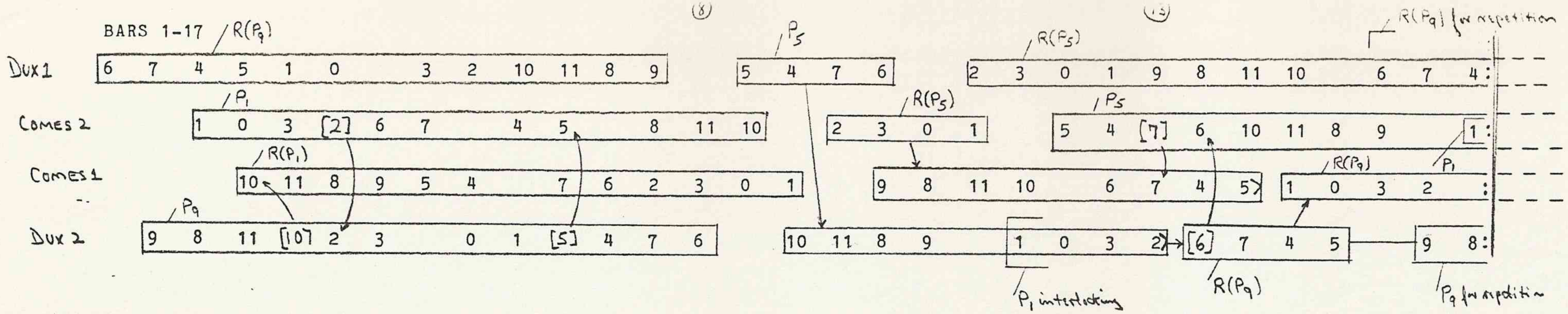
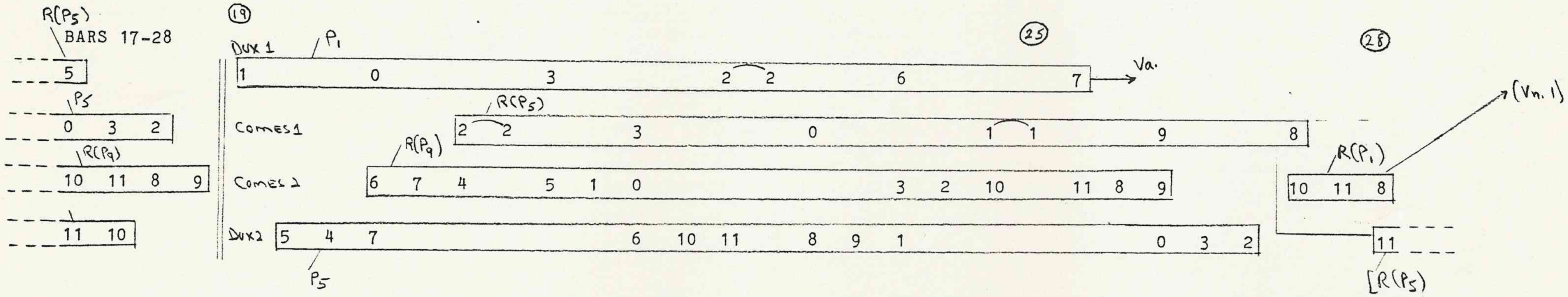


C# D B C Ab G Bb A F F# D# E C B D C# A Bb G Ab E D# F# F C# D B

Ab G Bb C# D B C D# F# F A Bb G Ab C B C# F F# D# E Ab

F F# D# E C B D C# A Bb G Ab E D# F# F C# D B C Ab G Bb A

E D# F# A Bb G Ab B D C# F F# D# E Ab G Bb A D B C E D#



C Ab G Bb A A C# D

G Bb A A A Bb G Ab Ab E D#

F F# D# E C# D B C Ab G Bb A F F# D# E F F# D#

F# F C B D C# F F# D# E Ab G Bb A F#

A B C
C A B

Rows with superscript 2 map the tetrachordal components this way:

A B C
B C A

In both cases the reordering leaves no tetrachord in its original position.

In accord with the analysis of the row matrix above (Fig. 1), each row form can be associated with two other row forms on the basis of equivalence of the pc content of their constituent tetrachords. Thus:

P_0 P_8 P_4

P_1 P_9 P_5

P_{11} P_7 P_3

[Or, more generally, any Pi associates with any Pj if i-j=4 or if i-j=8. Note that 4 and 8 are inverse related and that the values of t for the associated row forms constitute an 'augmented triad'.]

rows with superscript 2 map the tetrachordal components this way:

A	B	C
B	C	A

In both cases the reordering leaves no tetrachord in its original position.

