</td>
<td>$3^2$</td>
<td>$T_2(P)$ (incomplete)</td>
<td><strong>RM6</strong></td>
<td></td>
</tr>
<tr>
<td>Bars</td>
<td>Formal Division</td>
<td>Specific Instrumental Components</td>
<td>Number of Pitch classes</td>
<td>Row Forms</td>
<td>Rhythmic Motives</td>
<td>Description of Content</td>
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<tr>
<td>175-181</td>
<td>G2</td>
<td>S(F) 6</td>
<td>I$_7$(P) (incomplete)</td>
<td>Variants of RM3, RM5, and RM6.</td>
<td>Similar to previous section, but with solos in the oboe and clarinet derived from previous material. The oboe solo presents fragments of two different row forms, while the clarinet solo presents the first trichord of T$_0$(P), preparing the listener for the next section.</td>
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<td></td>
<td></td>
<td>S(B) 6</td>
<td>T$_{11}$(P) (incomplete)</td>
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<td></td>
<td></td>
<td>S(H) 6</td>
<td>T$_7$(P) (incomplete)</td>
<td></td>
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<td></td>
<td></td>
<td>S(O) 7; 6</td>
<td>T$_2$(P); T$_8$(P) (incomplete)</td>
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<tr>
<td></td>
<td></td>
<td>S(C) 3</td>
<td>T$_0$(P) (incomplete)</td>
<td></td>
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<tr>
<td>182-191</td>
<td>Conclusion (A2)</td>
<td>S(C) 3, 5</td>
<td>T$_0$(P)</td>
<td>A variant of RM1 in the clarinet, with a variant of RM6 in the accompaniment.</td>
<td>The clarinet melody is similar to motive from the first passage of this movement, presenting the first trichord of the row form from bars 182-189, while in bars 190-191 a pentachord occurs. The oboe, horn, and bassoon play the remaining trichords of the row.</td>
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<td>ISO(OHB) 3; 3; 3</td>
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<tr>
<td>192-200</td>
<td>B5</td>
<td>ISO(FOCH) 4^2</td>
<td>T$_0$(P) (incomplete)</td>
<td>A two-part variant of RM2.</td>
<td>The isorhythmic flute, oboe, clarinet, and horn present a repeated rhythmic pattern (the horn has extra pitch classes in bars 193 and 195). The bassoon presents a single dyad. The tetrachords formed by the accompaniment are not segmental, but do consist of several adjacent dyads of the row form.</td>
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<td></td>
<td></td>
<td>BS(B) 2</td>
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<tr>
<td>201</td>
<td>“coda”</td>
<td>S(C) 6</td>
<td>T$_2$(P) (incomplete)</td>
<td>Not related to previous rhythms in this movement.</td>
<td>This final bar of the work presents both melodic and simultaneous dyads of T$_7$(P) in the accompaniment, with the first hexachord of T$_7$(P) in the clarinet.</td>
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<tr>
<td></td>
<td></td>
<td>ISO(FOHB) 2^6</td>
<td>T$_1$(P)</td>
<td></td>
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</table>
Overall, as can be seen on Table 4.1, the third movement seems to be divided into three sections: bars 1-30 (with bars 31-35 acting as a transition), bars 36-130 (with bars 131-134 establishing a rhythmic motive and acting as a transition), and bars 135-201. Each has a distinct quality: the pitch-class materials of bars 1-30 are all derived from $\text{T}_{10}(\text{P})$; the first four rhythmic motives are presented in this passage. Bars 36-130 present larger sections featuring solo instruments and a more extended development and variation of some rhythmic motives; bars 36-59 feature alternating solos by each instrument, bars 68-95 feature solo bassoon, and bars 95-130 feature solo flute. Bars 135-201 consists of subsections that often present row fragments instead of complete row forms; these fragments are often taken from different row forms, creating passages in which up to five row forms occur simultaneously.

