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The Format and Function of Schoenberg's Twelve-Tone Sketches

By MARTHA M. HYDE

IN DESCRIBING HIS METHOD of twelve-tone composition, Schoenberg no longer asserts, as he did for his atonal compositions, that he composed “ecstatically,” transported by the “first direct contact with the sound of the beginning.”¹ Instead he speaks of “conscious control of the new means and forms” by the composer, who seeks “to know *consciously* the laws and rules which govern the forms which he has conceived ‘as in a dream.’”² This distinction between the unconscious origin of his musical ideas and the discovery and control of the laws and rules already implicit in them probably reflects the defensiveness prompted in Schoenberg by the notoriety of his new method. Despite—or perhaps because of—his public image as “The Twelve-tone Constructor,” he insisted that his laws and rules provided no method for musical creation, only a means of knowing and using ideas arising through inspiration.³ If we take Schoenberg at his word, the numerous autograph sketches of his twelve-tone works will not reveal origins but do offer access to the means of conscious control, to the composer’s own understanding of the principles governing his music.

This essay attempts to categorize some of the sketch material for Schoenberg’s twelve-tone music and to suggest how the different kinds of sketches functioned in the composition of various pieces. The bulk of Schoenberg’s estate is now housed at the Arnold Schoenberg Institute at the University of Southern California, Los Angeles.⁴ The

¹ Arnold Schoenberg, “The Relationship to the Text,” in *Style and Idea*, ed. Leonard Stein, trans. Leo Black (New York, 1975), p. 144.

² Arnold Schoenberg, “Composition with Twelve Tones (I),” *ibid.*, p. 218.

³ See Martha Hyde, “The Telltale Sketches: Harmonic Structure in Schoenberg’s Twelve-Tone Method,” *The Musical Quarterly*, LXVI (1980), 578–79, which also takes note of the preference for cryptic or incomplete theoretical writings mentioned below.

⁴ The estate was first catalogued by Josef Rufer in *Das Werk Arnold Schönbergs* (Kassel, 1959). Rufer’s catalogue is to some extent superseded by—and should be used in conjunction with—that of Jan Maegaard, *Studien zur Entwicklung des dodekaphonen Satzes bei Arnold Schönberg* (Copenhagen, 1972).

autograph musical manuscripts at the Institute consist of first drafts and fair copies of most of his works, as well as five sketchbooks and numerous individual sketch sheets. Except for the Fifth Sketchbook, which pertains to Schoenberg's earliest twelve-tone compositions (Opp. 25, 26, 29), most autograph sketches for the twelve-tone works consist of loose sheets, very few of which Schoenberg dated. The sketches present problems of both chronology and function: we can assume neither that a composer as committed to experiment as Schoenberg ever followed a consistent procedure when sketching out a new work, nor that the format or layout of a sketch indicates its function in the process of composing. Nevertheless, the sketches constitute our best evidence for correcting a long-standing misapprehension about his twelve-tone method—namely, that a single basic set can organize musical texture in only a single dimension, either vertical or horizontal, and consequently cannot, in itself, produce an integrated musical structure.⁵

Most of the sketches fall easily into four broad categories, according to format: row tables, row sketches, compositional sketches, and form tables and charts. Row tables include sheets that tabulate all transpositions or inversions of a twelve-tone row (or basic set) for a piece. Row sketches can best be described as partial or incomplete row tables. They usually present two or more forms of the basic set, but not all its transpositions or inversions. Compositional sketches, the third category, represent drafts of specific passages in a piece. Unlike row sketches, they have such identifying features as rhythm, pitch, contour, and register. In this category are sketches occurring both on separate sheets and in the course of first drafts. The final category includes tables and charts in which Schoenberg outlines the form of a section or movement. These have diverse formats but share one common feature: unlike the other kinds of sketches, they do not use musical notation.

My categorization makes no attempt to represent the chronological order in which Schoenberg used the various kinds of sketch. We cannot assume that row tables and row sketches represent the first steps toward composing a piece; as Leonard Stein has argued persuasively in a recent article, Schoenberg composed the lengthy theme of his Piano Concerto first, and only later designed a basic set to fit the

⁵ For a fuller discussion of this common misapprehension and its historical development see Martha M. Hyde, "The Roots of Form in Schoenberg's Sketches," *Journal of Music Theory*, XXIV (1980), 1–4, and *idem*, *Schoenberg's Twelve-Tone Harmony: The Suite Op. 29 and the Compositional Sketches* (Ann Arbor, 1982), pp. 18–23.

theme's essential features.⁶ Format, then, may suggest function but not chronological priority.

The first category of sketches—row tables—is for the most part straightforward. One such table for the Suite, Op. 29 appears in Figure 1.⁷ It sets out the prime form of the basic set at the top (*Thema*, abbreviated T) and lists all the inversions below (*Umkehrung*, abbreviated U). In addition, whenever an inversion creates a perfect fifth or octave with the prime form, Schoenberg draws a box around the pitch, darkens the box, and notes at the left whether the offending interval was a fifth or an octave. Such a table merely confirms what Schoenberg proclaimed as a principle of twelve-tone music in his theoretical writings—avoidance of the structural intervals of tonal harmony.

Figure 1. Row table for Suite, Op. 29

⁶ Leonard Stein, "From Inception to Realization in the Sketches of Schoenberg," in *Bericht über den 1. Kongress der Internationalen Schönberg-Gesellschaft*, ed. Rudolf Stephan (Vienna, 1978), pp. 213–27.

⁷ The sketches in this essay are xerographic copies of the original sketches found in Los Angeles, Archives of the Arnold Schoenberg Institute; all are as yet unpublished except those for Op. 25 and Op. 50A. These examples are reproduced with the permission of the Arnold Schoenberg Institute and Lawrence Schoenberg.

But row tables can also reveal specific ways in which Schoenberg experimented with his method, as, for example, when, contrary to his supposed manifesto, "Composition with Twelve Tones," he used more than one basic set; they can also suggest what criteria governed the choice of multiple basic sets. Multiple basic sets are usually closely related, and sometimes are systematically derived from each other, as shown by a row table for the Wind Quintet, Op. 26, which appears in Figure 2. Here the second basic set appears at the top of the table, and the numbers above each of its pitches represent the order numbers of these same pitches in the original basic set. As one can see from the order numbers, Schoenberg has systematically derived the ordering of the second basic set from the first. He begins by extracting the first and last pitches of both hexachords from the first basic set, then their second and fifth pitches, and finally the remaining third and fourth pitches. Without this table the analyst would be inclined to interpret as free reorderings of the basic set what actually is the systematic use of a second basic set.⁸ Such tables, then, not only expand our understanding of Schoenberg's method, but also warn us against accepting his theoretical statements uncritically.

