AN ANALYSIS OF SCHOENBERG'S *KLAVIERSTÜCK*, OP. 33A

ERIC GRAEBNER

It is assumed that we are dealing with a 12-tone serial piece and that 'basic set' shall stand for the type 0 7 2 1 11 8 3 5 9 10 4 6;[1] this is the most consistently separable of aggregate orderings. The hexachordally I-combinatorial property of this set is much used (from m. 3), among other things to develop some of the immediate motivic implications of the basic set. The set forms paired together according to this criterion are:

0	7	2	1	11	8	⋮	3	5	9	10	4	6
5	10	3	4	6	9	⋮	2	0	8	7	1	11

The presentation of these two levels (i.e., single basic set form—e.g., R.H. of mm. 3–5; 2 × 2 aggregates out of two simultaneous basic set forms—e.g., the whole of mm. 3–5) is systematically straightforward. But how can the piece be understood beyond these levels?

Texture, Partition, and Transposition

Starting from the background, a ternary division of the total piece is variously suggested by three different factors: texture, partitioning of basic set, and transposition of set-group.[2] The first big break in textural consistency occurs at m. 14 and articulates a change in basic set partitioning from three tetrachords to two hexachords and subse-

[1] Pitch-class (p.c.) numbers are used where some general point is being made about p.c. relationships. Otherwise specific p.c. letters are used.

[2] 'Set-group S_x' shall stand for the class of basic-set forms comprising P_x, its hexachordally combinatorial I-form (I_{x-5}) and both their retrogrades.

quently, as an extension, four trichords. The other such break, m. 32, articulates the resumption of the original pitch-class (p.c.) ordering of the set-group (S_0) after a transposition section involving S_7 (I find it simpler at this level to regard S_2 as a function of S_7 for reasons considered below). Diagram I shows the three different ternary divisions —numbers, here, as in other diagrams, refer to measure numbers in the published score.

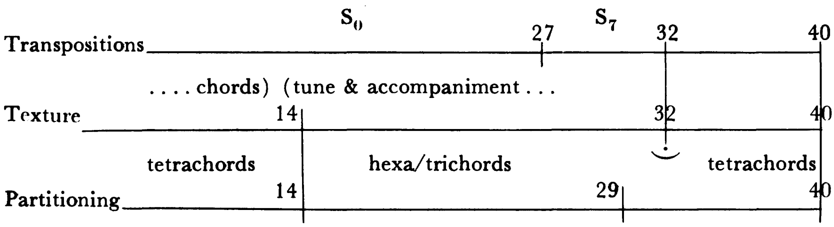


Diagram 1

In order to make a secondary division it is necessary to decide how important the partitioning divisions are in articulating transpositional levels. Diagrams 2 and 3 illustrate the effect of allowing the partitioning divisions a higher or lower significance respectively.

