BILOBA FOR CHAMBER ENSEMBLE

A THESIS IN
MUSIC COMPOSITION

Presented to the Faculty of the University
of Missouri-Kansas City in partial fulfillment of
the requirements for the degree

MASTER OF MUSIC

by
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B.Sc., University of Michigan-Ann Arbor, 2006

Kansas City, Missouri
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BILOBA FOR CHAMBER ENSENMBLE

Zi Hua Tan, Candidate for the Master of Music Degree

University of Missouri-Kansas City, 2012

ABSTRACT

Biloba is a chamber piece for eight instruments inspired by the *Gingko biloba* tree. In an abstract way, the piece attempts to capture the movements – to me, the structural details of a tree give the illusion of dancers frozen in time – and textures exhibited by the tree, as well as the environment in which it inhabits.

Many transformations take place in this piece. In terms of the general form, it loosely traces the evolution of the Ginkgo leaves from the Permian era to the present day in retrograde. The compositional materials were molded according to different permutations of the plot of the pitchfork bifurcation equation in the supercritical case, which bears resemblance to the outline of a typical fan-shaped Gingko leaf.

Aesthetically, the different levels of vibrationality of the sounds produced by the instruments were used to mirror the different energy states of living objects in nature. Each instrument has a unique set of vibration gradations. The flute, for example, generally progresses in this fashion: pure tone, *molto vibrato*, timbral trill, trill, *tremolo*, and successive triplets.

The sonic elements were flexibly laid out with mathematical models, mainly systems based on palindromes and the Fibonacci series. Palindromes can manifest themselves in multifarious way, from the number of beats in a group of measures in a phrase to the unfolding

of pitches in a musical gesture. One instance of the usage of the Fibonacci series is in the time of entry of a similar gesture for each instrument.

The harmonic language of the piece was derived from a pool of spectra, namely the natural harmonics of B2 and A1 (with C4 as middle C), inverted natural harmonics of B5, and two artificially constructed harmonic series based on the other three spectra.

APPROVAL PAGE

The faculty listed below, appointed by the Dean of the Conservatory of Music and Dance, have examined a thesis titled “Biloba,” presented by Zi Hua Tan, candidate for the Master of Music degree, and certify that in their opinion it is worthy of acceptance.

Supervisory Committee

James Mobberley, D.M.A., Committee Chair
Conservatory of Music and Dance

Paul Rudy, D.M.A.
Conservatory of Music and Dance

Chen Yi, D.M.A.
Conservatory of Music and Dance

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BILOBA ……... 1

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INSTRUMENTARIUM

Flute

Clarinet in B-flat

Horn in F

Piano

Violin

Viola

Violoncello

Double Bass

Duration: 9-10 minutes

PERFORMANCE NOTES

Accidentals apply to the notes they precede. Repeated notes in a bar will follow the accidental of the nearest prior note

Senza vibrato to *poco vibrato* must be employed at all times unless notated otherwise

All tremolos are unmeasured

Depending on the acoustics of the concert hall this piece will be played in, some leeway to the tempi is allowed. The proportional relationship between each tempo, however, must be observed

Duration: ca. 9’30”

Symbols & Abbreviations

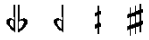
General

ST	sul tasto
SP	sul ponticello
ORD/ ord	ordinary bowing position or blowing technique
norm.	normale
mv	molto vibrato (wider than usual instead of faster)
sv	senza vibrato
c.l.b.	col legno battuto
WT	whistle tone
sub pont.	sub ponticello: playing behind the bridge

diminuendo al niente

crescendo dal niente

gradually change the technique from one to another


quartertones (-3/4, -1/4, +1/4, +3/4)

highest/ lowest possible note

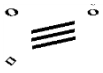
Woodwinds

timbral trill, produced by alternating between different fingerings for the same note (with noticeable variations in pitch)

change the embouchure gradually: breathy without pitch, breathy with pitch, normal

tongue ram to produce a pizzicato-like attack

multiphonics


harmonic trill: alternate between two harmonics (of different order) rapidly while while keeping the pitch constant

Horn

mute trill: alternate one finger into and out of the bell end of the brass mute

blow with a lof of force, as if saying “WHAT!”, to produce a strong airy attack on the horn

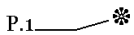
multiphonics

Piano

P.1 right (damper) pedal
P.2 middle (sostenuto) pedal
P.3 left (una corda) pedal

play inside the piano

suppress the string near to the damper while playing the key normally



gradually release the pedal

depress the key(s) silently

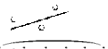
Strings

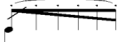
notes to be played *col legno battuto*

Bartok pizzicato

speed of tremolo: getting more rapid, rapid, and getting less rapid

granular sound (overpressure)


harmonic glissando


saltato

arpeggiated chord up or down on the strings behind the bridge (sub pont.)

hammer-on

ACKNOWLEDGEMENTS

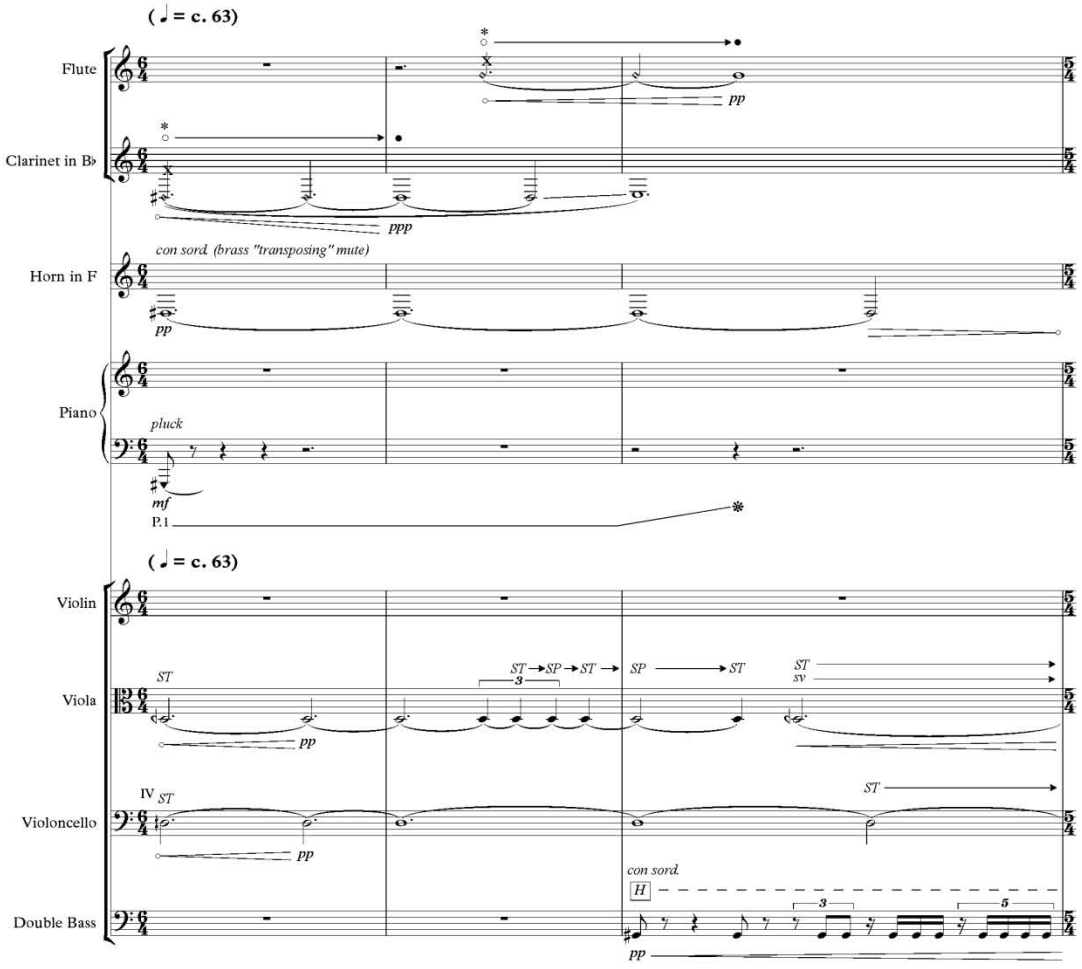
My sincerest gratitude must be extended to the faculty at the Conservatory of Music and Dance at UMKC – James Mobberley, Chen Yi, Paul Rudy, Zhou Long, Laura Gayle Green, Reynold Simpson, Andrew Granade, Joe Parisi, Robert Bode, and Sarah Tyrell – for their endless support and guidance. Their dedication to their craft as musicians as well as educators has inspired me to push myself further. Dr. Mobberley, in particular, thank you for giving me invaluable insights into the art of composing. I would also like to thank my friends and colleagues, with whom I share not only ideas but great camaraderie. And finally, to the pillars of my strength, my parents, Tan Ban Tiek and Lim Bi Tyu, who have shown me unconditional love and have never ceased believing in me.

Score in C

Biloba

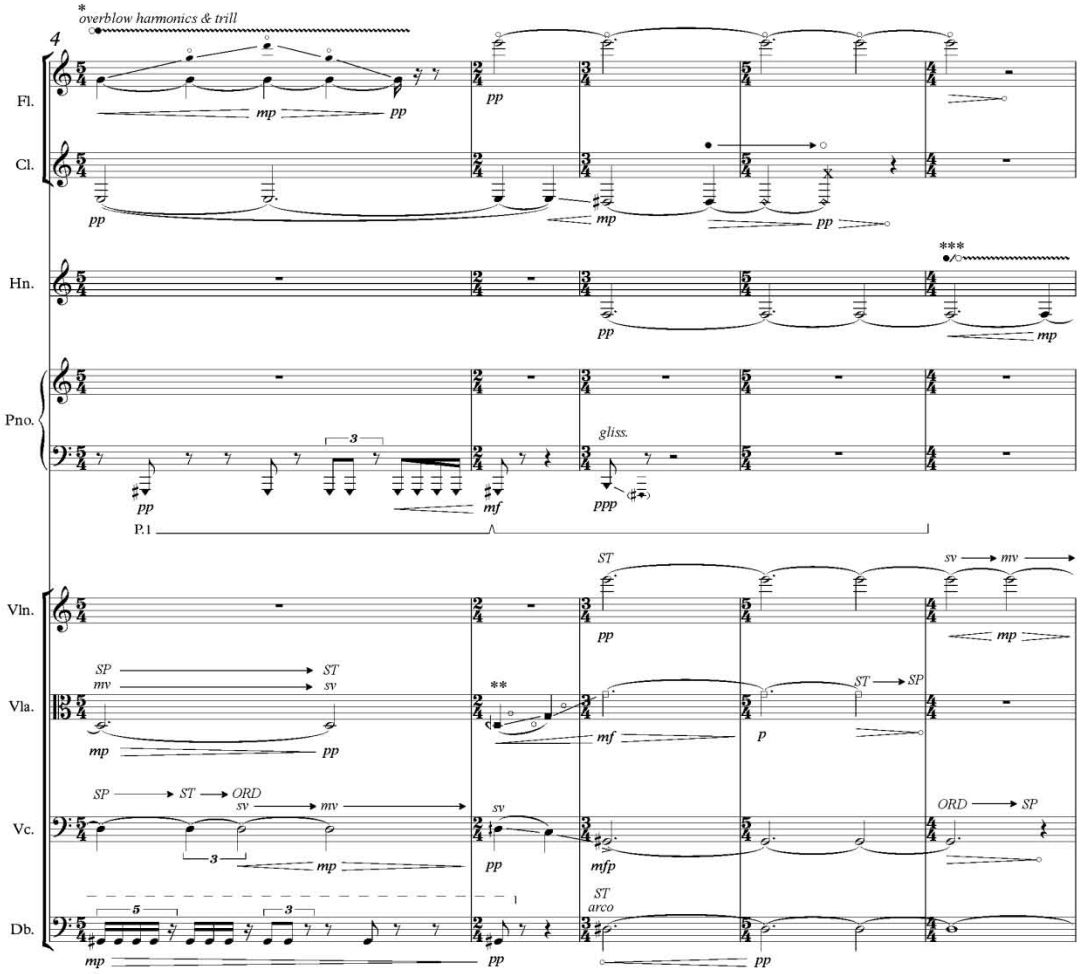
2012

Zihua Tan



*Change from normal tone, to breathy tone (diamond-shaped + ◦), to unpitched very breathy tone (diamond-shaped + x-mark on the stem + ○)

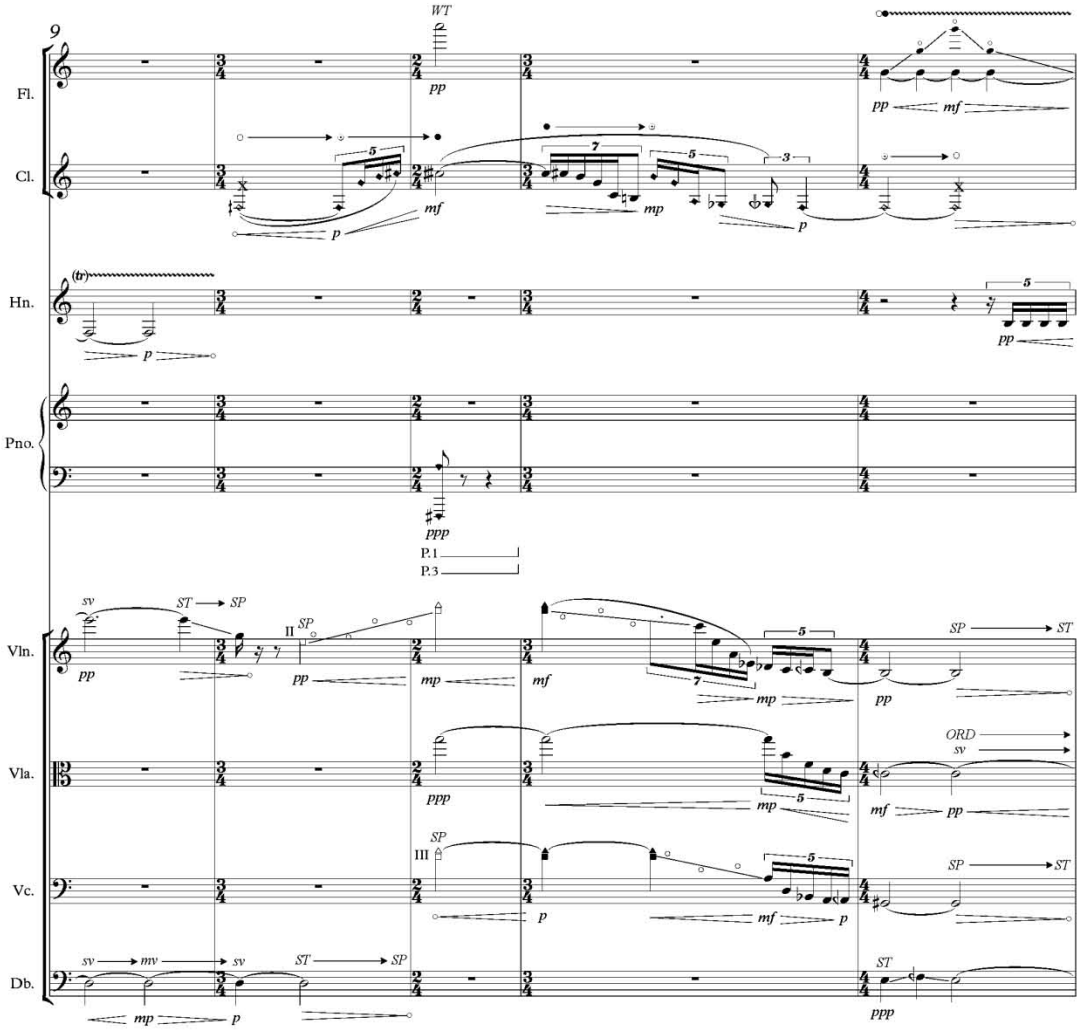
2



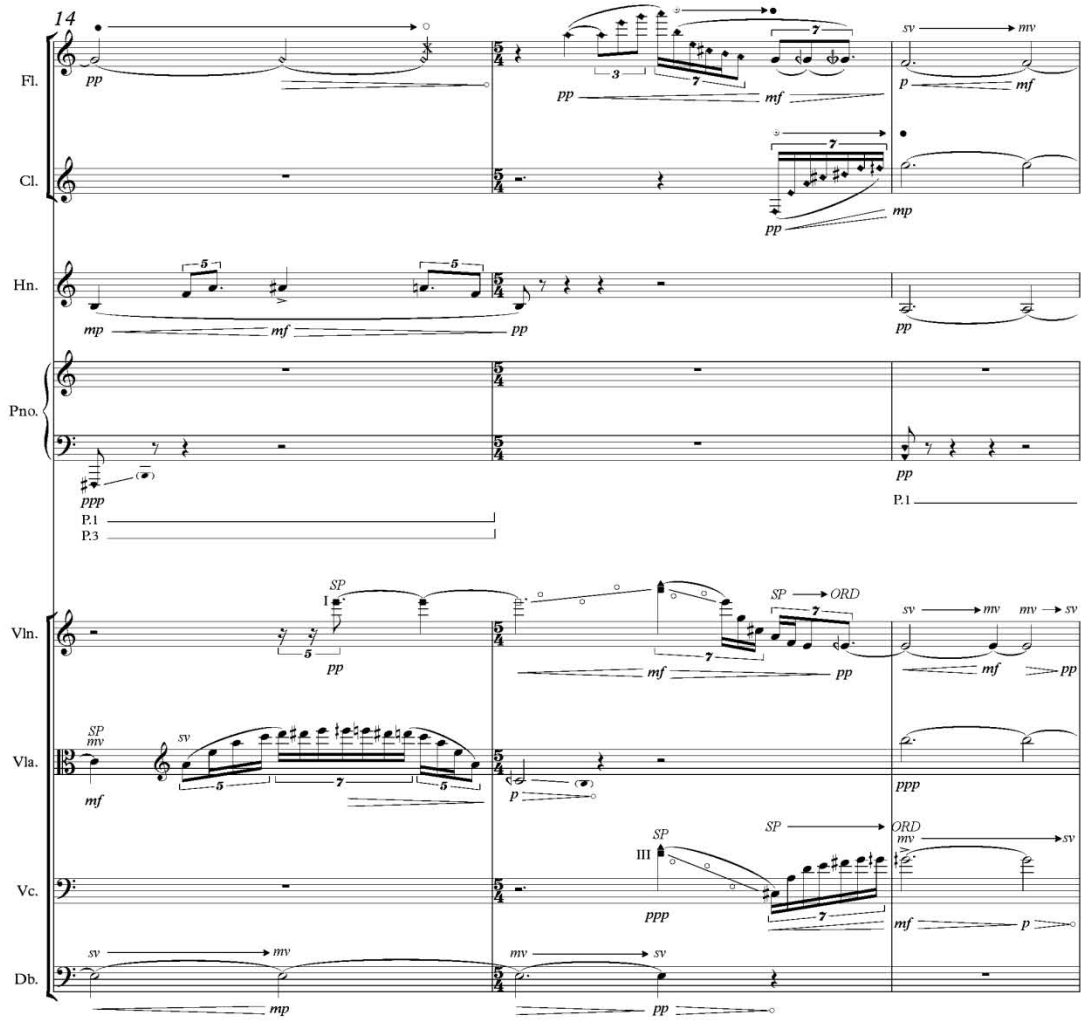
** While playing a trill, overblow the harmonics according to the contour; the note value of each harmonic is just an approximation*