Figure 2. Row table for Wind Quintet, Op. 26

⁸ Schoenberg often continued to use row tables well into the later stages of composition. For a number of pieces, he has glued his row tables onto stiff paper or cardboard that folds into a pocket-size book. This treatment was warranted only if he used these row tables not just as preliminaries to composition, but referred to them repeatedly as he composed.

The second category, “row sketches,” typically consists of two or more transpositions or inversions of the basic set. Because they give no identifiable rhythms or articulations, they can seldom be associated with a specific passage in the finished piece. Nevertheless, such sketches are often more important than those of any other category for understanding Schoenberg’s twelve-tone method as well as the function his sketches served in composition.

Schoenberg appears usually to have used row sketches either to work out the final ordering of the basic set, or to study the properties arising *between* certain transpositions or inversions of an already specified basic set. These sketches and their notation can thus reveal the properties with which Schoenberg was most concerned in the row he adopted for a piece. Knowing these properties in turn encourages us to revise and expand our understanding of his technique for deriving twelve-tone harmonic structure from a single basic set.



Figure 3. Row sketch for Four Pieces for Mixed Chorus, Op. 27, No. 4

A row sketch for the fourth piece of Four Pieces for Mixed Chorus, Op. 27 (Figure 3) shows two forms of the basic set related by inversion. Between the complete row forms (directly below and above), Schoenberg has written again the first seven pitches of each and joined five together with beams—the first, fourth, fifth, sixth, and seventh pitches. Those five pitches, non-adjacent in the row but beamed together in the sketch, in fact represent a transposition of two linear segments of the row—both its first five pitches and its last five pitches. That is, the five-note harmonies that would be designated by order numbers 1 through 5 and 8 through 12 are transpositionally

equivalent to the five-note harmony represented by order numbers 1,4,5,6,7. It is important to note, however, that although these five-note harmonies relate by transposition, the internal ordering of their corresponding pitches differs. Throughout this piece, Schoenberg uses these equivalent harmonies to provide harmonic structure. He not only partitions the basic set to emphasize its first and last five-note segments, but also frequently uses surface features such as rhythm and register to group together these same non-adjacent pitches he beamed together. This row sketch, then, illustrates one important technique Schoenberg used to derive harmonic structure from a single basic set, a technique we might easily have overlooked without knowledge of the sketch.

Another series of sketches, from *Dreimal tausend Jahre*, Op. 50A, one of Schoenberg's last compositions, reveals that a similar property—in this piece, between two combinatorially-related row forms—can itself dictate the ordering of the basic set.⁹ Figure 4 gives the original sketches in facsimile; they are transcribed in Example 1 (row labels and order numbers have been added).¹⁰ This series includes both “row sketches” (B, D, E) and “compositional sketches” (A, C), and in it Schoenberg works out the ordering of the second hexachord of the basic set. The first three sketches (A, B, C) show that the ordering of the first hexachord is determined, since order numbers 1 through 6 appear in sequence. But order numbers 7–12 appear unordered with respect to the final basic set; the second hexachord remains to be determined. Because these sketches usually contain both row forms as they explore various orderings of the second hexachord, one can infer that Schoenberg is interested in how the row forms intersect. After working out one ordering of the second hexachord in the row sketch B, for example, Schoenberg used it to compose the opening phrase, C, but then rejected this ordering and substituted another in the row sketches D and E. The two pairs of brackets Schoenberg marks in E indicate the property that he preferred in this ordering. The brackets connect pairs of trichords in both combinatorially-related row forms, and both six-note harmonies so bracketed represent transposed forms of linear hexachords in the basic set. (The transcription of sketch E in Example 1 shows the

⁹ Combinatoriality is the property by which the application of T, RT, I, RI to a segment (here, hexachordal) of the basic set produces a new segment whose pitch content is exclusive of the original segment. Combinatoriality allows for the formation of aggregates between two combinatorially related row forms. An aggregate always contains all twelve pitch-classes.

¹⁰ Arnold Schönberg, *Sämtliche Werke*, Vol. V/19B, *Chorwerke*, ed. Christian Martin Schmidt (Mainz and Vienna, 1977), pp. 96–97.

bracketed harmonies and the corresponding linear segments in the basic set.) Figures 3 and 4 suggest, then, that the same property governs the association of non-adjacent pitches, whether they occur in a single row form or *between* row forms.

This series of sketches also clarifies two important implications of Schoenberg's use of row sketches. First, although many of his row sketches lack the clear indications of purpose we find with the brackets and beams in Figures 3 and 4, analysis will show them to have been consistently employed in designing properties like the ones I have just discussed. Second, although row sketches seldom correspond to specific passages in the piece—they lack any surface features such as rhythm, register, or metric notation—the properties they reveal often provide the basic harmonic structure in many passages of

Figure 4 consists of five musical sketches, labeled A through E, arranged vertically. Each sketch shows a melodic line on a staff with various notes and accidentals, and a corresponding row sketch below it. The sketches are:

- A:** A melodic line starting with a treble clef and a key signature of one flat. A bracketed segment of notes is shown, with a corresponding row sketch below it.
- B:** A melodic line with a bracketed segment and a corresponding row sketch below it.
- C:** A melodic line with a bracketed segment and a corresponding row sketch below it.
- D:** A melodic line with a bracketed segment and a corresponding row sketch below it.
- E:** A melodic line with a bracketed segment and a corresponding row sketch below it.

Figure 4. Sketches for *Dreimal tausend Jahre*, Op. 50A

Example 1

Schoenberg, *Dreimal tausend Jahre*, Op. 50A. Transcription of Sketches No. 684, No. 685 (see Fig. 4)

A

B

C

D

E

BS: G A F# E F B B^b D C D^b E^b A^b

A

B

apparent dissimilarity. Row sketches can thus function much more like compositional sketches than their format might suggest at first. Row sketch E in Figure 4, for instance, in fact determines Schoenberg's criteria for text-setting in a significant portion of Op. 50A.