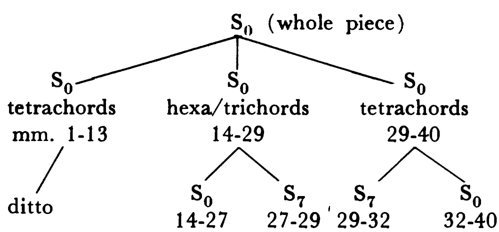


Diagram 2

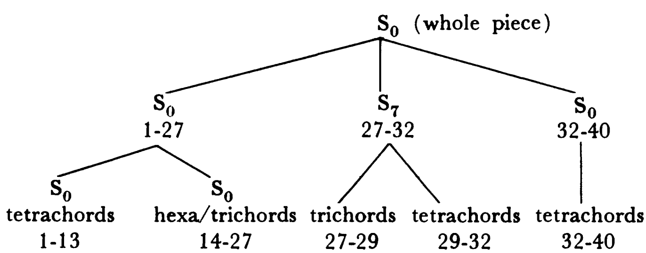


Diagram 3

The model represented by Diagram 2 may in one way seem preferable, because as will be seen subsequently, the prominence of the T_0-T_7 relationship at a number of foreground levels is sufficient motivation for its appearance at any relatively background level, where it would be meaningful as a large-scale relationship within some section (however defined) of the piece. It is not so easy to find trichord/hexachord v. tetrachord groupings as a multi-level motive (the possibilities are, I think, exhausted in the next paragraph), so that the higher the level at which these groupings are 'given' the less embarrassment they will be when regarding the whole piece from the point of view of continuity.[3] On the other hand, if trichords and tetrachords could variously be seen to articulate something special about pitch relationships (that is, apart from the foreground effect of their different interval structures), then Diagram 3 would be more attractive since it is conceptually neater as far as pitch relationships are concerned. Toward the end of this analysis the possibility of such articulation is suggested as a by-product of observations on the function of transposition. But before going on to that large topic let us first trace further the possible dividing effect of the tetrachord/trichord partitioning motive.

In Diagram 2 or 3 (whichever we choose) mm. 1–13 and mm. 32–40 are units by the third level. These can be further divided according to the partitioning criterion (see Diagram 4).

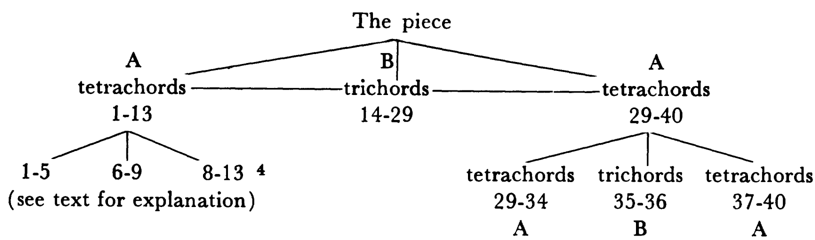


Diagram 4

[3] Analogously, it is generally more useful in analysing a whole symphony to divide the work into its component movements at a fairly high level and to accept such a division as conventionally absolute rather than contextually motivated, so as to avoid the difficulty of having to account for it at middleground levels where contextual motivations are probably more important.

[4] In Diagram 4 mm. 8–9 overlap the 2nd and 3rd section at level 3, on account of a counterpoint between texture and pitch-succession relations. The recapitulatory texture of mm. 10–11 is balanced by the fact that mm. 8–9 already anticipate their p.c. ordering. A more complex counterpoint is found in mm. 28–32, not only between partitioning on the one hand and transposition and texture on the other, but also a blurring of the actual transition from trichordal to tetrachordal divisions—see the ambivalent R.H. and neutral L.H. groupings of m. 28 (2nd half)—m. 29 (1st half).

The closing section (mm. 29–40) becomes a microcosm of the whole piece.[5] The reasons for dividing mm. 1–13 are not so obvious. However, a look at mm. 6–7 will show that the trichord 025 appears twice as a simultaneity on one level satisfying a quasi-palindromic symmetry but that on the first occasion (C♯ D♯ F♯) it is part of a disjunct tetrachord of the basic set whereas its second appearance (EGD) is as a disjunct trichord. This shift in the positioning of one and the same chord-type provides a (serially non-trivial) link between trichordal and tetrachordal divisions and anticipates the global shift between these divisions. It is also significant that the texture of mm. 6–7 comes closest (within mm. 1–13) to that of mm. 14ff.

Levels of Transposition

Whether we follow Diagram 2 or Diagram 3 we are sooner or later involved in transpositions of the set-group. Those actually used in the piece are S_0, S_2, and S_7. Diagrams 2 and 3 imply that S_2 is in some sense subsumed under S_7. This hierarchization is intended to suggest the primacy of an operation (transposition by i5[6]) at higher levels rather than the presentation of some super-set in which S_0-S_2-S_7-S_0 are the ordered elements. Such a decision is motivated by the tendency of serial groupings at lower structural levels to proliferate segments of varying magnitude of the i5 cycle and because of the tendency, at the same levels, for i2 to be articulated in terms of other intervals (particularly i5 and i1), all of which is discussed and exemplified below.

