*Marc Sabat*

# Les Duresses

*a book of music in Just Intonation*

PLAINSOUND MUSIC EDITION

# Les Duresses (2004–)

*for violins*

This work-in-progress is a collection of pieces for violin or violin+instrument, conceived as experimental ‘intonation studies’ in a sense parallel to Conlon Nancarrow’s ‘Studies for Player Piano’. Like Couperin’s books of music for harpsichord, I think of my collection as contemporary house music existing for private playing pleasure which might occasionally double as more formal concert music. ‘Les Duresses’ is dedicated to Natalie Pfeiffer.

The first two pieces in the series, titled ‘Intonation after Morton Feldman #1 and #2’, each take as a point of departure a pair of tuned dyads drawn from Morton Feldman’s unfinished ‘Composition’ (1984) for solo violin. The harmonically complex transitions become the respective topics of the new pieces, seeking to make these comprehensible to both player and listener. These pieces may be transposed and played on viola, Partch adapted viola, or cello if desired.

# The Extended Helmholtz-Ellis JI Pitch Notation

microtonal accidentals designed by Marc Sabat and Wolfgang von Schweinitz, 2004

**3-LIMIT (PYTHAGOREAN) INTERVALS**

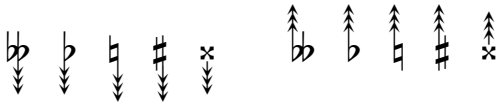
**FUNCTION OF THE ACCIDENTALS**

notate 35 pitches from the series of untempered perfect fifths
(3/2) ≈ ± 702.0 cents;
*perfect fifth (3/2); perfect fourth (4/3); major wholetone (9/8)*

**5-LIMIT (PTOLEMAIC) INTERVALS**

notate an alteration by one syntonic comma (81/80) ≈ ± 21.5 cents;
*major third (5/4); minor third (6/5); major sixth (5/3); minor sixth (8/5); minor wholetone (10/9)*

notate an alteration by two syntonic commas
(81/80)·(81/80) ≈ ± 43.0 cents;
*augmented fifth (25/16); diminished fourth (32/25)*



notate an alteration by three syntonic commas
(81/80)·(81/80)·(81/80) ≈ ± 64.5 cents;
*minor diesis (128/125)*

**7-LIMIT (SEPTIMAL) INTERVALS**

notate an alteration by one septimal comma (64/63) ≈ ± 27.3 cents;
*natural seventh (7/4); septimal wholetone (8/7);*
*septimal diminished fifth (7/5); septimal tritone (10/7);*
*septimal minor third (7/6); septimal quartertone (36/35)*

notate an alteration by two septimal commas
(64/63)·(64/63) ≈ ± 54.5 cents;
*septimal sixthtone (49/48)*

**11-LIMIT (UNDECIMAL) INTERVALS**

notate an alteration by one undecimal quartertone
(33/32) ≈ ± 53.3 cents;
*undecimal augmented fourth (11/8); undecimal diminished fifth (16/11)*

**13-LIMIT (TRIDECIMAL) INTERVALS**

notate an alteration by one tridecimal thirdtone (27/26) ≈ ± 65.3 cents;
*tridecimal neutral sixth (13/8); tridecimal neutral third (16/13)*

**PRIMES IN THE HARMONIC SERIES OCTAVE 16 - 32** *(5-limit signs are given here relative to "A")*

notate an alteration of the 5-limit accidental by one 17-limit schisma
(16/17)·(16/15) = (256/255) ≈ ± 6.8 cents;
*Galileo's "equal-tempered" semitone (18/17);*
*17-limit diminshed seventh chord 10:12:14:17*

notate an alteration by one 19-limit schisma
(19/16)·(27/32) = (513/512) ≈ ± 3.4 cents;
*19-limit minor third (19/16); 19-limit minor triad 16:19:24*

notate an alteration by one 23-limit comma
(23/16)·(8/9)·(8/9)·(8/9) ≈ ± 16.5 cents;
*raised leading tone (23/12)*

notate an alteration of the 5-limit accidental by one 29-limit comma
(29/16)·(5/9) = (145/144) ≈ ± 12.0 cents

notate an alteration of the 11-limit accidental by one 31-limit schisma
(32/31)·(32/33) = (1024/1023) ≈ ± 1.7 cents

**PRIMES IN THE HARMONIC SERIES OCTAVE 32 - 64** *(5-limit signs are given here relative to "A")*

notate an alteration of the 11-limit accidental by one 37-limit schisma
(36/37)·(33/32) = (297/296) ≈ ± 5.8 cents

notate an alteration of the 5-limit accidental by one 41-limit schisma
(32/41)·(81/64)·(81/80) = (6561/6560) ≈ ± 0.3 cents

notate an alteration by one 43-limit comma
(43/32)·(3/4) = (129/128) ≈ ± 13.5 cents

notate an alteration of the 7-limit accidental by one 47-limit schisma
(32/47)·(48/49)·(3/2) = (2304/2303) ≈ ± 0.8 cents

notate an alteration of the 5-limit accidental by one 53-limit comma
(32/53)·(5/3) = (160/159) ≈ ± 10.9 cents

notate an alteration of the 13-limit accidental by one 59-limit schisma
(32/59)·(24/13) = (768/767) ≈ ± 2.3 cents

notate an alteration of the 7-limit accidental by one 61-limit schisma
(61/32)·(21/40) = (1281/1280) ≈ ± 1.4 cents

**IRRATIONAL AND TEMPERED INTERVALS**

notate the respective Equal Tempered Semitone;
may be combined with a cents indication to notate any pitch

**NOTE ABOUT CENTS INDICATIONS**

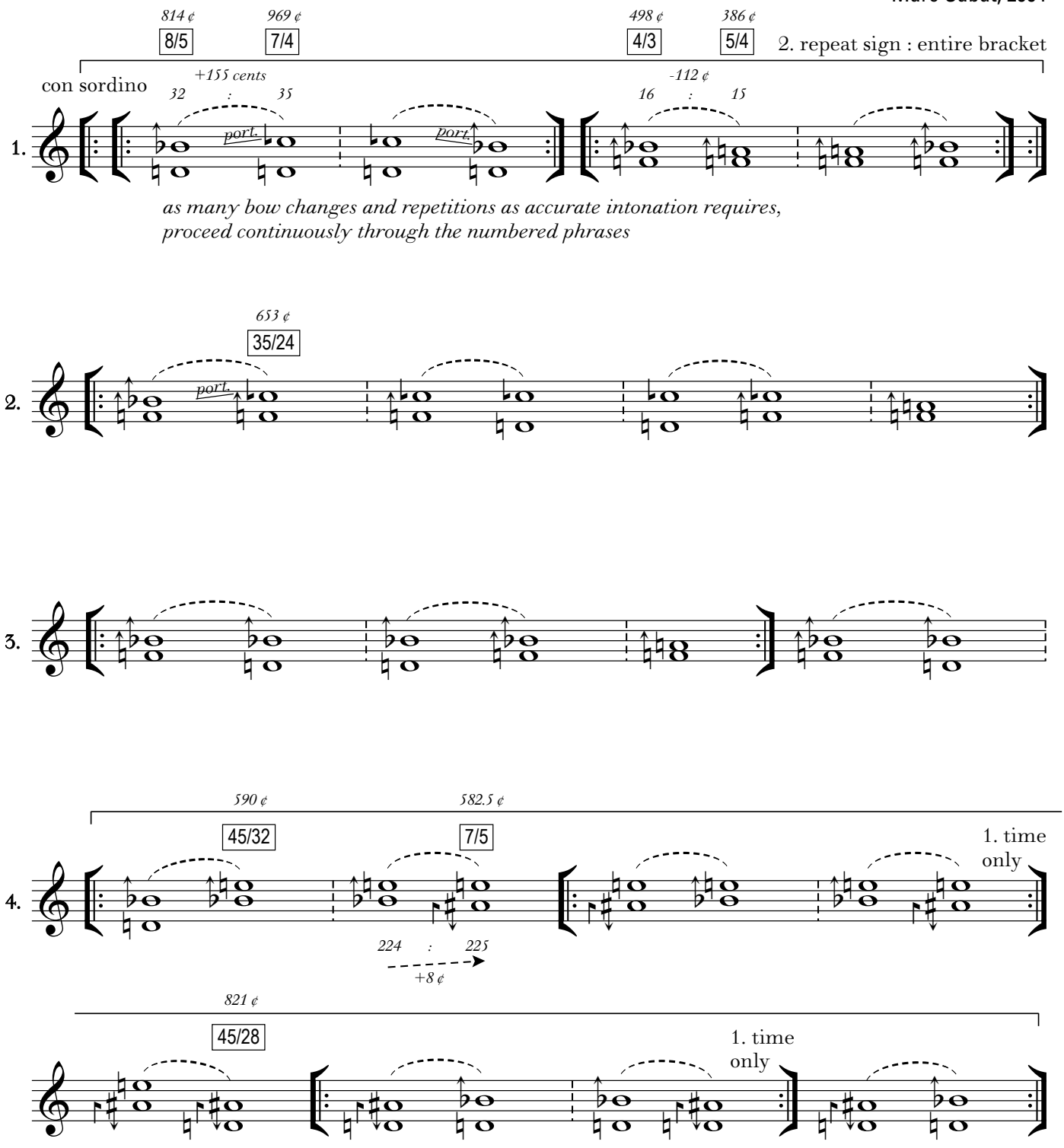
optional cents indications may be placed above or below the respective accidentals and are always understood in reference to Equal Tempered semitones, as implied by the Pythagorean accidentals