Webern, Op. 28, I

Pc map of Var. I

P_{11} and P_8 share no tnts

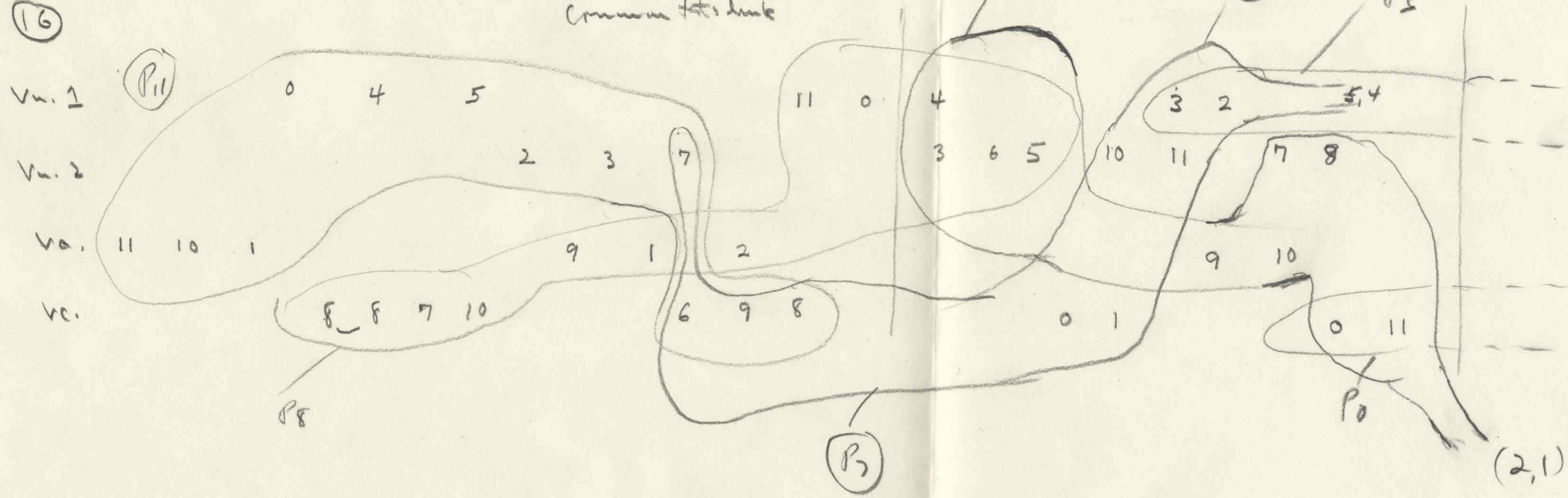
Basis of set combination (pairs) no common tnts

