Robert Casteels

Bird Songs

Full Score

Robert Casteels

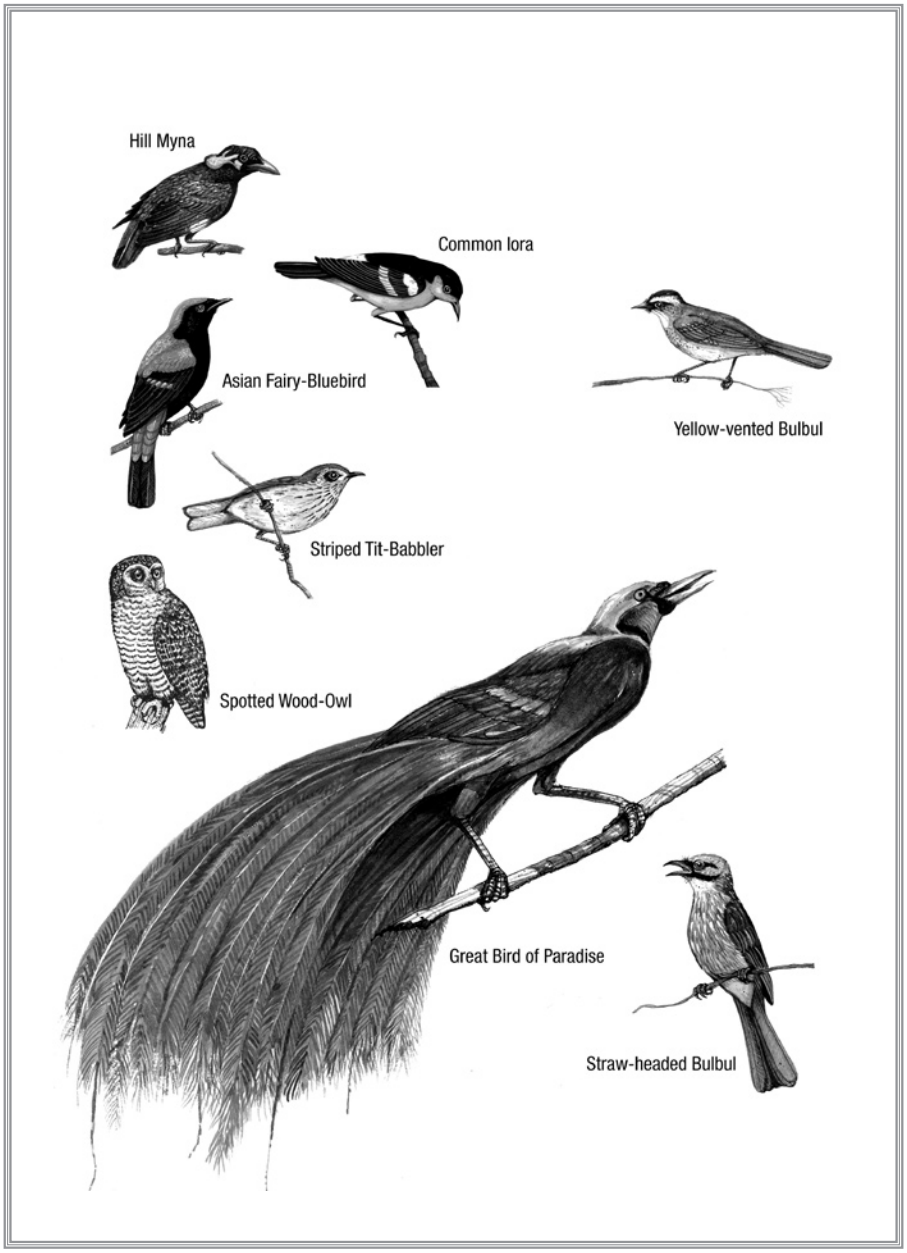
Bird Songs

Dedicated to Birds, the True Masters

Commissioned by the Garden City Fund
in celebration of the 150th Anniversary of
Singapore Botanic Gardens

With gratitude to Sutari Supari and
the Nature Society (Singapore) for the avian recordings

First performance on 5-XII-2009
on the Shaw Foundation Symphony Stage,
Palm Valley Singapore Botanic Gardens



Cover: original illustrations by Sutari Supari

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Contents

Programmes notes

On the 5th of December 2009, Singapore's Minister for National Development, Mr Mah Bow Tan, graced as Guest-of-Honour a concert for the grand finale of Singapore Botanic Gardens' 150th Anniversary, which included the premiere of *Bird Songs* by Robert Casteels. In 2003 for the official launch of the Garden City Fund at the Istana, Casteels had recorded nature sounds from Singapore parks and woven them into a composition for percussion and piano. For his *Birds Songs*, he opted for 4 wind instruments, 4 electric string instruments, 4 voices, keyboard and vibraphone. Overwhelmed by the beauty of the bird calls, Casteels decided against transcribing them for instruments or transforming them through audio manipulation. He also abandoned the idea of bringing caged birds on stage and using the recordings he made in the mountains of Northern Thailand and Laos. With the gracious permission of Nature Society (Singapore) and Mr Sutari Supari, Casteels selected ten bird calls on the basis of their esthetic beauty and contrasting variety. He then had the chosen tracks filtered from background noises and wind, and submitted them for sonogram analyses. A sonograph plots the sound frequency in kilohertz against time in seconds. This scientific information helped him in the composition of the interaction between the instrumental sounds and bird sounds. Casteels' *Bird Songs* is a dense composition, a journey from artificial imitation to forceful imprisonment to endangered freedom. The first three minutes of the composition may sound like a senseless chaos, as all instruments are competing whilst singers sing the binomial names and improvise in the manner of jazz scat on avian onomatopoeic syllables. The pre-recorded tape plays in succession, mechanical bird sounds that are MIDI cloned sounds, an ear shattering crowd of *mata puteh* recorded in the void deck of Block 440 Ang Mo Kio Avenue 10, where aviculturalists and bird-fanciers show off their countersinging birds and elaborate cages every Sunday morning, and a dawn choruses recorded in HDB estates. In reality, this first part of the composition is far from chaotic. Just as in a crowded bird colony, parents are able to locate each other, recognize a neighbor from a complete stranger and identify their own young among thousands of others all packed together, every single pitch and rhythm in the beginning of this composition is explainable. After these initial three minutes, all instruments converge towards a single note that signals the beginning of the second part of the piece. From this point, instrumentalists will dialogue with the following ten birds which are resident in the Republic of Singapore: the Yellow-vented Bulbul, the Spotted Wood-owl, the Common Iora, the Rufus-tailed Tailorbird, the Hill Myna, the Drongo Cuckoo, the Asian Fairy Bluebird, the Straw-headed Bulbul, the Striped Tit-babbler and the Malaysian-eared Nightjar. Finally, the sound of the human instruments gently wafts away in a gracious bow to a chorus of the *Paradisaea apoda*, also known as the Greater Bird of Paradise. This species was named by 18th c. Swedish botanist, Carl Linnaeus. Paradise referred then to New Guinea. Paradisea refers to the belief that this bird never alighted. *Apoda* was a neologism from Ancient Greek that means without legs, because Europeans only ever saw the magnificent long tail feathers. Thousands of massacred birds had their feet chopped off before being shipped to satisfy a high demand in European millinery. Like any other citizen, contemporary artists also inherited the magnificent environment that is our planet earth. Progress has enabled many of us to appreciate the beauty of nature, yet the same progress is destroying much of that beauty. In composing *Bird Songs*, Casteels humbly endeavoured to share his wonder for nature's magnificence and his sense of responsibility on how to pass the legacy to future generations.

Duration 9'30"

Instrumentation

1	piccolo flute
1	clarinet
1	sax doubling on soprano and tenor
1	trombone doubling on euphonium
1	88-keys keyboard
2	percussionists (vibraphone with pedal and motor, flexatone, suspended cymbal, whip, high wood block, pre-recorded avian sounds and bird calls)
4	voices (2 soprano and 2 mezzo soprano) (alternatively 2 countertenors, 2 tenors)
1	electric or acoustic violin
1	electric guitar
1	electric or acoustic cello
1	electric or acoustic double bass

Performance notes

- **for the conductor:**

  The pre-recorded avian sounds and the instrumental parts containing cues in small notes can be rented from the publisher for performances. All percussion parts and the time-line to handle the pre-recorded sounds are combined into one part. The four singing parts are combined into one part. Track 2 comprises 26″ of captive singing birds with comments by aviculturalists, followed by a reiteration of mechanical birds which should ideally start at the same time as rehearsal letter D and the flexatone. Track 3 is actually a concatenation of tracks 5 to 14. Track 5 can overlap with rehearsal letter K. However, all subsequent tracks should ideally be completed just before the beginning of the next section. There are no particular requirements regarding the seating positions. All instruments must be balanced whether amplified or not, particularly the electric guitar versus the other strings whether electric or not, and the saxophone versus the other wind instruments. For reference purposes, annex 1 contains the score of the mechanical birds and the full score contains the sonograms that plot the sound frequency in kilohertz against time in seconds, the general tempo being 60 for a crotchet. When performed outdoors, it is recommended to use electric string instruments. Inside a concert hall, conductors and performers may opt for acoustic string instruments. Annex 2 contains alternative instrumental parts for rehearsal letters B and F to J, in case *Bird Songs* is performed by jazz musicians.

- **for the percussionists:**
  Percussion instruments can be shared between the two players. The choice of vibraphone mallets is left to the discretion of the performer.

- **for the keyboardist:**
  K followed by a number and a name refers to sound effects produced by the keyboard of the brand Kurzweil. The player is at liberty to find similar sound effects on other types of keyboards. The marimba sounds could be played by a real marimba, except that the notes written for the keyboard exceed the compass of a marimba.

- **for the string players:**
  When performed outdoors, it is recommended to use electric string instruments. Inside a concert hall, conductors and performers may opt for acoustic string instruments. Players are at liberty to find similar sounds for the effects, based on the particular sound effect the score numbering referred to at the time of creation of *Bird Songs*.

- **for the singers:**
  Singers should be amplified. Singers are recommended to use the ancient classical Roman pronunciation for the binomial names. Avian scat singing refers to the use of syllabic onomatopoeia. If *Bird Songs* is performed in a non-English speaking context, performers are at liberty to adapt the onomatopoeia. The following list gives examples used by English speaking ornithologists: Ah-di-dee/ (nasal) ank/ caw/ chaa/ chee chee chee/ cheep/ chek/ cherry-erry-erry-erry/ chich ich ich/ chick-a-dee/ chinchirigui/ / chink/ chip-chip-chip-chip/ chirrup/ chonk/ chook / chu/ chueet chup-chup-chup/ churr/ coo/ corcorovado/ cut cut cut/ dray-zee-zee/ duck/ fee-bee fee-bay/ fee-bee-o/ fee-bee-yee/ fitz-bew/ gro-a gro-a/ ha-ha-ha/ hee-yuu/ huit/ hweet/ kee/ kek-kek-kek/ kreeee/ mee/ pee-ah-wee/ pee-oh/ peeee-poooo/ pee-o-wit/ pip pip/ pi-yoo/ / pop-pop/ puee-puee/ puh-puh-puh/ reereeree/ see/ seeoo/ seep/ seet/ shree/ srih/tch-tch-tch/ tchiirp/ tchip/ tchunk/ teet/ te-he/ tell-tell-tell-tell / tissy-che-wee-ooo/ tititititi –tt-eeee/tit/ tix / tll-ew, tll-ui/ toq toq/ tow-hee/ tsea tsea/ tsee / tseet/ tschid/tuck-tuck-tuck/ tupe/ tüt/ /twink/ twip twipyo ta/ twit/ wah/ weee-ooo/ weihp/ whee-u/ who/ wit/ witchety- witchety- witchety/ wok/ yoik/ zeer/ zeert/ zzzzz/ zhzhzh/ zhee.

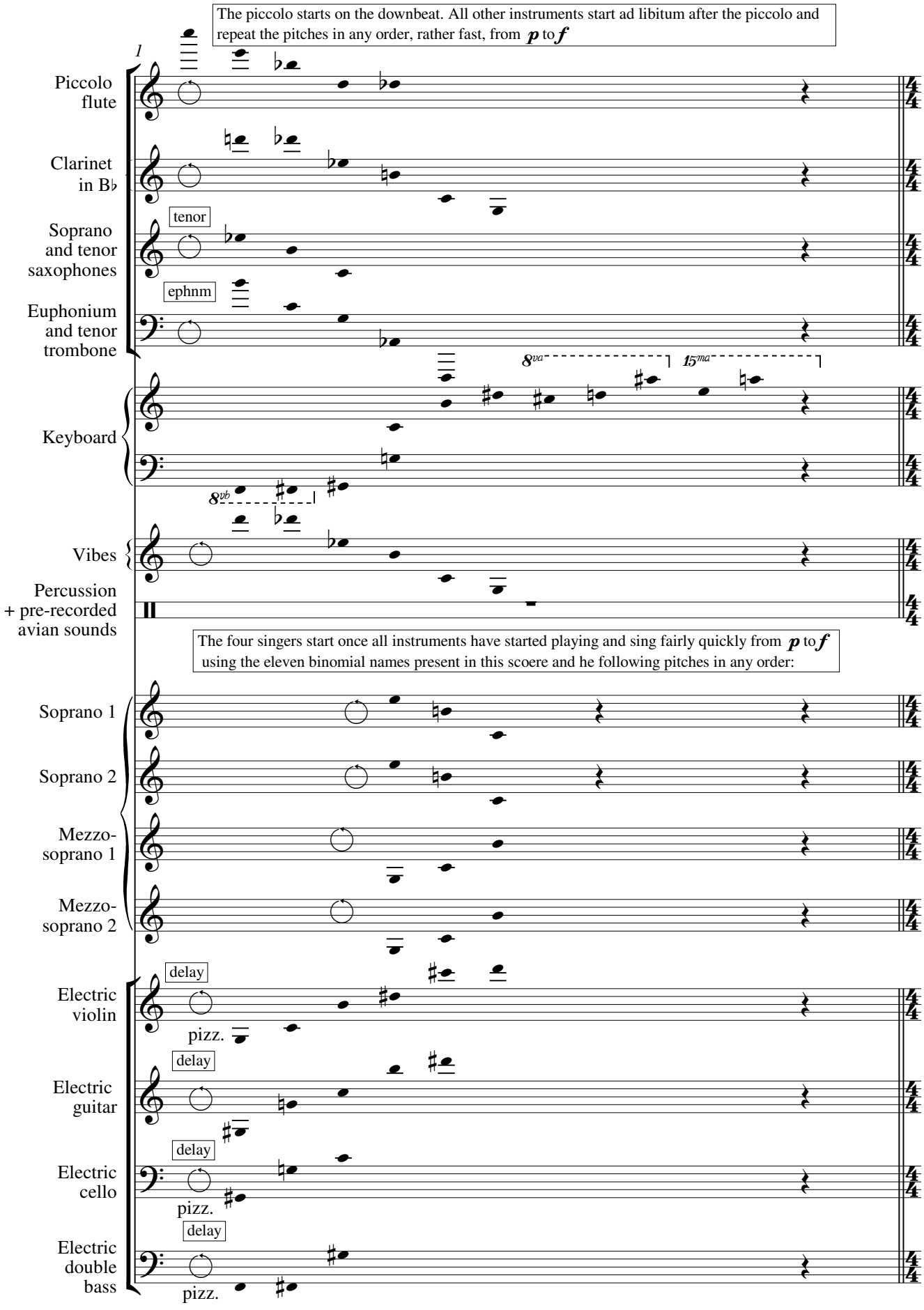
Bird Songs

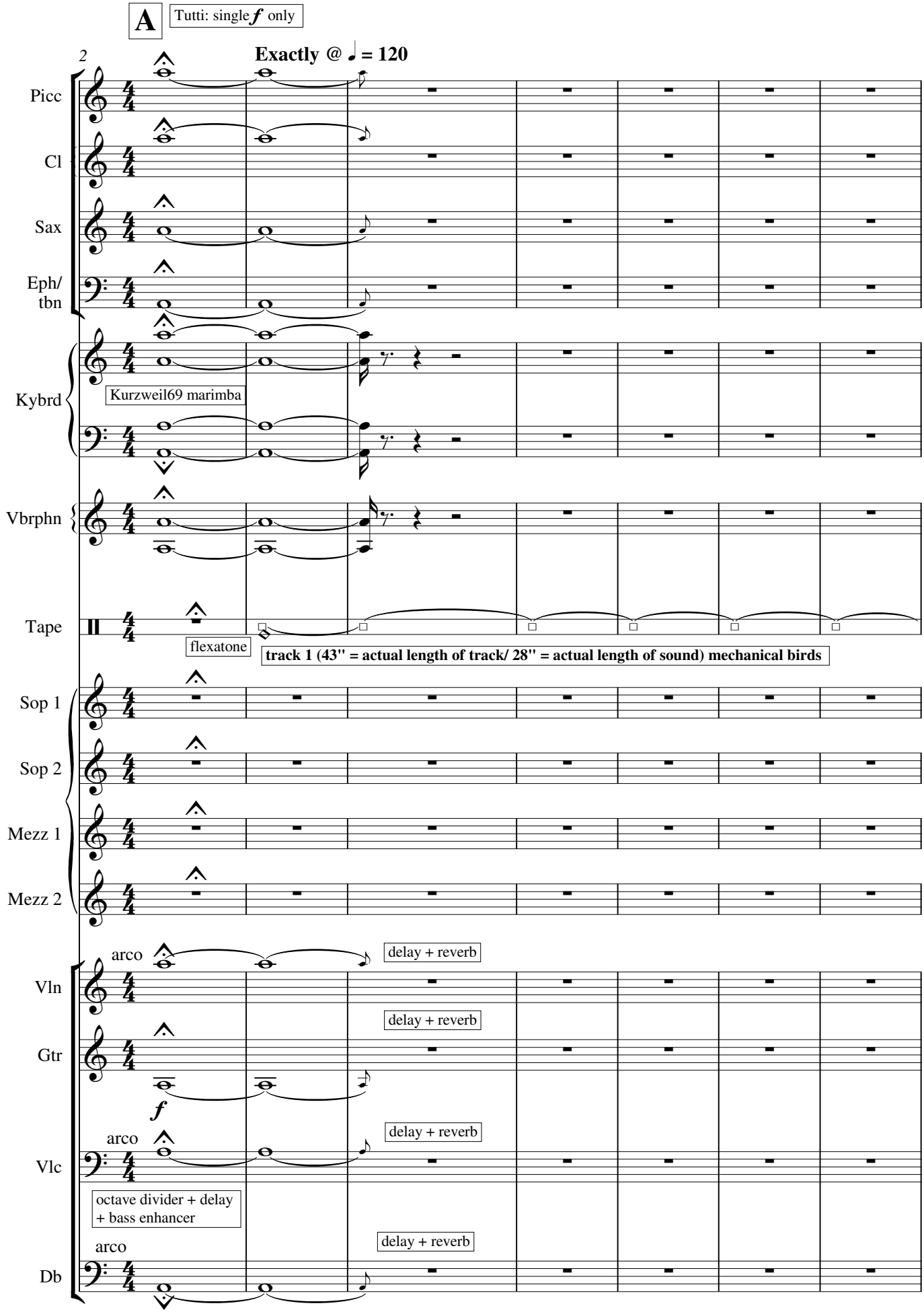
Avian metamorphoses

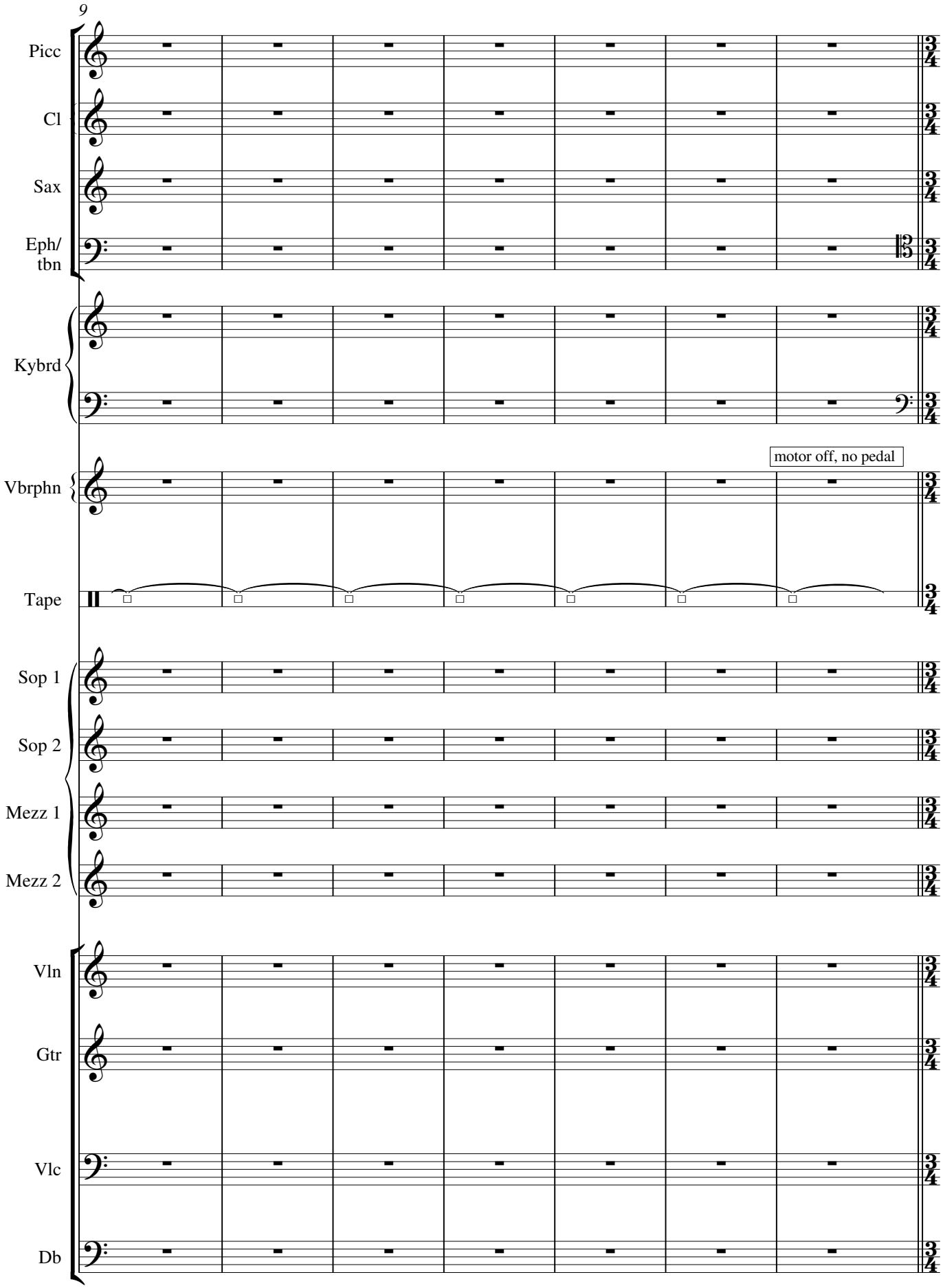
Robert Casteels

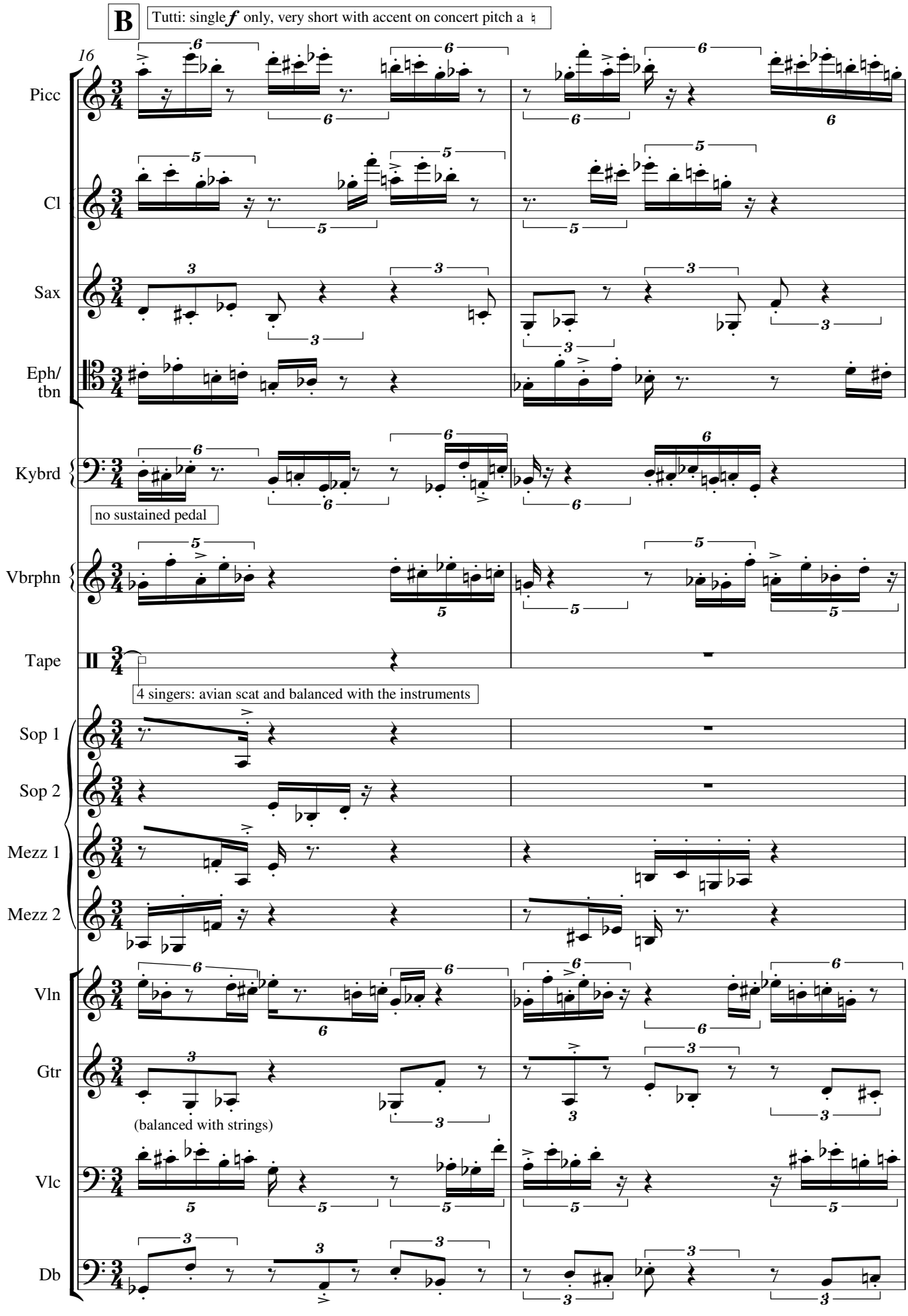
Cadenza of 20"

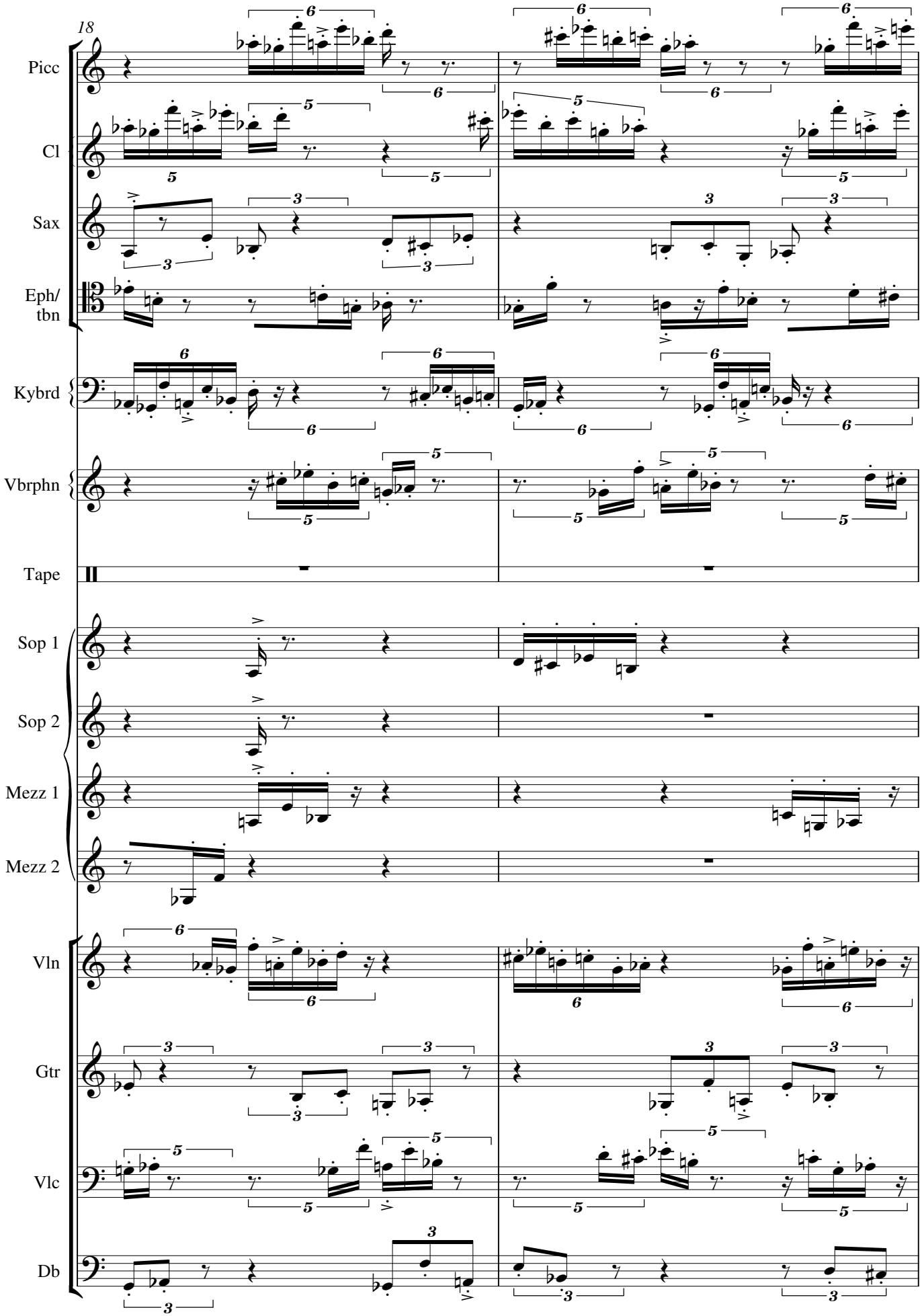
to Birds, the True Masters

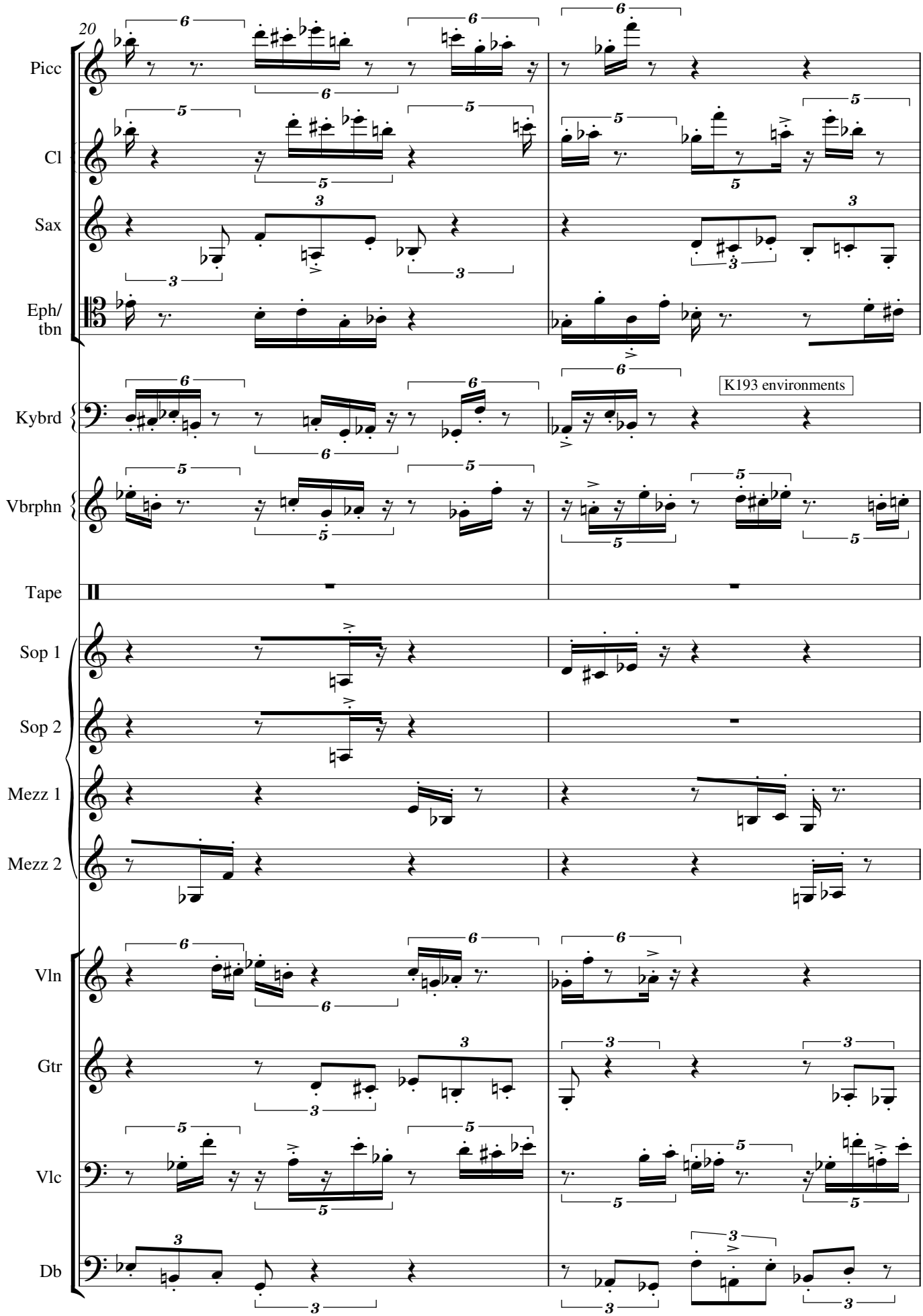


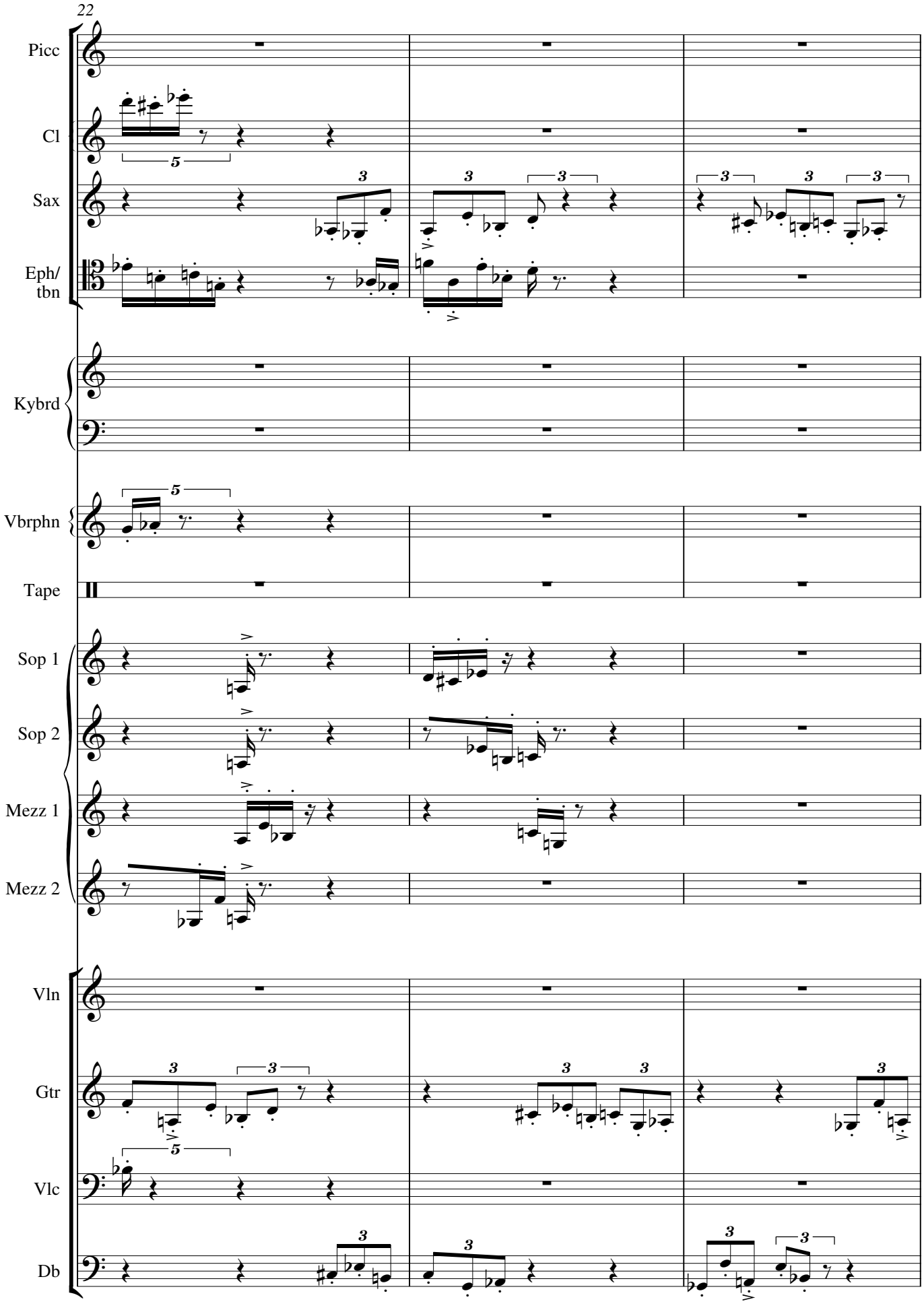

A
Tutti: single f only
2
Exactly @ ♩ = 120
Picc
Cl
Sax
Eph/
tbn
Kybrd
Kurzweil69 marimba
Vbrphn
Tape
flexatone
track 1 (43" = actual length of track/ 28" = actual length of sound) mechanical birds
Sop 1
Sop 2
Mezz 1
Mezz 2
arco
delay + reverb
Vln
delay + reverb
Gtr
f
arco
delay + reverb
Vlc
octave divider + delay
+ bass enhancer
arco
delay + reverb
Db

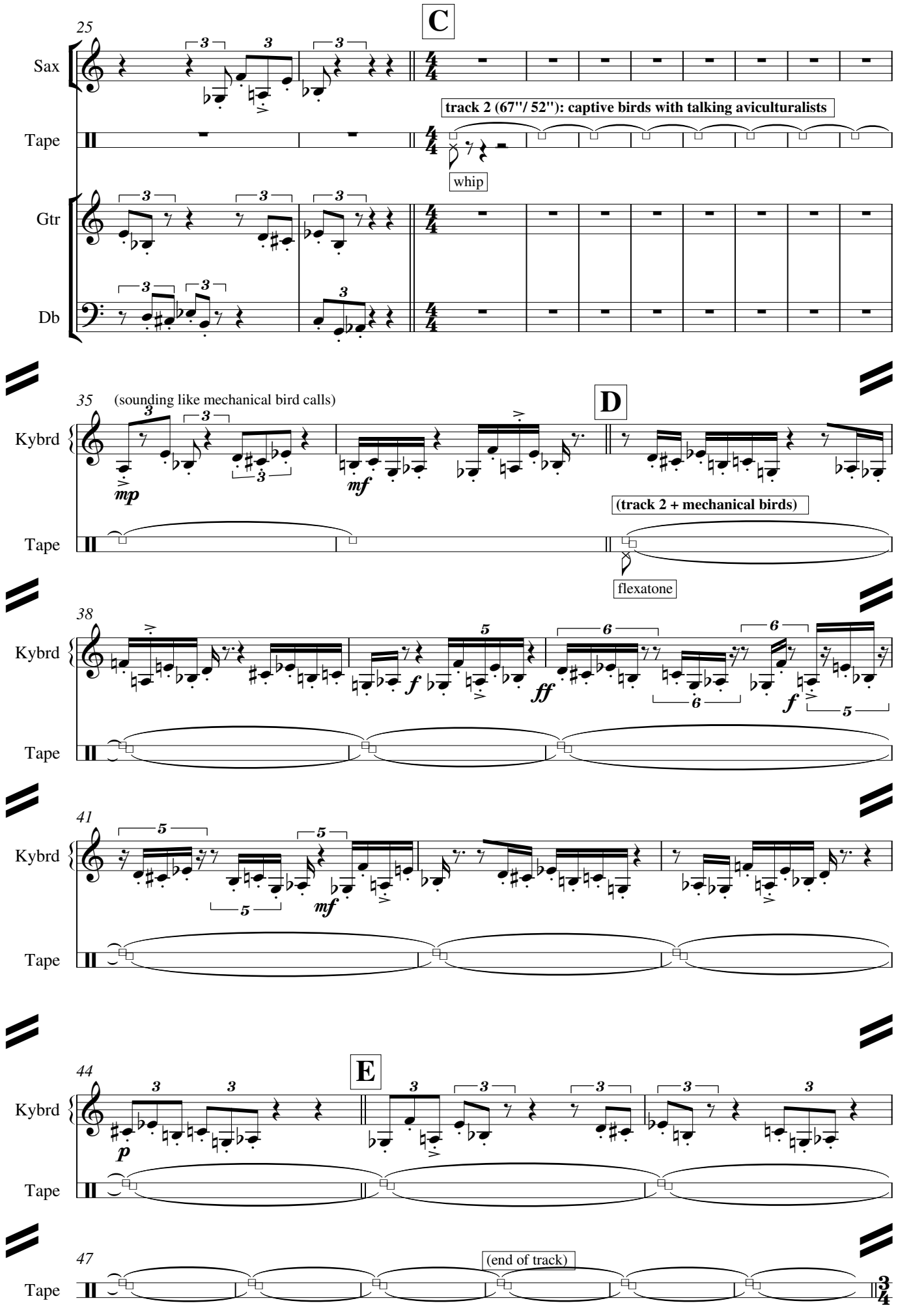

9
Picc
Cl
Sax
Eph/
tbn
Kybrd
Vbrphn
motor off, no pedal
Tape
Sop 1
Sop 2
Mezz 1
Mezz 2
Vln
Gtr
Vlc
Db

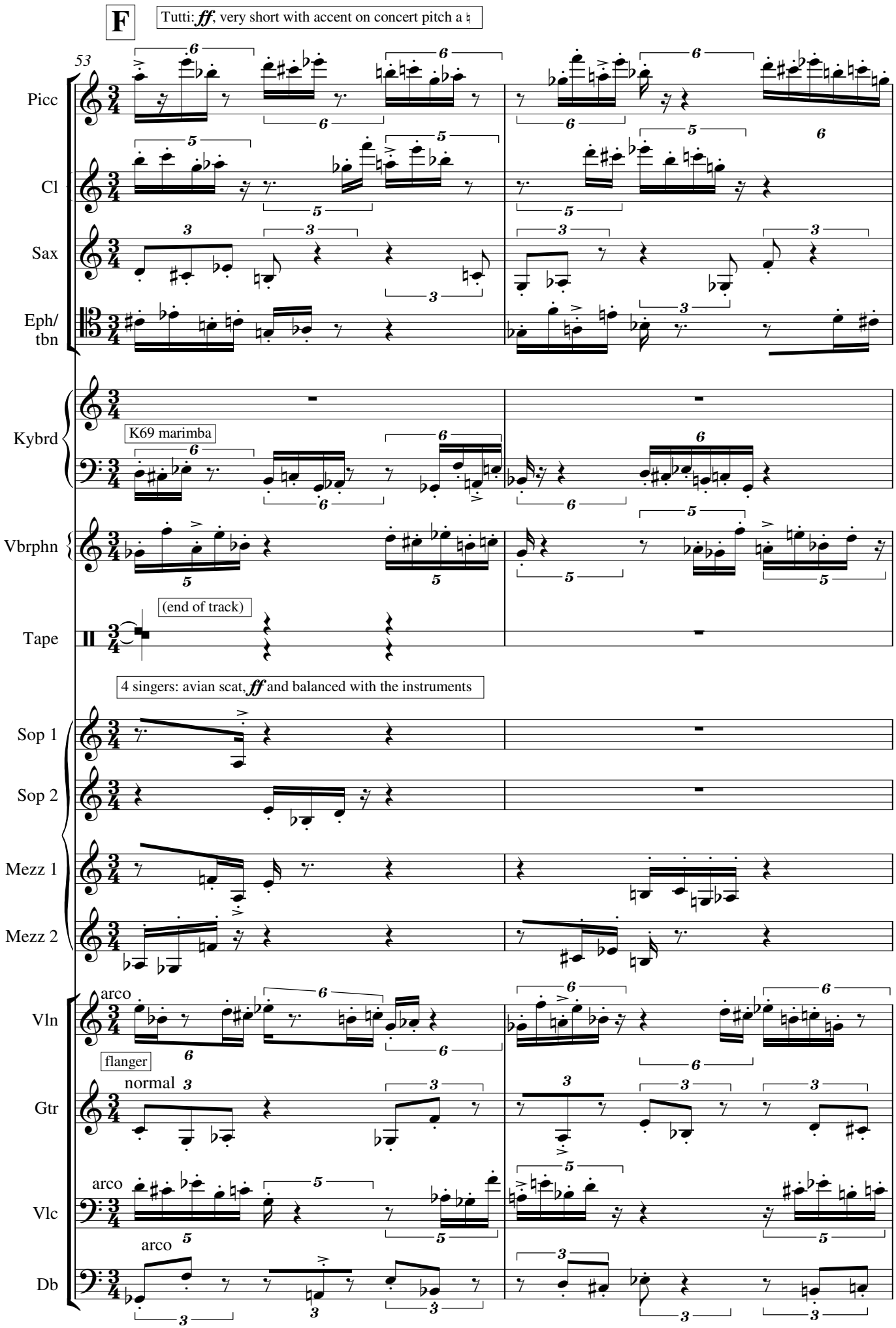

B
Tutti: single f only, very short with accent on concert pitch a ♮
16
Picc
Cl
Sax
Eph/
tbn
Kybrd
no sustained pedal
Vbrphn
Tape
4 singers: avian scat and balanced with the instruments
Sop 1
Sop 2
Mezz 1
Mezz 2
Vln
Gtr
(balanced with strings)
Vlc
Db