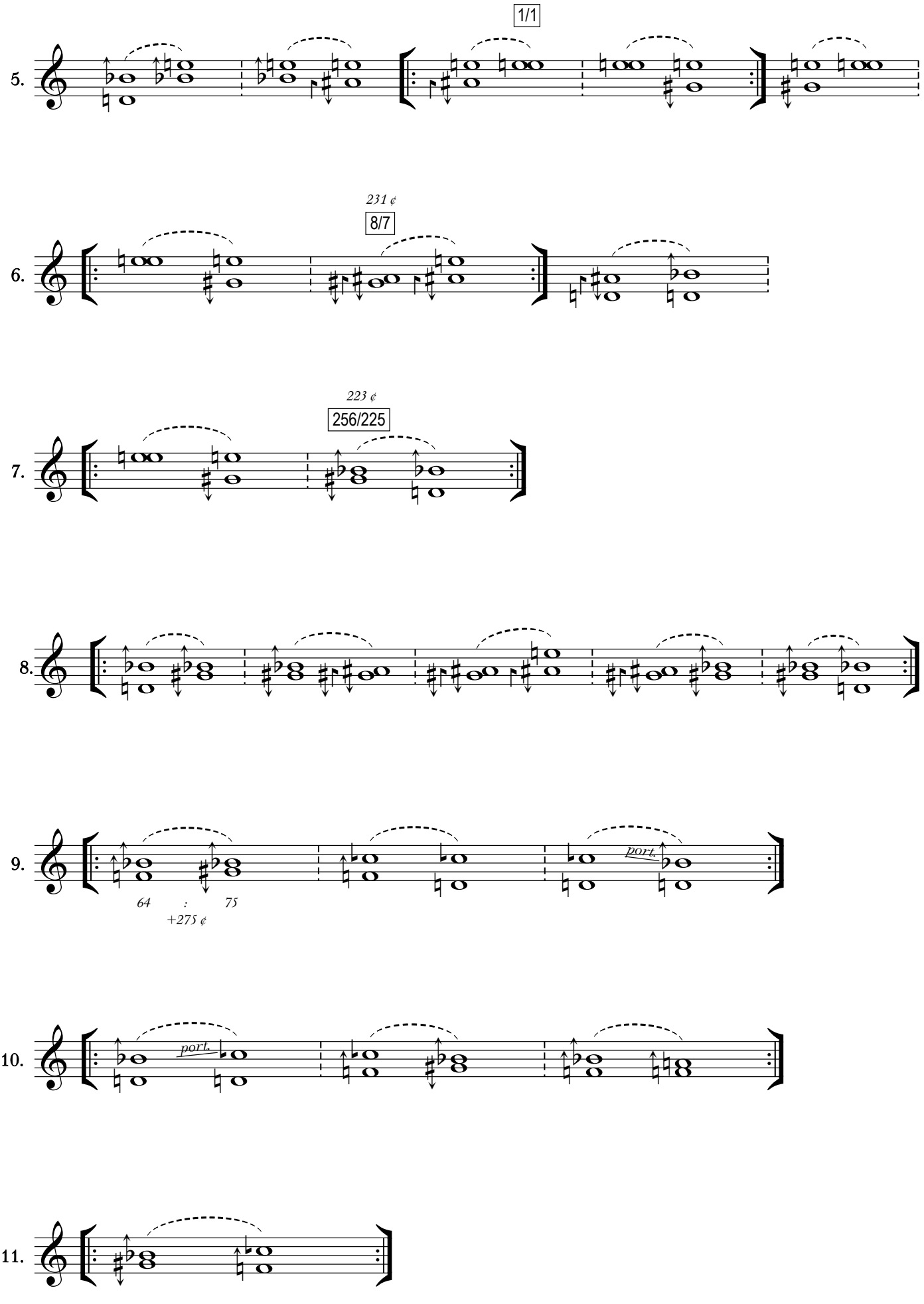
# **'Les Duresses'** : a book of music in Just Intonation