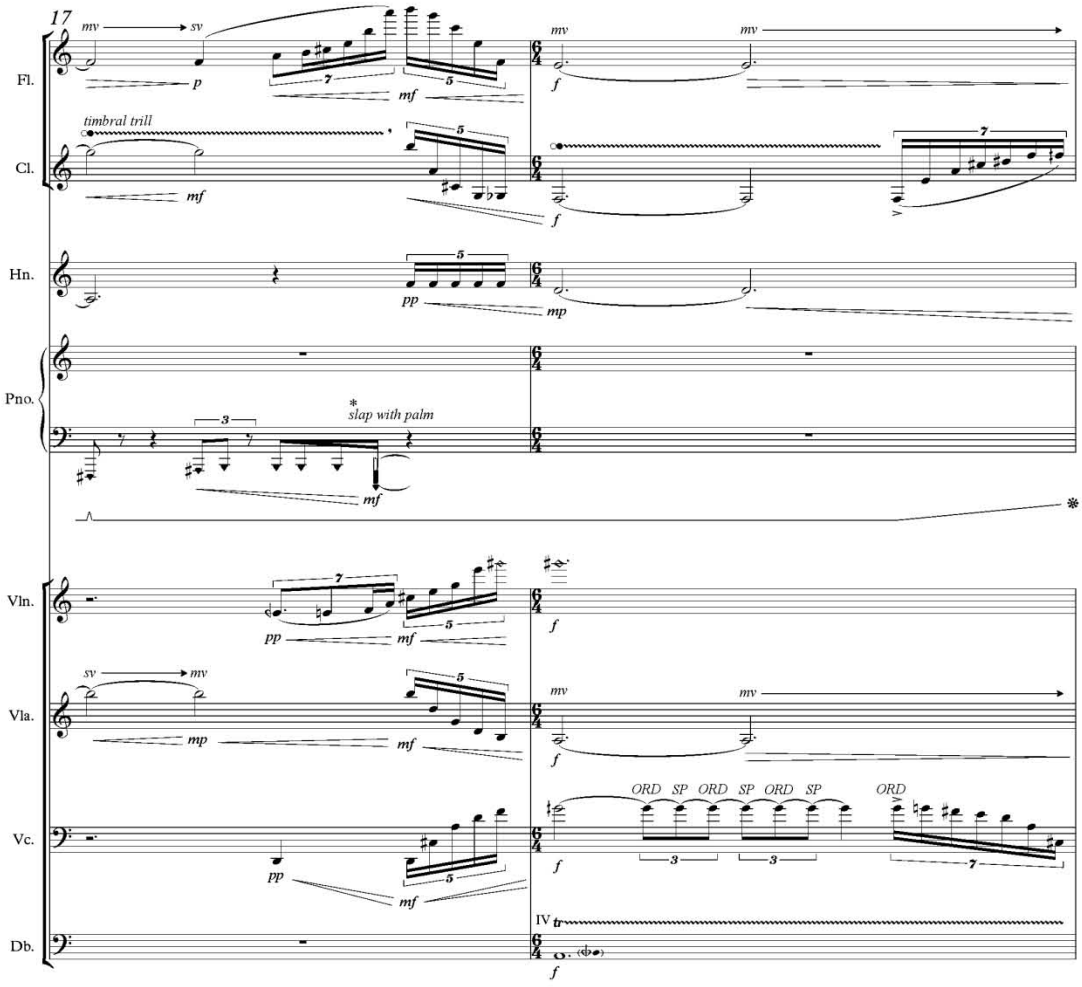
*** Harmonic gliss.: make a glissando along the approximate indicated line(s) with a 'harmonic' touch. Along the glissando, white noise or hamonics may be sounded. The initial note (square notehead) may or may not be a harmonic*

**** Alternate one finger into and out of the bell end of the brass mute (transposing mute)*


9
Fl.
Cl.
Hn.
Pno.
Vln.
Vla.
Vc.
Db.
WT
(tr)
P.1
P.3
SP
ST
sv
mv
ORD

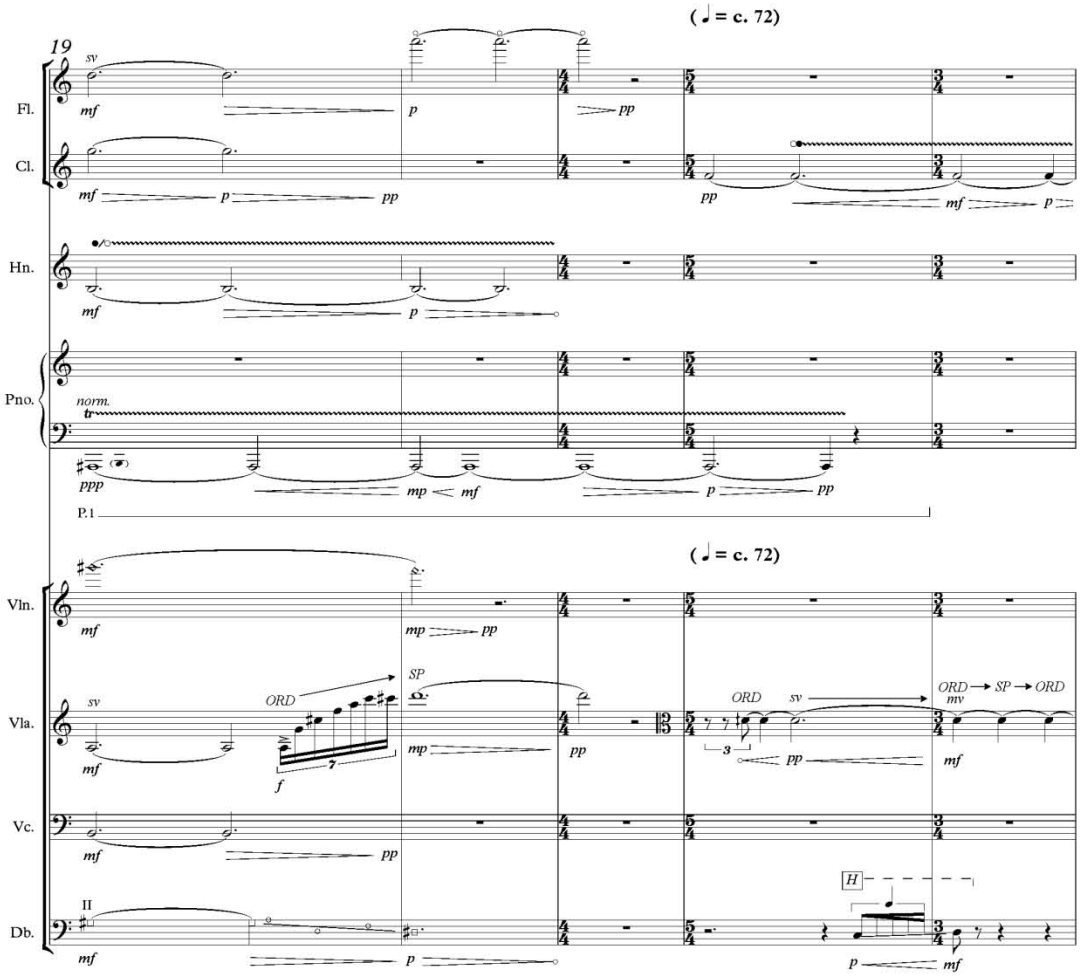
4

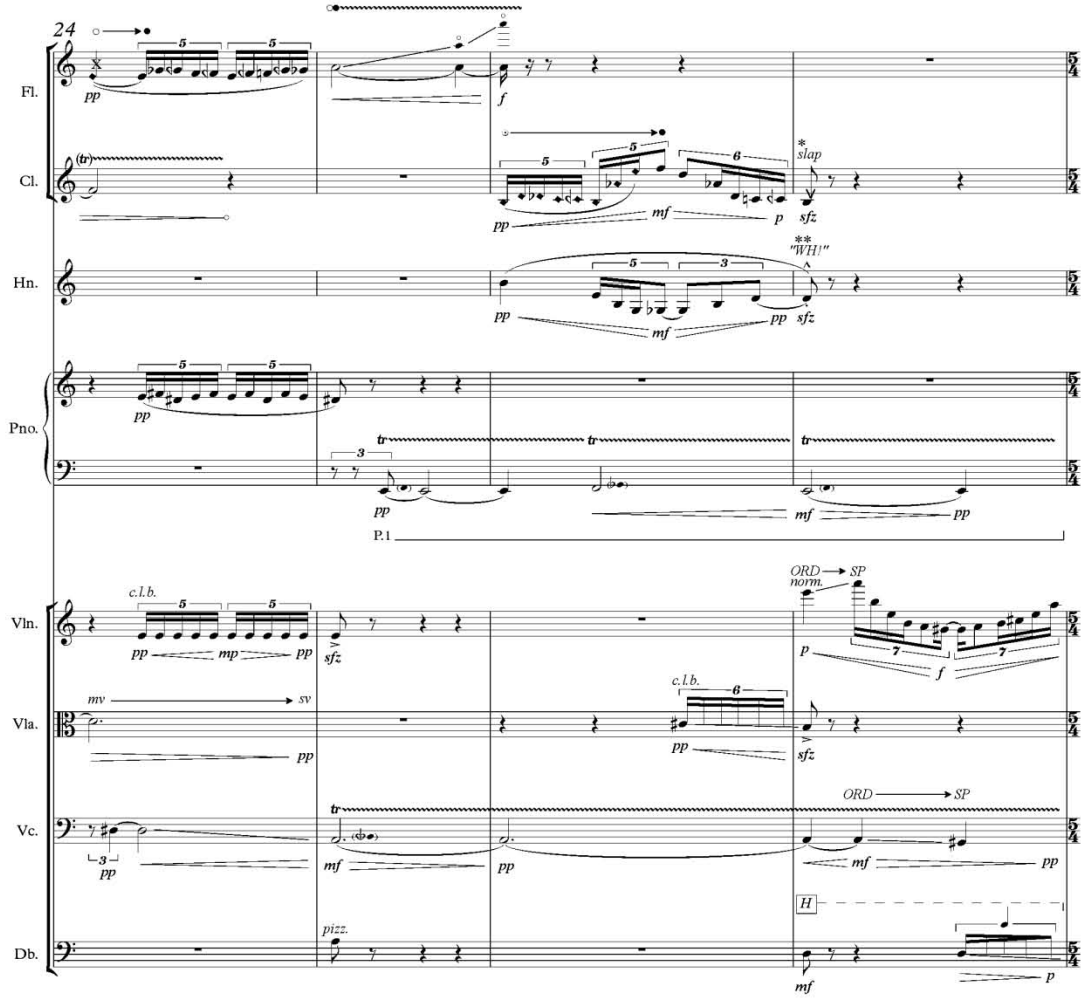




** Slap on the strings at the lowest register with the palm*

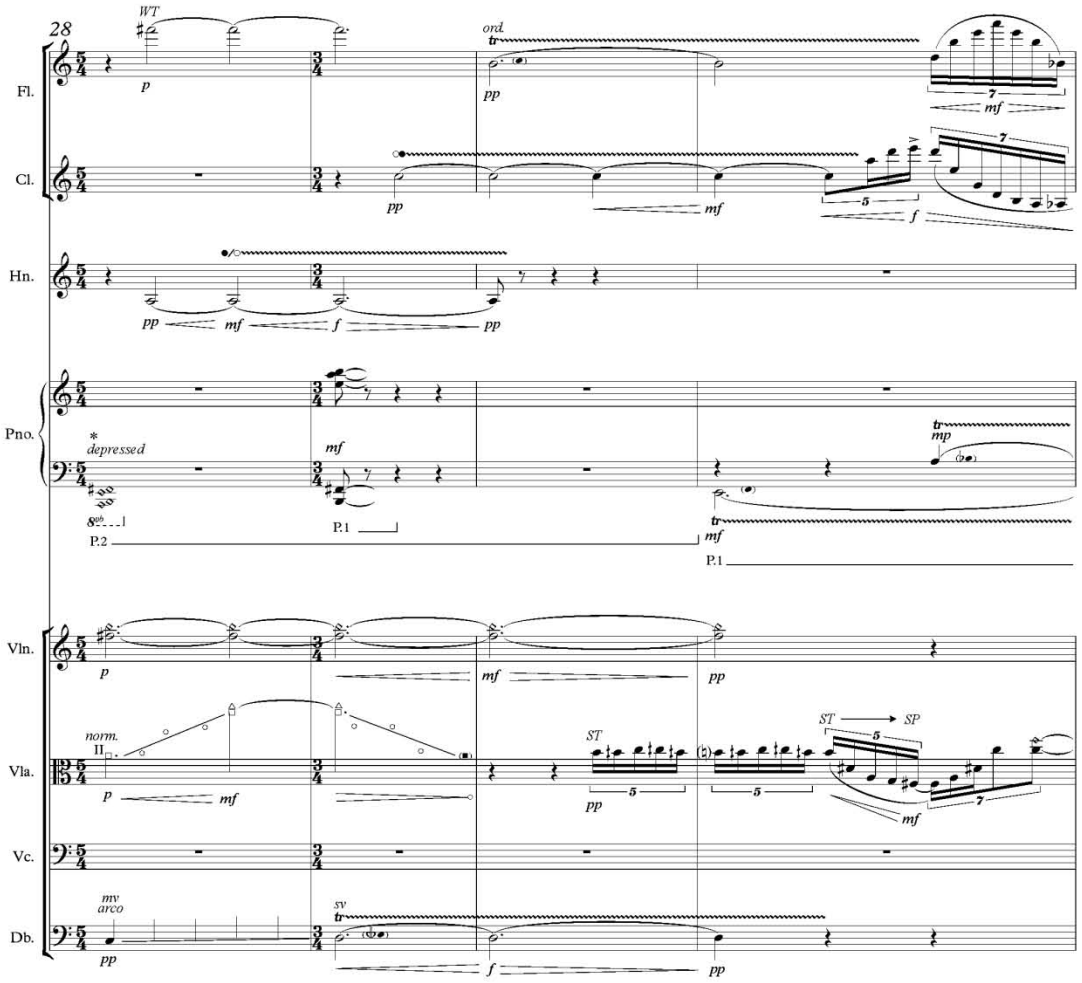
6


(= c. 72)
19
sv
Fl.
Cl.
Hn.
Pno.
norm.
tr
P.1
(= c. 72)
Vln.
Vla.
Vc.
Db.
ORD
SP
ORD
sv
ORD → SP → ORD
mv
H