The relation between E and passages of the completed piece is suggested by Table 1, which sets out the two orderings of the basic set derived in the sketches shown in Figure 4. It is important to understand that the experimentation, though restricted to the ordering of the last hexachord, nevertheless changes greatly the linear segments of the entire basic set. The first linking-hexachord bracketed (E in Figure 4), for instance, contains only pitches from the first

hexachord of the paired row forms. Therefore it occurs between the paired row forms, whichever ordering of the basic set is used. But only in the second ordering does the bracketed linking-hexachord occur as a linear segment of the basic set—a likely reason for Schoenberg's preference. Reordering the second hexachord thus changes the linking harmonies equivalent to linear segments of the basic set that arise between the paired first-hexachords, even though the first hexachord is itself unchanged.

The linear segments of the basic set change significantly between the two orderings Schoenberg considered for Op. 50A. This change in turn affects the number and placement of the sets that on the one hand link paired row forms, on the other represent linear segments of their respective basic sets. Tables 1(a) and 1(b) show the linking sets

Table 1. Two Orderings of Basic Set, Op. 50A

(a) P₇: G A F# E $\overbrace{F B E^b B^b}^C$ $\overbrace{D^b A^b C D}^A$

I₀: $\underbrace{C B^b D^b E^b}_C$ $\underbrace{D G^# E A}_{D}$ $\underbrace{F^# B}_E$ $\underbrace{G F}_E$

Basic Set: $\underbrace{G A F^# E F B E^b B^b}_D$ $\underbrace{D^b A^b C D}_E$ -----

(b) P₇: G A $\overbrace{F^# E F B}^B$ $\overbrace{B^b D C D^b E^b A^b}^A$

I₀: $\underbrace{C B^b D^b E^b}_D$ $\underbrace{D G^# A F G F^# E B}_F$ \underbrace{D}_{D} \underbrace{D}_{G}

Basic Set: $\underbrace{G A F^# E F B B^b}_D$ $\underbrace{D C D^b E^b A^b}_F$

$\underbrace{\hspace{10em}}^B$

$\underbrace{\hspace{10em}}^A$

$\underbrace{\hspace{10em}}^G$

for both orderings. The second ordering forms six instead of four linking tetrachords. More important, although both orderings form two linking hexachords, their different placement makes clear why Schoenberg preferred the second ordering. The second ordering produces two linking hexachords, each of which structures one of the two aggregates (that is, one of the two hexachord pairs), while the first produces a linking hexachord that spans the two aggregates (order numbers 6,7,8). Throughout Op. 50A aggregates formed by the hexachord pairs appear in separate phrases, seldom joined in a single phrase; consequently, a linking hexachord that spanned the two aggregates would have been of little use.

This example illustrates, then, that to understand Schoenberg's row sketches we may need to identify *all* the sets that both link together row forms and represent linear segments of the basic set, whether or not Schoenberg has provided brackets or beams to give the hint. In fact, this row sketch for Op. 50A is concerned not only with the bracketed hexachords, but also with linking tetrachords that are unmarked. The importance of the tetrachords, as well as a bracketed hexachord, can be revealed by an analysis of one phrase from the piece itself in which these linking harmonies largely determine the criteria for setting the text. The analysis will also show that a row sketch can serve as more of a compositional sketch than its format may suggest.

Example 2 shows the opening phrase of the second half of *Dreimal tausend Jahre*, a piece consisting of only twenty-five measures. The phrase is distinctive for at least two reasons. It is the first to unfold both combinatorially-related row forms by means of consistent imitation, something only hinted at in the first half of the piece. (In mm. 13–14 the tenor and bass sing imitatively the first hexachord from P_0 and I_7 , and in mm. 14–15 the soprano and alto sing similarly the second hexachords.) Second, here Schoenberg first uses the combinatorial property to create aggregates that govern the entire four-voice texture. (In mm. 13–14 the accompanying soprano and alto merely repeat the hexachord sung by the bass; in m. 15 the tenor and bass repeat the hexachord sung by the soprano.) Imitation characterizes the two principal voices in the phrase, and, as we shall see, the linking harmonies marked in Table 1(b) effectively coordinate the setting of the text and the imitative technique.

The use of the two aggregates to set imitatively one line of text creates a problem, however, because the first line has thirteen syllables (“Und man hört es klingen leise von den Bergen her”), while the second has only eight (“Deine allverschollnen Lieder”). To accommodate the longer line, Schoenberg extends the first aggregate

Example 2

Dreimal tausend Jahre, mm. 13-15

Poco meno mosso
ppp 6 5 1 2 3 4 4 3 2 1

S (P₇)
 Und man hört es klin-gen lei-se von den Ber-gen her, —

ppp 5 4 3 4 5 6 6 4 3 4

A (P₇)
 Und man hört es klin-gen lei-se von den Ber-gen her, —

pp 1 2 3 4 5 6 6 5 5 4

T (I₀)
 Und man hört es klin - gen lei - - se von den

pp 1 2 3 4 5 6 6 5

B (P₇)
 Und man hört es klin - - gen lei - se

(RP₇) 12 11 11 10 10 9 8 7

S
 Dei-ne all - ver-scholl - nen Lie - der,

(RI₀) 12 11 11 10 10 9 8 7

A
 Dei-ne all - - ver-scholl - nen Lie - der,

3 2 1 (RP₇) 11 10 8

T
 Ber - - gen her, Dei - ne all - ver -

5 4 3 2 1 (RP₇) 12 9 7

B
 von den Ber - gen her, Dei - ne all - ver-scholl-

by repeating in retrograde form the first pair of hexachords (order numbers 1-2-3-4-5-6-5-4-3-2-1)—a mirror pattern that appears throughout the previous section of the piece. Since the second, shorter line does not require such mirroring, the paired hexachords occur only once in the second aggregate. Schoenberg's problems are not yet

solved, however, for the first aggregate—even with its mirror pattern—can set only twelve syllables without repetition, while the second can set only six. Therefore Schoenberg must repeat one pitch in the first aggregate and two in the second. In the first, this repetition occurs exactly where Schoenberg's brackets in the sketch would lead us to anticipate it, at the beginning of the linking hexachord (order number 5 in m. 14: “-se von”). Notice how a change in the rhythmic pattern from  to  marks the repetition, thus introducing a new pattern which better interprets the accentual scheme of the text () and also links together more clearly the pitches with order numbers 3,4,5 in both paired hexachords. These pitches, of course, represent the first hexachord Schoenberg bracketed in his row sketch. The duple metrical pattern () that begins measure 13 groups the linking tetrachords with the strong-weak syllabic accents, and then the rhythmic pattern changes with the mirror repetition to bring out the complementary structure between the music's linking hexachord and the text's new accentual scheme.

