

Wolfgang von Schweinitz

Plainsound Etudes

FOR VIOLIN SOLO

Three Just Intonation Studies

based on a flexible non-tempered 11-limit 31-tone scale

op. 58

2013-2014

*for Helge Slaatto
and all violinists with an interest in
the sound and performance practice
of microtonal just intonation*

PLAINSOUND MUSIC EDITION

This score is licensed under a Creative Commons
Attribution-NonCommercial-NoDerivs 3.0 Unported License

ACCIDENTALS

for microtonal just intonation

EXTENDED HELMHOLTZ-ELLIS JI PITCH NOTATION

The exact intonation of each pitch is written out by means of the following harmonically defined accidentals:

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

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

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

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

$\flat\lrcorner\lrcorner$ $\natural\lrcorner\lrcorner$ *lowers / raises the pitch by two septimal commas*
circa 54.5 cents (not used in this score)

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

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

The attached arrows for pitch alterations by a syntonic comma are transcriptions of the notation used by Hermann von Helmholtz 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" (published 1875/1885) was made 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 accidental sign denoting an alteration by a septimal comma was devised by Guiseppe Tartini (1692-1770), the composer, violinist and researcher who investigated the difference tones created by double-stops.

Pitch-bend information

In addition to the harmonic definition of a pitch by means of its accidentals, it is also possible to specify its absolute pitch-height as a cents-deviation from the respectively indicated chromatic pitch in the standard 12-tone System of Equal Temperament. – Such additional pitch-bend numbers are not included in this score, as every pitch can be tuned by ear. There is no need for rehearsals with the aid of a tuning device.

Frequency ratios

The score also denotes the mathematical frequency ratios of the various just intervals performed as double stops or melodic steps. The numbers of these ratios contain a lot of information, which is extremely valuable for tuning the intervals by ear. The frequency ratio serves as the stenographic "code name" of the interval, specifying not only its size, but also the partial-unisons and difference tones relevant for its timbre, as well as the fundamental pitch or root of the interval (its periodicity pitch) and the relative degree of consonance or harmonic complexity of the tone relationship.

DYNAMICS

The piece should be performed without any frequency vibrato and with a soft, but confident and embracing sound that includes both strongly emphasized accents and the magic of a sudden pianissimo. Every tuned double-stop sonority may be interpreted at the dynamic level that seems most adequate for expressing its specific timbre, identity and feeling within the harmonic, melodic and rhythmical context.

TEMPO

The piece should be performed with a lot of rubato (always counting dotted half notes) within a gradually accelerated melodic forward movement that accommodates the liberty to prolong a sound whenever needed or desired.

PERFORMANCE DURATION *circa 27 minutes*

Etude 1: ca. 6 ½ minutes, Etude 2: ca. 5 ½ minutes, Etude 3: ca. 13 minutes.
Each piece may also be performed separately.

Plainsound Etudes

for violin solo

Three Just Intonation Studies

based on a flexible non-tempered 11-limit 31-tone scale

Etude 1

James Tenney & Marc Sabat

Cantando con tempo rubato (♩ ca. 48)

Violin

Difference tones

per lo più: piano sonore (molto d'arco), e sempre non vibrato *

*) i.e. no frequency vibrato, please! But the occasional use of amplitude vibrato (once the intonation has been established) is recommended: periodic or aperiodic changes of bow pressure, bowing speed, or bow position (distance from the bridge and angle of the bow, controlling the amount of hair on the strings) produced by the right hand, or by shaking the instrument with the left hand, arm and shoulder, and/or with the chin.

**) To secure the intonation, it may sometimes be helpful to sing or hum the root or fundamental of the sonority while playing, e.g. in case of this 11-limit neutral seventh: the pitch tuned a perfect fifth or twelfth below the stopped note.

Small chromatic semitone (+71c)

Lesser Diesis 125 : 128

avanti (♩ ca. 50)

Septimal schisma 224 : 225

Syntonic comma 80 : 81

Septimal comma 63 : 64

Septimal sixth-tone 48 : 49

avanti (♩ ca. 52)

This score is licensed under a Creative Commons Attribution-NonCommercial-NoDerivs 3.0 Unported License.