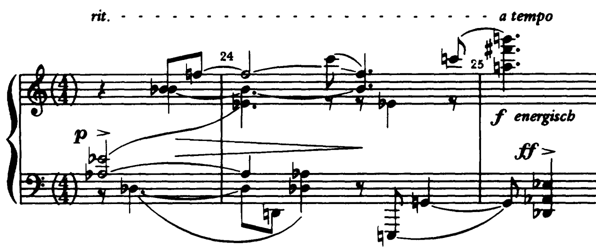
The usefulness of considering transposition by i5 as a primary operation depends on the extent to which the generation of other intervals from i5 is articulated at many levels in the piece rather than on the systematic fact that they are all inherently derivable from i5, a complete cycle of which exhausts the total chromatic.

[5] Analogously, in the first section, level 2, the tempo surface of mm. 10–13 compresses that of mm. 1–9. Here the 'broken arpeggio,' L.H., end of m. 11 (CBFB♭) allows: a) a half-note (minim) on the last double-tetrachord of the phrase to match the last chord in m. 2, while at the same time permitting the continuation of ♪ pulses; (b) a sense of continuation on analogy with the heavily stressed R.H. ♪'s (𝄾𝅘𝅥𝅯𝅘𝅥𝅯𝅘𝅥𝅯) of m. 3, which (there) introduce a new set unfolding. It also bridges the broken 𝄽♩♩♩ of the double-tetrachords (mm. 10–11) and the 𝄾♫♪ etc. of m. 12 in a way similar to the written accel. → ♩ pulses → ♪ pulses → 𝅘𝅥𝅯 pulses → rit. of mm. 1–9.

[6] An interval of x semitones is abbreviated 'ix.' This designation is taken to include the complement of x (mod 12) except where the context indicates otherwise.

Here are three examples illustrating at least some *connections* between i5 transpositions and two others (i1 and i2):

1) The pitches of the second half of mm. 23ff shows registrally how the hexachord content of the first disjunct trichord-pair of the combinatorial P and I forms can be expressed as a 6-element segment of the i5 cycle (the second trichord-pair could also be so expressed); the passage shows, moreover, that the movement to the second hexachord can be performed entirely by semitonal steps:



C → B
F → F♯
B♭ → A
E♭ → E
(A♭) G → A♭
D♭ → D

A less obvious exploitation of this possibility (involving the same p.c.'s) also occurs in m. 12.

2) At the beginning of m. 8 E♭ and D♭ are so placed as to show i2 as two places along both i1 and i5 cycles (cf. the time ordering E♭A♭D♭; and the registral ordering D♭DE♭). Furthermore, the surrounding tetrachords CEGD (m. 7) and B♭DFC (occurring twice in m. 8) have identical interval structures separated by i2. These chords could be analysed as segments of i5 cycles with one gap that produces i2: C-G-D-/-E, B♭-F-C-/-D. The i2's are however filled in, in their capacity as separated elements of i1 cycles, by the pivotal E♭ and D♭ respectively:

D♭

C G D E B♭ F C D

E♭

Moreover it can be observed that these tetrachords each contain 3 elements of an i2 cycle (CDE, B♭CD respectively) and that notes adjacent to both these chords suggest further semitonal filling in of the i2:

D | | B♭
E | and | C B
C D♭ E♭ | | D♭ D

so expanding each of the i1 cycle segments to 5 elements (CD♭D E♭E and B♭BCD♭D).

3) In the all-026 aggregate of m. 27 the two possible i2 cycles are separately exhausted and presented mostly an i1 apart (that any odd interval of separation is possible, including i5, is shown by the deviations of the L.H. successions). Perhaps one point of presenting S_2 first in the ensuing 'transpositions passage' (instead of articulating the basic set order 0-7-2) is to emphasise i2 at a higher level, in view of its frequent local importance in connecting i5 and i1 cycle segments.

The question next arises whether an i1 transposition cycle, rather than an i5, might not generate the piece's pitch structure. This is at first difficult to resolve, given the consistent juxtaposition of i1 and i5 cycle phenomena, as the very first chord and the last measure symptomatically illustrate. Let us then reverse the direction of investigation and allow the first chord to generate the piece.