Similar criteria again determine pitch repetition in the second line of text, for the two repetitions again mark the occurrence of harmonies that link together the second pair of hexachords. The first repetition occurs in measure 14 on order number 11 (“-ne all-”) and coincides with the occurrence of tetrachord D in TABLE 1(a); the second repetition, occurring in measure 15 on order number 10 (“-verscholl”), marks tetrachord G. The repetitions thus serve to coordinate the syllabic accent (“all-ver-scholl-nen”) with the two linking tetrachords. The basic dotted rhythm remains unchanged and emphasizes the linking tetrachords over the bracketed hexachord in the sketch. Given the kind of problems presented by imitation in non-tonal music, we can better appreciate Schoenberg's reasons for using linking sets that form linear segments of the basic set in order to structure the imitation and text-setting in this piece: they serve to group together as a single harmony non-vertical imitative segments and also produce groupings that complement the accentual patterns of the text.

This analysis suggests why row sketches—even though they may lack brackets or beams and seldom can be associated with a specific passage in the finished piece—can help us understand both Schoenberg's twelve-tone method and his compositional process. In fact, they often prove more valuable than developed compositional drafts, since they can clarify the harmonic structure of a number of passages that may not have similar surface features. Without the evidence of

the sketches, it would be hard to see—and still harder to prove—the importance of these harmonic properties. But the converse is also true: unless one understands the importance of these properties, he will underestimate the function of the row sketches.¹¹

Although we can generalize about the function of row sketches with some certainty, it is much harder to determine precisely at what stage of composition Schoenberg used them. While they often seem to represent an early stage, just as often they appear in the course of first drafts or on sketch sheets interspersed with compositional sketches. In fact, Schoenberg may have used row sketches at various stages in composing, and their form may represent a kind of shorthand or method of reduction for clarifying harmonic structure.

Compositional sketches that represent a draft of an identifiable passage in a piece comprise the third category of sketches. They are found on separate sheets as well as within first drafts of extended passages or entire movements. In these extended first drafts many passages unfold in their final form, but not infrequently Schoenberg begins a passage, crosses out material he finds unacceptable, and then rewrites the passage immediately. These kinds of cancellations and revisions can reveal not only Schoenberg's reasons for revision, but also his method of composing.

Perhaps the most striking feature of many of the compositional sketches is the evident primacy of the melodic line; Schoenberg often composed the entire melodic line before adding any accompanying voices. In an early draft of the Wind Quintet, Op. 26 in the Fifth Sketchbook, Schoenberg has crossed out a passage (at m. 34) that begins with a complete texture but trails off with only the melodic line. Other sketches show the same pattern, sometimes extending much further, even to entire movements. With lengthier melodies, Schoenberg often indicates which row forms he intended to use to structure the complete texture, including the melodic line. In a sketch of this type from *Von Heute auf Morgen*, for example, Schoenberg indicates all the row forms that unfold a melody twenty-three measures long, and because he leaves space below the melody it seems clear that he intended to fill in the lower voices.¹² It is particularly interesting, however, that towards the end of the melody new row forms appear after only two or three melodic pitches. The combina-

¹¹ These sketches for Op. 50A have been published (Schoenberg, *Chorwerke*, p. 97), but the editor's commentary makes clear that, though faithfully transcribing Schoenberg's brackets, he does not appreciate their significance.

¹² *Von Heute auf Morgen*, Op. 32, No. 2734.

torial property may explain why Schoenberg joins hexachordal segments from different row forms, but not necessarily his criteria for associating shorter segments, as in this passage. This sketch not only reveals the primacy of the melodic line, but defines issues for analysis: an adequate interpretation of such a passage must treat the harmonic structure of the whole melody and explain Schoenberg's criteria for associating short, non-hexachordal segments from successive combinatorially-related row forms.

The extent of the melodic lines often suggests that Schoenberg had an overall form well in mind before beginning his first draft. Figure 5 gives support for this idea from one of several sketches for the fifth variation of his *Orchestra Variations*, Op. 31. According to a note in Schoenberg's hand on the cover of the first draft, he began the piece in the spring of 1926, but was interrupted after about two-hundred measures and did not complete it until August 1928. Another note, at the bottom of the sketch in Figure 5, testifies to his frustration at several unsuccessful attempts to resume the work.

I had forgotten this guide-sheet, which sketches the construction of a variation, when, after an interruption of several months, I tried to finish the variation in 1926. In vain I tried to deduce from the already-completed portion the principle according to which * etc. had been chosen. I interrupted the work, and tried again in the following years, but in vain.—This time too [i.e., in 1928], when, having given up these further efforts as pointless, I decided to base the variation on a new constructive idea. When I had found one, I carried it out in the form of a sketch. Suddenly it occurred to me to compare this with the enigmatic part I had already composed: it developed that I had once more discovered the same "lost" idea—or, rather, that I had had to conceive the same logical thought afresh, after I had given up trying to retrieve it with my memory! 28./VII. 1928 Arnold Schoenberg.¹³

¹³ "Dieses Hilfsblatt, welches die Konstruktion einer Variation skizziert, hatte ich vergessen, als ich 1926 nach mehrmonatlicher Pause versuchte die Variation fertig zu machen. Aus dem bis dahin komponierten Teil versuchte ich vergebens das Prinzip herauszufinden, nach welchem * etc gewählt wird. Ich unterbrach die Arbeit und versuchte es in den folgenden Jahren vergeblich.—So auch diesmal, wo ich, da ich die weiteren Versuche als zwecklos aufgeben musste, eine neue Konstruktionsidee zugrunde zu legen beschloss. Als ich sie gefunden hatte, führte ich sie skizzenweise aus. Plötzlich kam mir die Idee, sie mit dem komponierten, rätselhaften Teil zu vergleichen: es stellte sich heraus, dass ich dieselbe, verlorengegangene Idee noch einmal erfunden, oder besser: dass ich denselben logischen Gedanken neuerdings fassen musste, als ich es aufgab, mit dem Gedächtnis zu finden! 28./VII. 1928 Arnold Schönberg."