242 : 243
11-limit schisma

avanti (o. ca. 54)

35 : 36
Enharmonic septimal quartertone

11/6 18/11 11/3 11/9 54:55 6/5 8/5 3 12/5 7/3

7/3 7/6 48:49 8/7 63:64 8/5 3/2 9/4 2/1 2/1

4 8/3 8/5 44:45 11/6 32:33 11-limit quartertone 1/1 8/5 63:64 7/5 6:7 (+267c) 15/7 5/2

55:56 5/2 8/5 28/15 11/6 32:33 24/11 9/4 3/1 2/1 5/3 5 5/2 8/5 16/9 11/6

11/6 32:33 9/4 2/1 5/3 4/3 5/4 6 15/8 44:45 11/6 8/5

11/6 1215:1232 45:44 27:28 7/3 7/3 27/14 7:5 (-583c) 5/3 80:81 4/3 63:64 48:49 (+36c) 7/4 4/3

slide page

a tempo (o. ca. 58)

14:15 (+119c)

224:225

24:25 (+71c)

125:128 Lesser Diesis

224:225 Septimal schisma

55:56

7
46

7/4 4/3 28:27 (-63c) 9/7 6/5 5/4 6/5 5/4 8/5 15/8 7/5 28/15 11/6

↑1 (+8c only) ↑1- (+41c) ↑1- (+8c only) ↑1- (+31c)

32:33

11/2

54:55

ritenuto

63:64

avanti (o. ca. 60)

50

11/6 ↑^{o4} (+53c) 11/8 5/3 9/5 80:81 4/3 7/4 7/3

↑1- (+32c) ↑1 (+22c) ↑1- (+27c)

48:49

63:64

ritenuto

25:24

80:81 *a tempo* (o. ca. 60)

8
54

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

↑1- (+36c) ↑1- (+27c) ↓3- (-71c) ↑3- (+92c) ↑1- (+22c)

54:55

242:243

54:55

9 *ritenuto*

58

9/5 11/6 18/11 11/3 11/9 6/5 8/5 5/4

↑1- (+32c) ↑^{o2} ↑^{o3} ↑1- (+7c only) ↑^{o3} ↑1- (+32c) ↑^{o4} ↑^{o3}

125:128 (+41c)

25:24 (-71c)

Minor whole tone 9:10 (+182c)

224:225

a tempo (o. ca. 60)

1215:1232

62

5/4 6/5 4/3 7/6 7/3 7/2 4/3 243/112 11/5 4/3

↑1- (+41c) ↑1- (+8c only) ↑1- (+24c) ↑1- (+24c)

44:45

ritenuto

a tempo

ritenuto

66

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

↑2- (+39c) ↑1- (+39c) ↑^{o3} ↑^{o4}

Etude 2

Vicentino & Gesualdo

Cantando con tempo rubato (o. ca. 60)

1

03 2/1 8/5 15/8 8/5 45:44 (-39c) 11/6 ** 11:10 (-165c) 5/3 9/5 5/3 11/6 18/11 5/3 54:55

3- 1- -3- 4 15/8 ↓3- (-39c) 8^{va} 8^{va} 2- -4 -3 -4 ↑4 (+32c)

piano sonore e sempre non vibrato*

*) see footnote on page 1.
**) see footnote on page 1.

5

10:11 (+165c) 10:11 (+165c) 8/5 11:10 6/5 224:225 128:135 (+92c) 7/5 5/4 7/6

11/6 5/3 11/6 5/3 ↓4 (-71c) 5/3 8/5 ↑3 (+39c) 8/5 1 ↑1- (+8c only) ↓3 (-63c)

-2- -1- ↓2- (-17c) 0

9

Small chromatic semitone 25:24 18:35 (+1151c) 49:24 (-1236c)

7/6 5/3 9/5 5/3 8/5 5/3 7/6 7/4 4/3 7/4 7/6

8^{va} 3- 4 -1- 4 ↓4 (-71c) 8^{va} ↑1 (+49c) ↑2 (+119c) 8^{va}

13

Enharmonic septimal quartertone 36:35 25:24 Small septimal semitone 21:20 (-84c)

7/6 6/5 5/3 8/5 2 6/5 8/5 5/3 8/5 5/3 7/4

8^{va} ↓3 (-49c) 8^{va} amp. vibr. 0 -3- ↑2 (+71c) 8^{va} ↓4 (-71c) 8^{va} ↓2 (-71c)

avanti (o. ca. 63)

17

36:35 9/5 5/3 55:54 44:45 (+39c) 15:16 (+112c) Major whole tone 8:9 (+204c) Septimal third-tone 27:28

