

Wolfgang von Schweinitz

# Plainsound Solo for Mason Moy

in 23-limit just intonation  
for 6-valve tuba in F

op.69

2022

PLAINSOUND MUSIC EDITION

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## EXTENDED HELMHOLTZ-ELLIS JI PITCH NOTATION

$\flat\flat$ $\flat$ $\natural$ $\sharp$ $\times$	<i>Pythagorean series of non-tempered perfect fifths, based on the open strings (... c g d a e ...)</i>
$\flat$ $\natural$ $\sharp$ $\times$ $\flat\flat$ $\flat$ $\natural$ $\sharp$	<i>lowers / raises the pitch by a syntonic comma <math>81 : 80 =</math> <b>circa 21.5 cents</b></i>
$\flat$ $\natural$ $\sharp$ $\times$ $\flat\flat$ $\flat$ $\natural$ $\sharp$	<i>lowers / raises the pitch by two syntonic commas <b>circa 43 cents</b></i>
$\lrcorner$ $\ulcorner$	<i>lowers / raises the pitch by a septimal comma <math>64 : 63 =</math> <b>circa 27.3 cents</b></i>
$\llcorner$ $\lrcorner$	<i>lowers / raises the pitch by two septimal commas <b>circa 54.5 cents</b></i>
$\dagger$ $\dagger$	<i>raises / lowers the pitch by an 11-limit undecimal quarter-tone <math>33 : 32 =</math> <b>circa 53.3 cents</b></i>
$\mathbb{A}$ $\mathbb{A}$	<i>lowers / raises the pitch by a 13-limit tridecimal third-tone <math>27 : 26 =</math> <b>circa 65.3 cents</b></i>
$\approx$ $\approx$	<i>lowers / raises the pitch by a 17-limit schisma <math>2187 : 2176 =</math> <b>circa 8.7 cents</b></i>
$\sphericalangle$ $\sphericalangle$	<i>raises / lowers the pitch by a 19-limit schisma <math>513 : 512 =</math> <b>circa 3.4 cents</b></i>
$\uparrow$ $\downarrow$	<i>raises / lowers the pitch by a 23-limit comma <math>736 : 729 =</math> <b>circa 16.5 cents</b></i>

*These 'Helmholtz-Ellis' accidentals for just intonation were designed in collaboration with Marc Sabat.*

## TUNING PROCEDURE

for the 6-valve tuba in F

Tuba

Diagram illustrating the tuning procedure for the 6-valve tuba in F. The notation shows the sequence of notes and valve combinations used for tuning, including the open horn and various valve slides (1st, 2nd, 3rd, 4th, 5th, 6th).

*Before carrying out the step-by-step tuning procedure, please make sure that you have an efficient method to restore all the standard valve slide positions, either by marking them, by measuring them, or by retuning them by ear with a synthesizer or piano in Equal Temperament.*

*The open horn (5-limit F comma up) is tuned with harmonic 5 to the tuning pitch A.*

*The 3rd valve slide (Pythagorean D) is tuned with harmonic 6 to harmonic 5 of the open horn.*

*The 2nd valve slide (Pythagorean E) is tuned with harmonic 8 to harmonic 9 played with valve 3.*

*The 1st valve slide (for the 17-limit E-flat) is tuned by employing the valve combination 1+2 (to get another identical Pythagorean D horn) with harmonic 6 to harmonic 5 of the open horn.*

*The 4th valve slide (5-limit C comma up) is tuned with harmonic 8 to the open horn's harmonic 6.*

*The 5th valve slide is tuned by employing the valve combination 4+5 (5-limit B-flat comma up) with harmonics 6 and 9 to harmonics 4 and 6 of the open horn.*

*The 6th valve slide is tuned by employing the valve combination 4+6 (Pythagorean B) with harmonics 4 and 8 to harmonics 3 and 6 played with valve 2.*

