



**MTO 6.1 Examples: Mirka, Texture in Penderecki's Sonoristic Style**

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

<http://www.mtosmt.org/issues/mto.00.6.1/mto.00.6.1.mirka.php>

**Table 1.**

perceptual parameters	perceptual categories	
	+	-
loudness	loud dynamics	vs. soft dynamics
pitch	high register	vs. low register
	spatial continuity	vs. spatial discontinuity
	spatial mobility	vs. spatial immobility
time	temporal continuity	vs. temporal discontinuity
	temporal mobility	vs. temporal immobility

**Figure 1.** Mathematical model of contradiction

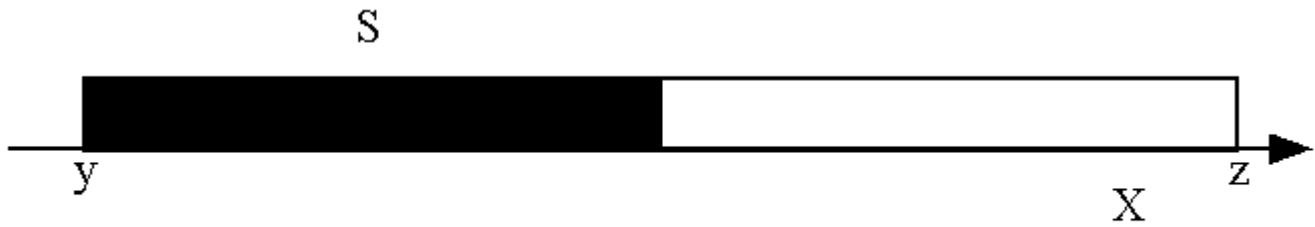


Figure 1. Mathematical model of contradiction

**Figure 2.** Mathematical model of contrariety

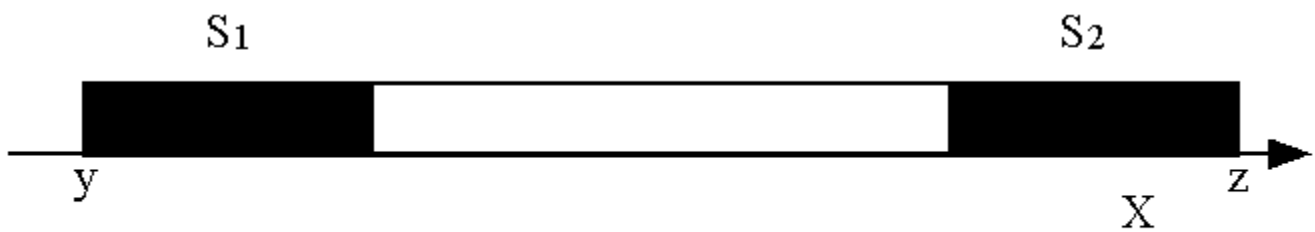


Figure 2. Mathematical model of contrariety.

**Figure 3.** Contradiction in fuzzy logic

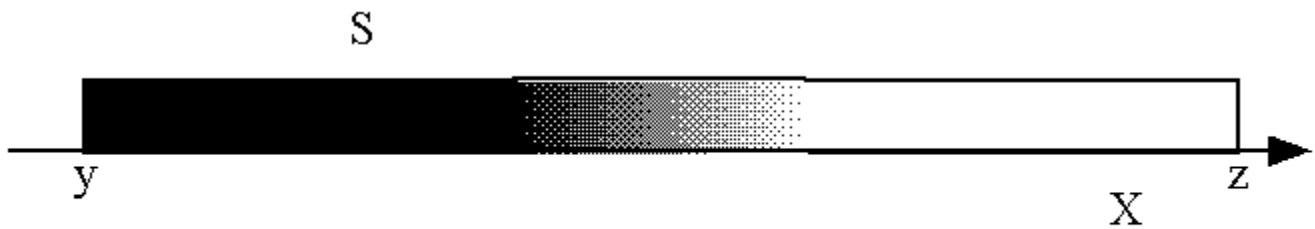


Figure 3. Contradiction in fuzzy logic.