Another form is alluded to throughout the movement. There is an alternation between several families of material within all three sections; the form of this movement corresponds more closely to rondo form than either of the other two movements of the Woodwind Quintet (although the three-part form discussed in the previous paragraph, in my view, is the principal form). In the “formal division” column of Table 4.1, there are seven different section types (labeled A through G): the A and B families of material return later in the movement, alternating with statements of new material. Specifically, A2 returns in bars 182-191 to return to the original clarinet motive and help to conclude the work. B material occurs more often, with variants in bars 63-67, 68-79, 81-85, 135-147, and 192-200. Several other families of material are developed and varied, but usually within a single section instead of throughout the work; the D family is a typical example, with all three statements occurring between bars 36-59.
We have seen in the third movement that a variety of related rhythmic motives recur and structure the movement in a way that alludes to rondo form. The end of this movement also alludes to material from the first movement, creating closure. The conclusion will discuss this and other aspects of unity (such as common developmental techniques and structural forms) found within the *Woodwind Quintet*. 
Conclusion

Now that the analysis of the *Woodwind Quintet* is complete, a few concluding comments will be made. The analysis in this thesis has revealed how Weinzweig focuses not just on serial materials but on other aspects, especially those that affect tone colour. The composer manipulates these aspects to create contrast from one section to the next, and thereby to differentiate sectional divisions. In this work, contrast is achieved through serial techniques, instrumentation and texture, segmentation and motivic development, and the interplay of melody and accompaniment. Many serial techniques occur throughout the work: segmentation (of a particular row form into $2^6, 3^4,$ and so forth) is a common example, with different types of segmentation placed in adjoining sections (such as a passage with trichordal segmentation leading into a passage with tetrachordal segmentation) to emphasize the contrast of smaller segments with larger ones. The same process also accentuates segmentation by developing motives created from segmentations of the row, a melodic contrast instead of a textural contrast (consider the 014 trichord, which occurs in many ways throughout the work). Other common techniques of serial development used throughout the *Woodwind Quintet* include rotation and the preservation of common segments under specific operations.

One way in which differentiation of texture occurs is by contrasting homophonic components and independent melodic components, a process especially prominent in the first movement – this was, in fact, the focus of the analytical commentary on the first movement – but which also occurs in the other two movements. The textural differentiation caused by the interplay of melody with accompaniment, for instance, is
discussed explicitly in conjunction with the first movement, but also occurs in the third movement, where the melody often states linear materials while the accompaniment repeats and varies the rhythm of a particular motive.

Weinzweig uses various developmental techniques other than contrast throughout the work. His use of rhythmic development was discussed in conjunction with the third movement; the “tight motivic organization” based on serialism, as mentioned in the introduction, is present in all movements (especially the second and third) and helps to unify the work by reprising previously-heard material. The use of segmentation is also a unifying feature of the *Quintet* (to be discussed shortly). Instrumentation and texture help the listener to identify returning themes and sectional divisions.

Unifying material occurs throughout; Weinzweig seems to deliberately strive for unity in several aspects of the work. In the most basic sense, the work is unified by the use of a single twelve-tone row and its transformations; the work is based on the same larger store of motivic relationships. In addition, a limited number of P-related row forms are used: the row forms $T_0(P)$, $T_2(P)$, $T_4(P)$, $T_{10}(P)$, $I_0(P)$, $I_5(P)$, and $I_7(P)$ are prominent in the three movements; although other row forms occur, they are not as prominent as these. The manner in which the prime form row has been constructed also helps to create unity: the hexachordal properties (of retrograde inversion and symmetry) and trichordal properties (the recurrence of SC (014)), as discussed in Chapter 1, create “families” of row forms related by shared segments.

Specific thematic links occur between sections in each movement and between movements as a whole. The example discussed at the end of Chapter 4 briefly examined the return of the material from the beginning of the first movement at the very end of the
work, a process that rounds out the work. “Rounding” also occurs at a smaller scale in the *Woodwind Quintet*; in the use of rotated row forms and the symmetrical construction of the first hexachord of P. Both techniques demonstrate the idea that material from the beginning returns at the end.