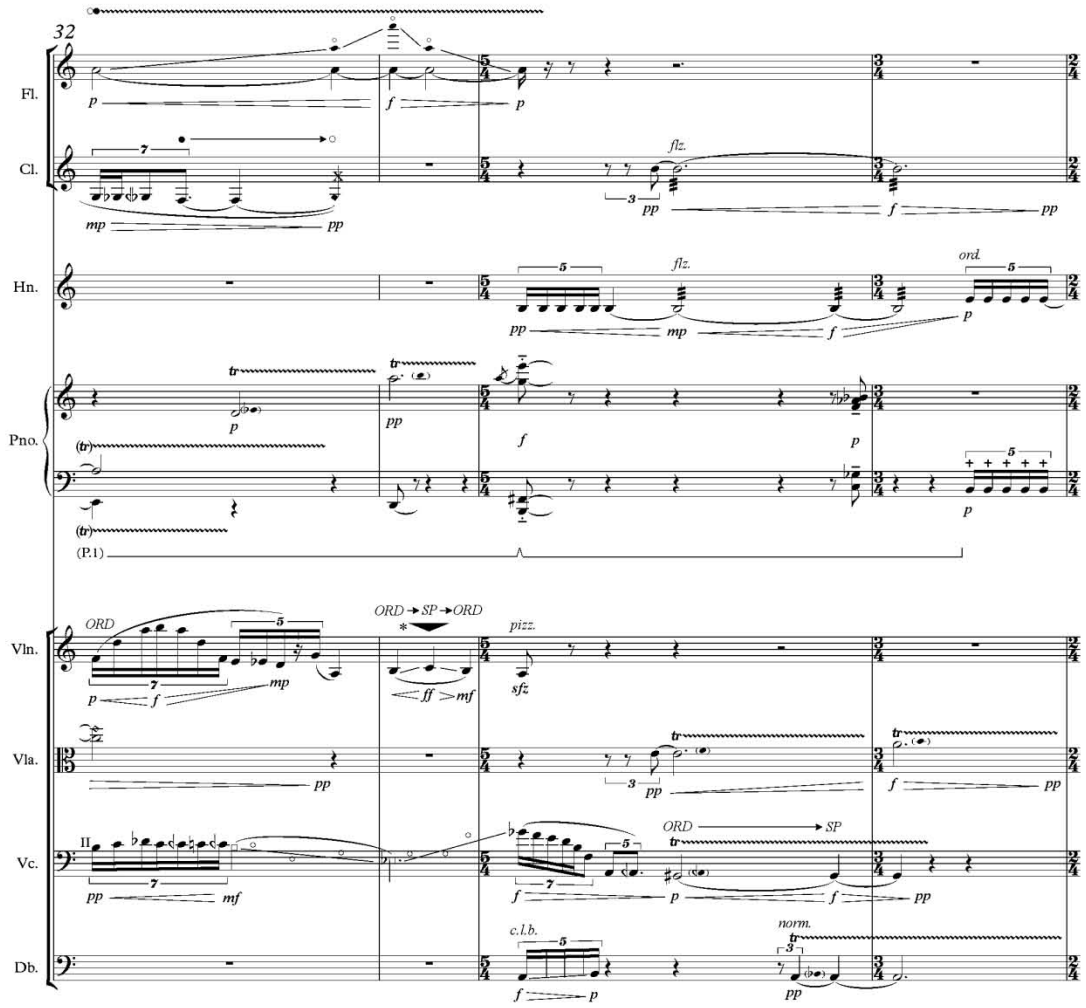


* *Tongue ram to produce a pizzicato-like attack*

** *Blow with a lot of force, as if saying "WHAT!", to produce a strong airy attack*

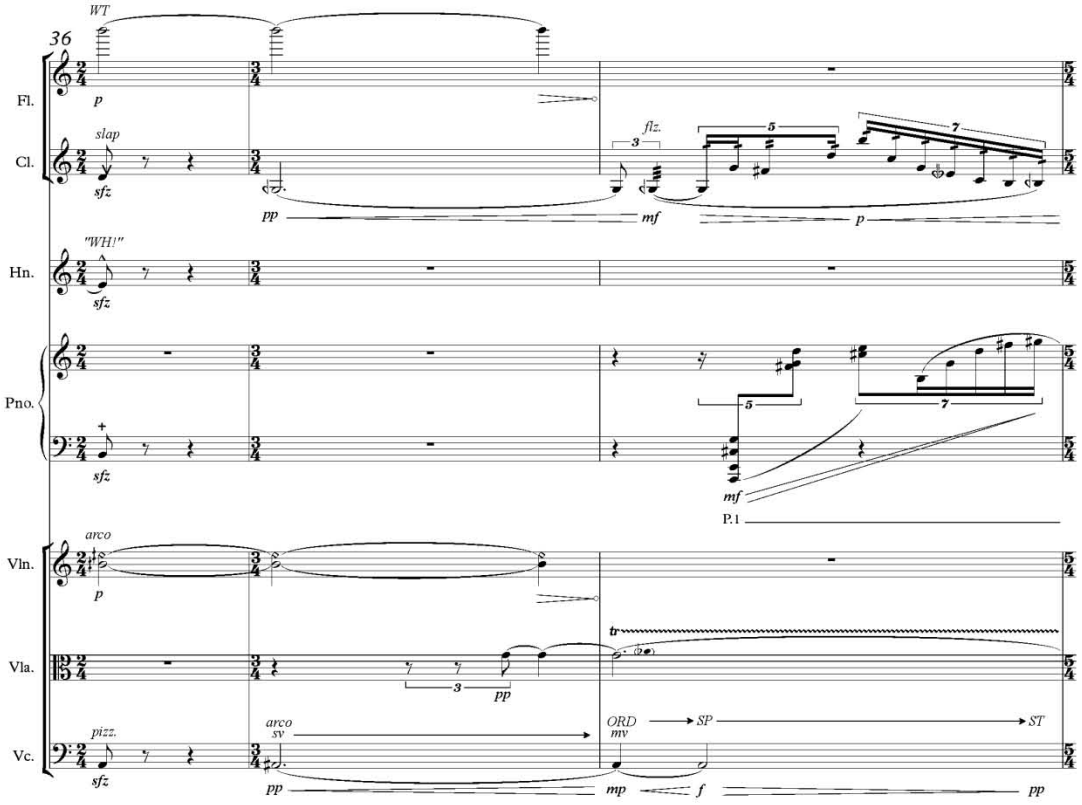


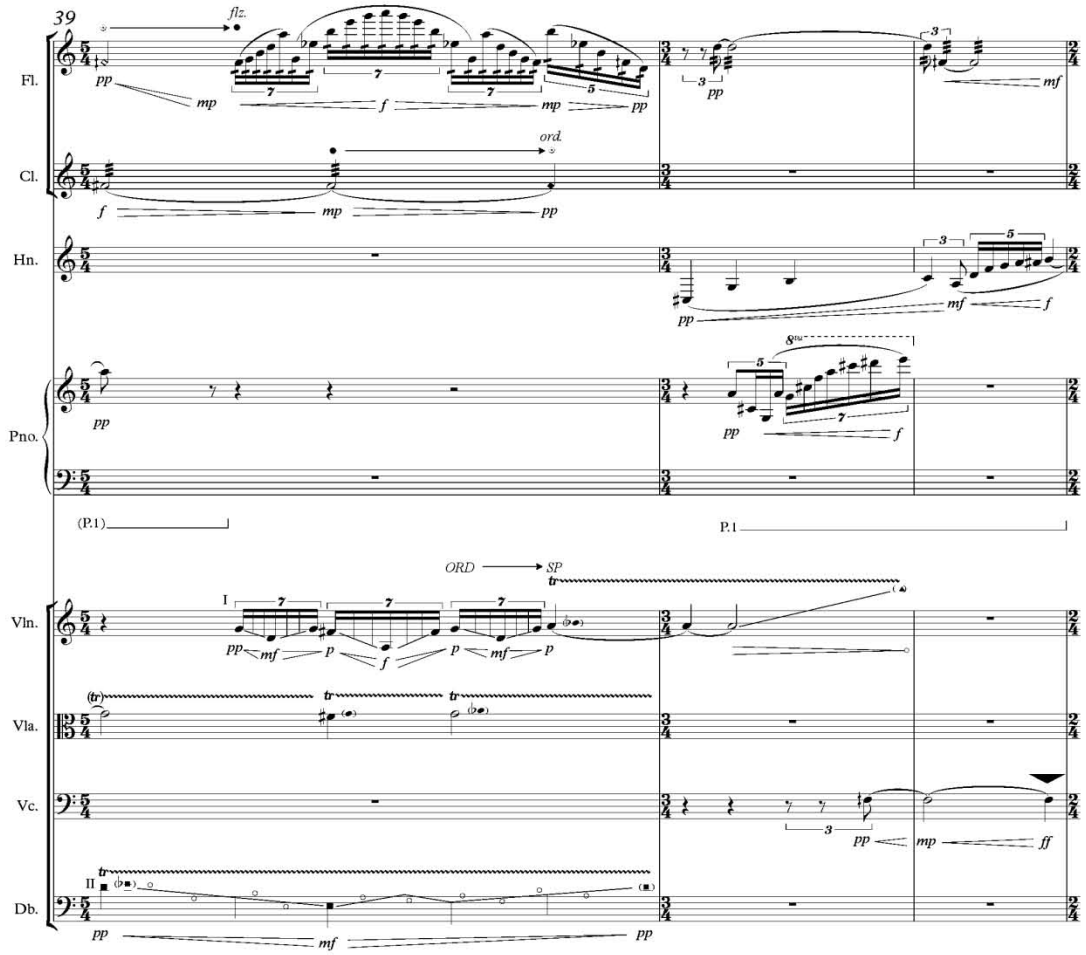
** Depress the indicated notes silently and hold the sostenuto pedal*



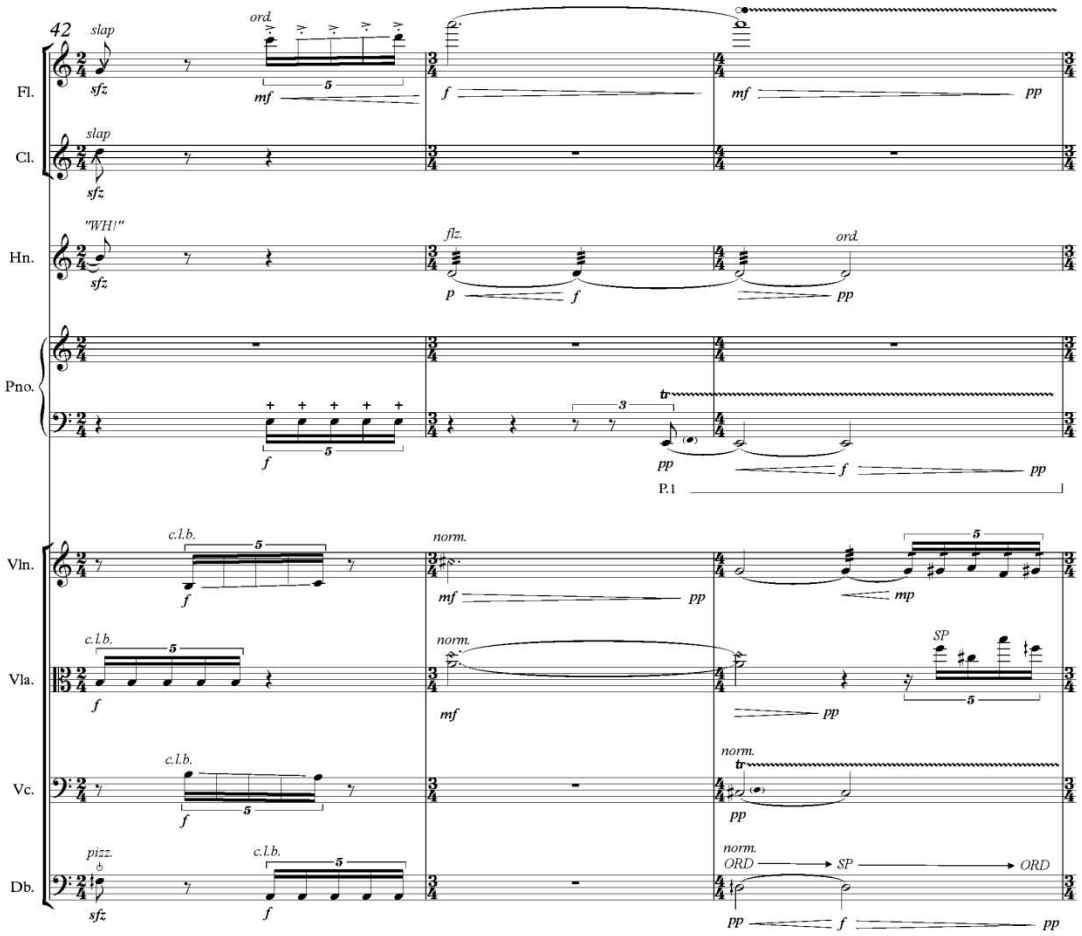
*Overpressure on the bow

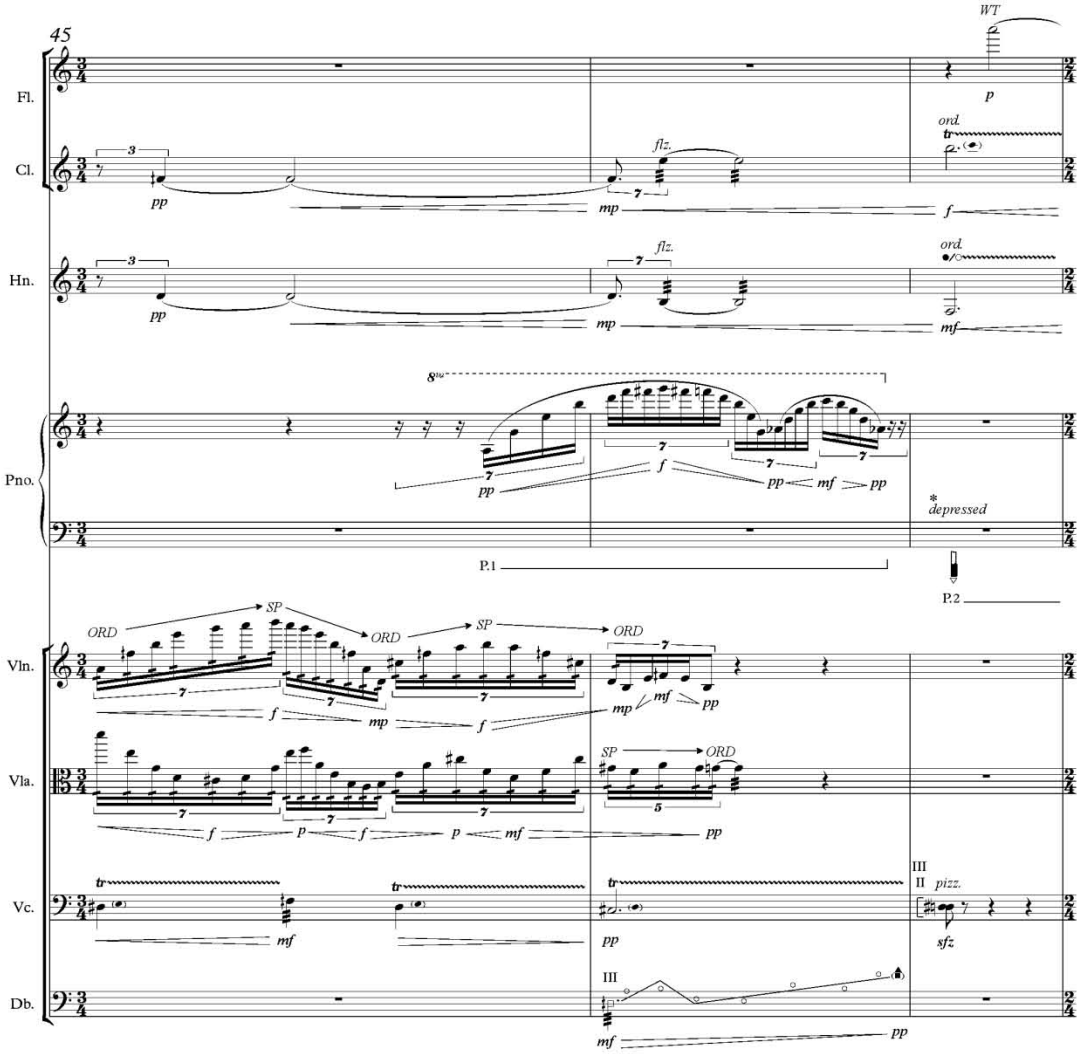
10


WT
36
Fl.
p
Cl.
slap
sfz
flz.
3
5
7
pp
mf
p
"WH!"
Hn.
sfz
Pno.
sfz
5
7
mf
P.1
arco
Vln.
p
tr
Vla.
3
pp
pizz.
Vc.
sfz
arco
sv
ORD
mv
SP
ST
pp
mp
f
pp


39
flz.
Fl.
Cl.
ord.
Hn.
Pno.
(P.1)
P.1
ORD
SP
Vln.
Vla.
Vc.
Db.