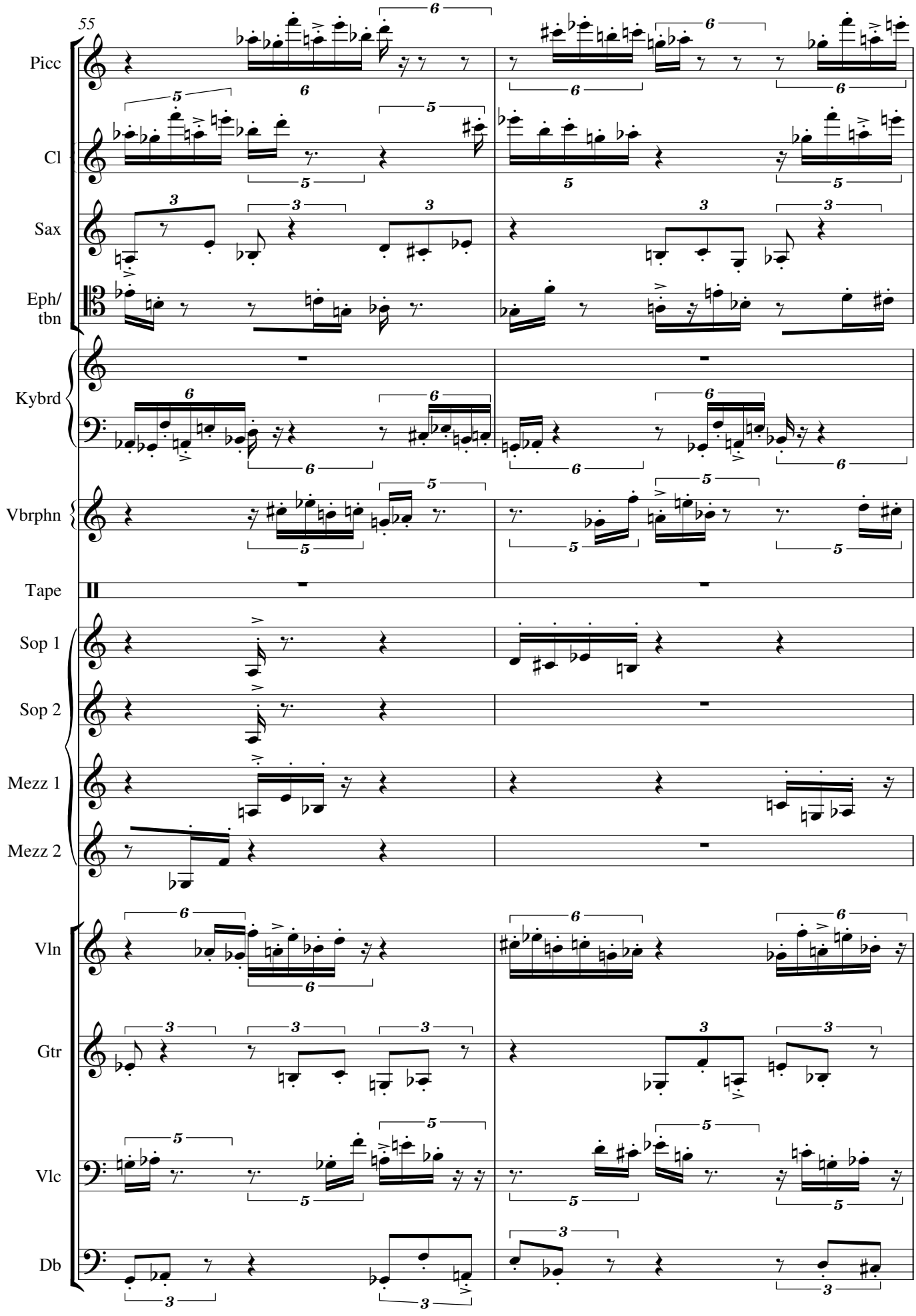

18
Picc
Cl
Sax
Eph/
tbn
Kybrd
Vbrphn
Tape
Sop 1
Sop 2
Mezz 1
Mezz 2
Vln
Gtr
Vlc
Db

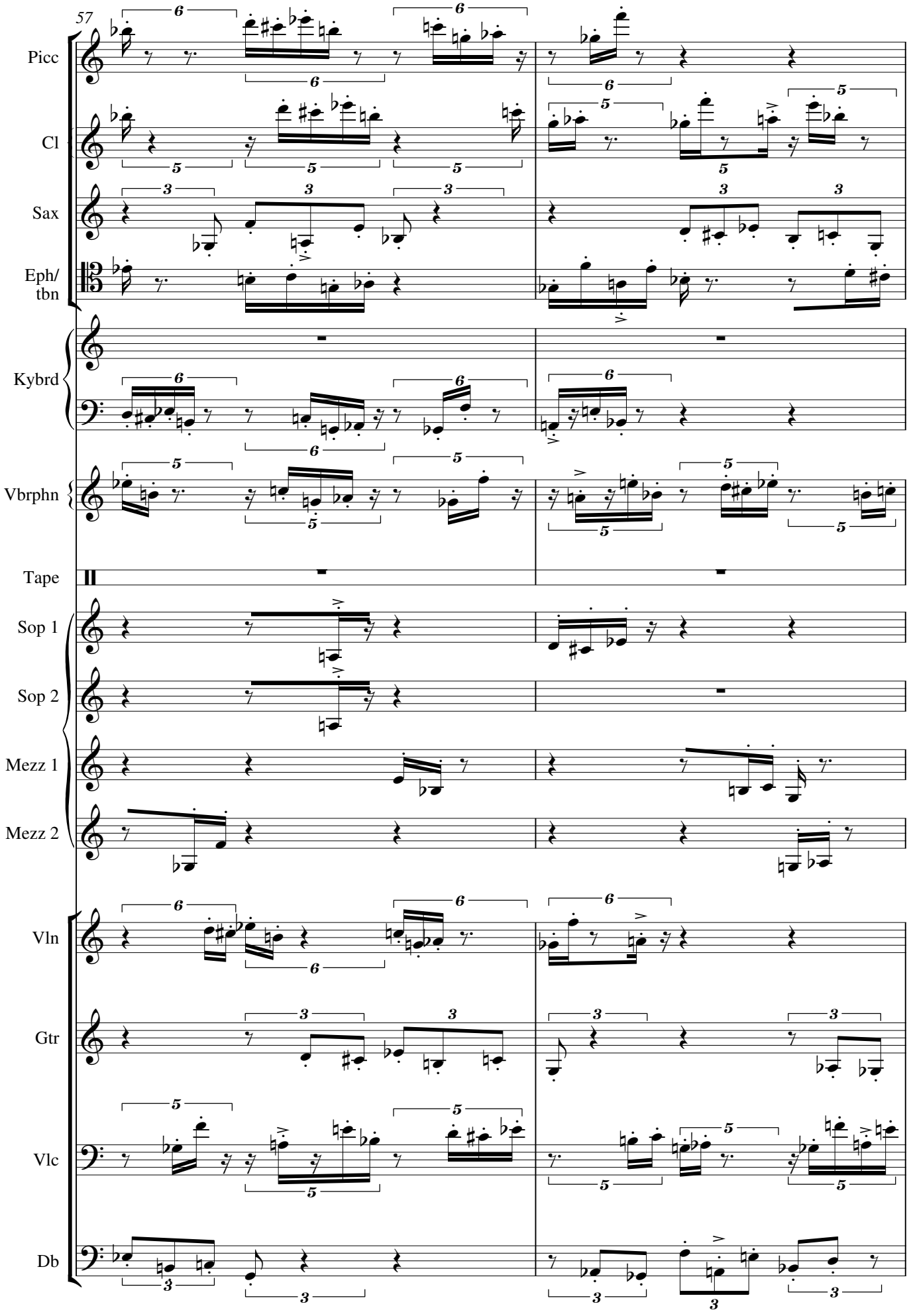

20
Picc
Cl
Sax
Eph/
tbn
Kybrd
K193 environments
Vbrphn
Tape
Sop 1
Sop 2
Mezz 1
Mezz 2
Vln
Gtr
Vlc
Db

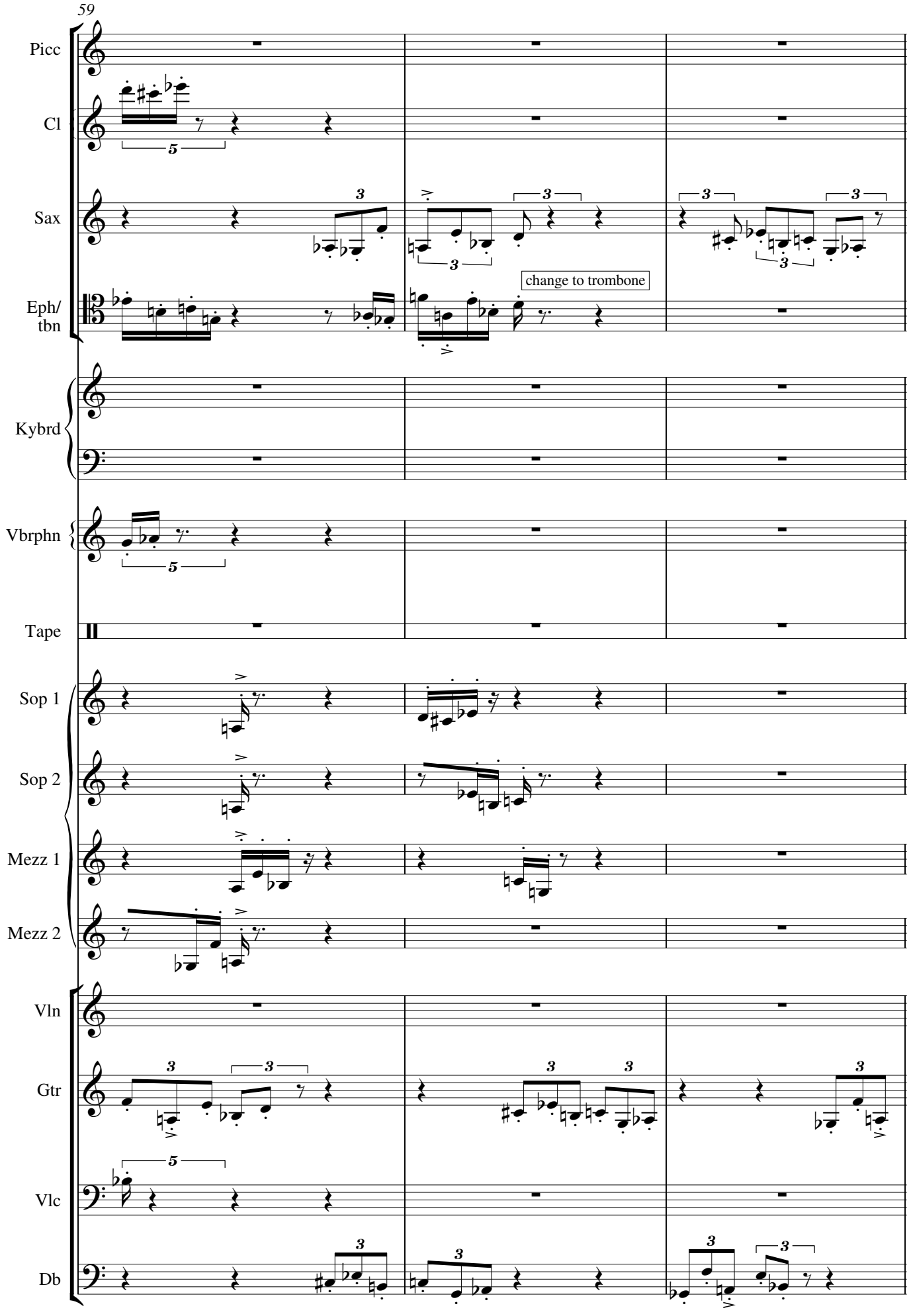

22
Picc
Cl
Sax
Eph/
tbn
Kybrd
Vbrphn
Tape
Sop 1
Sop 2
Mezz 1
Mezz 2
Vln
Gtr
Vlc
Db

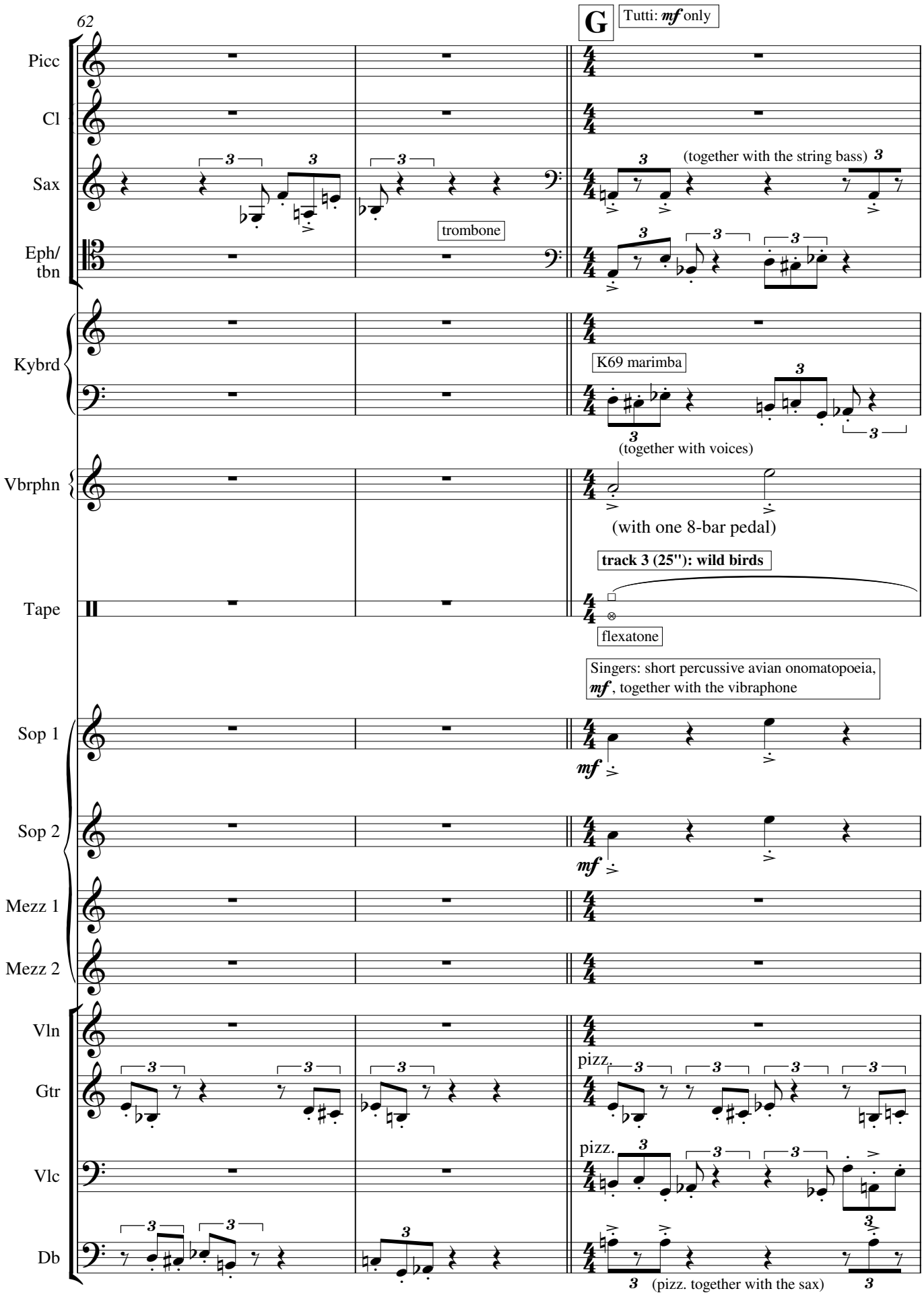

C
25
Sax
Tape
track 2 (67"/ 52"): captive birds with talking aviculturalists
whip
Gtr
Db
D
35
(sounding like mechanical bird calls)
Kybrd
mp
mf
(track 2 + mechanical birds)
flexatone
38
f
ff
41
E
44
p
47
(end of track)

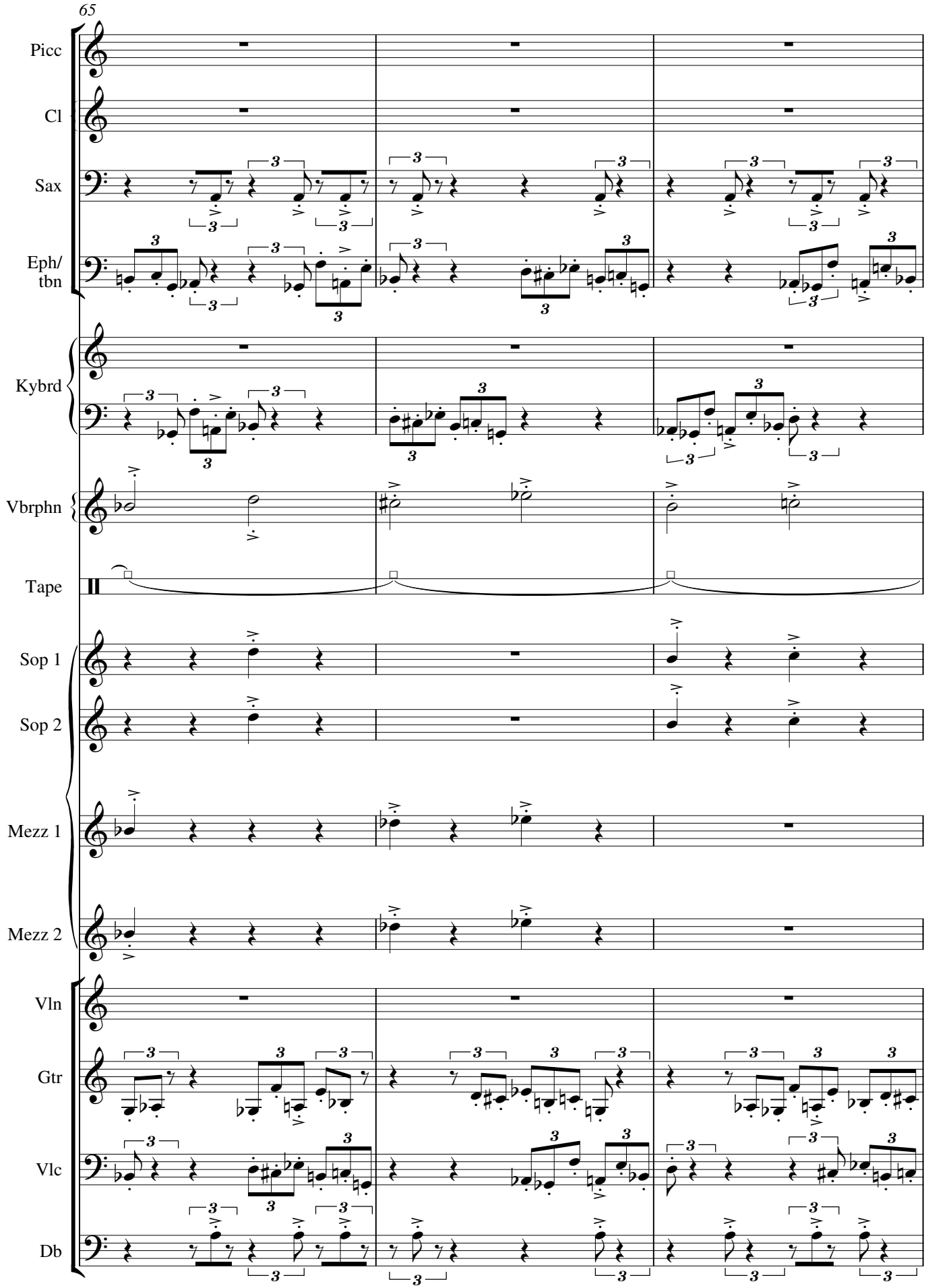

F
Tutti: ff, very short with accent on concert pitch a ♮
53
Picc
Cl
Sax
Eph/
tbn
Kybrd
K69 marimba
Vbrphn
Tape
(end of track)
4 singers: avian scat, ff and balanced with the instruments
Sop 1
Sop 2
Mezz 1
Mezz 2
Vln
arco
flanger
Gtr
normal
Vlc
arco
Db
arco

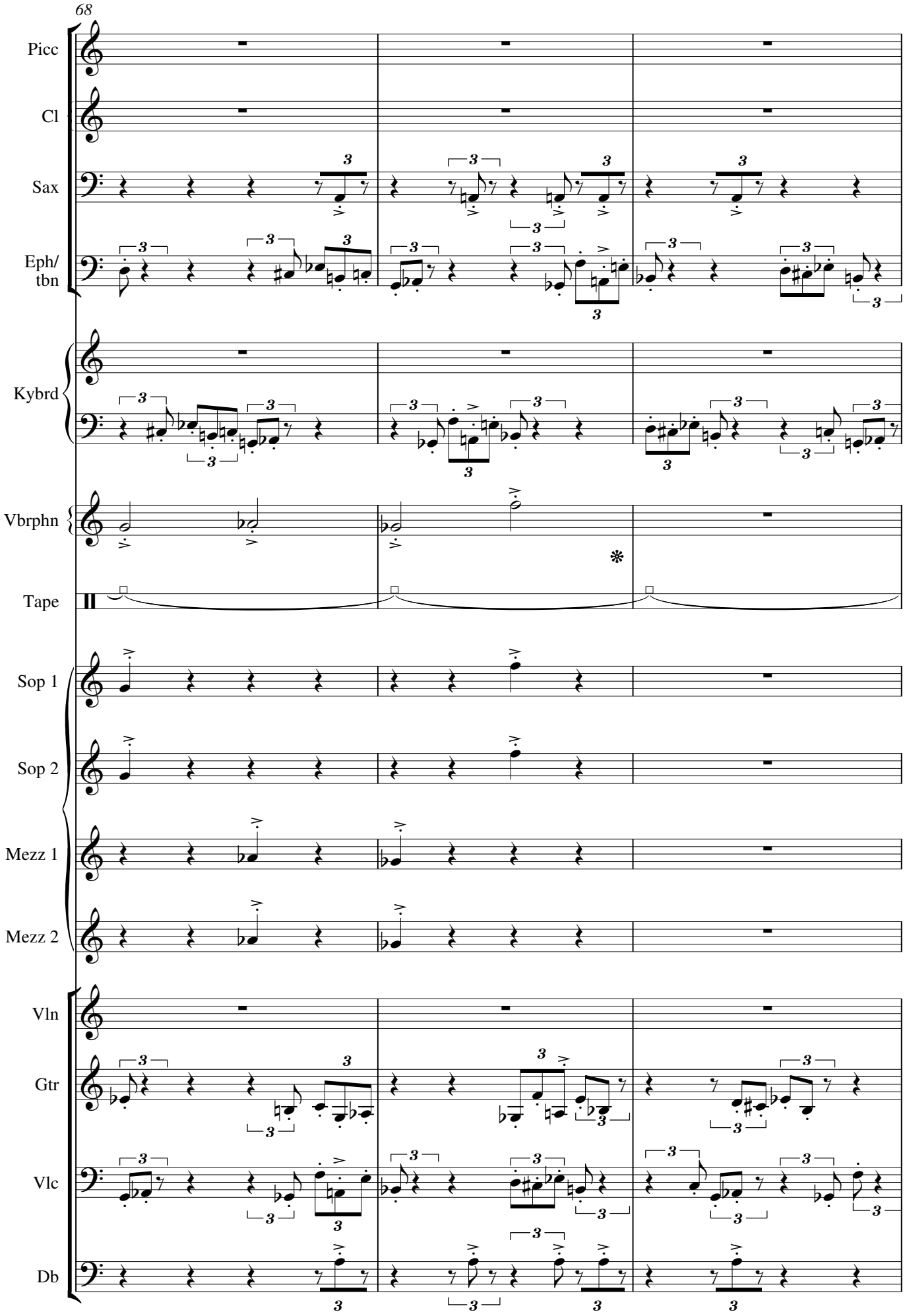

55
Picc
Cl
Sax
Eph/
tbn
Kybrd
Vbrphn
Tape
Sop 1
Sop 2
Mezz 1
Mezz 2
Vln
Gtr
Vlc
Db

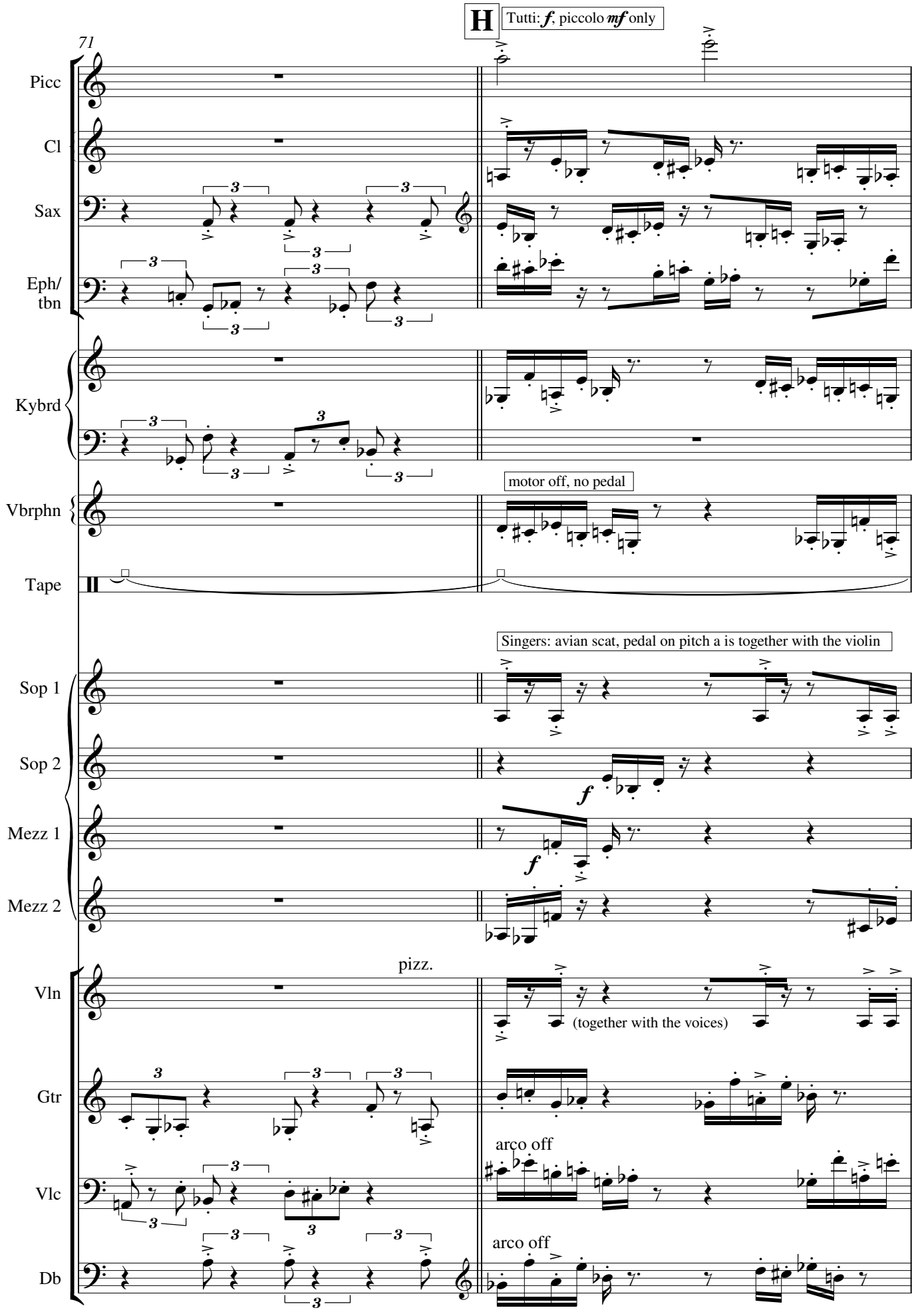

57
Picc
Cl
Sax
Eph/
tbn
Kybrd
Vbrphn
Tape
Sop 1
Sop 2
Mezz 1
Mezz 2
Vln
Gtr
Vlc
Db

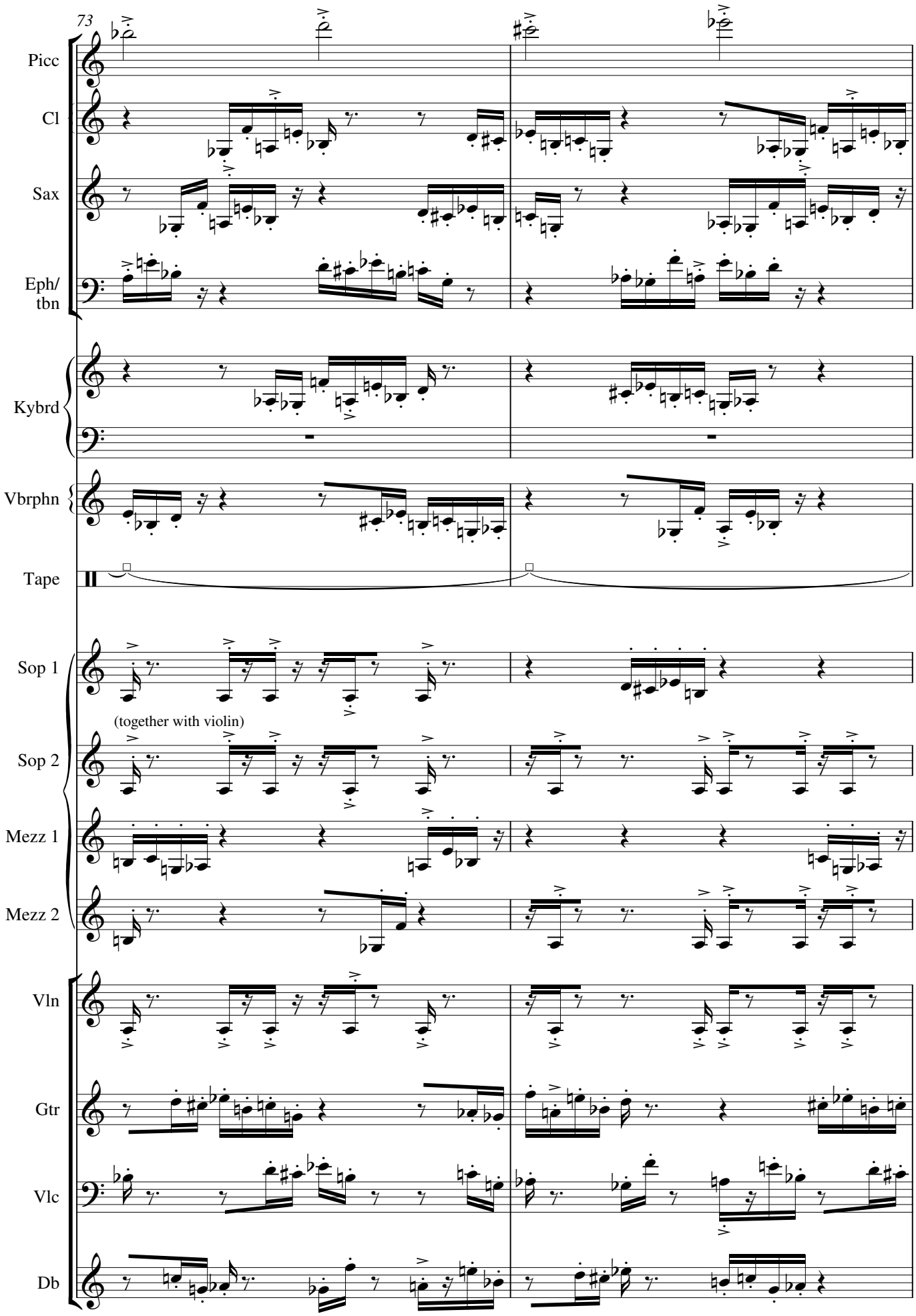

59
Picc
Cl
Sax
Eph/
tbn
change to trombone
Kybrd
Vbrphn
Tape
Sop 1
Sop 2
Mezz 1
Mezz 2
Vln
Gtr
Vlc
Db

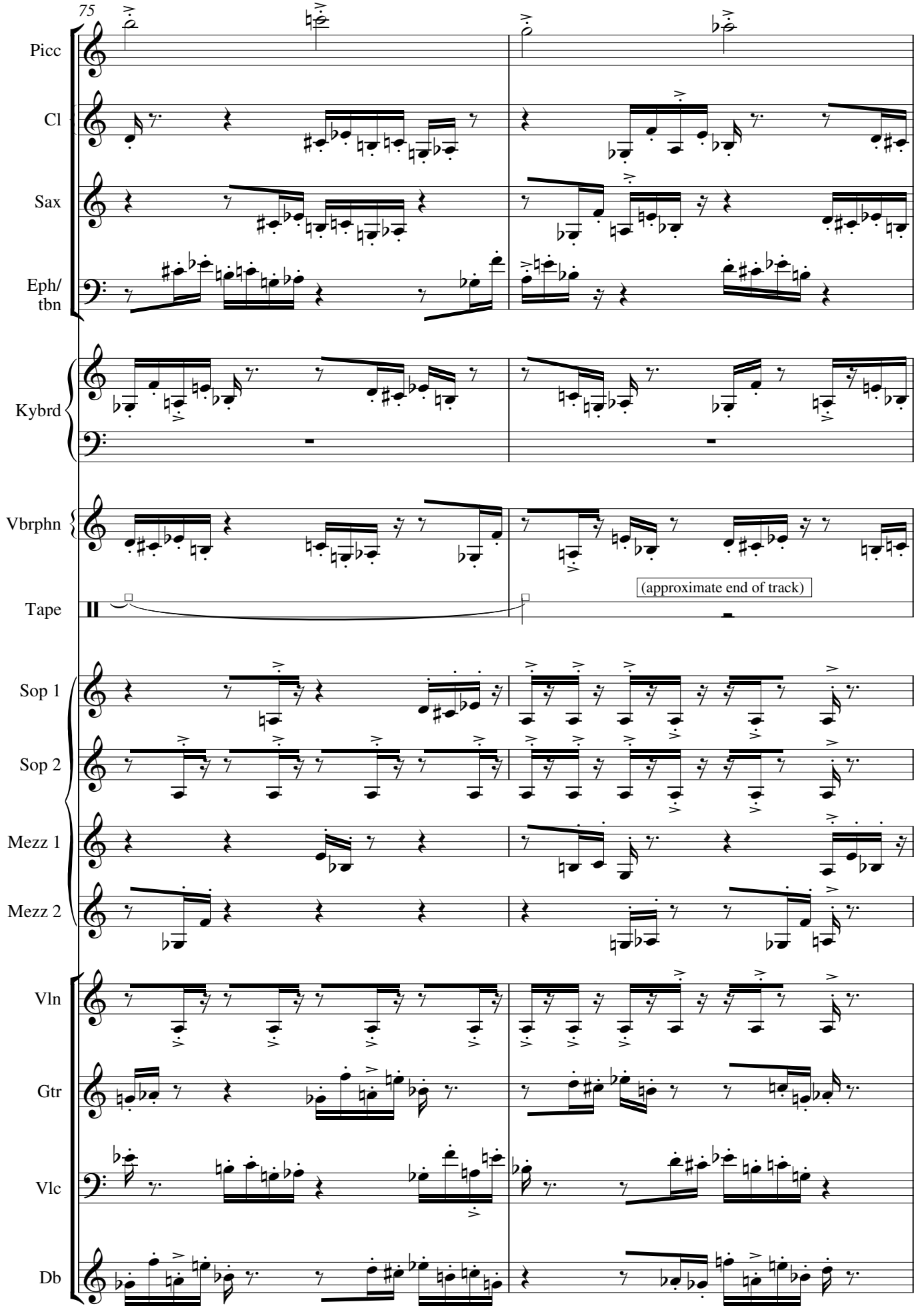

62
G
Tutti: mf only
Picc
Cl
Sax
Eph/
tbn
trombone
(together with the string bass)
Kybrd
K69 marimba
(together with voices)
Vbrphn
(with one 8-bar pedal)
track 3 (25"): wild birds
Tape
flexatone
Singers: short percussive avian onomatopoeia,
mf, together with the vibraphone
Sop 1
Sop 2
Mezz 1
Mezz 2
Vln
Gtr
pizz.
Vlc
pizz.
Db
(pizz. together with the sax)

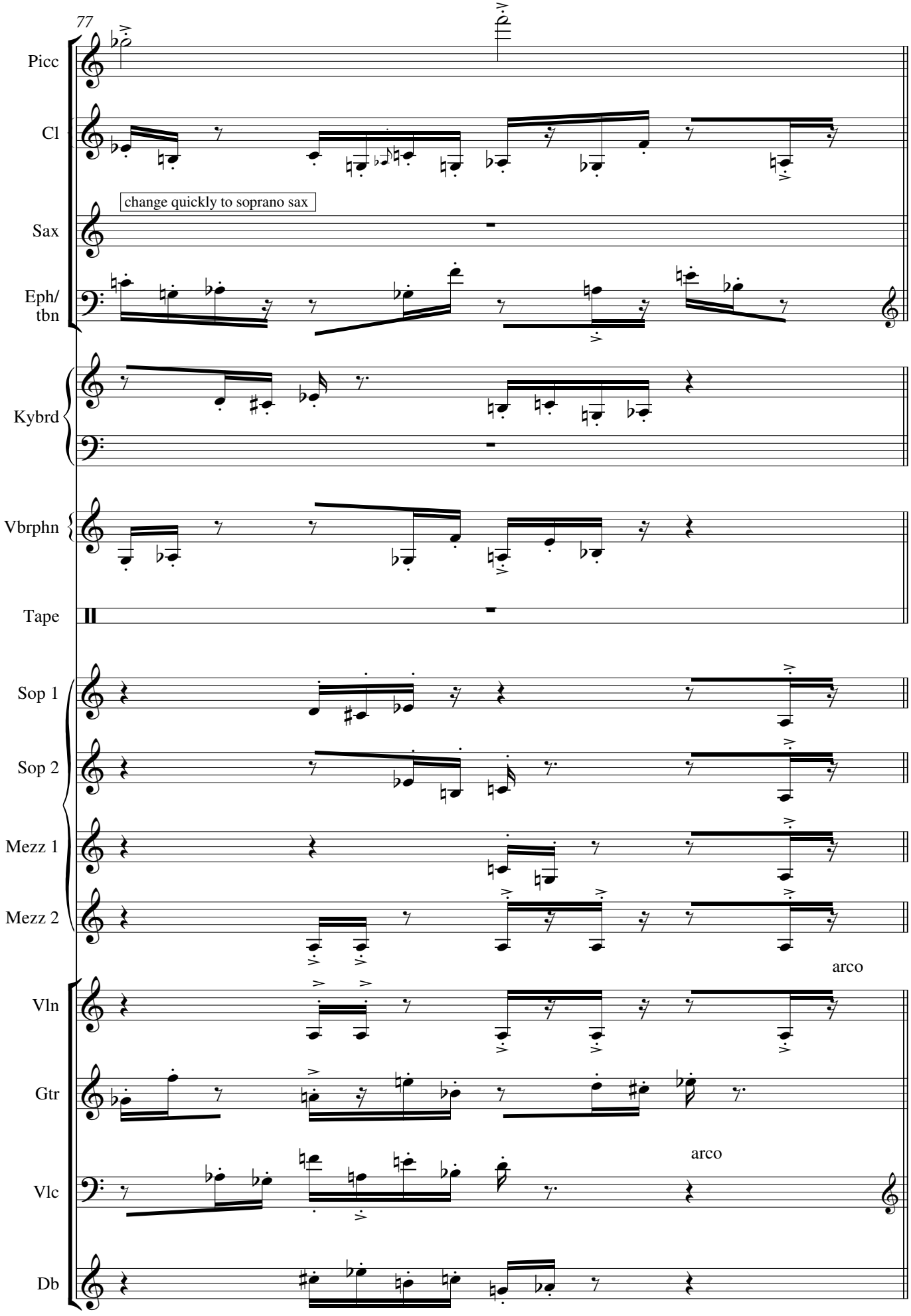

65
Picc
Cl
Sax
Eph/
tbn
Kybrd
Vbrphn
Tape
Sop 1
Sop 2
Mezz 1
Mezz 2
Vln
Gtr
Vlc
Db

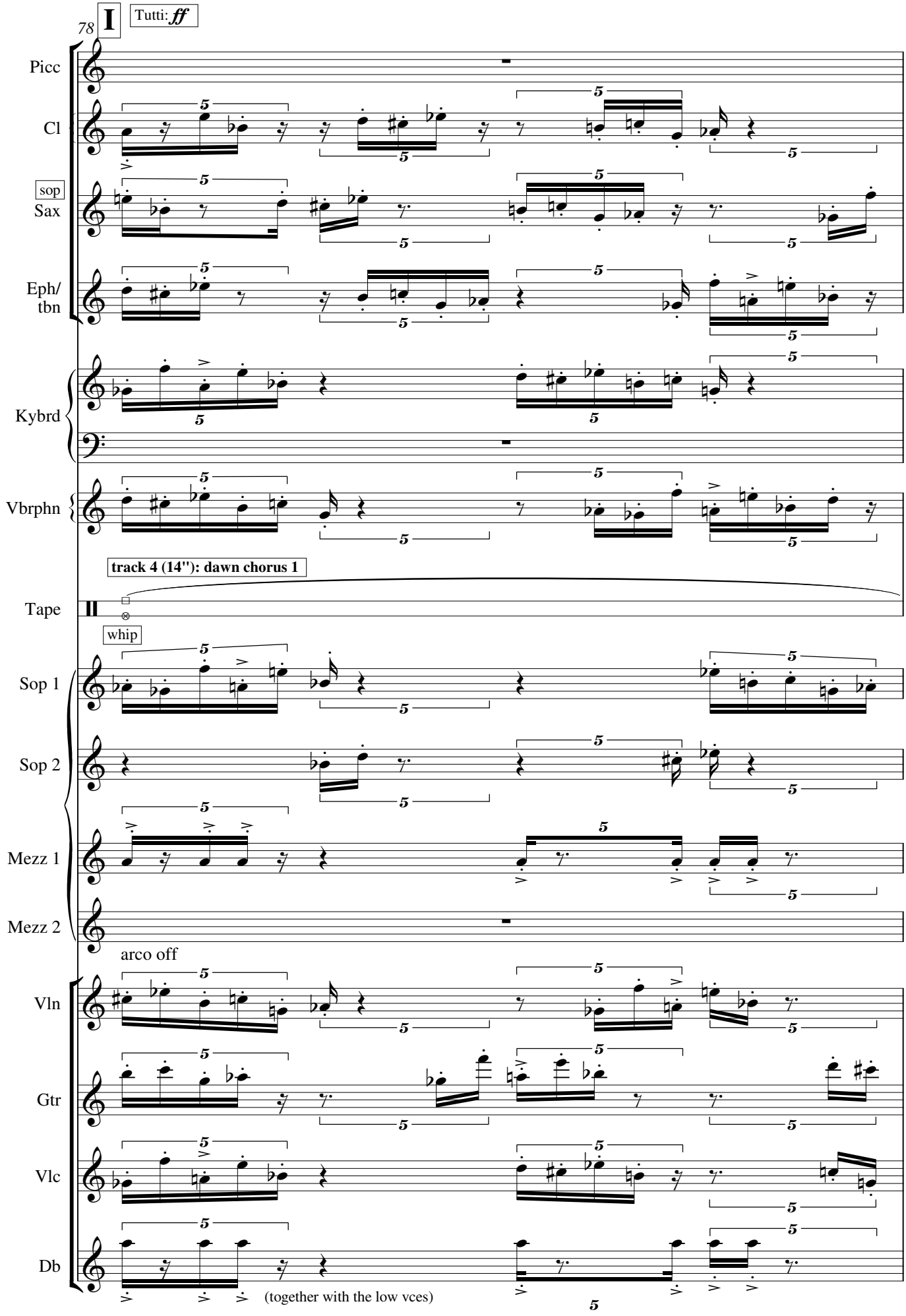

68
Picc
Cl
Sax
Eph/
tbn
Kybrd
Vbrphn
Tape
Sop 1
Sop 2
Mezz 1
Mezz 2
Vln
Gtr
Vlc
Db

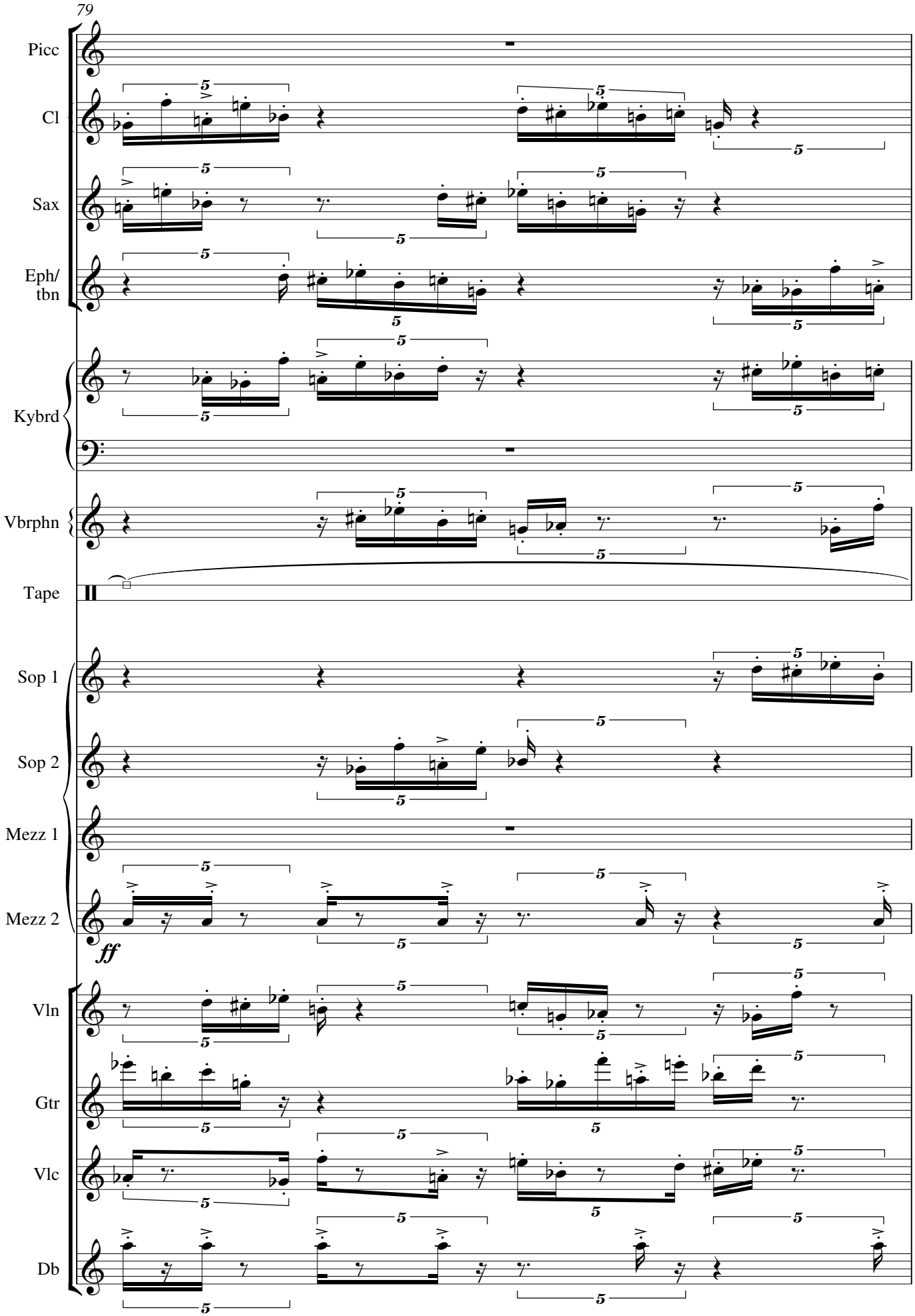

H
Tutti: f, piccolo mf only
71
Picc
Cl
Sax
Eph/
tbn
Kybrd
Vbrphn
motor off, no pedal
Tape
Singers: avian scat, pedal on pitch a is together with the violin
Sop 1
Sop 2
Mezz 1
Mezz 2
pizz.
Vln
(together with the voices)
Gtr
arco off
Vlc
arco off
Db

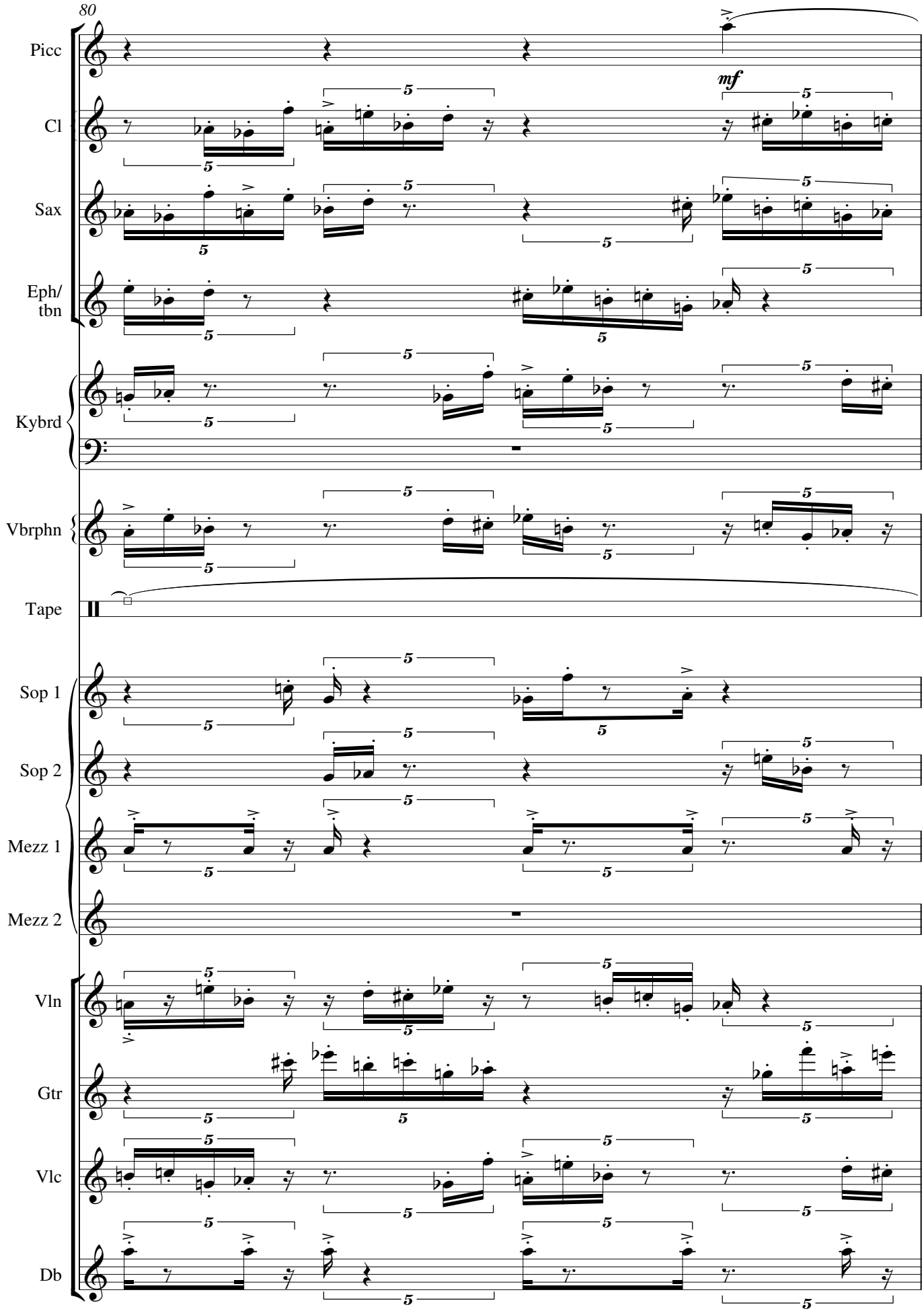

73
Picc
Cl
Sax
Eph/
tbn
Kybrd
Vbrphn
Tape
Sop 1
(together with violin)
Sop 2
Mezz 1
Mezz 2
Vln
Gtr
Vlc
Db

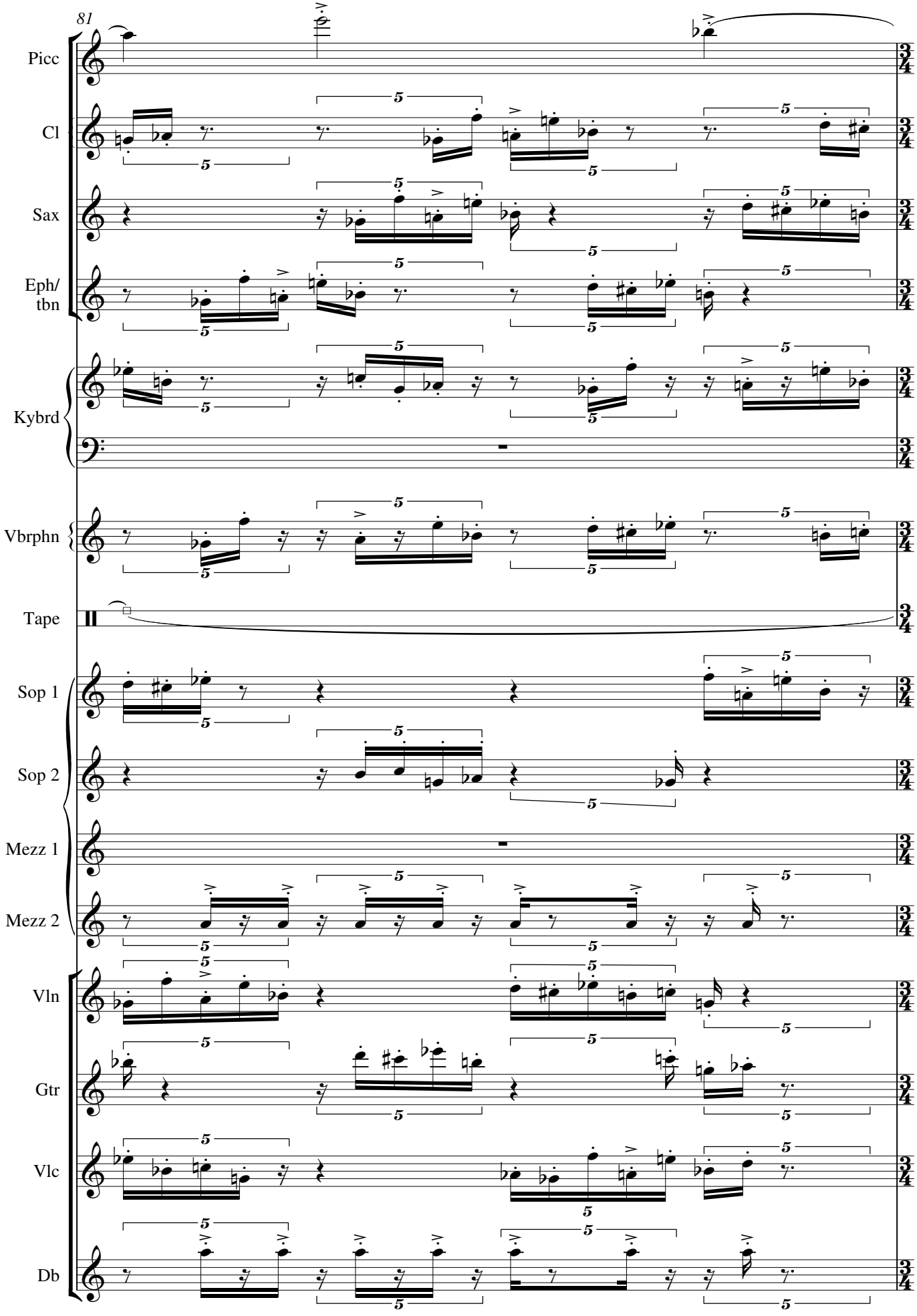

75
Picc
Cl
Sax
Eph/
tbn
Kybrd
Vbrphn
Tape
(approximate end of track)
Sop 1
Sop 2
Mezz 1
Mezz 2
Vln
Gtr
Vlc
Db

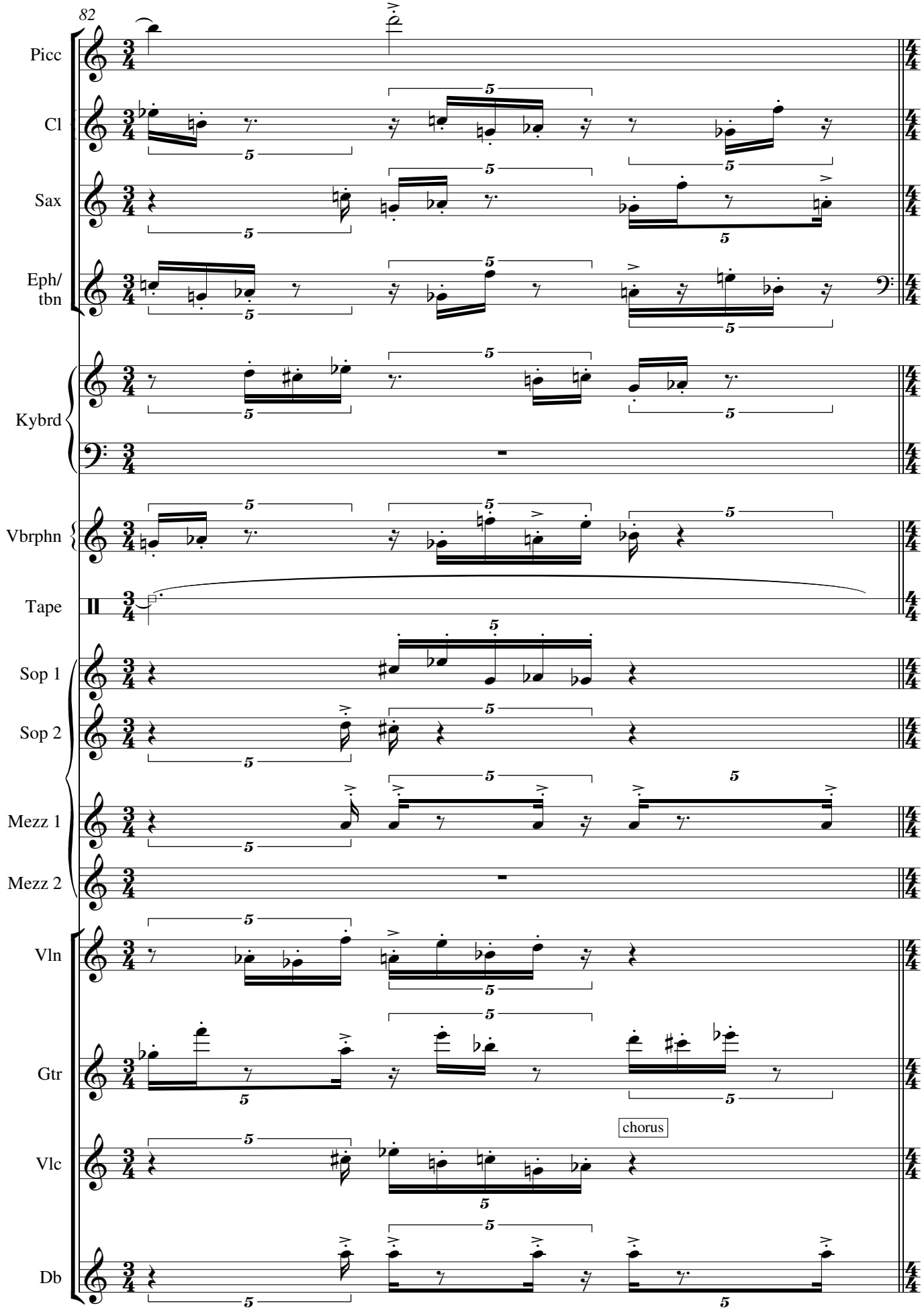

77
Picc
Cl
change quickly to soprano sax
Sax
Eph/
tbn
Kybrd
Vbrphn
Tape
Sop 1
Sop 2
Mezz 1
Mezz 2
arco
Vln
Gtr
arco
Vlc
Db