**Figure 4.** Contrariety in fuzzy logic

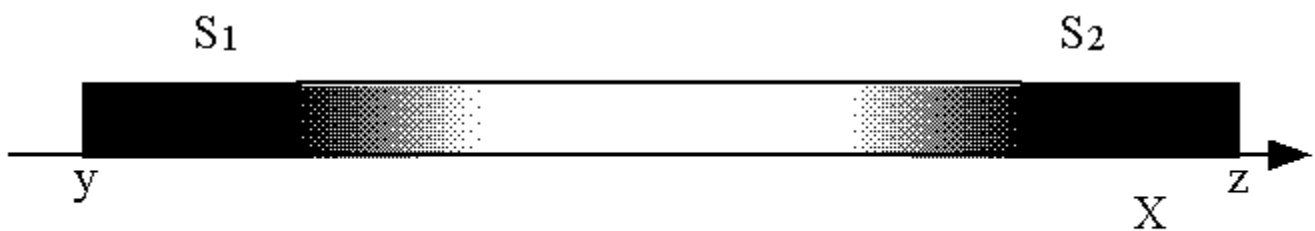


Figure 4. Contrariety in fuzzy logic.

**Table 2.** Terms of the basic system categories

	CONTRADICTION	CONTRARIETY
OPPOSITE TERMS	positive term (+)	positive term (+)
	negative term (-)	negative term (-)
MEDIATIVE TERMS	transition (->)	transition (->)
	border-zone term (*)	neutral term (0)
	complex term (+/-)	complex term (+/-)
	total term (∏)	total term (∏)

[ED: Some of the symbols above are ASCII approximations of the actual symbols that appear in the analytic diagrams.]

**Figure 5.** Example of a segment definition

spatial continuity/discontinuity	+
temporal continuity/discontinuity	+
spatial mobility/immobility	-
temporal mobility/immobility	-
high/low register	0
loud/soft dynamics	→

Figure 5. Example of a segment definition

**Example 1.** Penderecki, *Threnody—To the Victims of Hiroshima* 70

tutti archi

MEW a

LOWI

20Ve

8Cb

MEW\*

The image shows a musical score for 'tutti archi'. A large rectangular area of the score is completely blacked out, obscuring the notes and staff lines. To the left of this area, there are several staves labeled 'MEW a', 'LOWI', '20Ve', and '8Cb'. Below the blacked-out area, there is a label 'MEW\*'. A dotted line connects the bottom of the blacked-out area to the top of a table below.

spatial continuity/discontinuity	+
temporal continuity/discontinuity	+
spatial mobility/immobility	-
temporal mobility/immobility	-
high/low register	0
loud/soft dynamics	→

