



MTO 19.1 Examples: Argentino, Tripartite Structures in *A Survivor from Warsaw*

(Note: audio, video, and other interactive examples are only available online)

<http://www.mtosmt.org/issues/mto.13.19.1/mto.13.19.1.argentino.php>

Example 1. Text of Schoenberg's *A Survivor from Warsaw*

measures 1–24

I cannot remember ev'rything. I must have been unconscious most of the time. I remember only the grandiose moment when they all started to sing, as if prearranged, the old prayer they had neglected for so many years—the forgotten creed! But I have no recollection how I got underground to live in the sewers of Warsaw for so long a time.

measures 25–31

The day began as usual: Reveille when it still was dark. Get out! Whether you slept or whether worries kept you awake the whole night. You had been separated from your children, from your wife, from your parents. You don't know what happened to them ... how could you sleep?

measures 32–53

The trumpets again. Get out! The sergeant will be furious! They came out; some very slow: the old ones, the sick ones; some with nervous agility. They fear the sergeant. They hurry as much as they can. In vain! Much too much noise, much too much commotion! And not fast enough! The Feldwebel shouts! »Achtung! Stilljstanden! Na wird's mal? Oder soll ich mit dem Gewehrkolben nachhelfen? Na gut, wenn ihr's durchaus haben wollt!«[†] The sergeant and his subordinates hit everybody: young or old, quiet or nervous, guilty or innocent... it was painful to hear them groaning and moaning. I heard it though I had been hit very hard, so hard that I could not help falling down. We all on the ground who could not stand up were then beaten over the head...

measures 54–64

I must have been unconscious. The next thing I heard was a soldier saying: »They are all dead«, whereupon the sergeant ordered to do away with us. Then I lay aside—half-conscious. It had become very still—fear and pain. Then I heard the sergeant shouting: »Abzählen!«^{††}

measures 64–70

They started slowly and irregularly: one, two, three, four; »Achtung!« the sergeant shouted again, »Rascher! Nochmal von vorn anfangen! In einer Minute will ich wissen wieviele ich zur Gaskammer abliefern! Abzählen!«^{†††}

measures 71–80

They began again; first slowly: one, two, three, four, became faster and faster, so fast that it finally sounded like a stampede of wild horses, and all of a sudden, in the middle of it, they began singing the *Shema Yisroel*.

measures 81–99 (English Translation)

⁴Hear, O Israel! The Lord is our God, the Lord is One. ⁵You shall love the Lord your God with all your heart and with all your soul and with all your might. ⁶Take to heart these instructions with which I charge you this day. ⁷Impress them upon your children. Recite them when you stay at home and when you are away, when you lie down and when you get up. (Deuteronomy 6:4–7)

[†] “Stand at attention! Hurry up! Or do you want to feel the butt of my gun? Okay, you've asked for it!”

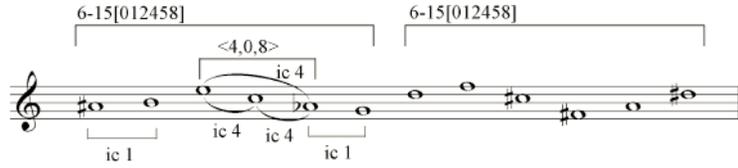
^{††} “Count off!”

^{†††} “Quicker! Start again! In a minute I want to know how many I'm going to deliver to the gas chamber! Count off!”

Example 2a-f. Tripartite text descriptions

- Whether you slept or whether worries kept you awake the whole night: you had been separated from your **children**, from your **wife**, from your **parents**, you don't know what happened to them; How could you sleep?
- The sergeant and his subordinates hit everyone: **young or old, strong or sick, guilty or innocent**
- You shall love the Lord thy God with all thy **heart** and with all thy **soul** and with all your **might**.
- I remember only the grandiose moment when they all started to sing, as if prearranged, the **old prayer** they had neglected for so many years - **the forgotten creed!** ... they began singing the *Shema Yisroel*.
- Hear, O Israel! **The Lord is our God, the Lord is One**. You shall love the **Lord your God** with all your heart and with your soul and with all your might.
- They came out; some very **slow** ... They started **slowly**, and irregularly ... They began again, first **slowly** ...

