

Andrew Mead, "Large-Scale Strategy in Arnold Schoenberg's Twelve-Tone Music,"
Perspectives of New Music, Vol. 24, No. 1 (1985), pp. 120-157.

MAIN POINTS:

- Twelve-Tone Method allowed Schoenberg to develop local and long-range connections
- Compositions contain "Nexus" passage near end where methods culminate
- Multiple associations for pitches (can be included in multiple rows, segments, partitions)
- Invariance relationships between rows
- Pitch-classes sets derived via segments or partitions
- Pitch-classes map to order numbers (ISOMORPHISM)

TYPES OF INVARIANCE:

Segmental invariance (typically inversionally combinatorial)

see Fig. 1 examples

- a) Hexachordal
- b) Tetrachordal
- c) Trichordal
- d) Irregular

Non-segmental invariance [i.e. Partitional invariance]

see Fig. 2 examples

- a) At a given collection of order numbers
- b) One pitch-class collections remains at a collection of order numbers; other two exchange
- c) Pairs of pitch-class collections are derived in different ways
- d) Segment extracted as a partition

Invariance involving combinatorial pair(s) of rows

see Fig. 3 examples

- a) Tetrachordal dyad-pairs shared by different pairs of inversionally combinatorial rows
- b) Tetrachordal dyad-pair in pair of invers. combinatorial rows shared by another row's segment

SEGMENTAL

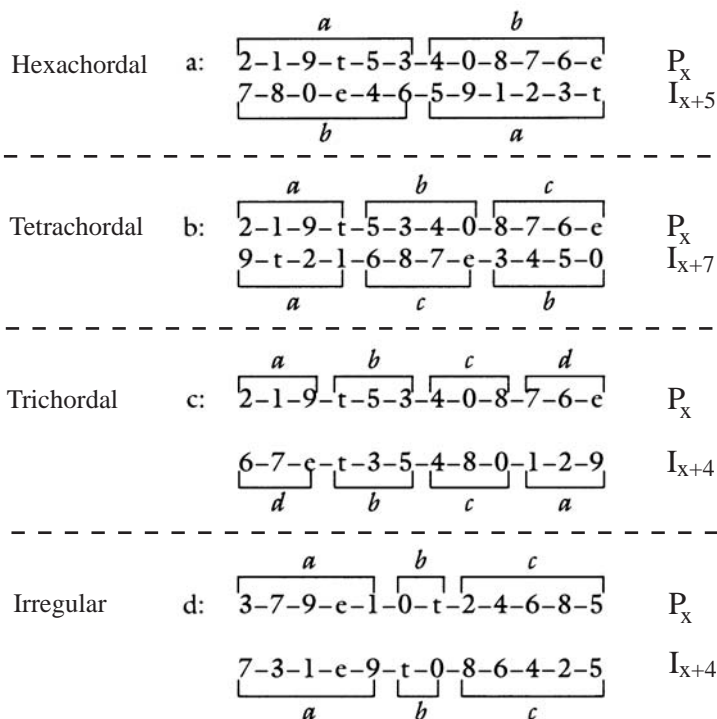


FIGURE 1

NON-SEGMENTAL (partitional)