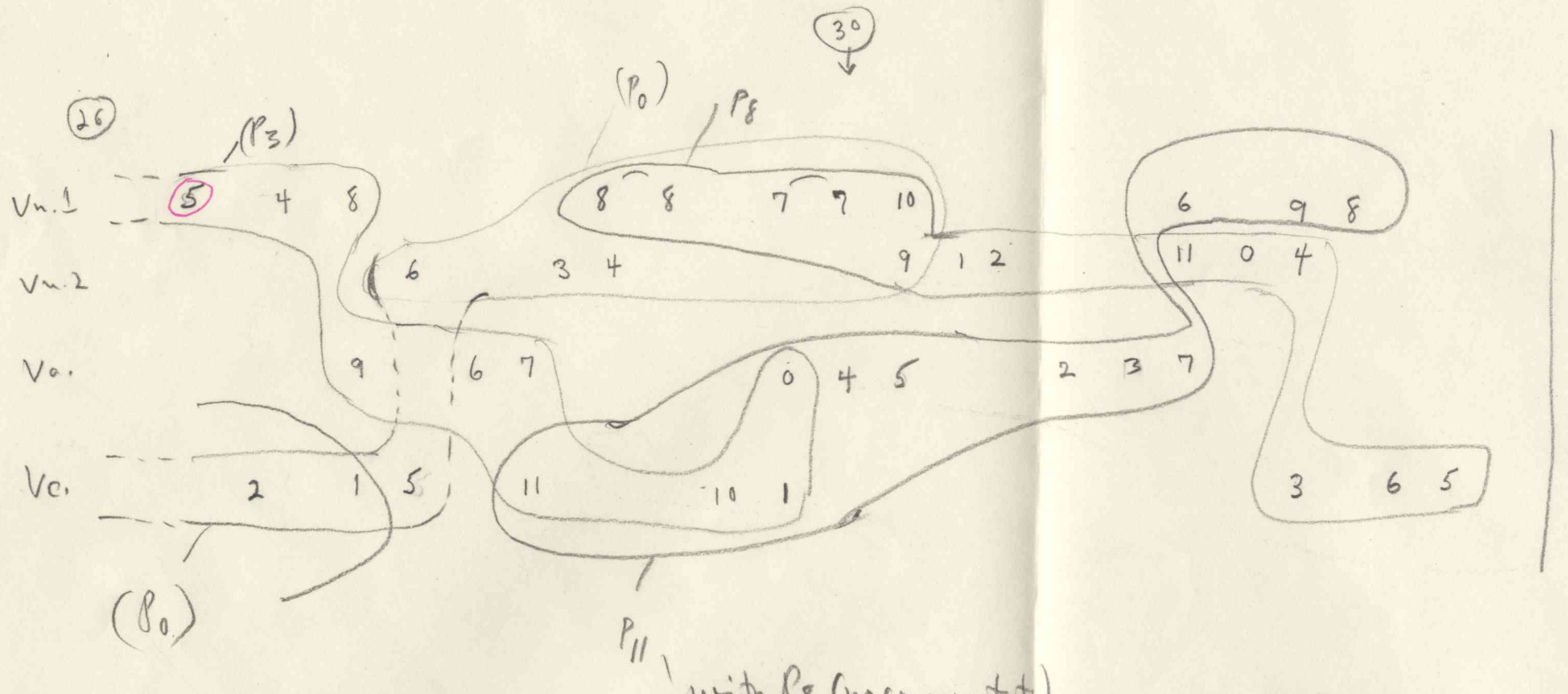
[interval betw. forms is 3 in each case]