The image shows a musical sketch on a page. At the top, there are two staves. The first staff is labeled (P₀) and the second (I₉). Below these are two more staves, the first labeled (P₀:I₉) and the second (I₉). Below these are two more staves, the first labeled (P₀:I₉) and the second (P₀). The notation consists of notes and rests on a five-line staff. Below the staves, there is a large block of handwritten text in German, which appears to be a sketch or a note related to the composition. The text is written in cursive and includes the date '1928' and the name 'Arnold Schönberg'.

Figure 5. Sketch for Orchestra Variations, Op. 31, Variation 5

The top of the sketch outlines the scheme or “constructive idea” for this variation in the two principal row forms that relate combinatorially. (I have marked these P_0 and I_9 in the sketch.) Schoenberg has joined every pitch of these row forms with an additional row form, and every pitch represents the initial pitch of the row form indicated beneath it. Part of Schoenberg’s “constructive idea”—the easier part—was to unfold the succession of row forms simultaneously, by alternating back and forth between the row forms whose initial pitches make up the first two combinatorially-related row forms. The specific pattern for the succession appears on the sheet between this sketch and Schoenberg’s note. As one can see from the scheme, the two row forms alternate at irregular intervals, and I think it likely that an unsuspecting analyst would have at least as hard a time uncovering this complicated design and explaining the irregular intervals as Schoenberg himself had in recovering it.¹⁴

Schoenberg often outlines the form of sections or movements by using the fourth and final category of sketches: form tables or charts. Among several different kinds of form charts, most interesting are those for vocal and stage works, because they can reveal aspects of

¹⁴ The compositional sketches also show that before Schoenberg began his first draft, he often had determined all the principal motives for an entire piece. One such example appears in a sketch sheet for the introduction to the *Ode to Napoleon*, Op. 41 (No. 818). Here Schoenberg lists all the principal motives of the introduction and the order in which they appear. Because there are slight differences between some of these motives and their form in the finished piece, we can be fairly sure that the sketch preceded his first draft. As in the previous example, the detailed working out of motivic material actually maps out the form of a large section.

Schoenberg's approach to text setting and its relation to musical form. One such chart appears among the sketches for the *Ode to Napoleon*, Op. 41, a setting of a poem by Lord Byron for string quartet, piano, and reciter. Schoenberg began with the text typed onto several pages, the first of which appears in Figure 6. Small numbers to the right of the text merely enumerate its lines—correctly if inconsistently. To the right and left of the text are the larger letters A₁, B₁, C₁, E₁, B₂, A₂, and so forth. The finished score makes clear that these letters refer to principal motives and their variants. For example, in Figure 6 Schoenberg indicates four instances of the B motive and its variants. Three appear with the final couplets of stanzas one and two (B₁ and B₂), and the last three lines of stanza five (B₃):

- B₁ Since he, miscalled the Morning Star,
Nor man nor fiend hath fallen so far.
B₂ Nor till thy fall could mortals guess
Ambition's less than littleness!
B₃ Or dread of death alone?
To die a prince—or live a slave—
Thy choice is most ignobly brave!

A musical cross-reference indicates the fourth instance of the B motive; “like 18/45” alongside the final couplet of stanza six points up a similarity with B₂ (line 18) and B₃ (line 45). The text is as follows:

- [B₄] He fell, the forest prowlers' prey;
But thou must eat thy heart away!

A second cross-reference at the end of stanza five, “like 18,” associates B₃ with B₂.

These lines contain some likenesses that may have suggested the sketched-out musical association. All four passages refer to Napoleon's abdication and ignoble failure to live up to his own—or perhaps Byron's—standards of heroism. The repeated B motive, of course, underlines the repeated word “fall” in three of the passages (lines 9, 17, 44) and is itself a kind of fall—a descending triplet eighth-note motive (*g^b f d*) and a descending sixteenth-note motive (*a^b f e d*) combined, repeated, and reordered in various transpositions and rhythms throughout the four passages. In the one instance where the word “fall” does not occur (B₃), the music suggests the irony of Napoleon's fall from bravery to self-preservation by reversing the descending four-note motive, making it ascend. That musical irony may be part of the scorn that Schoenberg described in a letter to H. H. Stuckenschmidt (January 15, 1948): “Lord Byron, who had at first admired Napoleon greatly, was so disappointed by his simple abdication that he made him the object of his bitterest scorn. I do not

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my favorite motive

'Tis done - but yesterday a King!
And arm'd with Kings to strive - } A
And now thou art a nameless thing!
So subject - yet alive.
Is this the man of thousand thrones,
Who strength our earth with hostile bones,
And can he thus survive?
Since he, miscall'd the Morning Star
Nor man nor fiend hath fallen so far. } B₁

(1) Ill-minded naivety scourge thy kind 10
Who bow'd so low the knee?
(2) gazing on thyself grown blind,
Thou taught'st the rest to see,
With might unquestioned, - power to save,
Thine only gift had been the grave, (E1)
To those that worshipp'd thee;
Nor till thy fall could mortals guess
Ambitions less than littleness! } B₂

Thanks for that lesson - it will teach
To afterwarriors more 20
Than high Philosophy can preach,
And vainly preach'd before,
That spell upon the minds of men
Breaks never to unite again, *faulter*
That led them to adore
These fagot things of saffre & sway,
With fronts of brass and feet of clay. 27

The triumph and the vanity, 28
The rapture of the strive - } *meas. 19 - de*
The earthquake voice of Victory, } *meas. 19*
To thee the breath of life; } *meas. 19*
The sword, the sceptre, and the way
Which man seem'd made but to obey,
Wherewith renown was rife - *But never about*
All quell'd - Dark Spirit! what must be } *a motive*
The madness of thy memory.