The interval structures of the 2nd and 3rd tetrachords ('b' and 'c' resp.) of m. 1 are connected to that of the 1st tetrachord ('a') in a number of ways. For instance, in the initial tetrachord pattern: a-b-c-c_1-b_1-a_1 (mm. 1–2) the pitch content of 'a' is next distributed amongst 'c_1' and 'b_1', that of 'b' amongst 'a_1' and 'c_1' and that of 'c' amongst 'a_1' and 'b_1.' Other interchordal connections, this time within m. 1 alone (and correspondingly within m. 2), are emphasised by absolute interval identity: thus B♭F or CF → C♯F♯ → DG; BF → AD♯ → A♭D; C♯D♯F♯ → DEG to mention only those immediately relevant to the present investigation.[7] Out of these identities two different extensions of 'a,' an i1 cycle segment with i5 superposed and an i5 cycle segment with linear i1 extensions, complete the first aggregate thus:

[7] These immediate relationships and their further implications are brought to light and integrated with other features in a number of different ways and places. For example, in mm. 37–38 the tetrachords are divided into single note and trichord groupings. The pattern of trichords thus separated:

1) 2)
016–025–026/026–037–027/016–025–026/016–037–027
M N M N_1

points to two alternative possibilities of tetrachord 'c': at 1) to the inversional relationship of the set-forms to which M and N belong by juxtaposing identical trichord types (026) and at 2) to the affinity between 'a' and 'c' by means of 016.

'a'			'a'		
F	F♯ G	and	CF Bb	--Eb	E
Bb BC	C♯ D		B	A	Ab

Measures 3–5 elaborate mm. 1–2 by reversing the contents of m. 1 and superposing them on the contents of m. 2—the resultant combination of P_0 and I_5 produces a dyad-pair pattern:

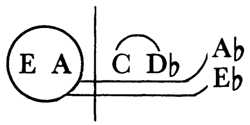
d	e	f	f_1	e_1	d_1
AB	F Gb	BbC	G E	DC♯	G♯D♯
ED	AbG	EbDb	GbA	BC	F Bb

(where identity of letter in top row indicates identical tetrachordal interval structure)

analogous to the a-b-c-c_1-b_1-a_1 pattern above. The i5 and i1 cycles, previously presented simultaneously by their segments in 'a,' are now successively represented by BEAD/FGbGAb as the content of 'd' and 'e.' Note also how the registral piling up of i11—Ab-G-Gb-F-E-D♯ (mm. 3–5)—is set up against an i5 accumulation in mm. 5ff—C♯-G♯-D♯-Bb-F-C. The remaining new tetrachord 'f' borrows features from the other two: like 'd' and 'e' it is a conjunction of two i2's (BbC,EbDb) and it is separated from 'd' by i1 (through contrary motion of its component pitches away from 'd') which is also the predominant interval of 'e.' The sequential continuation of m. 4 from m. 3 makes both these relationships very clear and m. 5—CB → DC♯ —presents them inside-out in close-up (as 'e').[8]

[8] Incidentally, 'd,' 'e,' and 'f' under a certain transposition of the so-called M5 operation yield the following results:

Measures 6–7 are similar to mm. 1–2, but the more highly articulated surface reveals new connections here. The separation of CFB♭ obviously emphasises the extension of the i5 cycle from the previous measure. The isolation of a single line BAEAB♭C produces the beginning of an I-form at T_{11} of the overall prevailing set form (CFB♭B etc.), a new aspect of the i1/i5 syndrome. The continuation of the line (C) . . . D A E—a partial reversal of its antecedent—develops the i1/i5 relationship internally



(the i1 relationships are brought out by adjacency, or equivalent position in different phrases). The registers of CF, C♯F♯, confirm what was said about these from m. 1. The use of 016 focuses on an il/i5 conjunction between aggregates (EAB♭) as well as within.