*Threnody—To the Victims of Hiroshima* 70

Figure 6. Rosette of Penderecki's basic system

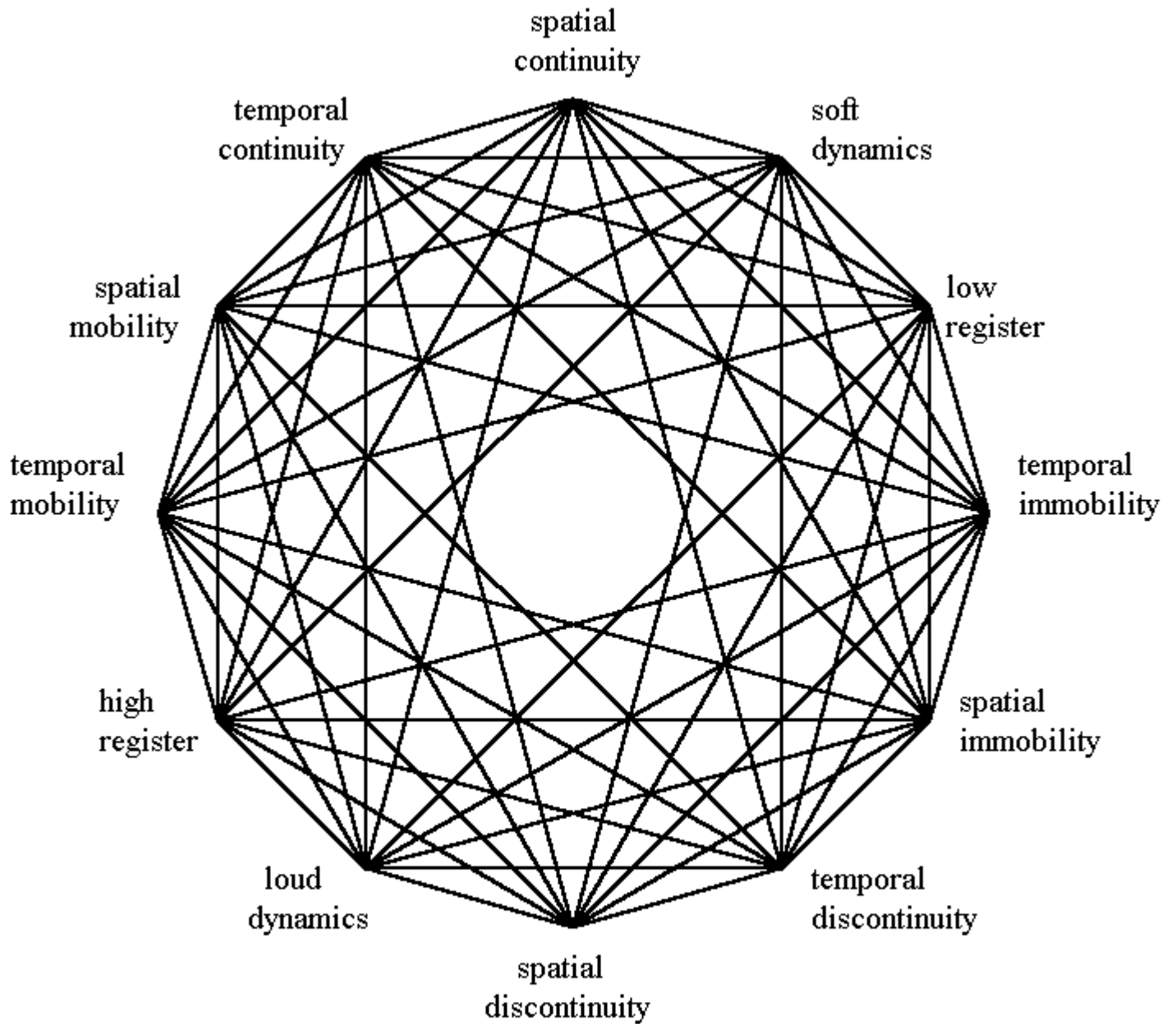


Figure 6. Rosette of Penderecki's basic system

**Figure 7a.** Presentation of binary opposition

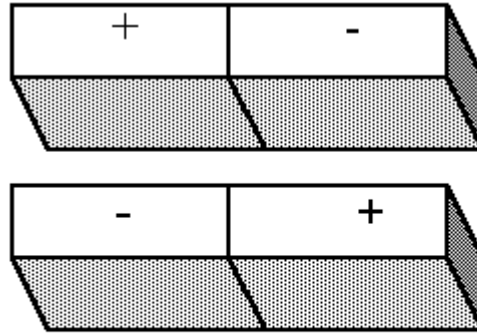


Figure 7a. Presentation of binary opposition.

**Figure 7b.** Mediation of binary opposition

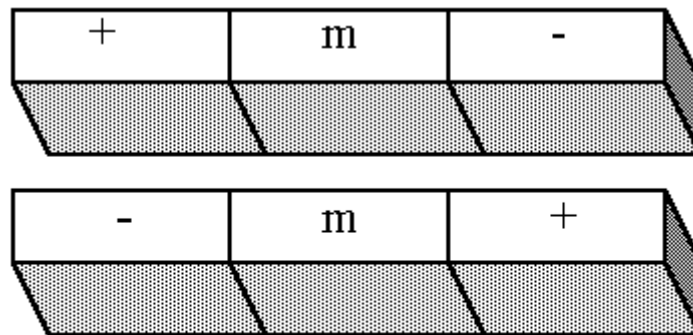


Figure 7b. Mediation of binary opposition.