9/5 11/6 15/8 11/6 15/8 2/1 9/4 9/4 7/3 9/4

↓1- (-49c) ↑4 (+71c) 9/5 11/6 ↓1- (-32c) -1 -3 15/8 gliss. 4 0 ↑4 (+63c) 3-

ritenuto

a tempo (o. ca. 63)

Septimal sixth-tone
49:48 (-36c) 7/6 36:55 6/5 ↓3- (-49c) 25:48 (+1129c) 8/5

21 9/4 6/5 8/5 4/3 (+267c) 8/7

avanti (o. ca. 66)

4 6/5 8/5 45:44 11/6 6/5 11/6 7/4 21:20 (-84c) 5/3 55:54 (-32c) 45:44 (-39c)

25 15/8 ↓1- (-39c) amp. vibr. ↓2 (-112c) 11/6 7/4 11/6 7/4 ↑03 (+88c)

ritenuto *a tempo* (o. ca. 66)

29 8/5 44:45 9/2 18/11 55:54 5/3 5/4 amp. vibr. slide page 5 5/4 4/3

↓2 (-71c)

34 45:44 15/8 11/6 9/5 7/4 21:20 (-84c) 5/3 9/5 5/4 5/4 9/5

↓3- (-39c) ↓3- (-32c) ↓3- (-49c) 04 ↑03-

avanti (o. ca. 69)

38 9/5 27:14 (-1137c) 9/2 7/3 7/4 8:9 (+204c) 7/4 amp. vibr. ↓1- (-49c) 6 7/4 9/4

42 7/4 9/7 12/7 49:48 (-36c) 7/4 7/4 7/4 4/3 15:16 (+112c) 5/4

↓1- (-36c) ↑1 ↓1- amp. vibr.

6

35:72 (+1249c) 5/4 24:25 6/5 35:36 7/6 48:49 8/7 225:224 (-8c) **7** 9/4 8/5 8/5

8/5 5/3 8/5 5/3 25:24 8/5 amp. vibr. 128:125 (-41c) **8** avanti (o. ca. 72) 8/5 amp. vibr. 5/3 9/2 5/3 9/5

55:54 9/5 11/6 11/8 *ritenuto* 33/8 11/2 *a tempo* 11/6 11/6

25:24 6/5 5/4 24:25 6/5 45:44 2/1 6/5 amp. vibr. **9** 8/5 11/6 4/3

ritenuto 4/3 9/5 8/5 21:20 6/5 Minor whole tone 9:10 (+182c) 4/3 6/5 4/3 Septimal whole tone 8:7 (-231c) *a tempo* 7/6 49:48 (-36c) 8/7 48:49

7:8 21:20 7/5 *ritenuto* 80:77 55:54 (-32c) 40/21 11/6 5/4 amp. vibr. 44:45 (+39c) 6/5 8/5 6/5

Etude 3

György Ligeti & Gérard Grisey

Cantando con tempo rubato (ca. 72)

1

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

Minor wholetone 9:10 (+182c)

piano sonore e sempre non vibrato*

*) see footnote on page 1.

5

9:10 (+182c) 6/5 4/3 6/5 4/3 6/5 8/5 8/5 8/5

Lesser Diesis 128:125 (-41c)

amp. vibr.

9

Lesser Diesis = 128 : 125 (-41c) 24:25 8/5 5/3 6/5 5/3 9/4 9:10 (+182c) 5/2 5/4 5/2

ritenuto a tempo

1

13

16:15 (-112c) 4/3 5/4 5/4 6/5 5/4 5/2 8/3 6/5 4/3 9:10 (+182c)

amp. vibr.

2

17

15:16 Diminished Fourth 32:25 (-427c) 15:16 32:33 11/4 44:45 5/4 6/5 9/8 5/2 8/3 5/4

amp. vibr.

ritenuto $\frac{20:21}{(+84c)}$ $\frac{7:6}{(-267c)}$ $\frac{9:10}{(-182c)}$ $\frac{5/4}{\downarrow 4 (-112c)}$ $\frac{6/5}{\downarrow 1}$ $\frac{8/7}{\downarrow 2}$ $\frac{4/3}{\downarrow 1}$ **3** $\frac{6/5}{\downarrow 2 (-84c)}$ $\frac{5/3}{\downarrow 1 (-22c)}$ $\frac{6/5}{\downarrow 1}$ $\frac{4/3}{\downarrow 1}$ *a tempo* $\frac{8/5}{\uparrow 1 (+71c)}$ $\frac{5/3}{\downarrow 1}$