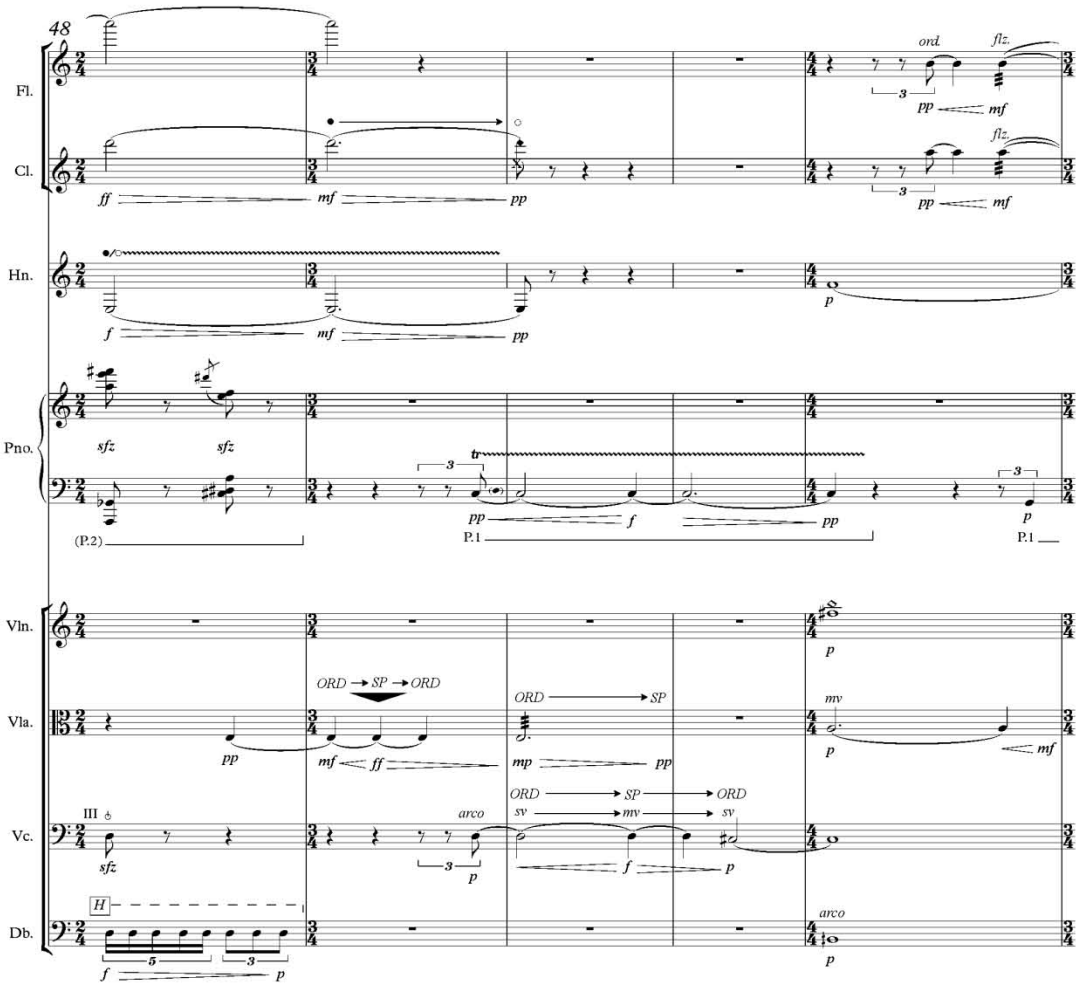
12

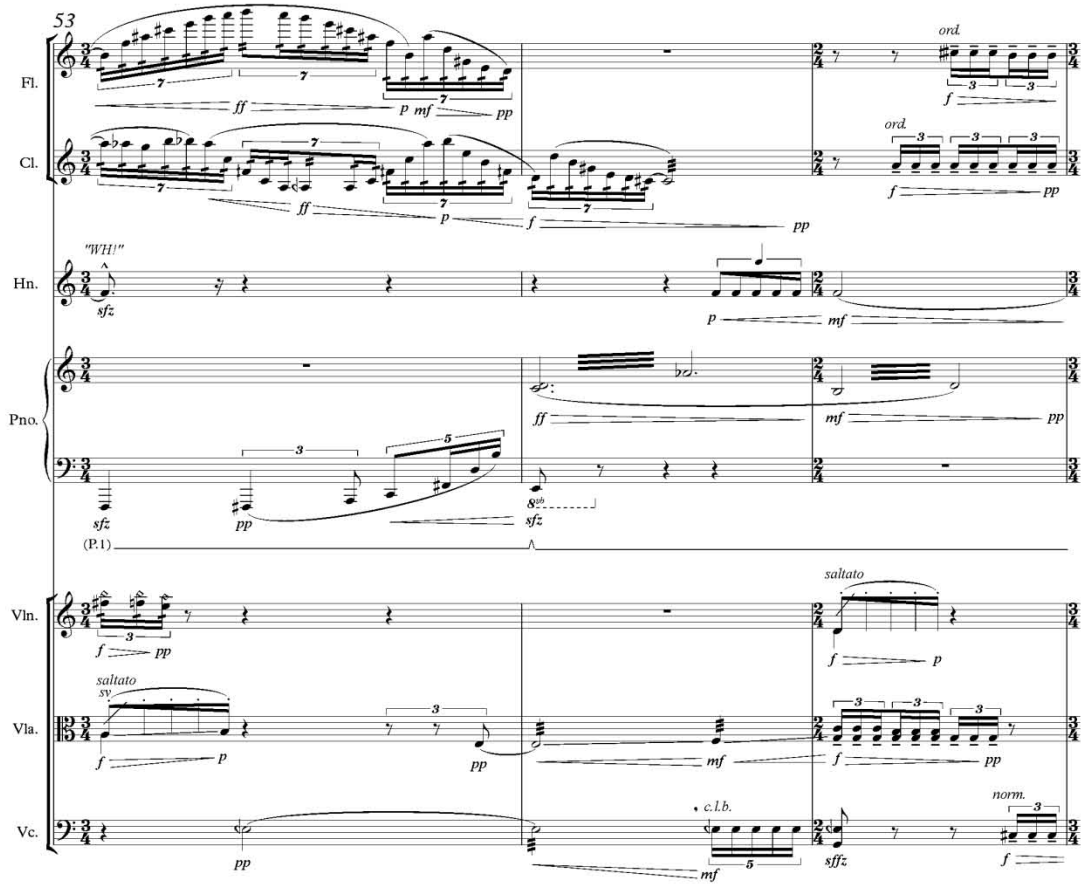

42
Fl.
Cl.
Hn.
Pno.
Vln.
Vla.
Vc.
Db.
slap
ord.
"WH!"
flz.
c.l.b.
norm.
pizz.
SP
ORD
P.1



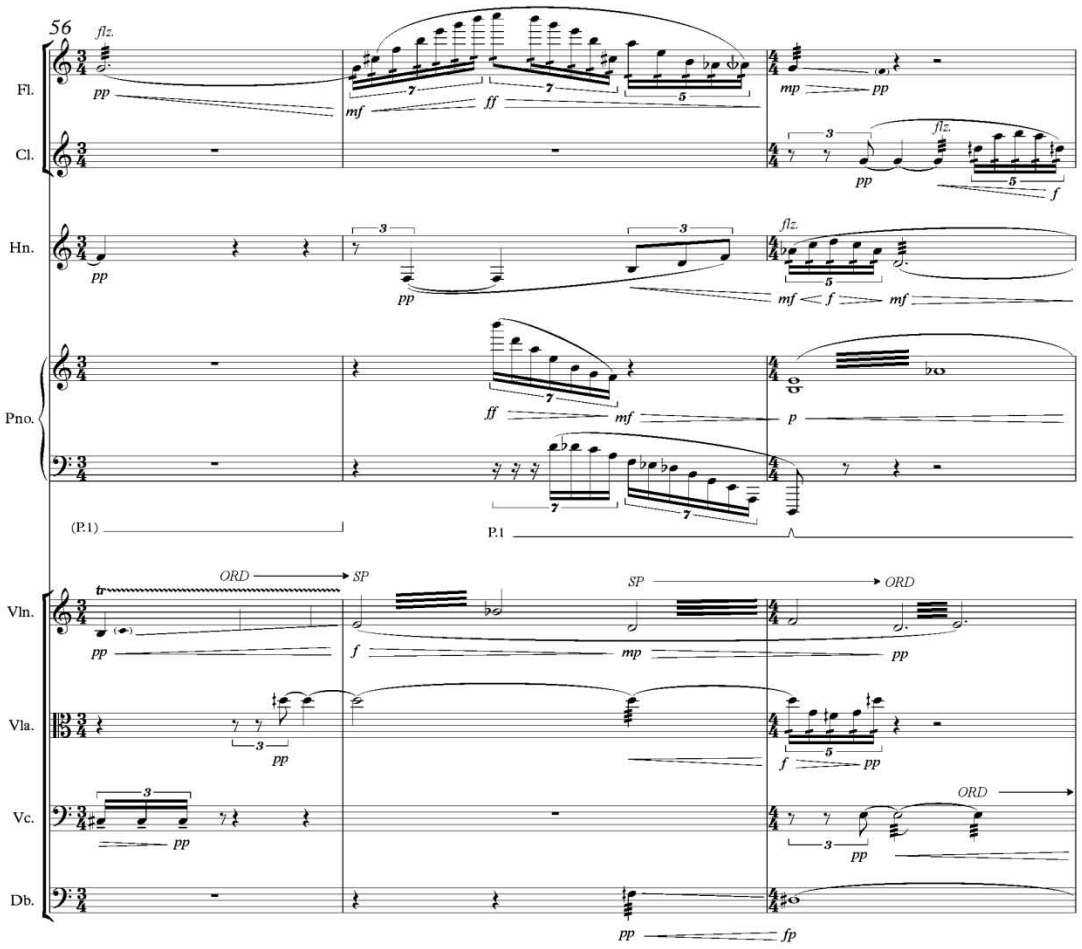
** Using the palms, depress - silently - as many black & white keys at the lowest register as possible*