The Desolator 37
The Victor overthrow'd } *meas. of line 1 A₂*
The Arbitrer of others fate } *meas. 5*
A Suppliant for his own } *meas. 5*
If it come not imperial hope } *meas. 5*
That with such change can calmly cope? } *meas. 5*
Or dread of death alone? } *meas. 5*
To die a prince - or live a slave - } *meas. 5*
Thy choice is most ignobly brave! } B₃ like 11

He who of old would rend the oak,
Dream'd not of the rebound;
Chain'd by the trunk he vainly broke } *meas. 5*
Alone - how looked he round?
Thou, in the sternness of thy strength, } *meas. 5*
An equal death hast done at length,
And darker fate hast found!
He fell, the forest prowler's prey;
But thou must eat thy heart away. 54 } *meas. 5*
The Roman, when his burning heart 55 } *meas. 5*

Interlude

meas. 18/45

motive A (meas. 18/45)

meas. 18/45

meas. 46

Figure 6. Form chart for Ode to Napoleon, Op. 41

think that I failed to reflect this in my composition.”¹⁵ In this instance, then, the annotated text serves the function of a form table or chart, for by allowing the text to determine motivic repetition, Schoenberg used it to structure the musical form.

¹⁵ Rufert, *Das Werk*, p. 51: “Lord Byron, der vorher Napoleon sehr bewundert hatte, war durch seine einfache Resignation so enttäuscht, dass er ihn mit schärfsten Hohn überschüttet: und das glaube ich in meiner Komposition nicht verfehlt zu haben.”

There are several reasons to conclude that Schoenberg made this chart up before beginning composition and continued to use it while composing. First, when Schoenberg indicated which lines of the text were musically similar, he used the line number in the text, and not measure numbers—this implies that he had not yet begun his first draft. Second, Schoenberg has used five colored pencils to distinguish principal motives; each color corresponds to one of the motives and its variants. There would be little reason to do this unless he planned to refer to the chart while composing, when the colors would allow him to review at a glance the overall form he had designed. Like the compositional sketches, then, this sketch clearly suggests that before Schoenberg began composing, he often had not only the motivic material worked out, but also the overall form of the piece.

Perhaps the most difficult problem in reconstructing Schoenberg's typical method of composing from his sketches is that we have numerous sketches for some pieces, few or none for others, and often little reason to think we have lost more than a few. Even for an individual piece many sketches survive for some movements, none at all for others. The following is a typical example: what appear to be Schoenberg's preliminary sketches for the Piano Suite, Op. 25, a work in six movements, are hardly more extensive than the sketches for *Dreimal tausend Jahre*, Op. 50A, a miniature of only twenty-five measures. Such discrepancies seem less mystifying, I believe, if we understand, first, how Schoenberg used row sketches, and second, what possible relationships exist between his compositional sketches and the finished composition. The sketches for Op. 25 will illustrate that once Schoenberg had discovered properties through his row sketches, he had to a large extent determined also the contrapuntal and harmonic structure for much of the piece. This example confirms that the format of a sketch does not define its function, for we find Schoenberg using what appear to be *compositional* sketches to discover the properties revealed typically by his row sketches.

The two sketch sheets shown in facsimile in Figure 7 (p. 472) and transcribed in Example 3 (pp. 473–74, where row labels and order numbers have been added) represent most of the preliminary sketches for Op. 25. Almost all of them appear to be what I have labeled “compositional sketches”; there are few “row sketches.” As Reinhold Brinkmann points out, many of the sketches in Figure 7 seem to represent passages from the end of the first movement.¹⁶ The first

¹⁶ Arnold Schönberg, *Sämtliche Werke*, Vol. II/4,B, *Werke für Klavier zu zwei Händen*, ed. Reinhold Brinkmann (1975), pp. 67–74.

sketch sheet shows Schoenberg, having already decided on the first tetrachord of the basic set, searching for the right pitch-content and ordering of the final two tetrachords. Several experiments lead to the sketch I have marked A, where he discovers the pitch-content for each of the last two tetrachords. But the ordering of pitches was apparently still not satisfactory, for he goes on to try several different configurations of the last tetrachord; the final ordering is marked by the letter B. Schoenberg continues to revise the ordering of the middle tetrachord and, at the sketch marked C, discovers the solution. With the order of the basic set now established, he begins to experiment with joining the prime form of the basic set to two of the other three row-forms on which he bases the entire composition. At C and at the top of the second sketch sheet, for example, he works out several different ways of joining the prime form (P_0) to its tritone transposition (P_6). In all of these sketches he beams together as one voice, or uses separate staves to join, two tetrachords, one from each row form. He then uses the same notation to join the prime form to an inverted transposition (I_6), which he writes down (D) and marks with three vertical lines in the left margin. He indicates his preferred solution with a large circle (E_1), but then rewrites it with a more concise notation and again circles it (E_2). After several more attempts on a third sketch sheet, Schoenberg sets down his row tables, and apparently only then begins his first draft. Brinkmann confirms these steps in his commentary, but because these sketches look like “compositional sketches,” he attempts to match them with specific passages in the finished composition; for example, he associates the sketches at C and at the top of the second sketch sheet with a short passage at the end of the first movement (see Example 4, p. 474). Because he assumes that a compositional sketch relates only to a specific passage in a piece, he asks us to believe that Schoenberg sketched and repeatedly revised one of the last phrases of the first movement at the same moment that he decided on the final order of his basic set. Moreover, because Schoenberg used separate staves and stemming common to instrumental notation to link together tetrachords from two row forms, Brinkmann concludes that Schoenberg initially planned the piece not for piano, but for an instrumental ensemble.¹⁷ Both these latter conclusions are untenable, for they misrepresent the most important function of these “compositional sketches” and conceal their essential relation to the finished composition.

¹⁷ *Ibid.*, pp. 67–72.

The image displays a handwritten musical score for Op. 25, consisting of ten staves. The score is organized into two main sections, D and E2, which are indicated by large vertical lines and labels at the bottom of the page. Section D includes staves 1 through 5, while section E2 includes staves 6 through 10. The notation is dense and includes various musical symbols such as notes, rests, and dynamic markings. Annotations in the right margin include the name 'THE ARNOLD SCHONBERG INSTITUTE' and the location 'LOS ANGELES, CALIFORNIA'. A large bracket on the right side of the score groups staves 6 through 10. The handwriting is in black ink on white paper.

Figure 7. Sketch sheets for Op. 25

Example 3

Schoenberg, Piano Suite, Op. 25. Partial transcription of Sketches No. 27G, No. 27N

(see Fig. 7)

A

B

C

D

E₂

Example 4

Piano Suite, Op. 25, "Prelude" (mm. 20–21)

accel. - - - - -

pp *cresc.* - - - - -

To understand these sketches, it is necessary to return to the kinds of relations Schoenberg marks in the row sketches shown in Figures 3 and 4. There he sought to discover which nonadjacent pitches in the basic set could be grouped together to form harmonies equivalent to

ordered, linear segments of the basic set itself. The basic set for Op. 25 has remarkable properties of this type, which clarify the nature of Schoenberg's experiments with the ordering of the basic set shown in Figure 7, as well as his reasons for choosing the orderings he did.