$\frac{20:21}{(+84c)}$ $\frac{7/4}{\downarrow 4}$ $\frac{7/4}{\downarrow 4}$ *amp. vibr.* $\frac{20:21}{(+84c)}$ $\frac{5/3}{\downarrow 1}$ $\frac{7/4}{\downarrow 1}$ *ritenuto* $\frac{8/5}{\downarrow 1}$ $\frac{5/3}{\downarrow 1}$

$\frac{32:25}{(-427c)}$ $\frac{15:16}{\downarrow 1}$ $\frac{6/5}{\downarrow 1}$ $\frac{8/5}{\downarrow 1}$ **4** $\frac{6/5}{\downarrow 2}$ $\frac{8/5}{\downarrow 2}$ $\frac{3/2}{\downarrow 2}$ $\frac{16:15}{(-112c)}$ $\frac{8/5}{\downarrow 2}$ $\frac{2/1}{\downarrow 2}$ $\frac{4/3}{\downarrow 1}$ $\frac{3/2}{\downarrow 1}$ *a tempo*

$\frac{6:7}{(+267c)}$ $\frac{7/4}{\downarrow 3}$ $\frac{21:20}{(-84c)}$ $\frac{10:9}{(-182c)}$ *amp. vibr.* $\frac{5/3}{\downarrow 3 (-22c)}$ $\frac{5/3}{\downarrow 3 (-22c)}$ $\frac{4/3}{\downarrow 1}$ $\frac{3/2}{\downarrow 1}$ *slide page*

5 *lo stesso tempo (o. ca. 72)* $\frac{3/2}{\downarrow 1}$ $\frac{3/2}{\downarrow 1}$ $\frac{4/3}{\downarrow 1}$ *retune strings if necessary* $\frac{4/3}{\downarrow 1}$ $\frac{2/1}{\downarrow 1}$ $\frac{2/1}{\downarrow 1}$ *avanti (o. ca. 76)* $\frac{2/1}{\downarrow 1}$ $\frac{2/1}{\downarrow 1}$

6 $9/4$ $2/1$ $9/4$ $9/8$ $16:15$
 (-112c) $6/5$

43 *amp. vibr.*

25:24 (-71c) $5/4$ $16:15$ (-112c) $4/3$ $21:20$ (-84c) $7/5$ $6:7$ (+267c) $5/4$ $48:49$ (+36c) *ritenuto* $8/7$ $7:6$ $4/3$ $2/1$ $9/4$ $4/3$ $4/3$
 (-71c) (-84c) (-84c) (+36c) $\downarrow 3$ $\downarrow 2$ $\uparrow 4$ (+36c) $\uparrow 2$ $\downarrow 2$ (-204c) $\uparrow 2$ (+204c)

47

7 *a tempo* (ca. 76) $9:10$ (+182c) $4/3$ $5/4$ $7/4$ $4/3$ $6/5$ $4/3$
 (+27c) (+27c) (+27c)

51

8 *ritenuto* $4/3$ $7/4$ $8/7$ $64:63$ (-27c) $8/7$ $48:49$ $7/6$ $7/3$ $27/14$ $3/2$
 (-27c) (+36c)

55 *amp. vibr.*

a tempo $28:27$ (-63c) $7/6$ $3/2$ $7/6$ $4/3$ $21:20$ $7/5$ $5/2$ $15:16$ $8/3$ 9 $4/3$
 (-63c) (-84c) (+112c) (+27c)

59 *amp. vibr.*

ritenuto $4/3$ $8/3$ $4/3$ $5/4$ $16:15$ (-112c) $3/2$ *slide*
 (-112c) 2 pages

63 *amp. vibr.*

ritenuto *a tempo* (♩ ca. 80)

12/11 (151c) 4/3 12/11 4/3 6:7 (+267c) 8/7 22:21 (-81c) 21:20 (-84c) 6/5 12/11

88 *amp. vibr.* 0 0 0 0 0 0 0 0 0 0

12

6/5 45:44 (-39c) 54:55 (+32c) 5/4 10/9 5/4 16:15 (-112c) 4/3 7/4

92 *amp. vibr.* 0 0 0 0 0 0 0 0 0 0

ritenuto

21:20 (-84c) 25:24 (-71c) Lesser Diesis 125:128 (+41c) 25:24

4/3 7/4 5/3 8/5 4/3 5/4 6/5 8/5 6/5 8/5

97 -2 -3 2 (-22c) 2 (-71c) 2 (+92c) 1 (-71c) 2 2 2 *amp. vibr.* *slide page*

224:225 *a tempo* (♩ ca. 80)