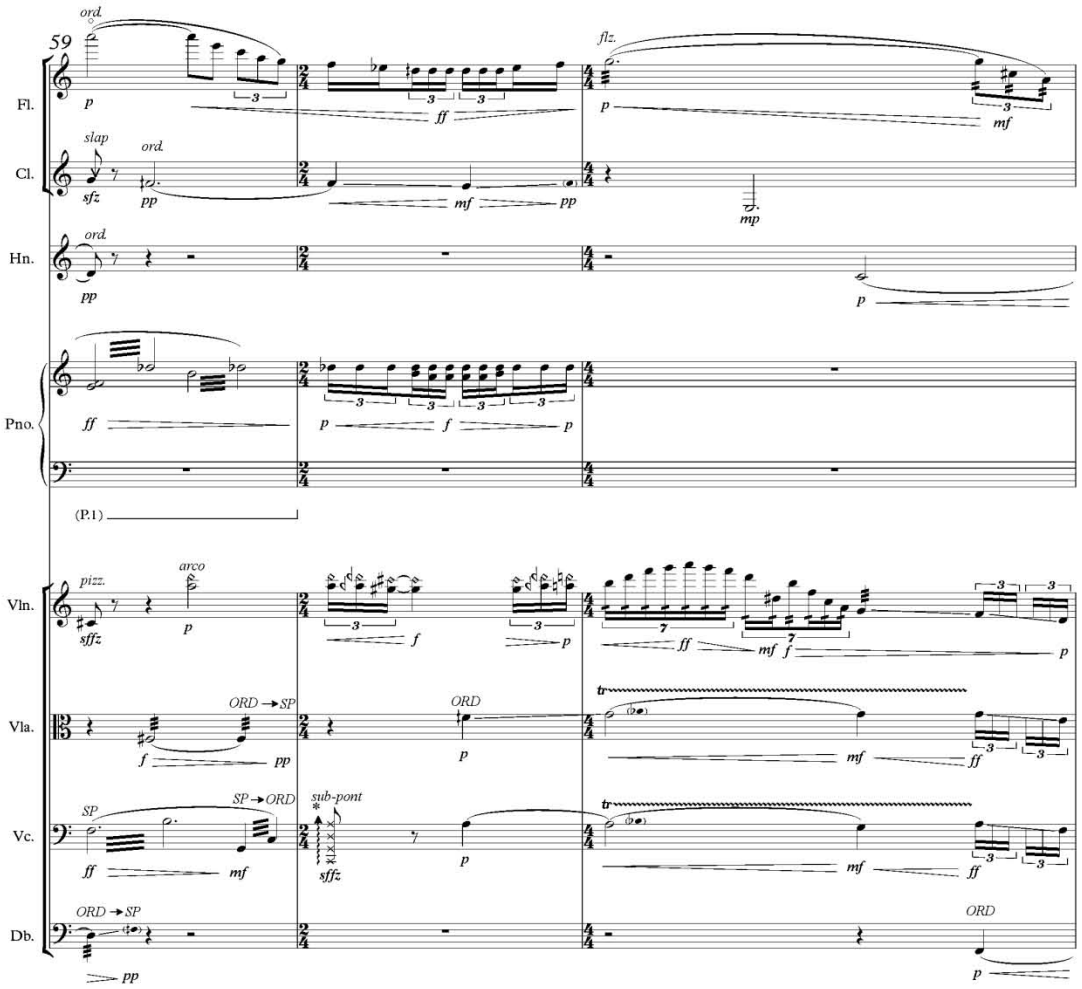
14


48
Fl.
Cl.
Hn.
Pno.
Vln.
Vla.
Vc.
Db.
ord.
flz.
ff
mf
pp
f
sfz
tr
(P.2)
P.1
ORD → SP → ORD
ORD → SP
mv
sv
arco
III
H


53
Fl.
Cl.
Hn.
Pno.
Vln.
Vla.
Vc.
"WH!"
ord.
saltato
sv
c.l.b.
norm.
(P.1)

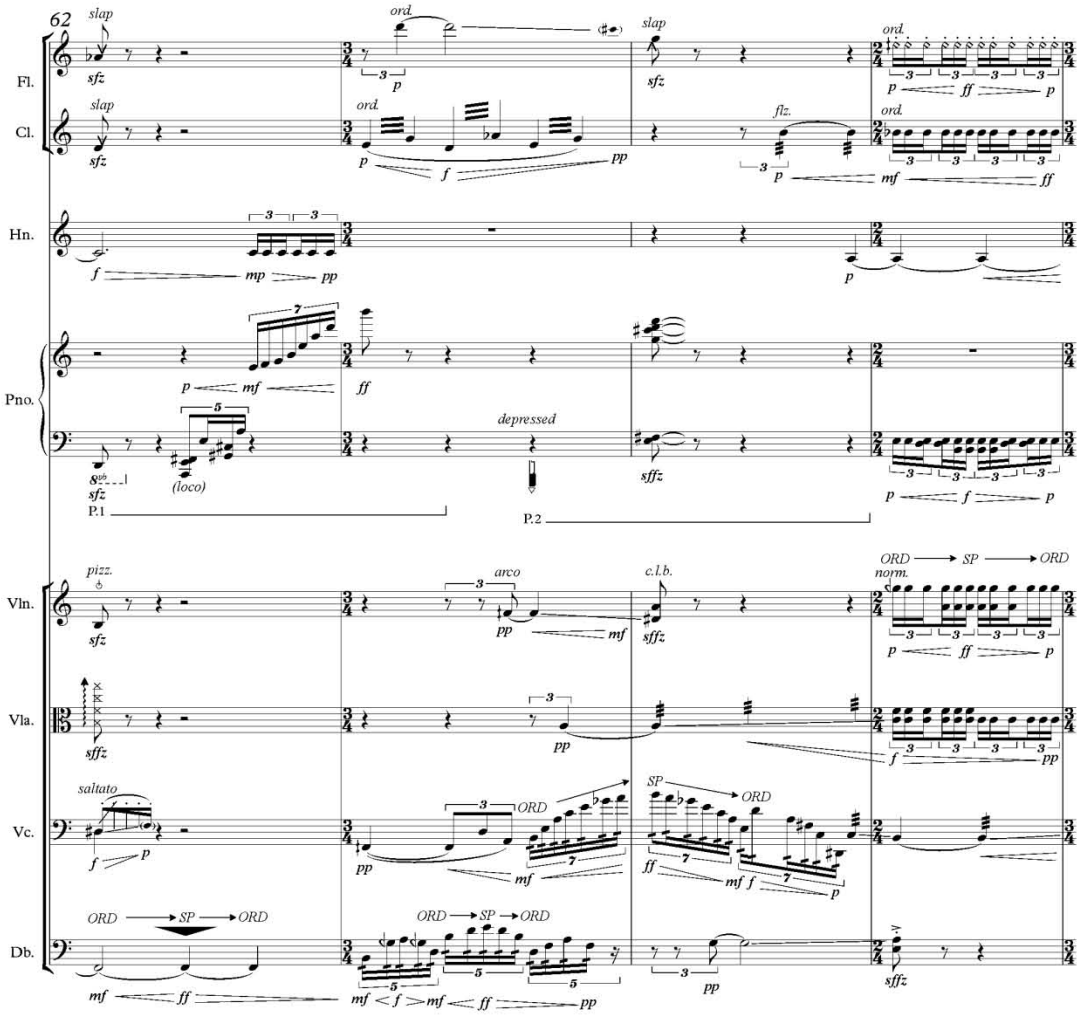
16

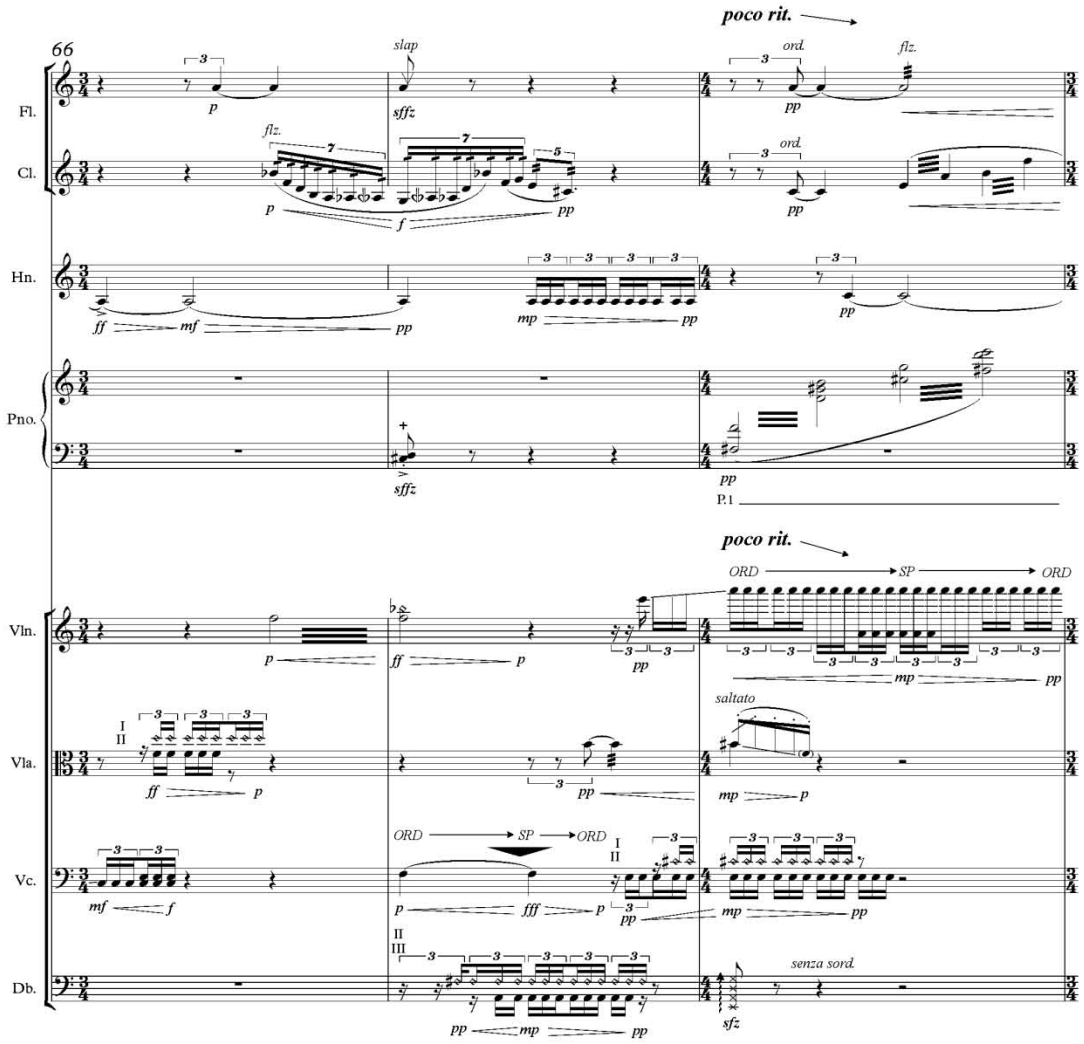




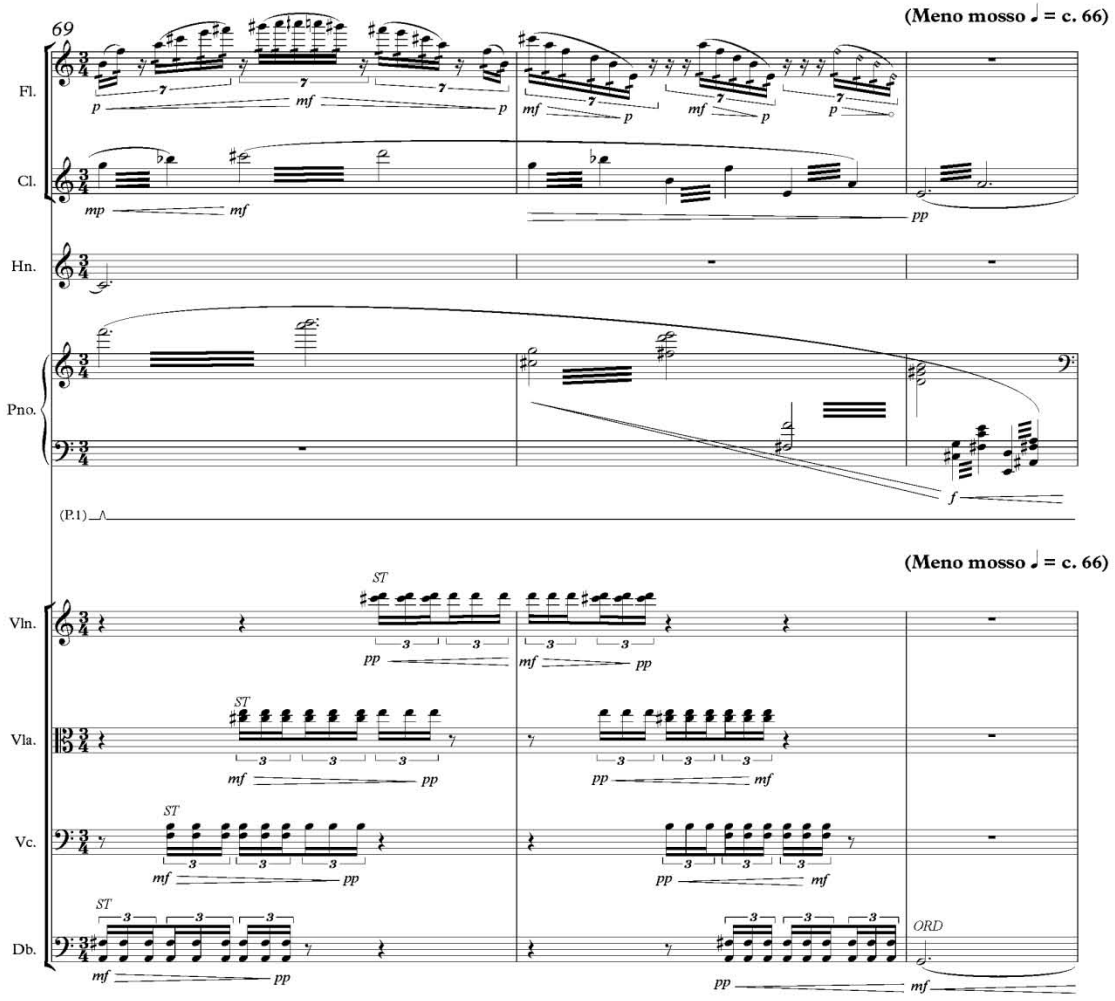
** Sub ponticello: play behind the bridge*

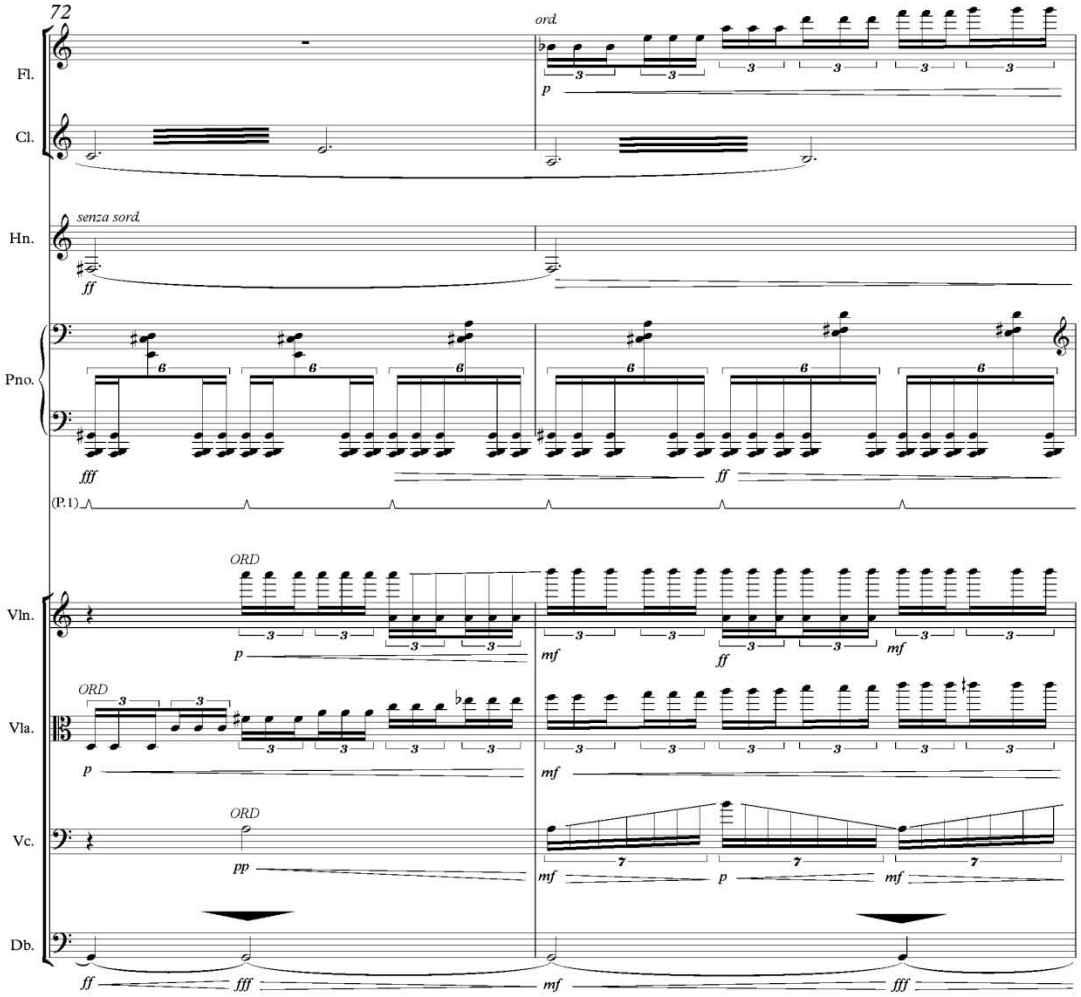
18

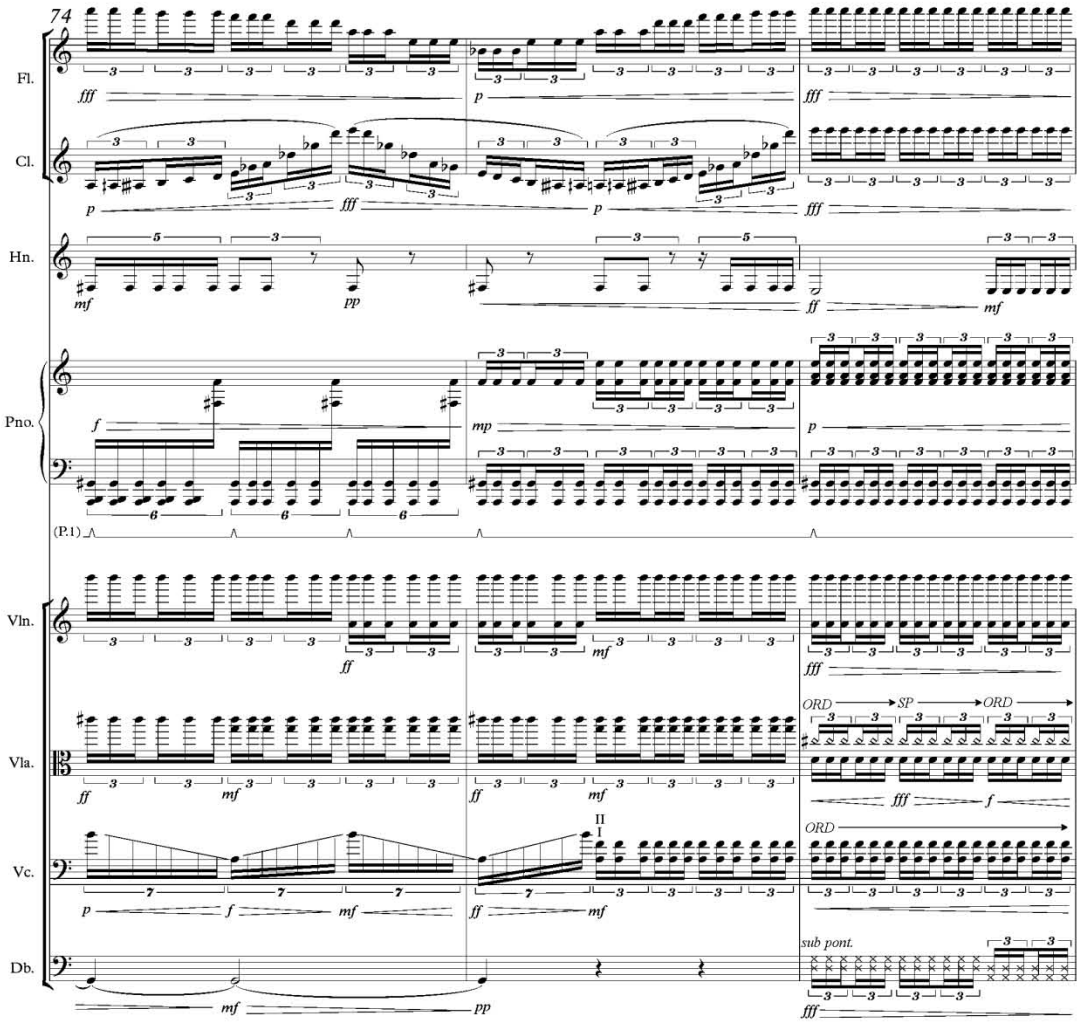

62
Fl.
Cl.
Hn.
Pno.
Vln.
Vla.
Vc.
Db.
slap
ord.
flz.
depressed
(loco)
P.1
P.2
pizz.
arco
c.l.b.
norm.
saltato
ORD
SP

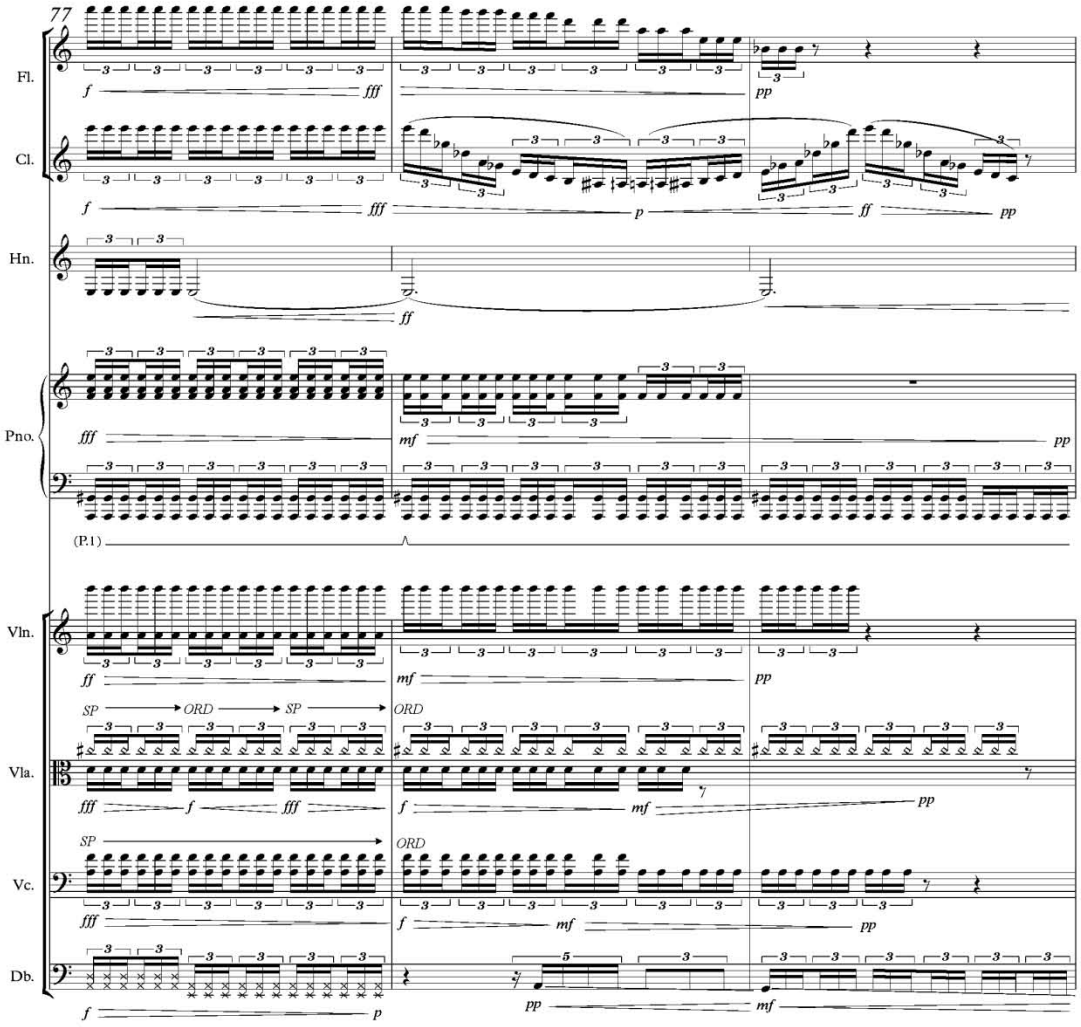

66
poco rit.
Fl.
Cl.
Hn.
Pno.
Vln.
Vla.
Vc.
Db.
slap
flz.
ord.
P.1
ORD
SP
saltato
senza sord.