**Figure 7c.** Prohibited sequence of terms

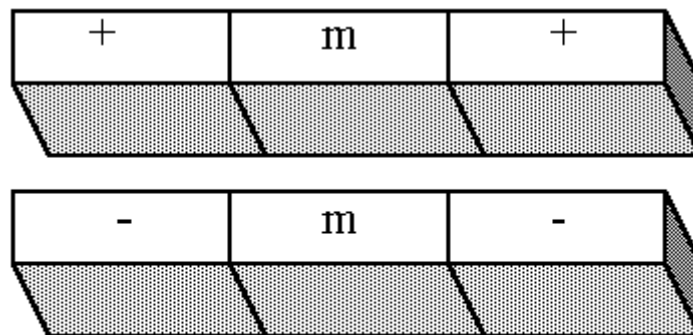


Figure 7c. Prohibited sequence of terms.

# Example 2. Penderecki, *Fluorescences* 94-971

Penderecki, *Fluorescences* 94-97  
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The musical score is written for a large ensemble. The parts are arranged vertically from top to bottom: Flute (Fl), Oboe (Ob), Clarinet (Cl), Bassoon (Bsn), Trumpet (Tr), Trombone (Tbn), Violin (Vln), Viola (Vla), Violoncello (Vcl), Double Bass (Vcb), Piano (Pfo), and Percussion (Pte). The score includes various musical notations such as staccato, sforzando, and dynamic markings. It also features a 'High/Low register' indicator at the bottom, which is a table with columns for each instrument and rows for different characteristics.

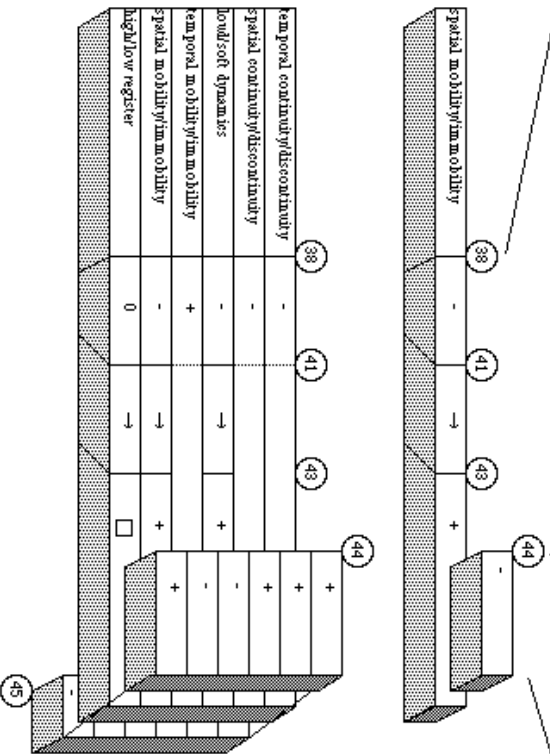
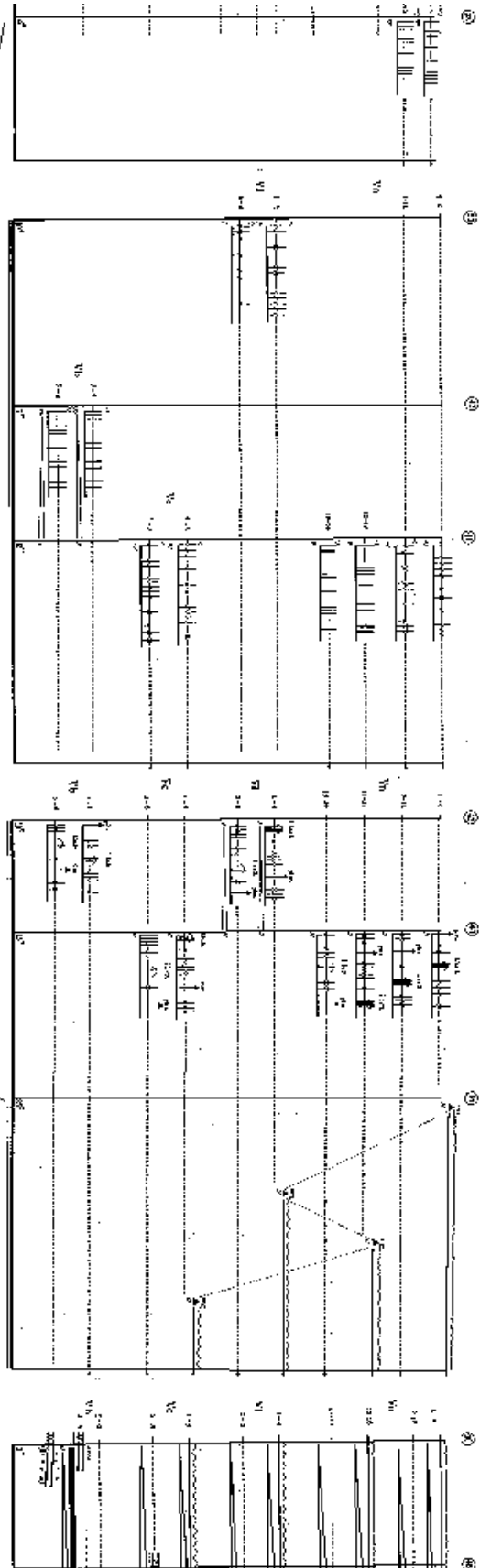
	94	95	96	97
High/Low register	-	+	-	+
soft/dynamics	+	-	+	-
temporal mobility	-	-	-	-
spatial mobility	-	-	-	-
temporal continuity/discontinuity	+	*	*	*
spatial continuity/discontinuity	+	+	+	+