## PERFORMANCE DURATION

circa 15 minutes

# Microtonal Pitch Repertoire of the 6-Valve F-Tuba

with valve slides 1, 2, 3, 4, 5, 6 tuned to the rational proportions  $2/15 = 12/90$ ,  $1/15 = 6/90$ ,  $1/5 = 18/90$ ,  $1/3 = 30/90$ ,  $1/6 = 15/90$ ,  $4/45 = 8/90$  of the open horn's length

The image displays a musical score for a 6-valve F-tuba, detailing microtonal pitch repertoire. The score consists of 13 staves, each representing a different valve combination and its corresponding rational proportion of the open horn's length. The ratios are: 90/90 (1/1), 96/90 (16/15), 98/90 (49/45), 102/90 (17/15), 104/90 (52/45), 105/90 (7/6), 108/90 (6/5), 110/90 (11/9), 114/90 (19/15), 117/90 (13/10), 119/90, 120/90 (4/3), 125/90 (25/18), and 126/90 (7/5). Each staff contains musical notation (notes and rests) with numerical values indicating the pitch deviation in cents. The notation includes various accidentals (sharps, flats, naturals) and stems. The values range from -33.7 to +66.3 cents. The score is presented in a standard musical notation style with a bass clef and a common time signature.

Ratio	1	2	3	4	5	6	7	8	9
90/90 (1/1)	+13.7	+13.7	+15.6	+13.7	+0.0	+15.6	-17.5	+13.7	
96/90 (16/15)	+2.0	+2.0	+3.9	+2.0	-11.7	+3.9	-29.2	+2.0	
98/90 (49/45)	+66.3	+66.3	+68.2	+66.3	+52.6	+68.2	+35.1	+66.3	
102/90 (17/15)	-3.0	-3.0	-1.0	-3.0	-16.7	-1.0	-34.2	-3.0	+0.9
104/90 (52/45)	+63.4	+63.4	+65.3	+63.4	+49.7	+65.3	+32.2	+63.4	+67.3
105/90 (7/6)	+46.8	+46.8	+48.8	+46.8	+33.1	+48.8	+15.6	+46.8	+50.7
108/90 (6/5)	-2.0	-2.0	+0.0	-2.0	-15.6	+0.0	-33.1	-2.0	+2.0
110/90 (11/9)	-33.7	-33.7	-31.8	-33.7	-47.4	-31.8	-64.9	-33.7	-29.8
114/90 (19/15)	+4.4	+4.4	+6.4	+4.4	-9.2	+6.4	-26.7	+4.4	+8.4
117/90 (13/10)	+59.4	+59.4	+61.4	+59.4	+45.8	+61.4	+28.3	+59.4	+63.4
119/90	+30.1	+30.1	+32.1	+30.1	+16.4	+32.1	-1.0	+30.1	+34.0
120/90 (4/3)	+15.6	+15.6	+17.6	+15.6	+2.0	+17.6	-15.5	+15.6	+19.6
125/90 (25/18)		+45.0	+46.9	+45.0	+31.3	+46.9	+13.8	+45.0	+48.9
126/90 (7/5)		+31.2	+33.1	+31.2	+17.5	+33.1	+0.0	+31.2	+35.1

This musical score consists of 15 staves, each representing a different instrument. Each staff contains a sequence of notes with numerical values placed above them. The instruments and their corresponding values are as follows:

- 128/90 64/45:** +5.9, +3.9, -9.8, +5.9, -27.3, +3.9, +7.8, -9.8
- 132/90 22/15:** +3.9, -47.4, -49.4, -63.0, -47.4, -80.5, -49.4, -45.5, -63.0, +2.0
- 135/90 3/2:** -49.4, +13.7, +11.7, -2.0, +13.7, -19.5, +11.7, +15.6, -2.0, +63.0
- 138/90 23/15:** +11.7, -24.4, -26.3, -40.0, -24.4, -57.5, -26.3, -22.4, -40.0, +25.0
- 140/90 14/9:** -26.3, +50.7, +48.8, +35.1, +50.7, +17.6, +48.8, +52.7, +35.1, +100.1
- 143/90 11\*13/90:** +48.8, +14.0, +12.1, -1.6, +14.0, -19.1, +12.1, +16.0, -1.6, +63.4
- 144/90 8/5:** +12.1, +2.0, +0.0, -13.7, +2.0, -31.2, +0.0, +3.9, -13.7, +51.3
- 147/90 49/30:** +0.0, +66.3, +64.3, +50.6, +66.3, +33.1, +64.3, +68.2, +50.6, +115.6, +66.3
- 150/90 5/3:** +64.3, +31.3, +29.3, +15.6, +31.3, -1.8, +29.3, +33.2, +15.6, +80.6, +31.3
- 152/90 76/45:** +29.3, +8.4, +6.4, -7.3, +8.4, -24.8, +6.4, +10.3, -7.3, +57.7, +8.4
- 153/90 17/10:** +6.4, -3.0, -5.0, -18.6, -3.0, -36.1, -5.0, -1.0, -18.6, +46.4, -3.0
- 156/90 26/15:** -5.0, +63.4, +61.4, +47.7, +63.4, +30.3, +61.4, +65.4, +47.7, +112.7, +63.4
- 161/90 7\*23/90:** +61.4, +8.8, +6.8, -6.9, +8.8, -24.4, +6.8, +10.7, -6.9, +58.1, +8.8
- 165/90 11/6:** +6.8, -33.7, -35.7, -49.4, -33.7, -66.9, -35.7, -31.8, -49.4, +15.6, -33.7
- 171/90 19/10:** -35.7, +4.4, +2.5, -11.2, +4.4, -28.7, +2.5, +6.4, -11.2, +53.8, +4.4

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*o. circa 45 - 50 con tempo rubato*  
Slow and at ease - with an expanded forward flow

6 *sing into the tuba (with any vowels)*

10

14 *avanti!*

10:9 (182 c) 9:8 (204 c) 20:21 (84 c) 15:16 (112 c)

3/2 7/4 5/3 3/2 4/3 8/3 5/2 5/3 7/4 5/4 8/5

6:7 (267 c)

5/3 5/2 3/2 7/3

-17 +63 +47 +34 +20

*poco forte* *piano* *piano* *marcato*

2

17

2  
17

+20 -2 -29 -34 +49

20

20

+35 +8 -34

23

23

+59 +32 +30

26

26

*ritenuto* 6:7 21:20 25:24 16:15 10:9  
(267 c) (84 c) (71 c) (112 c) (182 c) *a tempo*

3/2 7/4 5/3 4/3 8/5 5/3 3/2 5/2

*molto piano*

31

16:15 (112 c) 10:9 (182 c) 10:9 (182 c) 10:9 (182 c)

5/2 simile 5/3 5/2 7/2 5/2 3/2 5/2 3/2

piano

36

10:9 (182 c) ritenuto a tempo

5/2 3/1 7/4 7/3 7/2 7/2 5/2 5/2 7/4 5/2 8/3 11/4 11/2 5/1 5/2 3/1

41 poco più mosso

sonore

+2c

45

+2c

4  
49

16:19  
(298 c)

Musical notation for measures 49-53. The system includes a bass clef staff with notes and a lower staff with chord diagrams. The key signature has one sharp (F#). Measure 49 has a 19/4 time signature. Measure 53 includes the instruction *più piano*.

Musical notation for measures 53-57. The system includes a bass clef staff with notes and a lower staff with chord diagrams. Measure 53 includes the instruction *molto più lento*. Measure 57 includes the instruction *piano*. Measure 58 includes the instruction *crescendo*.

Musical notation for measures 58-62. The system includes a bass clef staff with notes and a lower staff with chord diagrams. Measure 58 includes the instruction *piano*. Measure 59 includes the instruction *crescendo*. Measure 62 includes the instruction *piano marcato*.

