

*Marc Sabat*

**AUTOMAT**

*music scenery for 2 violins and video with field recording*

**PLAINSOUND MUSIC EDITION**

# ACCIDENTALS

## EXTENDED HELMHOLTZ-ELLIS JI PITCH NOTATION

*for Just Intonation*

*designed by Marc Sabat and Wolfgang von Schweinitz*

*The exact intonation of each pitch may be written out by means of the following harmonically-defined signs:*

$\flat\flat$   $\flat$   $\natural$   $\sharp$   $\times$      *Pythagorean series of fifths – the open strings*  
(... c g d a e ...)

$\flat$   $\natural$   $\sharp$   $\times$       $\flat\flat$   $\flat$   $\natural$   $\sharp$   
*lowers / raises by a syntonic comma*  
 $81 : 80 = \text{circa } 21.5 \text{ cents}$

$\flat$   $\natural$   $\sharp$   $\times$       $\flat\flat$   $\flat$   $\natural$   $\sharp$   
*lowers / raises by two syntonic commas*  
***circa 43 cents***

$\flat$       $\natural$   
*lowers / raises by a septimal comma*  
 $64 : 63 = \text{circa } 27.3 \text{ cents}$

$\flat$       $\natural$   
*lowers / raises by two septimal commas*  
***circa 54.5 cents***

$\flat$       $\natural$   
*raises / lowers by an 11-limit undecimal quarter-tone*  
 $33 : 32 = \text{circa } 53.3 \text{ cents}$

$\flat$       $\natural$   
*lowers / raises by a 13-limit tridecimal third-tone*  
 $27 : 26 = \text{circa } 65.3 \text{ cents}$

$\flat$       $\natural$   
*lowers / raises by a 17-limit schisma*  
 $256 : 255 = \text{circa } 6.8 \text{ cents}$

$\flat$       $\natural$   
*raises / lowers by a 19-limit schisma*  
 $513 : 512 = \text{circa } 3.4 \text{ cents}$

$\flat$       $\natural$   
*raises / lowers by a 23-limit comma*  
 $736 : 729 = \text{circa } 16.5 \text{ cents}$

*In addition to the harmonic definition of a pitch by means of its accidentals, it is also possible to indicate its absolute pitch-height as a cents-deviation from the respectively indicated chromatic pitch in the 12-tone system of Equal Temperament.*

*The attached arrows for alteration by a syntonic comma are transcriptions of the notation that Hermann von Helmholtz used in his book “Die Lehre von den Tonempfindungen als physiologische Grundlage für die Theorie der Musik” (1863). The annotated English translation “On the Sensations of Tone as a Physiological Basis for the Theory of Music” (1875/1885) is by Alexander J. Ellis, who refined the definition of pitch within the 12-tone system of Equal Temperament by introducing a division of the octave into 1200 cents. The sign for a septimal comma was devised by Giuseppe Tartini (1692-1770) – the composer, violinist and researcher who first studied the production of difference tones by means of double stops.*

AUTOMAT (live version for 2 violins and video with stereo field recording)

music: Marc Sabat  
video : Peter Sabat

Cue1 0'04" *con sordino* [35] 0'12" 0'14"

events which are connected by dotted lines are to be co-ordinated as indicated, otherwise freely

*con sordino* [24]

0'18" 0'26" 0'17" 0'35" 0'42" 0'52" 0'31" 0'45"

0'56" 1'13" 0'58" 1'14"

Cue2 [36] 1'21" 1'30" 1'18"

The musical score is written for two violins. It consists of five systems of two staves each. The first system is labeled 'Cue1' and starts at 0'04". The first staff has a treble clef and contains a melodic line with various note values and rests. The second staff has a bass clef and contains a lower melodic line. A box containing the number '35' is placed above the first staff. A dotted line connects the 0'12" mark on the first staff to the 0'14" mark on the second staff. The text 'events which are connected by dotted lines are to be co-ordinated as indicated, otherwise freely' is written between the staves. The word 'con sordino' appears below the second staff. A box containing the number '24' is placed below the second staff. The second system starts at 0'18" and 0'26" on the first staff, and 0'17" on the second staff. The third system starts at 0'35" and 0'42" on the first staff, and 0'31" and 0'45" on the second staff. The fourth system starts at 0'56" and 1'13" on the first staff, and 0'58" and 1'14" on the second staff. The fifth system is labeled 'Cue2' and starts at 1'21" and 1'30" on the first staff, and 1'18" on the second staff. A box containing the number '36' is placed above the first staff. The score ends with a double bar line.