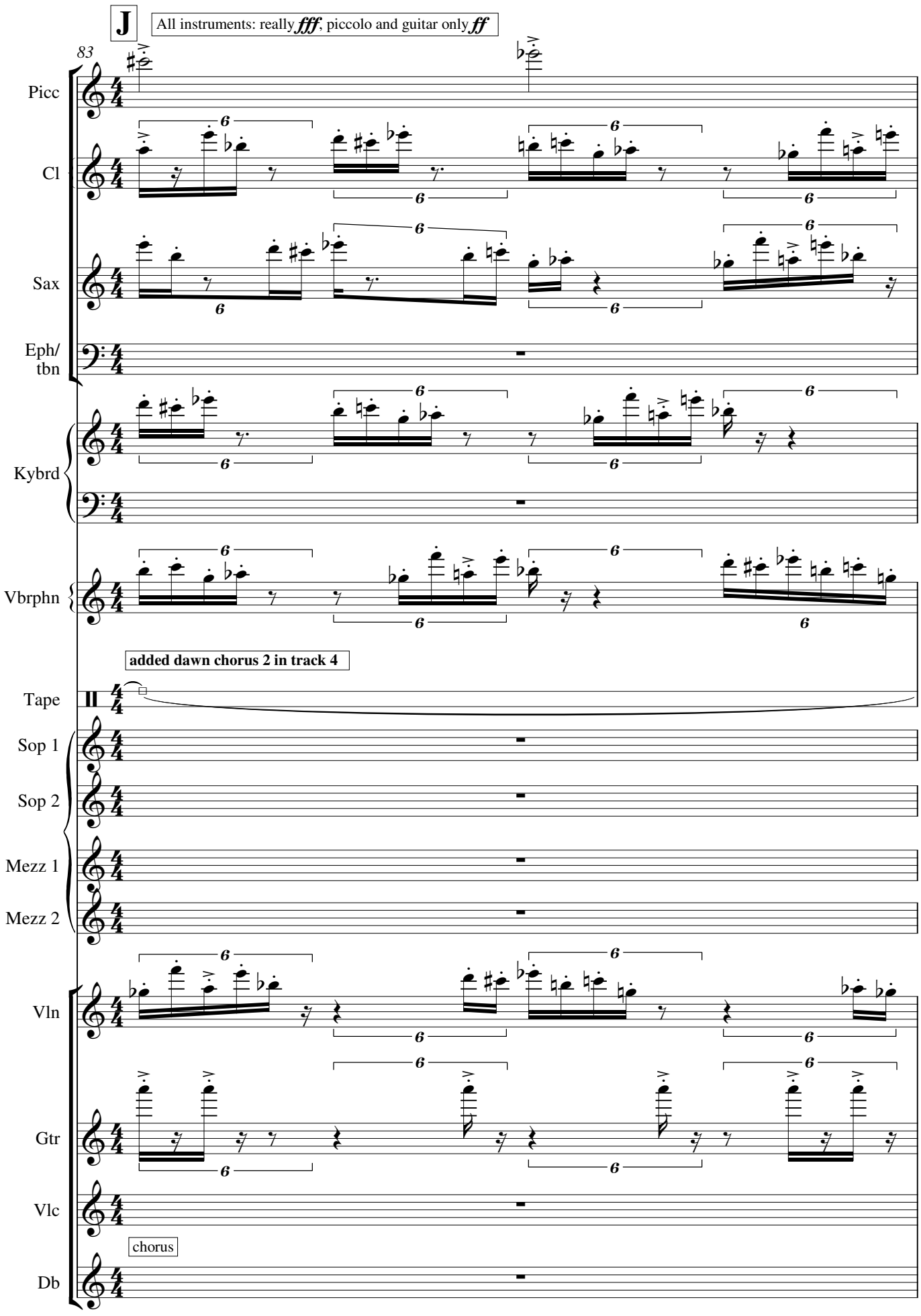

78
I
Tutti: ff
Picc
Cl
sop
Sax
Eph/
tbn
Kybrd
Vbrphn
track 4 (14"): dawn chorus 1
Tape
whip
Sop 1
Sop 2
Mezz 1
Mezz 2
arco off
Vln
Gtr
Vlc
Db
(together with the low vces)

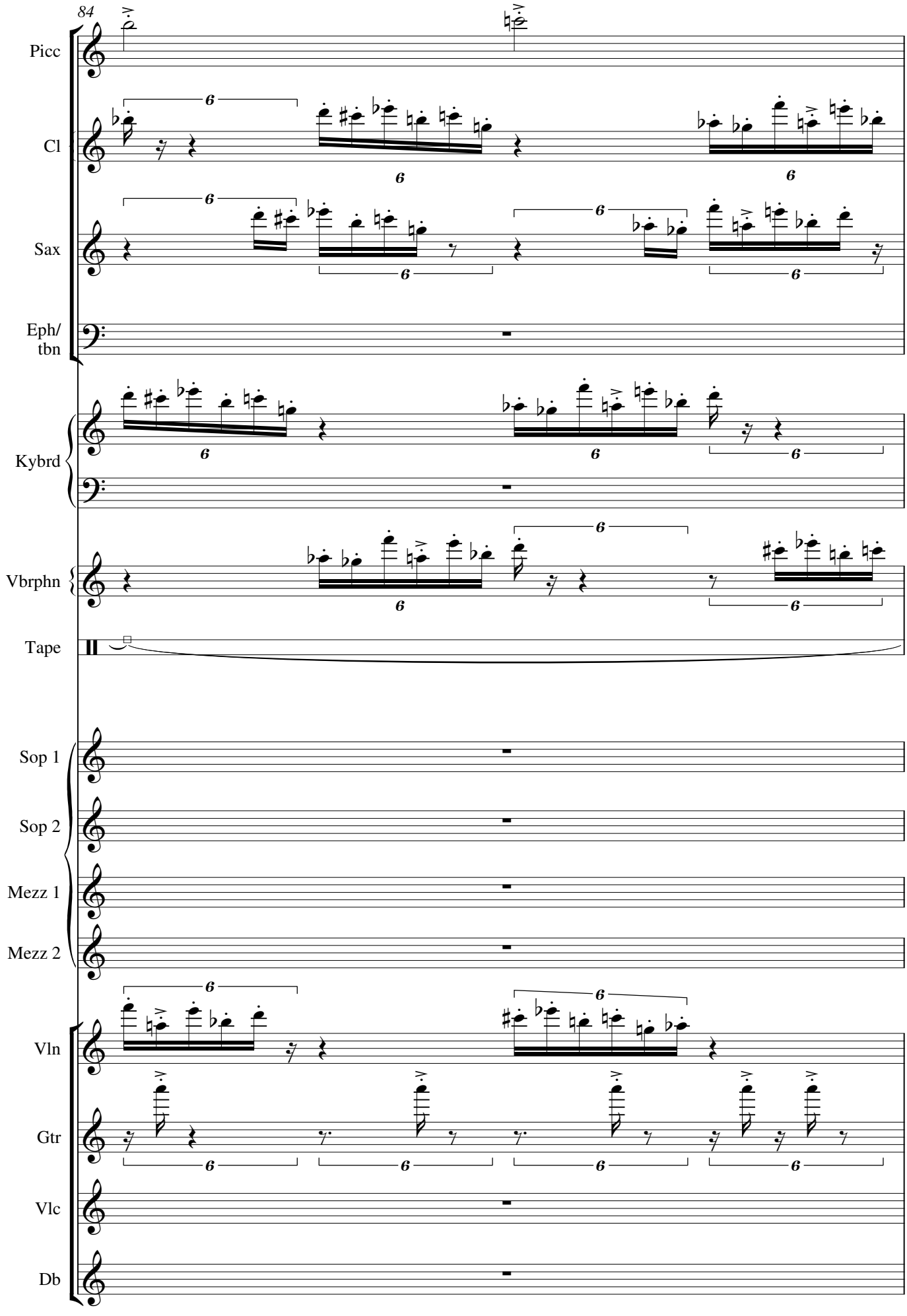

79
Picc
Cl
Sax
Eph/
tbn
Kybrd
Vbrphn
Tape
Sop 1
Sop 2
Mezz 1
Mezz 2
Vln
Gtr
Vlc
Db
ff

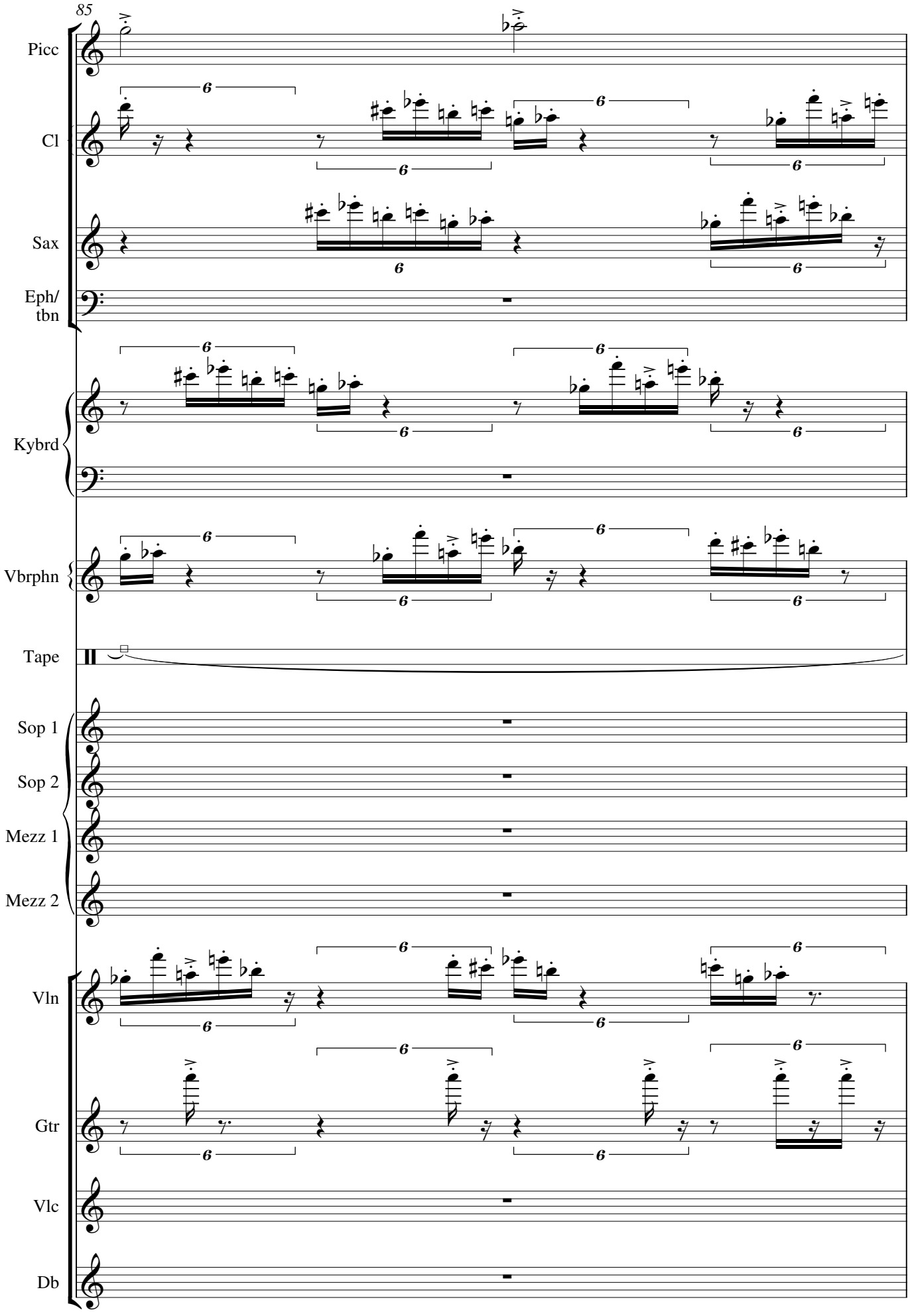

80
Picc
Cl
Sax
Eph/
tbn
Kybrd
Vbrphn
Tape
Sop 1
Sop 2
Mezz 1
Mezz 2
Vln
Gtr
Vlc
Db
mf

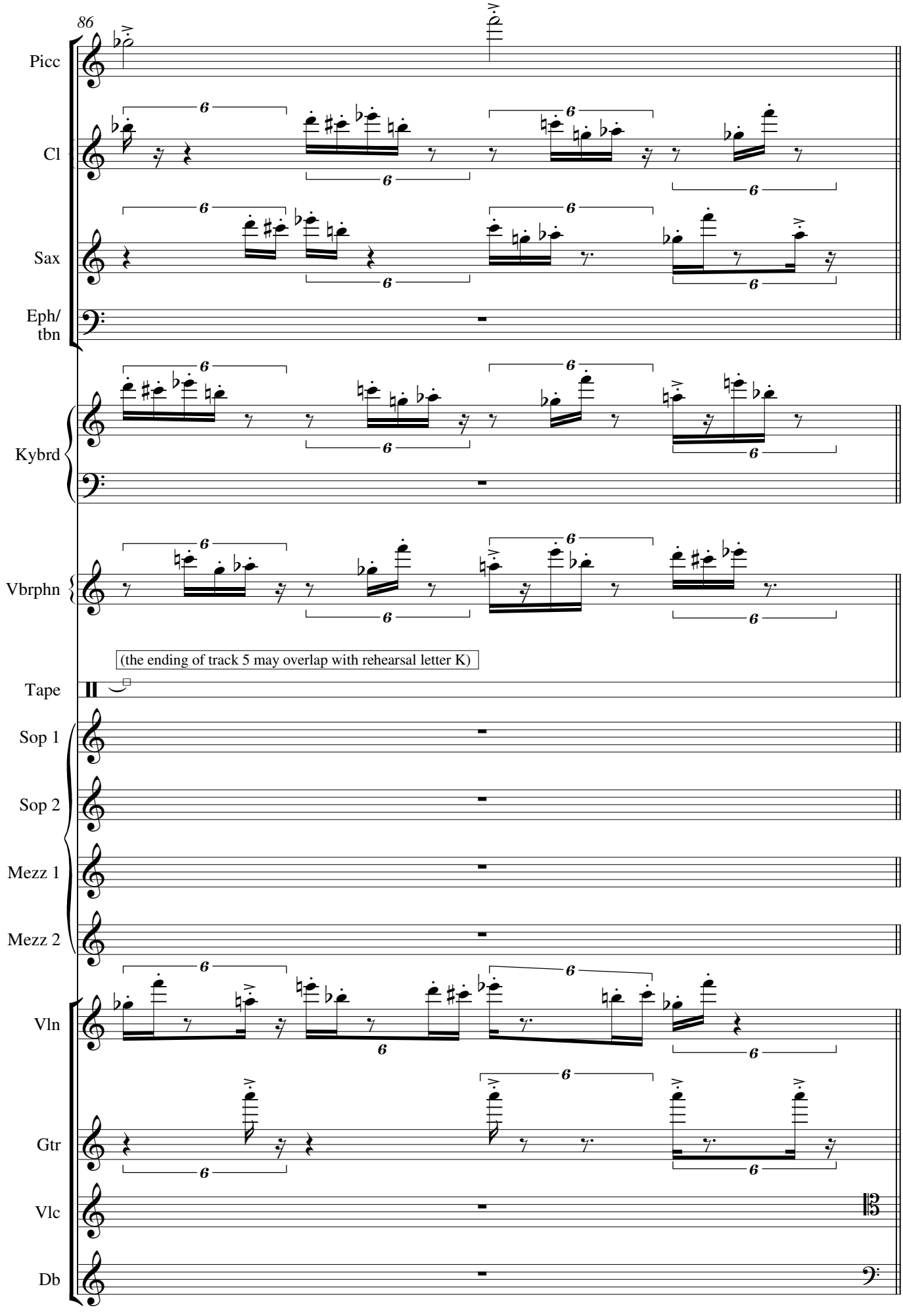

81
Picc
Cl
Sax
Eph/
tbn
Kybrd
Vbrphn
Tape
Sop 1
Sop 2
Mezz 1
Mezz 2
Vln
Gtr
Vlc
Db

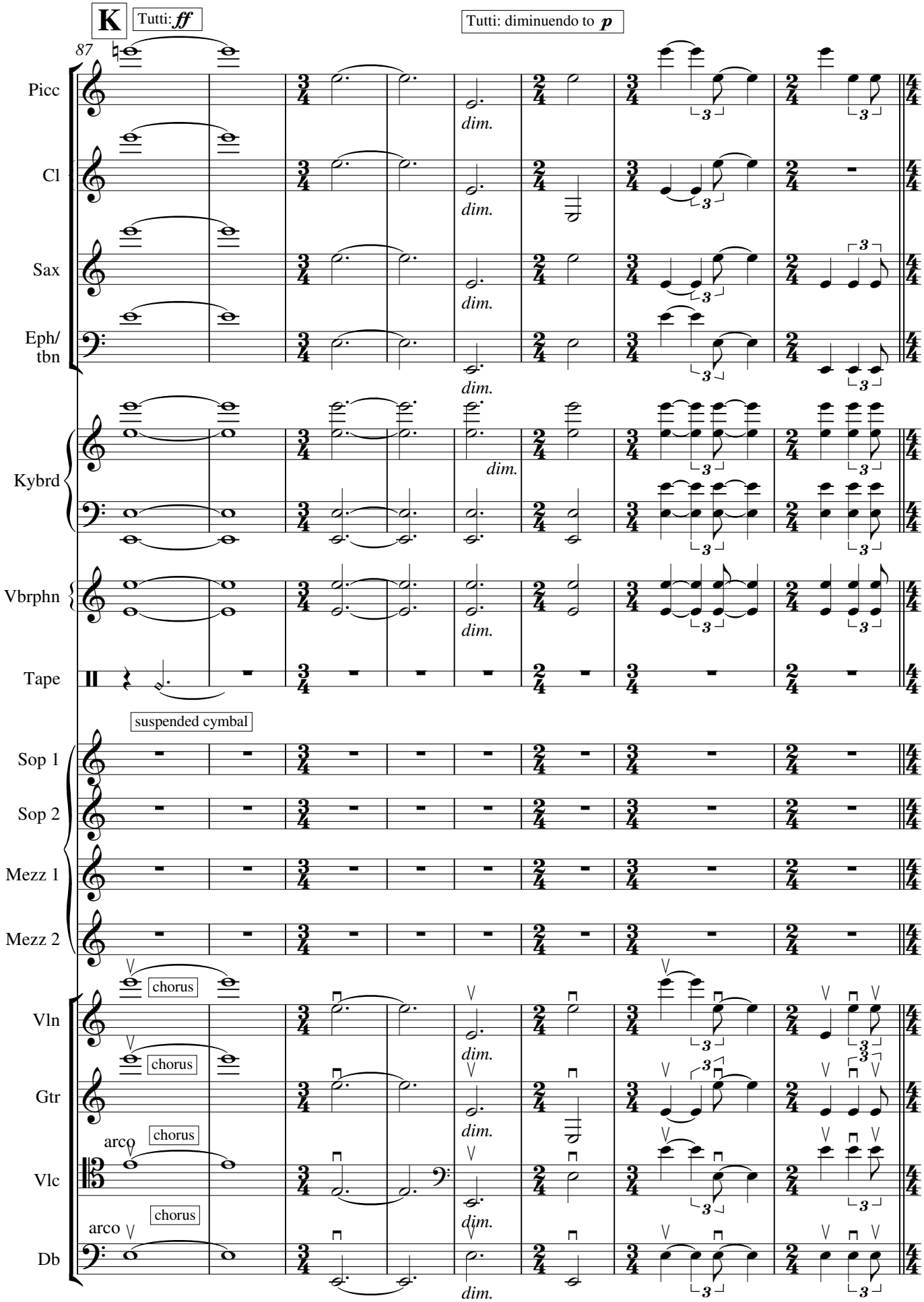

82
Picc
Cl
Sax
Eph/
tbn
Kybrd
Vbrphn
Tape
Sop 1
Sop 2
Mezz 1
Mezz 2
Vln
Gtr
Vlc
Db
chorus

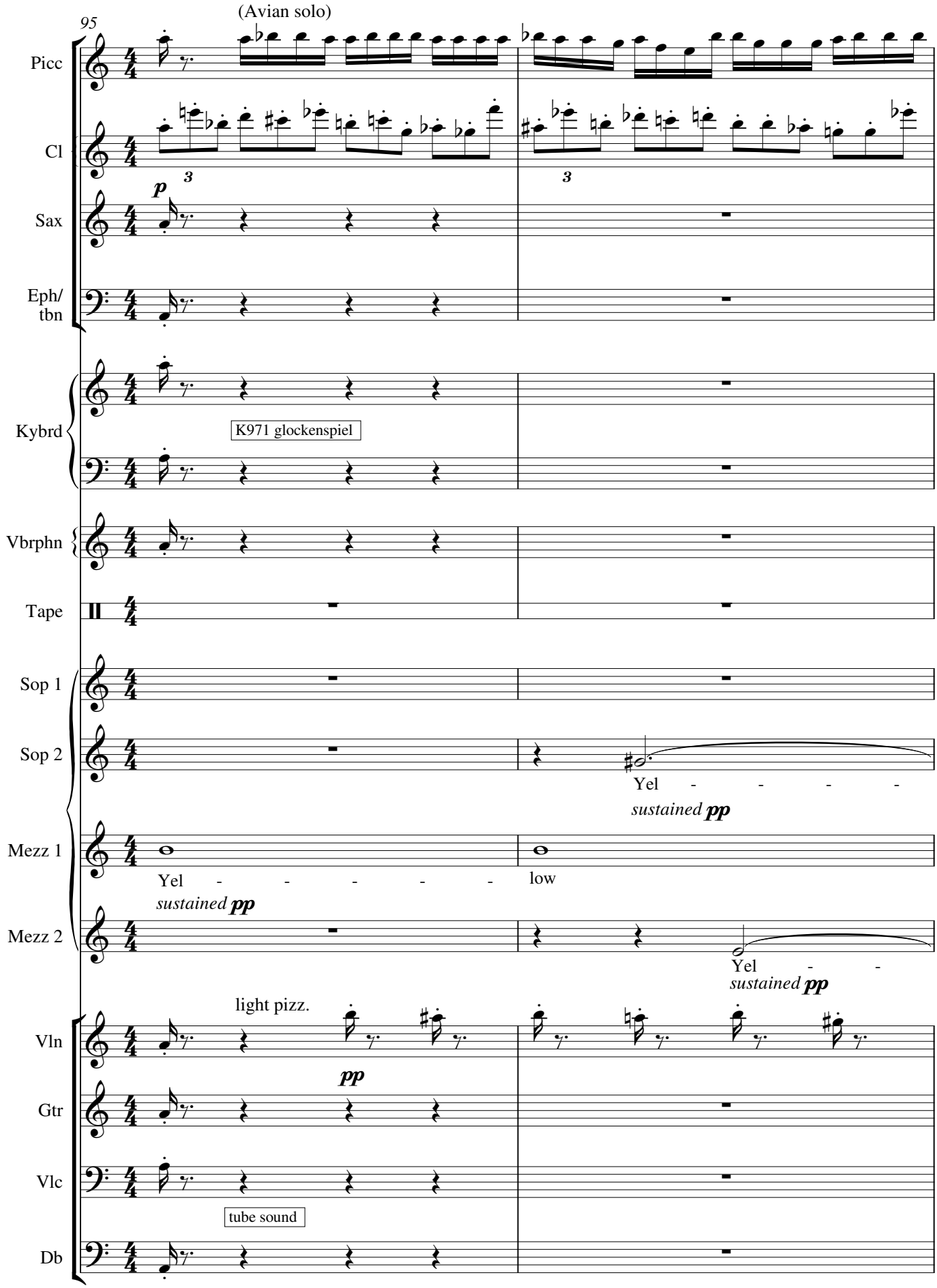

J
All instruments: really fff, piccolo and guitar only ff
83
Picc
Cl
Sax
Eph/
tbn
Kybrd
Vbrphn
added dawn chorus 2 in track 4
Tape
Sop 1
Sop 2
Mezz 1
Mezz 2
Vln
Gtr
Vlc
chorus
Db

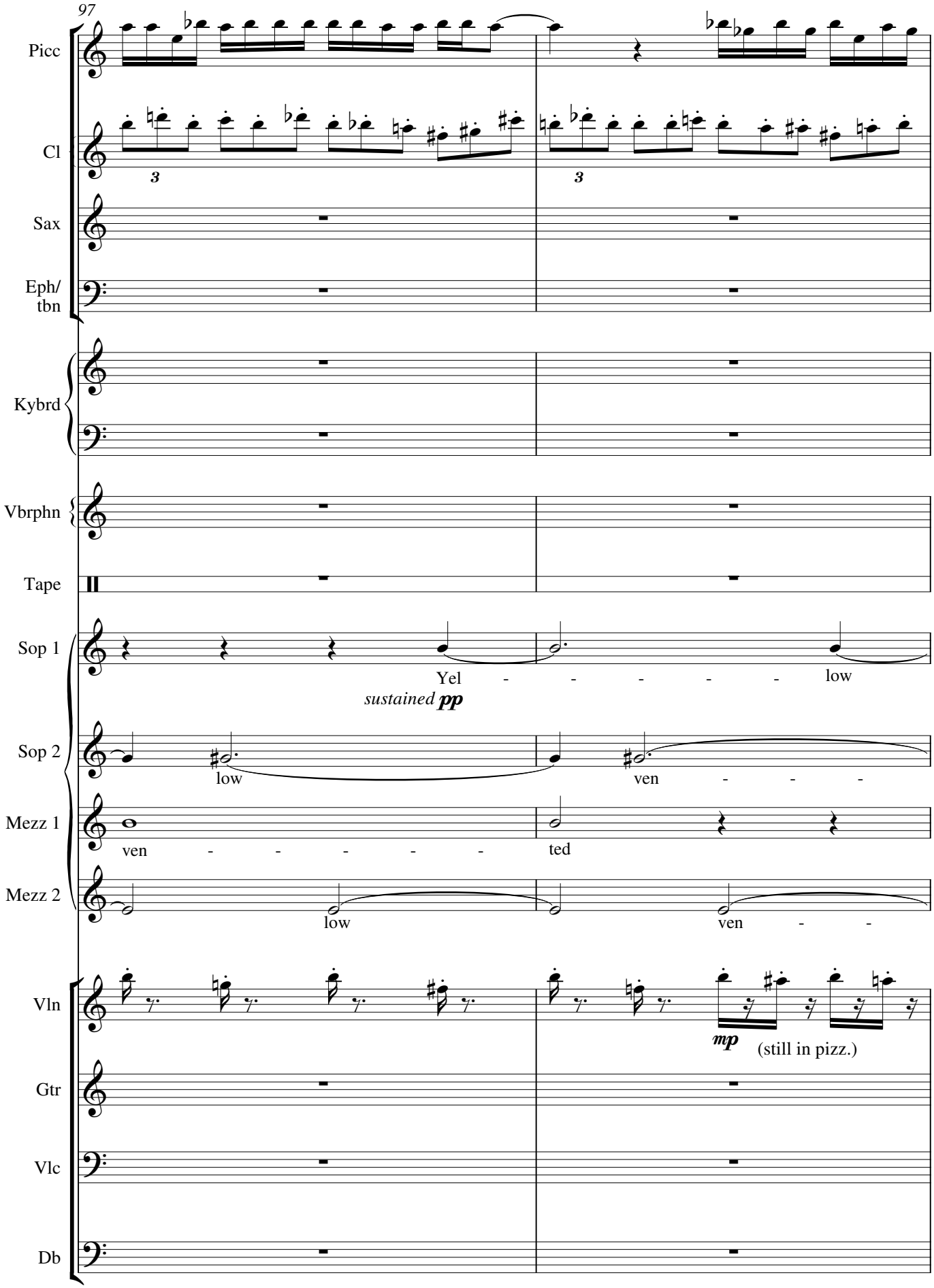

84
Picc
Cl
Sax
Eph/
tbn
Kybrd
Vbrphn
Tape
Sop 1
Sop 2
Mezz 1
Mezz 2
Vln
Gtr
Vlc
Db

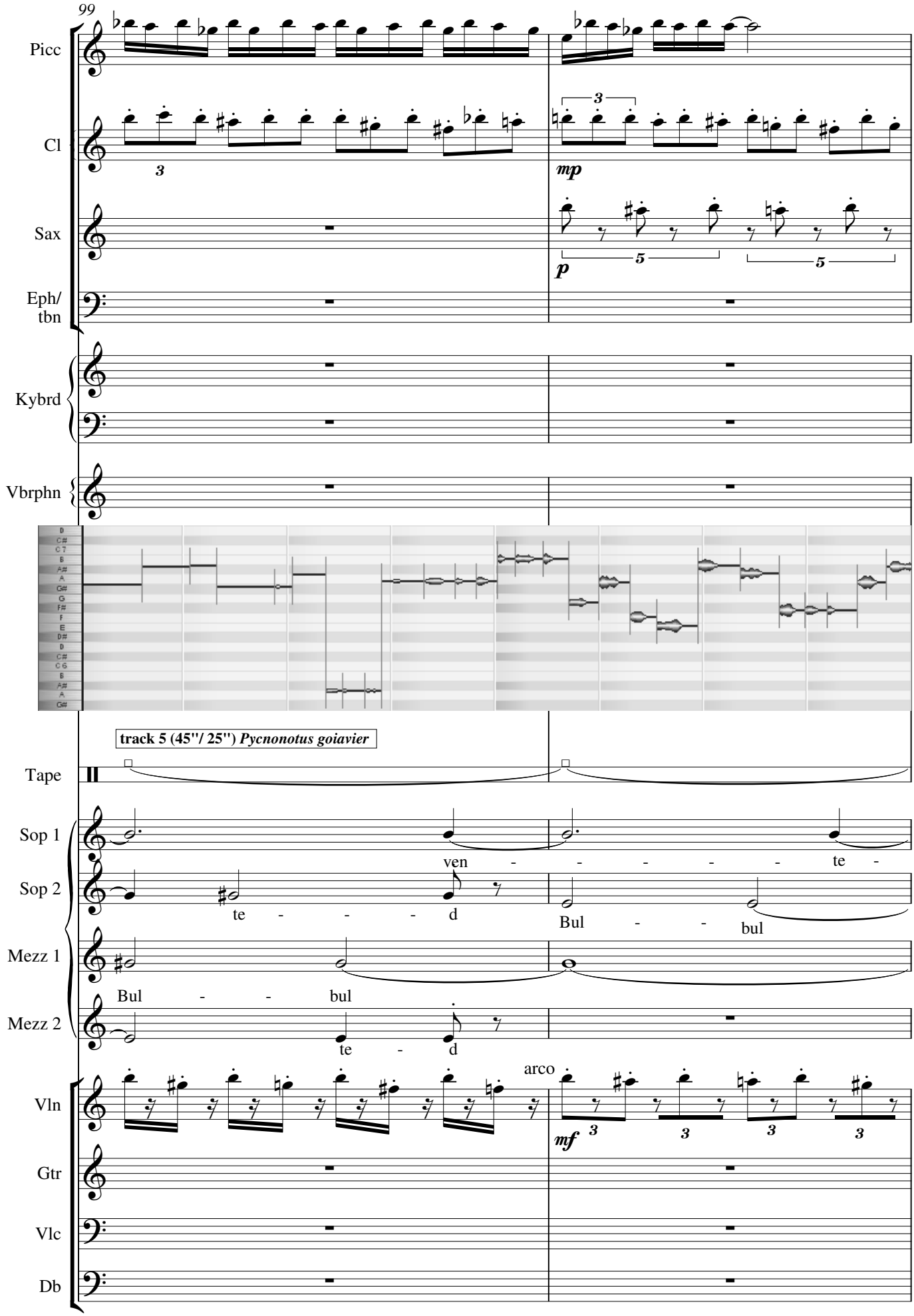

85
Picc
Cl
Sax
Eph/
tbn
Kybrd
Vbrphn
Tape
Sop 1
Sop 2
Mezz 1
Mezz 2
Vln
Gtr
Vlc
Db

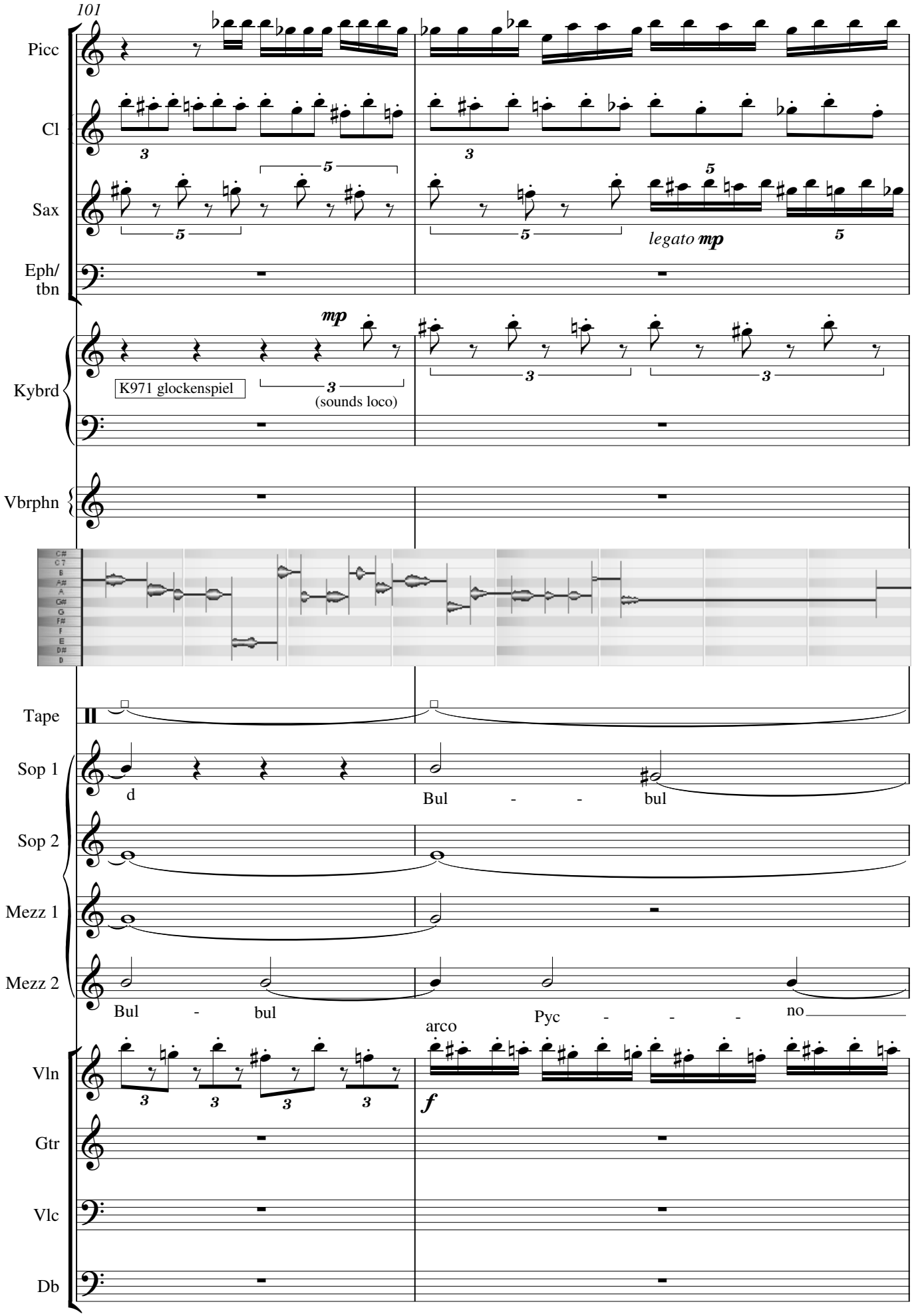

86
Picc
Cl
Sax
Eph/
tbn
Kybrd
Vbrphn
(the ending of track 5 may overlap with rehearsal letter K)
Tape
Sop 1
Sop 2
Mezz 1
Mezz 2
Vln
Gtr
Vlc
Db

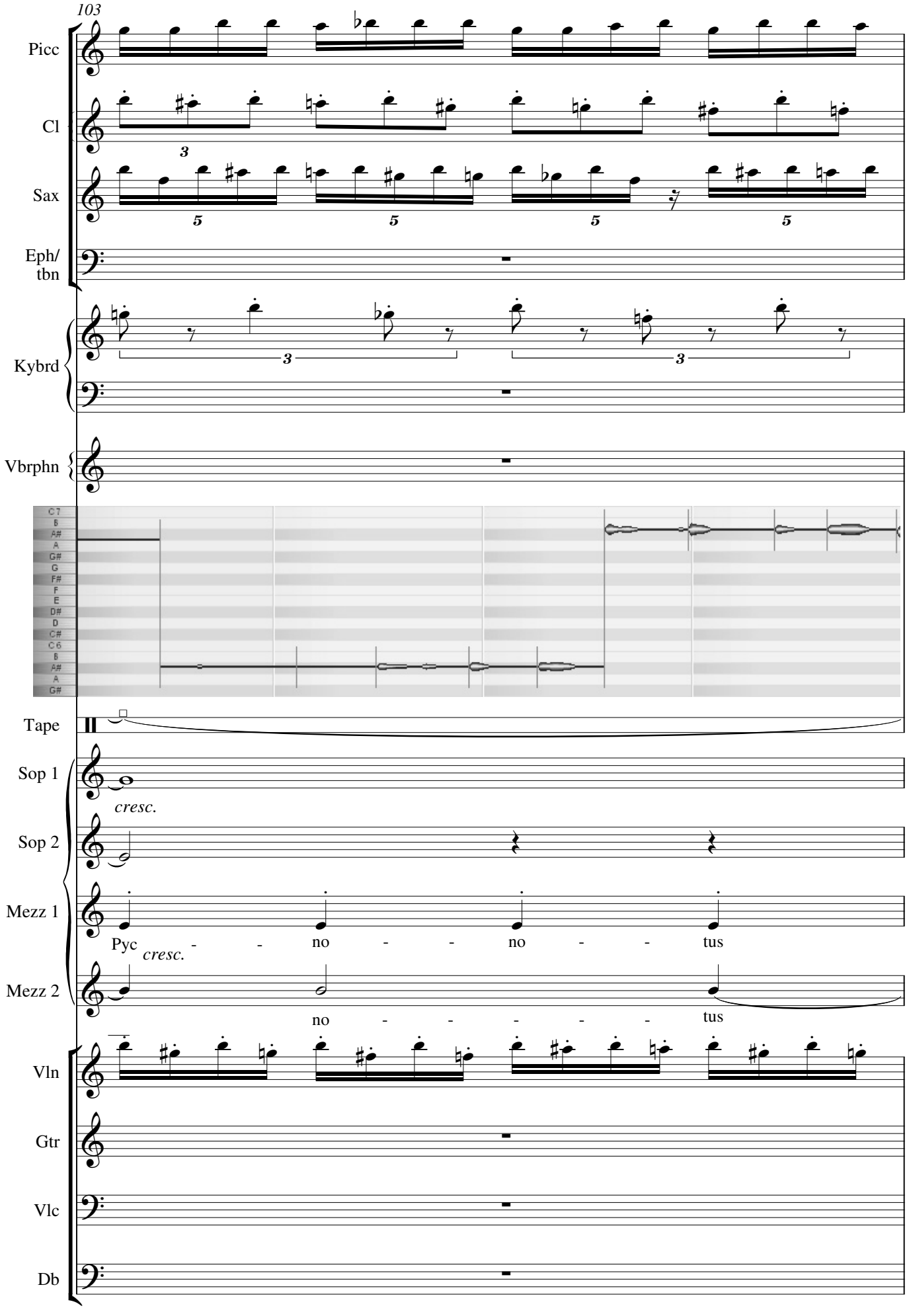

K
Tutti: ff
Tutti: diminuendo to p
87
Picc
Cl
Sax
Eph/
tbn
Kybrd
Vbrphn
Tape
suspended cymbal
Sop 1
Sop 2
Mezz 1
Mezz 2
chorus
Vln
chorus
Gtr
arco
chorus
Vlc
arco
chorus
Db
dim.
3

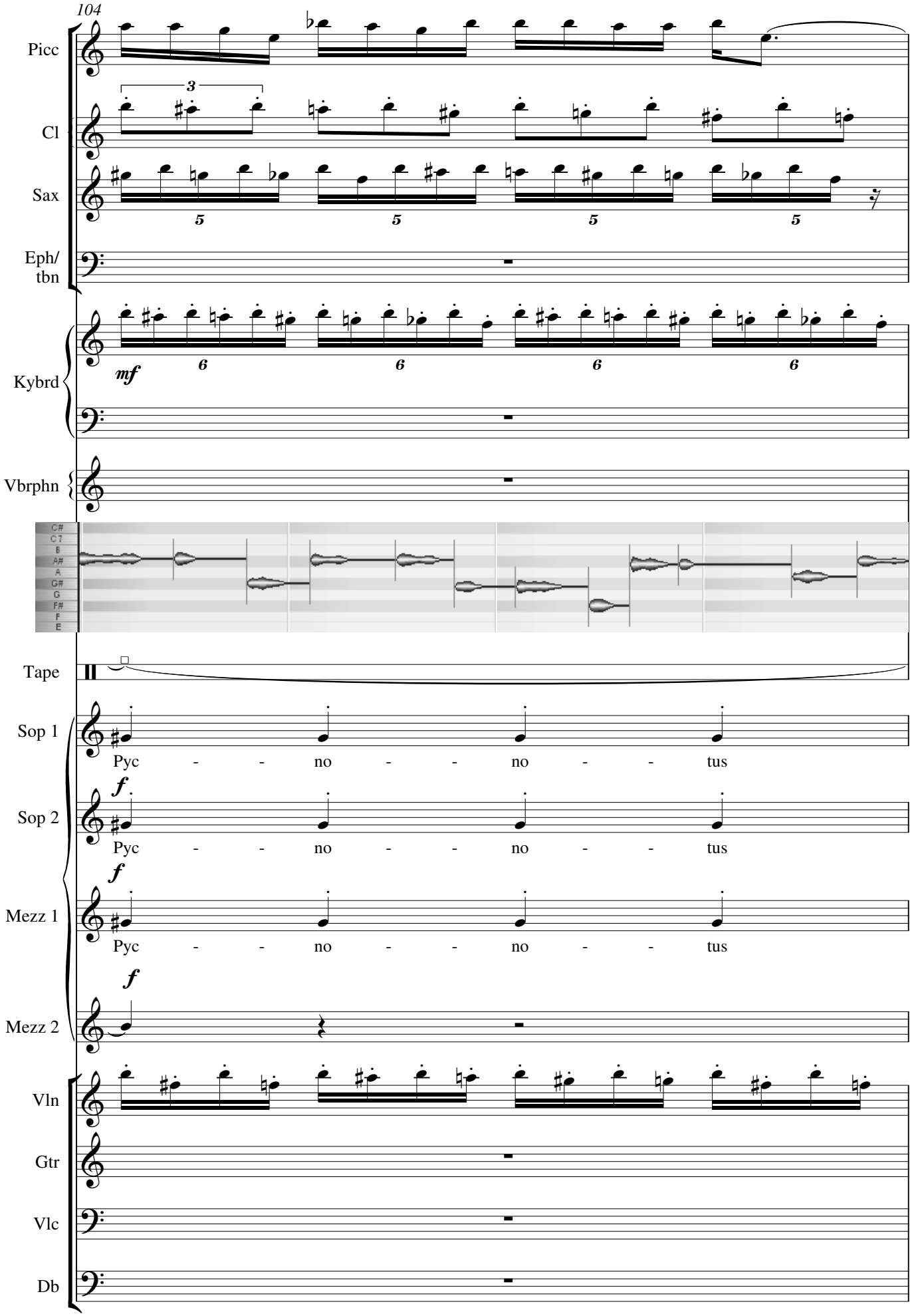

95
(Avian solo)
Picc
Cl
Sax
Eph/
tbn
Kybrd
K971 glockenspiel
Vbrphn
Tape
Sop 1
Sop 2
Yel - - - -
sustained pp
Mezz 1
Yel - - - - -
low
sustained pp
Mezz 2
Yel - -
sustained pp
light pizz.
Vln
pp
Gtr
Vlc
tube sound
Db