The chart in Table 2(a) shows that if one divides the basic set into six dyads, and then associates all pairs of non-adjacent dyads, all but one such association produces a tetrachord equivalent to a transposed or inverted linear segment of the row. (For example, the non-adjacent dyads 1 and 3 form a chromatic tetrachord, A, which represents a transposition of the final tetrachord—that is, the adjacent dyads 5 and 6—of the basic set.) None of the other orderings of the basic set that Schoenberg considered (but rejected) produces as many correspondences of this type. This same kind of property also helps to explain why Schoenberg used individual voices and separate staves to link together two tetrachords from different row forms. As shown in the chart of Table 2(b), if one tetrachord from the prime form of the basic set (P_0) is joined with a tetrachord from one of the other three row forms, harmonies arise that are often equivalent to linear segments of the basic set. In fact, these equivalent harmonies frequently represent a form of the principal hexachord of the basic set (marked F). It is this latter property that Schoenberg works out on the bottom of his first sketch sheet and throughout his second sketch sheet, where without exception the preferred solutions he has circled associate two tetrachords from different row forms that form harmonies equivalent to linear segments of the basic set.¹⁸

Throughout Op. 25 these properties consistently determine both the rhythmical and registral shapes of individual row forms, as well as the succession of row forms and the ways they are joined.¹⁹ One example from Op. 25 will show how what Brinkmann identifies as compositional sketches for the first movement actually work out properties that determine the harmonic structure for the opening phrase of the fourth-movement “Intermezzo.”

In this opening phrase (see Example 5) a repeating tetrachordal “drone” spans and defines the phrase by joining tetrachordal segments

¹⁸ This property also structures the multiple solutions Schoenberg works out for joining P_0 and P_6 at the top of the second sketch sheet. For a complete sketch transcription see Schönberg, *Werke für Klavier*, p. 71.

¹⁹ Because the first and last pitches of all four row-forms intersect at the tritone $e-b^b$, the relations between P_0 and the remaining three row-forms, P_6 , I_0 , and I_6 , are the same for each row form considered separately.

Table 2. Piano Suite, Op. 25: Properties of the Basic Set

(a) BS P_0 : E F G D^b G^b E^b A^b D B C A B^b

	-----	-----	-----
Dyads:	1	2	3

Dyads	Tet.	Dyads	Tet.
1+3 =	A	2+5 =	D
1+4 =	B	2+6 =	B
1+5 =	C	3+5 =	E
1+6 =	C	3+6 =	E
2+4 =	[W]	4+6 =	D

B	A
-----	-----
P ₀ : E F G D ^b G ^b E ^b A ^b D B C A B ^b	
-----	-----
D	E

(b) Tet: (1) (2) (3)

	-----	-----	-----
P ₀ :	E F G D ^b	G ^b E ^b A ^b D	B C A B ^b
P ₆ :	B ^b B D ^b G	C A D A ^b F	G ^b E ^b E
I ₀ :	E E ^b D ^b G	D F C G ^b A	A ^b B B ^b
I ₆ :	B ^b A G D ^b A ^b B	G ^b C E ^b D	F E

P ₀ (1) + P ₆ (3) =	F	P ₀ (1) + I ₆ (3) =	F	P ₀ (2) + I ₆ (3) =	F
P ₀ (1) + I ₀ (2) =	G	P ₀ (2) + P ₆ (3) =	F	P ₀ (3) + P ₆ (1) =	F
P ₀ (1) + I ₀ (3) =	H	P ₀ (2) + I ₀ (1) =	G	P ₀ (3) + P ₆ (2) =	F
P ₀ (1) + I ₆ (1) =	I	P ₀ (2) + I ₆ (1) =	J	P ₀ (3) + I ₀ (1) =	H
P ₀ (1) + I ₆ (2) =	J	P ₀ (2) + I ₆ (2) =	K	P ₀ (3) + I ₆ (1) =	F
				P ₀ (3) + I ₆ (2) =	F

	J

	F F
-----	-----
P ₀ : E F G D ^b G ^b E ^b A ^b D B C A B ^b	
-----	-----
I	K

	H

	G

from two row forms. The drone, which appears in the right hand, presents the first tetrachord from P_0 followed by the second tetrachord from I_6 . Together these two tetrachords form the harmony marked J in Table 2, and it is this harmony that joins the two row forms into a single phrase. Notice that even though Schoenberg

Example 5

Piano Suite, Op. 25, "Intermezzo" (mm. 1-3) (Letters correspond to those in Table 2)

Diagram illustrating the basic set P_0 and its groupings:

$$P_0: E F G D^{\flat} G^{\flat} E^{\flat} A^{\flat} D B C A B^{\flat}$$

Groupings shown below the set:

- J (bracketed under E, F, G, D[♭])
- X (bracketed under E, F, G, D[♭], G[♭], E[♭])
- \bar{X} (bracketed under G[♭], E[♭], A[♭], D, B, C, A, B[♭])

circled this structure in his sketches (Figure 7 and Example 3, E_1 and E_2 , upper system), the surface features in the sketch (rhythm, register, and texture) differ greatly from those in Example 5. In the opening phrase the left hand too depends largely upon properties worked out in the sketches, but now those that determine the association of non-adjacent dyads within a single row form. The first left-hand harmony (E) groups together the third and fifth dyads from the basic set (order numbers 5,6,9,10); and the second (D) similarly groups the fourth and sixth dyads (order numbers 7,8,11,12). The third harmony (\bar{X}) spanning measures 2 and 3 is more complex, but nonetheless derives from the same kind of structure as the first two harmonies. This eight-note harmony, which represents the comple-

ment of a linear segment of the row (X), is made up of two tetrachordal harmonies that join non-adjacent pitches, but not those of the paired dyads discussed above. The first tetrachord (m. 2), W (order numbers 1,2,9,12), is equivalent to the harmony formed by joining the second and fourth dyads. The second tetrachord (m. 3), X (order numbers 1,2,9,12), is equivalent to a linear segment of the basic set (order numbers 3,4,5,6). As Table 2 and Example 5 show, all the harmonies that structure this phrase—with the exception of W—contain non-adjacent pitches, but are nonetheless equivalent to linear segments of the basic set.