Measures 8–9 can be described as a variation on mm. 3–5 backwards, adding another dimension to the forwards-backwards element of mm. 1–2. But the symmetrical order among dyad pairs in mm. 3–5 (d-e-f-f_1-e_1-d_1) means that mm. 8–9 can equally be regarded as T_6 of mm. 3–5 (disregarding intra-tetrachordal ordering). So that within the set-group the pattern for the P + I combination can be more precisely described as d_0-e_0-f_0-f_6-e_6-d_6 (where subscripts now denote interval of transposition) and that for the R + RI combination as d_6-e_6-f_6-f_0-e_0-d_0. Note now that there are two levels of T_6 transposition: i) between set-form pairs; ii) between the successive aggregates of a set-form pair in as much as the comparison is between identical dyad-pair types (see Diagram 5a). With regard to the latter the extension of the i5 cycle to six elements in the first trichord pair of $P_0 + I_5$ (CFB♭D♯G♯C♯) facilitates the notion of T_6 in terms of the i5 cycle; thus a T_0-T_6 relationship is expressed by contrasting a half-completed cycle with its other half (in theory CFB♭D♯G♯C♯: F♯BEADG). In Schoenberg's piece only the last dyad- and not trichord-pair of P + I produces an i5 segment (of 4 elements) (BEAD) so that

	d	e	f	
original dyad pair content	11 4 9 2 5	6 7 8 10	0 1 3	etc.
M5 and transposed	5 6 7 8 11	4 9 2 0	10 3 1	

Apart from the interchanging of content of 'd' and 'e' notice the not immediately obvious connection of 'f' with the i5 and i1 cycles. 'f' indeed shares the property with 'a' of invariance under M5.

that the other half of the cycle is not completed: (CFB♭D♯G♯C♯: (−)BEAD(−)).[9] In general, when 6 + 6 or 4 + 4 i5-cycle elements are juxtaposed as the last elements of one set-pair plus the first elements of another (R/RI → P/I . . . ; . . . P/I → R/RI . . . , respectively) exact identity between the first 6 and the second 6 (or first 4 and second 4) elements indicates no transposition at set-group level, whereas any deviation *does* indicate such transposition—cf. the transition from mm. 11-12 (D♭A♭E♭B♭FC → D♭A♭E♭B♭FC) and S_0 → S_2 in mm. 27ff. (CFB♭E♭A♭D♭ → DGCFB♭E♭). With the 6 + 4,4 + 6 groupings of . . . R/RI → R/RI . . . ; . . . P/I → . . . P/I . . . respectively, this simple distinction, regarding i5-cycle segments, does not hold. It is therefore strategically helpful that Schoenberg often follows a P/I set-pair with an R/RI set-pair of the same set-group, or vice versa, so as to produce a transpositional closure (T_0-T_6-T_0) at level 3 of Diagram 5a. This diagram could be the model for any of the following sections of the piece: mm. 10–11; mm. 25–27; mm. 30 (last quarter)–31ff.; mm. 32–34. The closure technique seems also to operate over longer stretches where an initiating P/I pair and terminating R/RI pair enclose intervening material, as with: mm. 3–13; mm 23–27; mm. 28–32. Individual commentaries for these widely varying examples follow below.

Mm. 3–13. See observations on primary division p. 129. Measures 3–5 and mm. 12–13, the outer elements that produce closure, are connected in the first place (as antecedent and consequent) by textural and rhythmic similarity. In as much as mm. 1–13 have been declared a textural unit on other grounds it would not be perverse in the present connection to think of mm. 1–2 as up-beat to mm. 3–4.

Mm. 23–27. Here, as in other places, a segment within a P/I R/RI pair is repeated to create an extended section, without intervening set-forms.

Mm. 28–32. During this section, the B♭E♭A♭ initiating S_7 (I) persists in the same register like a unifying high pedal point. Earlier observations about letting S_2 function as T_7 or S_7 (see p. 131) would fit in with the idea of enclosing the whole section in a large S_7 (P/I . . . . R/RI).