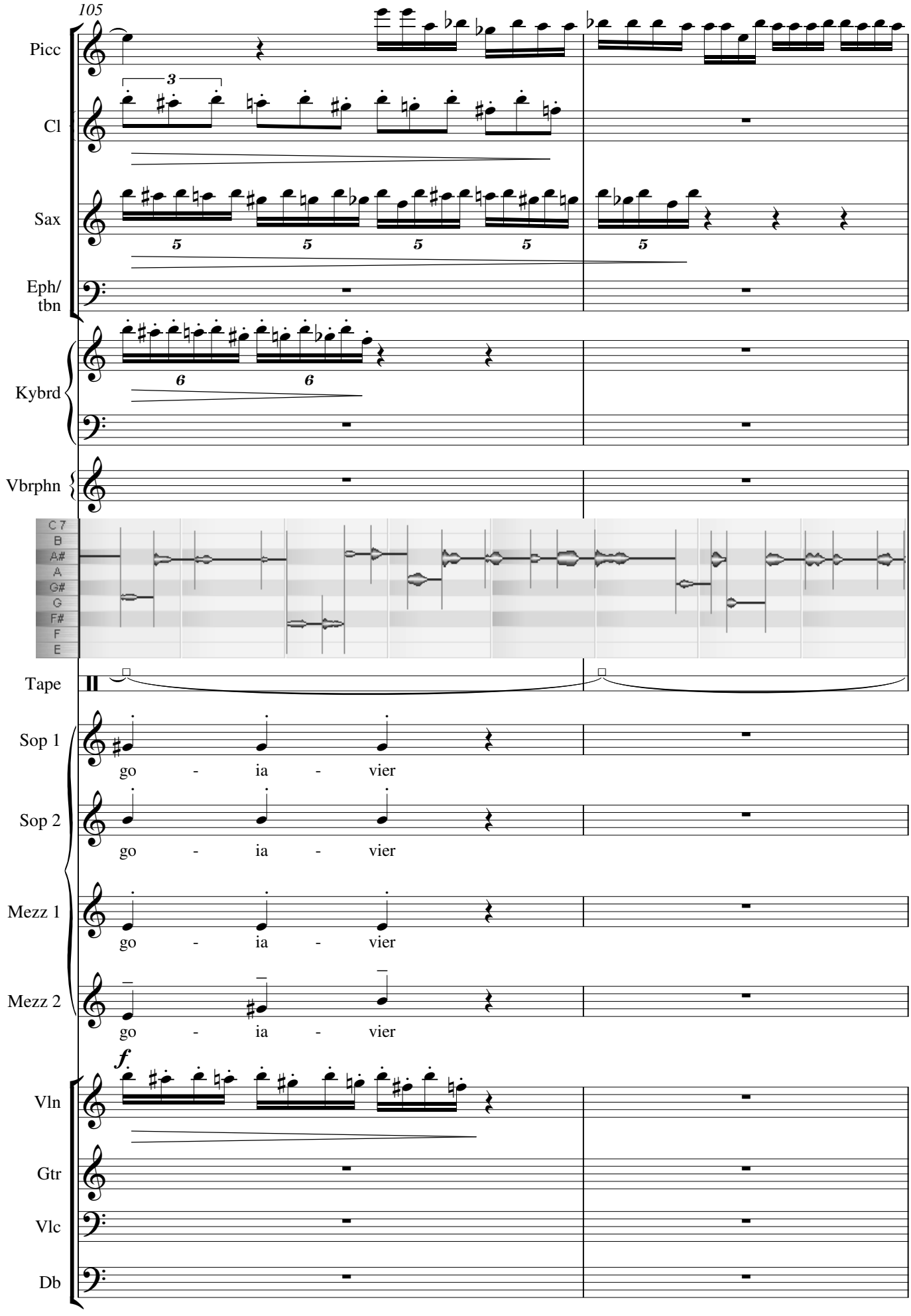

97
Picc
Cl
3
3
Sax
Eph/
tbn
Kybrd
Vbrphn
Tape
Sop 1
Yel - - - - - low
sustained pp
Sop 2
low
ven - - -
Mezz 1
ven - - - - -
ted
Mezz 2
low
ven - -
Vln
mp
(still in pizz.)
Gtr
Vlc
Db

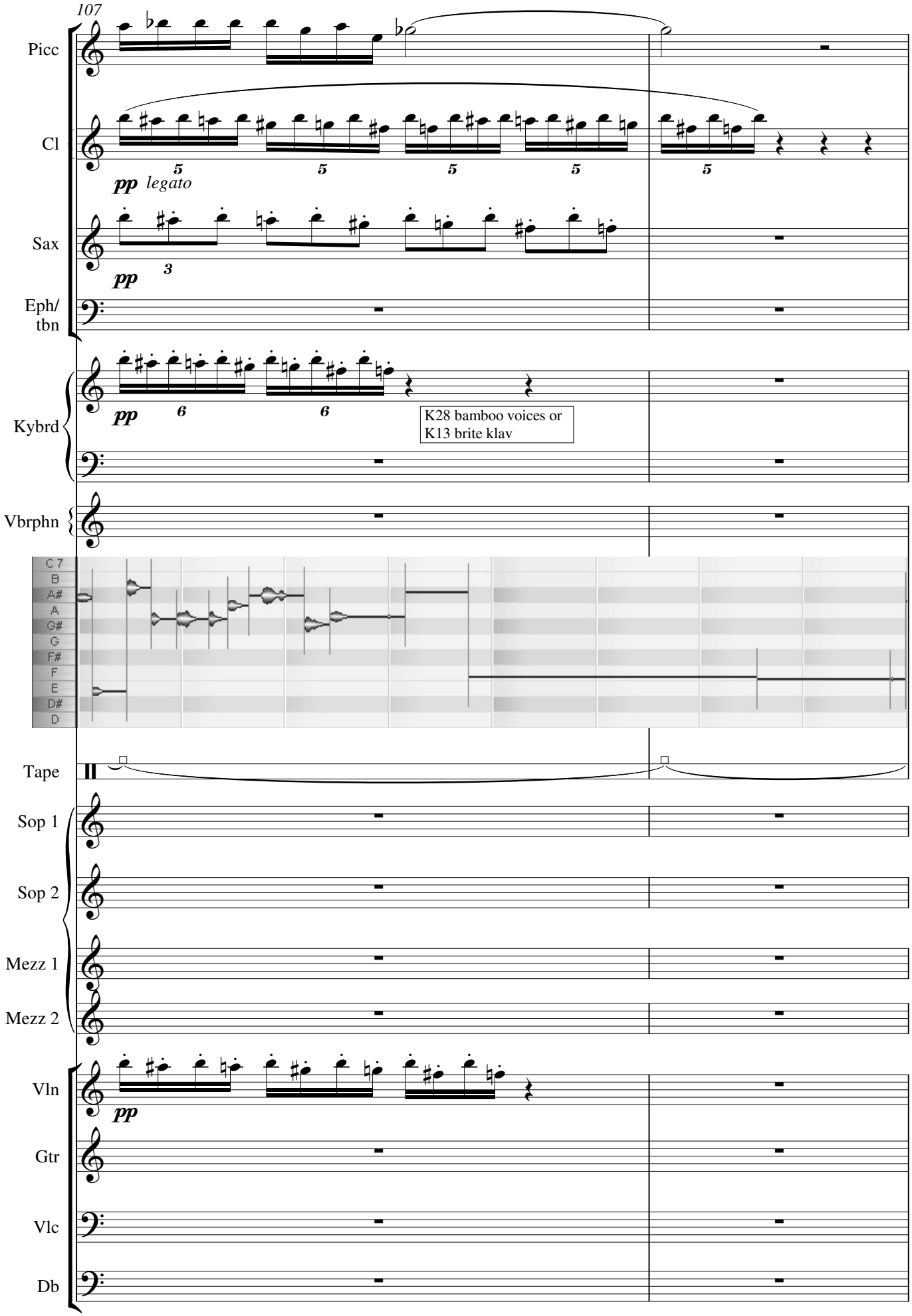

99
Picc
Cl
Sax
Eph/
tbn
Kybrd
Vbrphn
track 5 (45''/ 25'') Pycnonotus goiavier
Tape
Sop 1
Sop 2
Mezz 1
Mezz 2
Vln
Gtr
Vlc
Db
mp
p
mf
arco
ven - - - - - - te -
te - - - - d
Bul - - bul
Bul - - bul
te - d

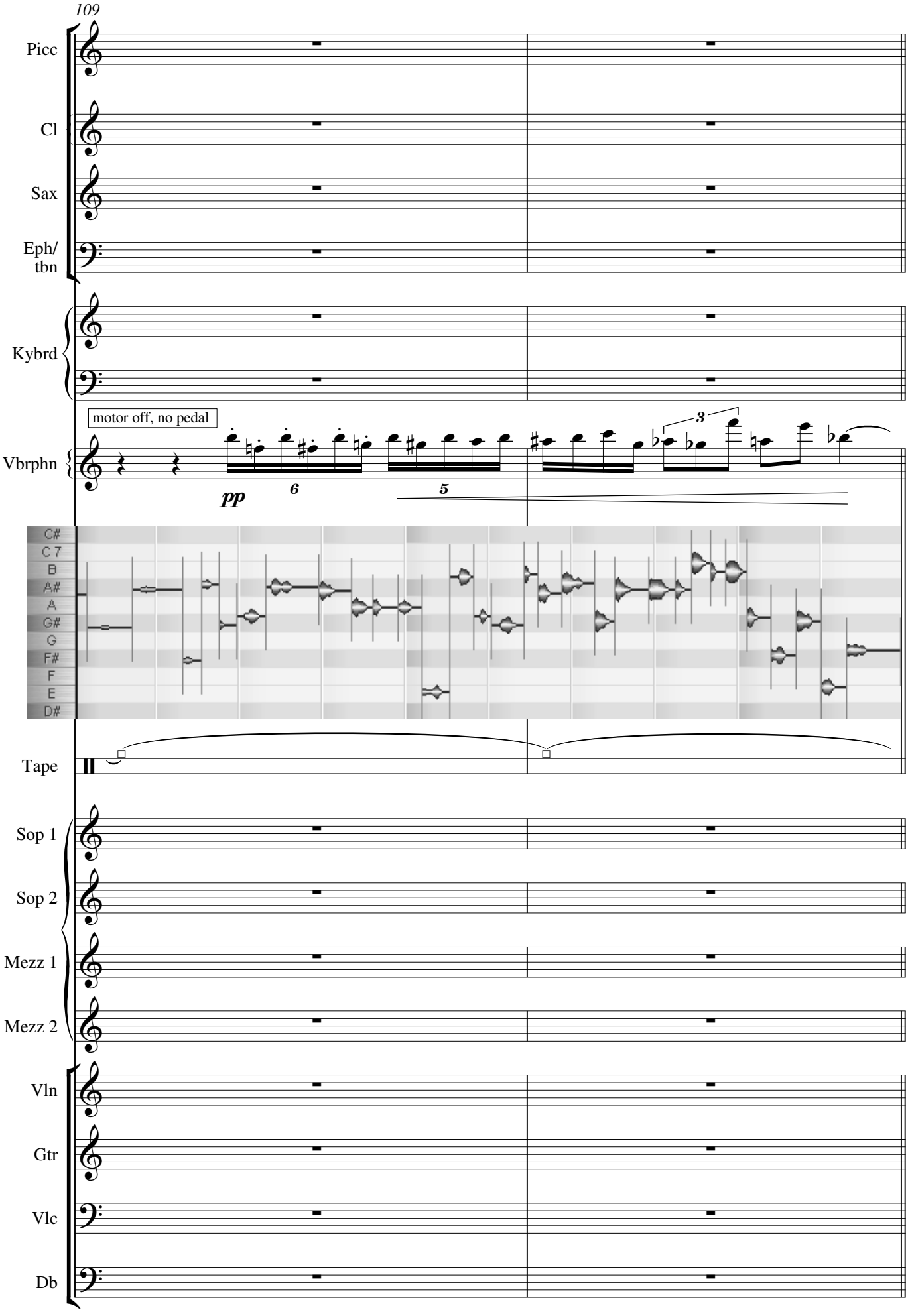

101
Picc
Cl
Sax
Eph/
tbn
legato mp
Kybrd
mp
K971 glockenspiel
(sounds loco)
Vbrphn
Tape
Sop 1
d
Bul - - bul
Sop 2
Mezz 1
Mezz 2
Bul - bul
Pyc - - - no
arco
Vln
f
Gtr
Vlc
Db

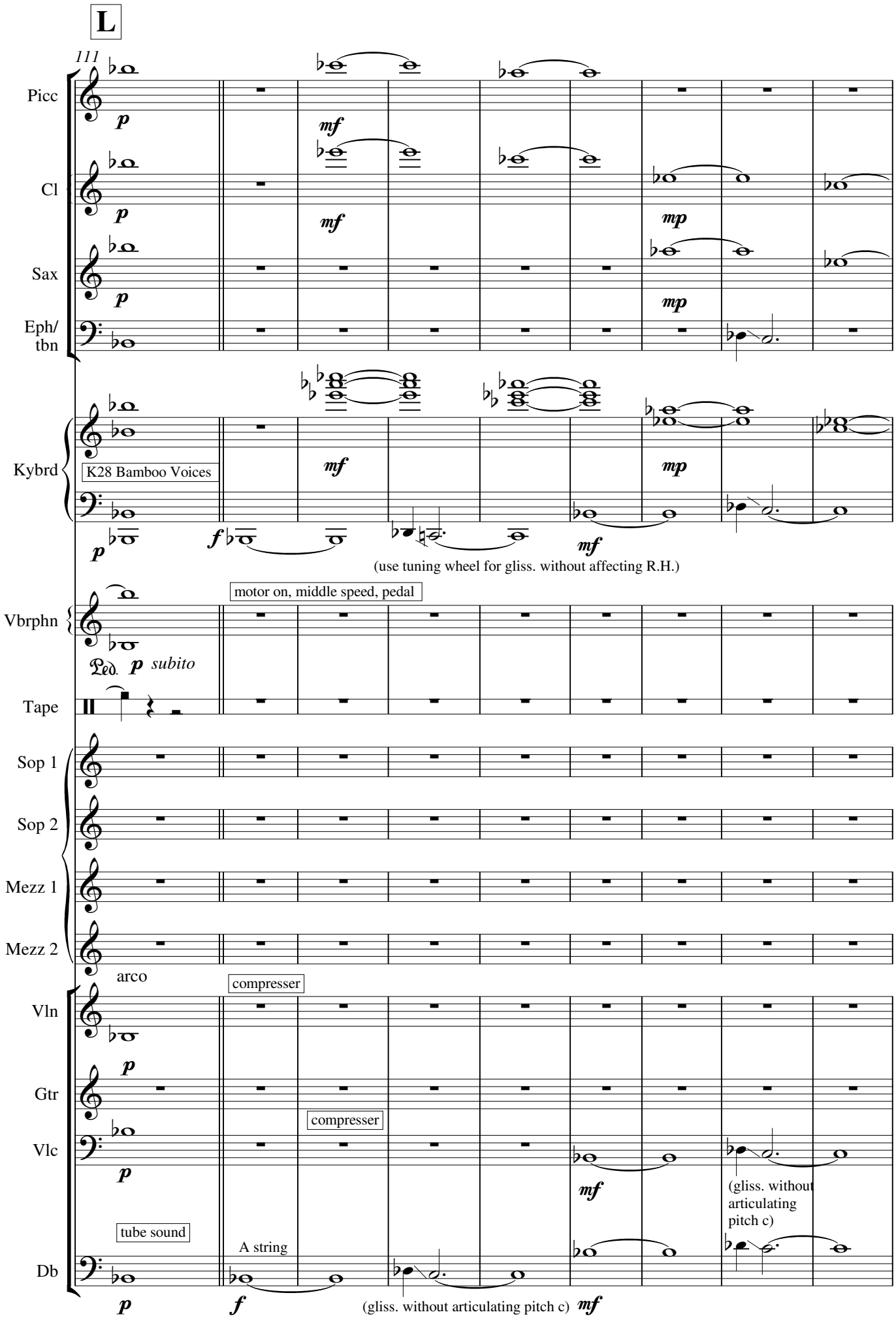

103
Picc
Cl
Sax
Eph/
tbn
Kybrd
Vbrphn
Tape
Sop 1
cresc.
Sop 2
Mezz 1
Pyc - - no - - no - - tus
cresc.
Mezz 2
no - - - - - tus
Vln
Gtr
Vlc
Db


104
Picc
Cl
Sax
Eph/
tbn
Kybrd
mf
Vbrphn
Tape
Sop 1
Pyc - - no - - no - - tus
Sop 2
f
Pyc - - no - - no - - tus
Mezz 1
f
Pyc - - no - - no - - tus
Mezz 2
f
Vln
Gtr
Vlc
Db


105
Picc
Cl
Sax
Eph/
tbn
Kybrd
Vbrphn
C 7
B
A#
A
G#
G
F#
F
E
Tape
Sop 1
go - ia - vier
Sop 2
go - ia - vier
Mezz 1
go - ia - vier
Mezz 2
go - ia - vier
f
Vln
Gtr
Vlc
Db


107
Picc
Cl
pp legato
Sax
pp
Eph/
tbn
Kybrd
pp
K28 bamboo voices or
K13 brite klav
Vbrphn
C 7
B
A#
A
G#
G
F#
F
E
D#
D
Tape
Sop 1
Sop 2
Mezz 1
Mezz 2
Vln
pp
Gtr
Vlc
Db


109
Picc
Cl
Sax
Eph/
tbn
Kybrd
motor off, no pedal
Vbrphn
pp
6
5
3
C#
C 7
B
A#
A
G#
G
F#
F
E
D#
Tape
Sop 1
Sop 2
Mezz 1
Mezz 2
Vln
Gtr
Vlc
Db


L
111
Picc
Cl
Sax
Eph/
tbn
Kybrd
K28 Bamboo Voices
(use tuning wheel for gliss. without affecting R.H.)
Vbrphn
motor on, middle speed, pedal
Ped.
subito
Tape
Sop 1
Sop 2
Mezz 1
Mezz 2
arco
compresser
Vln
Gtr
compresser
Vlc
(gliss. without articulating pitch c)
tube sound
A string
Db
(gliss. without articulating pitch c)

120

Picc

Cl

Sax

Eph/
tbn

p

(gliss. without articulating pitch c)

Kybrd

mp

p

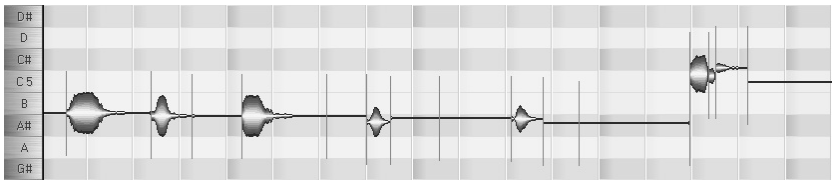
Vbrphn

mp

p

track 7 (29"/ 24")
Strix seloputo

Tape



Sop 1

mp Spot - te - d woo - d 0 - w - l

Sop 2

mp Spot - te - d woo - d 0 - w - l

Mezz 1

mp Spot - te - d woo - d 0 - w - l

Mezz 2

mp Spot - te - d woo - d 0 - w - l

Vln

mp

(gliss. without articulating pitch c)

p

Gtr

Vlc

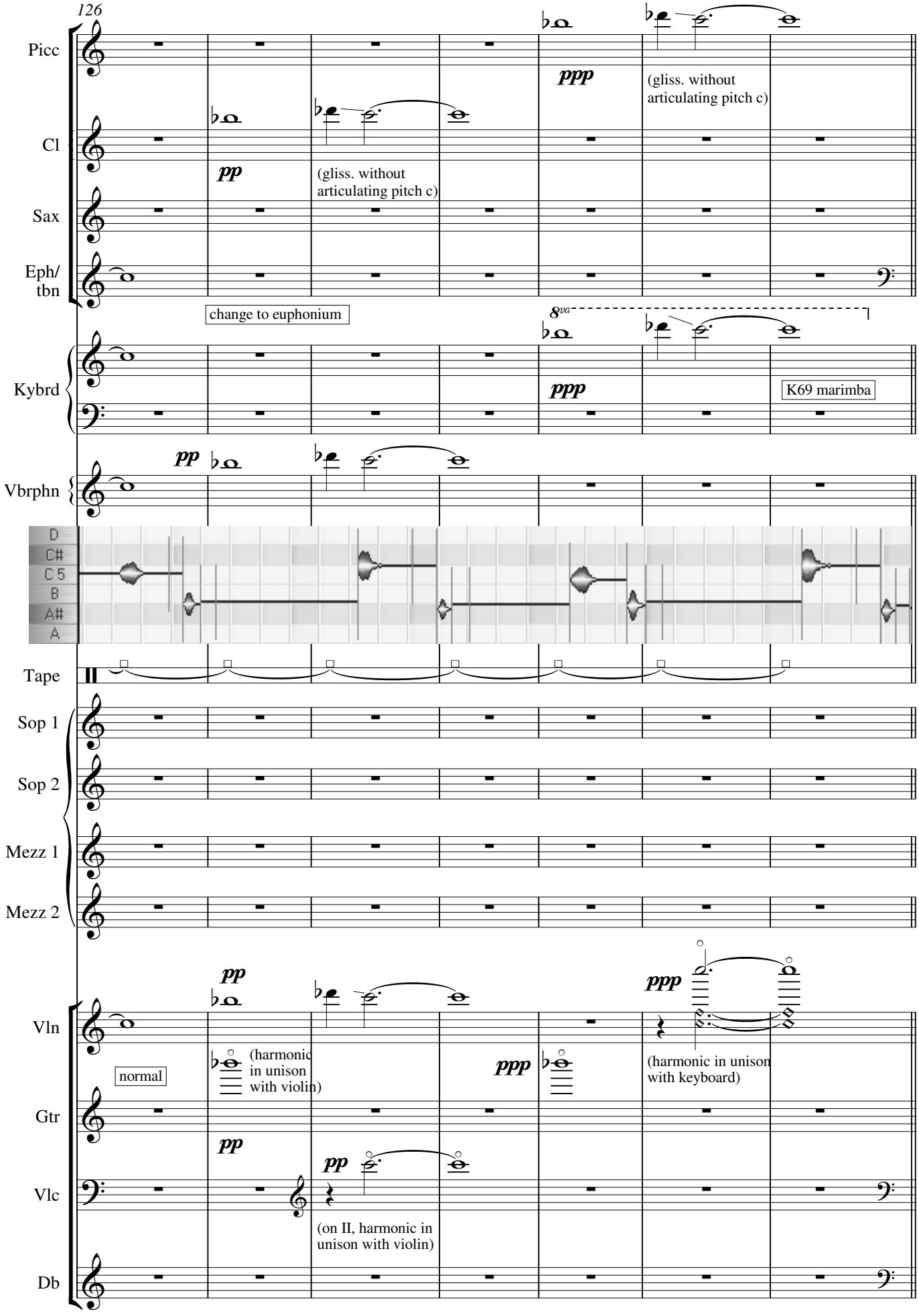
mp

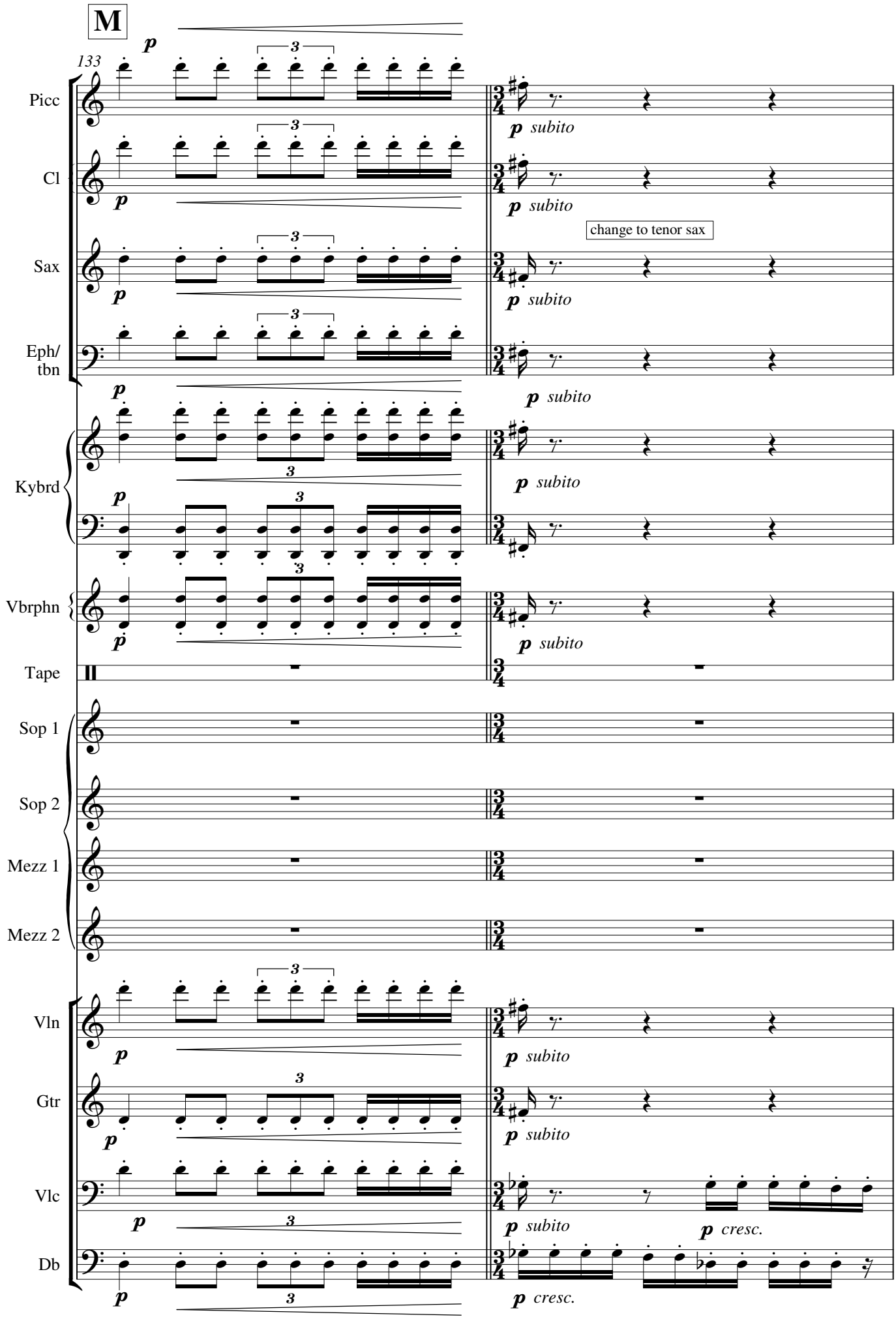
normal

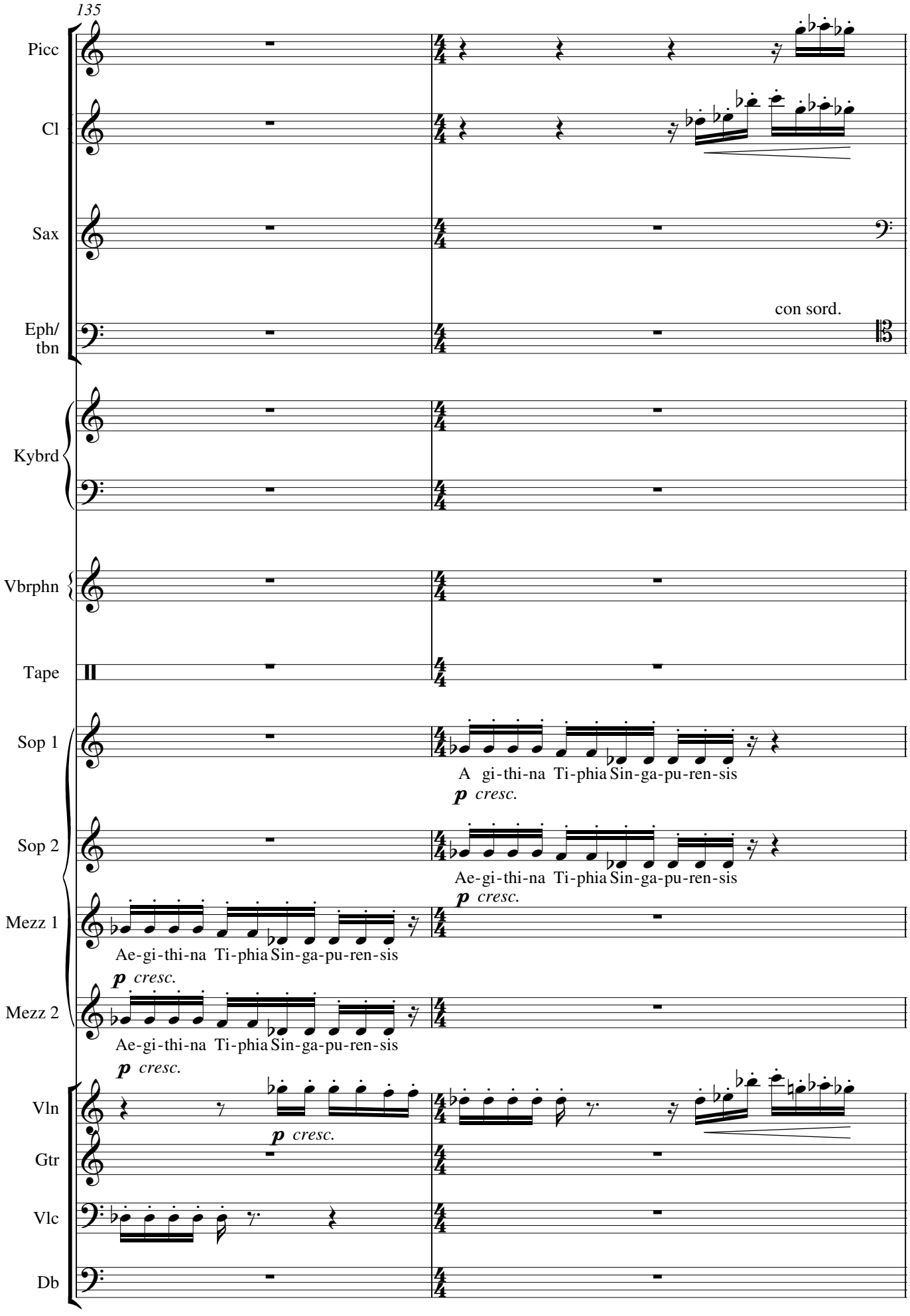
normal *pp*

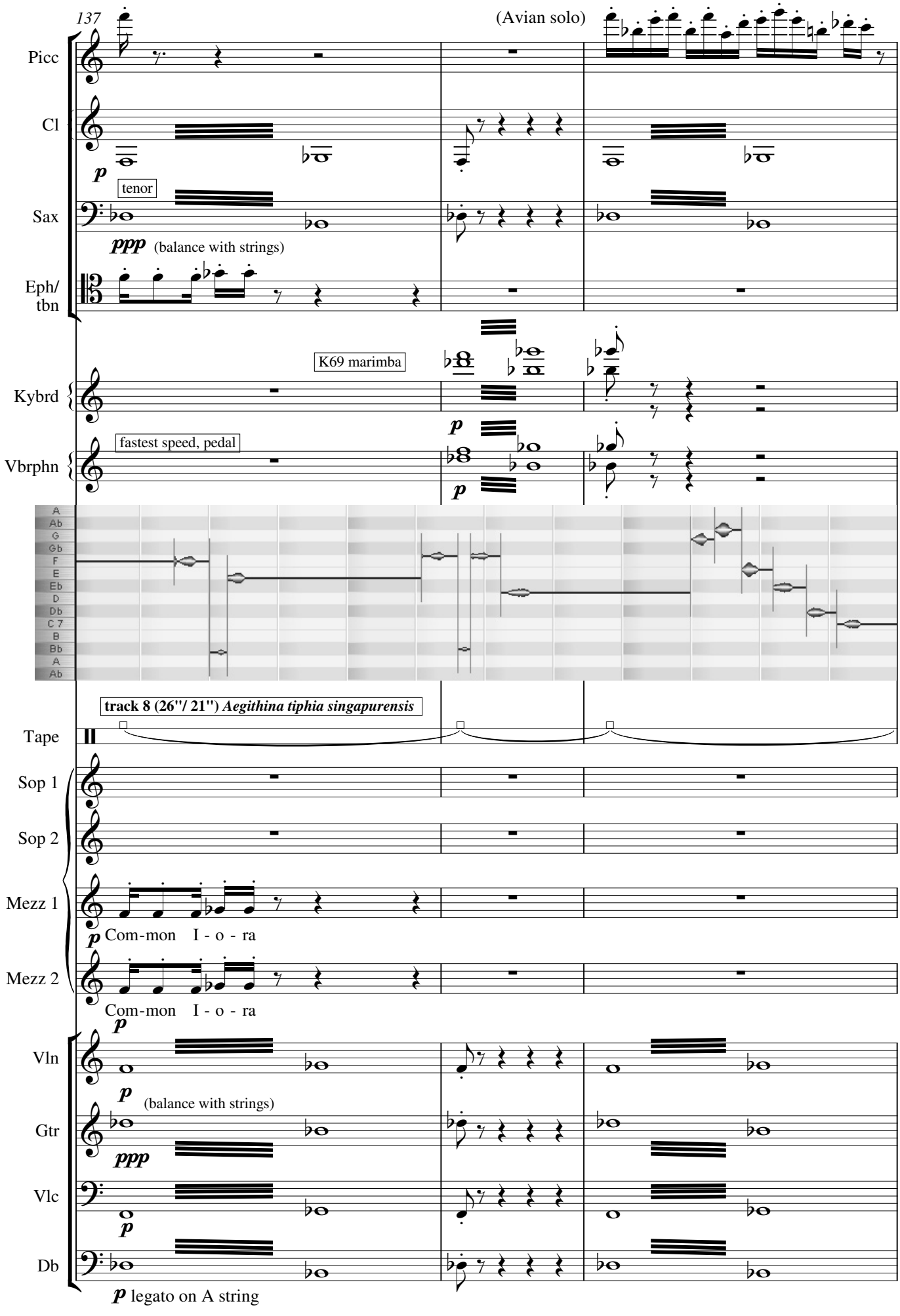
Db

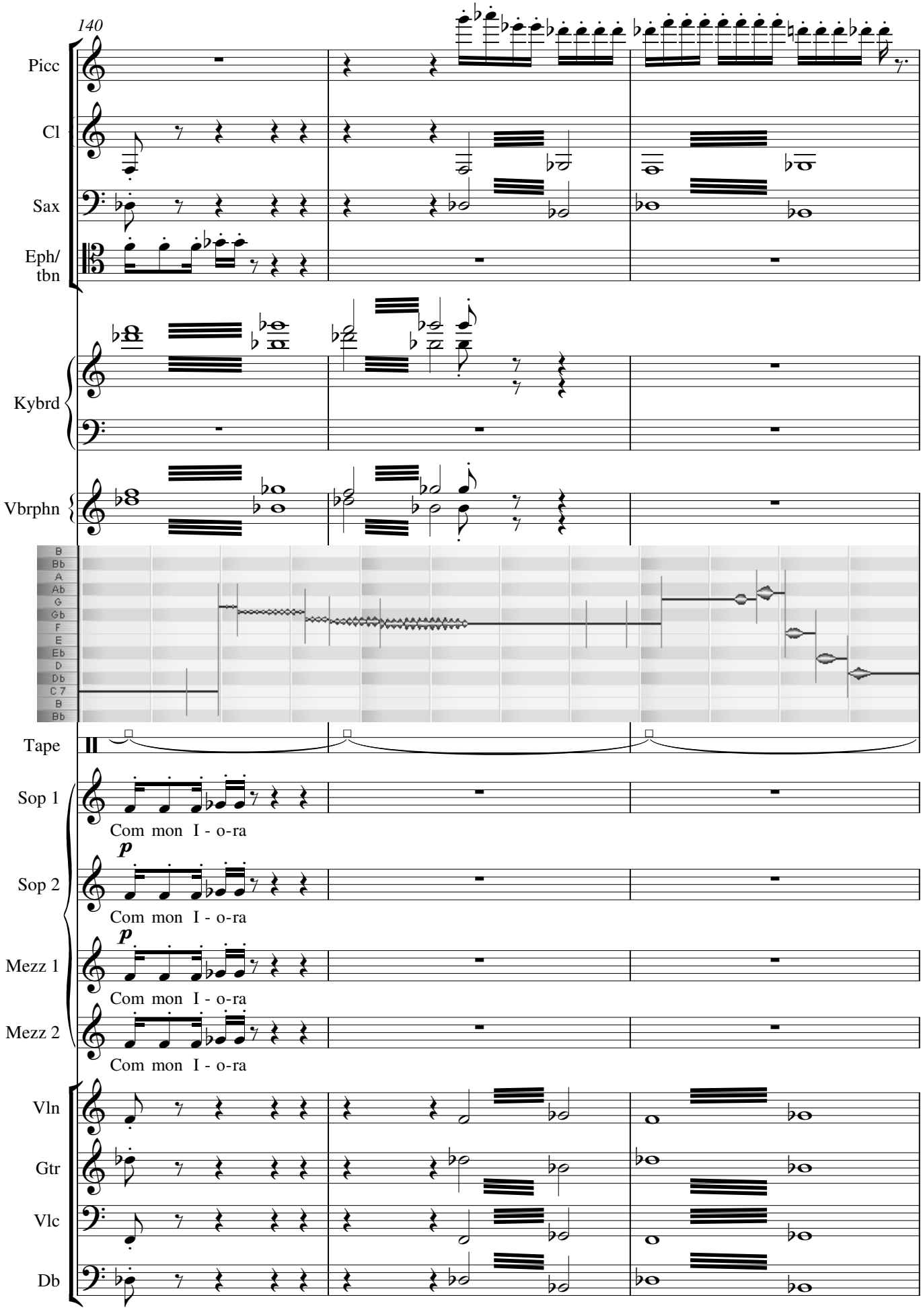
(on D string, artificial harmonic es bes, in unison with violin)

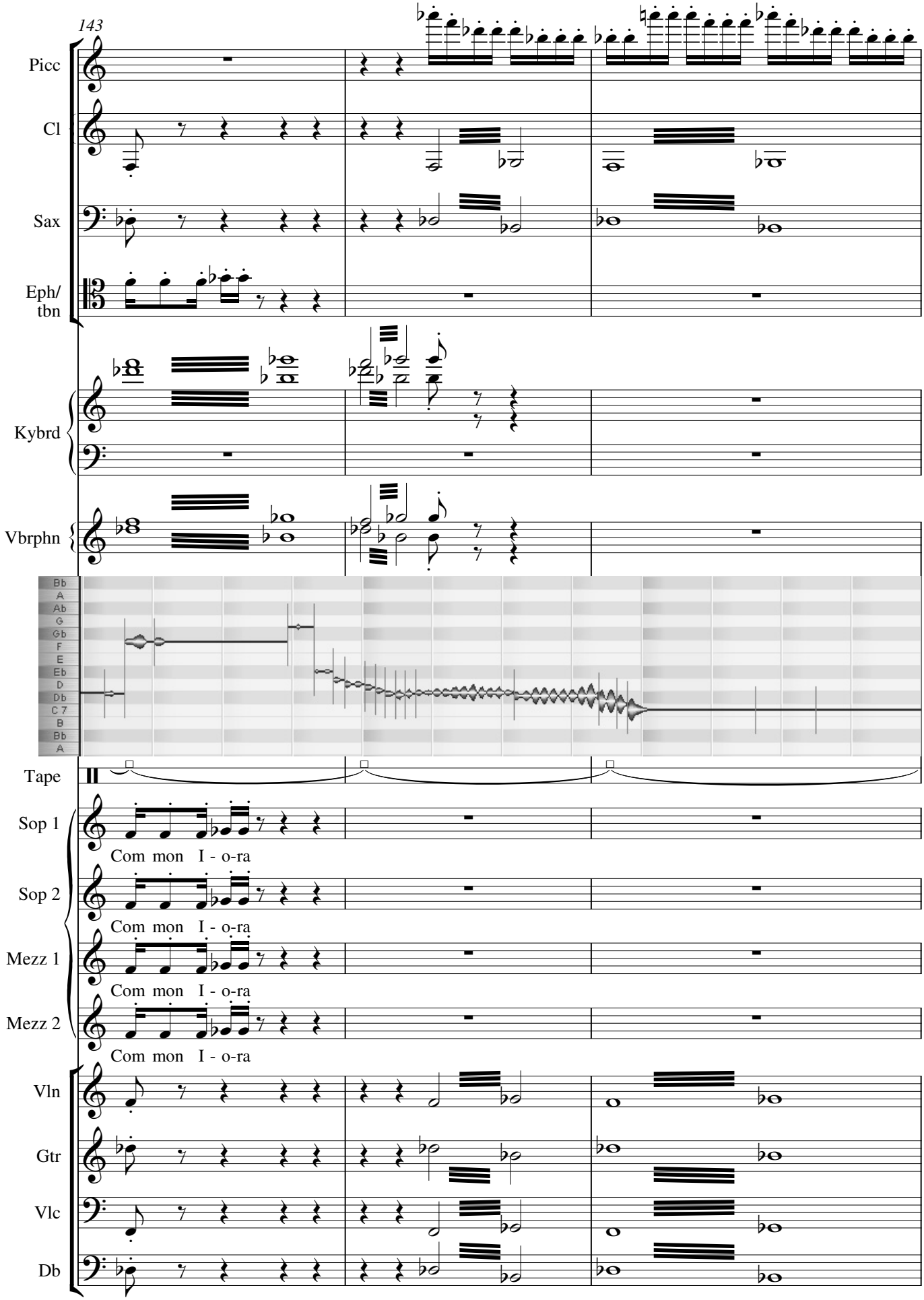

126
Picc
Cl
Sax
Eph/
tbn
pp
(gliss. without
articulating pitch c)
ppp
(gliss. without
articulating pitch c)
change to euphonium
8va
Kybrd
ppp
K69 marimba
Vbrphn
pp
D
C#
C 5
B
A#
A
Tape
Sop 1
Sop 2
Mezz 1
Mezz 2
Vln
Gtr
Vlc
Db
pp
normal
(harmonic
in unison
with violin)
ppp
ppp
(harmonic in unison
with keyboard)
pp
pp
(on II, harmonic in
unison with violin)

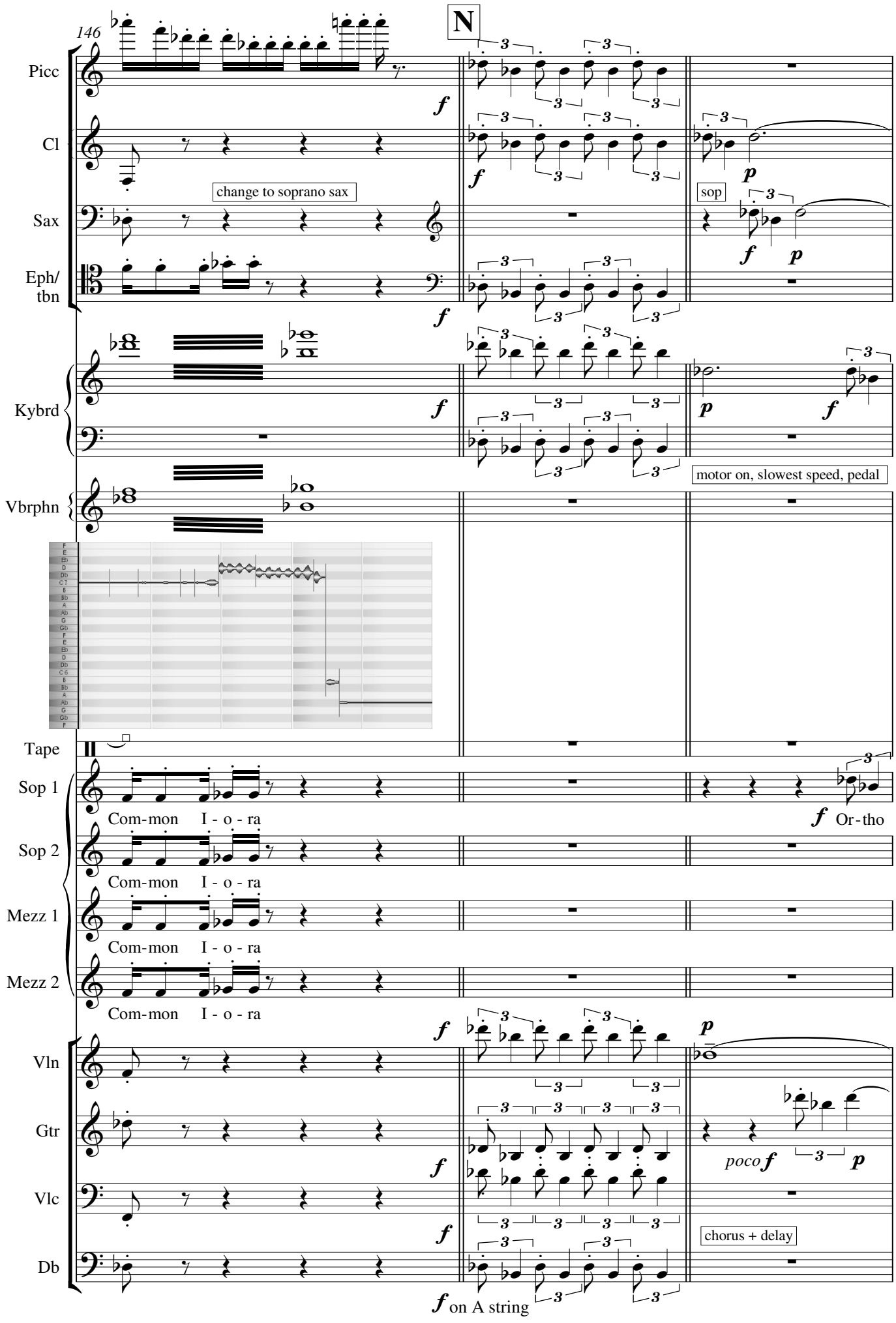

M
133
Picc
Cl
Sax
Eph/
tbn
Kybrd
Vbrphn
Tape
Sop 1
Sop 2
Mezz 1
Mezz 2
Vln
Gtr
Vlc
Db
change to tenor sax
p subito
p cresc.