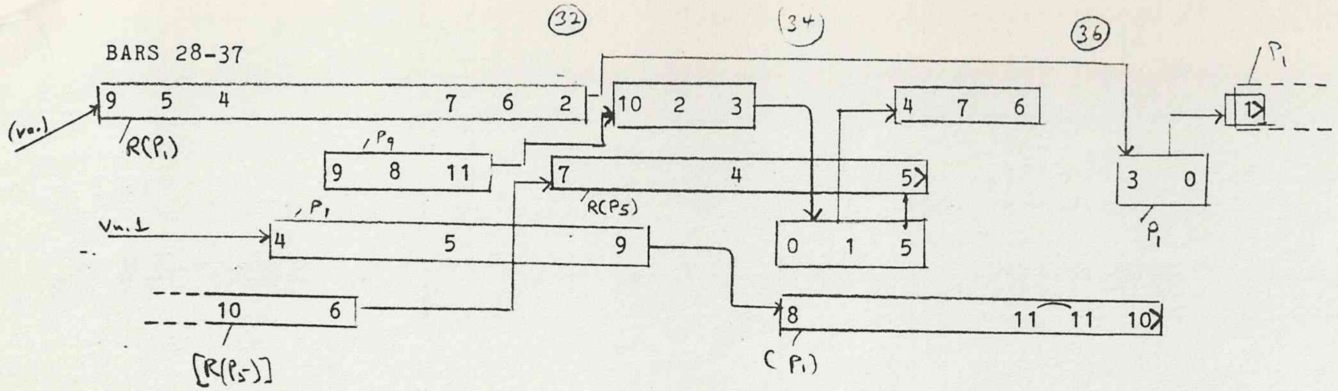
Common tnts link

— 'diminished triad' values of t — no common tnts

P_3 and P_0 share no tnts





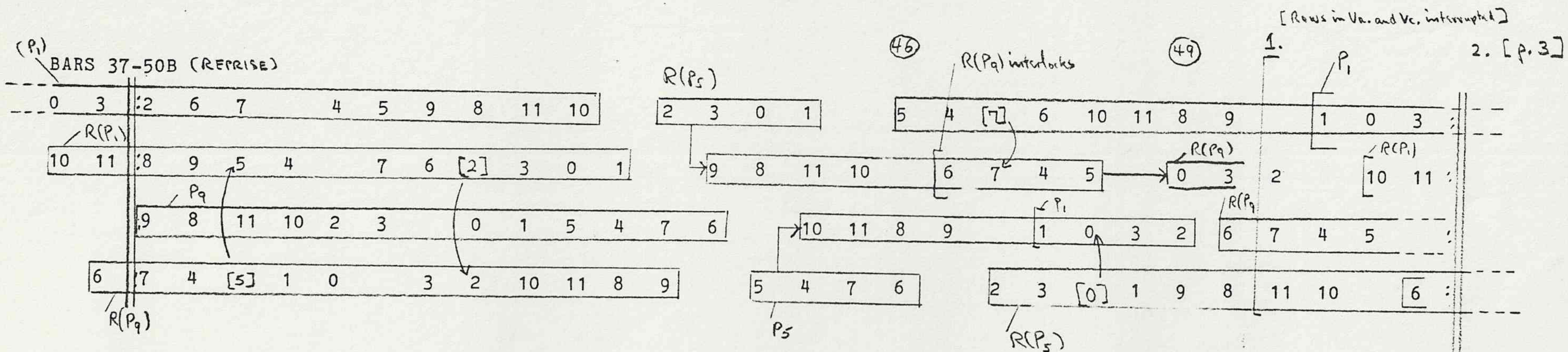


E C B D C# A F A Bb B D C# Ab

E D# F# D B C Bb G

B C E G Ab C

F C# D# F# F# F



G Bb A C# D B C E D# F# F A Bb G Ab C B C# F F# D# E Ab G Bb

F F# D# E C B D C# Bb G Ab E D# F# F C# D B C G Bb A F F#

E D# F# F A Bb G Ab C B D C# F F# D# E Ab G Bb A C# D B C

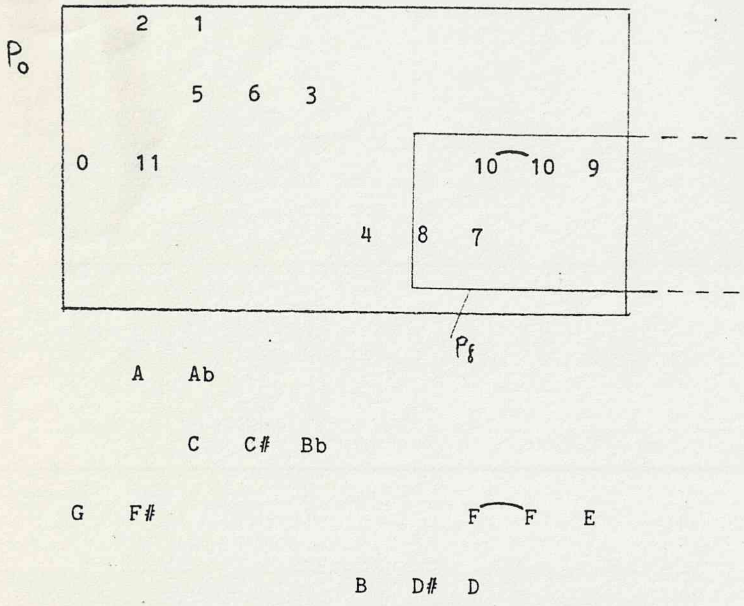
C# D B Ab G Bb A F F# D# E C B D C# A Bb Ab E D# F# F C#