[9] The antithesis (CFB♭D♯G♯C♯: (-)BEAD(-)) is contextually useful in distinguishing T_0–T_6 within a set-group or -pair from the hypothetical (for this piece) S_0–S_6 which alone could produce a real exhaustion of the i5 cycle in terms of contrasted first trichord-pairs of P + I (i.e., S_0 (P + I) C F B♭ D♯ G♯ C♯
S_6 (P + I) F♯ B E A D G).

Now if P/I is followed by P/I (still of the same set-group), instead of the T_0-T_6-T_6-T_0 closure at level 3 of Diagram 5a, we have T_0-T_6-T_0-T_6—so that, among other things, the transition from one set-pair to the next is punctuated by i6. In situations of this kind i6 is most noticeably articulated at certain points of textural change already commented on, i.e., at mm. 13–14 (A♭D,EB♭) and mm. 34–35 (E♭B♭ → EA—here the close connection between i1, i5 and i6 is revealed, as in tetrachord 'a'). If, at one level higher than we have just been considering, a closure T_0-T_6-T_0 is considered as T_0 then the following picture of the piece could emerge:

S_0		[S_7]	S_0	
1-13	14-27	[. . 27-32 . . .]	32-33	34-40
T_0	T_6		T_6	T_0
(R/RI→P/I)	(P/I→R/RI)		(P/I→R/RI)	(R/RI→P/I)
T_0-T_6-T_0	T_6-T_0-T_6		T_6-T_0-T_6	T_0-T_6-T_0

Diagram 5

where the closure technique is seen to enclose the whole piece. (The working of the T_0-T_6 relationship at more foreground levels is shown later on.) The characterisation of the similar textures of mm. 14ff. and mm. 35–36 by trichordal partitioning may be relevant in this connection for its yield of two 026 trichords in any basic set-form. (Note also that the three similar phrases mm. 14–15, 21–22, and 35–36 each contain a long-held note—B♭, C, E respectively—and that these notes together form a 026 trichord.) i6 is more immediately emphasised by the presence of these trichords, than in the original tetrachord situation, partly because the presence of the two i2 cycles produced by combined set-pairs (and so articulated in m. 27 and partially in m. 19) places i6 within a smaller frame of reference (the i2 cycle which contains only the even intervals) than where it appears with the motivically powerful i5 and i1 (as typified by the 016 trichord, and tetrachords containing it). Since mm. 14ff., etc. articulate a global T_6 (see Diagram 5) within the long S_0 sections these locally induced prominences of i6 by trichordal partitioning seem significant.

In Diagram 5a the combinatorial set-pairs P and I, and R and RI were split up according to their aggregate formations. But such set-pairs are two-dimensional and can also be divided into their component basic-set forms, P and I, or R and RI. This division would normally be

S_0

P/I (T$_0$) R/RI (T$_6$)

Aggregate 1 T$_0$ Ag. 2 T$_6$ Ag. 1 T$_6$ Ag. 2 T$_0$

Diagram 5a

irrelevant in a discussion about transpositions, since the relation here is inversion; however, tetrachord 'a' is invariant under inversion, so that within a given set-group 'a' (of I) is T_3 of 'a' (of P). Although this transposition is of no further interest at basic set level its involvement with 'a' means that T_3 is articulated in terms of i5 and i1 cycles: thus

P	B♭ F C	and	B♭ B C	('a' = B♭ F C B)
I	C♯ G♯ D♯		C♯ D D♯	('a' = D♯ G♯ C♯ D)

In these terms the T_3 relationship of P and I fits the T_0-T_6 relationship already discussed in the limited sense shown by Diagram 6 (the generation of i3 by means of the *i1* cycle is left out for simplicity). i3 is particularly emphasised when single set-forms are used, viz. the registers of 'a' and 'a_1' in mm 1–2; but its effect appears variously also in set-pairs: see, for instance, the canonic 'a' 's beginning 1 note before m. 39, or in a larger context, the movement from the high B♭E♭A♭'s (mm. 28–30, see p. 136) to high GCF in m. 32, effected through a registral swap between inversionally related set forms in m. 31:

I P(R)
P I(R)

This last example illustrates well the connection between i3 and the i6 cycle in the sense of Diagram 6.