63 *tempo primo*

Musical notation for measures 63-67. The system includes a bass clef staff with notes and a lower staff with chord diagrams. Measure 63 includes the instruction *piano marcato*. Measure 64 includes the instruction *tempo primo*. Measure 67 includes the instruction *piano marcato*.

66

66

+7 -36 +2 +14 +2 +66 -3

69

69

+63 +47 -2

*avanti!*

*piano espressivo*

73

73

76

76

*ritenuto*

*sonore*

79 *poco meno mosso*

*poco forte*

82

*ritenuto*

*a tempo*

*piano*

*ancora meno mosso*

86

14:13  
(128 c)

13:12  
(139 c)

16:15  
(112 c)

15:14  
(119 c)

14:13  
(128 c)

13:12  
(139 c)

*sonore*

89

28:27 (63 c) 27:26 (65 c) 26:25 (68 c) 25:24 (71 c)

16:15  
(112 c)

14:13  
(128 c)

13:12  
(139 c)

16:15  
(112 c)

15:14  
(119 c)

21:20  
(84 c)

10:9  
(182 c)

93 *poco più mosso*

11:10 (165 c) 12:11 (151 c) 22:21 (81 c) 21:20 (84 c) 10:9 (182 c)

3/1 11/4 5/2 3/1 9/4 3/1 11/4 7/2 5/1 3/1

97

*cresc.*

+2c

100 *ritenuto* *poco meno mosso*

16:15 (112 c) 45:44 (39 c) 22:21 (81 c) 21:20 (84 c) 10:9 (182 c)

5/2 3/1 8/3 5/2 3/1 11/4 7/2 5/1 3/1 9/2

*forte* *dim.* *piano*

104

16:15 (112 c) 16:15 (39 c) 45:44 (81 c) 21:20 (84 c) 10:9 (182 c) 9:10 (182 c) 20:21 (84 c) 21:22 (81 c)

8/3 5/2 5/3 4/3 3/2 3/1 8/3 5/2 3/1 11/3 7/3 5/3 3/1 3/1 5/2 7/2 3/1 11/4 11/2 23/4

*pianissimo*

8  
109

23 : 24 (74 c)      10 : 9 (182 c)      21 : 20 (84 c)      24 : 23 (74 c)      10 : 9 (182 c)      21 : 20 (84 c)

6/1    23/4      12/5    5/2      3/1      7/2      5/2    3/1      3/1    23/8    3/1    12/5    5/2      3/2    7/2

*piano*

112 *poco più mosso*

5/2

*sonore*

115 *ritenuto*      *poco meno mosso*

24 : 23 (74 c)      17 : 18 (99 c)

5/2    3/1      3/1    23/8      3/1    17/6    3/1      9/2    17/4    3/1

*piano*

118

9 : 10 (182 c)      15 : 14 (119 c)      16 : 17 (105 c)      17 : 18 (99 c)

9/2    5/2      5/2    7/2      3/1    3/1      8/3    3/1    17/6    3/1

*sonore*      *piano*

121

9:10 (182 c)      15:14 (119 c)      28:27 (63 c)      18:17 (99 c)      28:27 (63 c)      27:26 (65 c)      26:25 (68 c)      25:24 (71 c)

9/2 5/2 5/2 7/2      7/3 3/2 3/1      17/4 9/2 17/4      15/4 3/1 7/2 7/3 3/2      13/4 5/4

124 *poco più mosso*

3/1 5/3

*sonore*

127 *ritenuto*      *poco più lento*

5/3 7/2 7/3 7/3      7/4 7/4

130 *ritardando*

16:15 (112 c)      25:24 (71 c)      16:15 (112 c)      15:14 (119 c)      21:20 (84 c)

5/2 5/2 5/2      5/2 5/2 7/3 7/3 7/2      5/2