The three movements are unified through a shared attitude toward the presentation and elaboration of material. Each is constructed in the same general form, namely with motivic material presented in the first section, varied and developed in the second section, and restated (often with slight development or disintegration) in the final section. Although the formal relationships at times allude to traditional forms such as sonata and rondo, the form of each movement of the *Woodwind Quintet* does not strongly conform to any one of these. There are elements reminiscent of traditional materials and tonalities (for example, the octatonic sonorities discussed in Chapter 1), while at the same time the pitch elements are based on serial methods. The approach to the material of the work is also somewhat traditional: Weinzweig plays with melodies and motives, varying and developing them, and then winding down to a conclusion; he could have written a more abstract work that did not introduce and vary motives in the traditional way, as had many other serial composers by the early 1960s, but he did not do so.

Richard Henninger and John Beckwith discuss a similar idea in their article on Weinzweig in the *Encyclopedia of Music in Canada*. They state:

“Weinzweig was called a ‘radical romantic’ by a magazine interviewer in 1981 ... alongside his unrepentant modernism and concentrated fervour one finds
humour – especially in the late works, inspired partly by his interest in Satie and the Dadaists – and a recognizable streak of the North American vernacular."

The writers go on to suggest that the Quintet emphasizes the “romantic” style because of the relationship of P to blues materials: the prime-form row is based on the segmental trichord 014, which contains “a minor third and a semitone (the intervals of a familiar blues formula).” I think the dichotomy between “radical” and “romantic” could apply to the Woodwind Quintet in a different sense – specifically, the radical/romantic view espoused by Henninger and Beckwith is manifested in the form and construction of the Woodwind Quintet. The serial materials and an approach to form that appears more concerned with different instrumental combinations and textures than with traditional notions of thematic material represent the “radical” aspect, and the allusions to traditional forms (within each movement and the three-movement work as a whole) and means of motivic development represent the “romantic” aspect.

The misleading and jargonistic moniker “radical romantic” is only partly clarified by Henninger and Beckwith’s comments in the quoted passage. It is unclear, for instance, how humour, an interest in Satie and the Dadaists, and the use of North American vernacular could jointly, or even in some cases individually, exist under the banner of the term “romantic.” Here we shall simply take the expression “radical romantic” as identifying two tendencies in Weinzweig’s work: his “unrepentant modernism” (as Henninger and Beckwith put it), and his commitment to fairly traditional notions of musical form and rhetoric. Unfortunately, the term “radical romantic” has

been perpetuated by several Weinzweig researchers: it appears in the titles of both Rhombus Media’s documentary on and Elaine Keillor’s biography of Weinzweig.

A few other points are worth noting in this discussion of compositional unity. All three movements have aspects of classical form, especially prominent in the three-part structure of each movement, but do not adhere to any particular type of classical form (such as sonata, rondo, or sonatina). Other aspects of the work discussed in this thesis also show traditional means of development in a modern context: segmentation, texture, and (rhythmic and melodic) motivic development (discussed in Chapter 2, Chapter 3, and Chapter 4) are developmental techniques common to classical works, but the use of twelve-tone materials as the source of this development produces a style more suitable to the twentieth-century. The use of solo material, prominent in each movement, is evident from the very beginning of the quintet (where the oboe is featured as the solo instrument). This implies another classical form: Baroque Concerto Grosso. The solo-versus-ensemble approach customary to concerto form continues through all three movements (although sometimes multiple solo instruments are featured): the first movement highlights solo oboe; the second movement accentuates solo flute in the first section, and horn in the later part of the work, with a shorter section of solo clarinet in the middle; and the third section emphasizes solo clarinet at the beginning and end, with less important solos by the flute, horn, and bassoon in between. Interestingly, many of Weinzweig’s other works feature solo instruments: his divertimenti – the orchestral form he uses most often – each feature a particular instrument.

John Weinzweig taught dozens of Canadian composers, and was the first in Canada to use and teach serial methods. Examining his work can provide great insight
into the work of later Canadian composers; for me it offers an important stepping stone
into further analysis and discussion of Canadian music. Weinzweig incorporates
traditional and non-traditional ideas into his compositional style, creating works that are
nonetheless effectively unified by these traits. His early works are more strictly serial;
his later works involve music and theatrical performance, but almost all of his works,
regardless of when they were composed, employ the methods of development discussed
in this document.
Bibliography

Works Cited


**Works Consulted**


Other Works on John Weinzweig and his music