20

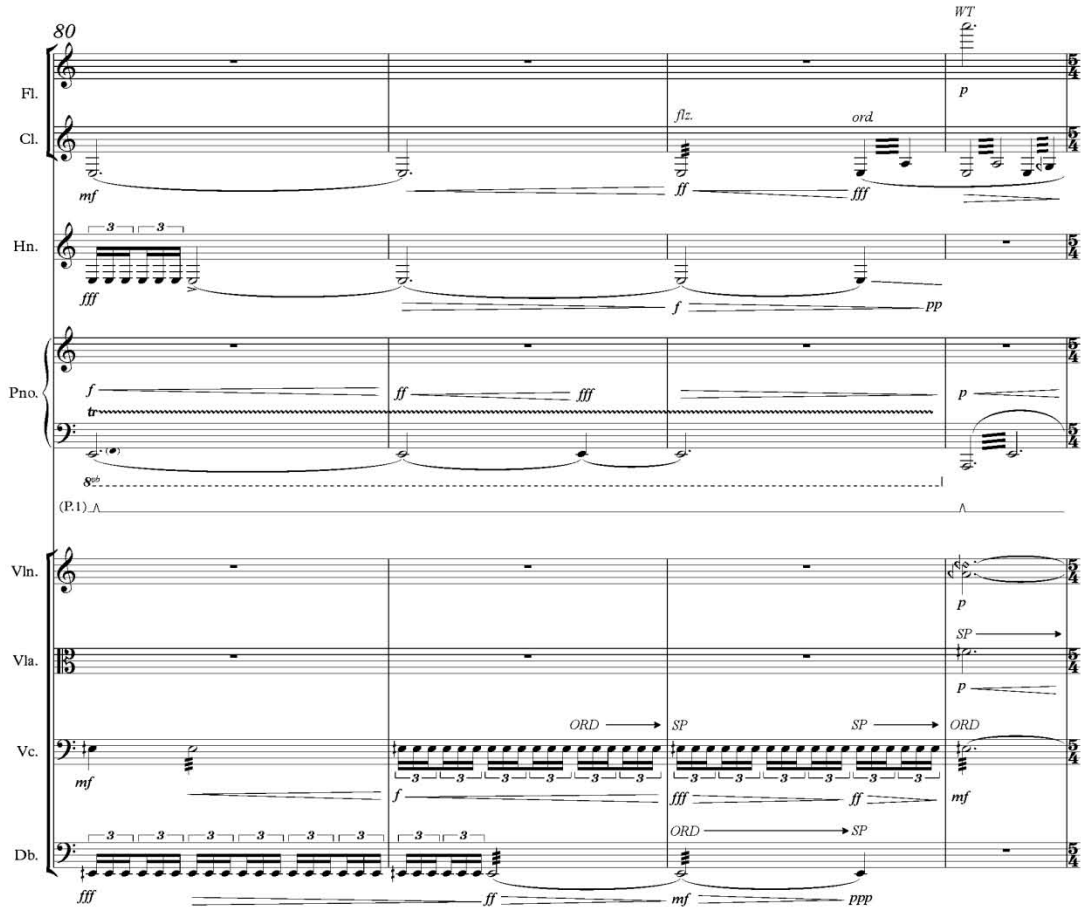

69
(Meno mosso ♩ = c. 66)
Fl.
Cl.
Hn.
Pno.
(P.1)
(Meno mosso ♩ = c. 66)
Vln.
Vla.
Vc.
Db.
ST
ORD

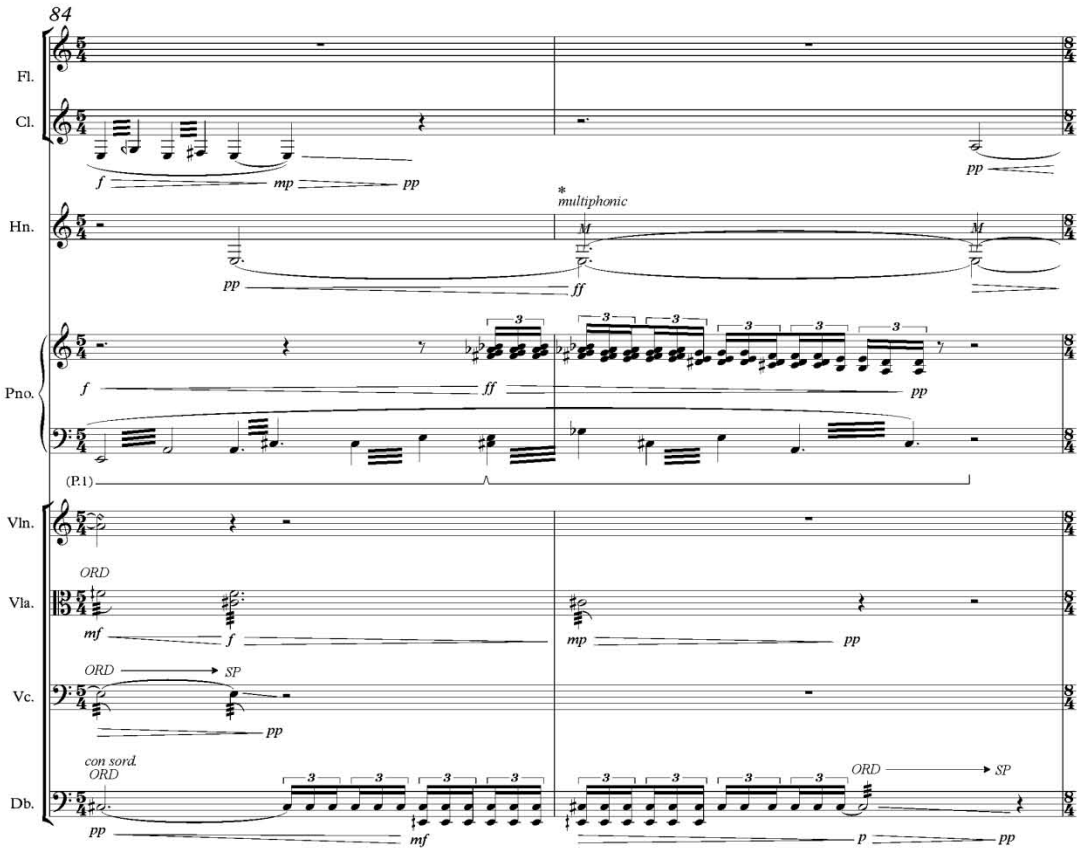

72
Fl.
Cl.
Hn.
Pno.
Vln.
Vla.
Vc.
Db.
ord.
senza sord.
ORD
(P.1)


74
Fl.
Cl.
Hn.
Pno.
(P.1)
Vln.
Vla.
Vc.
Db.
ORD
SP
ORD
ORD
sub pont.


77
Fl.
Cl.
Hn.
Pno.
(P.1)
Vln.
Vla.
Vc.
Db.
SP
ORD
SP
ORD
SP
ORD

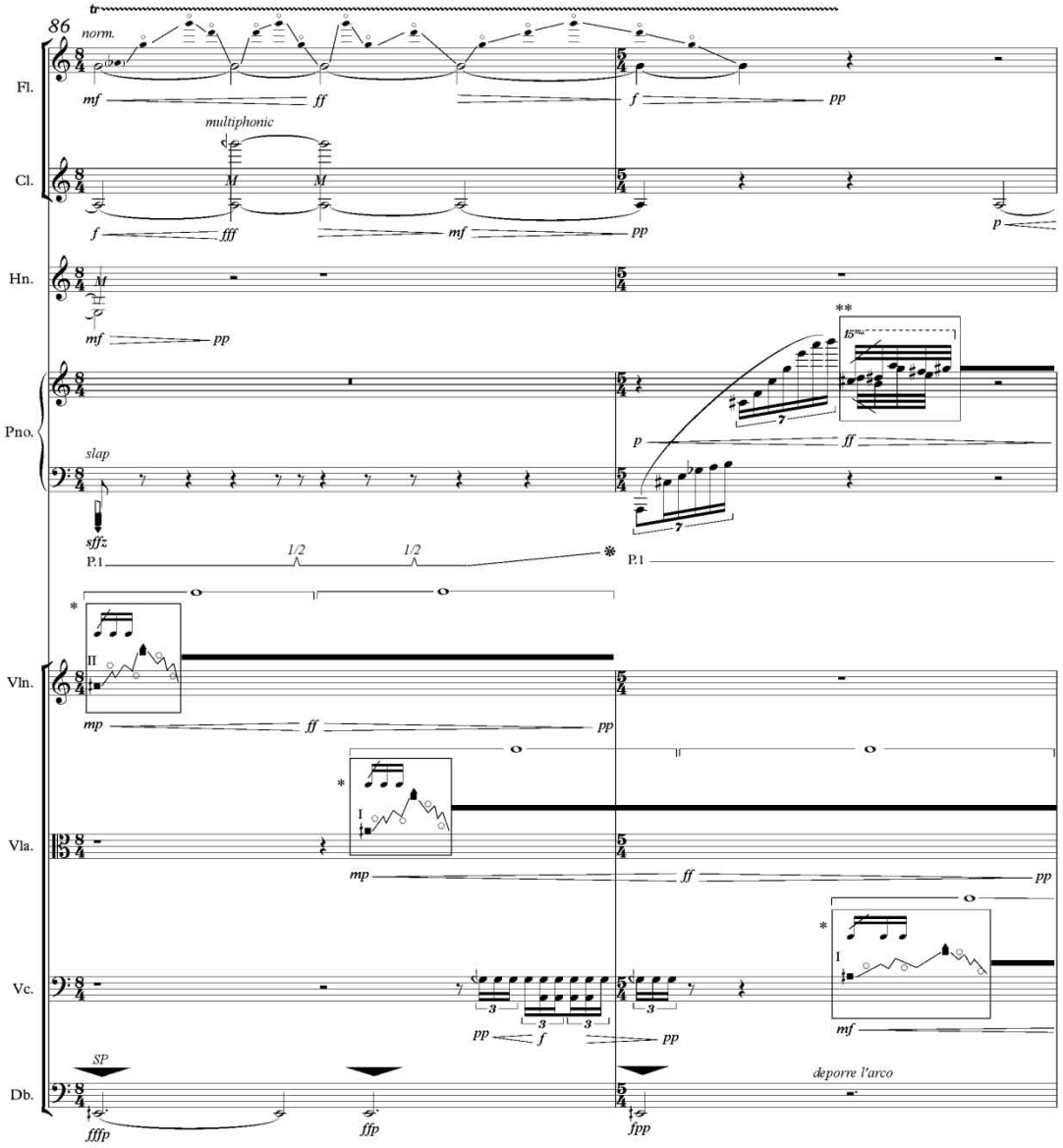
24





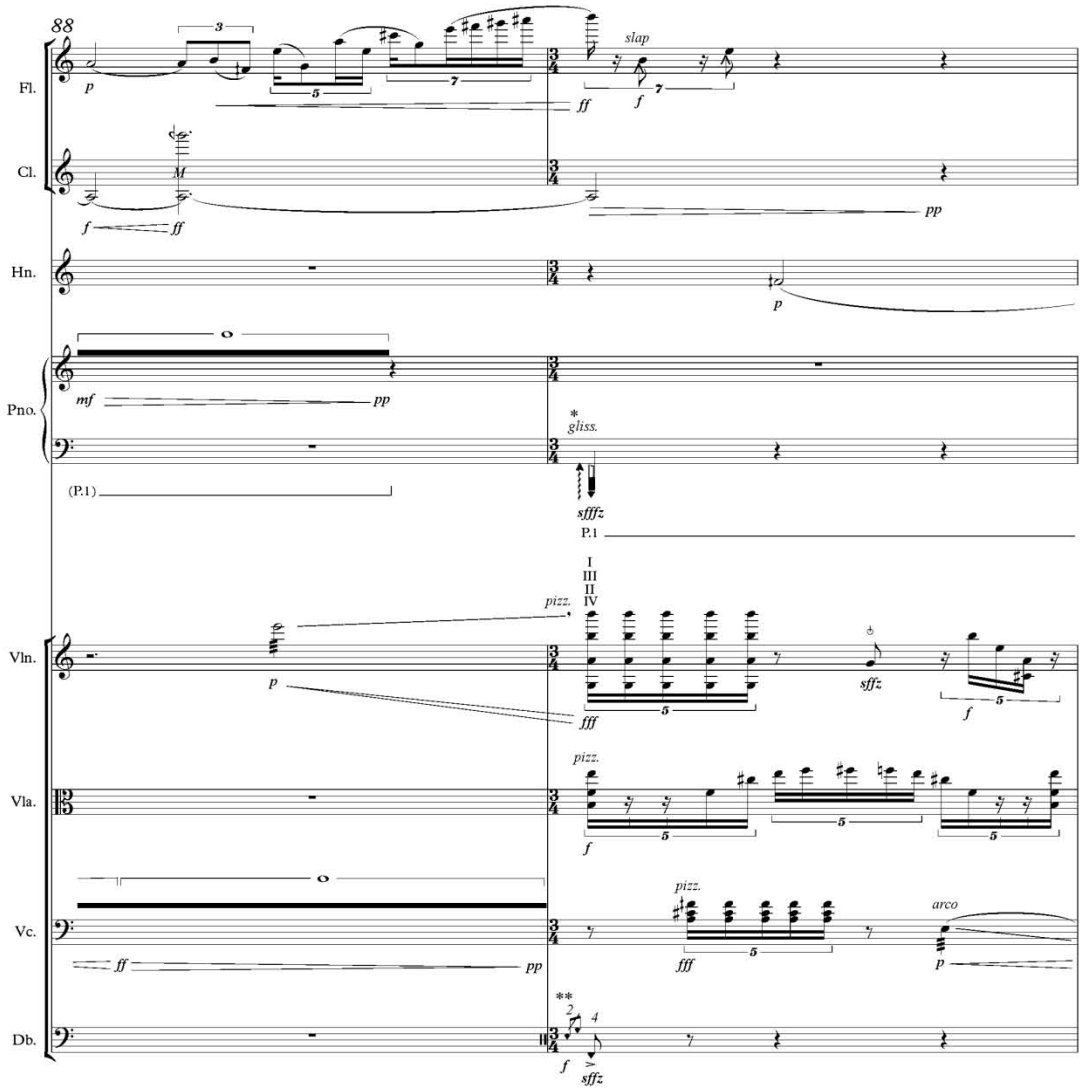
*Sing the upper note while playing the bottom one

26



* Play harmonic gliss. in a triplet-like rhythm as rapidly as possible according to the contour (ad lib.); repeat until end of the line

