

*Example of complements p. 9*

Tristan chord in Tristan  
The Octatonic "network"

F<sub>hd</sub>7: [3,5,8,11]

D7: [6,9,0,2] complement of T-chord w/r 8-28 T<sub>5</sub>I

Transpositions  
by ordered CII:

Transpositions  
by complementation (inversion): ordered CII

2 4 7 10 CI Ehd7	5 8 11 1 CI Db7	
0 2 5 8 CII Dh7	3 6 9 11 CII B7	= 8-28 cII
11 1 4 7 CI C#hd7	2 5 8 10 CI Bb7	
9 11 2 5 CII Bh7	0 3 6 8 CII Ab7	
8 10 1 4 CI A#hd7	11 2 5 7 CI G7	
6 8 11 2 CII G#hd7	9 0 3 5 CII F7	
5 7 10 1 CI Gh7	8 11 2 4 CI E7	
3 5 8 11 CII Fhd7 T-chd <del>6</del>	6 9 0 2 CII D7	= 8-28 cII p. 140, 3rd system

For the "V7" inversions, the successive transposition series (ascending) is:  
t = 5, t = 9, t = 11, t = 3 (4-25)

The remaining four transpositions of the T-chord and their complements  
form CIII:

10 0 3 6	1 4 7 9	A7
7 9 0 3	10 1 4 6	F#7
4 6 9 0	7 10 1 3	Eb7
1 3 6 9	4 7 10 0	C7

N.B. Debussy's use of inversion of T-chord: G7 CI

Sonorities formed by combining 4-27 in its 'prime' form with each of the transpositions of its inverted form

The 'prime' form is 0,2,5,8. In the table below, it is combined first with its  $T_0I$  transformation. That form is then transposed by successive values  $t=1$  (by ascending half-step) and the resulting set-class name is given in the rightmost column.

4	7	10	0	7-34 ('diatonia seconda')
5	8	11	1	6-z42 complement of octa 6-z13
6	9	0	2	6-z49 CII Afternoon of a Faun
7	10	1	3	8-23 hyper-diatonic octad
8	11	2	4	6-z28 complement of 6-z49
9	0	3	5	6-z50 CII complement of 6-z29
10	1	4	6	8-24 Berg's <i>Wozzeck</i>
11	2	5	7	6-z29 complement of 6-z50
0	3	6	8	6-z23 CII complement of 6-z45
1	4	7	9	8-20
2	5	8	10	5-34 Debussy hallmark
3	6	9	11	8-28 CII (complete octatonic)

Genera matrix: 7-31 (octa), 7-32 (harmonic minor), 7-21 ("hexatonic"), 7-34 ("diatonia secunda")

	G1	G2	G3	G4	G6	G7	G8	G9	G10	G11	G12	
7-21				o			o	o	o			4
7-31	o	o	o		o	o		o			o	7
7-32	o	o	o					o			o	5
7-34		o	o							o	o	5
Counts:	2	3	3	1	1	1	1	3	1	1	3	

	G1	G2	G3	G4	G6	G7	G8	G9	G10	G11	G12
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Squo Indices in Descending Order with Genera

- .243: G9 (atonal-tonal)
- .222: G3 (diminished), G12 (dia-tonal)
- .153: G2 (whole-tone)
- .151: G4 (augmented)
- .114: G11 (dia)
- .105: G1 (atonal)
- .081: G8 (atonal), G10 (atonal-tonal)
- .074: G6 (semichroma), G7 (chroma-dia)

Comments:

G2, G3, and G12 are identical w/r set membership. G1 and G11 are subcolumns of G2, G3, and G12. G4, G6, and G7 are subcolumns of G9. Thus, the reduced matrix consists of G3 or G12, based upon Squo, and G9. Since 7-31 has the largest spread, it can be interpreted as the "most important" septad.

TRANSPOSITIONS OF PAIRS OF 4-27 IN THE V7 FORM

Note symmetrical arrangement, with 6-30 at the fulcrum.

(Inverse-related values of  $t$  produce members of the same set class.) Combinations of two 'half-diminished sevenths' will produce the same results.