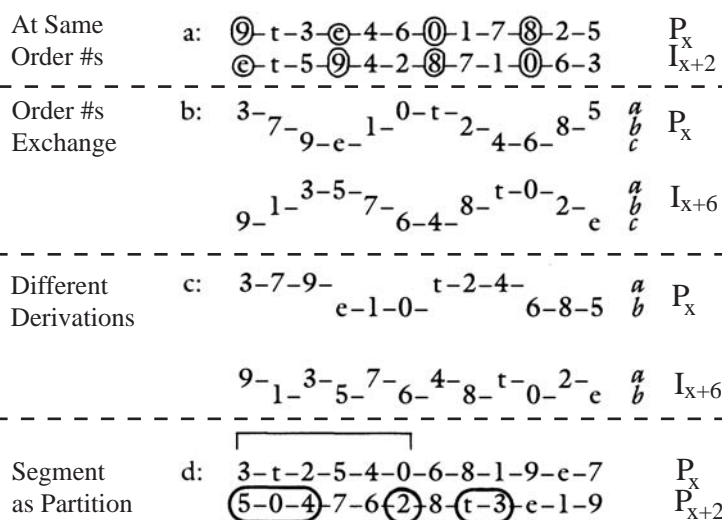


FIGURE 2

ROW PAIRS

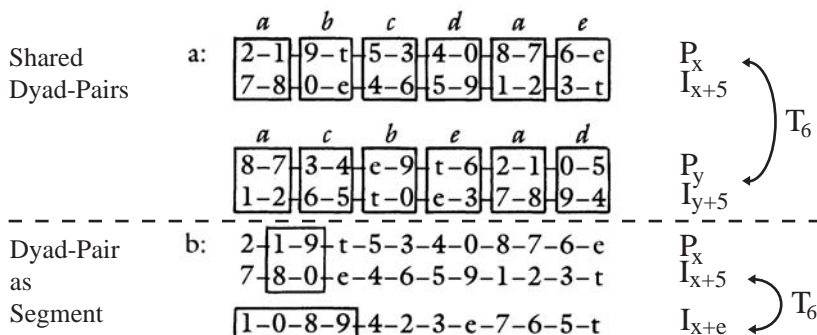


FIGURE 3

Schoenberg, *WIND QUINTET*, op. 26, mvmt. 3

FORM	MEASURE #s	ROW PAIRS (plus retros)	SEGMENTAL INVARIANCE	SCHEME
A	mm. 1-32	T ₃ , I ₃ , I ₈	Tetrachordal, Irregular	hexachordal partitioning
B	mm. 33-52	I ₉ , I ₂	Irregular	rotational
transition	mm. 53-81	T ₃ , I ₃ , I ₈ , T ₉	Hexachordal, Tetrachordal, Irregular	alternate trichordal partitioning
A'	mm. 82-103	T ₃ , I ₃ , I ₈	Tetrachordal, Irregular	hexachordal partitioning
Coda	mm. 104-141	T ₃ , I ₃ , I ₈	Tetrachordal, Irregular	all of the above

NEXUS: mm. 114-121

ROWS:

op	{ 0 1 2 3 4 5 6 7 8 9 t e }
T ₃ =	< 3 7 9 e 1 0 t 2 4 6 8 5 >
I ₃ =	< 3 e 9 7 5 6 8 4 2 0 t 1 >
I ₂ =	< 2 t 8 6 4 5 7 3 1 e 9 0 >
T ₉ =	< 9 1 3 5 7 6 4 8 t 0 2 e >
I ₉ =	< 9 5 3 1 e 0 2 t 8 6 4 7 >
I ₈ =	< 8 4 2 0 t e 1 9 7 5 3 6 >

SEGMENTAL INVARIANCE:

Hexachordal: T_x & I_{x-1}

Tetrachordal: T_x & I_x

Irregular: I_x & I_{x+5} (hexachord + trichord)
T_x & I_{x+5} (dyad flops)

SCHEMES:

Hexachordal partitioning (via tetrachords)

e.g.: {0,5,6,e} {1,4,7,t} {2,3,8,9}

Rotational

e.g.: I₂r₃, I₂r₉, I₂r₅, I₂r_e = [012346]

Alternate-trichord partitioning

e.g. <379> <e10> <t24> <685>

Schoenberg WIND QUINTET, op. 26, mvmt. 3

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Etwas langsam (Poco Adagio) $\text{♩} = 82$

EXAMPLE 3: *Wind Quintet Op. 26* (THIRD MOVEMENT)

EXAMPLE 6

Tempo II ($\text{♩} = 66$)

Kl	Ob
T ₃ ,re: 7 9 e	RT ₃ ,re: 8 6 4
1 0 t	2 t 0
Fg.	Hr.
2 4 6	7 3 (5)
8 5 (3)	(Fg.)
(Fl.)	

EXAMPLE 7

Schoenberg, VIOLIN CONCERTO, op. 36, mvmt. 1

FORM	MEASURE #s	ROW PAIRS (incl. I_{x+5} & retros)	SCHEME
A	mm. 1-92	$T_x @ x = 0,1,2,4,6,9$ I_1 alone	Combinatorial Family, Dyad emphasis, Partition Schemes
B	mm. 93-161	$T_x @ x = 1,4,5$	Combinatorial Family, Dyad emphasis
A'	mm. 162-232	$T_x @ x = 0,2,3,6,7,9$	Dyad emphasis, Order # Invariance, Rotation
Cadenza	m. 233	$T_x @ x = 0,3,8$	Dyad pairs (Tetrachordal invariance), Trichordal Invariance, Order # Invariance
Coda	mm. 234+	$T_x @ x = 2,5,8,9,e$	Hexachordally Combinatorial, Order # emphasis