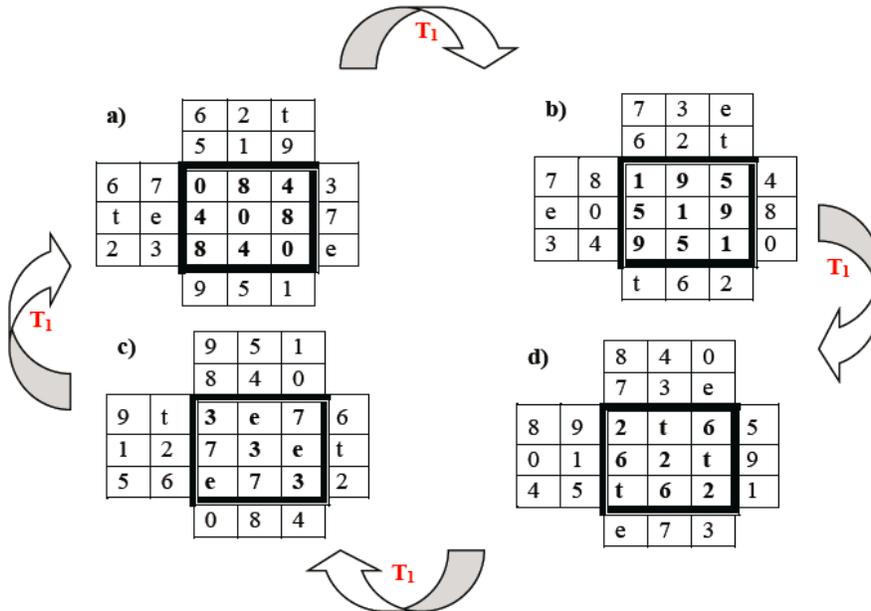
Example 3. Prime row of *A Survivor from Warsaw*



Example 4. Row matrix for *A Survivor from Warsaw*

	I ₀	I ₁	I ₆	I ₂	I ₁₀	I ₉	I ₄	I ₇	I ₃	I ₈	I ₁₁	I ₅	
P ₀	0	1	6	2	t	9	4	7	3	8	e	5	R ₀
P ₁₁	e	0	5	1	9	8	3	6	2	7	t	4	R ₁₁
P ₆	6	7	0	8	4	3	t	1	9	2	5	e	R ₆
P ₁₀	t	e	4	0	8	7	2	5	1	6	9	3	R ₁₀
P ₂	2	3	8	4	0	e	6	9	5	t	1	7	R ₂
P ₃	3	4	9	5	1	0	7	t	6	e	2	8	R ₃
P ₈	8	9	2	t	6	5	0	3	e	4	7	1	R ₈
P ₅	5	6	e	7	3	2	9	0	8	1	4	t	R ₅
P ₉	9	t	3	e	7	6	1	4	0	5	8	2	R ₉
P ₄	4	5	t	6	2	1	8	e	7	0	3	9	R ₄
P ₁	1	2	7	3	e	t	5	8	4	9	0	6	R ₁
P ₇	7	8	1	9	5	4	e	2	t	3	6	0	R ₇
RI ₀	RI ₁	RI ₆	RI ₂	RI ₁₀	RI ₉	RI ₄	RI ₇	RI ₃	RI ₈	RI ₁₁	RI ₅		

Example 5a-d. Hexachords that share invariant 3–12 trichords



Example 6a. T_4 -related P and I hexachords that share invariant [0,4,8] trichords in order positions 2 through 4: $P_6/I_2, P_{10}/I_6, P_2/I_{10}$

ORDER NUMBERS:		0	1	2	3	4	5
P_6	I_2	6	7	0	8	4	3
P_{10}	I_6	t	e	4	0	8	7
P_2	I_{10}	2	3	8	4	0	e

Example 6b. T_4 -related P and I hexachords that share invariant [0,4,8] trichords in order positions 2 through 4: $I_2/P_{10}, I_6/P_2, I_{10}/P_6$

ORDER NUMBERS:		0	1	2	3	4	5
I_2	P_{10}	2	1	8	0	4	5
I_6	P_2	6	5	0	4	8	9
I_{10}	P_6	t	9	4	8	0	1

Example 7a-b. Segmentation and cyclic combinations of P/I hexachords that share invariant [0,4,8] trichords

a) T_4 -related P and I hexachords that share invariant [0,4,8] trichords

ORDER NUMBERS:		0	1	2	3	4	5
P_6	I_2	6	7	0	8	4	3
P_{10}	I_6	t	e	4	0	8	7
P_2	I_{10}	2	3	8	4	0	e

b) Cyclic combinations

- i) $\langle 0-1 \rangle$
 - ii) $\langle 6,7,2,1,t,e,6,5,2,3,t,9 \rangle$
 - iii) $9-12(01245689t)$
- i) $\langle 2-3-4 \rangle$
 - ii) $[0,4,8]$
 - iii) $3-12(048)$
- i) $\langle 5 \rangle$
 - ii) $\langle 3,5,7,9,e,1 \rangle$
 - iii) $6-35(02468t)$