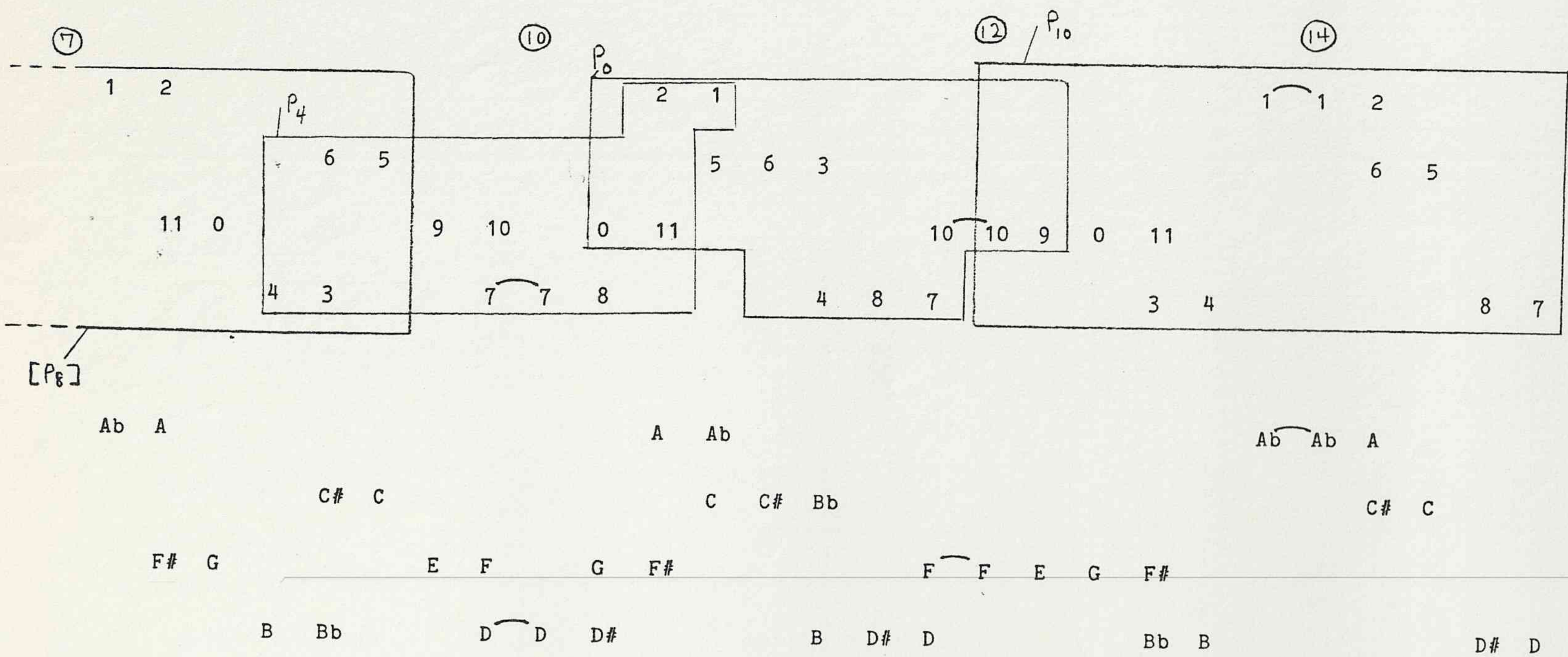
BARS 50B-53 (SECOND ENDING)

P5		1	0	3	2			
R(P0)	2		10	11	8	9		
	7	4	5		9	8	11	10
P1	11	10		6	7	4	5	
R(P5)								

	Ab	G	Bb	A			
A		F	F#	D#	E		
D	B	C		E	D#	F#	F
F#	F		C#	D	B	C	

Webern, String Quartet, Op. 28, I, bars 1-15





Webern, String Quartet, Op. 28

Row Matrix

I

P R

RI

	G	F#	A	Ab	C	C#	Bb	B	D#	D	F	E	
G	0	11	2	1	5	6	3	4	8	7	10	9	E
Ab	1	0	3	2	6	7	4	5	9	8	11	10	F
F	10	9	0	11	3	4	1	2	6	5	8	7	D
F#	11	10	1	0	4	5	2	3	7	6	9	8	D#
D	7	6	9	8	0	1	10	11	3	2	5	4	B
C#	6	5	8	7	11	0	9	10	2	1	4	3	Bb
E	9	8	11	10	2	3	0	1	5	4	7	6	C#
D#	8	7	10	9	1	2	11	0	4	3	6	5	C
B	4	3	6	5	9	10	7	8	0	11	2	1	Ab
C	5	4	7	6	10	11	8	9	1	0	3	2	A
A	2	1	4	3	7	8	5	6	10	9	0	11	F#
Bb	3	2	5	4	8	9	6	7	11	10	1	0	G
	Bb	A	C	B	D#	E	C#	D	F#	F	Ab	G	

The hexachord is 6-5 (I-combinatorial for 1 value of t). However, as is always the case with Webern, the combinatorial property is not utilized in the composition. Instead, the tetrachordal organization of the row is the primary determinant of row association, as discussed below.

Note also that other abstract structural features of the row are irrelevant to the analysis of the work--for example, the fact that each of the four 9-element linear segments of the row is of the same set class, namely, 9-2.