In both its internal harmonies and the harmony that defines its duration, the structure of this phrase is typical of every phrase in the movement that contains more than one row form. (See the Appendix for derivation of harmony [W] and the harmonic phrase structure of the “Intermezzo”.) Thus properties worked out in a compositional sketch for one movement continue to generate complex and contrasting textures in a much later movement. In this example a “compositional” sketch functions as we would expect a row sketch to do: mapping out harmonic structure for a number of passages.

We are now in a position to understand one reason why the number and format of Schoenberg’s sketches are consistent with neither the size nor the internal construction of a work, and why the opening movement or the beginnings of later movements are often sketched more fully than other portions. The answer is that row sketches and compositional sketches, though different in format, often serve the same function for Schoenberg. That function, prior to all others, is to discover which forms of a basic set can be associated by means of certain properties. In many of his sketches, Schoenberg is concerned more with these properties than with the details of a specific passage. Scholars who neglect these properties have been content to see compositional sketches merely as drafts of single passages and to ignore the implications of row sketches. Compositional sketches seemed too specific to be enlightening, row sketches too general.

Schoenberg’s experimentation with the twelve-tone method no longer seems erratic when one understands the nature and function of the harmonic properties he often sketched. In fact, the examples I have discussed reveal his compositional process to be impressive for its consistency, because the various practices all tend to complement one another. He would regularly structure the basic set to maximize certain properties, work out the fundamental succession of row forms and the overall form of the movement, compose the melodic line, and

only then fill in the secondary voices. Once established, this "conscious control" over his new means and forms allowed Schoenberg to compose without needing to sketch the details of individual passages.

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APPENDIX

THE HARMONIC PHRASE STRUCTURE OF THE "INTERMEZZO" OF OP. 25

Table 3 below lists the extended harmonies (usually appearing with the drone figure) that define the duration of each extended phrase in the "Intermezzo." As in the opening phrase, they all group together pitches nonadjacent in one row form or between two or more row forms. Besides those harmonies marked in Table 2, above, the "Intermezzo" uses four others (including their complements) derived from joining the various invariant segments that occur among the four row forms. The first of these harmonies represents the five invariant pitches that occur between initial corresponding hexachords in the two pairs of I-related row forms, $P_0:I_0$ and $P_6:I_6$. This five-note harmony is marked V in the following diagram. Both the five-note harmony V and its seven-note complement, marked \bar{V} , appear in the movement.

P_0 : E F G D^b G^b E^b
 I_0 : E E^b D^b G D F

invariant

harmony V: [E F G D^b E^b]

The second invariant harmony derives from joining the single invariant dyad of all four row forms (G D^b) with their invariant initial and final pitches (E B^b). In the diagram and table below this harmony is marked Y and its complement \bar{Y} . The third invariant harmony (marked Z) derives from joining two invariant dyads that arise between T-related and I-related row forms. Its complement is indicated as before (\bar{Z}).

	Z											
P_0 :	E	F	G	D ^b	G ^b	E ^b	A ^b	D	B	C	A	B ^b
P_6 :	B ^b	B	D ^b	G	C	A	D	A ^b	F	G ^b	E ^b	E
I_0 :	E	E ^b	D ^b	G	D	F	C	G ^b	A	A ^b	B	B ^b
I_6 :	B ^b	A	G	D ^b	A ^b	B	G ^b	C	E ^b	D	F	E
	Y											

The fourth and final invariant harmony (W) derives from joining the two invariant dyads that arise between each pair of T-related and I-related row forms. It is, of course, the same harmony that arises from joining dyads two and four in the basic set (see Table 2a); notice that its use as a structural harmony in the first phrase (m. 2, left hand) arises by associating order numbers 1, 2, 9, 12 and not dyads two and four. Its use here as a structural harmony prepares or perhaps anticipates the use of these invariant harmonies to structure the extended phrases in the second half of the piece. Below is given the derivation of W from $P_0:P_6$; it can also be derived, of course, from $I_0:I_6$.

P_0 :	E	F	G	D ^b	G ^b	E ^b	A ^b	D	B	C	A	B ^b
P_6 :	B ^b	B	D ^b	G	C	A	D	A ^b	F	G ^b	E ^b	E
	W											

Notice that Schoenberg uses largely the invariant harmonies (V, Y, Z) to structure what sounds like a varied repetition of the first half of the movement (mm. 20ff.). This feature has important implications for understanding how the two sections are unified by appearing on the surface merely to be varied repetitions of one another. By introducing these underlying invariant harmonies to define phrase structure in the second half of the piece, Schoenberg created a two-part, through-composed form,

even if on the surface it might be mistaken for a one-part form with a varied repetition.

TABLE 3. Extended harmonies of extended phrases in the "Intermezzo"

MEASURE NUMBERS OF PHRASES	HARMONIES THAT DEFINE PHRASE LENGTH	JOINED TETRACHORDS AND ORDER NUMBERS (ON)
1-3	J	$P_{0(1)}:I_{6(2)}$
5-7	F	$P_{0(3)}:I_{6(1)}$
7-9	F	$P_{6(3)}:P_{0(1)}$
11-15	H	$I_{6(2)}:I_{0(2)}:P_{6(3)}:I_{6(2)}:I_{0(2)}:P_{0(2)}$
19-20	H	$I_{0(1)}:P_{6(\text{hex})}$
20-23 ("repeat")	J	$P_{6(1)}:I_{0(2)}$
25	V	$I_{0(1)} + \text{ON } 6:P_{0(1)} + \text{ON } 6$
26	V	$I_{6(1)} + \text{ON } 6:P_{6(1)} + \text{ON } 6$
25-26	Z	$I_{0(1)} + \text{ON } 6:P_{0(1)} + \text{ON } 6:$ $I_{6(1)} + \text{ON } 6:P_{6(1)} + \text{ON } 6$
29-30	A	$I_{6(1,2)}:P_{6(1,2)}$
31-33	V	$I_{6(1)}:P_{6(1)}$
35-37	Z	$I_{6(1)}:P_{6(1)}:I_{0(1)}:P_{0(1)}$
37-43	Y	$P_{0(2)}:I_{6(2)}:P_{6(2)}:I_{0(2)}$
43-45	V	$I_{0(1)}:P_{0(1)}$