EX. ROWS:

op	{ 0 1 2 3 4 5 6 7 8 9 t e }	op	{ 0 1 2 3 4 5 6 7 8 9 t e }
$T_9 =$	< 9 t 3 e 4 6 0 1 7 8 2 5 >	$T_3 =$	< 3 4 9 5 t 0 6 7 1 2 8 e >
$I_2 =$	< 2 1 8 0 7 5 e t 4 3 9 6 >	$I_8 =$	< 8 7 2 6 1 e 5 4 t 9 3 0 >
$T_1 =$	< 1 2 7 3 8 t 4 5 e 0 6 9 >	$T_7 =$	< 7 8 1 9 2 4 t e 5 6 0 3 >
$I_6 =$	< 6 5 0 4 e 9 3 2 8 7 1 t >	$I_0 =$	< 0 e 6 t 5 3 9 8 2 1 7 4 >
$T_5 =$	< 5 6 e 7 0 2 8 9 3 4 t 1 >	$T_8 =$	< 8 9 2 t 3 5 e 0 6 7 1 4 >
$I_t =$	< t 9 4 8 3 1 7 6 0 e 5 2 >	$I_1 =$	< 1 0 7 e 6 4 t 9 3 2 8 5 >

SEGMENTAL INVARIANCE:Hexachordal: T_x & I_{x+5} Trichordal: T_x & I_{x+4} **NON-SEGMENTAL INVARIANCE:**End Dyads: T_x & I_{x+1} **ROW-PAIR INVARIANCE:**Dyad Pairs: T_x/I_{x+5} & T_y/I_{y+5} where $y = x+6$ (i.e. row pairs separated by T_6)End Dyads with emphasis: T_x/I_{x+5} & T_y/I_{y+5} & T_z/I_{z+5}
where $z = y+4 = x+8$ (i.e. row pairs separated by T_4)**PARTITION SCHEMES:**Order Number Partitions: {0,1,6,7} & {0,3,6,9} $T/I = [0134]$; $R/RI = [0124]$

{0,1,3,6,7,t} / {2,4,5,8,9,e} 2 chromatic hexachords

EXAMPLE LINKS:

T_4 (m. 61)	I_7 (m. 68)	Emphasis @ order #s
T_9 (m. 1)	T_1 (m. 47)	End-dyads w/emphasis
T_9 (m. 1, start of A)	T_5 (m. 93, start of B)	End-dyads w/emphasis
T_4 (m. 138, end of B)	T_0 (m. 162, start of A')	End-dyads w/emphasis
T_9 (m. 1, start of A)	T_3 (m. 188, violin's return in A')	Dyad Pairs
T_0 (m. 162, start of A')	T_8 (m. 234, start of Coda/Nexus)	End-dyads w/emphasis

SCHOENBERG, VIOLIN CONCERTO, op. 36, mvmt. 1

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Example 9 musical score showing measures 1-20. Includes Violin (Vn) and Orchestral (Orch) parts.

EXAMPLE 9

Example 9 (CONT.) musical score showing measures 24-52. Includes Violin (Vn) accompaniment, tutti (senza violini), and solo parts.

EXAMPLE 9 (CONT.)

Example 11 musical score showing measures 61-66. Includes Harp (H) arco and Violin (Vn) parts.

$T_9 I: \underline{9} \underline{8} \underline{3} \underline{7} \underline{2} \underline{0} \underline{6} \underline{5} \underline{e} \underline{t} \underline{4} \underline{1}$
 $T_4: \underline{4} \underline{5} \underline{t} \underline{6} \underline{e} \underline{1} \underline{7} \underline{8} \underline{2} \underline{3} \underline{9} \underline{0}$ → $T_7 I$

EXAMPLE 11

Example 12 musical score showing measures 1-8. Includes Violin (Vn) and Orchestral (Orch) parts.

$T_9: 9 \underline{t} \quad 0 \underline{1} \quad T_2 I: 2 \underline{1} \quad \underline{e} \underline{t}$
 $3 \underline{e} \underline{4} \underline{6} \quad 7 \underline{8} \underline{2} \underline{5} \quad 8 \underline{0} \underline{7} \underline{5} \quad 4 \underline{3} \underline{9} \underline{6}$

EXAMPLE 12

Example 13 musical score showing measures 89-90. Includes Harp (H) and Violin (Vn) parts.

$T_2: 2 \underline{3} \underline{8} \underline{4} \underline{9} \underline{c} \underline{5} \underline{6} \underline{0} \underline{1} \underline{7} \underline{t}$
 $T_1 I: 7 \underline{6} \underline{1} \underline{5} \underline{0} \underline{t} \underline{4} \underline{3} \underline{9} \underline{8} \underline{2} \underline{c}$

Example 14 musical score showing the Cadenza section. Includes Violin (Vn) part.

$T_2: 8 \underline{9} \underline{2} \underline{t} \underline{3} \underline{5} \underline{c} \underline{0} \underline{6} \underline{7} \underline{1} \underline{4}$
 $T_1 I: 1 \underline{0} \underline{7} \underline{c} \underline{6} \underline{4} \underline{t} \underline{9} \underline{3} \underline{2} \underline{8} \underline{5}$

Example 16 musical score showing measures 234-235. Includes Violin (Vn) and Orchestral (Orch) parts.

EXAMPLE 16