*for Natalie Pfeiffer*

## No. 1 : Intonation after Morton Feldman #1 *(violin solo)*

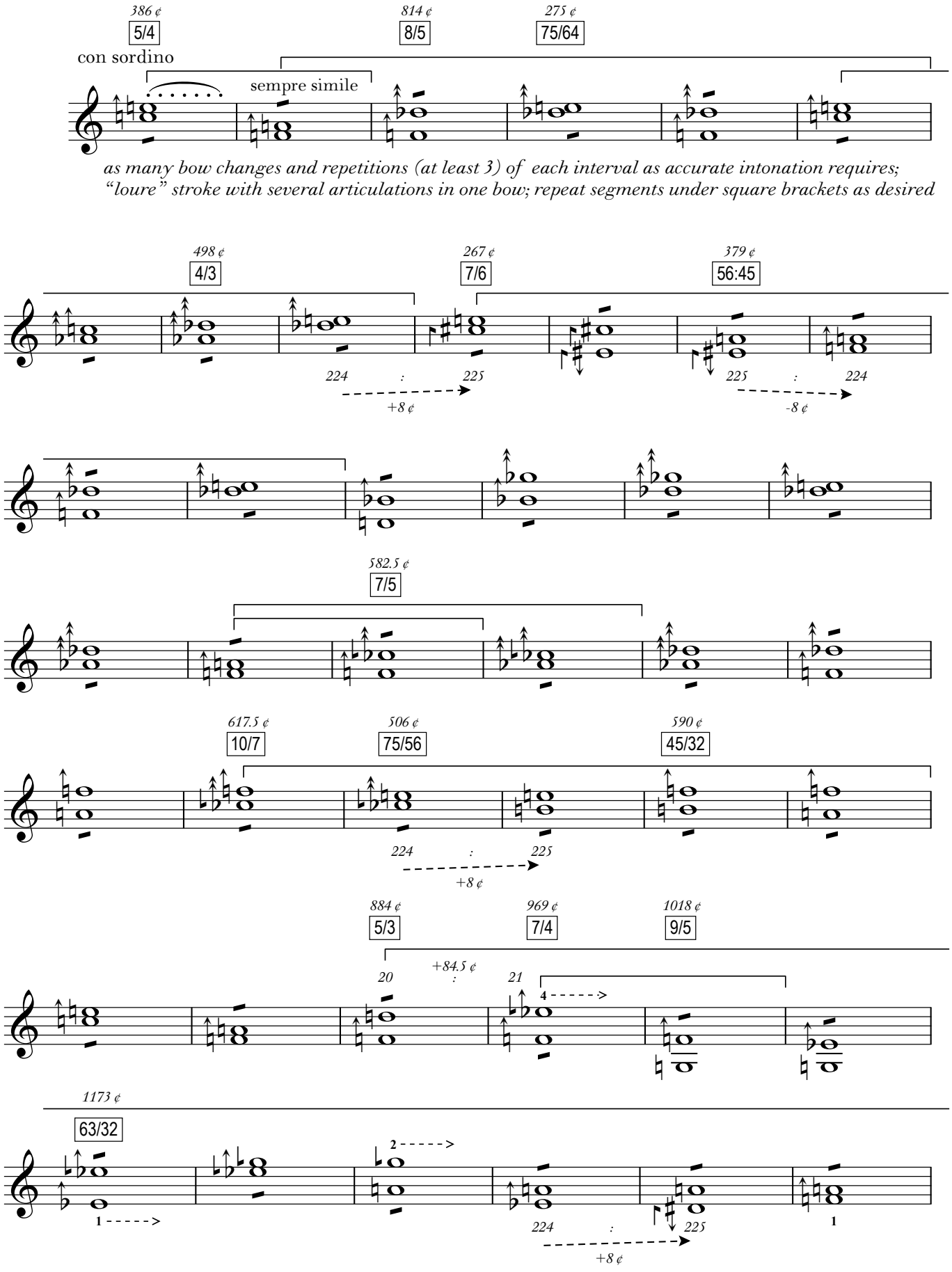
Marc Sabat, 2004

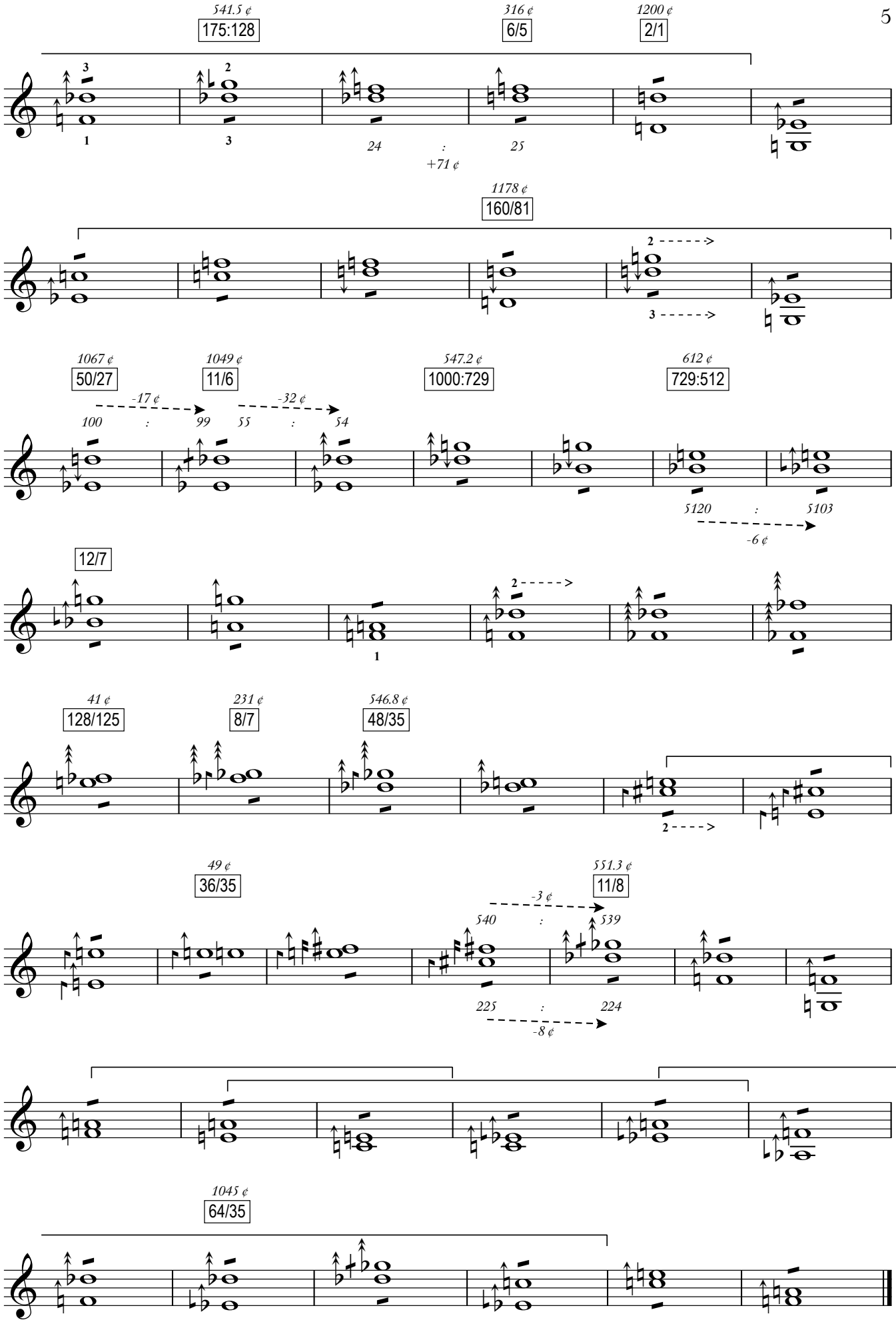





Berlin, 13.01.2004

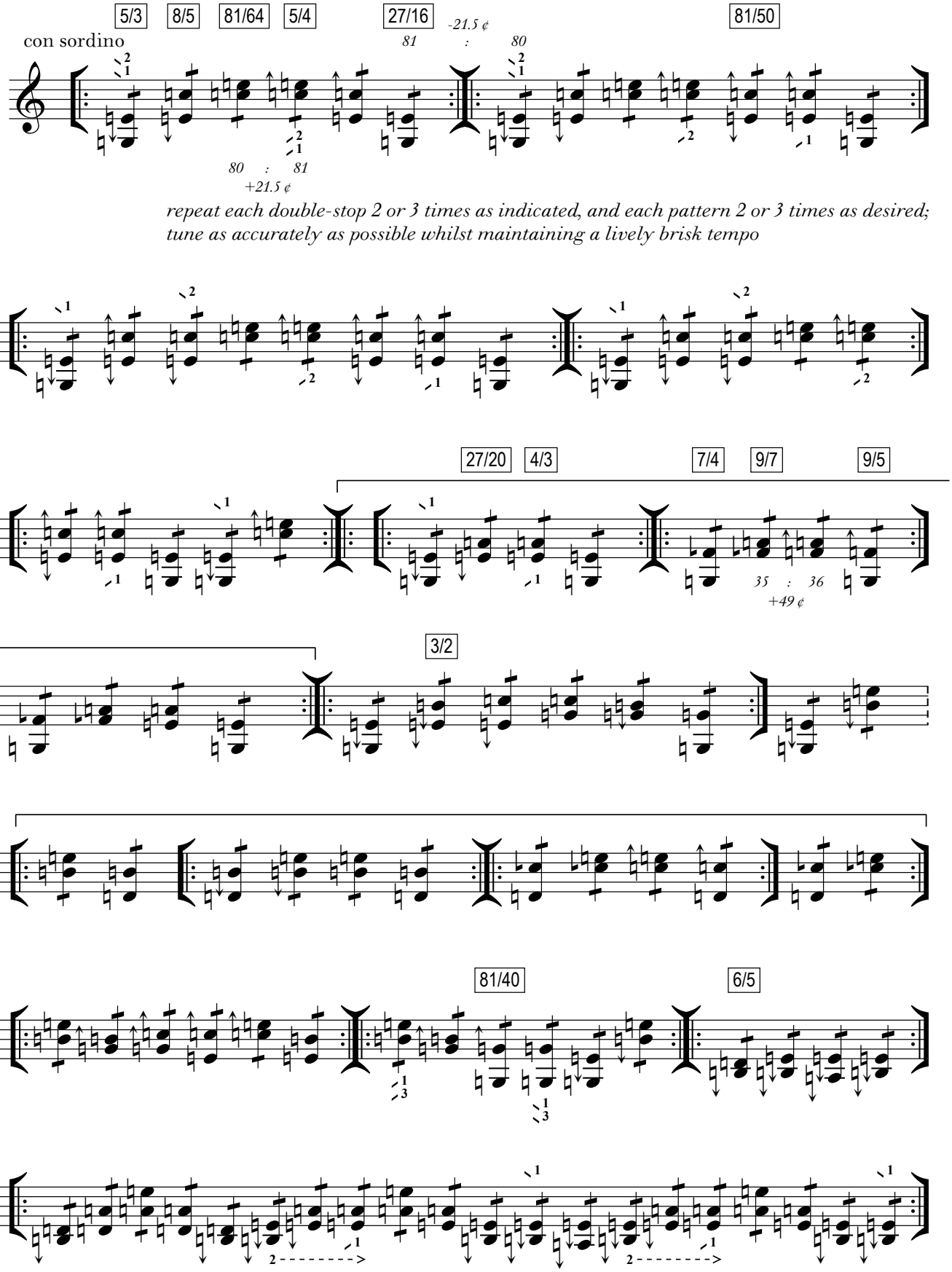
# No. 2 : Intonation after Morton Feldman #2 *(violin solo)*