Example 8. Perle's common harmonic element

Three staves of musical notation illustrating Perle's common harmonic element. The first staff shows a sequence of notes with a bracket under the first four notes, labeled P_6 above the first measure and I_6 above the second measure. The second staff shows a similar sequence, labeled P_{10} and I_{10} . The third staff shows a sequence of notes, labeled P_2 and I_2 . Brackets indicate intervals between notes in each measure.

Example 9a. Small-scale invariant T4-cycles from *A Survivor from Warsaw*
Measure 11

Musical score for Example 9a, Measure 11, showing T4-cycles across three staves: Cl. 1, 2; Trmb.; and Vi. I, II. The score includes figured bass notation and labels for intervals and cycles.

Cl. 1, 2: $6-35(02468t)$, $3-12(048)$

Trmb.:

Vi. I, II: $6-20(014589)$

Labels for intervals and cycles: P_6 , I_2 , P_{10} , I_6 , P_2 , I_{10} , T_4 , T_4 , T_4 .

Labels for figured bass: b/R_1 , b/R_0 , P_{10}/R_3 , b/R_1 , P_2/R_7 , I_{10}/R_5 .

Example 9b. Small-scale invariant T4-cycles from *A Survivor from Warsaw*
Measure 10

Fl. 1, 2

Va.

Vcl.

Cbs.

T_4

P_0 I_2 P_{10} I_6 P_2 I_0

3-12(048)

3-3(014)

6-35(02468U)

The combination of trichords 3-3 and 3-12 yield 6-15 hexachords

Example 9c. Small-scale invariant T4-cycles from *A Survivor from Warsaw*
Measure 51

Fl. 1, 2

Va.

Vcl.

Cbs.

T_4

P_0 I_2 P_{10} I_6 P_2 I_0

3-12(048)

3-3(014)

6-35(02468U)

The combination of trichords 3-3 and 3-12 yield 6-15 hexachords

Example 10. 3-12 trichords related by ic 1

6-15(012458)

6-15(012458)

ic 4

ic 4

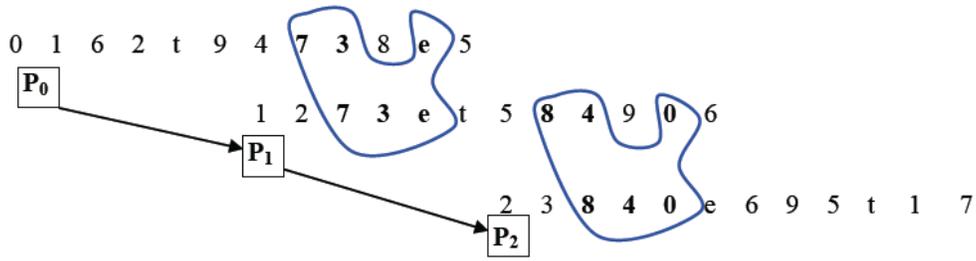
ic 4

$\langle 4,0,8 \rangle$

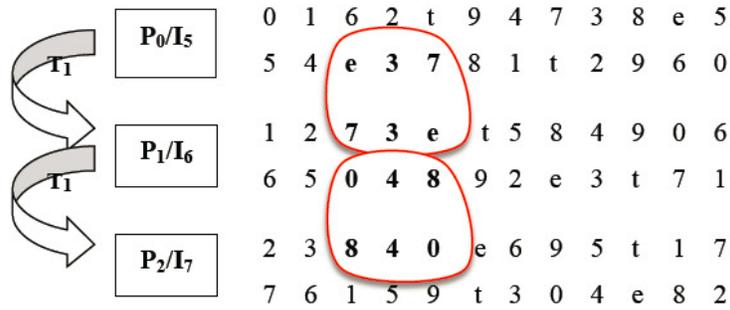
$\langle 5,1,9 \rangle$

ic1-related 3-12(048) trichords

Example 11a. T_1 -related rows and regions that share identical 3–12 trichords
 T_1 -related rows



Example 11b. T_1 -related rows and regions that share identical 3–12 trichords
 T_1 -related regions



Example 12. Reduction of measures 35–37, *A Survivor from Warsaw*

$P_2 \xrightarrow{T_1} P_3 \xrightarrow{T_1} P_4 \xrightarrow{T_1} P_5$
 $I_7 \quad I_8 \quad I_9 \quad I_{10}$

Ob. 1,2
 Bsn. 1
 Vcl.