High/Low register

	94	95	96	97
High/Low register	-	+	-	+
soft/dynamics	+	-	+	-
temporal mobility	-	-	-	-
spatial mobility	-	-	-	-
temporal continuity/discontinuity	+	*	*	*
spatial continuity/discontinuity	+	+	+	+

**Example 3.** Penderecki, *Polymorphia* 38–45

Penderecki, *Polymorphia* 38-45  
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**Example 4.** Penderecki, *Fluorescences* 45–55

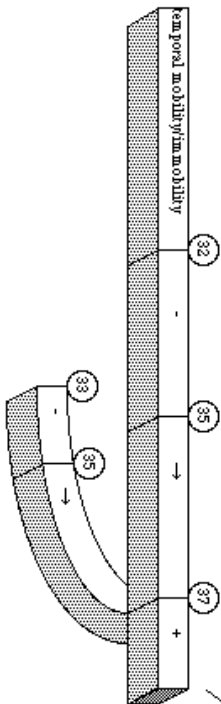
Penderecki, *Fluorescences* 45-56  
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The image displays a musical score for Penderecki's *Fluorescences* 45-55. The score is written on multiple staves, with various rhythmic markings and dynamic indications. The notation is dense and complex, characteristic of Penderecki's style. Below the score, there is a detailed diagram illustrating the rhythmic patterns. The diagram consists of a grid with columns labeled 46, 47, 51, 53, 54, and 55. The rows are labeled with rhythmic values: 'temporal community/discommunity', 'spatial community/discommunity', 'temporal mobility/mobility', 'spatial mobility/mobility', 'lightflow register', and 'holistic dynamics'. The diagram shows how these rhythmic values are distributed across the different sections of the score, with '+' and '-' signs indicating the presence or absence of a particular rhythmic element.

**Example 5.** Penderecki, *Polymorphia 32-37*

Penderecki, *Polymorphia 32-37*  
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The image displays a musical score for Penderecki's *Polymorphia 32-37*. It consists of six staves, numbered 32 through 37. Staves 32, 33, 34, and 35 are primarily composed of horizontal lines with some vertical markings, possibly representing a specific type of notation or a graphic score. Staves 36 and 37 contain more traditional musical notation, including notes, stems, and rests. The score is presented in a standard musical layout with a key signature and time signature indicated at the beginning of the first staff.



highlow register	+	35	37
loudsoft dynamics	-		
spatial continuity/discontinuity	+		
spatial mobility	-	→	+
temporal continuity/discontinuity	*	→	-
temporal mobility	-	→	+

This diagram shows a curved section with two arrows pointing outwards from its center, one to the left and one to the right. The label '38' is positioned above the left arrow, and '35' is positioned above the right arrow.