Basic form of 4-27 (arbitrary):  $\{0,3,6,8\}$

$t = 1$

8-18:  $\{0,1,3,4,6,7,8,9\}$

$t = 2$

7-34:  $\{2,3,5,6,8,10,0\}$

$t = 3$

\* 6-27:  $\{3,6,8,9,11,0\}$  Coll. II

$t = 4$

7-26:  $\{3,4,6,7,8,10,0\}$

$t = 5$

7-29:  $\{11,0,1,3,5,6,8\}$

$t = 6$

\* 6-30:  $\{0,2,3,6,8,9\}$  Coll. II

$t = 7$

7-29:  $\{6,7,8,10,0,1,3\}$

$t = 8$

7-26:  $\{11,0,2,3,4,6,8\}$

$t = 9$

\* 6-27:  $\{0,3,5,6,8,9\}$  Coll. II

$t = 10$

7-34:  $\{0,1,3,4,6,8,10\}$

$t = 11$

8-18:  $\{11,0,2,3,5,6,7,8\}$



Passing  
Octatonic Reading / Prelude's beginning  
Polychords: CI/CI

SEESAMI LINDBER  
ANALYSIS ARTICLE -  
Projection of 4-27 &  
Sketch in Body

3-2: [8, 10, 11] CI

4-27 3-2: [2, 3, 5] CI

4-18: [4, 5, 8, 11] CI

4-27 CI

① CI

4-27 [3, 5, 8, 11] CI

③ has 10

all of CI (passing E)

② CI

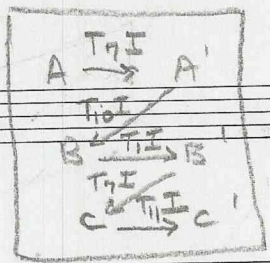
6-30 [2, 4, 5, 8, 10, 11] (1, 7)

④ has 16

5-10 [5, 6, 8, 9, 11]

T<sub>3</sub>I

6-30: [2, 3, 5, 8, 9, 11] (6, 0)



T<sub>10</sub>I → T<sub>11</sub>I = T<sub>11</sub>I

A B C  
B C A  
C A B

C<sub>7</sub> - 2 - C<sub>7</sub> - 1

Liebestud

2-cho  
↓

7-31 CI

4-10 CI

4-3 CI

4-10 CI

5-32  
CII

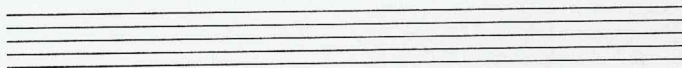
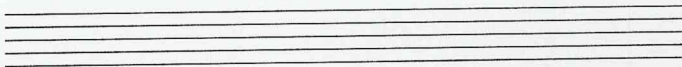
CII 7-31: [6, 7, 9, 10, 11, 3] (4)

5-25: [3, 5, 6, 8, 10]

CII

Tristan  
Octa Passage

1. p. 5 staff 5
2. p. 7 top staff



Tristan p.v. score, p.263, bottom staff.

The image shows a handwritten musical score for the bottom staff of Tristan p.v. score, p.263. The score is written on two staves of music. The top staff begins with a treble clef, a key signature of one flat (B-flat), and a 2/2 time signature. The music consists of a series of chords and melodic lines. Handwritten annotations include "T=chd" with a bracket under the first few measures, "8-28 CI" with a bracket under measures 8-28, and "8-28 CII" with a bracket under measures 8-28. The bottom staff continues the music with similar annotations: "8-28 CII" with a bracket under measures 8-28, "9-31 CI" with a bracket under measures 9-31, and "5-31 CIII" with a bracket under measures 5-31. The score includes various musical notations such as notes, rests, and accidentals.

Naive Voice-Leading Derivatives of 4-27

0 2 5 8 4-27  
 11 2 5 8 4-28  
 1 2 5 8 4-18  
 0 1 5 8 4-20  
 0 3 5 8 4-26  
 0 2 4 8 4-24  
 0 2 6 8 4-25  
 0 2 5 7 4-23  
 0 2 5 9 4-26

N.B. 4-26 twice

Genera Matrix for Voice-Leading Derivatives of 4-27

	G1	G2	G3	G4	G9	G10	G11	G12
4-18	o		o		o			
4-20						o		
4-23							o	
4-24		o		o				
4-25		o						
4-26								o
4-27		o	o					o
4-28			o					

Counts: 1 3 3 1 1 1 1 2

Squo Indices in Descending Order with Genera

.099: G3 (diminished)  
 .071: G4 (augmented)  
 .066: G2 (whole-tone)  
 .063: G12 (dia-tonal)  
 .049: G11 (dia)  
 .034: G9 (atonal-tonal), G10 (atonal-tonal)  
 .022: G1 (atonal)







35 'SEMacht' '6-prg.'