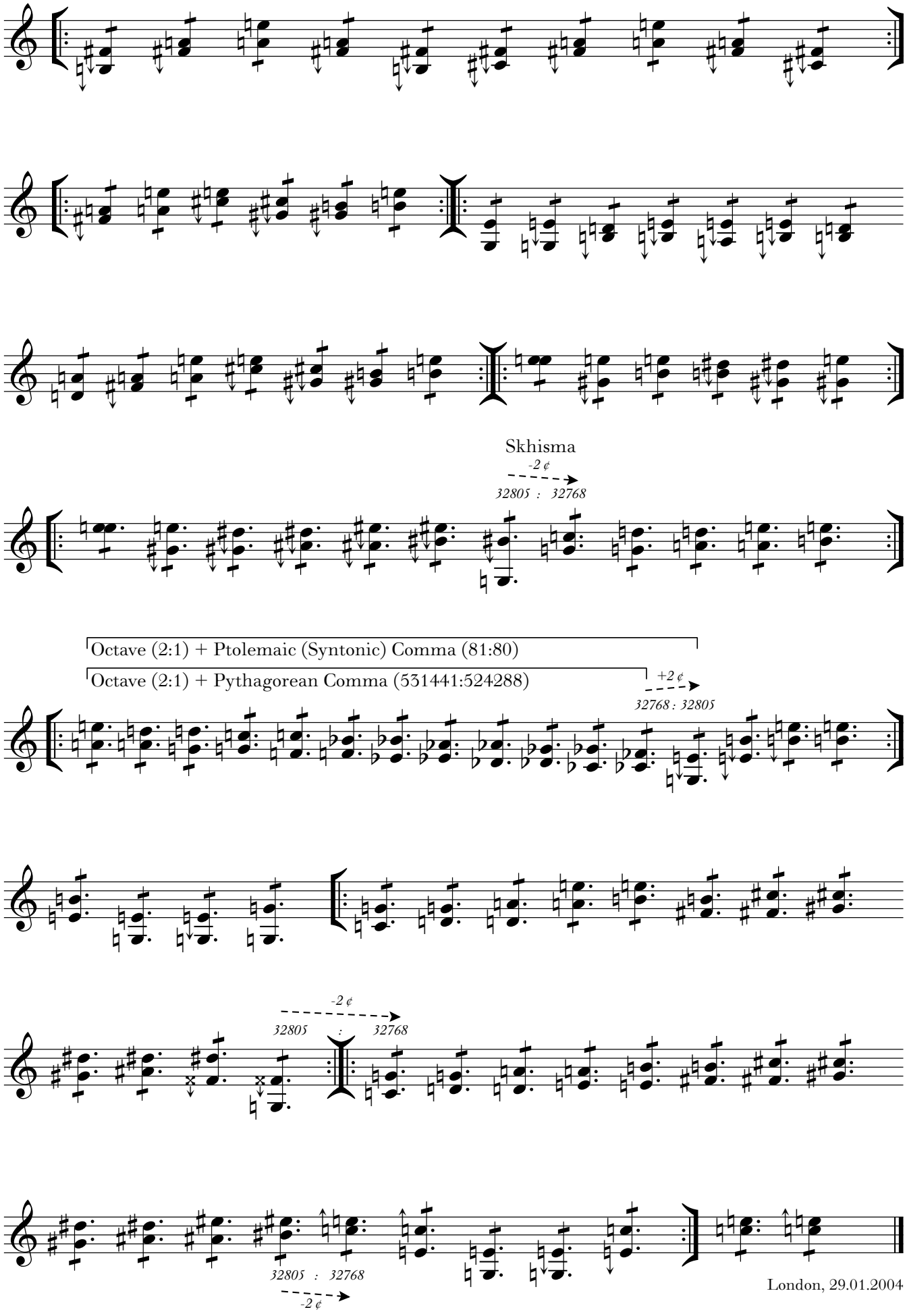



London, 21.01.2004

# No. 3 : Two Commas *(violin solo)*

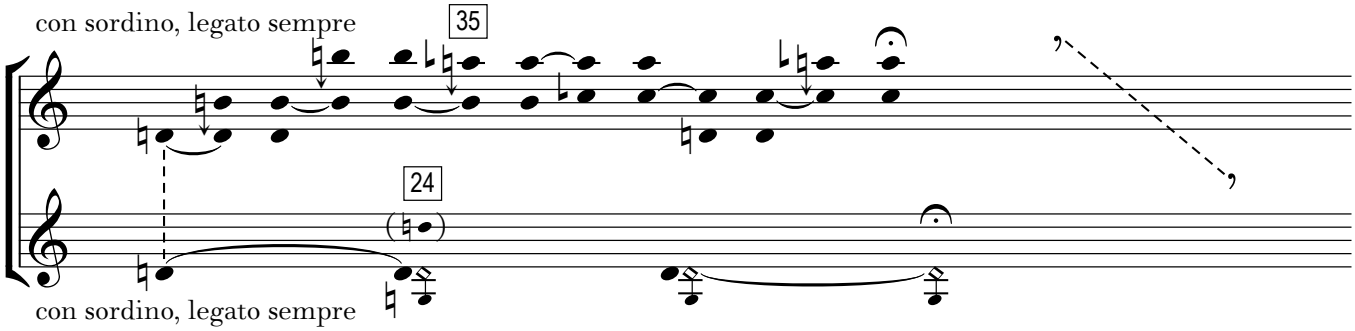



*repeat each double-stop 2 or 3 times as indicated, and each pattern 2 or 3 times as desired; tune as accurately as possible whilst maintaining a lively brisk tempo*