135
Picc
Cl
Sax
Eph/
tbn
con sord.
Kybrd
Vbrphn
Tape
Sop 1
A gi-thi-na Ti-phia Sin-ga-pu-ren-sis
p cresc.
Sop 2
Ae-gi-thi-na Ti-phia Sin-ga-pu-ren-sis
p cresc.
Mezz 1
Ae-gi-thi-na Ti-phia Sin-ga-pu-ren-sis
p cresc.
Mezz 2
Ae-gi-thi-na Ti-phia Sin-ga-pu-ren-sis
p cresc.
Vln
p cresc.
Gtr
Vlc
Db


137
(Avian solo)
Picc
Cl
p
tenor
Sax
ppp (balance with strings)
Eph/
tbn
K69 marimba
Kybrd
p
fastest speed, pedal
Vbrphn
p
A
Ab
G
Gb
F
E
Eb
D
Db
C 7
B
Bb
A
Ab
track 8 (26''/ 21'') Aegithina tiphia singapurensis
Tape
Sop 1
Sop 2
Mezz 1
p Com-mon I - o - ra
Mezz 2
Com-mon I - o - ra
p
Vln
p
(balance with strings)
Gtr
ppp
Vlc
p
Db
p legato on A string


140
Picc
Cl
Sax
Eph/
tbn
Kybrd
Vbrphn
B
Bb
A
Ab
G
Gb
F
E
Eb
D
Db
C 7
B
Bb
Tape
Sop 1
Com mon I - o-ra
p
Sop 2
Com mon I - o-ra
p
Mezz 1
Com mon I - o-ra
Mezz 2
Com mon I - o-ra
Vln
Gtr
Vlc
Db


143
Picc
Cl
Sax
Eph/
tbn
Kybrd
Vbrphn
Tape
Sop 1
Com mon I - o-ra
Sop 2
Com mon I - o-ra
Mezz 1
Com mon I - o-ra
Mezz 2
Com mon I - o-ra
Vln
Gtr
Vlc
Db


146
N
Picc
Cl
Sax
Eph/
tbn
Kybrd
Vbrphn
Tape
Sop 1
Sop 2
Mezz 1
Mezz 2
Vln
Gtr
Vlc
Db
change to soprano sax
sop
motor on, slowest speed, pedal
chorus + delay
Com-mon I - o - ra
Com-mon I - o - ra
Com-mon I - o - ra
Com-mon I - o - ra
Or-tho
poco f
on A string

149

Picc

Cl

Sax

Eph/
tbn

Kybrd

Vbrphn

F
E
Eb
D
Db
C 7
B
Bb
A

track 8 (31"/ 21")
Orthotomus sericeus

Tape

Sop 1

to Ru fou - s taile -d tai - lor bir - d

Sop 2

to-mus se Ru fou - s taile -d tai - lor bir - d

Mezz 1

se-ri-ce Ru fou - s taile -d tai - lor bir - d

Mezz 2

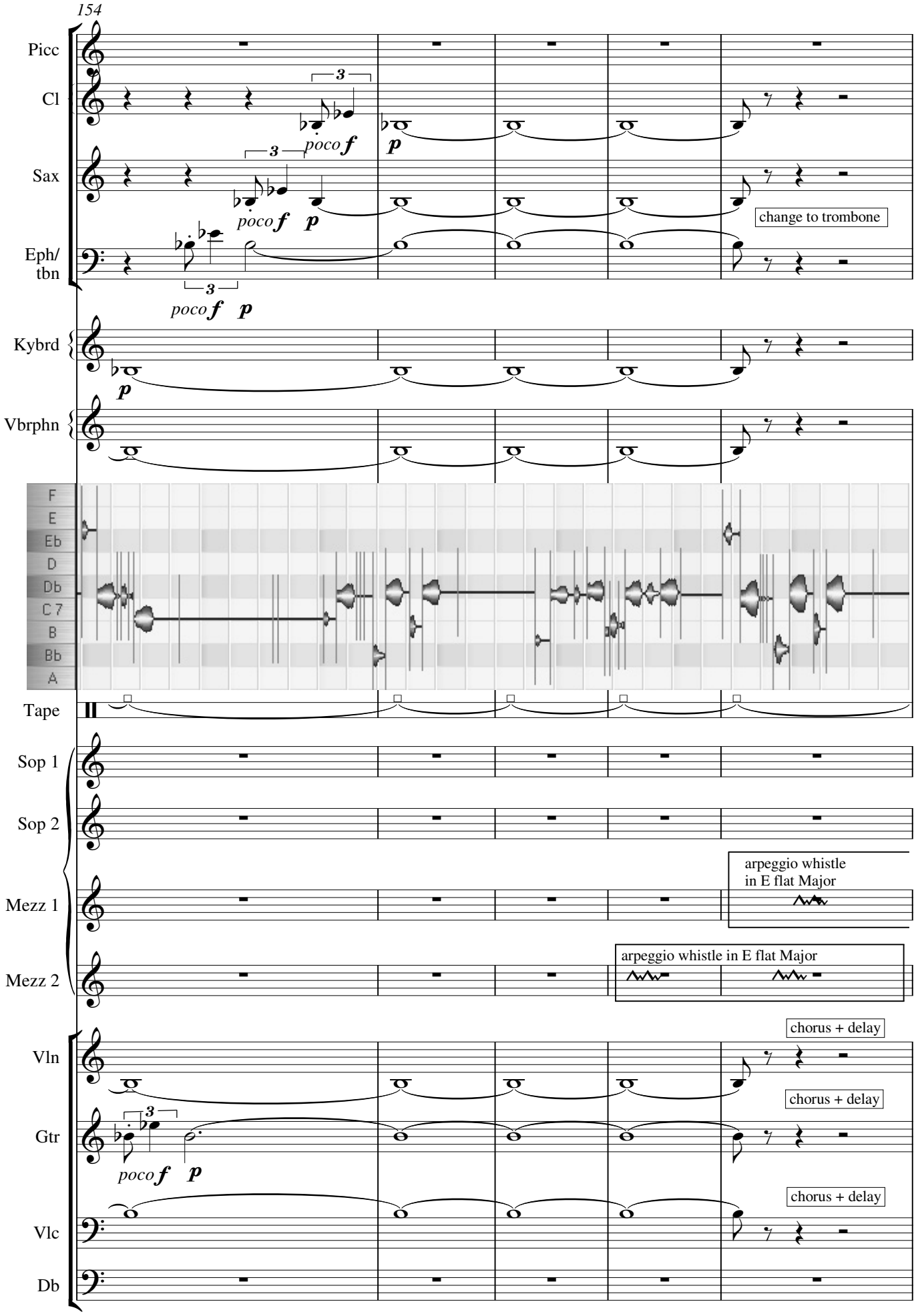
ce - us Ru fou - s taile -d tai - lor bir - d

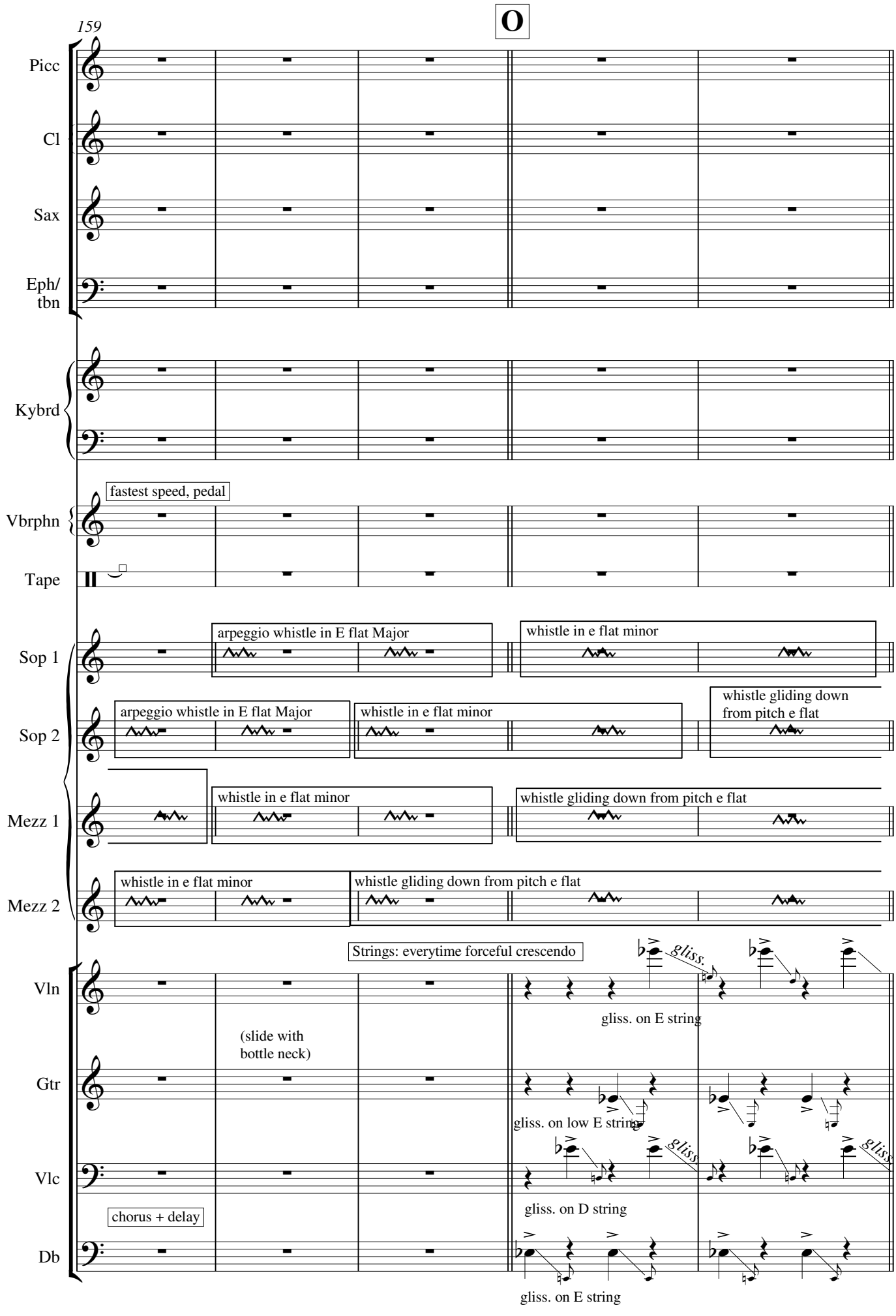
Vln

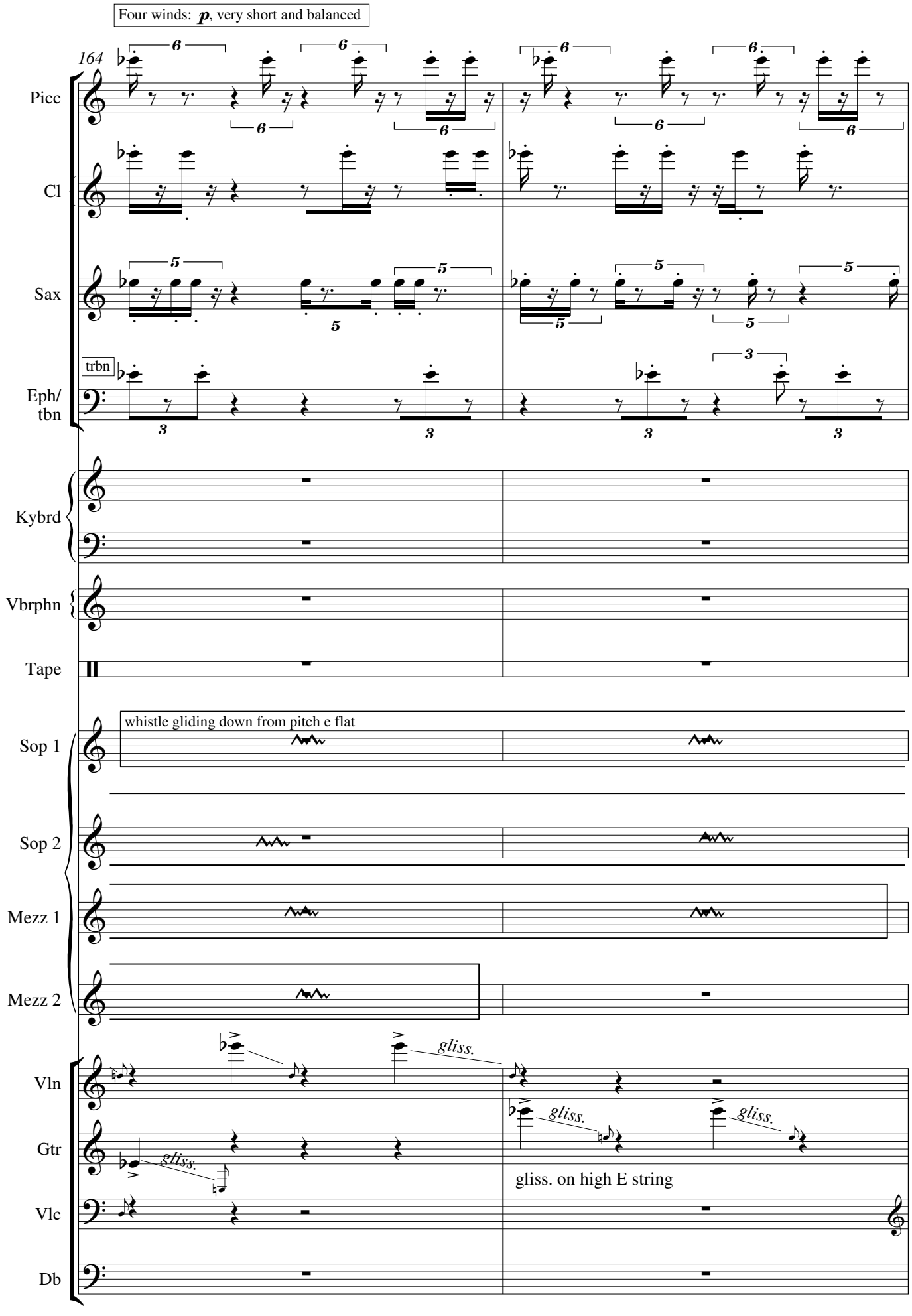
Gtr

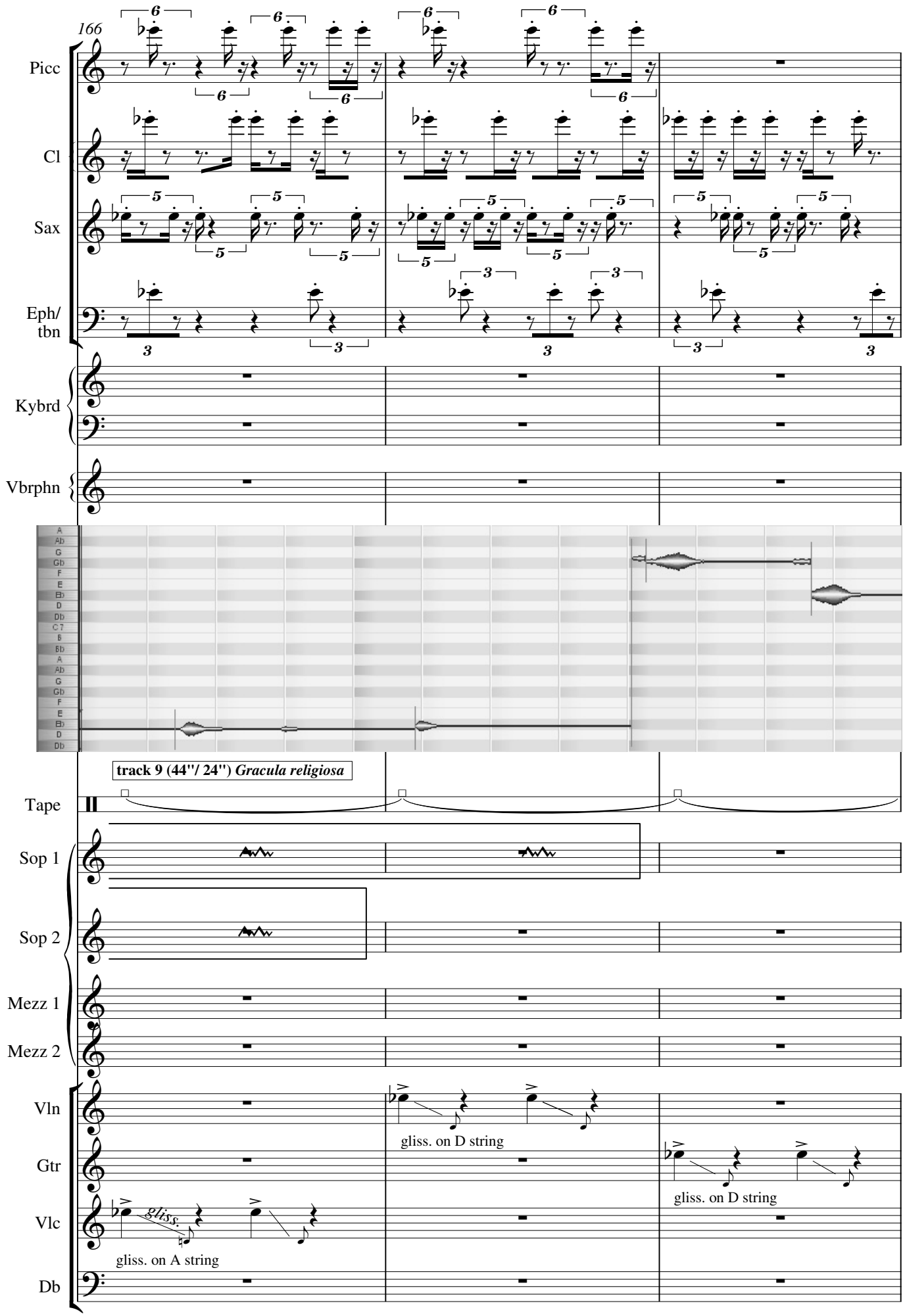
Vlc

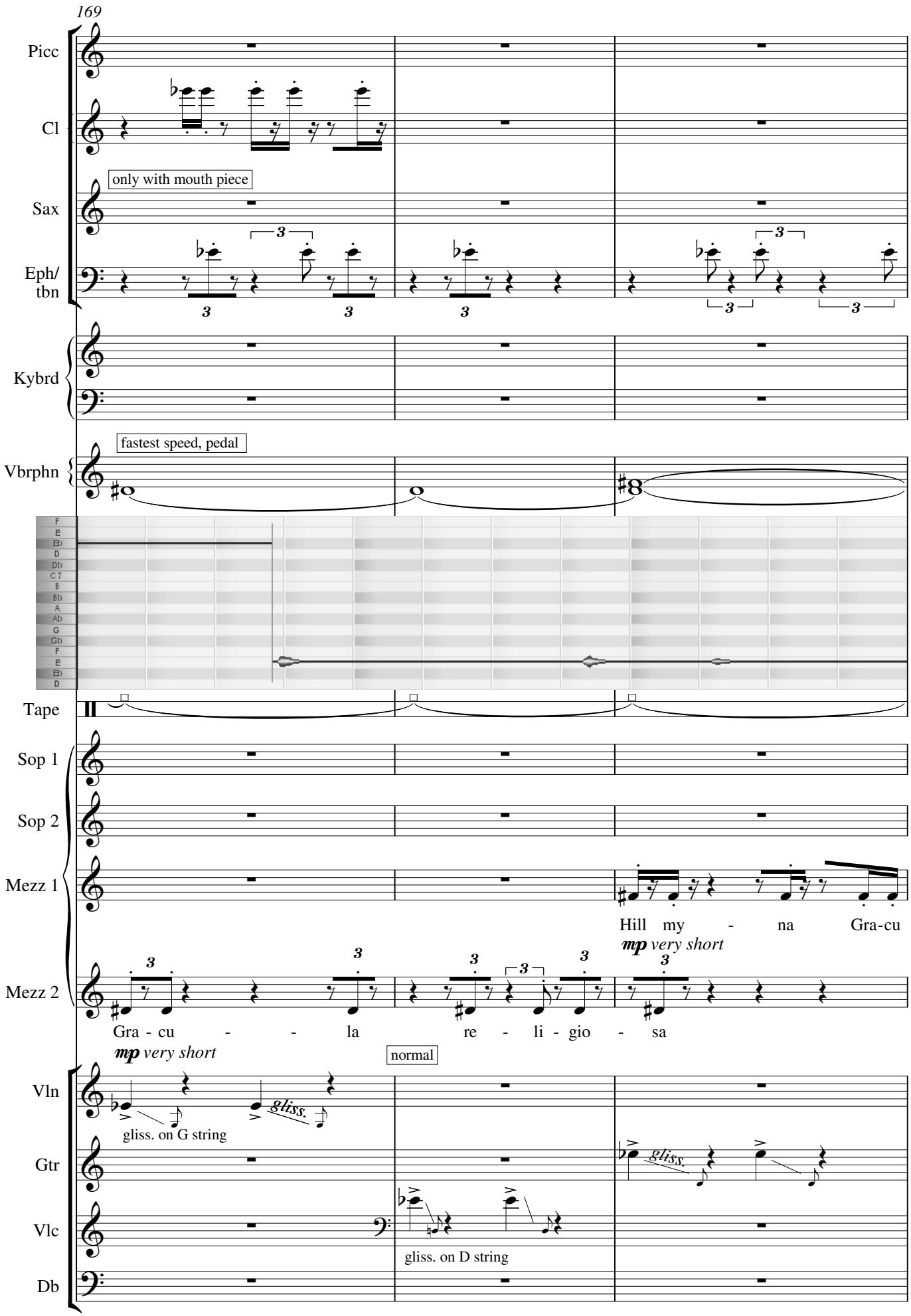
Db

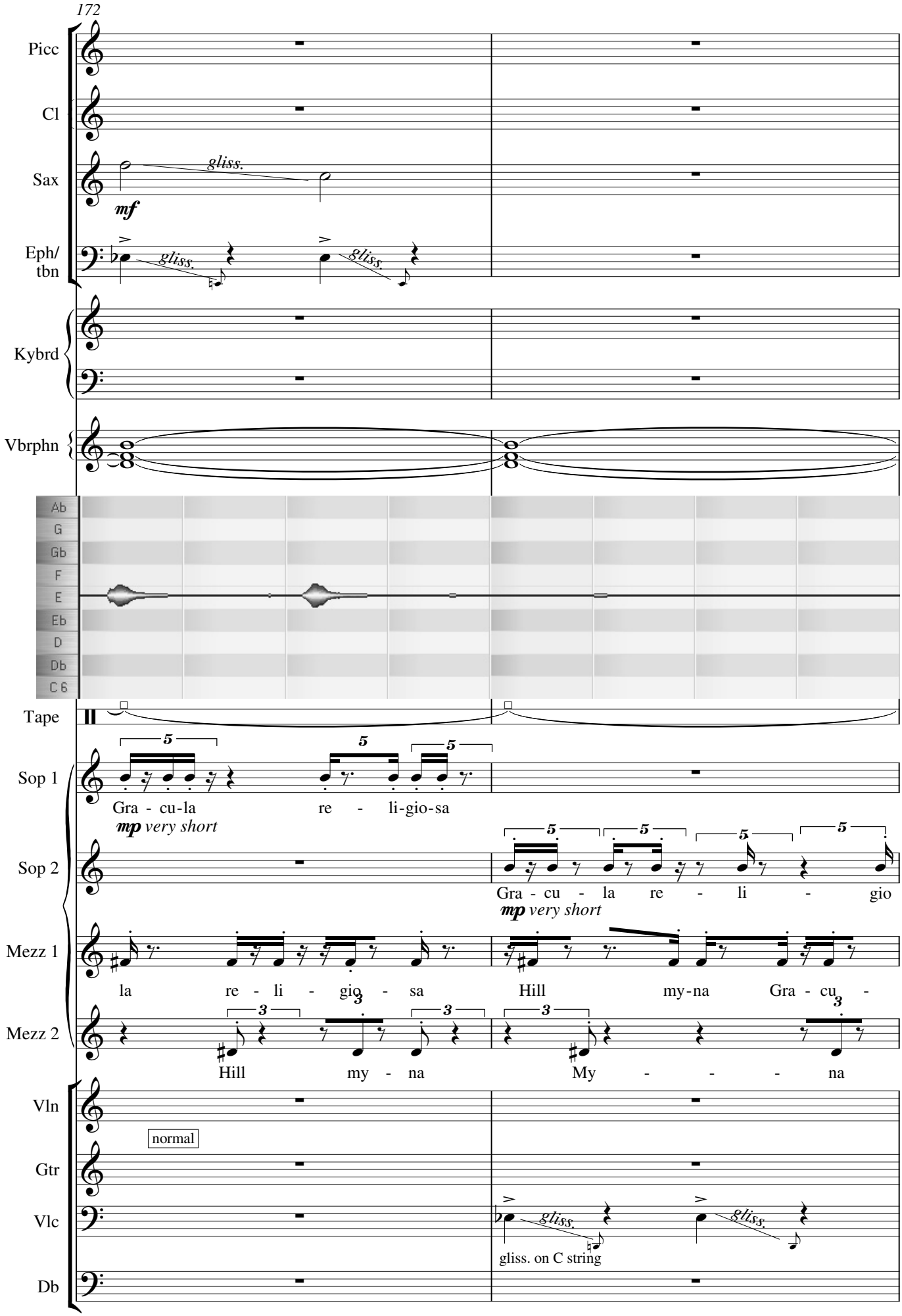

154
Picc
Cl
Sax
Eph/
tbn
poco f
p
change to trombone
Kybrd
Vbrphn
F
E
Eb
D
Db
C 7
B
Bb
A
Tape
Sop 1
Sop 2
Mezz 1
Mezz 2
arpeggio whistle
in E flat Major
arpeggio whistle in E flat Major
Vln
Gtr
Vlc
Db
chorus + delay
chorus + delay
chorus + delay

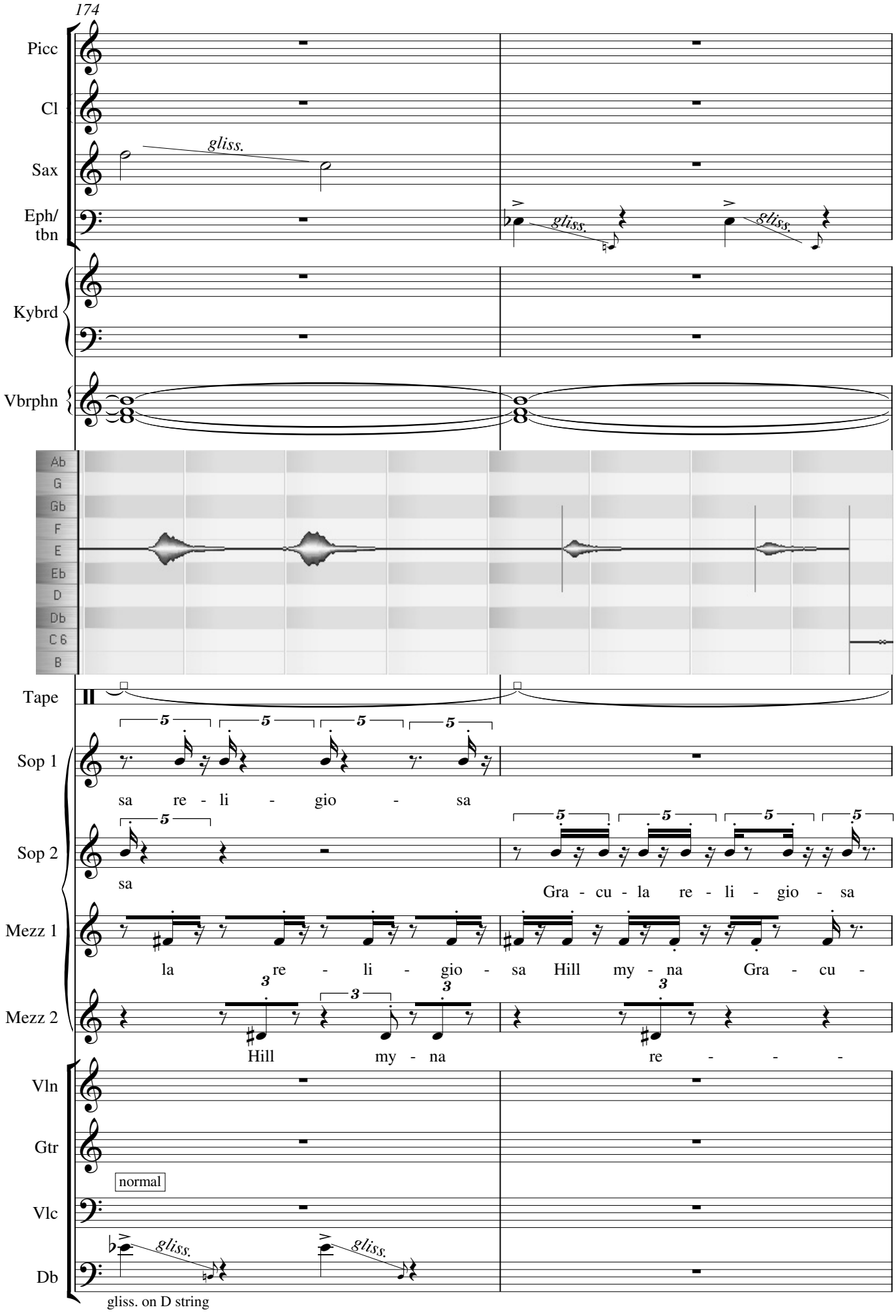

159
O
Picc
Cl
Sax
Eph/
tbn
Kybrd
fastest speed, pedal
Vbrphn
Tape
arpeggio whistle in E flat Major
whistle in e flat minor
Sop 1
arpeggio whistle in E flat Major
whistle in e flat minor
whistle gliding down
from pitch e flat
Sop 2
whistle in e flat minor
whistle gliding down from pitch e flat
Mezz 1
whistle in e flat minor
whistle gliding down from pitch e flat
Mezz 2
Strings: everytime forceful crescendo
gliss.
Vln
gliss. on E string
(slide with
bottle neck)
Gtr
gliss. on low E string
gliss.
gliss.
Vlc
chorus + delay
gliss. on D string
Db
gliss. on E string

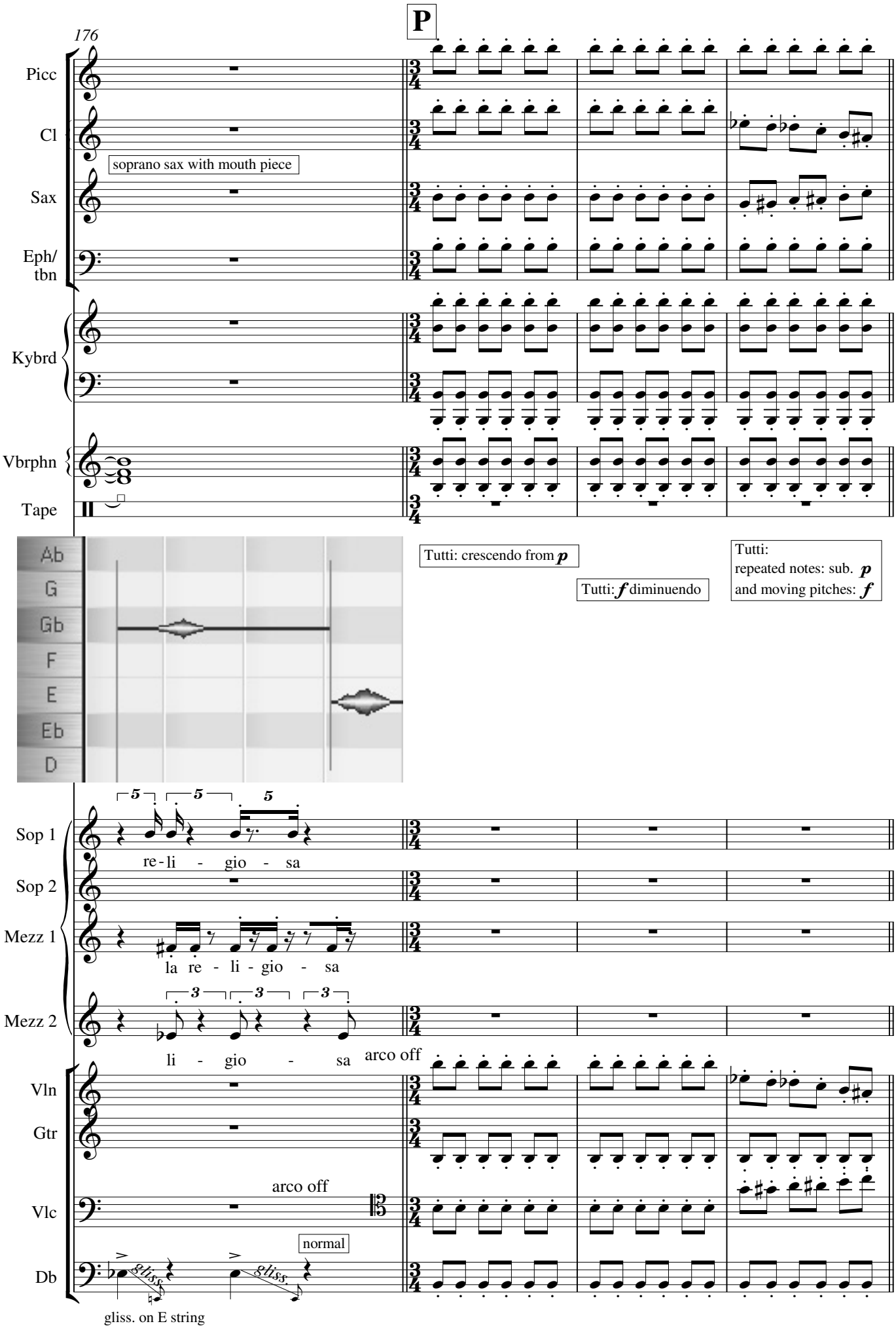

Four winds: p, very short and balanced
164
Picc
Cl
Sax
trbn
Eph/
tbn
Kybrd
Vbrphn
Tape
whistle gliding down from pitch e flat
Sop 1
Sop 2
Mezz 1
Mezz 2
Vln
Gtr
Vlc
Db
gliss.
gliss.
gliss.
gliss.
gliss.
gliss. on high E string

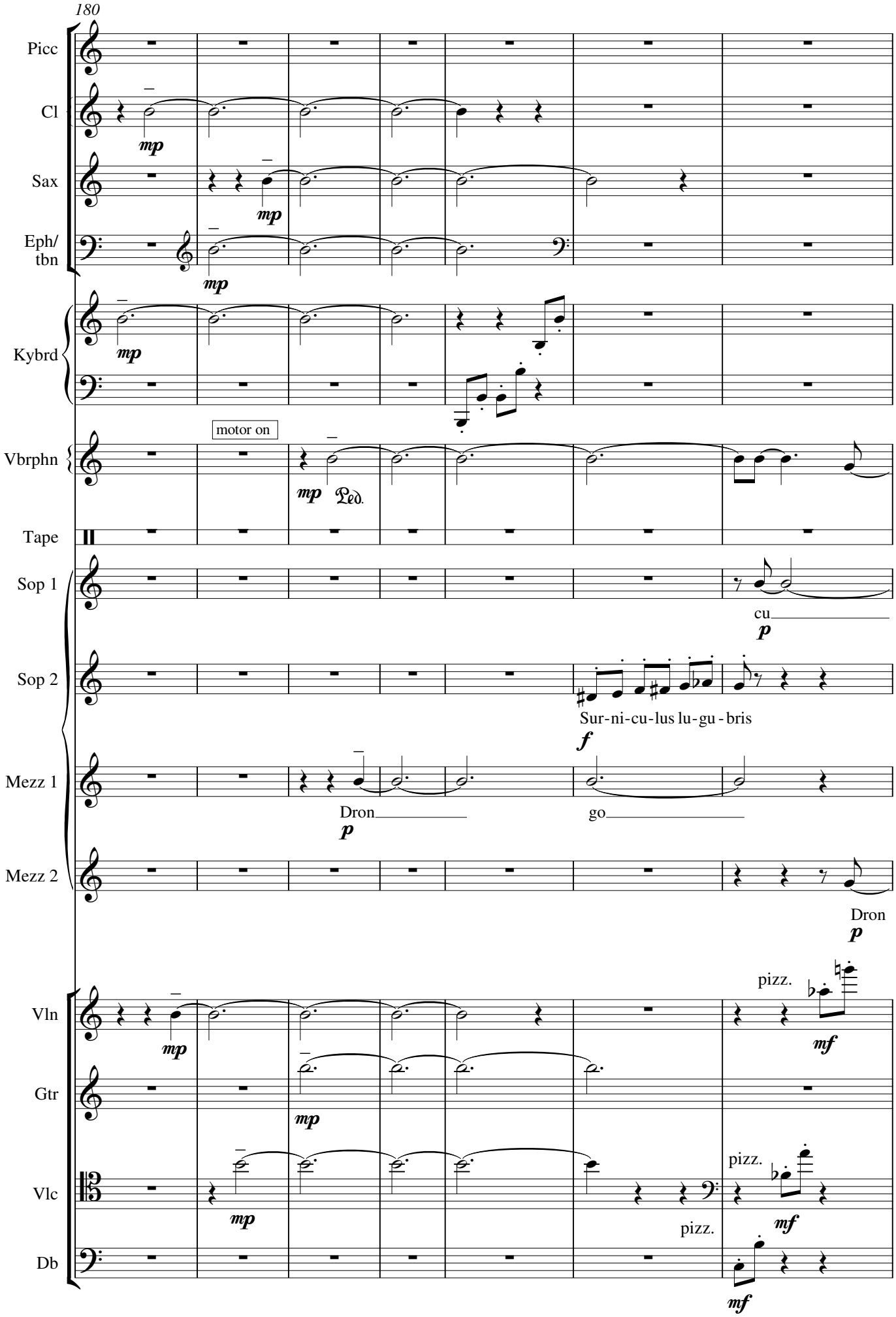

166
Picc
Cl
Sax
Eph/
tbn
Kybrd
Vbrphn
track 9 (44"/ 24") Gracula religiosa
Tape
Sop 1
Sop 2
Mezz 1
Mezz 2
Vln
Gtr
Vlc
Db
gliss.
gliss. on A string
gliss. on D string
gliss. on D string

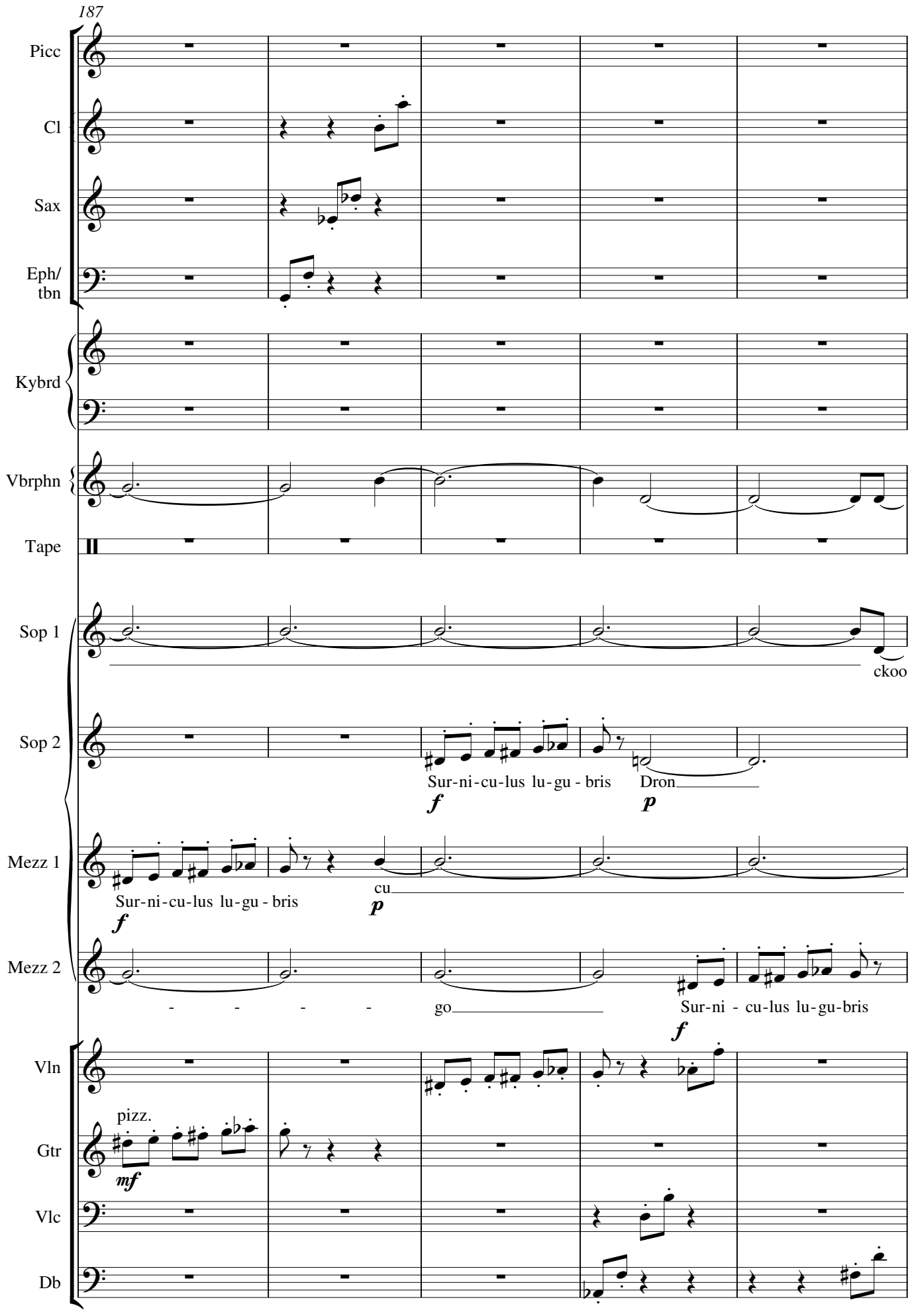

169
Picc
Cl
only with mouth piece
Sax
Eph/
tbn
Kybrd
fastest speed, pedal
Vbrphn
Tape
Sop 1
Sop 2
Mezz 1
Hill my - na Gra-cu
mp very short
Mezz 2
Gra - cu - - la re - li - gio - sa
mp very short
normal
Vln
gliss.
gliss. on G string
Gtr
gliss.
Vlc
gliss. on D string
Db

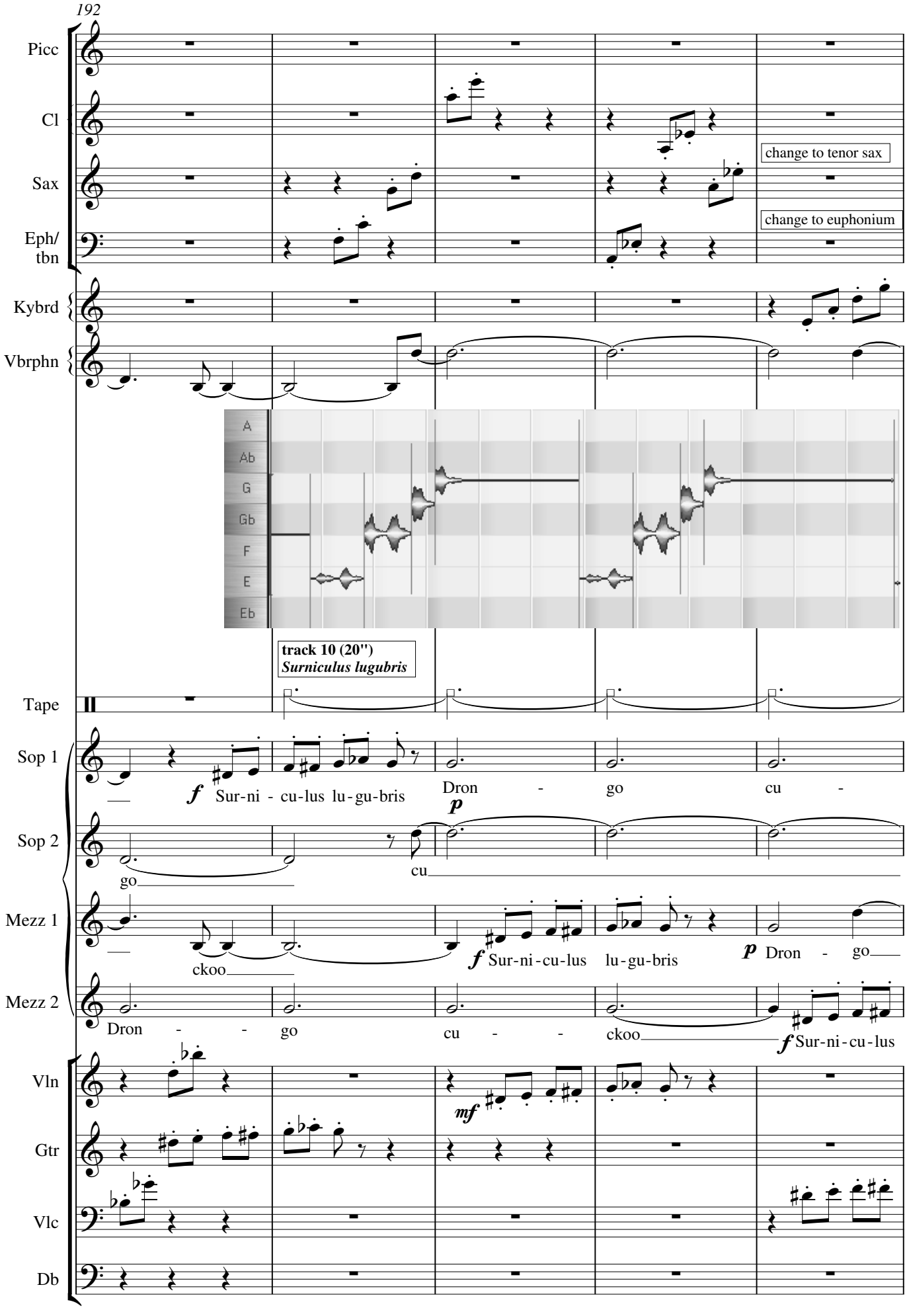

172
Picc
Cl
Sax
gliss.
mf
Eph/
tbn
gliss.
gliss.
Kybrd
Vbrphn
Ab
G
Gb
F
E
Eb
D
Db
C 6
Tape
Sop 1
Gra - cu-la re - li-gio-sa
mp very short
Sop 2
Gra - cu - la re - li - gio
mp very short
Mezz 1
la re - li - gio - sa Hill my-na Gra - cu -
Mezz 2
Hill my - na My - - - na
Vln
normal
Gtr
Vlc
gliss.
gliss.
gliss. on C string
Db

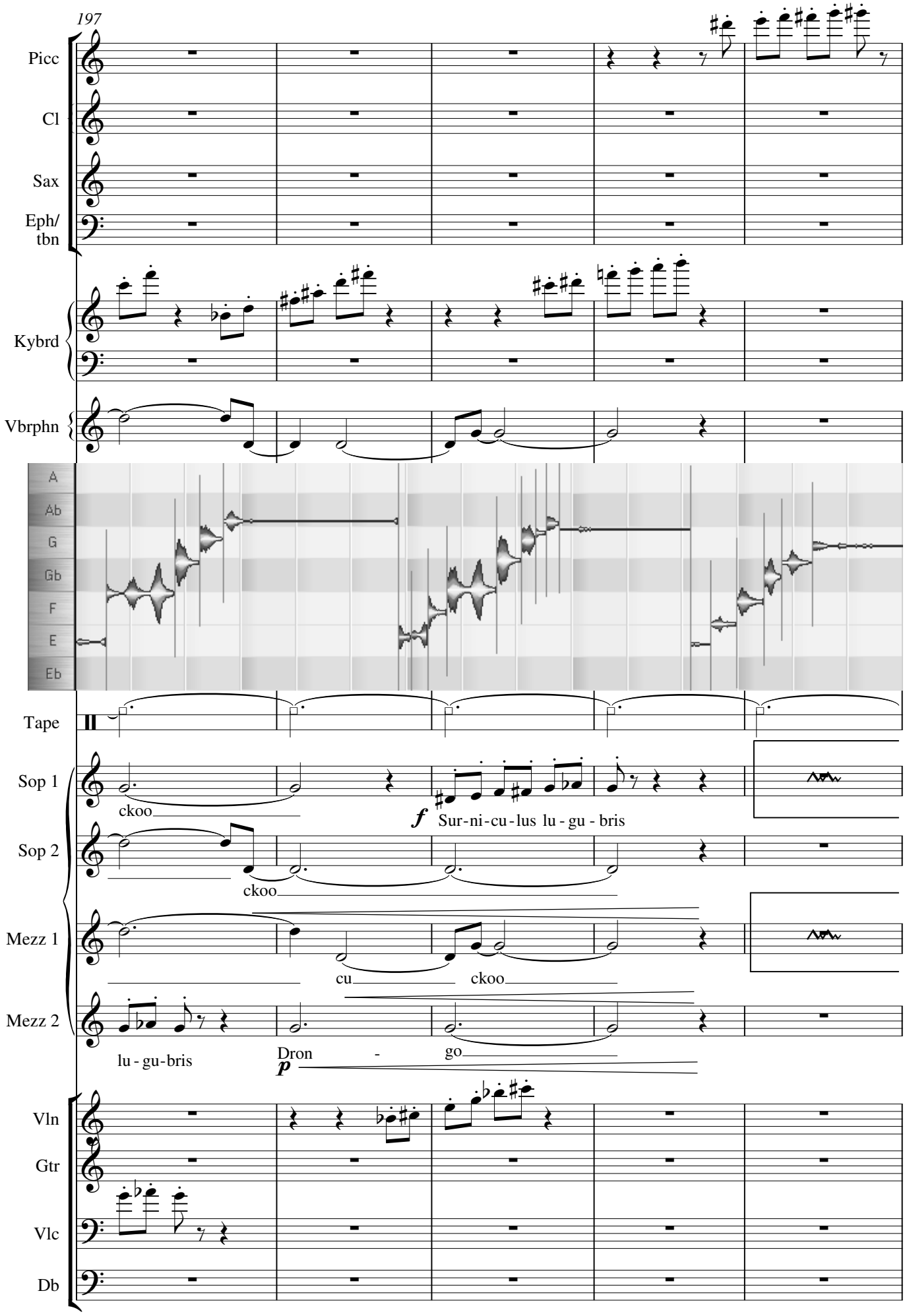

174
Picc
Cl
Sax
Eph/
tbn
gliss.
gliss.
gliss.
Kybrd
Vbrphn
Ab
G
Gb
F
E
Eb
D
Db
C 6
B
Tape
Sop 1
sa re - li - gio - sa
Sop 2
sa
Gra - cu - la re - li - gio - sa
Mezz 1
la re - li - gio - sa Hill my - na Gra - cu -
Mezz 2
Hill my - na re - - -
Vln
Gtr
normal
Vlc
Db
gliss.
gliss.
gliss. on D string

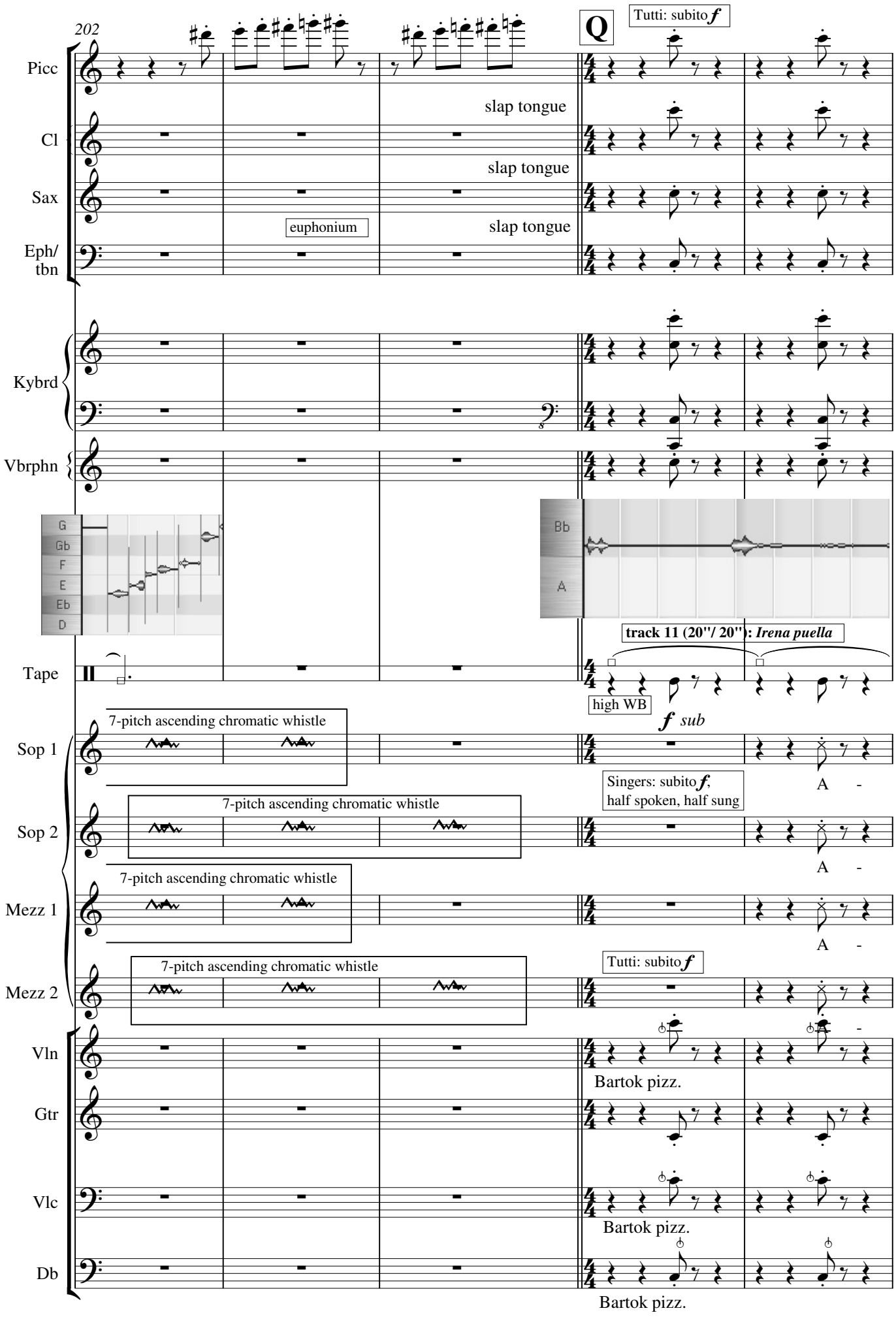

P
176
Picc
Cl
soprano sax with mouth piece
Sax
Eph/
tbn
Kybrd
Vbrphn
Tape
Ab
G
Gb
F
E
Eb
D
Tutti: crescendo from p
Tutti: f diminuendo
Tutti:
repeated notes: sub. p
and moving pitches: f
Sop 1
re-li - gio - sa
Sop 2
Mezz 1
la re - li - gio - sa
Mezz 2
li - gio - sa
arco off
Vln
Gtr
arco off
Vlc
normal
Db
gliss.
gliss.
gliss. on E string