Trp. 1,2,3

Trmb. 1,2,3

Example 13. Instrumental reduction of measures 72–80, *A Survivor from Warsaw*

The image shows a musical score for measures 72-80 of *A Survivor from Warsaw*. It features four staves: Flute 4 (Fl. 4), Violin (Vln.), Viola (Vla.), and Cello/Double Bass (Vcl. Cb.). The score is in 2/4 time and G major. Red circles highlight specific intervals in the violin and flute parts. Below the staves, a series of arrows and boxes labeled T4 indicates a rudimentary T4 interval cycle. The cycle starts at measure 72 and continues through measure 80.

Example 14. Rudimentary T_4 -interval cycle

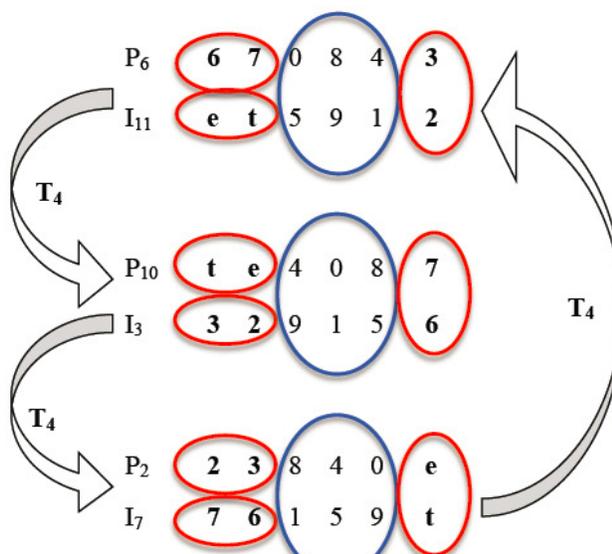
T_4 cycle starting from pc 0 = 0 → 4 → 8 → 0
(T₄) (T₄) (T₄)

Example 15. Regions, *A Survivor from Warsaw*

Example 16. T_4 -interval cycle of I-combinatorial regions with W, M, and SETLIST

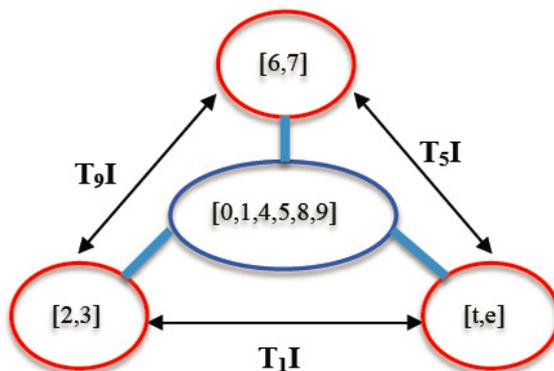
order numbers:

0 1 2 3 4 5



$W = \{\{0,1\}, \{2,3,4\}, \{5\}\}$
 SETLIST $M = (01)^3(014589)^1$
 $M = \{6,7\}, \{t,e\}, \{0,1,4,5,8,9\}, \{2,3\},$

Example 17. Compressed network of the thrice-iterated T_4 -interval cycle of I-combinatorial regions



Example 18. Reduction of measure 31

The image displays a musical score for guitar, consisting of three staves: a treble clef staff at the top, a middle treble clef staff, and a bass clef staff. The treble clef staff contains two measures of music, each with a circled chord diagram and a box containing the notation $3-3[014]$. The first measure has a sharp sign before the first fret, and the second measure has a flat sign before the first fret. The middle treble clef staff shows a chord diagram for the first measure with a box containing $6-15[012458]$, and a box containing $6-20[014589]$ for the second measure. The bass clef staff shows a chord diagram for the first measure with a box containing $6-20[014589]$, and a box containing $6-15[012458]$ for the second measure. Arrows indicate the following relationships: from the first $3-3[014]$ box to the $6-15[012458]$ box in the middle staff; from the second $3-3[014]$ box to the $6-20[014589]$ box in the middle staff; from the $6-15[012458]$ box in the middle staff to the $6-20[014589]$ box in the bass staff; and from the $6-20[014589]$ box in the bass staff to the $6-15[012458]$ box in the middle staff.