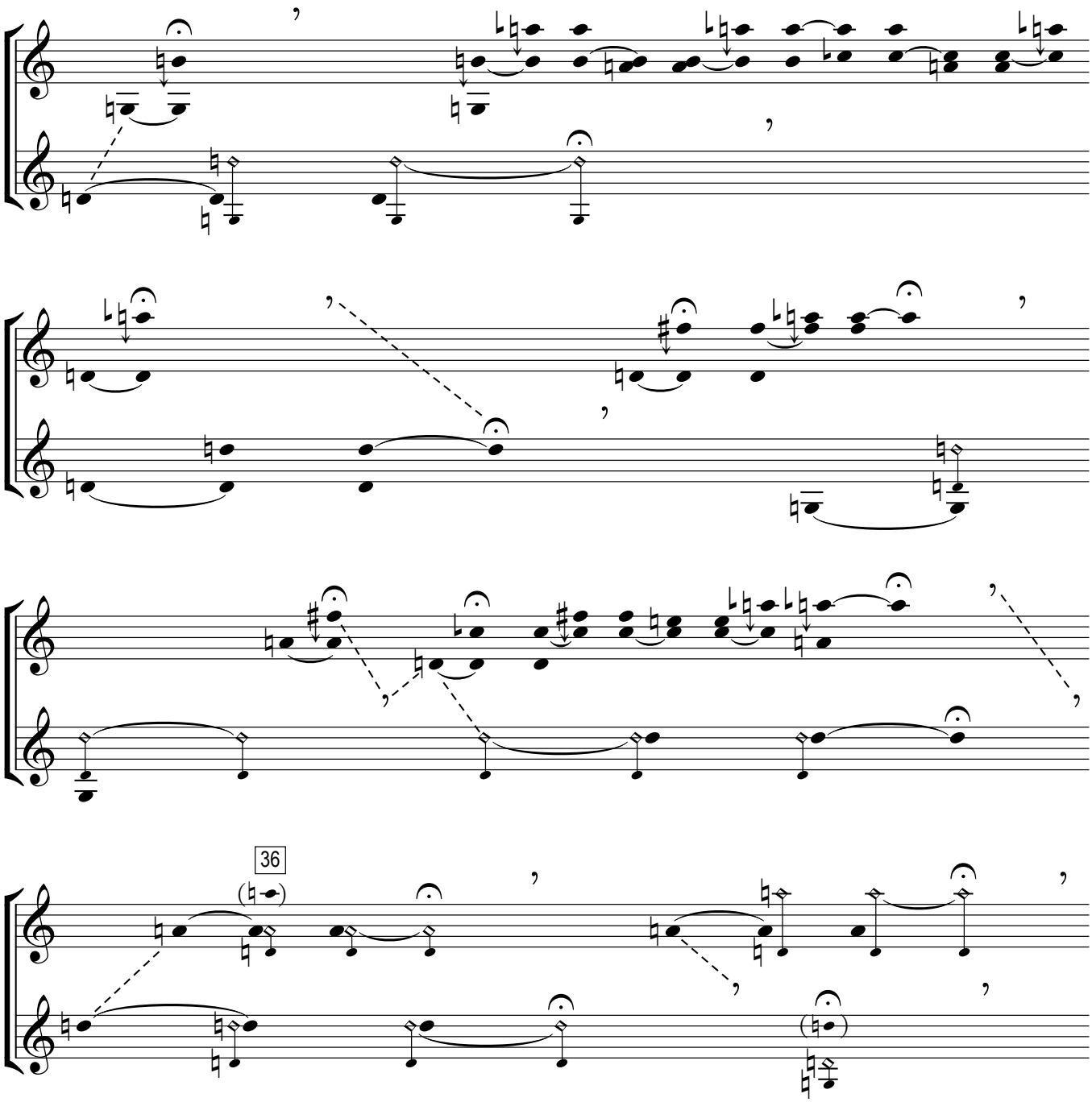


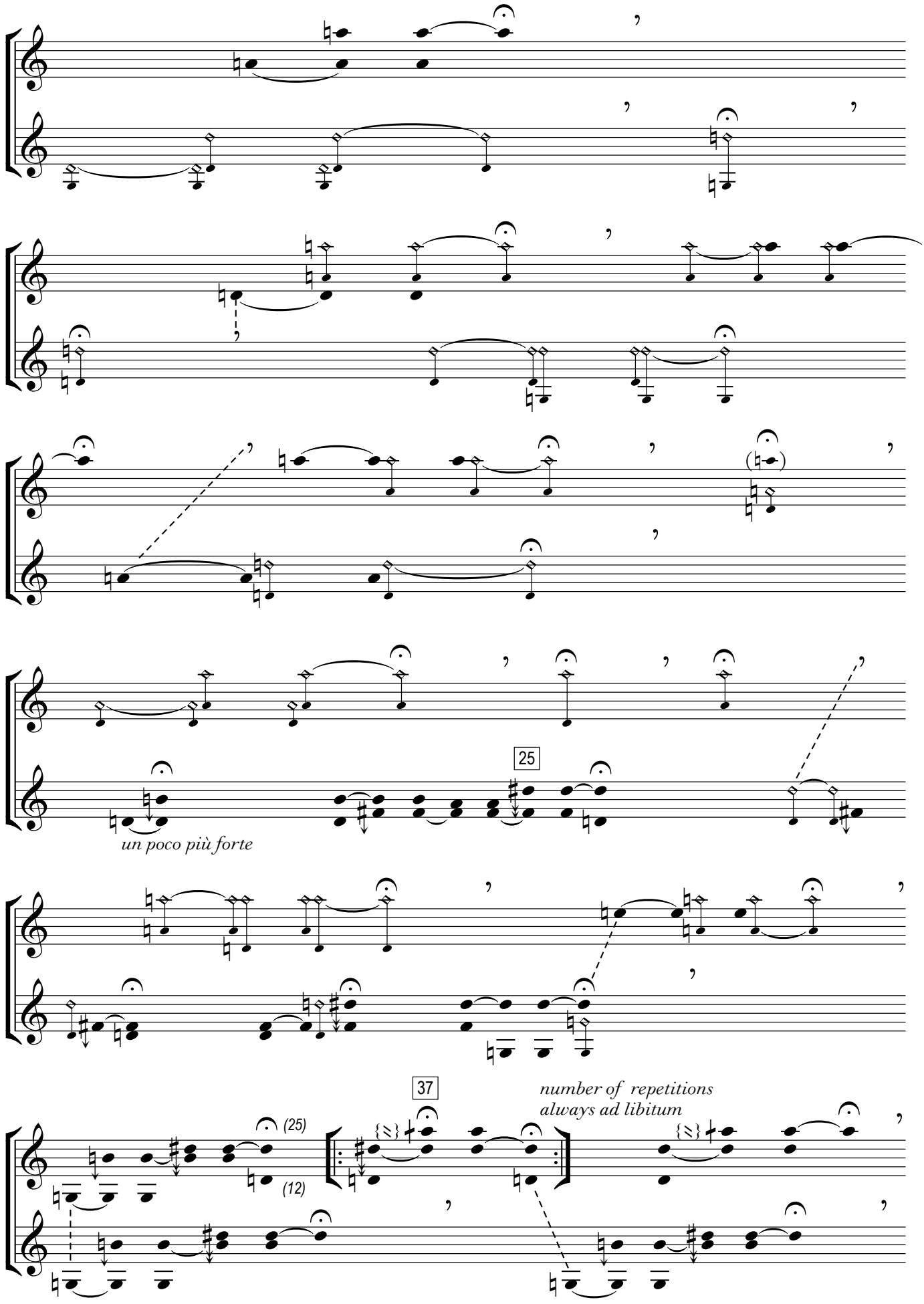

London, 29.01.2004

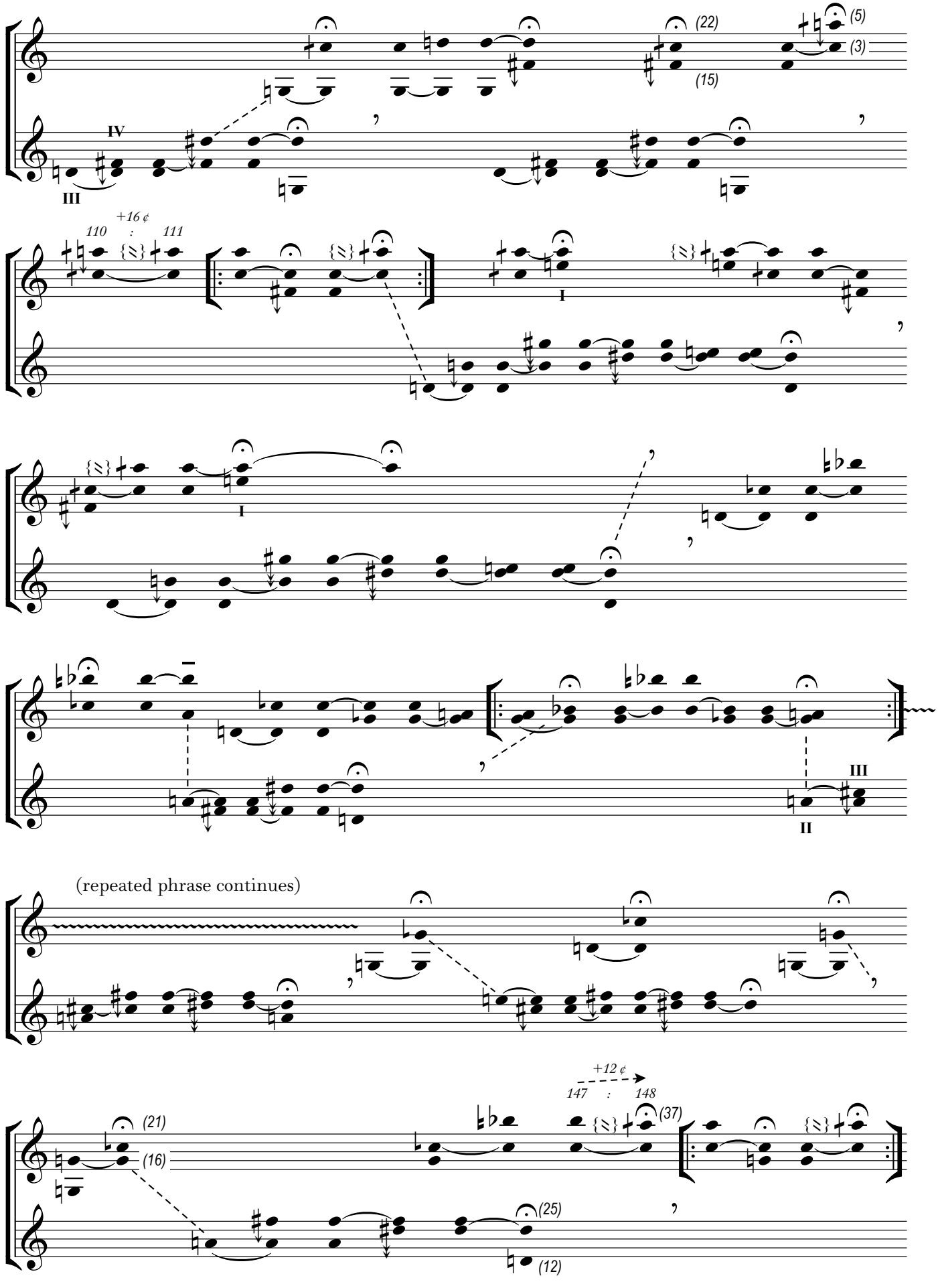
# No. 4 : Duas Quintas *(2 violins)*

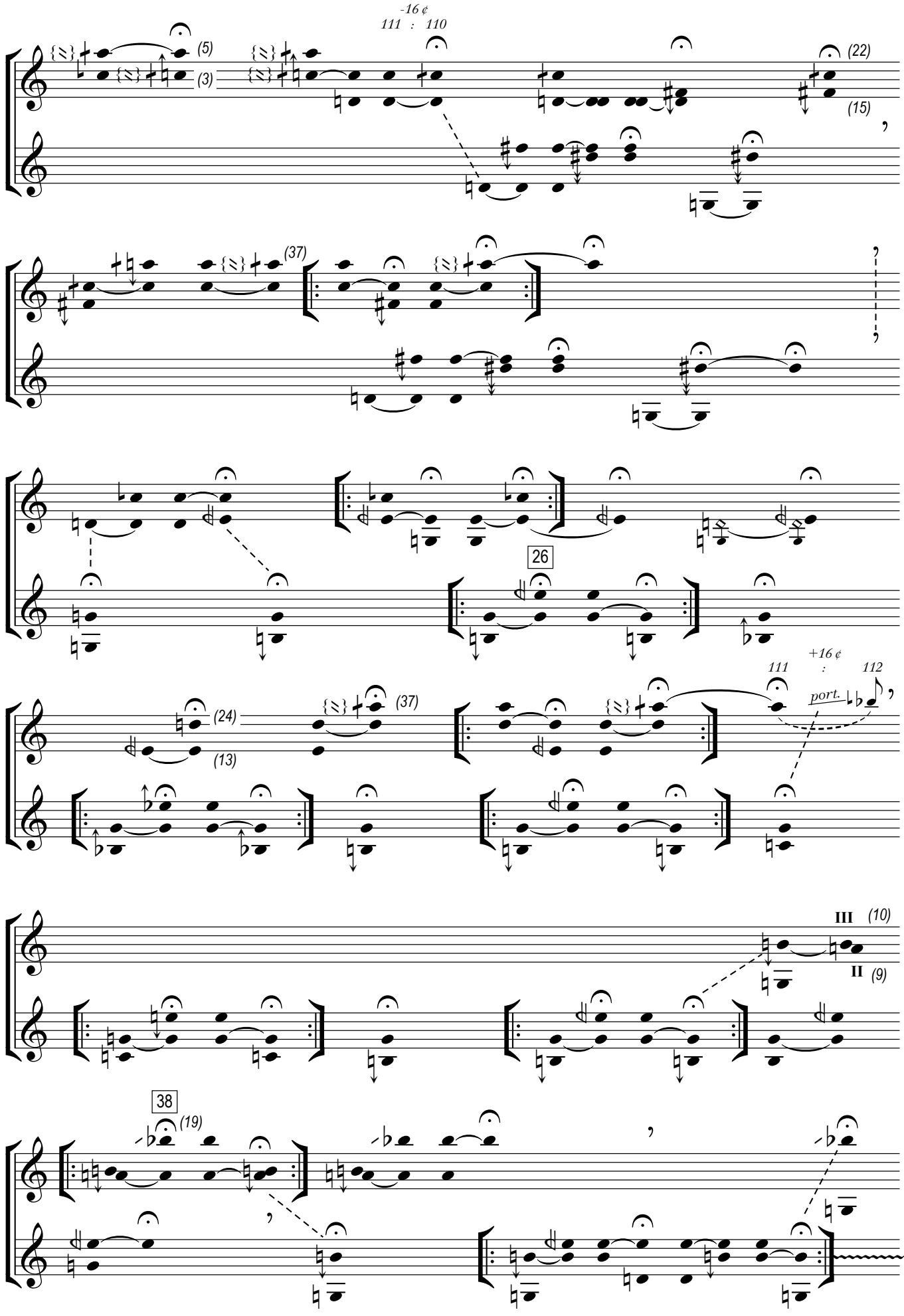