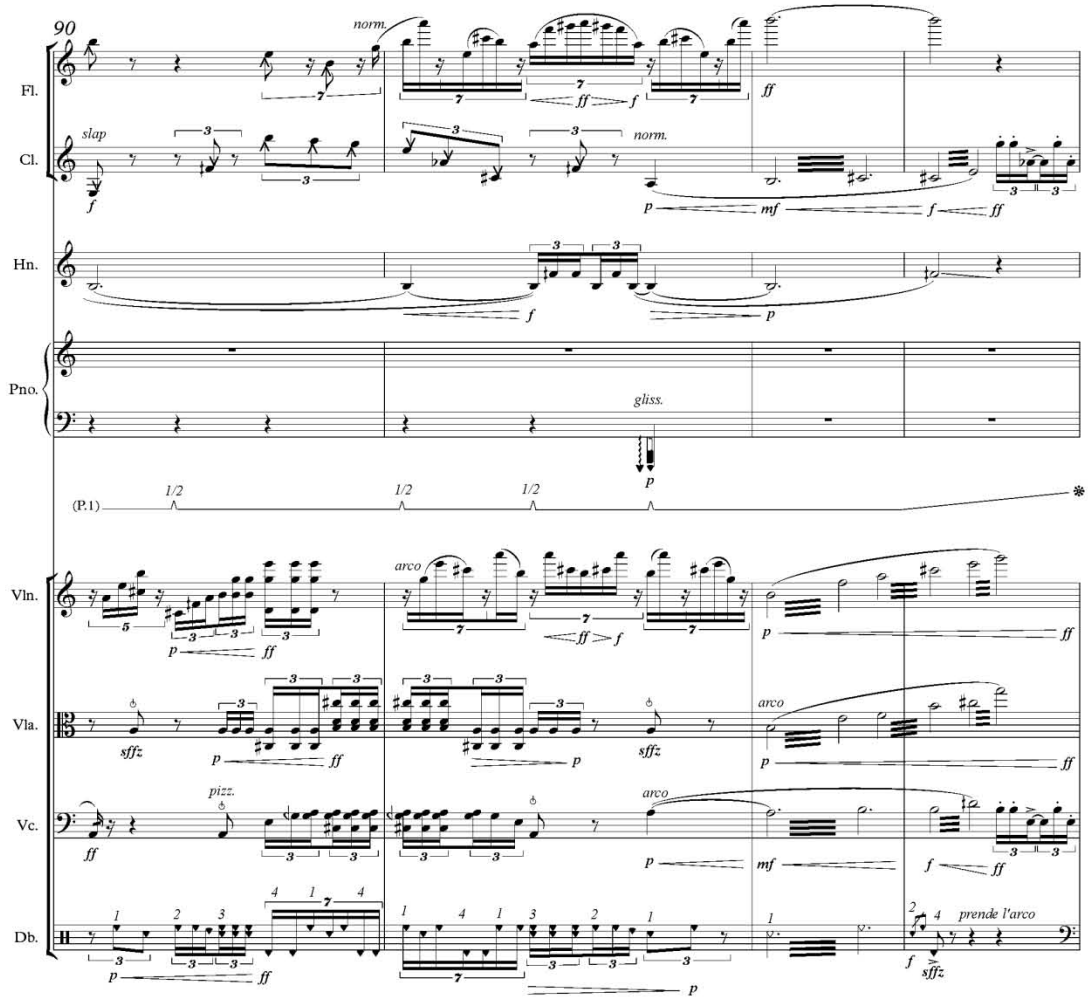
** Play the notes in the box as fast as possible until end of the duration indicated

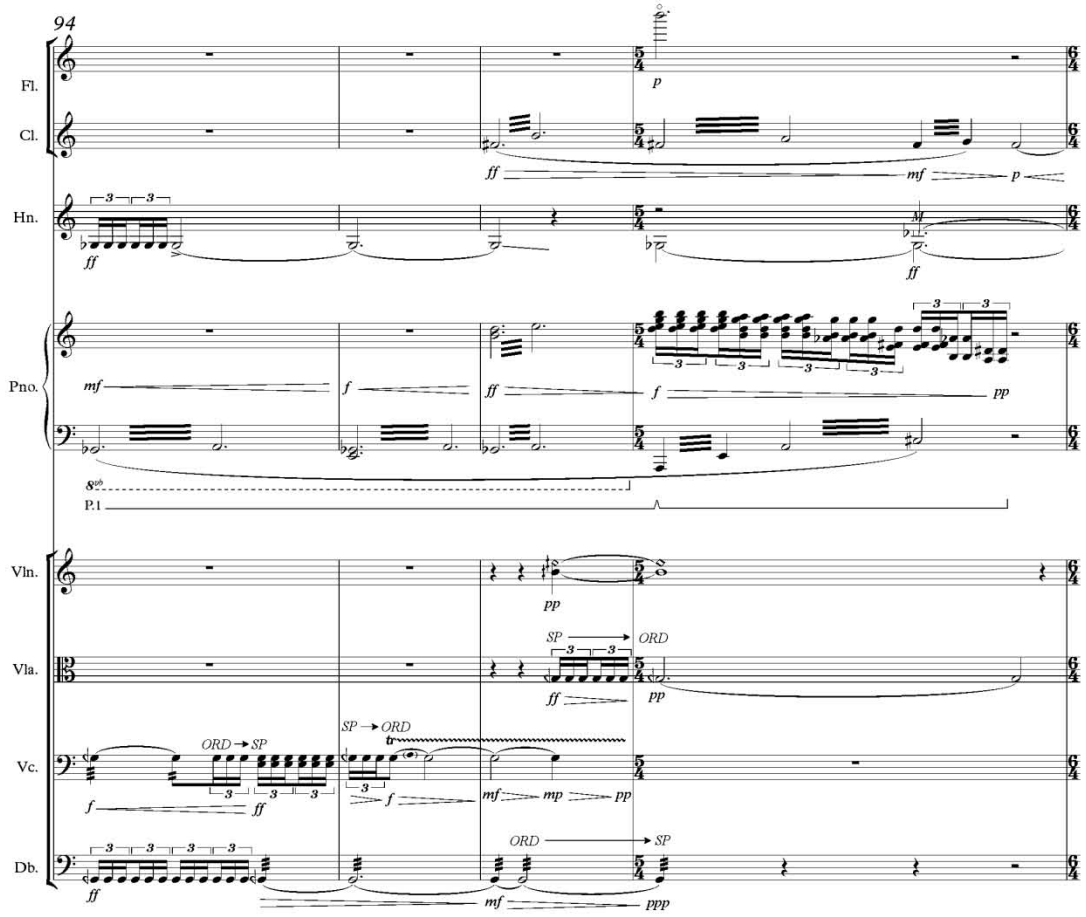


* *Gliss. on the strings at the lowest register as bound by the most leftward section of the frame*

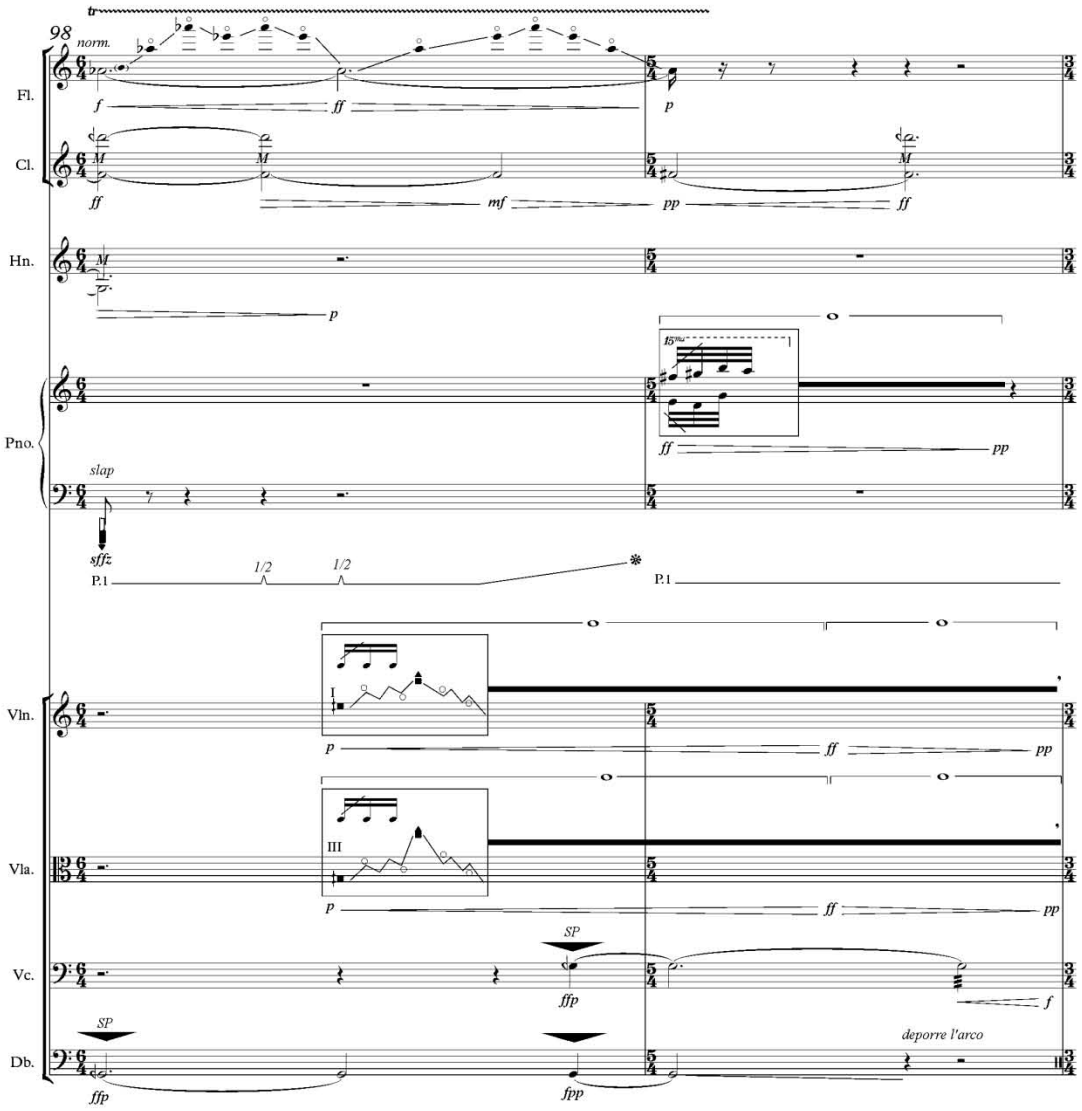
** *Slap on either side of the body of the double bass according to the relative 'pitch' of the attack: higher two notes to be played on the upper bout, lower on the bottom; number indicates the number of fingers to be used; either hand can be used at each instant*