43

45 [m.25]  $\Delta T_{10}$

expansion

arp

arp: a-b-d

N.B. Tritones

T<sub>6</sub>

$\Delta T_{10}$

$\Delta T_{11}$  (b8d11m)

5-3

$\Delta T_{11}$

$\Delta(T_2)$

10- -10-

D# m.29

[see m.52] 4-24 4-25 4-26

48 [m.29]  $\epsilon_0$  g#4 m.56 [parallel ends] 54 [m.17: t=47] 56 [m.17 59]  $\Delta T_3$   $\Delta T_{10}$  pc3inua

overlap

$\lambda+$

$\Delta T_{10}$

4-24 as in m.36

$\alpha+$

arp: a'-c'-e'

I-

Bass: mm. 48-57

$\alpha+$

$\Delta T_{10}$

= T<sub>7</sub> of first linear projection







86  
[8/16]  $\epsilon^b$   $\Delta_{T_0}$   $-ab$   $\textcircled{87}$   $=m2$   $ab/g\#$   $b$   $N.B.! \epsilon^7$  in  $m2$   $\Delta'IT_7$   $\textcircled{89}$   $\downarrow$  beginning of concert ending  $\textcircled{m.12}$   $Sekusucht$  motivi  $? \Delta_{T_{10}}$

95  $\Delta_{T_0}$   $t$   $\Delta$   $\Delta_{T_3} = m.6$   $\Delta_{T_6}$   $\textcircled{101}$   $\Delta_{T_4}(\epsilon^b)$   $\Delta_{T_0}$   $\textcircled{109}$   $\Delta_{T_3}$   $\Delta_{T_0}$   $\Delta_{T_3}(IT_1) \Delta'IT$   $\Delta_{T_0}$  same ordering as mm. 99-103, discont (4-19)



Examples

Forms of  $\Delta$

6-2-4-2: [2, 3, 4, 5, 8, 11]

N. B. Wagner sketched  
of intervals - see Balen's transcription

ORDERED INVERSION	"Reordering"
$\begin{matrix} \# \\ \# \\ \# \\ \# \\ \# \\ \# \\ \# \\ \# \end{matrix}$	$\begin{matrix} \# \\ \# \\ \# \\ \# \\ \# \\ \# \\ \# \\ \# \end{matrix}$
$\begin{matrix} \circ \\ \circ \\ \circ \\ \circ \\ \circ \\ \circ \\ \circ \\ \circ \end{matrix}$	$\begin{matrix} \circ \\ \circ \\ \circ \\ \circ \\ \circ \\ \circ \\ \circ \\ \circ \end{matrix}$
$\begin{matrix} 8 & 11 \\ 3 & 4 \\ 11 & 8 \\ 5 & 2 \end{matrix}$	$\begin{matrix} 8 & 11 \\ 3 & 2 \\ 11 & 8 \\ 5 & 4 \end{matrix}$

EX. 9  
display  
notation  
in a table  
[not necessarily picture]  
B

4-18 includes? includes?

5 3  
4 4  
6 4

5 4 6

II<sub>10</sub>  
3 3 4

4-5-3

unfolding: a2-c#1

2-5-3

3-3-4

3-3-4 even

6a

EX. 10

4-5-3  
345 from notation of  $\Delta$

in notation

Cyclic notation (0123)

(9) 3  
5 = 5 = bip 345  
4 4

3 3 2

6b

3-3-4 as in B even

2-5-3  
235 also even

see complete sketch  
no, not unfolding

? f<sup>b</sup> - b<sup>2</sup>

6c

2-3-3

b.25 ("Love philtre")

Includes =

2-5-3

second  
retrograde of intervals  
from in D

2 3 5 = 235

6d

2-3-3

Retrograde image  
3-3-2 odd 4-18

Desire

include in text as intro  
to consideration  
of order in Lewis  
response

Refer to Lewis, Invariant Order?

6e

5 2 6

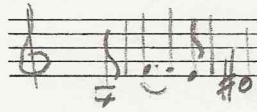


Albert Lavignac, Le Voyage artistique à Bayreuth, Paris, 1897

Leitmotives in the Prelude - based upon reappearances in Act I

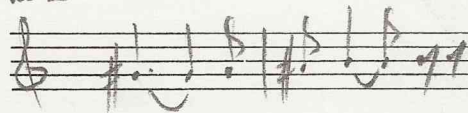
m. 1 Confession of Love

[4-52]



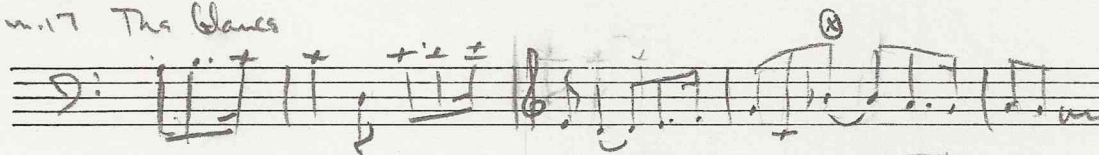
m. 2 Desire

[3-17]

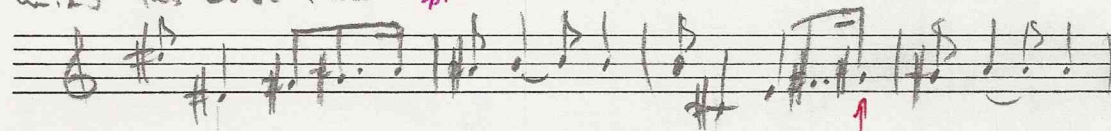


m. 17 The Glances

4-10 / 5-22

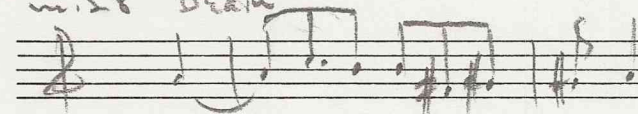


m. 25 The Love Philtre \*



N.B.

m. 28 Death



m. 36 Magic Castrol



m. 63 Deliverance by Death

becomes delta in final statement.