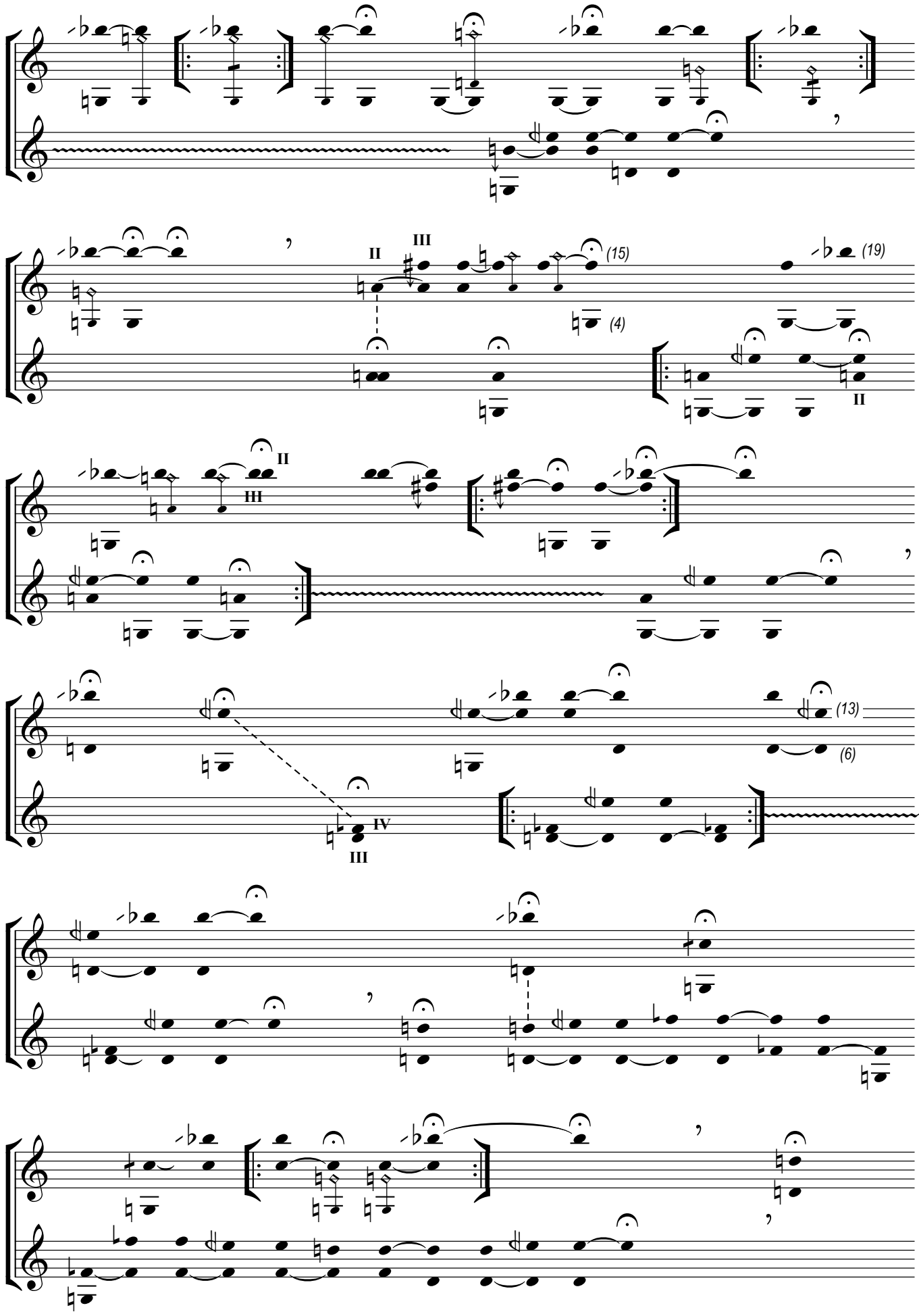

*events which are connected by dotted lines are to be co-ordinated as indicated, otherwise played freely; boxed numbers refer to the harmonic series numbers over a low G0 (3 octaves below the G string)*