13 7/4 8/5 21:20 (-84c) 5/3 8/5 6:7 (+267c) 7/6

102 0 0 0 0 0 0 0 0 0 0

avanti (♩ ca. 84)

48:49 49:48

8/7 7/6 8/7 7/6 7/6 8/7 7/6 7/6

106 *amp. vibr.* 0 0 0 0 0 0 0 0 0 0

12

14 $7/4$ $5/3$ $4/3$ $16:15$ ($-112c$) $5/4$ $5/4$ $50:49$ ($-35c$) $7/6$ $5/4$ $7/6$ $7/6$ $7/6$

110 8^{va} $\downarrow 1-$ ($-36c$) 8^{va} $\uparrow 1-$ ($+71c$) 8^{va} $3-$ 2^{nd} time: $\uparrow 1$ ($+35c$) *amp. vibr.* $\downarrow 1$ ($-35c$) $\uparrow 1$ ($+35c$) $\downarrow 1$ ($-35c$) 8^{va} $\downarrow 1-$ 8^{va} $\uparrow 1-$

8c higher than G

114 $7/6$ $21:20$ $5/4$ *ritenuto* $10/9$ $20:21$ $7/6$ $21:20$ 1^{st} time: $5/4$ $8/5$ *amp. vibr.* $5/4$ *slide page*

15 *a tempo* (\circ ca. 84) $5/4$ $8/5$ $25:24$ $5/3$ $6/5$ $5/3$ $8/3$ $3/1$ $8/5$

119 $3-$ $\downarrow 1-$ *amp. vibr.* $\downarrow 1-$ ($-71c$) $3-$

123 $4/3$ $10:9$ ($-182c$) $6/5$ $6/5$ $4/3$ $6/5$ $5/3$ **16** *avanti* (\circ ca. 88) $10:9$ ($-182c$)

flautando

127 $6/5$ $6/5$ $12/5$ $4/3$ $6/5$ $10:9$ ($-182c$) $4/3$ $5/3$ $3/2$ $9:8$ ($-204c$) $4/3$ $10:9$ ($-182c$) *amp. vibr.* $\downarrow 3-$ ($-22c$)

131 $6/5$ $6/5$ $5/3$ $4/3$ $16:15$ ($-112c$) $3/2$ $4/3$ $10:9$ ($-182c$) $6/5$ $10:9$ $4/3$ $\uparrow 3-$ ($+22c$)

ritenuto

9:10 (+182c) 6/5 6/5 8/5 5/3 4/3 10:9 (-182c) 6/5

135

17 *a tempo* (o. ca. 88)

6/5 27/10 11/4 11:8 (-551c) 11/8 32:33 4/3

139

più sonore

amp. vibr.

11/8 32:33 4/3 15:16 (+112c) 5/4 16:15 4/3 33:32 11/8 55:56 7/5

143

dolcissimo

18 *avanti* (o. ca. 92)

7/5 5/3 224:225 7/5 5/4 5/3 7/5 5/4 8/5

147

2nd time: 2 (-8c) amp. vibr. ↑2 (+8c only) ↓2 (-8c) ↑2 (+8c) amp. vibr.

ritenuto *a tempo*

8/5 5/4 25:24 6/5 5/3 6/5 4/3 8/5 32:25 (-427c)

151

crescendo

amp. vibr.

4/3 15:16 (+112c) 5/4 16:15 4/3 21:20 7/5 7/4

155

slide page

14 *a tempo* (o. ca. 92)

20 7/4 4/3 27:28 (+63c) 36:35 (-49c) 5/4 9/5 55:54 11/6 45:44

avanti (o. ca. 96)

6/5 45:44 11/6 6/5 11/6 6/5 11/6

11/6 54:55 (+32c) 9/5 35:36 7/4 20:21 (+84c) 5/3 24:25 8/5 11/4 44:45 (+39c) 18/11 44:45 8/5

21 55:56 11/7 *poco a poco allargando* 7/4 11/7 21:22 (+81c)

5/4 8/5 amp. vibr. 11/7 7/4 11/7 21:22 (+81c)

11/6 11/6 11/6 3/2 54:55 (+32c) 9/5 35:36 (+49c) 7/4 20:21 (+84c) 5/3 5/3 8/5

adagio (o. ca. 48)

5/3 3/2 4/3 5/3 4/3 3/1 6/5 3/1 più vicino al ponticello 3/2 amp. vibr. ad lib.