Example 19. Form and text, *A Survivor from Warsaw*

(click on the blue boxes to hear the accompanying audio)

The musical score is divided into several sections with corresponding annotations:

- 10-11 m.:** Introduction. **Region 1** (Fanfare (1) Orchestral Introduction). **Cadence:** 1st Small-Scale Cycle: P₆/I₁, P₀/I₆, P₃/I₉. See Examples 9(A) & (B).
- 12-18 m.:** **Region 1** (Narration Commentaries). **Text:** I cannot remember everything. **Point of View:** First Person.
- 18-25 m.:** **Region 1** (Opening Fanfare Repeated (2)). **Text:** The day began as usual. **Point of View:** Second Person.
- 25-31 m.:** **Region 1** (Opening Fanfare Repeated (3)). **Text:** The trumpets again. **Point of View:** Changes from Second to Third Person.
- 31-32 m.:** **Region 1** (Opening Fanfare Repeated (3)). **Text:** The trumpets again. **Point of View:** Changes from Second to Third Person.
- 32-35 m.:** Fanfare New Region.
- 35-37 m.:** Fanfare New Region.
- 37-46 m.:** **Region 3** (Narrator is struck for the first time). **Text:** I heard it though I had been hit very hard, so hard that I could not help falling down. **Point of View:** First Person.
- 46-51 m.:** **Cadence:** 1st Small-Scale Cycle: I₂/P₉, I₆/P₂, I₁₀/P₈ (048); disappears. **Text:** I must have been unconscious. See Example 9(C).
- 51-54 m.:** **Foreign Region**. **Text:** I must have been unconscious. **Text:** In einer Minute will ich wissen, wieviele ich am Gaskammer abliefern! / bezaubert!
- 54-69 m.:** **Cadence:** 2nd Hexachord Pipe-contains no (048) trichord. **Text:** They began counting off the prisoners.
- 69-70 m.:** **Region 2, 3, and 1** (SHEMA YISROEL (in Hebrew)). **Point of View:** Second Person.
- 70-72 m.:** **Region 2, 3, and 1** (SHEMA YISROEL (in Hebrew)). **Point of View:** Second Person.
- 72-80 m.:** **Region 2, 3, and 1** (SHEMA YISROEL (in Hebrew)). **Point of View:** Second Person.
- 80-81 m.:** **Region 2, 3, and 1** (SHEMA YISROEL (in Hebrew)). **Point of View:** Second Person.
- 81-87 m.:** **Region 2, 3, and 1** (SHEMA YISROEL (in Hebrew)). **Point of View:** Second Person.
- 87-95 m.:** **Region 2, 3, and 1** (SHEMA YISROEL (in Hebrew)). **Point of View:** Second Person.
- 95-100 m.:** Conclusion of Orchestral Introduction.

Example 20. Four-note fanfare

The notation shows a four-note fanfare in 4/4 time, marked *ff*. The notes are G4, A4, B4, and C5, with a triplet of three eighth notes over the last three notes (A4, B4, C5).

Example 21. Men's chorus and the Tetragrammaton

Men

A- dō noy — el - o - he - noo A - dō - noy

Y H W H

The image shows a musical score for a men's chorus. It consists of a single staff in bass clef. The melody begins with a quarter rest, followed by a quarter note G2, a quarter note F2, and a half note E2. A slur covers the next two notes: a quarter note D2 and a quarter note C2. This is followed by a quarter note B1, a quarter note A1, a quarter note G1, and a quarter note F1. A double bar line follows. The second measure starts with a quarter rest, then a quarter note E1, a quarter note D1, a quarter note C1, and a half note B1. The lyrics 'A- dō noy' are aligned under the first measure, 'el - o - he - noo' under the second measure, and 'A - dō - noy' under the third measure. Below the lyrics, the Tetragrammaton 'Y H W H' is written in bold capital letters, with 'Y' under 'A- dō', 'H' under 'noy', 'W' under 'el - o - he - noo', and 'H' under 'A - dō - noy'.