4-7

\* Love



$\Delta$   $\Delta'$

IT<sub>0</sub> inv. 3, 6, 9 (3-10)

3-11 3-8 3-7 3-10

Handwritten musical notation on a single staff. It features several chord diagrams with fingerings. The first diagram has fingerings 8, 5, 2, 11. The second diagram has fingerings 3-11, 3-8, 3-7, 3-10. The notation includes stems and dots representing notes on the staff.

Handwritten musical notation on a single staff, including a chord diagram with fingerings 2 and 11. The notation includes stems and dots representing notes on the staff.

Handwritten musical notation on two staves. The top staff is in treble clef and the bottom staff is in bass clef. A slur connects the two staves. The word "invariant" is written below the slur. The notation includes stems, dots, and a circled "t=7" below the first measure.

Handwritten musical notation on two staves. The notation consists of vertical stems with dots, possibly representing a specific musical structure or a simplified notation.

EXAMPLE

(A) with sequences maintained:  $t=3$

(B) w/ seq. change ↑

$t=3$        $t=6$        $t=3$       8-18

$t=3$        $t=6$       ↑ arranged (voiced) as in final version

8 forms 4-17:  
(only 2 in present)

To Do: VOICE-LEADINGS FROM  $\Delta$   
 $t \rightarrow \Delta'$   
 $t \rightarrow 4-26$   
 $t \rightarrow 4-25$

(bb)      (B)



# Inversions of A about each pc on 'axis'

7 10 1 3 5 8 11  
3

7 10 1 3  
 8 11 2 4 IT<sub>1</sub>

→ 7 11 2 5 8 11 3  
5

~~7 11 2 5~~  
 7 11 2 5  
 4 8 11 2 IT<sub>9</sub>  
 11 1 5 8 IT<sub>3</sub>  
 2 4 8 11

11 1 5 8 11 3 5  
8

~~2 3 7 11~~  
 2 3 7 11 IT<sub>9</sub>  
 11 2 4 8

→ 2 5 7 11 3 5 8  
11

Same result inverting about  
 tritars axis yes !!

~~10 1 4 6~~  
~~10 1 4 6~~  
 6 8 11 2

10 1 4 6  
 7 11 3 5 7  
 6 8 11 2  
 2 5 8

85811  
 11858  
 -----  
 9741

Theoretical aspects

Harmonic and intervallic  
superstructures





~~3 5 8 11~~

3 5 8 11

$T_3$   $\left( \begin{array}{cccc} 3 & 5 & 8 & 11 \\ 6 & 8 & 11 & 2 \\ 1 & 3 & 6 & 9 \end{array} \right) T_7$

# Supplementary sketches

Y

Handwritten musical notation on two staves. The top staff is in treble clef and the bottom in bass clef. The music consists of several notes with stems and beams. Above the top staff, there are annotations:  $4-27$  above the first measure,  $4-27 t=7$  above the second measure, and  $\beta$  above the first measure,  $\alpha$  above the second measure, and  $e b$  above the third measure. A large bracket spans the first two measures.

Handwritten notes in a large oval:  $m. 64, 69, 71$   
where?

Below this, a circled musical sketch on a single staff shows a sequence of notes:  $\sharp$ ,  $\dots$ ,  $\sharp$ .

Handwritten musical notation on two staves. The top staff is in treble clef and the bottom in bass clef. The music consists of several notes with stems and beams. Above the top staff, there is an annotation:  $t=3$  above the first measure.



S. Hepling

to 19th c. file

Tristan, Einleitung, opening

mark Leitmotiven

N.B.: A-D# axis

arp.: T-chord (m. 11)

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20

V V/c V/V "VI"

10 6 6 10

10 6 6 10

unfolding A-C#

D.tr.

C# F# D#

4-2 4-2 IT.

22 23 24 25 26 27 28 29

coupling: d#1-c#2

M

10 10 10 10

b6 b3 4-#3 7-6 4/3 (2) 6 7 #6 #4 #3 (T) 6 7 #7 4

repeats lines from m. 11-23

tritone axis

3 8

9 2