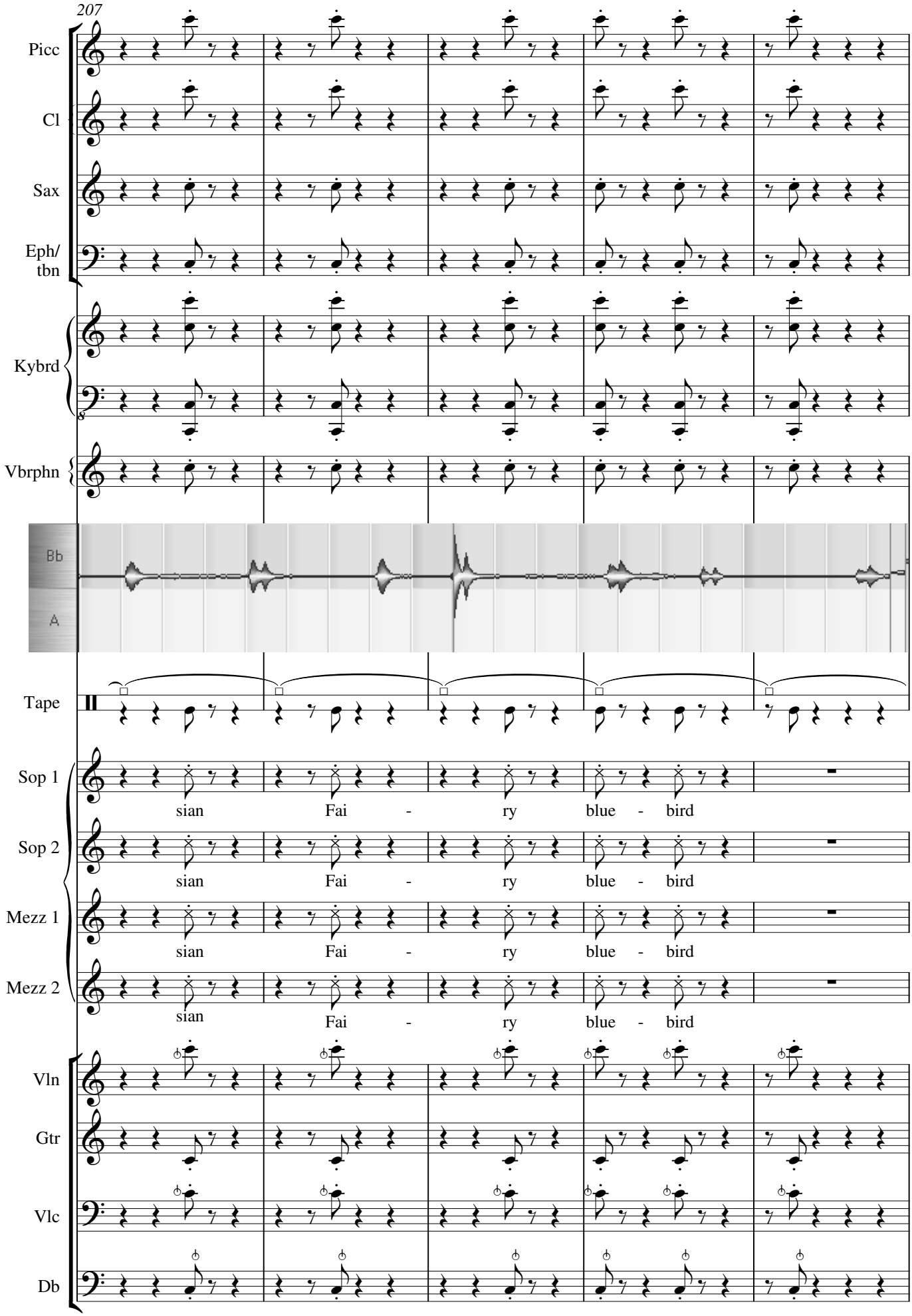

180
Picc
Cl
Sax
Eph/
tbn
Kybrd
Vbrphn
motor on
Tape
Sop 1
Sop 2
Mezz 1
Mezz 2
Vln
Gtr
Vlc
Db
mp
Led.
cu
p
Sur-ni-cu-lus lu-gu-bris
f
Dron
go
pizz.
mf

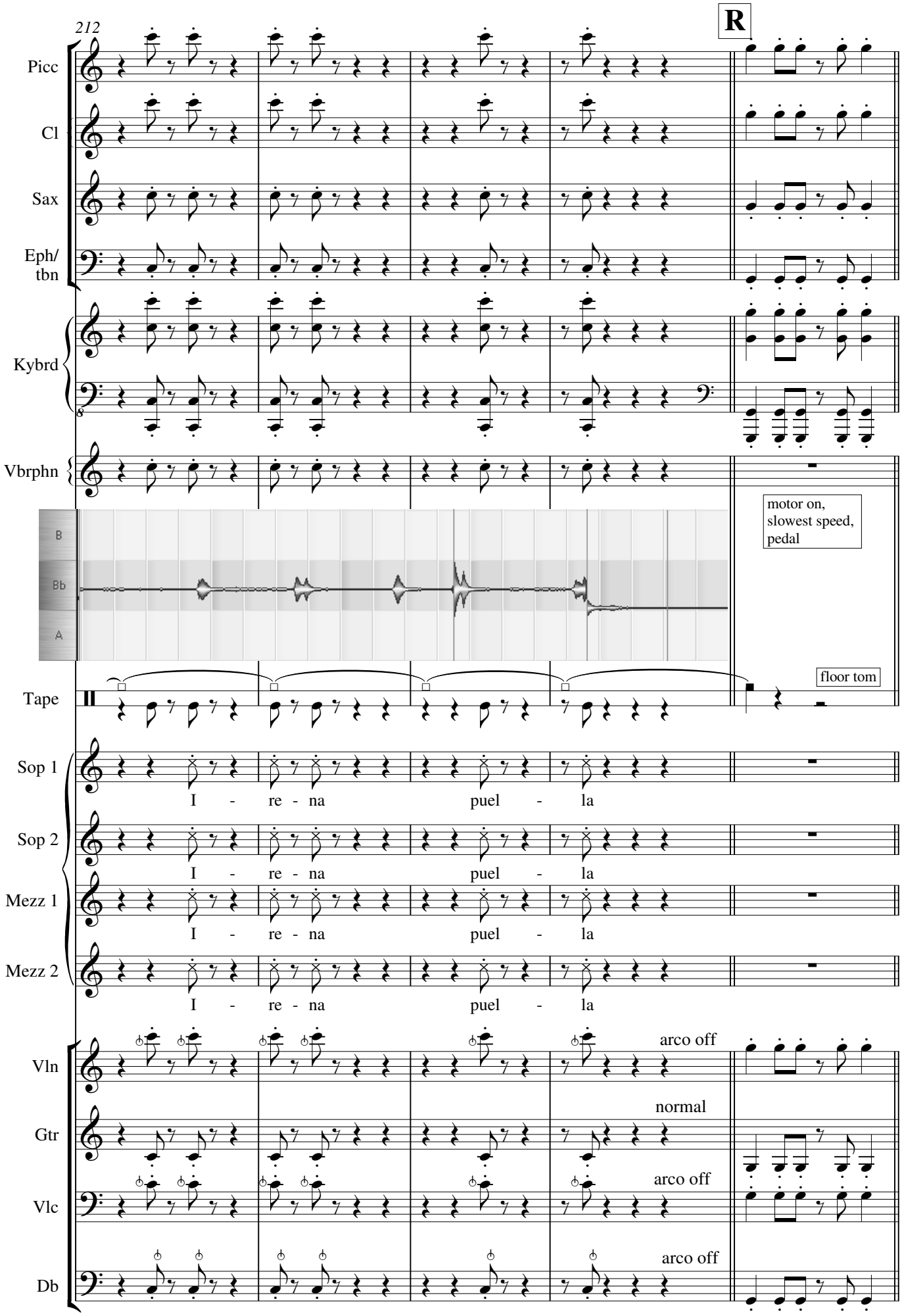

187
Picc
Cl
Sax
Eph/
tbn
Kybrd
Vbrphn
Tape
Sop 1
ckoo
Sop 2
Sur-ni-cu-lus lu-gu - bris
f
Dron
p
Mezz 1
Sur-ni-cu-lus lu-gu - bris
f
cu
p
Mezz 2
go
Sur-ni - cu-lus lu-gu-bris
f
Vln
pizz.
Gtr
mf
Vlc
Db

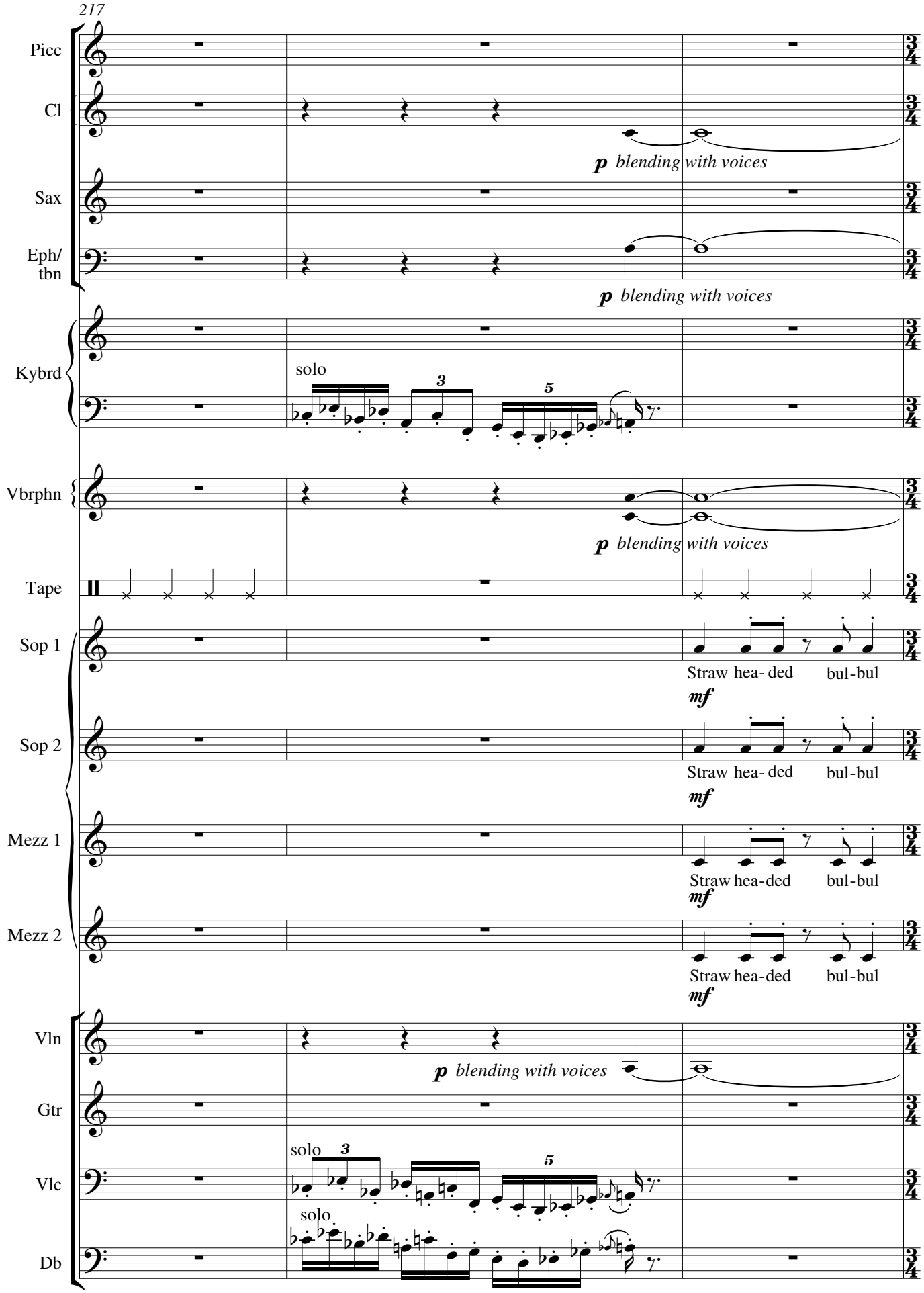

192
Picc
Cl
Sax
Eph/
tbn
change to tenor sax
change to euphonium
Kybrd
Vbrphn
A
Ab
G
Gb
F
E
Eb
track 10 (20")
Surniculus lugubris
Tape
Sop 1
f Sur-ni - cu-lus lu-gu-bris
Dron - go cu -
p
Sop 2
go
cu
Mezz 1
ckoo
f Sur-ni-cu-lus lu-gu-bris
p Dron - go
Mezz 2
Dron - - go
cu - - ckoo
f Sur-ni-cu-lus
Vln
mf
Gtr
Vlc
Db

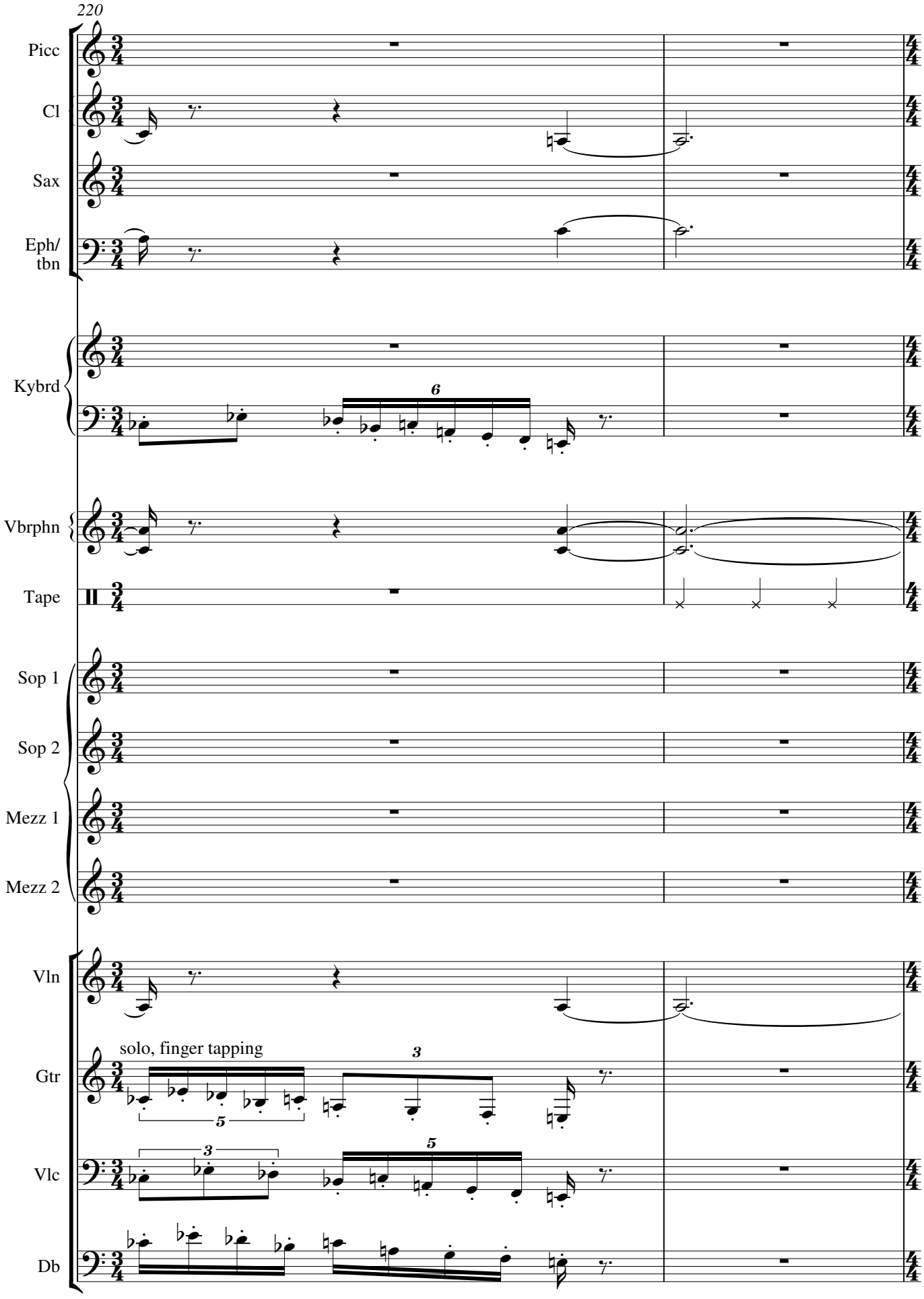

197
Picc
Cl
Sax
Eph/
tbn
Kybrd
Vbrphn
A
Ab
G
Gb
F
E
Eb
Tape
Sop 1
ckoo
f
Sur-ni-cu-lus lu-gu-bris
Sop 2
ckoo
Mezz 1
cu
ckoo
Mezz 2
lu-gu-bris
Dron
-
go
p
Vln
Gtr
Vlc
Db

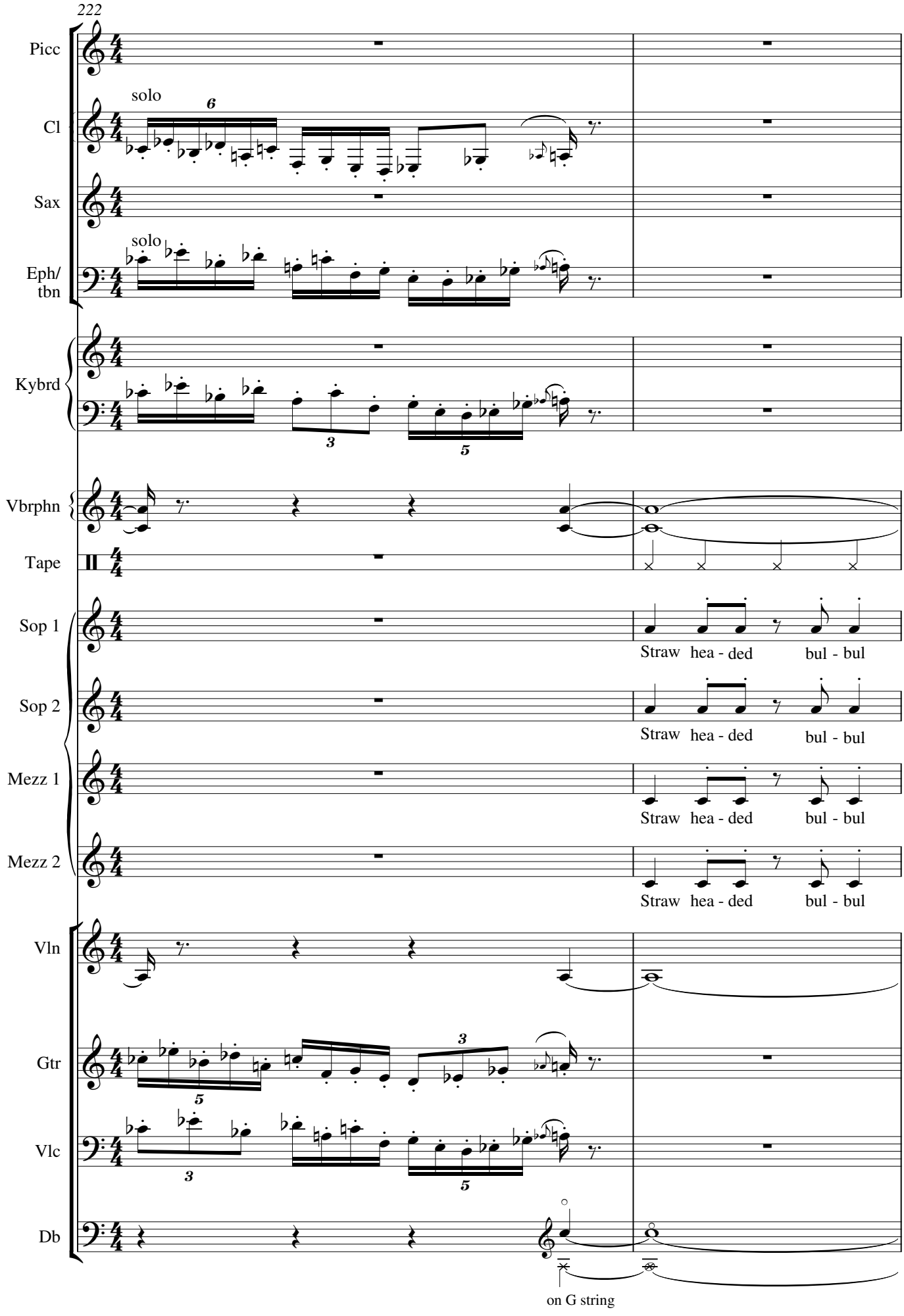

202
Q
Tutti: subito f
Picc
Cl
Sax
Eph/
tbn
slap tongue
slap tongue
slap tongue
euphonium
Kybrd
Vbrphn
G
Gb
F
E
Eb
D
Bb
A
track 11 (20"/ 20"): Irena puella
Tape
high WB
f sub
7-pitch ascending chromatic whistle
Sop 1
Singers: subito f,
half spoken, half sung
A -
7-pitch ascending chromatic whistle
Sop 2
A -
7-pitch ascending chromatic whistle
Mezz 1
A -
7-pitch ascending chromatic whistle
Mezz 2
Tutti: subito f
A -
Vln
Bartok pizz.
Gtr
Vlc
Bartok pizz.
Db
Bartok pizz.

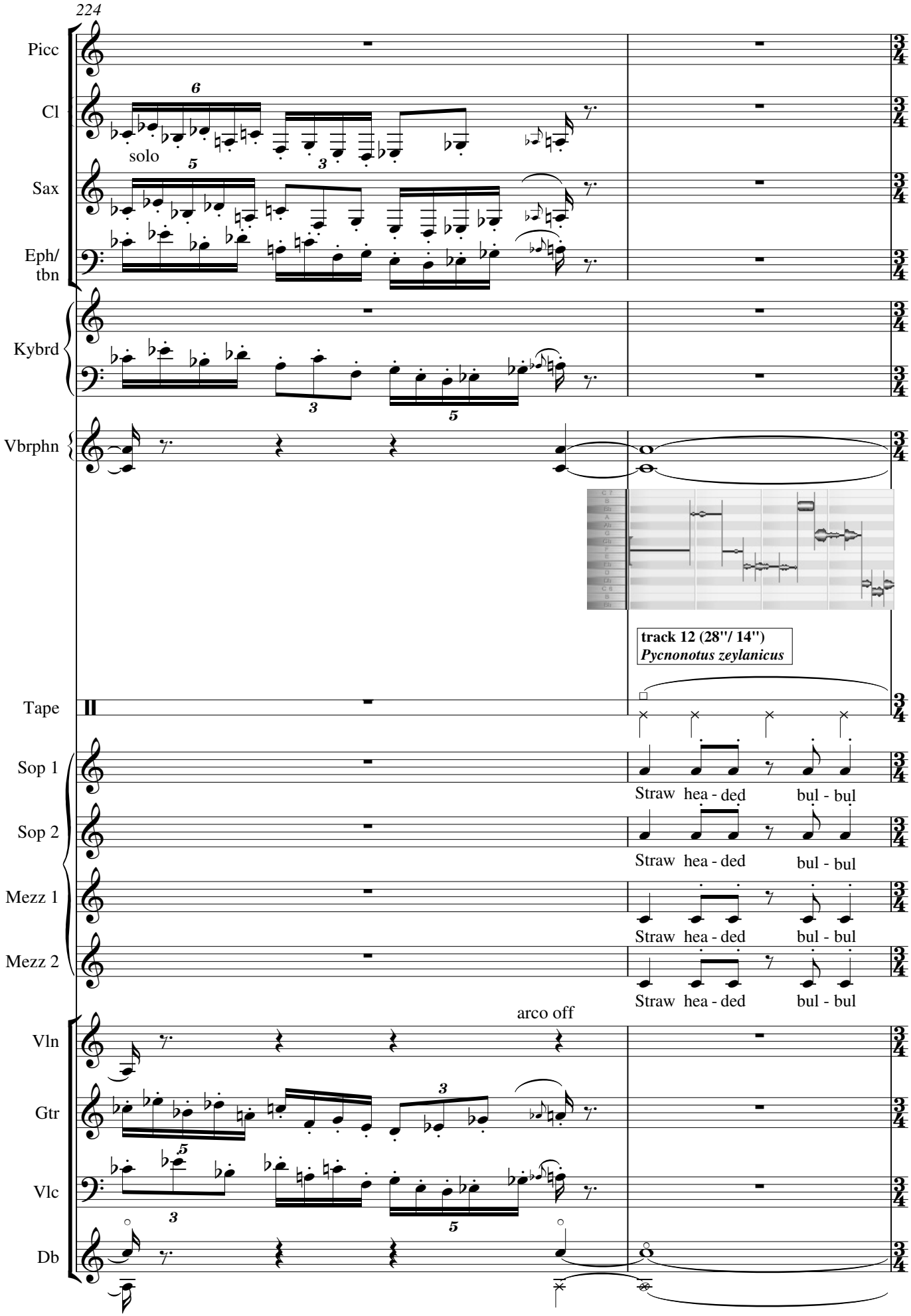

207
Picc
Cl
Sax
Eph/
tbn
Kybrd
Vbrphn
Bb
A
Tape
Sop 1
sian Fai - ry blue - bird
Sop 2
sian Fai - ry blue - bird
Mezz 1
sian Fai - ry blue - bird
Mezz 2
sian Fai - ry blue - bird
Vln
Gtr
Vlc
Db

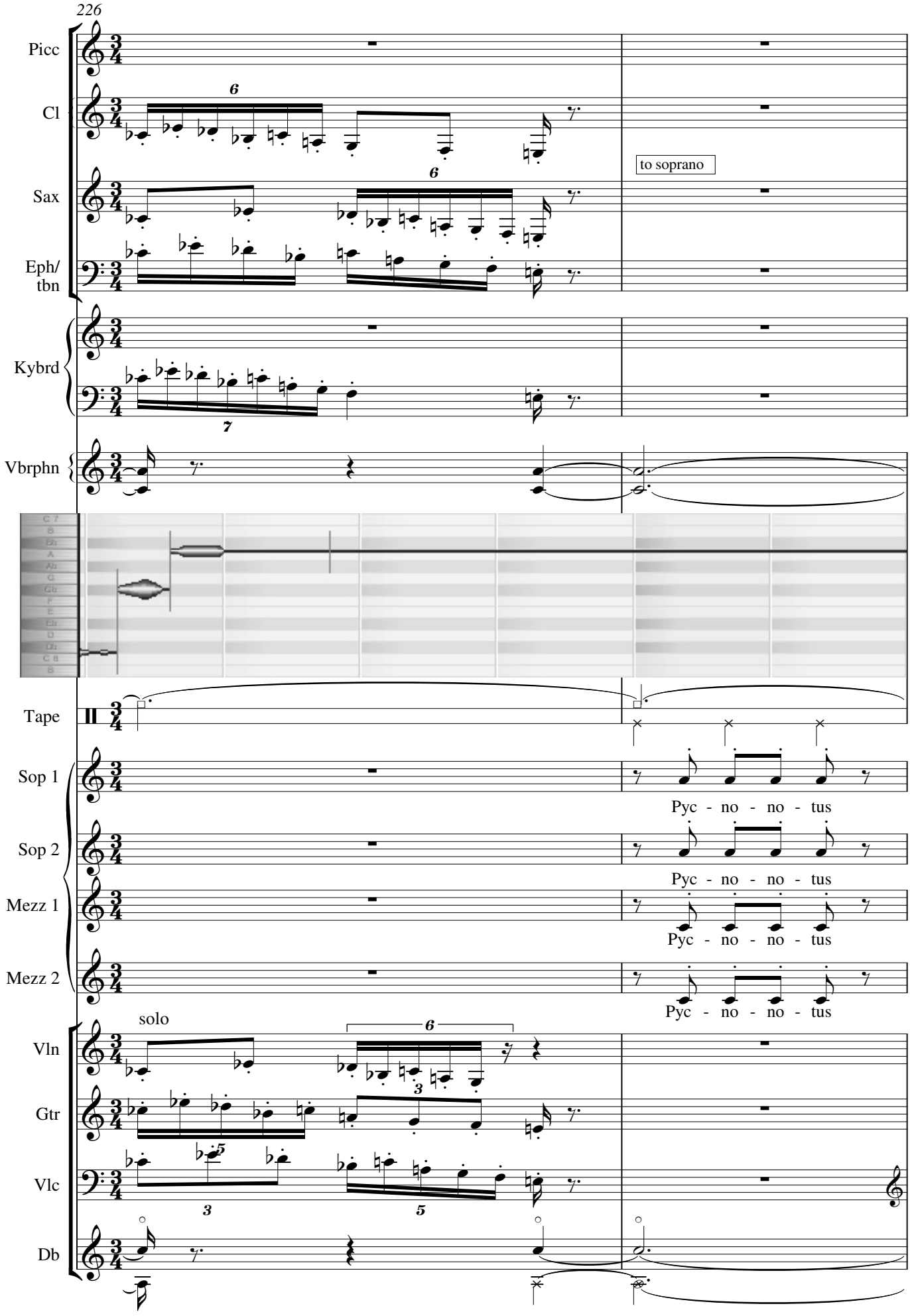

212
R
Picc
Cl
Sax
Eph/
tbn
Kybrd
Vbrphn
B
Bb
A
motor on,
slowest speed,
pedal
Tape
floor tom
Sop 1
I - re - na puel - la
Sop 2
I - re - na puel - la
Mezz 1
I - re - na puel - la
Mezz 2
I - re - na puel - la
Vln
arco off
normal
Gtr
Vlc
arco off
Db
arco off

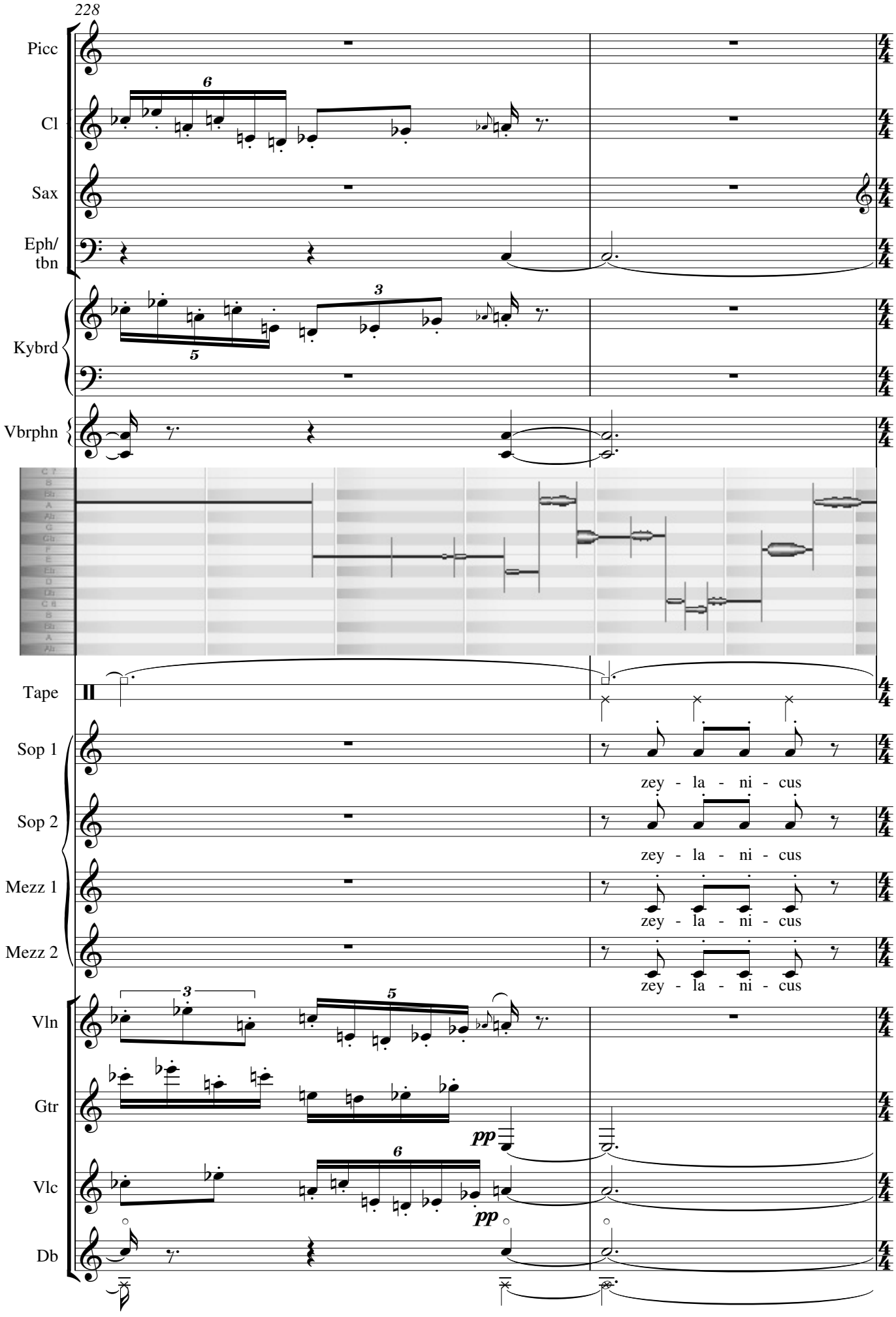

217
Picc
Cl
Sax
Eph/
tbn
p blending with voices
p blending with voices
Kybrd
solo
3
5
Vbrphn
p blending with voices
Tape
Sop 1
Straw hea- ded bul-bul
mf
Sop 2
Straw hea- ded bul-bul
mf
Mezz 1
Straw hea-ded bul-bul
mf
Mezz 2
Straw hea-ded bul-bul
mf
Vln
p blending with voices
Gtr
Vlc
solo
3
5
Db
solo

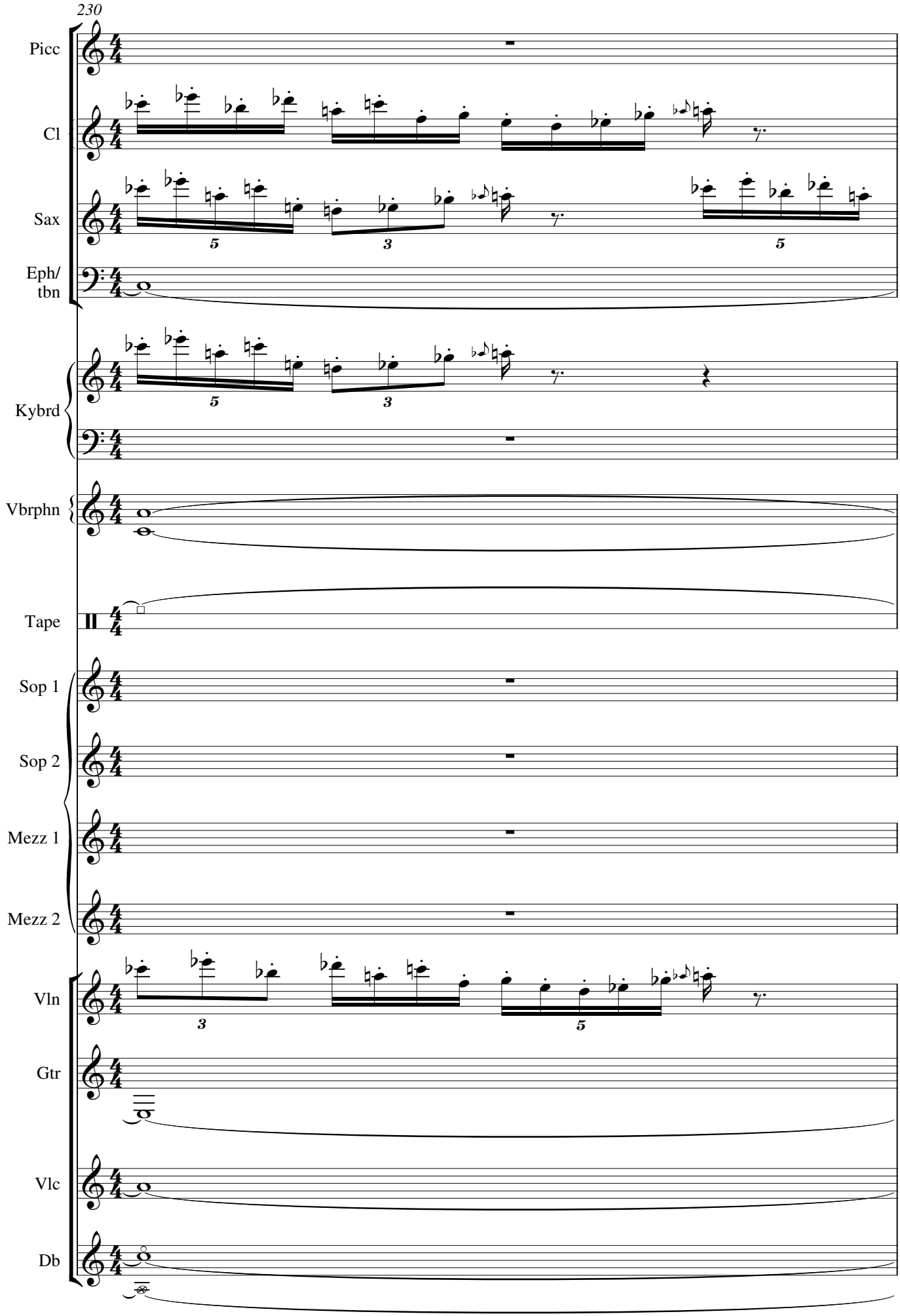

220
Picc
Cl
Sax
Eph/
tbn
Kybrd
6
Vbrphn
Tape
Sop 1
Sop 2
Mezz 1
Mezz 2
Vln
solo, finger tapping
Gtr
3
5
Vlc
3
5
Db

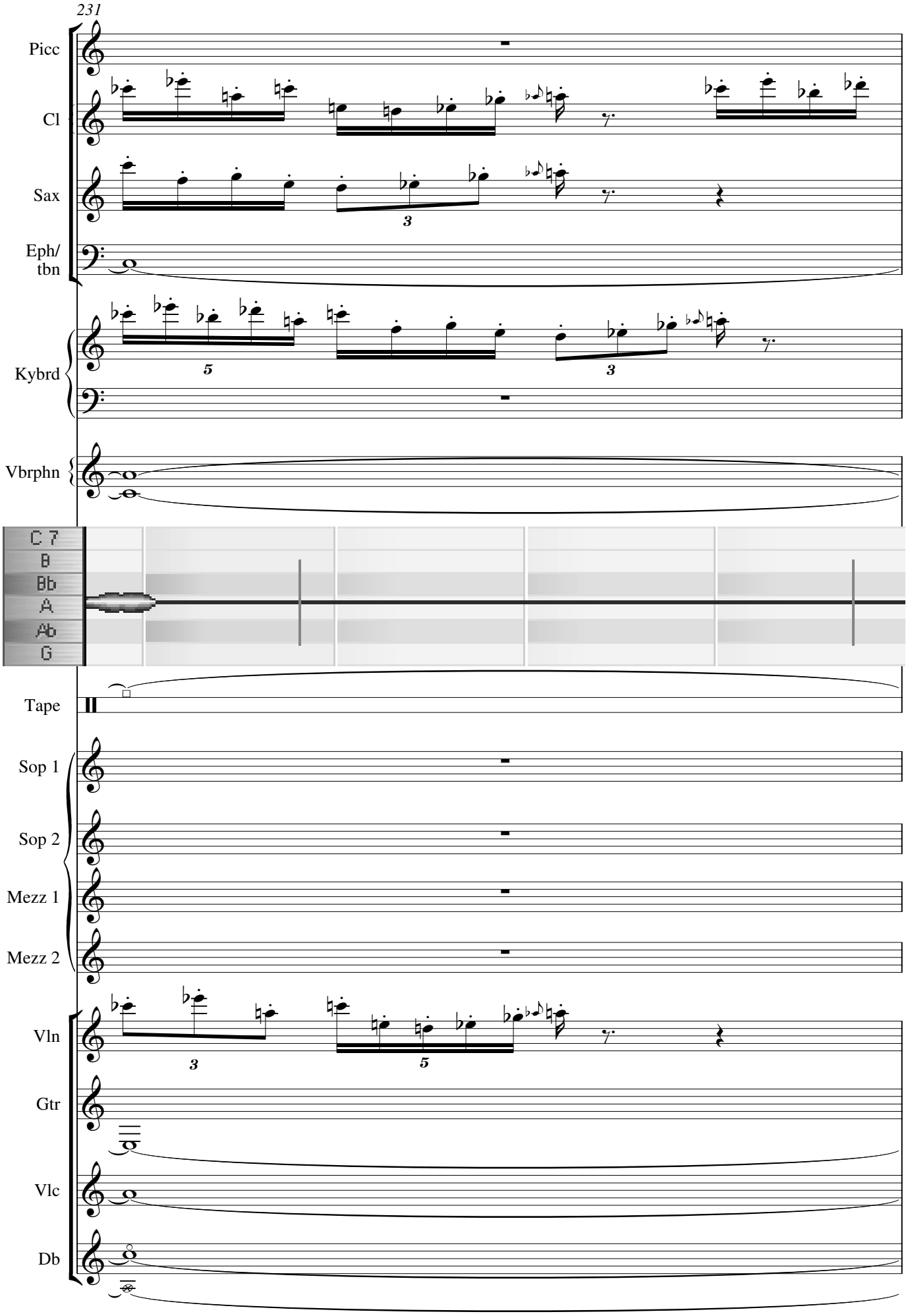

222
Picc
Cl
solo
Sax
Eph/
tbn
solo
Kybrd
Vbrphn
Tape
Sop 1
Straw hea - ded bul - bul
Sop 2
Straw hea - ded bul - bul
Mezz 1
Straw hea - ded bul - bul
Mezz 2
Straw hea - ded bul - bul
Vln
Gtr
Vlc
Db
on G string

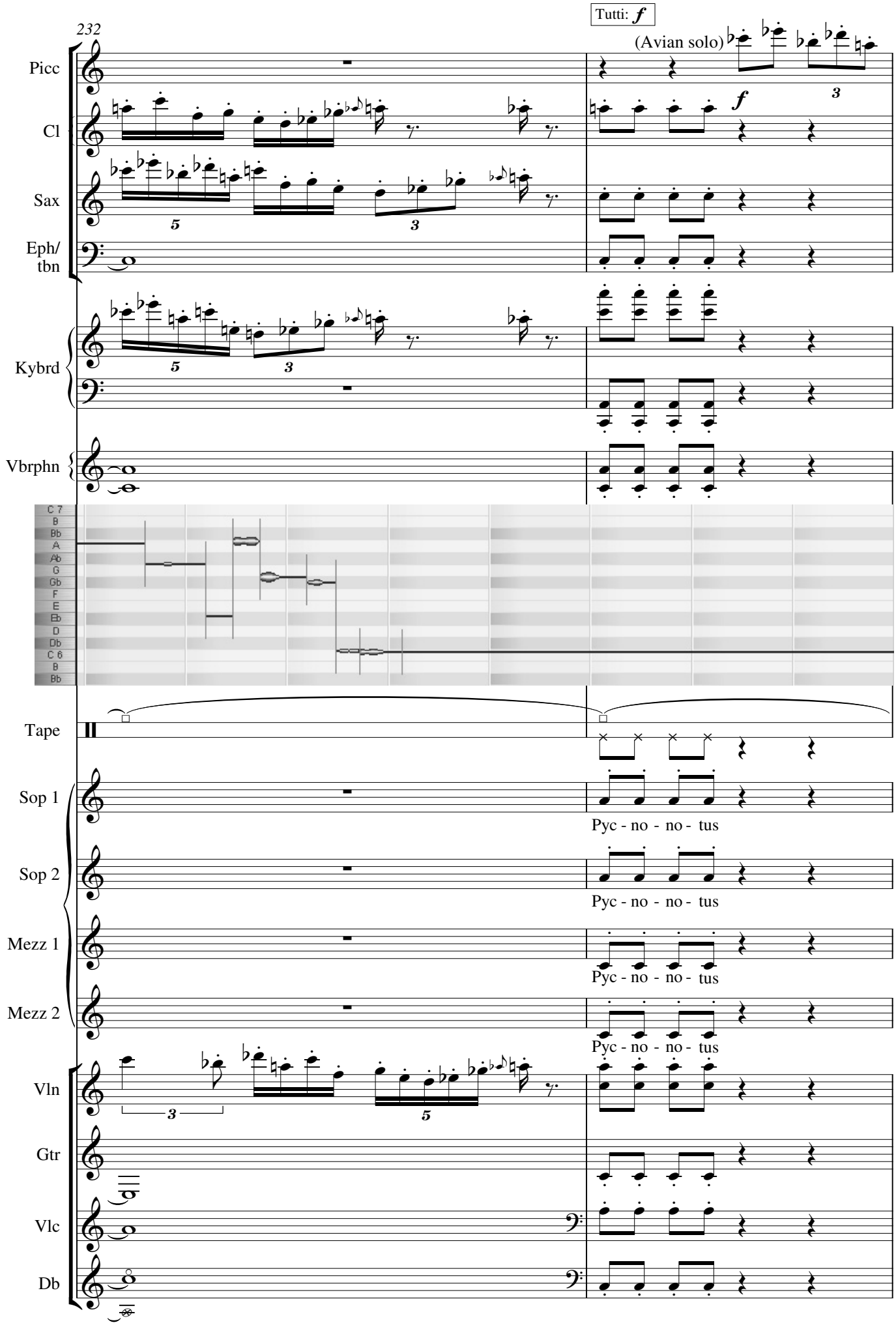

224
Picc
Cl
solo
Sax
Eph/
tbn
Kybrd
Vbrphn
track 12 (28"/ 14")
Pycnonotus zeylanicus
Tape
Sop 1
Straw hea - ded bul - bul
Sop 2
Straw hea - ded bul - bul
Mezz 1
Straw hea - ded bul - bul
Mezz 2
Straw hea - ded bul - bul
arco off
Vln
Gtr
Vlc
Db

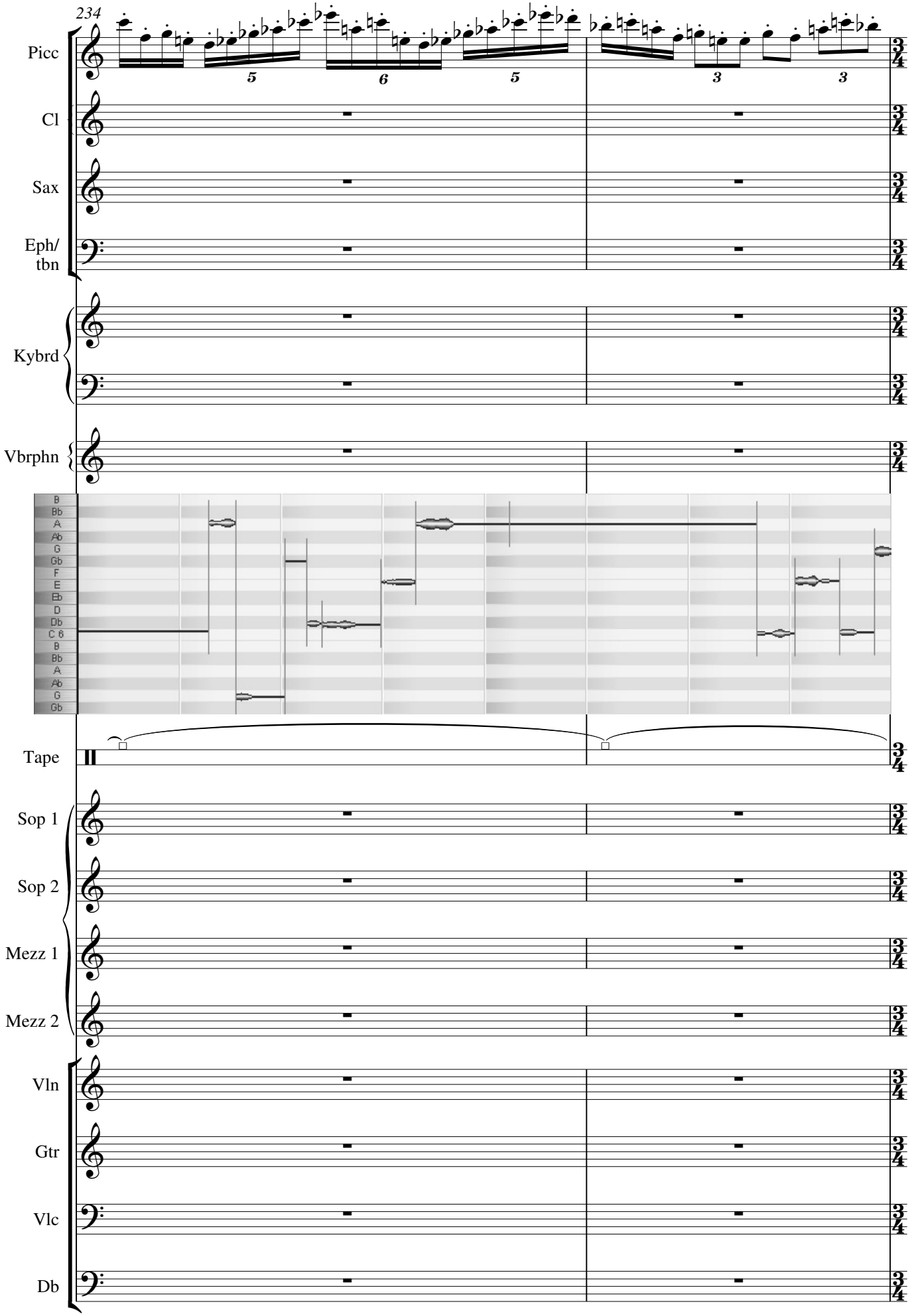

226
Picc
Cl
Sax
Eph/
tbn
Kybrd
Vbrphn
Tape
Sop 1
Sop 2
Mezz 1
Mezz 2
Vln
Gtr
Vlc
Db
to soprano
solo
Pyc - no - no - tus
Pyc - no - no - tus
Pyc - no - no - tus
Pyc - no - no - tus

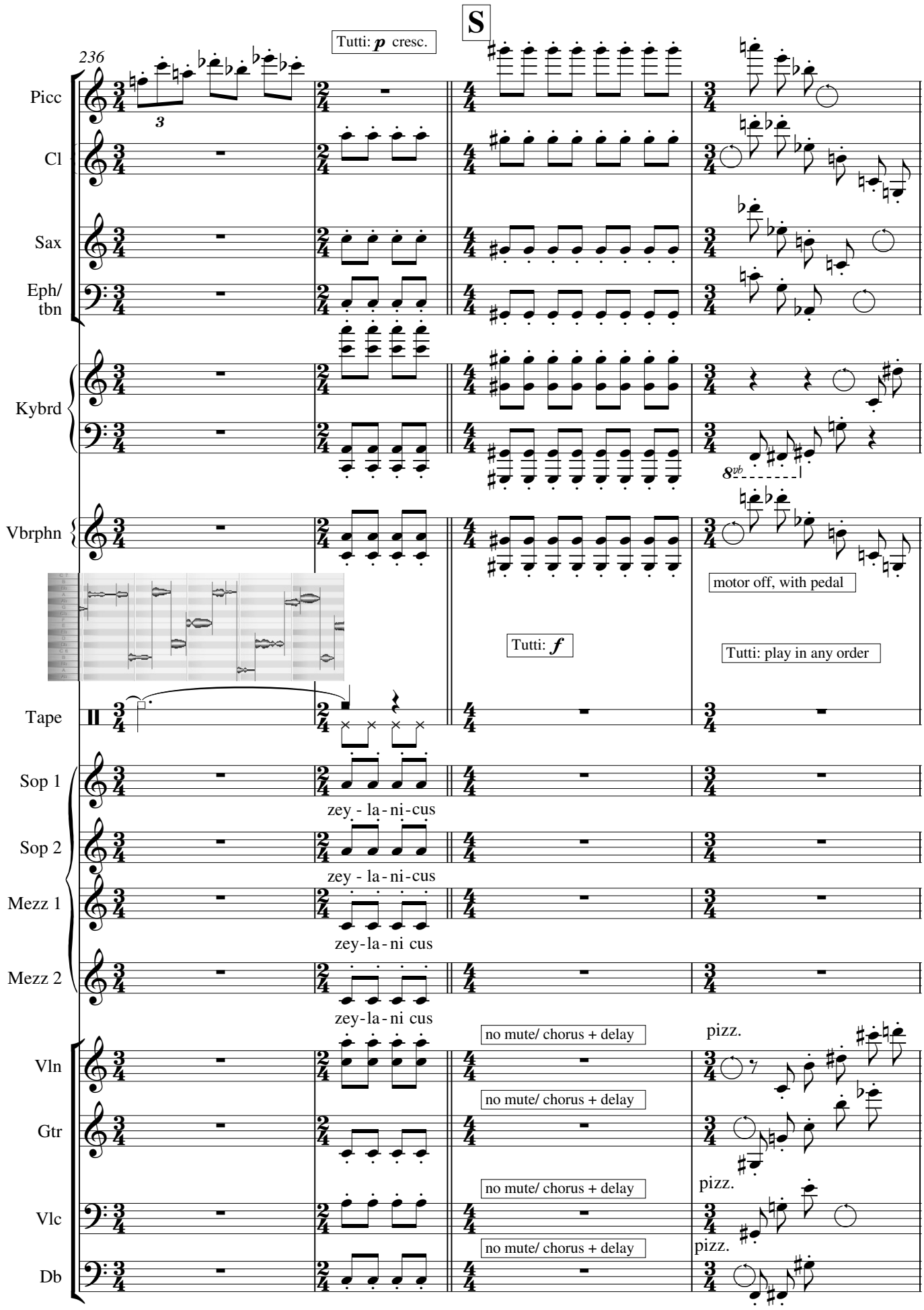

228
Picc
Cl
Sax
Eph/
tbn
Kybrd
Vbrphn
Tape
Sop 1
zey - la - ni - cus
Sop 2
zey - la - ni - cus
Mezz 1
zey - la - ni - cus
Mezz 2
zey - la - ni - cus
Vln
Gtr
pp
Vlc
pp
Db