The row is of the 'derived' type. For any 'prime' form, let A, B, and C designate the successive disjunct tetrachords. Then,

B = T(I(A),5)
C = T(I(B),1) or T(I(B),3) about axis pc 5
C = T(A,8) as well (obviously)

Each disjunct linear tetrachord is of class 4-1, the chromatic tetrachord, one ordering of which is the B-A-C-H motto of which so much has been made.

Because of this tetrachordal segmentation of the row and the symmetrical nature of the single class of disjunct linear tetrachord represented in the row (the 'chromatic' tetrachord, 4-1), there is considerable redundancy of pitch material. This redundancy is exploited in the composing out of the row, for the duplications provide the basis for row-form association.

Analysis of the row matrix reveals the following tetrachordal structure. In the diagram below, numbers are assigned to the 12 discrete chromatic tetrachords (discrete in terms of unordered pc content) that comprise the first four rows of the matrix. The remaining tetrachords are then shown either as P(t), where t is some tetrachord, or R(t). Note that each of the 'basic' tetrachords in rows 1 through 4 has two images in the remaining rows, either one P-image (prime ordering) and one R-image, or two R-images, but not two P-images.

A	1	2	3
B	4	5	6
C	7	8	9
D	10	11	12
D^1	P(12)	R(10)	R(11)
C^1	P(9)	R(7)	R(8)
B^1	P(6)	R(4)	R(5)
A^1	P(3)	R(1)	R(2)
A^2	R(2)	R(3)	P(1)
B^2	R(5)	R(6)	P(4)
C^2	R(8)	R(9)	P(7)
D^2	R(11)	R(12)	P(10)

Each of the rows from 5 through 12 represents a reordering of the tetrachords of one of the first four rows. These correspondences form the patterns shown above by superscripted upper case letters. The reorderings are circular permutations:

Rows with superscript 1 map the tetrachordal components this way:

A B C
C A B

Rows with superscript 2 map the tetrachordal components this way:

A B C
B C A

In both cases the reordering leaves no tetrachord in its original position.

In accord with the analysis of the row matrix above (Fig. 1), each row form can be associated with two other row forms on the basis of equivalence of the pc content of their constituent tetrachords. Thus:

P_0 P_8 P_4

P_1 P_9 P_5

P_{11} P_7 P_3

[Or, more generally, any Pi associates with any Pj if i-j=4 or if i-j=8. Note that 4 and 8 are inverse related and that the values of t for the associated row forms constitute an 'augmented triad'.]

The relation between P and I forms is as follows:

(i) $Pi,A = R(I_{i+9}),A$ = means ordered pc equivalence; A is first tet

Row form redundancy, general:

All inversions and retrograde inversions are redundant with respect to prime and retrograde forms. Specifically,

For all inverted forms I of the row,

$$Ii = R(Pi+3) \quad [\text{modulo } 12]$$

For all retrogrades of inverted row forms R(I),

$$R(Ii) = Pi+3 \quad [\text{modulo } 12]$$

Thus, there are only 24 distinct row forms in this instance.

Because of this tetrachordal segmentation of the row and the symmetrical nature of the single class of tetrachord represented in the row (the 'chromatic' tetrachord, 4-1), there is considerable redundancy of pitch material, duplications which, in fact, provide the basis for row form association.

Analysis of the row matrix reveals the following tetrachordal structure. In the diagram below, numbers are assigned to the 12 discrete tetrachords (discrete in terms of unordered pc content) that comprise the first four rows of the matrix. The remaining tetrachords are then shown either as P(t), where t is some tetrachord, or R(t). Note that each of the 'basic' tetrachords in rows 1 through 4 has two images in the remaining rows, either one P-image (prime ordering) and one R-image, or two R-images, but not two P-images.

P0	A	1	2	3
1	B	4	5	6
10	C	7	8	9
11	D	10	11	12
7	D^1	P(12)	R(10)	R(11)
6	C^1	P(9)	R(7)	R(8)
9	B^1	P(6)	R(4)	R(5)
8	A^1	P(3)	R(1)	R(2)
4	A^2	R(2)	R(3)	P(1)
5	B^2	R(5)	R(6)	P(4)
2	C^2	R(8)	R(9)	P(7)
3	D^2	R(11)	R(12)	P(10)

Each of the rows from 5 through 12 represents a reordering of the tetrachords of one of the first four rows. These correspondences form the patterns shown above by superscripted upper case letters. The reorderings are circular permutations:

rows with superscript 1 map the tetrachordal components this way:

A B C
C A B