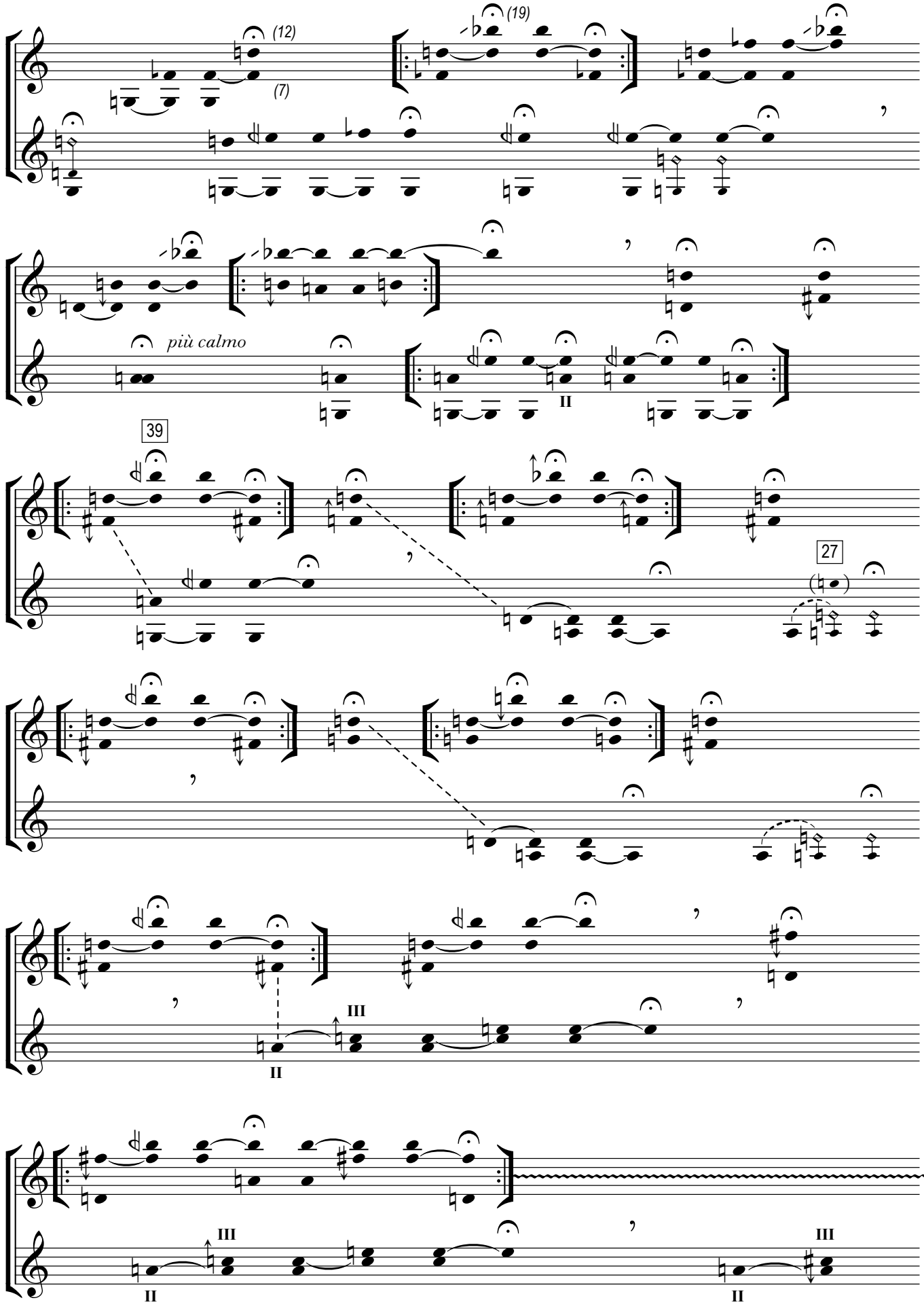


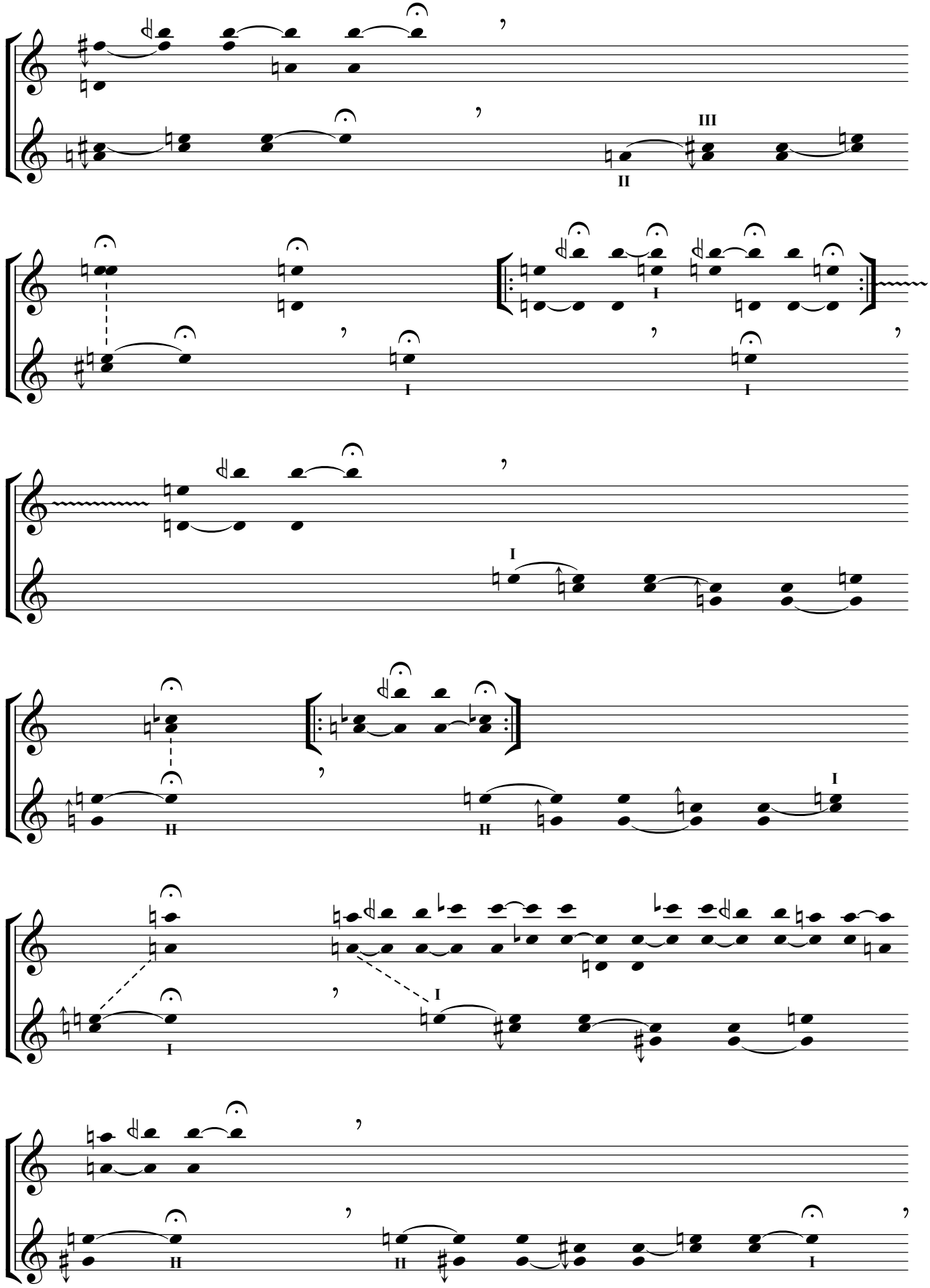

25
un poco più forte
37
number of repetitions
always ad libitum
(25)
(12)

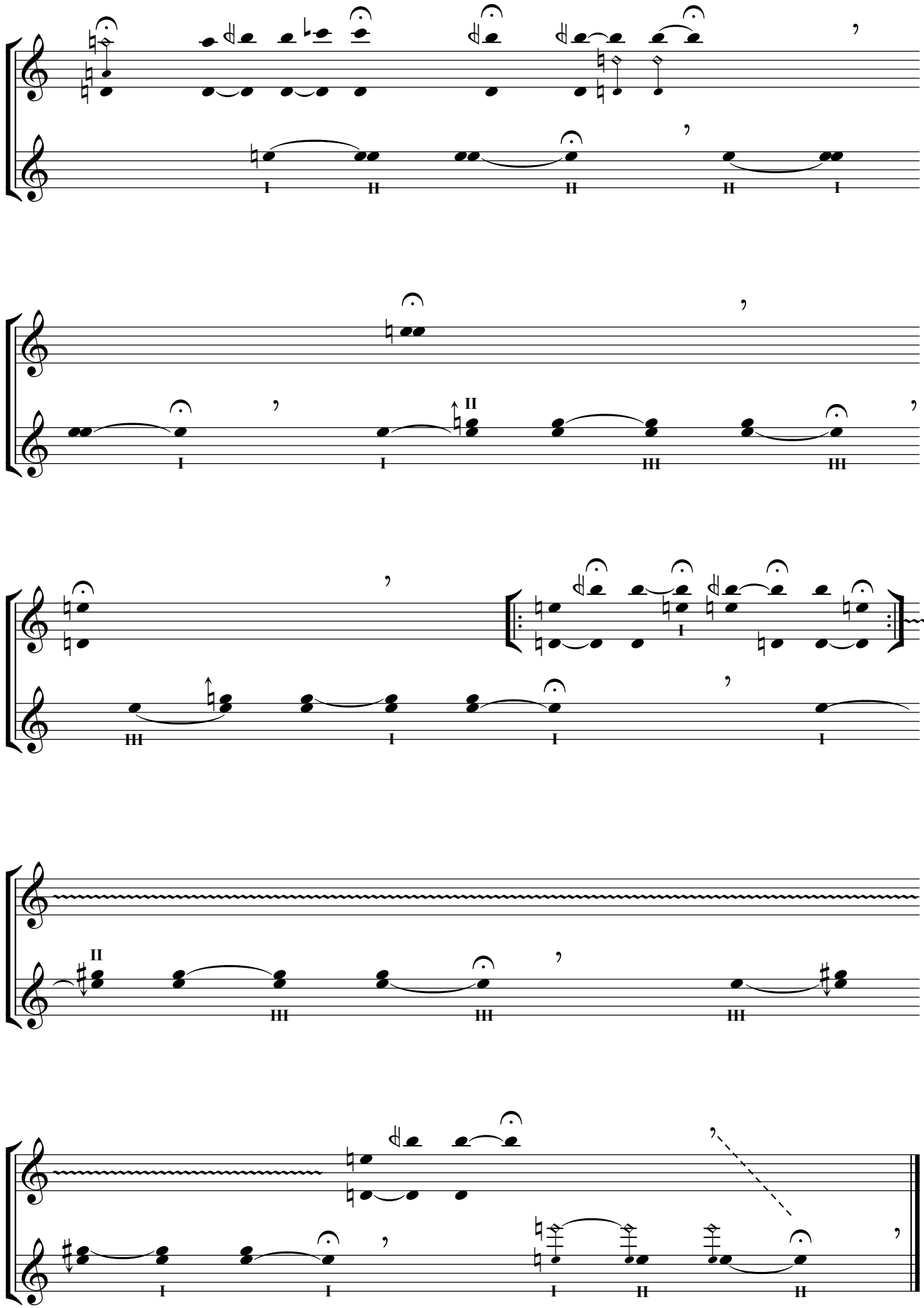

(22)
(15)
(5)
(3)
IV
III
+16 ¢
110
111
I
I
III
II
(repeated phrase continues)
+12 ¢
147
148
(21)
(16)
(37)
(25)
(12)


-16 ¢
111 : 110
(5)
(3)
(22)
(15)
(37)
26
(24)
(13)
(37)
111
+16 ¢
:
112
port.
III
(10)
II
(9)
38
(19)


II
III
(15)
(4)
(19)
II
II
III
(13)
(6)
III
IV


(12)
(7)
(19)
più calmo
II
39
27
III
II
III
II
III
II


III
II
I
I
I
II
II
I
I
II
II
I



Berlin, 13.10.2004