1'47" , ,

1'43" , 1'56" ,

2'09" , 2'19" ,

2'06" 2'12" FIELD RECORDING BEGINS!

2'26" , 2'35" ,

2'24" ,

Cue3 2'37" , , ,

*poco più* 2'41" [25] 2'52" ,

3'00" ,

2'58" ,

3'09" [37] *number of repetitions ad.lib. (sempre)* ,

(25) (12) 3'17" ,

Cue4

3'32" (22) (15) (5) (3)  
3'29" IV  
III 3'41"

+15.7 cents (37)  
3'57"

4'06" I 4'13" Cue5 4'16"

4'23" 4'32" II III

4'42" 4'45" 4'49"

+11.7 cents (21) (16) (25) (12) (37)  
4'54"

5'02" (5) (3) -15.7 cents 5'09" (15) 5'14"

+15.7 cents (37) 5'22" 5'29"

Cue6 5'34" asynchron! 26

5'55" (24) (13) (37) 6'17"

Cue7 6'20" 6'26" 6'31" III (10) II (9)

38 (19) 6'44" 6'50" 6'54"

7'06" , 7'16"

This system contains two staves of music. The upper staff features a melodic line with a flat sign and a fermata. The lower staff provides a harmonic accompaniment. A double bar line is present in the middle of the system.

7'21", Cue8 7'23" 7'29" (15) (19)

This system continues the musical notation. It includes a boxed label "Cue8" and several time markers. Roman numerals II and III are placed above the notes. A double bar line is at the end of the system.

7'36" 7'46"

This system shows further musical notation with time markers 7'36" and 7'46". Roman numerals II and III are used above the notes. A double bar line is at the end of the system.

7'55" 8'01" (13) (6)

This system includes time markers 7'55" and 8'01". Roman numerals III and IV are placed above the notes. A dashed line connects a note in the upper staff to a note in the lower staff. A double bar line is at the end of the system.

8'16" Cue9 8'25" 8'22"

This system features time markers 8'16", 8'25", and 8'22". A boxed label "Cue9" is present. A double bar line is at the end of the system.

Cue10 8'44"

This system includes a boxed label "Cue10" and the time marker 8'44". A double bar line is at the end of the system.

8'45" (12) (7) 9'00"

This system contains two staves of music. The upper staff features a melodic line with a circled measure containing a flat symbol and the number 12. The lower staff has a circled measure with the number 7. The system concludes with a double bar line and a repeat sign.

9'02" *più calmo* 9'09" 9'15"

This system continues the musical piece. The upper staff has a circled measure with a flat symbol. The lower staff includes a circled measure with the number 11. The instruction *più calmo* is written below the first measure. The system ends with a double bar line and a repeat sign.

39 Cue11 9'28" 9'31" 27

This system features a circled measure with the number 39 in the upper staff and a circled measure with the number 27 in the lower staff. A box labeled "Cue11" is positioned above the staff. Dashed lines connect the circled numbers to specific measures in the lower staff. The system ends with a double bar line and a repeat sign.

9'50" 9'52"

This system shows two circled measures in the upper staff, one at 9'50" and another at 9'52". The system ends with a double bar line and a repeat sign.

10'08" III 10'14" Cue12 10'17"

This system includes a circled measure at 10'08" in the upper staff and a circled measure at 10'17" in the lower staff. A box labeled "Cue12" is located above the staff. Roman numerals II and III are placed below the lower staff. The system ends with a double bar line and a repeat sign.

10'19" III 10'40" III

This system features a circled measure at 10'19" in the upper staff and a circled measure at 10'40" in the lower staff. Roman numerals II and III are placed below the lower staff. The system ends with a double bar line and a repeat sign.



10'49" , Cue13

10'50" II III

11'02" I

11'11" I

Cue14

FIELD RECORDING CUTS OFF ABRUPTLY!

11'32" I

11'40" II

11'47" II I

12'03" 12'06" II

11'58" I

12'09" I

12'26" II

12'20" II I

8

Cue15 12'32"

Cue16