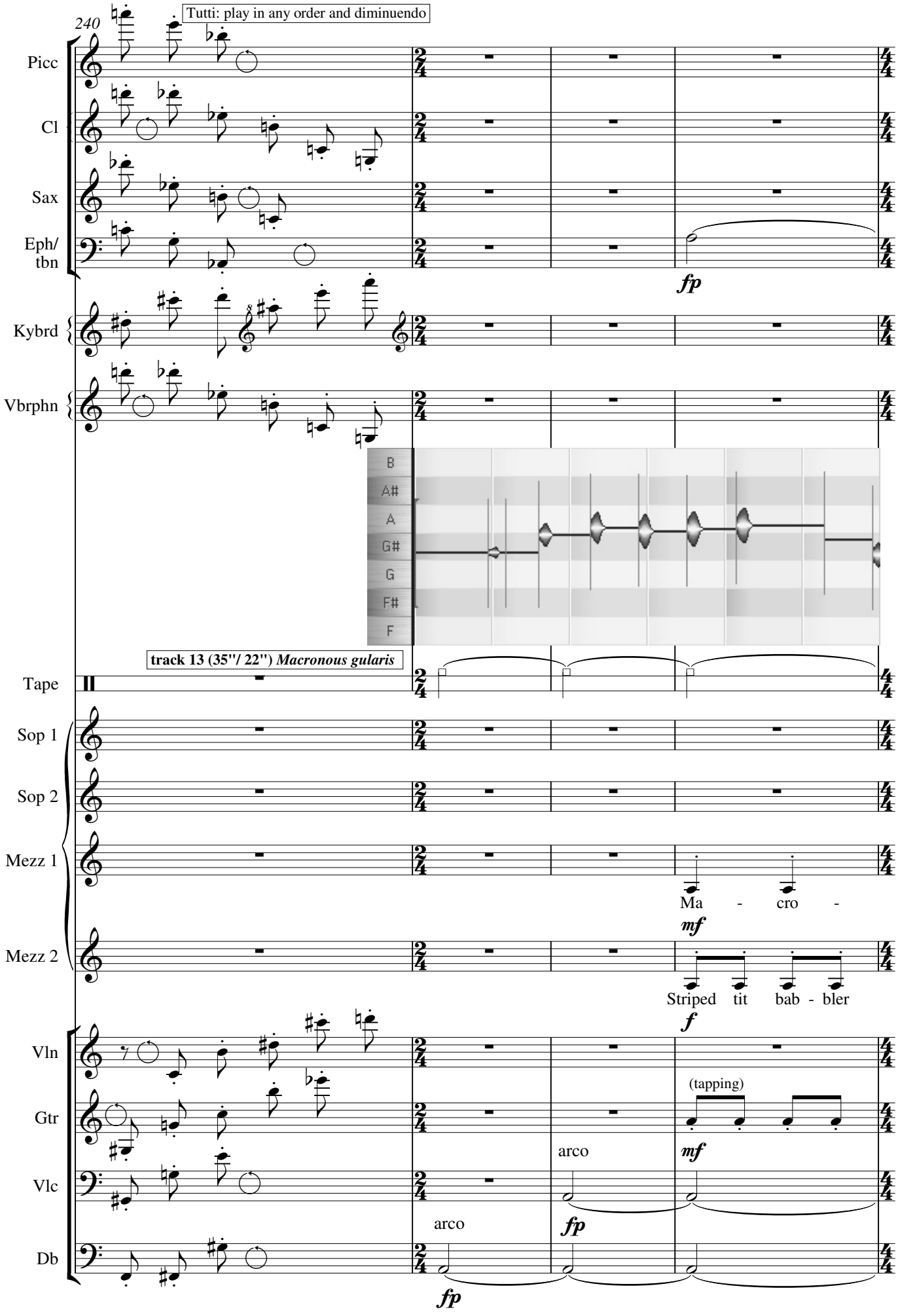

230
Picc
Cl
Sax
Eph/
tbn
Kybrd
Vbrphn
Tape
Sop 1
Sop 2
Mezz 1
Mezz 2
Vln
Gtr
Vlc
Db

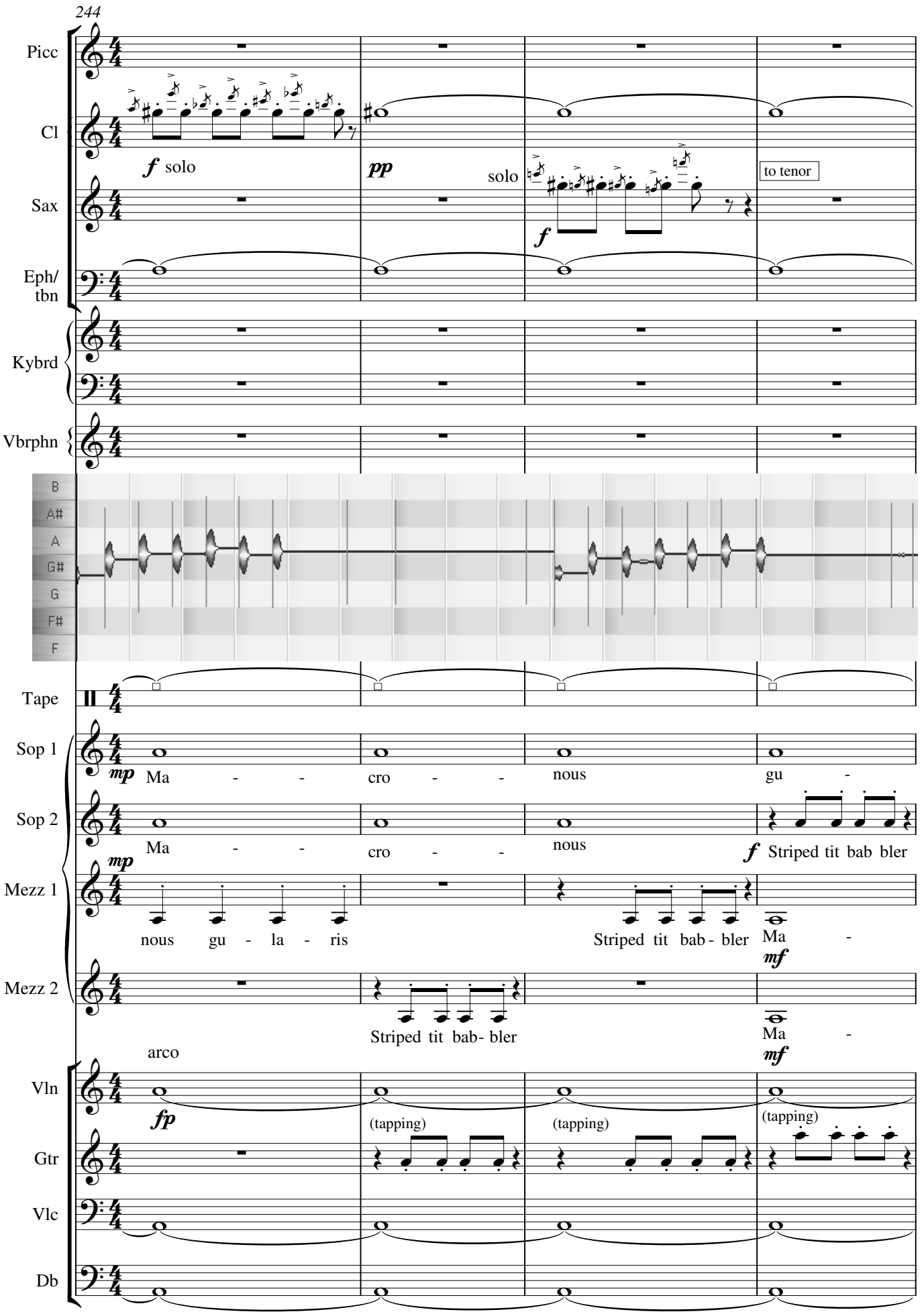

231
Picc
Cl
Sax
Eph/
tbn
Kybrd
Vbrphn
C 7
B
Bb
A
Ab
G
Tape
Sop 1
Sop 2
Mezz 1
Mezz 2
Vln
Gtr
Vlc
Db

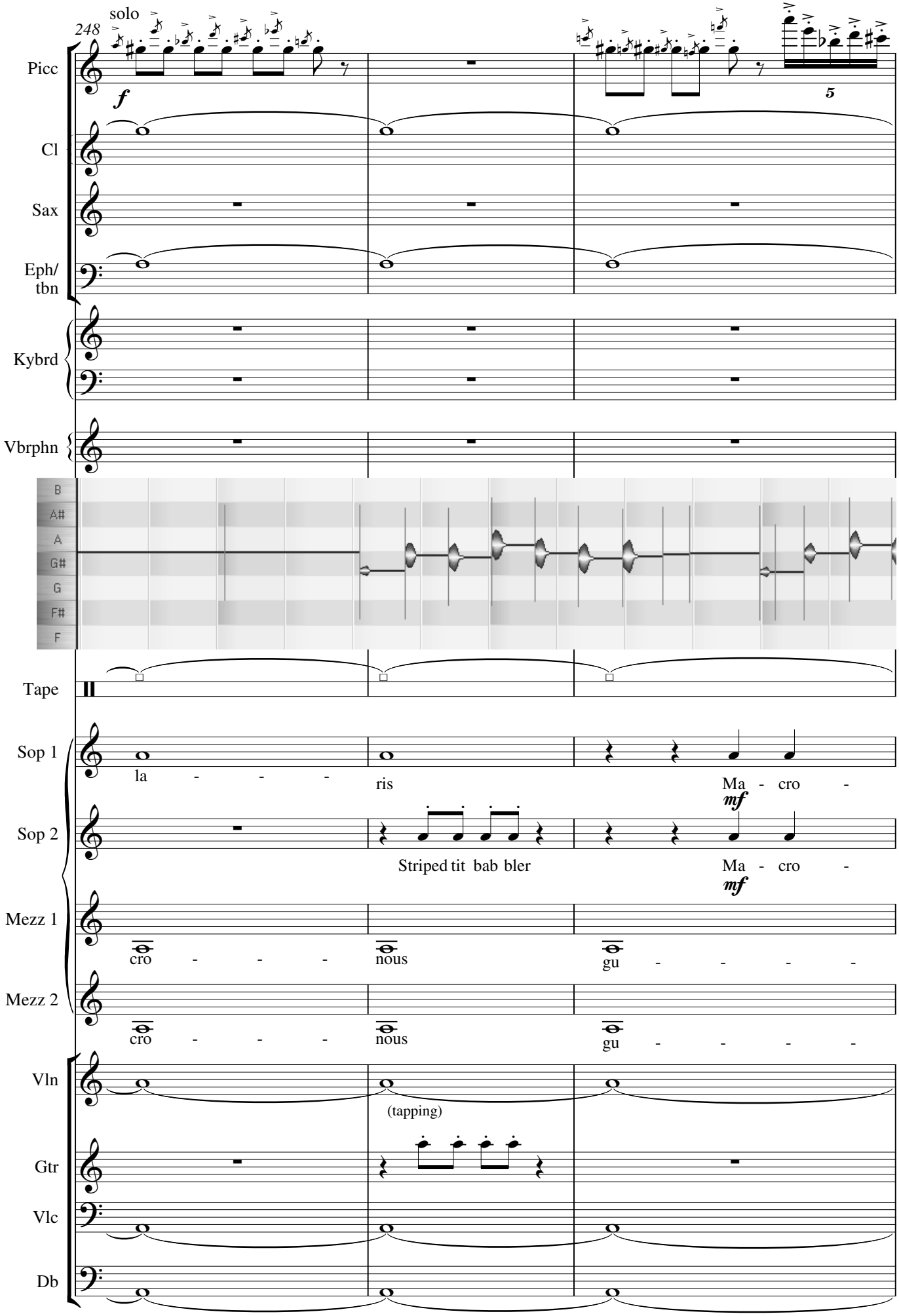

232
Tutti: f
(Avian solo)
Picc
Cl
Sax
Eph/
tbn
Kybrd
Vbrphn
Tape
Sop 1
Sop 2
Mezz 1
Mezz 2
Vln
Gtr
Vlc
Db
Pyc - no - no - tus
Pyc - no - no - tus
Pyc - no - no - tus
Pyc - no - no - tus

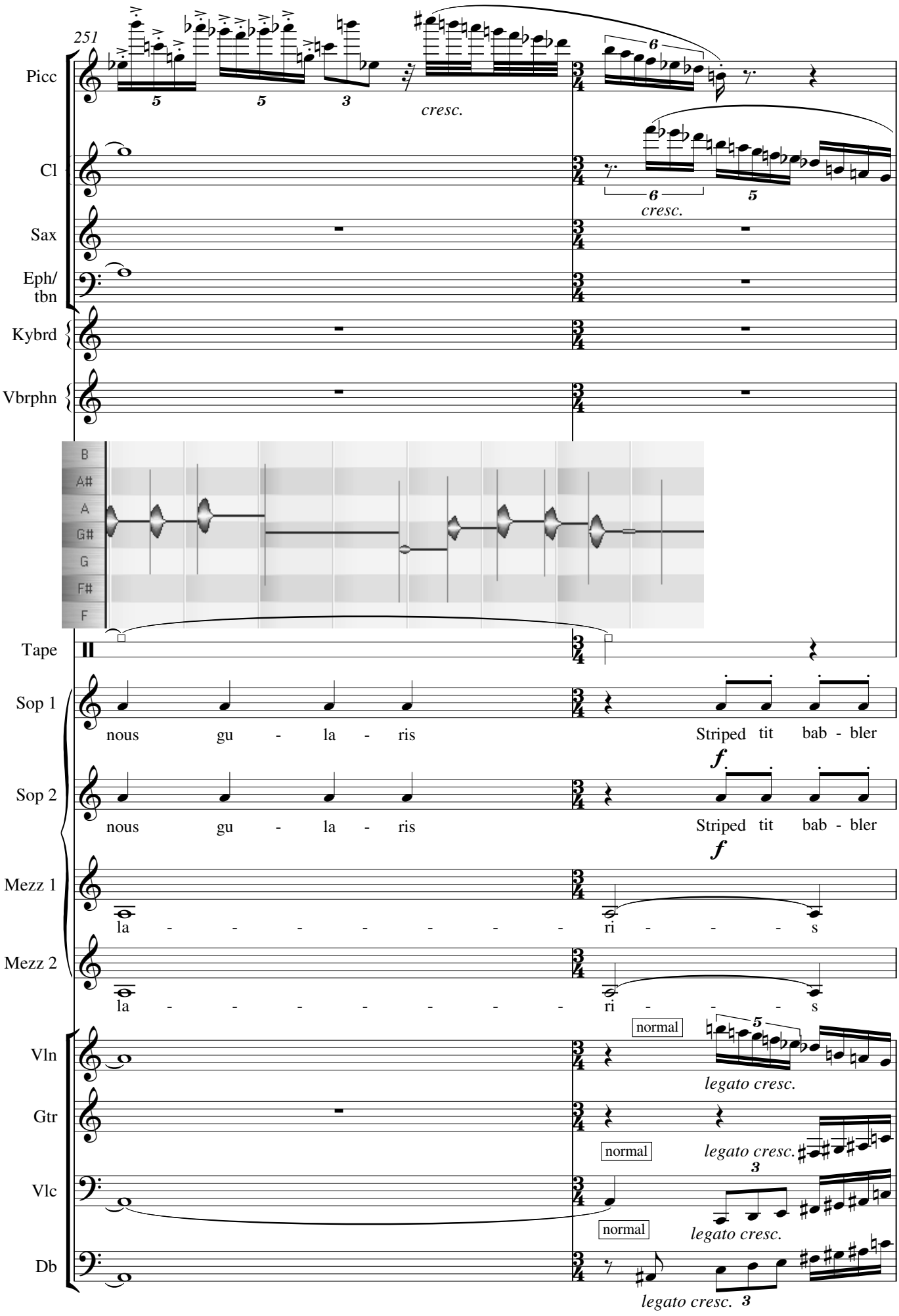

234
Picc
Cl
Sax
Eph/
tbn
Kybrd
Vbrphn
Tape
Sop 1
Sop 2
Mezz 1
Mezz 2
Vln
Gtr
Vlc
Db

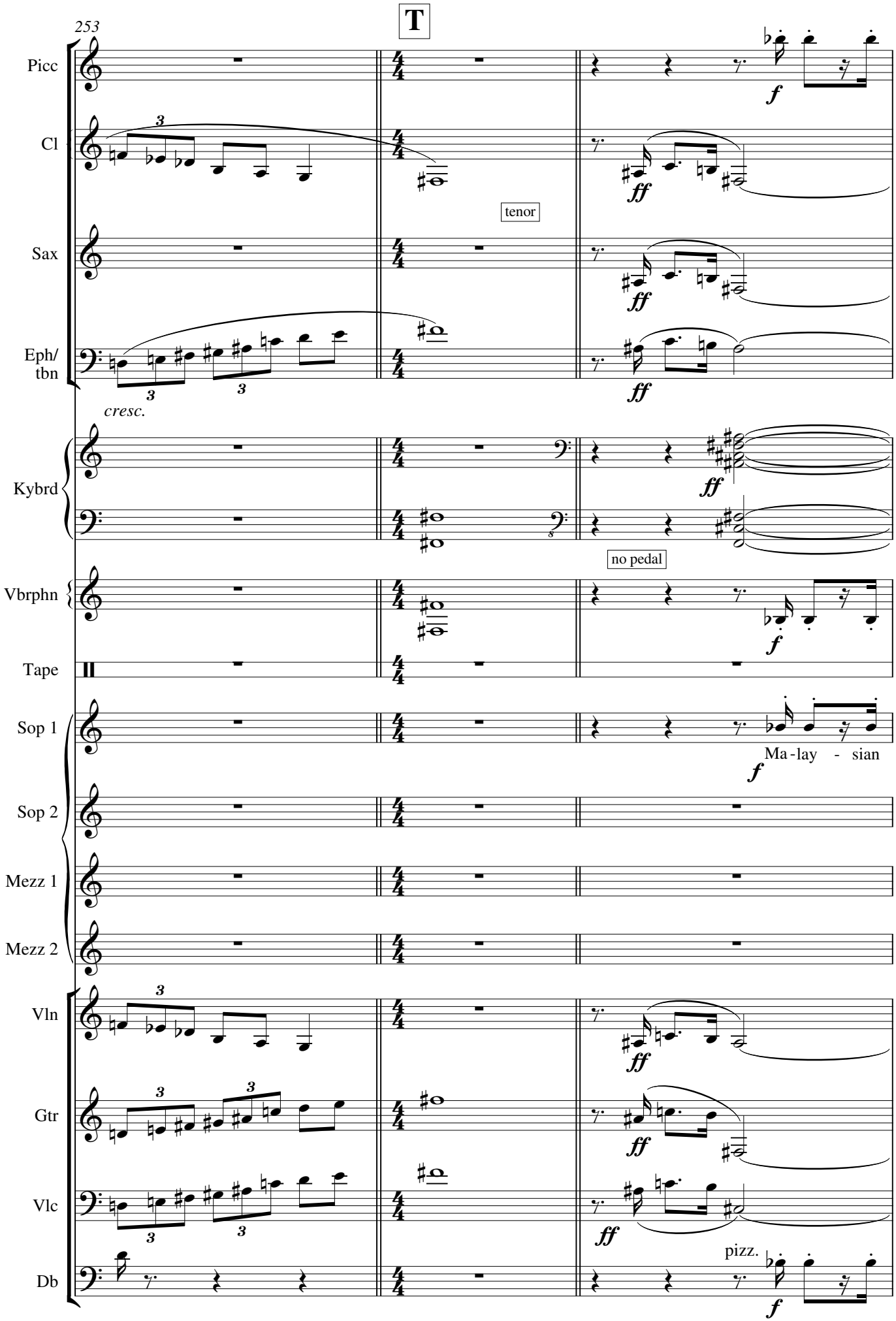

S
236
Tutti: p cresc.
Picc
Cl
Sax
Eph/
tbn
Kybrd
8vb
Vbrphn
motor off, with pedal
Tutti: f
Tutti: play in any order
Tape
Sop 1
zey - la - ni - cus
Sop 2
zey - la - ni - cus
Mezz 1
zey-la-ni cus
Mezz 2
zey-la-ni cus
no mute/ chorus + delay
pizz.
Vln
Gtr
Vlc
Db

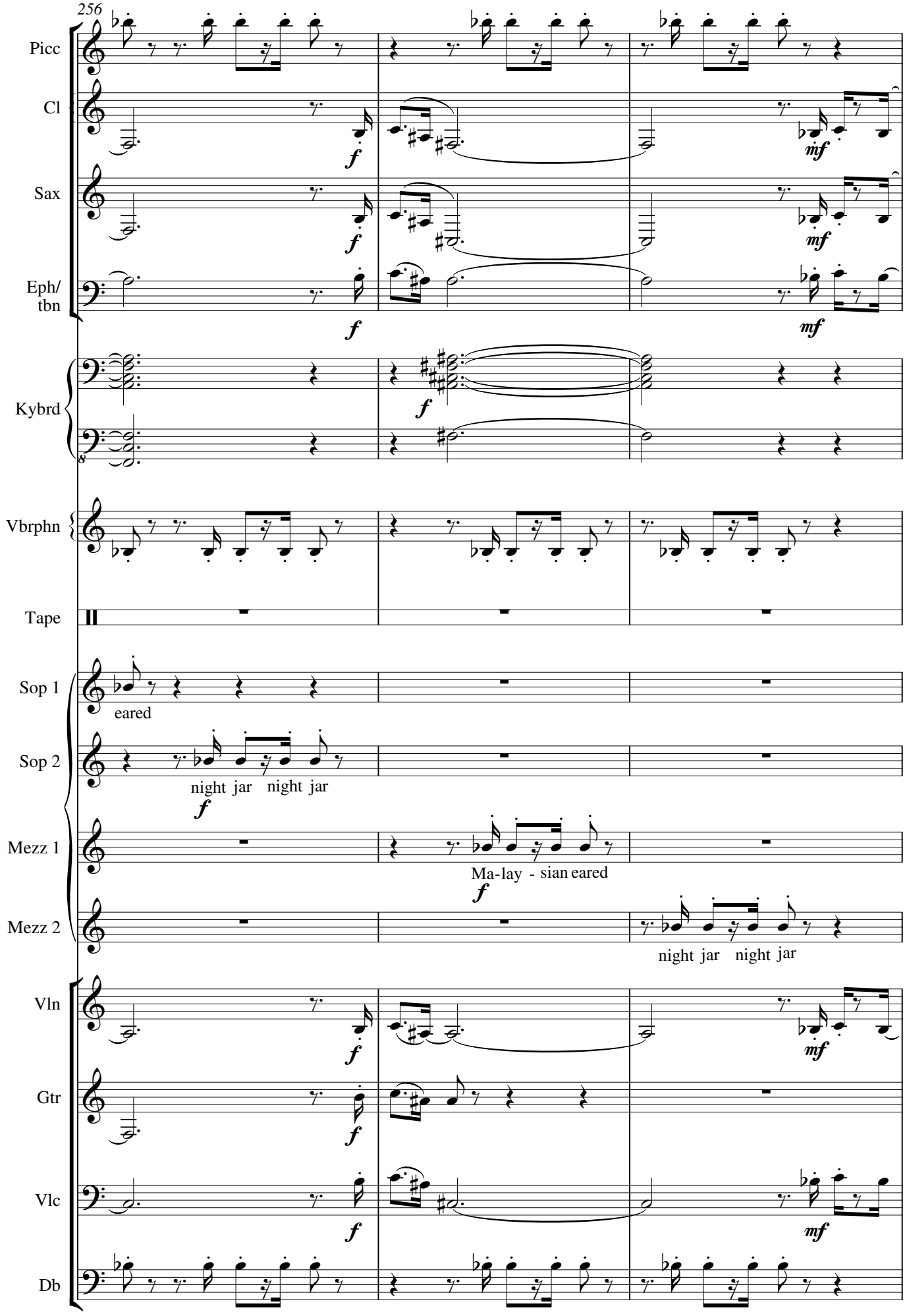

240
Tutti: play in any order and diminuendo
Picc
Cl
Sax
Eph/
tbn
fp
Kybrd
Vbrphn
B
A#
A
G#
G
F#
F
track 13 (35"/ 22") Macronous gularis
Tape
Sop 1
Sop 2
Mezz 1
Ma - cro -
mf
Mezz 2
Striped tit bab - bler
f
Vln
Gtr
(tapping)
mf
Vlc
arco
arco
fp
Db
fp

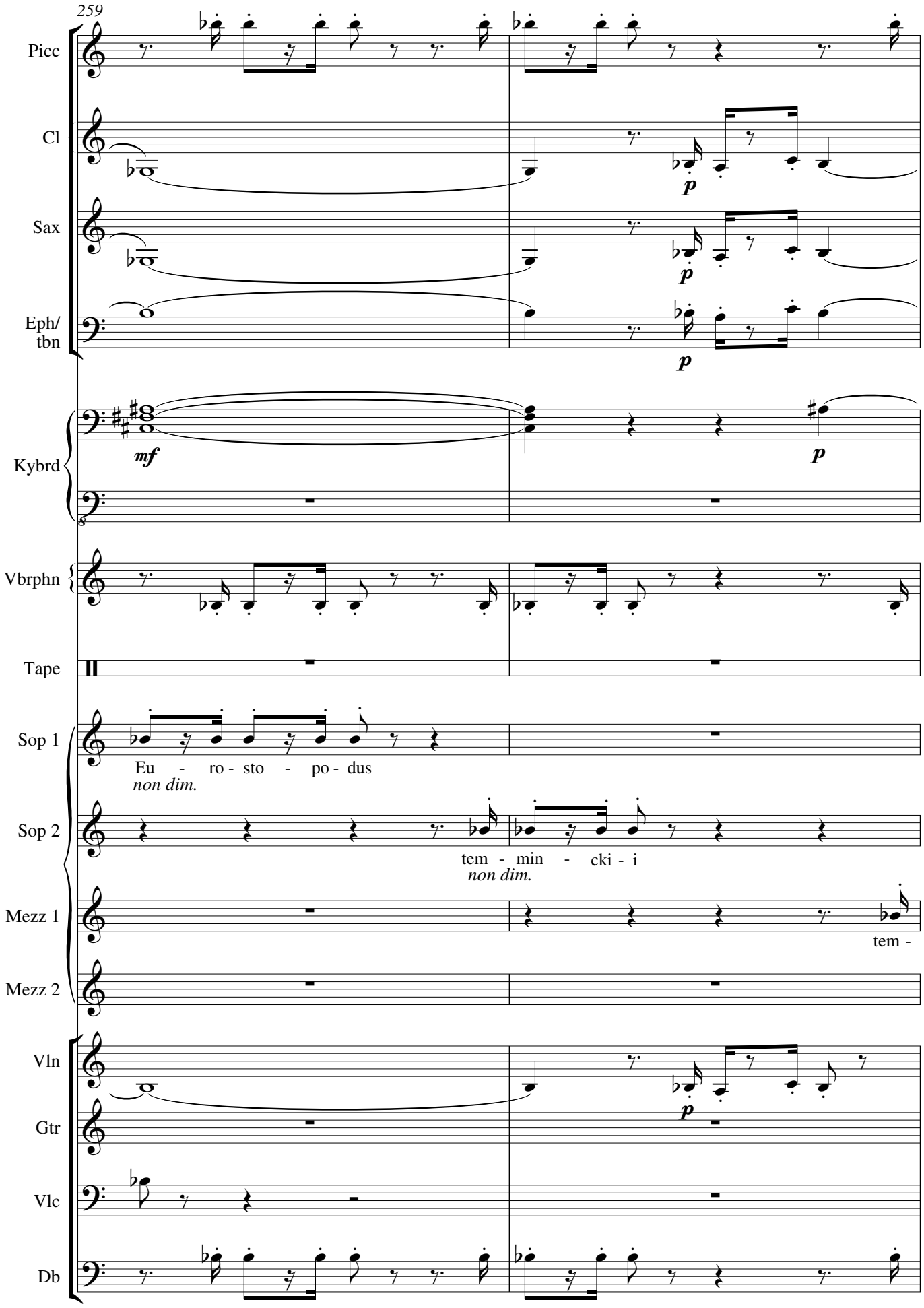

244
Picc
Cl
Sax
Eph/ tbn
Kybrd
Vbrphn
Tape
Sop 1
Sop 2
Mezz 1
Mezz 2
Vln
Gtr
Vlc
Db
f solo
pp
solo
f
to tenor
mp
Ma - - cro - - nous gu -
Ma - - cro - - nous
f Striped tit bab bler
mp
nous gu - la - ris
Striped tit bab - bler
Ma -
mf
Striped tit bab- bler
Ma -
mf
arco
fp
(tapping)
(tapping)
(tapping)


248
solo
Picc
Cl
Sax
Eph/
tbn
Kybrd
Vbrphn
B
A#
A
G#
G
F#
F
Tape
Sop 1
la - - - -
ris
Ma - cro -
Sop 2
Striped tit bab bler
Ma - cro -
Mezz 1
cro - - - -
nous
gu - - - - -
Mezz 2
cro - - - -
nous
gu - - - - -
Vln
(tapping)
Gtr
Vlc
Db


251
Picc
cresc.
Cl
cresc.
Sax
Eph/
tbn
Kybrd
Vbrphn
B
A#
A
G#
G
F#
F
Tape
Sop 1
nous gu - la - ris
Striped tit bab - bler
Sop 2
nous gu - la - ris
Striped tit bab - bler
Mezz 1
la - - - - - - - - ri - - - - s
Mezz 2
la - - - - - - - - ri - - - - s
Vln
normal
legato cresc.
Gtr
normal
legato cresc.
Vlc
normal
legato cresc.
Db
legato cresc.


253
T
Picc
Cl
Sax
Eph/
tbn
tenor
cresc.
Kybrd
no pedal
Vbrphn
Tape
Sop 1
Ma - lay - sian
Sop 2
Mezz 1
Mezz 2
Vln
Gtr
Vlc
Db
pizz.


256
Picc
Cl
Sax
Eph/
tbn
Kybrd
Vbrphn
Tape
Sop 1
eared
Sop 2
night jar night jar
Mezz 1
Ma-lay - sian eared
Mezz 2
night jar night jar
Vln
Gtr
Vlc
Db
f
mf


259
Picc
Cl
Sax
Eph/
tbn
Kybrd
Vbrphn
Tape
Sop 1
Sop 2
Mezz 1
Mezz 2
Vln
Gtr
Vlc
Db
p
mf
Eu - ro - sto - po - dus
non dim.
tem - min - cki - i
non dim.
tem -

261

Picc

non dim.

Cl

Sax

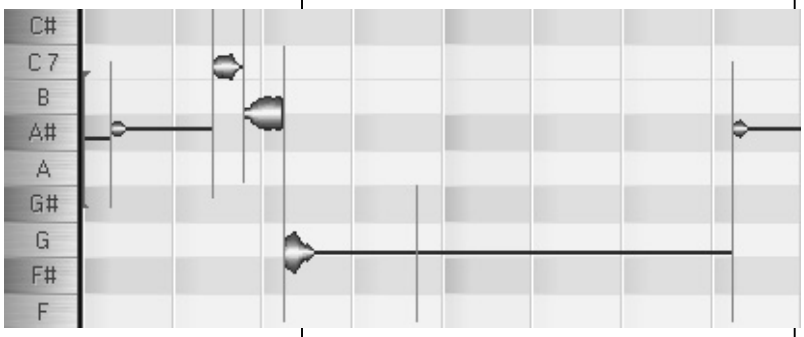
Eph/
tbn

K20 prophet

Kybrd

Vbrphn

non dim.



track 14 (37"/ 23") ***Eurostopodus temminckii***

Tape

Sop 1

Eu - - ro - sto - po - dus

non dim.

Sop 2

Eu - - ro - sto - po - dus

non dim.

Mezz 1

min - cki - i

non dim.

Mezz 2

Eu - - ro - sto - po - dus

non dim.

Vln

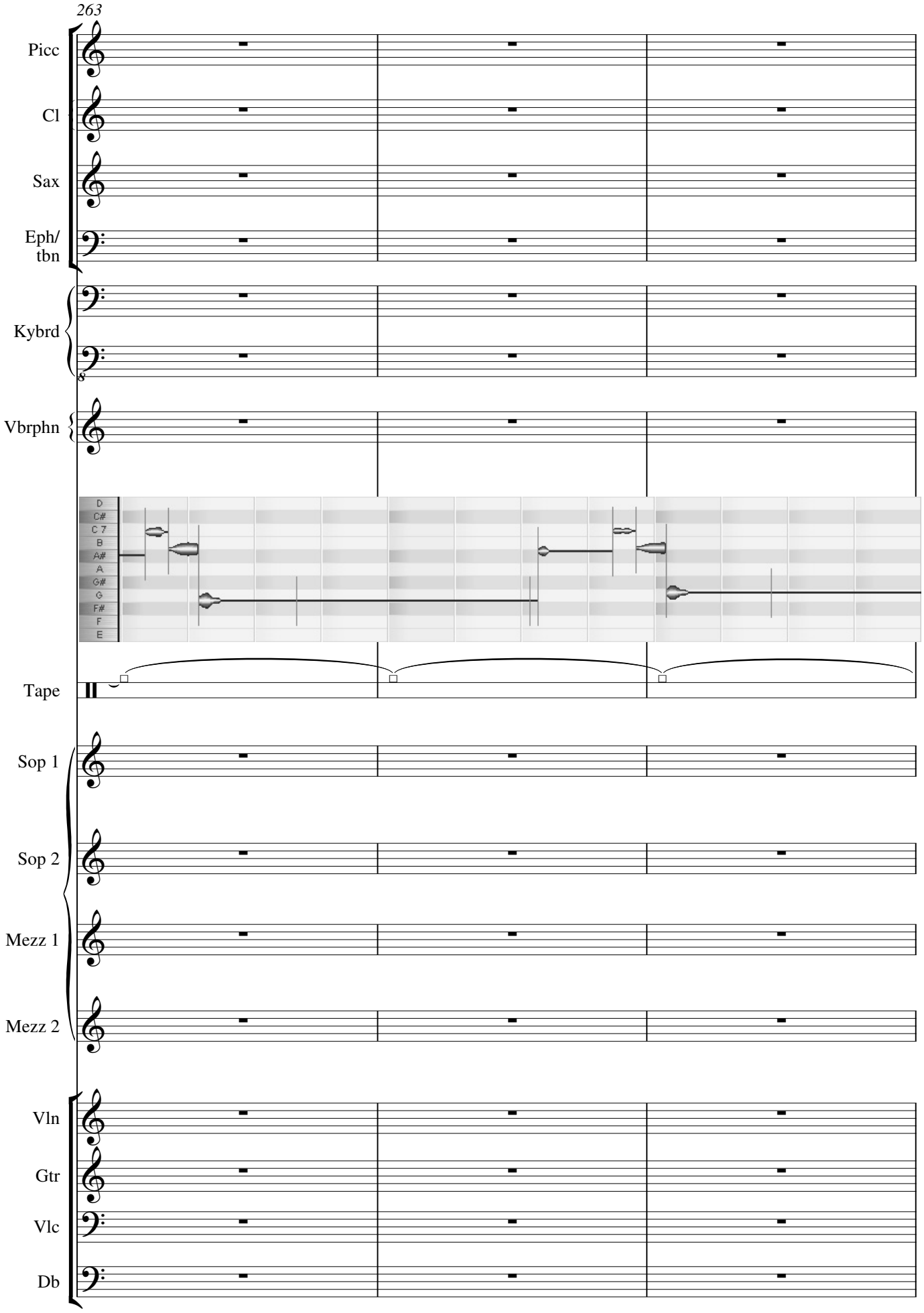
Gtr

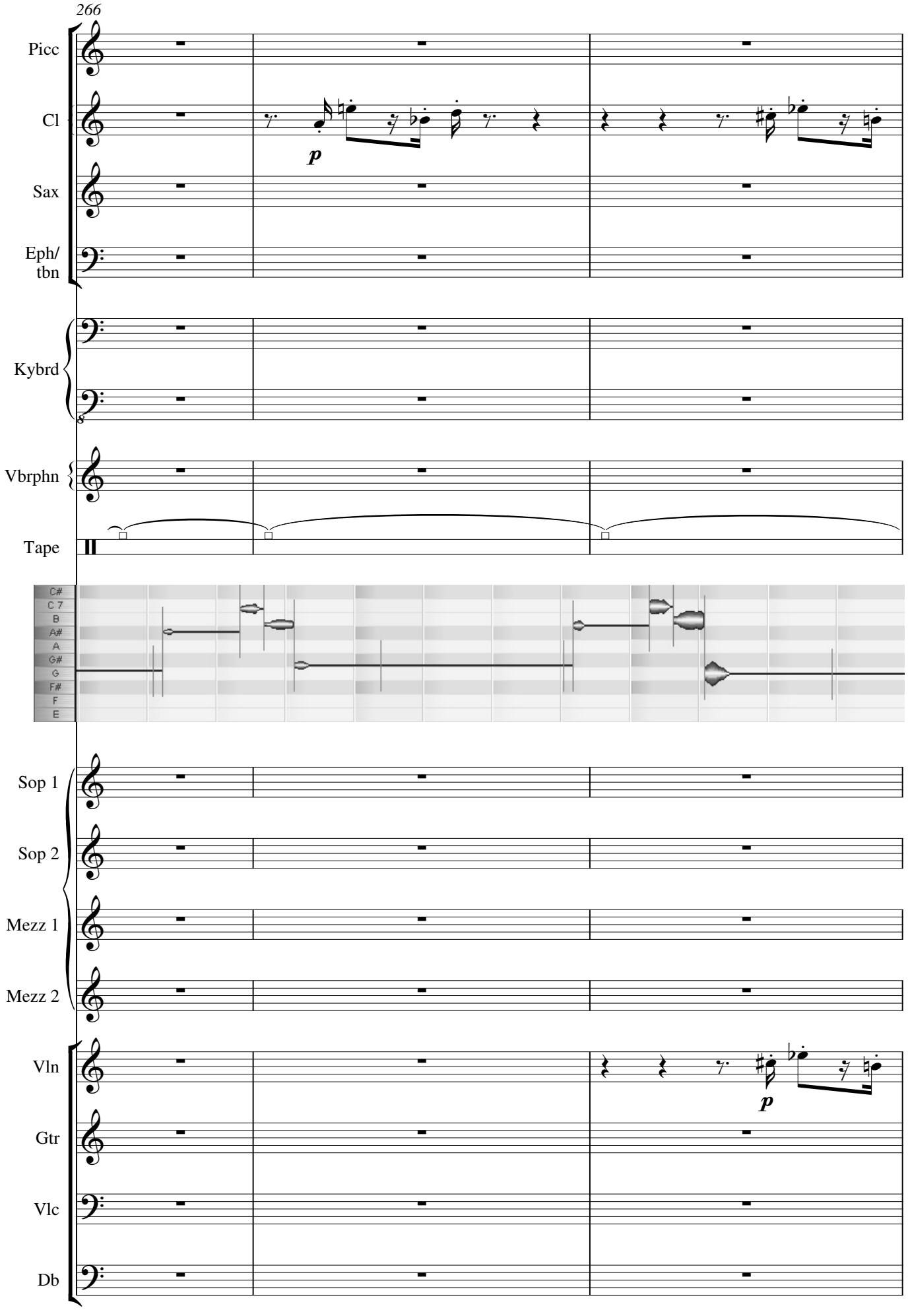
Vlc

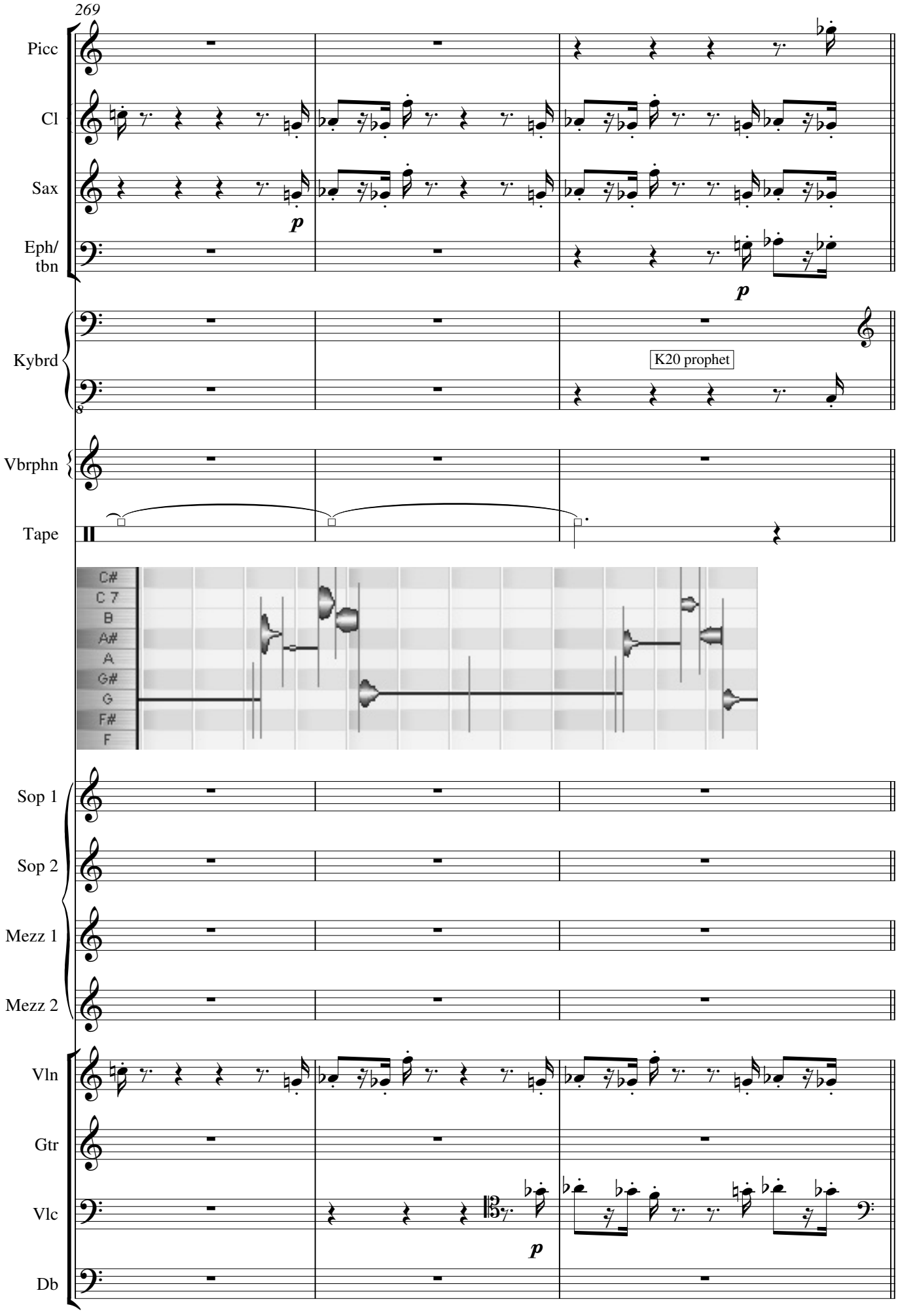
ad lib: arco octave divider + delay + bass enhancer
or normal pizz.

Db

non dim.