S_0

beginning P/I — /RI beginning

CFB♭D♯G♯C♯ (T$_0$) — -BEAD- (T$_6$)

P beginning CFB♭ (T$_0$)

I beginning D♯G♯C♯ (T$_3$)

no corresponding breakdown in that R and RI do not begin with i1- or i5-cycle segments

Diagram 6

A glance back at mm. 1 and 2 will show how the i1 and i5 cycles generate an i3 cycle which in turn generates the i6 cycle. Firstly, in m. 1 'c' is T_9 of 'a' except for the non-corresponding E; but A which if substituted for E would correct the discrepancy is at the 'right' register in chord 'b.' By adding the corresponding alteration in m. 2 we would have the succession of 'a'-type chords:

	T_0	T_9		T_6	T_3
	B♭	G		E	C♯
	F	D		B	G♯
	C	A		F♯	D♯
	B	A♭		F	D
P			RI		
m. 1			m. 2		

so completing three i3 cycles which embrace either a complete i5 or a complete i1 cycle depending on whether we follow lines 1, 2, and 3, or 1, 3, and 4 of the above chord-scheme.[10] With regard to the articulation of both i5 and i1 cycle segments at relatively foreground levels, it is interesting that they are both related by an equal number of steps to the i3 and i6 cycles (see Diagram 7a). Diagram 7b illustrates Diagram 7a in a way more related to the other diagrams in this analysis.

a)

0	1	2	**3**	4	5	**6**	7	8	**9**	10	11	**0**
	5	10		8	1		11	4		2	7	

b)

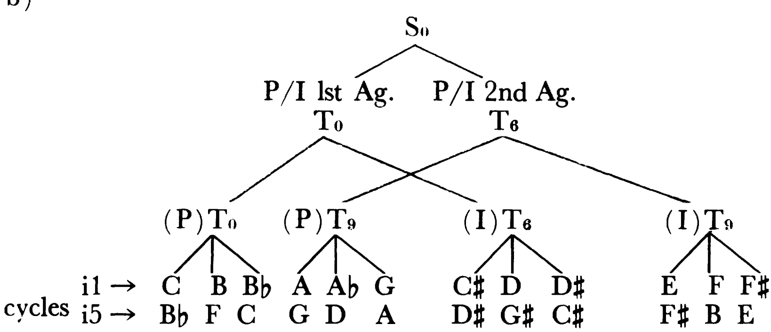


Diagram 7

10 Note, moreover, in mm. 1–2, that the span of 'b' is also i9 and that this tetrachord contains three elements of an i3 cycle (D♯ F♯A).

The second level of Diagram 7b is level 3 of Diagram 5a. The third level shows the transpositional relationship between the 'a'-type tetrachords in the sketch above on p. 139. The order of the last two has been reversed to give the I instead of the RI form merely to simplify illustrating the P/I relationship between second and third levels. The alternative levels four show the partial content of each of the four 'a' tetrachords in terms of the i5 or i1 cycle. The last two tetrachords are, of course, reversed.

Reviewing the whole process of deriving transpositional levels, it seems that i1 could be dismissed as a primary generator in favor of i5, since with the introduction of the i6 cycle at a fairly high level i1 can be generated at lower levels by an alternation of T_5 and T_6 operations: thus tetrachord 'a' could be derived as:

```
                 0
                / \
T5 —           0   5
              /   / \
T6 —         0   5   11
            /   / \    \
T5 —       0   5   10   11   ← Tetrachord 'a'
```

This is strikingly close to the operational model of the piece as a whole (cf. Diagrams 2, 3, 5, and 6). Moreover, it would be cumbersome to generate S_2 and S_7 in terms of i1. Retrospectively we might also say that the first monadic ordering of the basic set (0-7-2 etc. rather than 0-1-2 etc.) and the most frequent registration of the first trichord (superimposed i5's or i7's) both point to a primary emphasis on i5 rather than on i1.