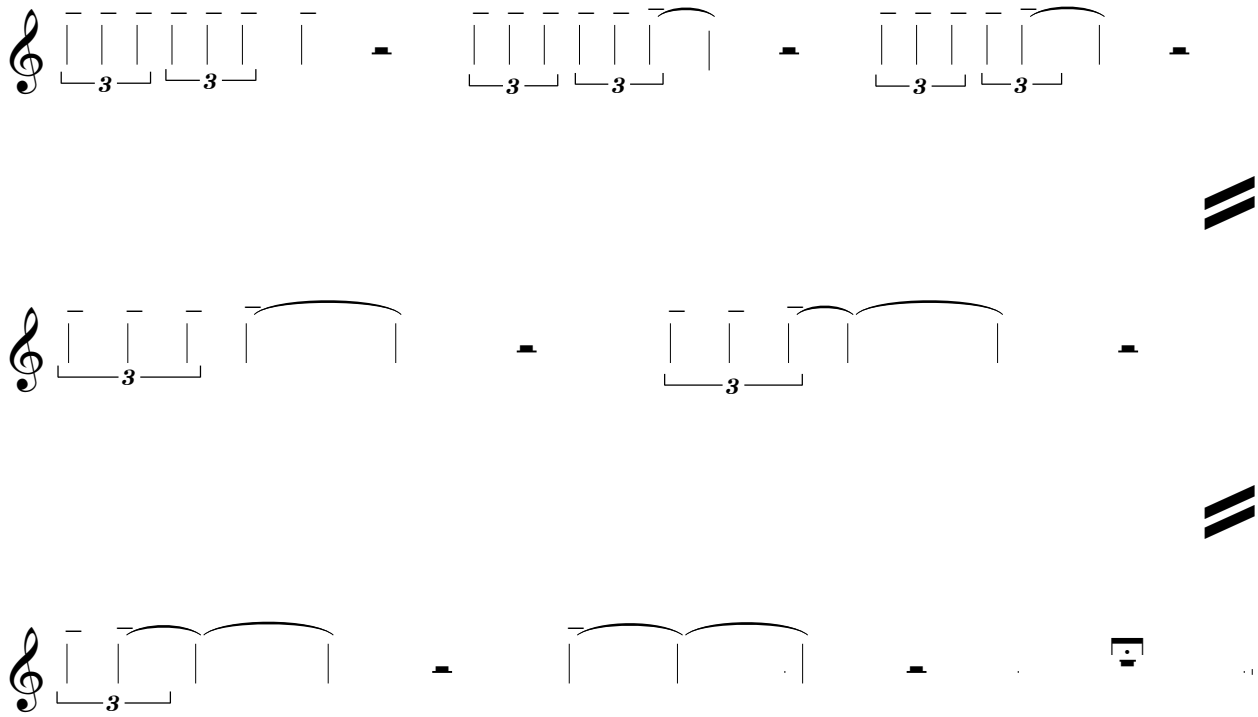

263
Picc
Cl
Sax
Eph/
tbn
Kybrd
8
Vbrphn
D
C#
C
B
A#
A
G#
G
F#
F
E
Tape
Sop 1
Sop 2
Mezz 1
Mezz 2
Vln
Gtr
Vlc
Db


266
Picc
Cl
Sax
Eph/
tbn
Kybrd
Vbrphn
Tape
C#
C 7
B
A#
A
G#
G
F#
F
E
Sop 1
Sop 2
Mezz 1
Mezz 2
Vln
Gtr
Vlc
Db


269
Picc
Cl
Sax
Eph/
tbn
p
p
Kybrd
K20 prophet
Vbrphn
Tape
C#
C 7
B
A#
A
G#
G
F#
F
Sop 1
Sop 2
Mezz 1
Mezz 2
Vln
Gtr
Vlc
Db
p

U

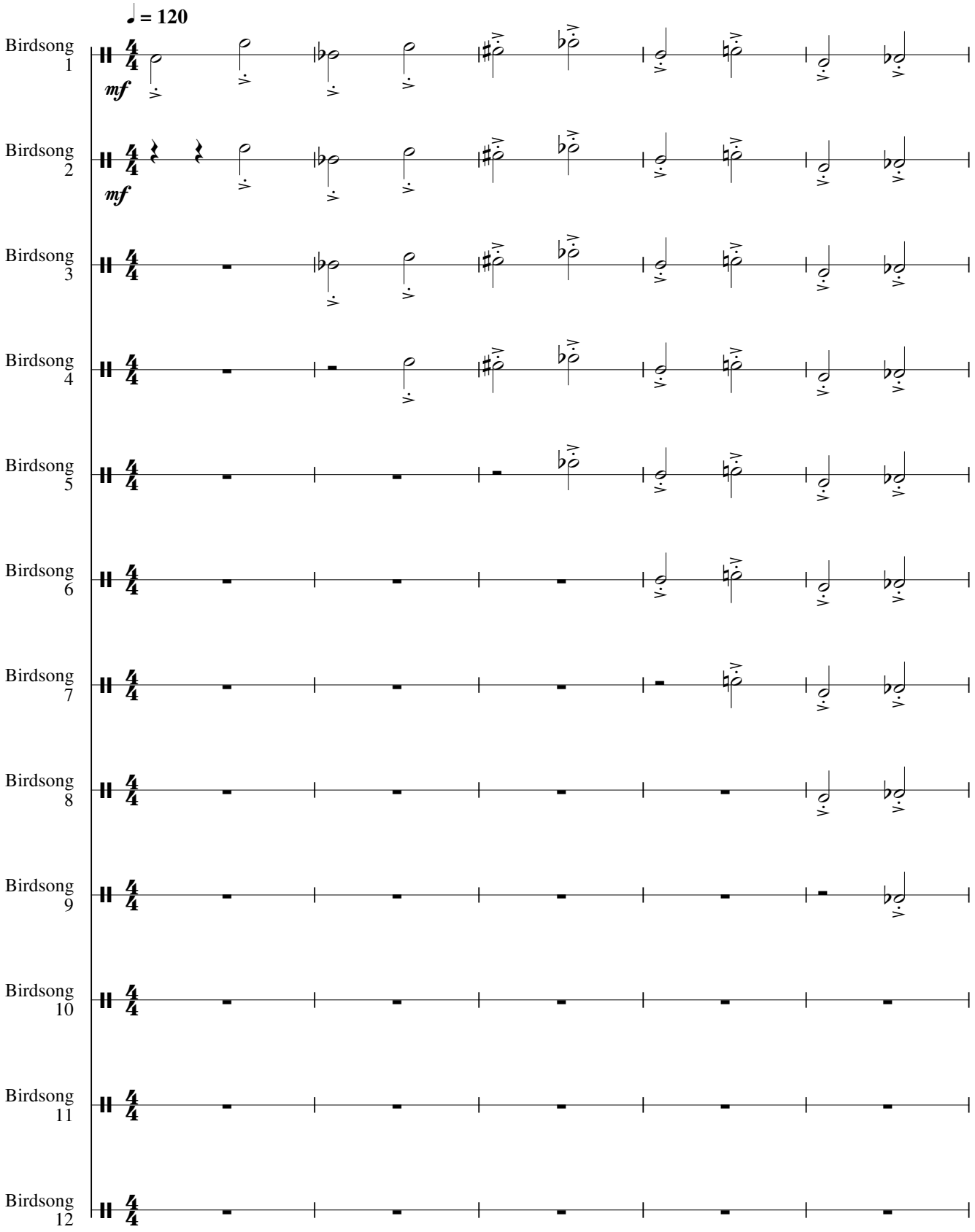
Coda:
- in an increasingly serene and calm manner, using louré articulation, all musicians and singers use only pitches f, a flat and e flat in free unconducted tempo, with a gradual diminuendo and free ritardando al fine, totally unsynchronised with each other;
- the choice of sax soprano or tenor, euphonium or trombone, is left to the discretion of the players;
- singers use the words: Greater Bird of Paradise and *Paradisaea apoda*;
- the conductor chooses the moment to start track 15 in such a manner that this last track of 24"/ 22" still sounds after all the improvisations have faded away;
- the rhythms are the following:

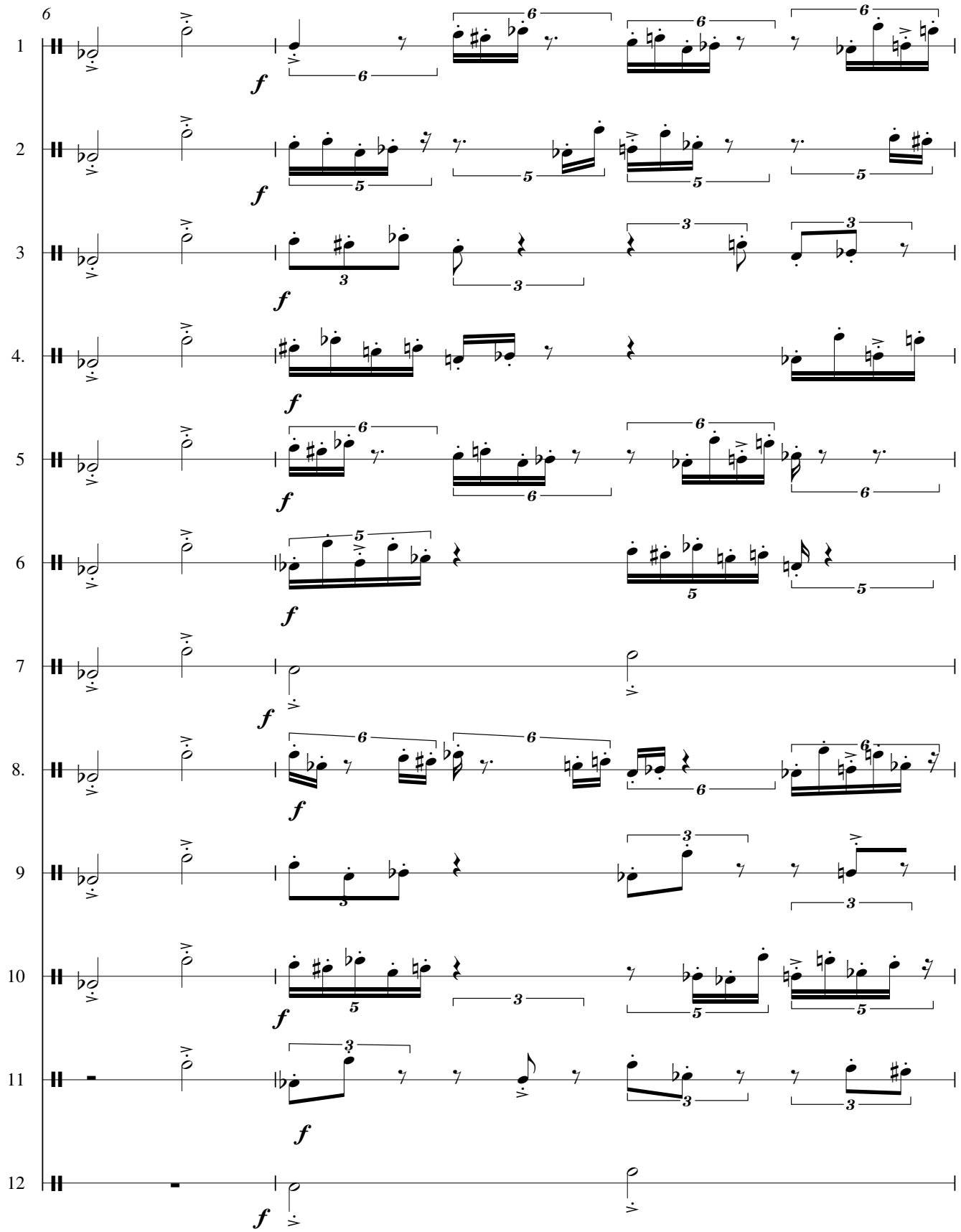


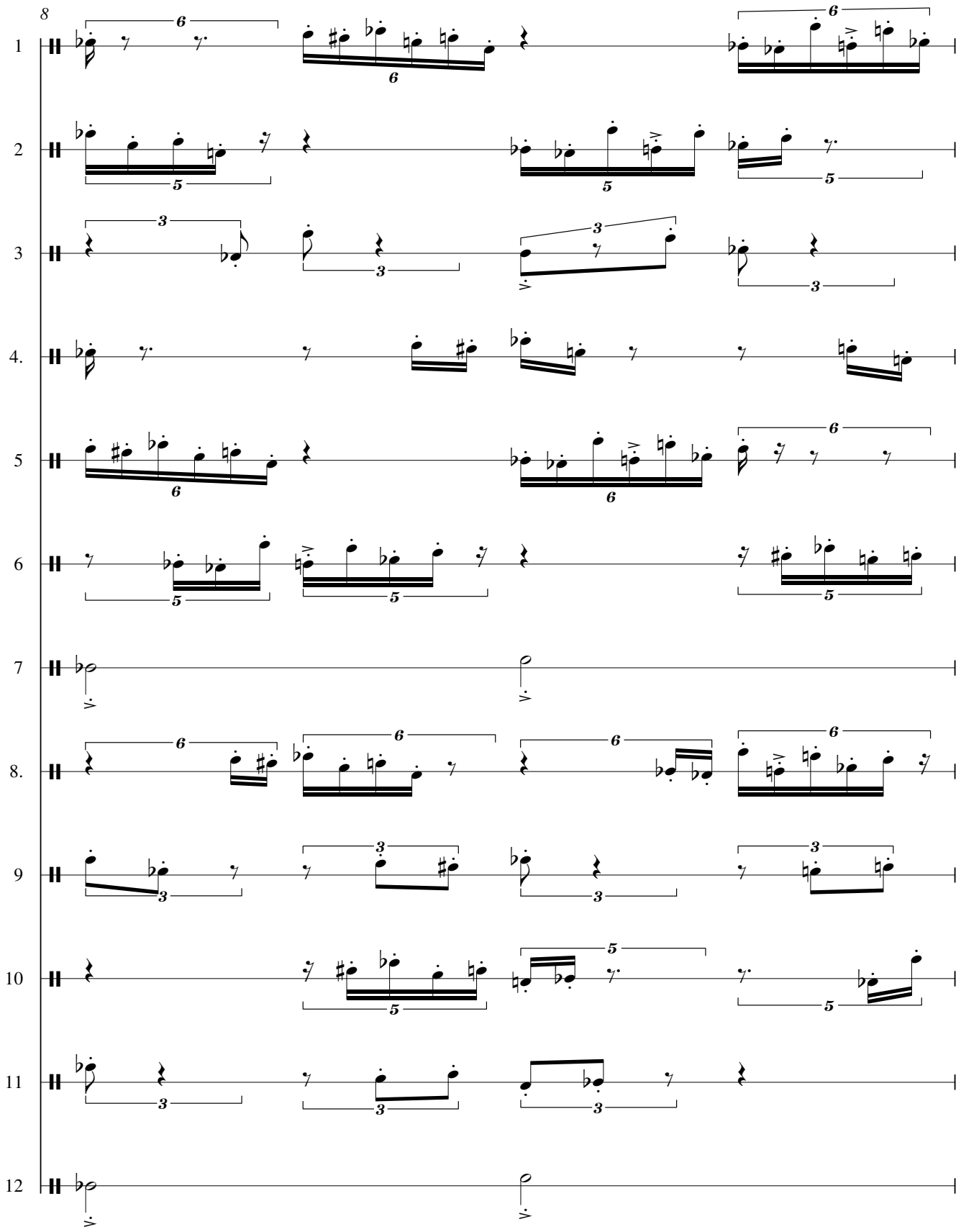
Singapore, 8-XI-2009

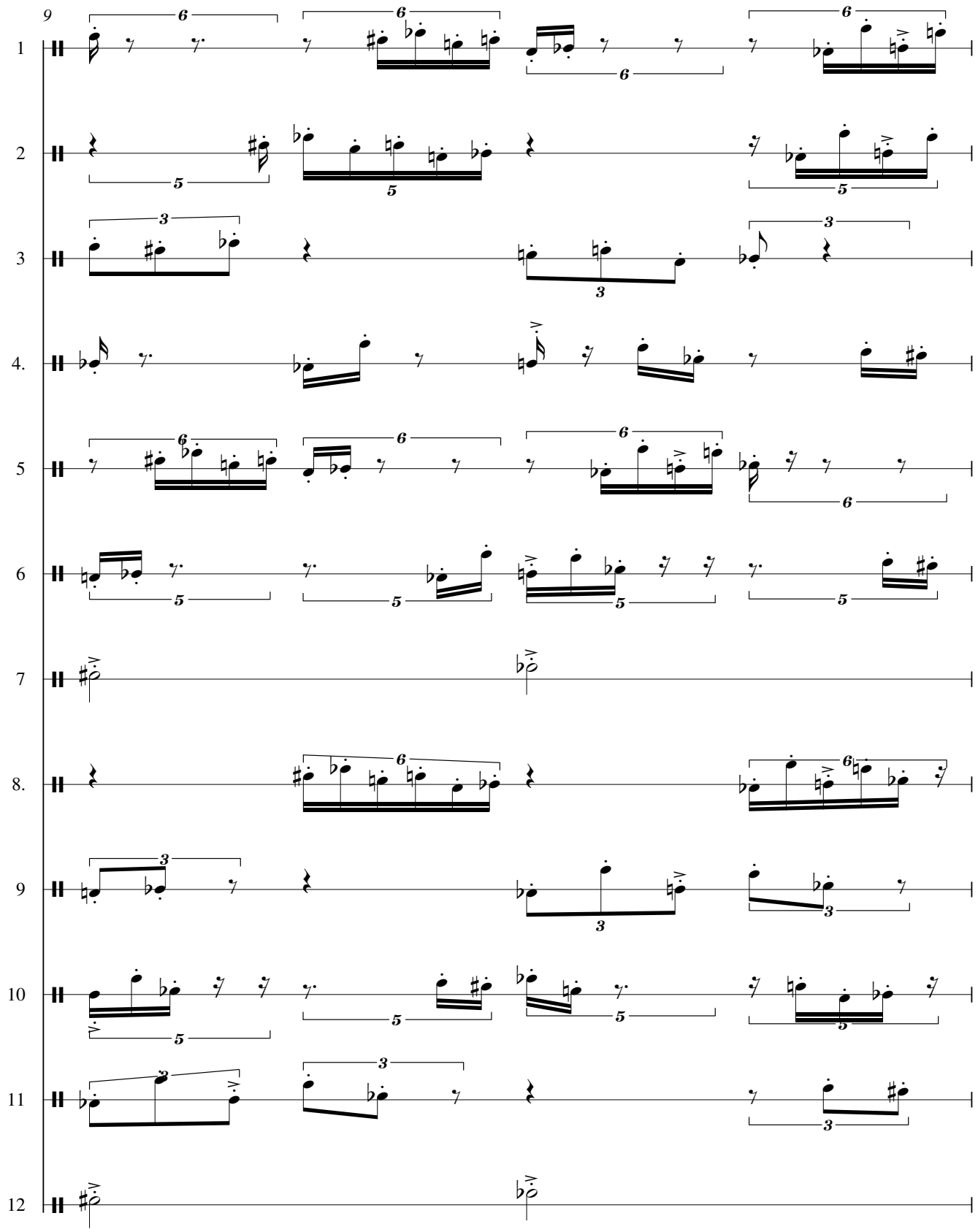
Annex 1

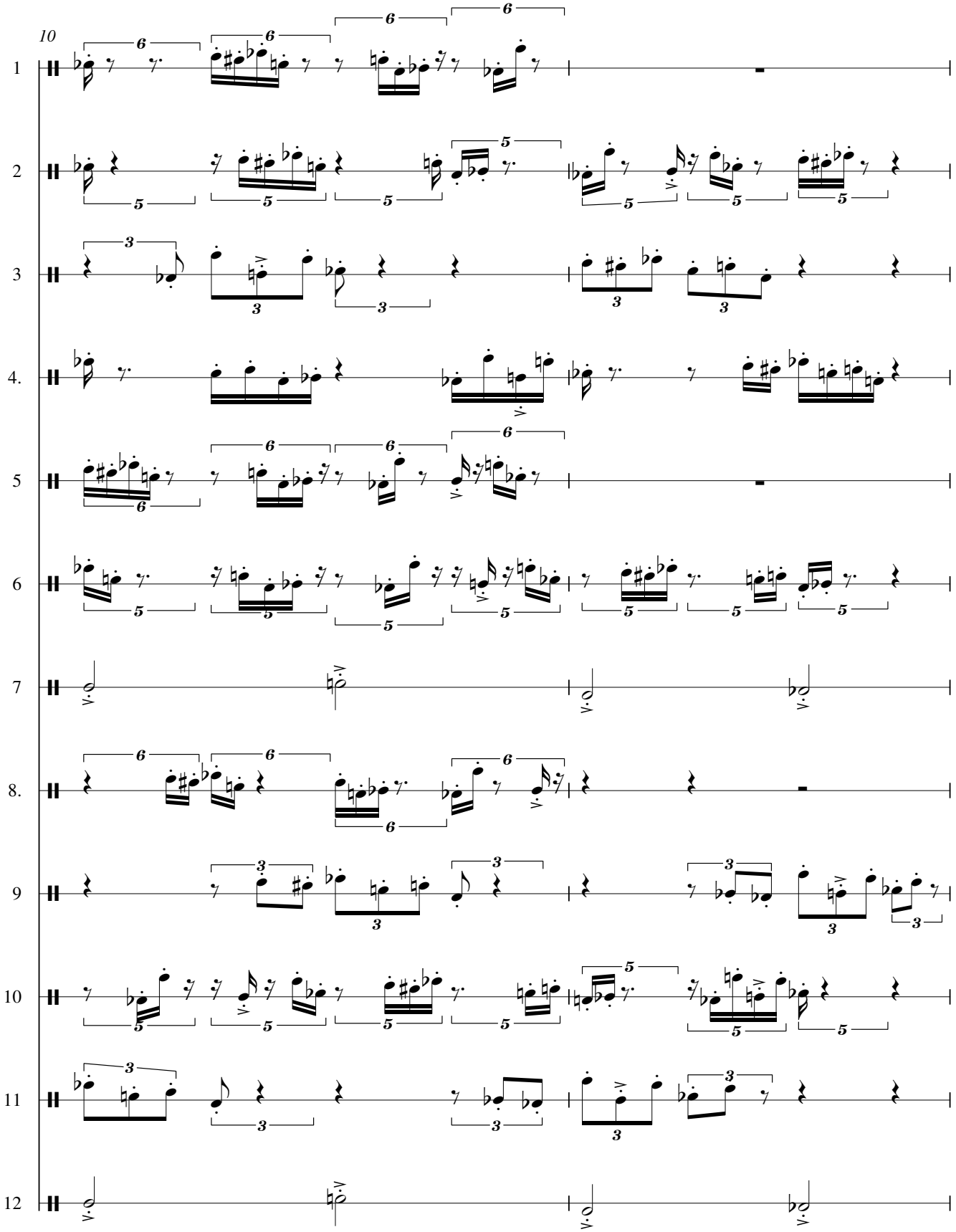
Score of the mechanical birds

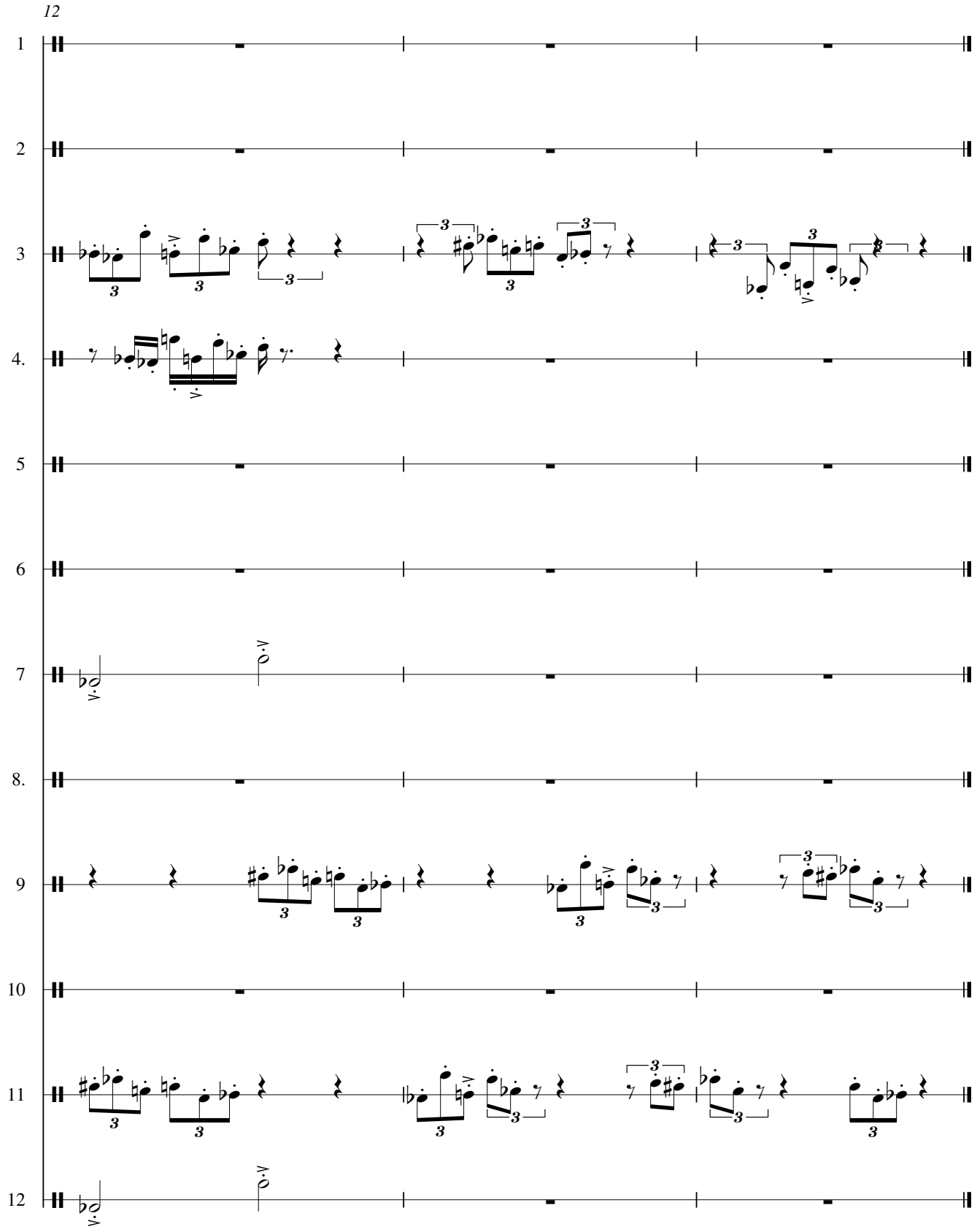

♩ = 120
Birdsong 1
mf
Birdsong 2
mf
Birdsong 3
Birdsong 4
Birdsong 5
Birdsong 6
Birdsong 7
Birdsong 8
Birdsong 9
Birdsong 10
Birdsong 11
Birdsong 12


6
1
2
3
4.
5
6
7
8.
9
10
11
12
f


8
1
2
3
4.
5
6
7
8.
9
10
11
12


9
1
2
3
4.
5
6
7
8.
9
10
11
12


10
1
2
3
4.
5
6
7
8.
9
10
11
12


12
1
2
3
4.
5
6
7
8.
9
10
11
12

Annex 2

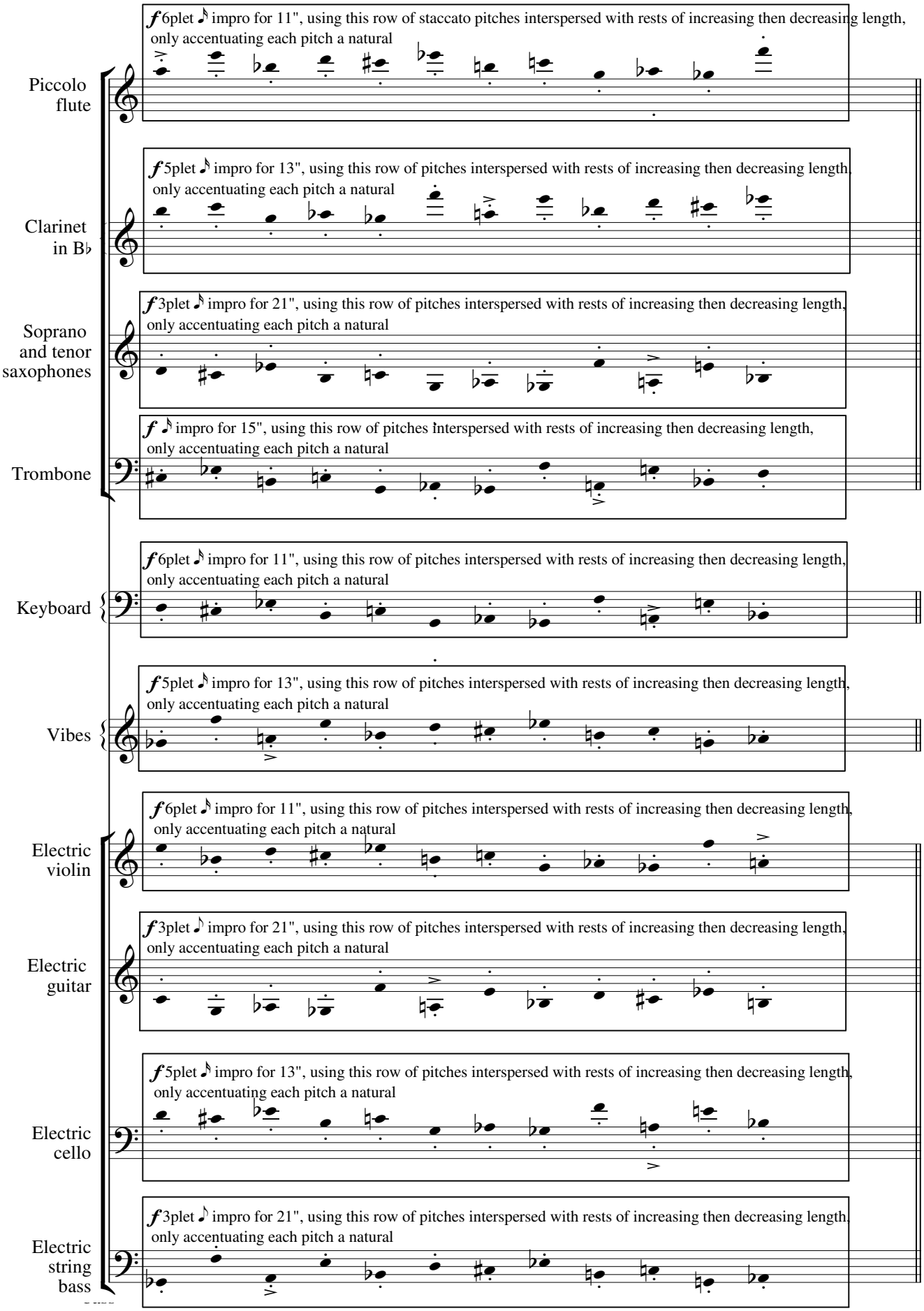
Score of the ossia improvisatory bars

Bird Songs

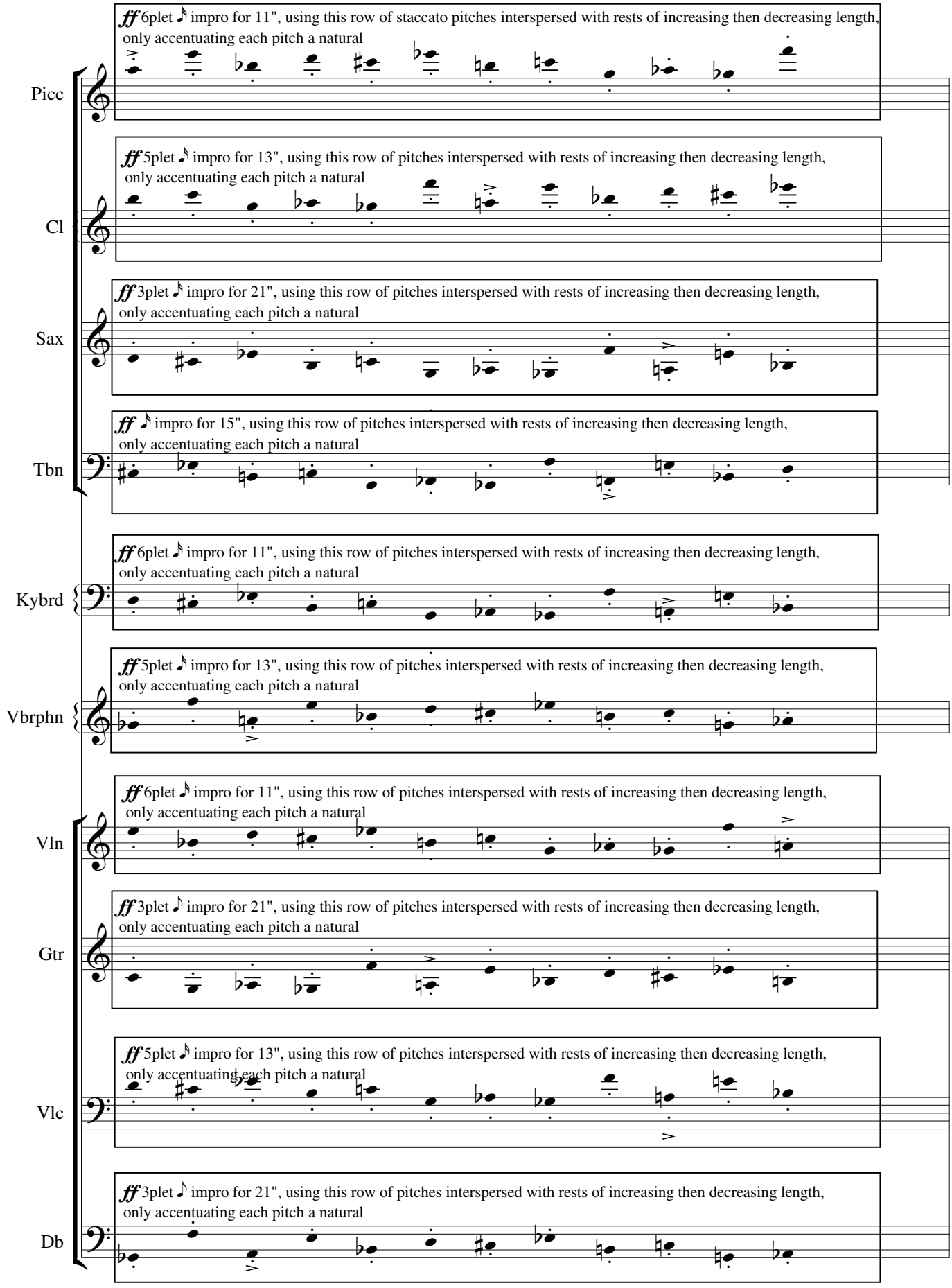
(impro ossia bars, notated in C)

Robert Casteels

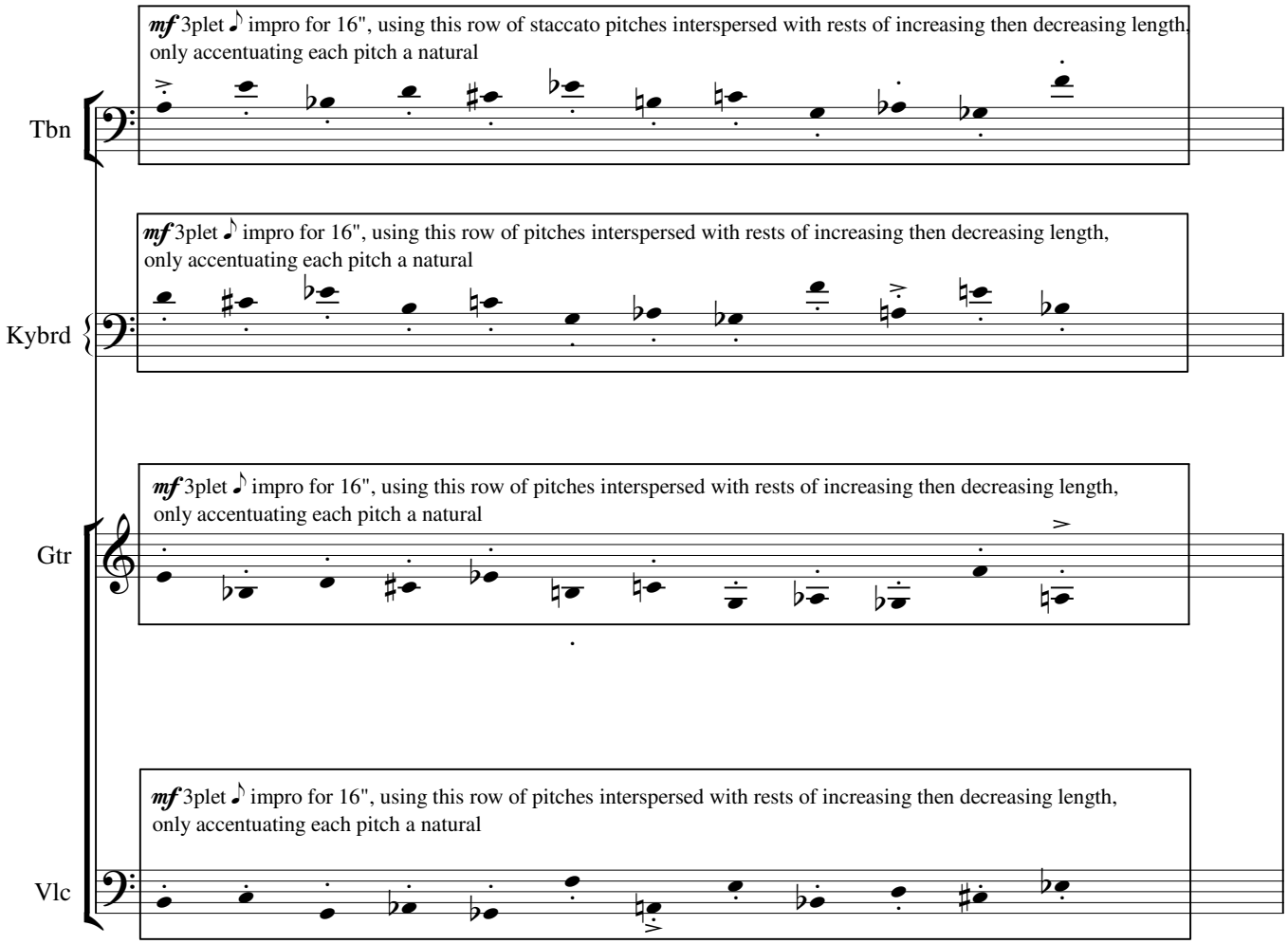
rehearsal letter B



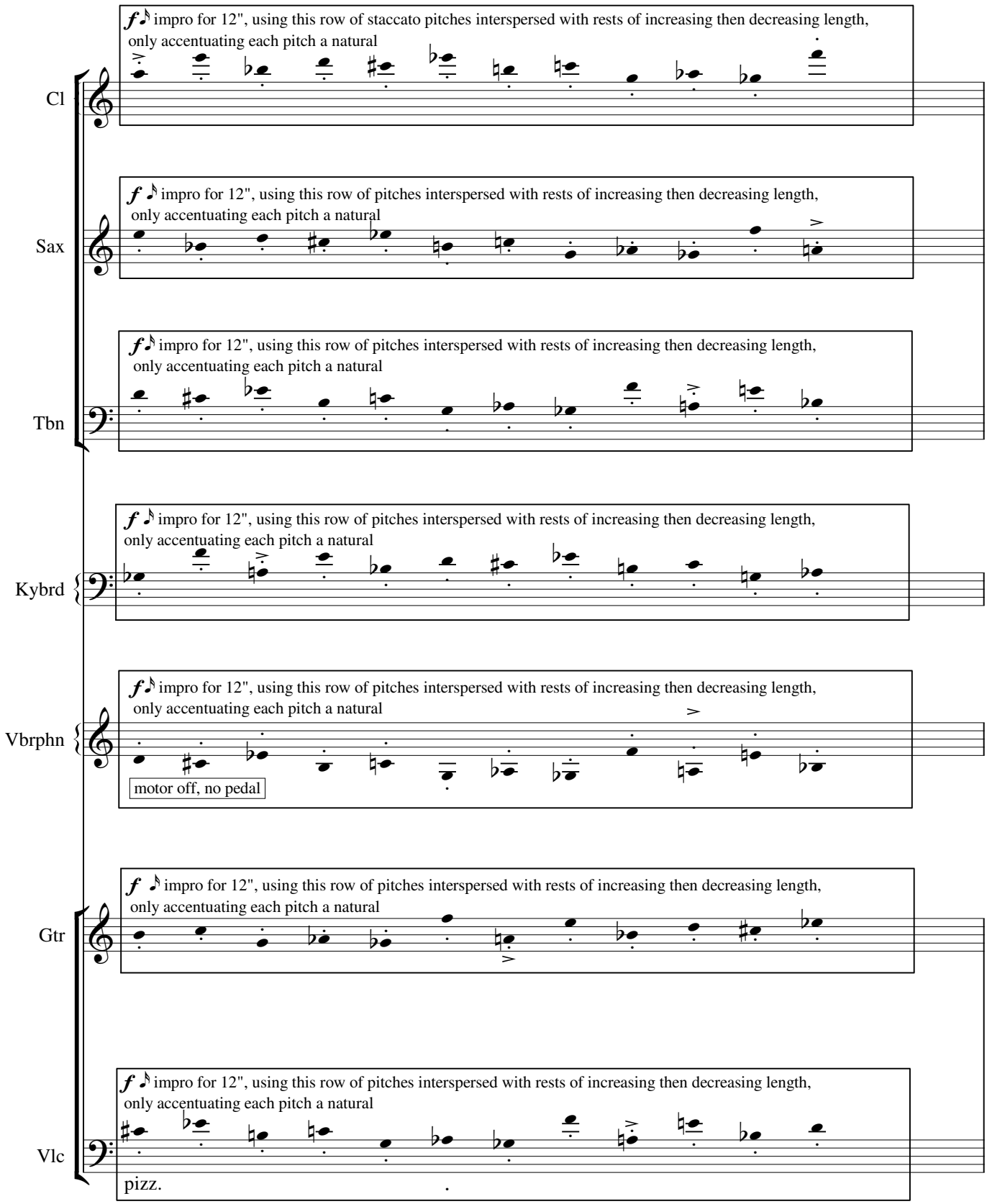
rehearsal letter F



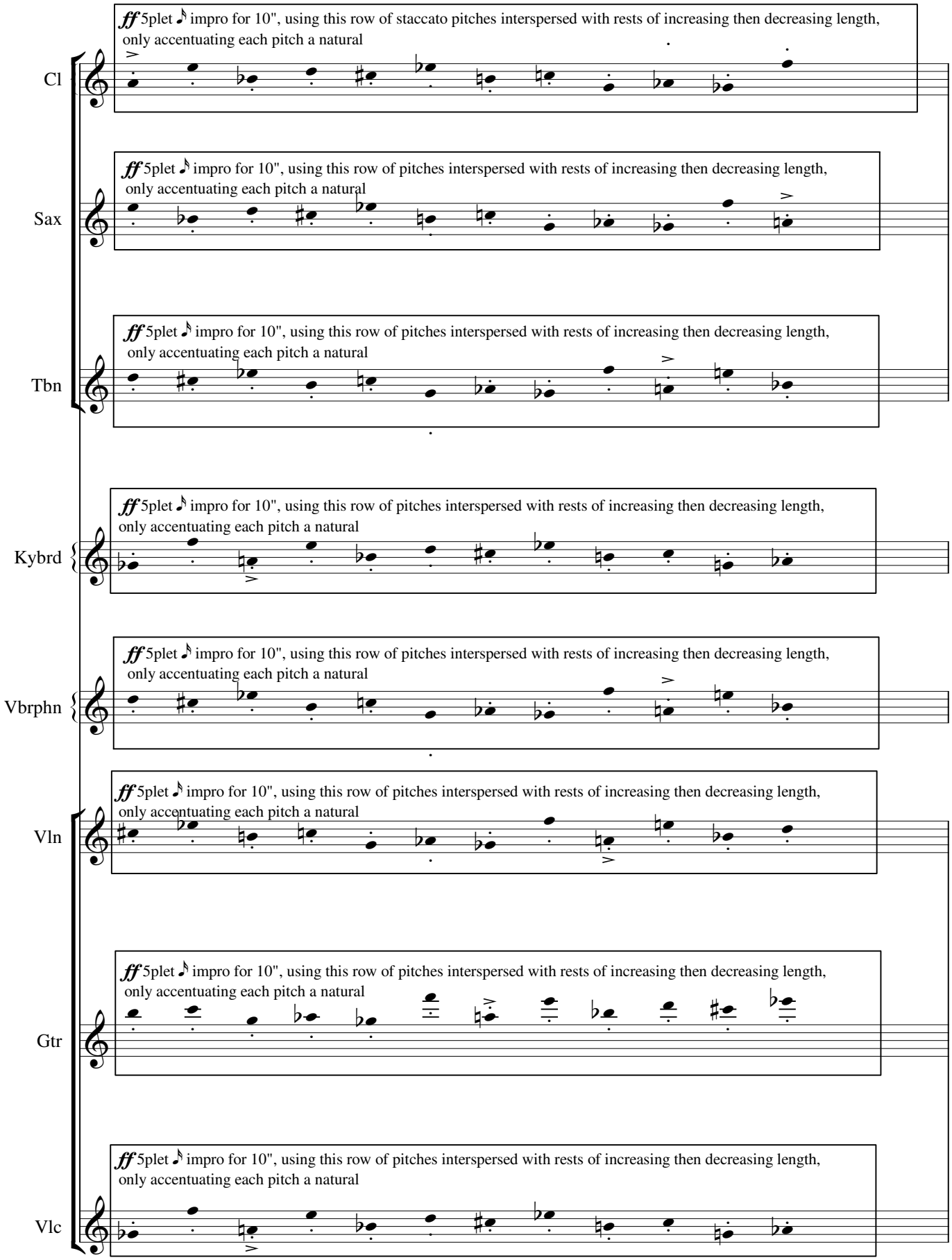
rehearsal letter G



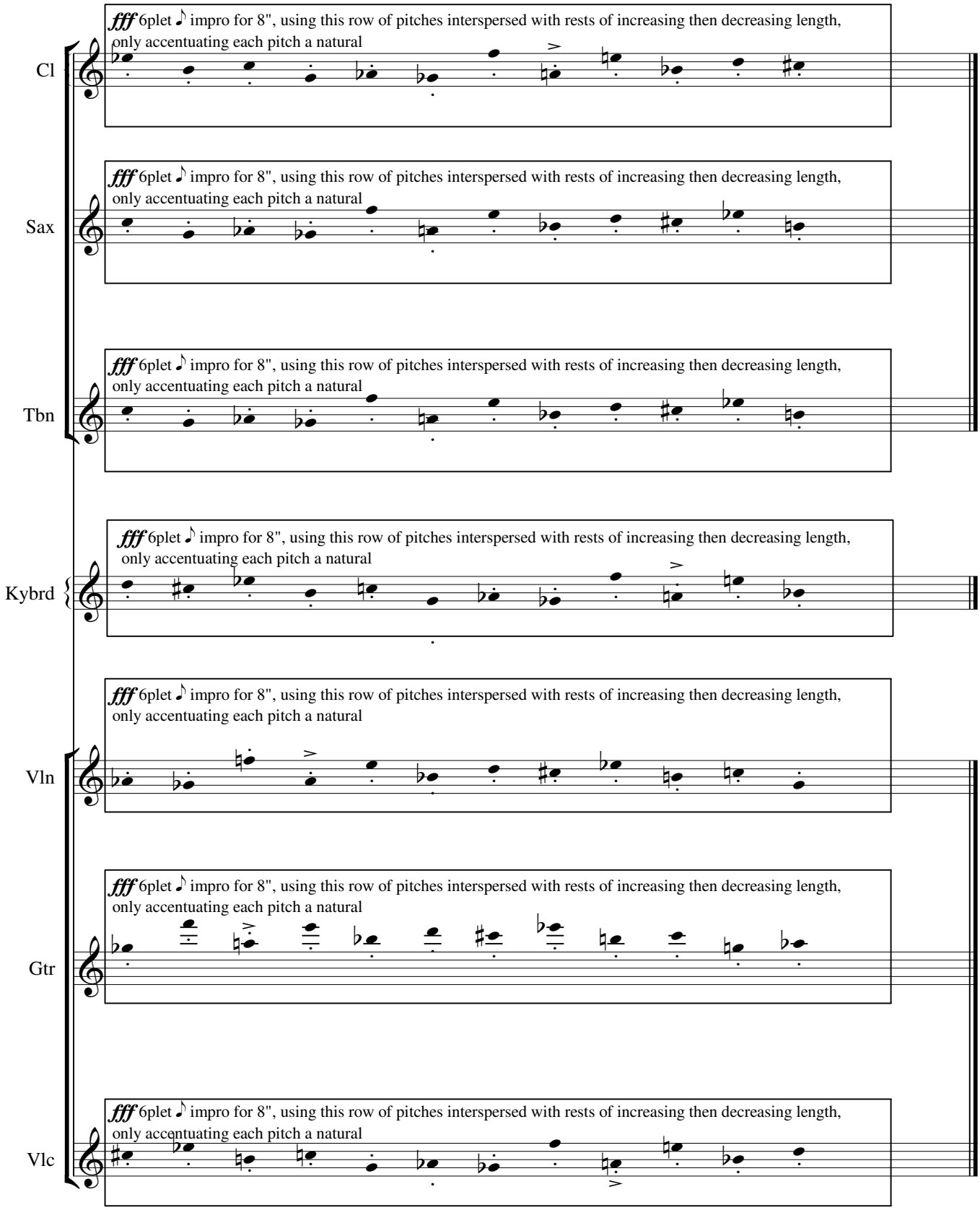
rehearsal letter H



rehearsal letter I



rehearsal letter J



Annex 3

Birds are the True Masters

by Dr Robert Casteels

Birds are the True Masters

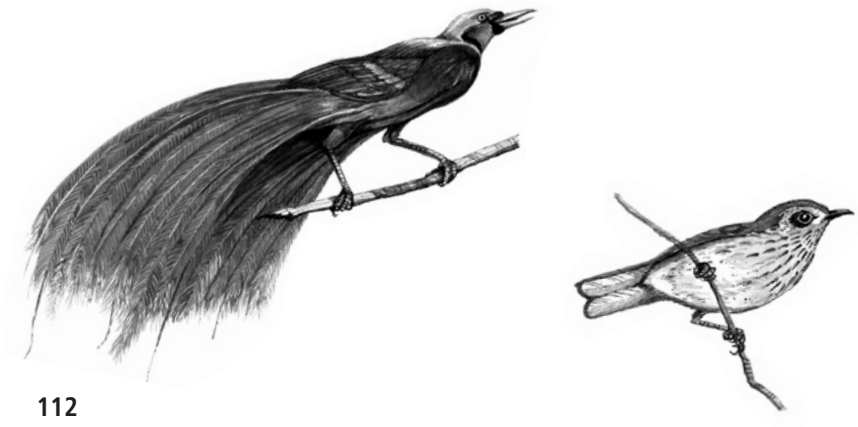
by Dr Robert Casteels

I enjoy the sound of birds, frogs and insects. I am content to stroll quietly in nature, initially without concern for ornithological identification. I can relate to stories related by bird enthusiasts about birds singing in a particular musical key or developing elaborate structural patterns. I am overwhelmed by the melodic complexity and avoidance of rigid numerical repetition in bird songs. In short, all that surpasses what my trained ear as a professional musician can grasp. My interest was spurred by an interesting article published in 2006 by Nature Watch. Two years later, this journey led to the creation of an original music composition based on the songs of some birds resident in South East Asia.

Why, when, for whom and how do birds sing? How do they learn?

The short answer is that the scientific community has not yet been able to come up with factual answers applicable to all bird species. Avian diversity is far richer in the tropics than in the temperate zones, yet most research has taken place in the temperate regions. The study of bird song is more intimidating than ever. I attempt here to highlight ten points for which there is experimental evidence.

1. Birds have a rather poorly developed olfactory system. They depend heavily on sound which travels in all directions and over long distances, making it a more effective means of communication than visual signals especially in darkness and poor light. However, there are factors, such as humidity, temperature and landscape, that affect the quality of sound transmission.



2. The syrinx, the equivalent of the human larynx, is the sound-producing organ in birds. Located at the bronchial junction, the syrinx has two potential sound sources, one in each bronchus. Hence, the two sides of a bird's syrinx can operate independently. Therefore, it is possible for a bird to repeat a sound at such high speeds of that we humans seemingly hear one constant pitch instead of a series of short sounds interrupted by interval of about 10 milliseconds. In mammals, it is clear that the sound is produced during exhalation, akin to how sound is produced by a wind instrument. However, in birds, ornithologists disagree as to how and when sound is produced, whether it is during exhalation or inhalation.

3. Unhatched eggs can already vocalize, but the song learning process takes place at different times for different species - some bird species learn as juveniles while others learn as juveniles and young adults. There is a great difficulty in determining exactly how much song learning and song recognition is innate as opposed to learnt from what the young bird hears. Bird songs and human music resemble each other acoustically. Just as babbling human babies, young birds go through a period of so called subsong or whisper song, which is quiet and variable. Gradually the song crystallizes into the full song typical of adults of the species. Some birds reared in acoustic isolation produce aberrant songs, some do not. After a critical time window for song learning, some species will no longer enlarge its repertoire. On the other hand, males of other species do update their song repertoire from year to year, possibly to rival new males.

4. Huge variations exist between species in the variety and size of their repertoire as well as the way this repertoire is used. Most birds sing more than one version of their principal species' song while others do not have such variations. These geographical variations are known by ornithologists as dialects. Some species develop intricate songs, others do not. A complex song individualizes its singer, to its advantage versus a potential mate, but also at the same time to its disadvantage versus a possible predator.

5. In most species, only the male sings. Experimental evidence has shown that variations in testosterone levels have an effect upon chicks' vocalizations, and in turn, the songs they sing. Males do not necessarily learn the songs of their natal area. Males proclaim and defend their territory by countersinging against rival males, which stimulates the females for sexual display and readiness. The rate of male songs peaks with the fertile periods of the females. In a Darwinian logic, female birds may be selecting males on the basis of the amount and complexity of the songs males sing as a guarantee of excellent genes. Females do not necessarily prefer to mate with males singing the same dialect as their fathers. The better a male sings in quantity and quality, the less he spends time feeding. Consequently, he must be an efficient feeder holding a territory of good feeding quality.

6. In a few species, females also sing. Females sing within the mated pair in situations such as when other females appear, or to trick the male into returning by giving the impression that a rival male is trespassing on his territory. Some pairs of male and female sing elaborate antiphonal duets, alternating different notes. Sometimes the duet is so tight that the song sounds like a single call.

7. There are annual song-cycles and daily song-cycles. Some species sing up to 22,200 songs during a single day. The dawn chorus, which refers to the marked increase of singing during dawn, is still not fully explained. Some species sing their last song of the day in about the reverse order of their first song of that day. The song production peaks in the morning, decreases and reaches a minimum after midday, increases again towards the evening.

8. Most species of birds learn only the song of their own species and seem to be attracted by the song of their own species. The songs that are attractive to human ears are not necessarily those birds use for wooing. Mimicry is rare, except when imitating competing species or predators, so that the singer's territory appears to be dangerous and well defended.

9. Parent-offspring recognition works even in a crowded restricted space such as on a small isolated island. Many species have two clearly different alarm calls, one for a flying predator and another for a predator on the ground or perched in a tree. Defending food always corresponds to the lowest-pitched of all the sounds a species makes.

10. Insects, amphibia, birds and mammals have developed a language of sound to a high degree of sophistication. Singing is expensive in terms of energy and must therefore be utilitarian and functional. However, nothing prevents us to accept that a relaxed and satiated bird may at times emit songs for sheer pleasure.

Birds are the True Masters

Ornithologist Charles Harsthorne coined the word 'ornithomorphism' or the bird's judgment of human music as opposed to anthropomorphism. What did the original inhabitants of the Botanic Gardens, that is, the birds, make of my music? I wonder. In 1892, the then famous 51-year-old Czech composer Antonin Dvořák accepted a lucrative academic position in New York city. However, disliking the urban and socialite environment, Dvořák spent time in the country side of Iowa that reminded him of his native Bohemia. There he is said to have been irritated by the incessant call of a scarlet tanager (quote: "that damned bird") and to have exclaimed: (quote) "Birds are the true masters". In all humility, I concur.

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