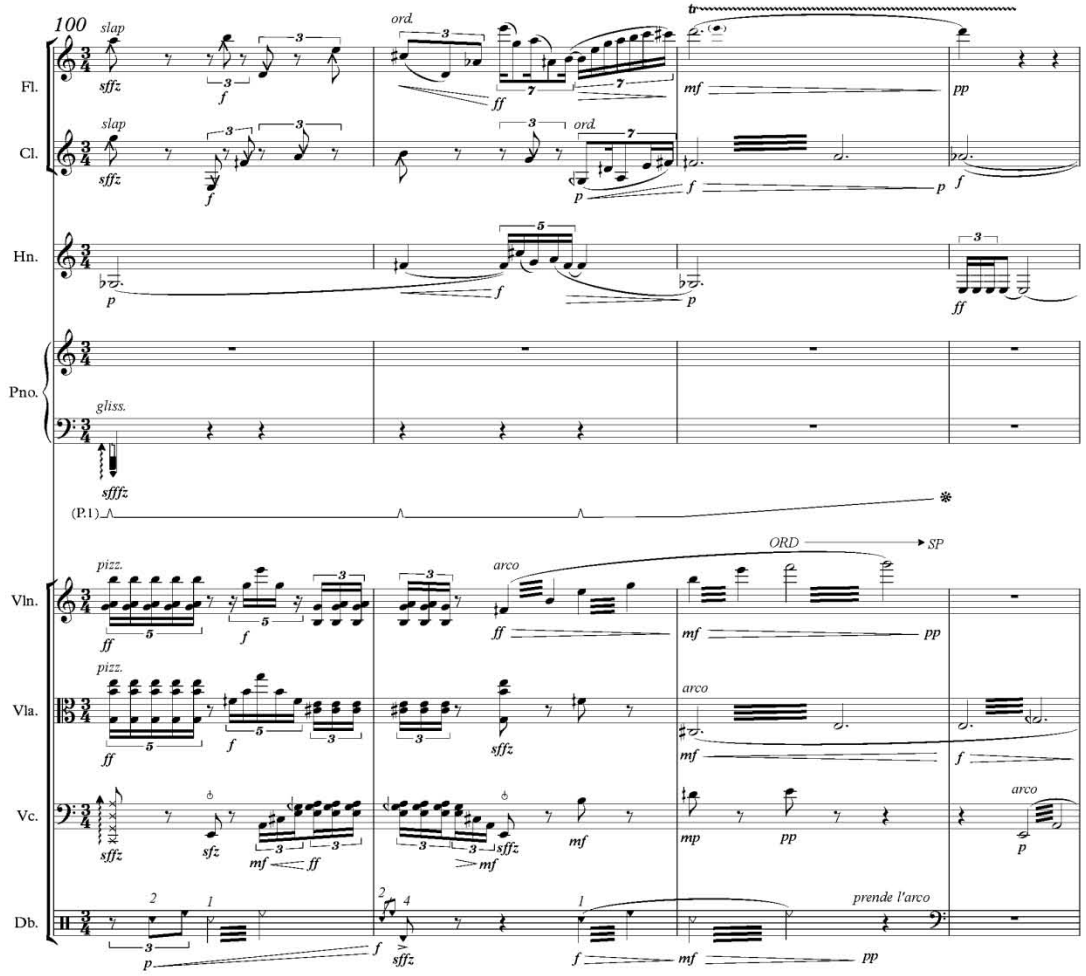
28


90
Fl.
Cl.
Hn.
Pno.
Vln.
Vla.
Vc.
Db.
norm.
slap
norm.
gliss.
(P.1)
1/2
1/2
1/2
arco
arco
arco
pizz.
prende l'arco

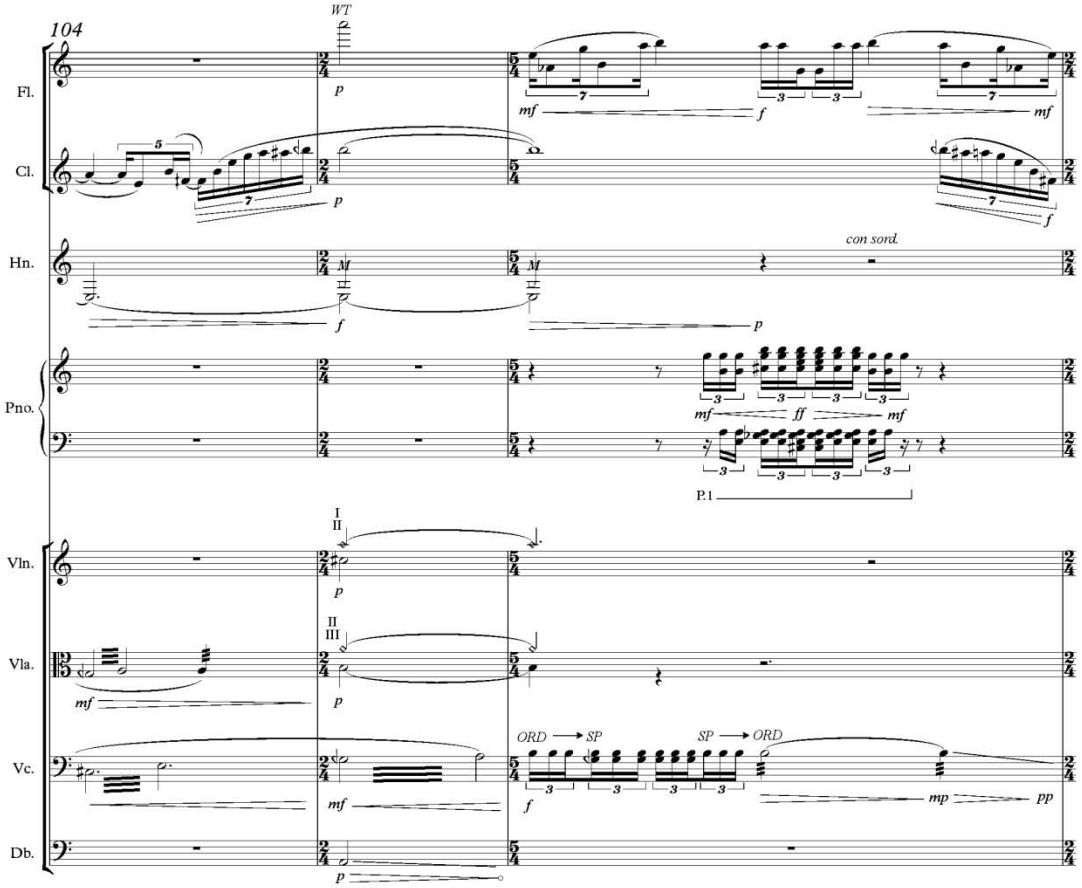

94
Fl.
Cl.
Hn.
Pno.
Vln.
Vla.
Vc.
Db.
P.1
SP → ORD
ORD → SP

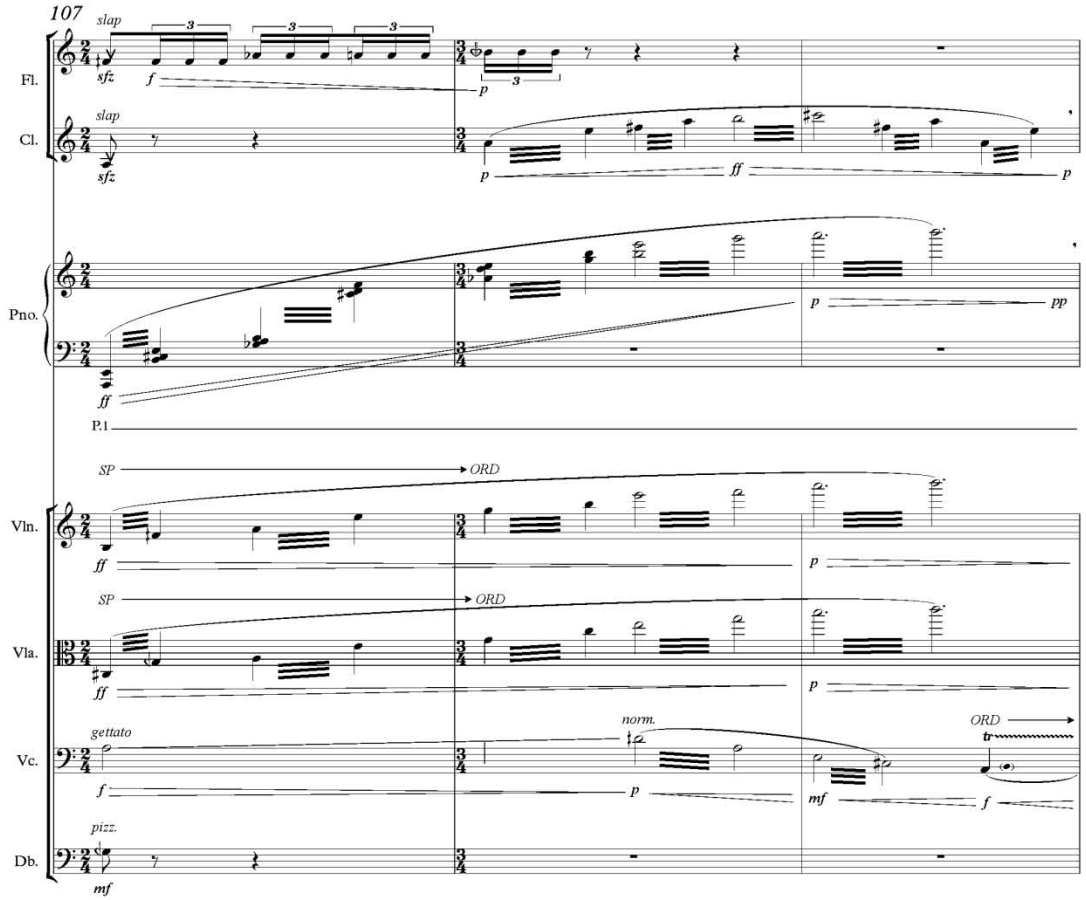
30



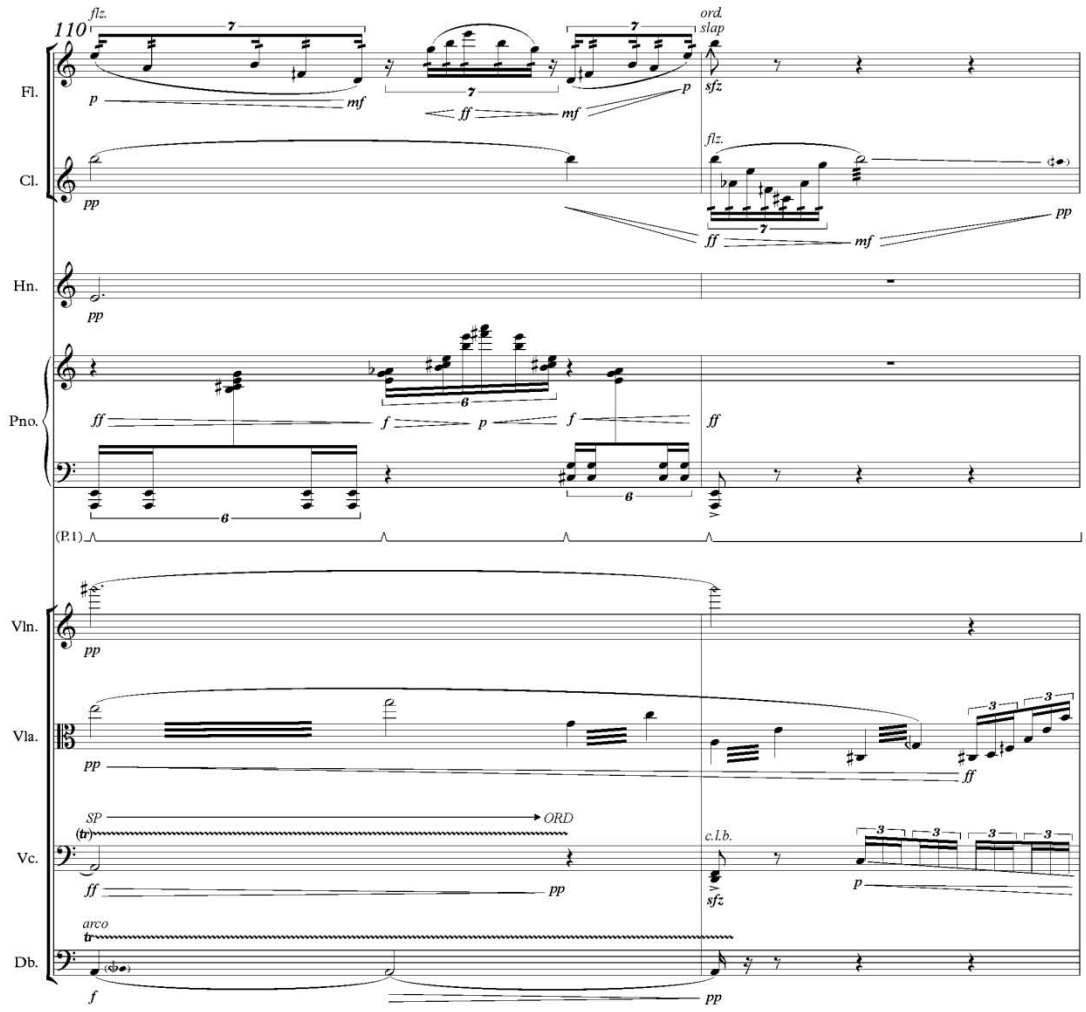

100
Fl.
Cl.
Hn.
Pno.
Vln.
Vla.
Vc.
Db.
slap
ord.
tr
gliss.
(P.1)
pizz.
arco
ORD
SP
prende l'arco

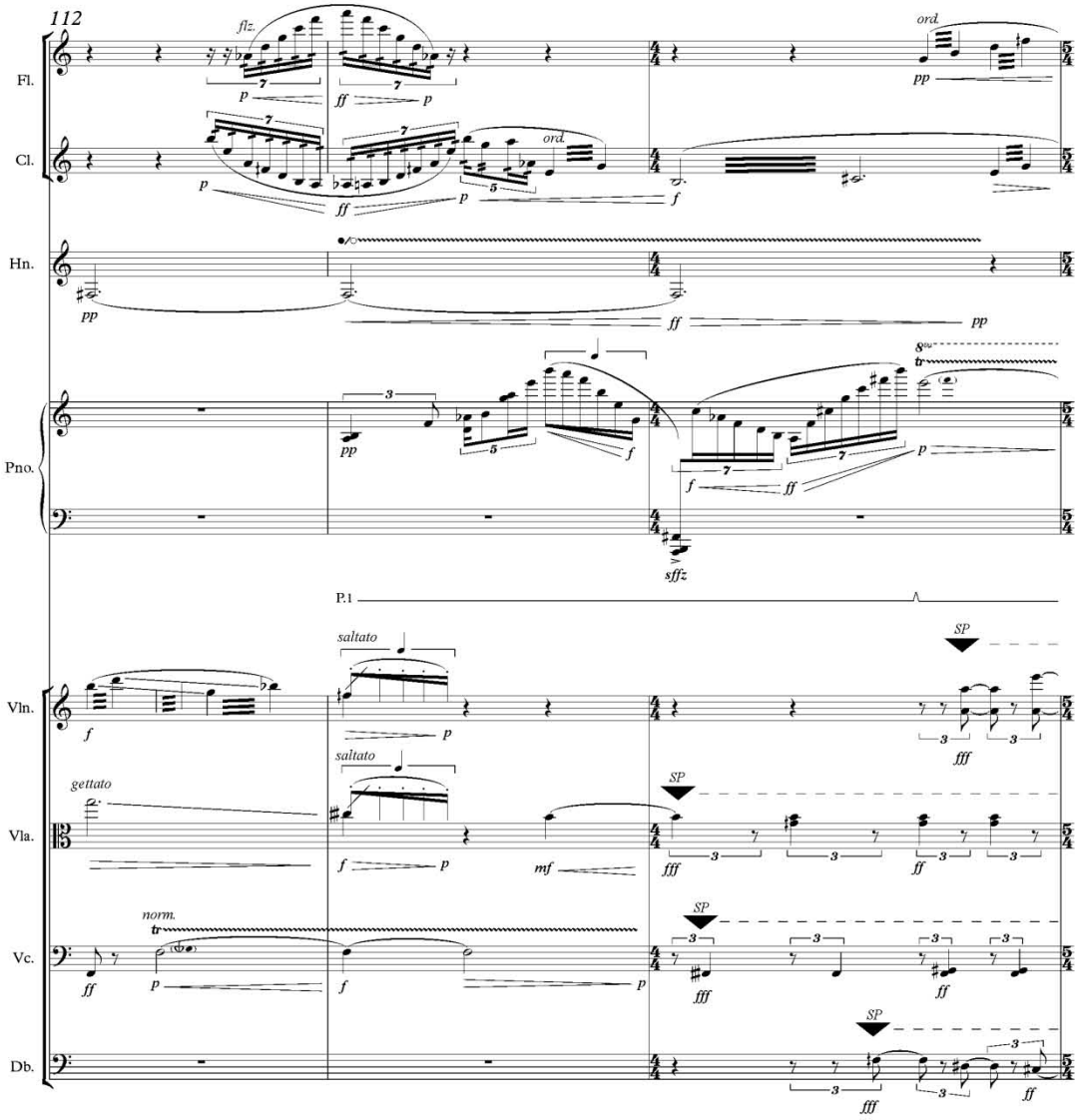
32



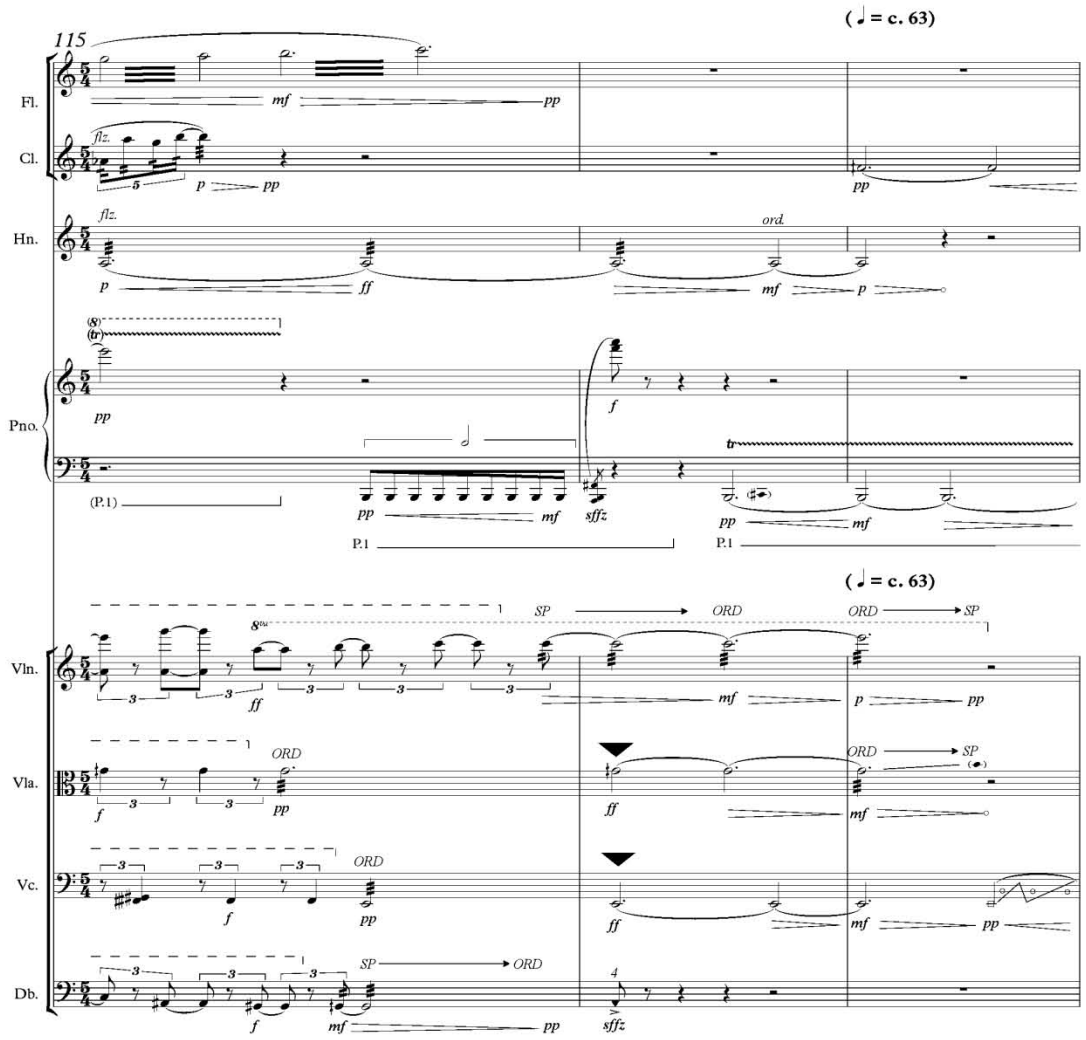

107
slap
sfz
f
p
Fl.
slap
sfz
Cl.
p
ff
p
Pno.
ff
p
pp
P.1
SP
ORD
Vln.
ff
p
SP
ORD
Vla.
ff
p
gettato
f
p
norm.
mf
ORD
tr
f
Vc.
pizz.
mf
Db.

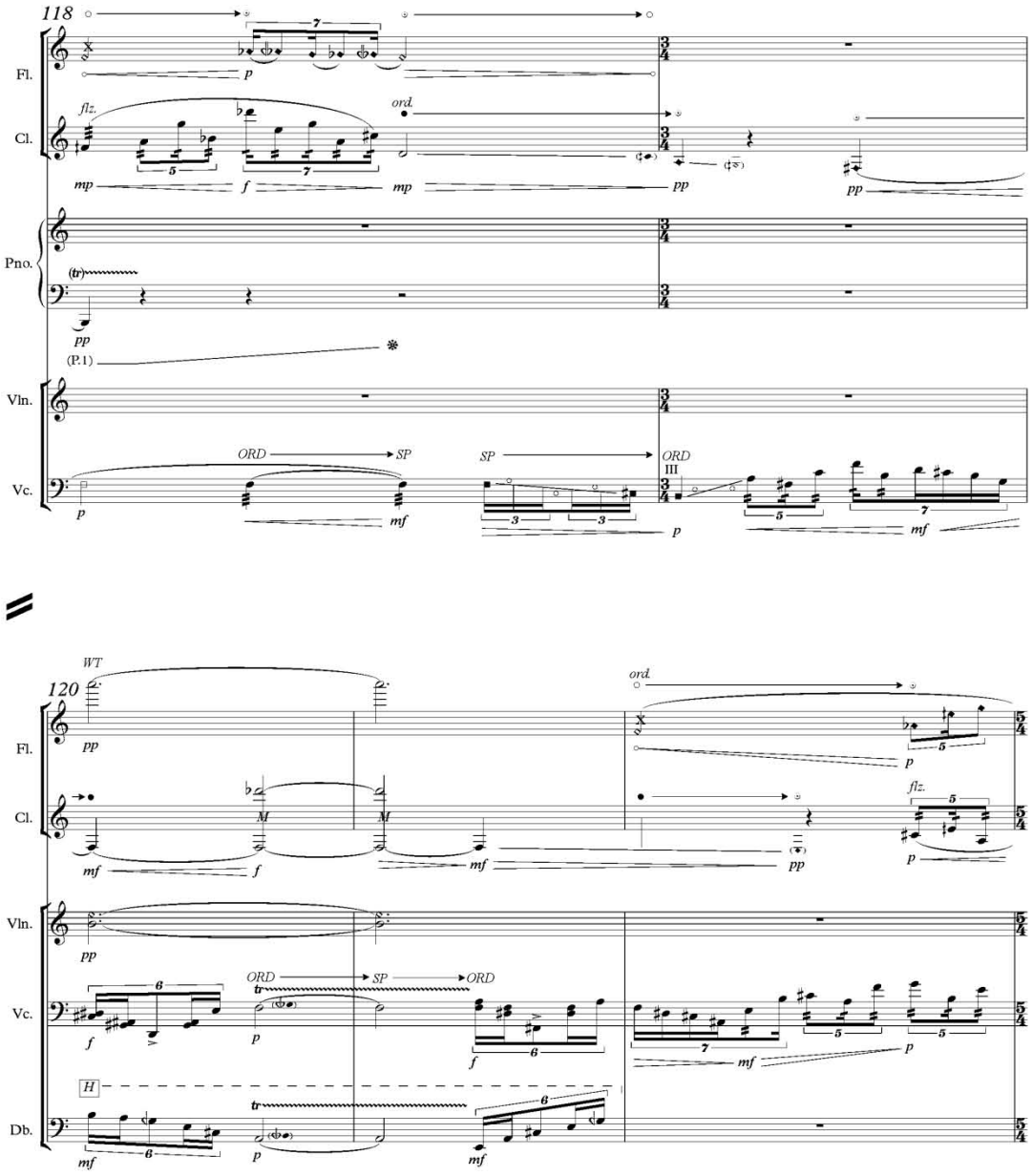
34



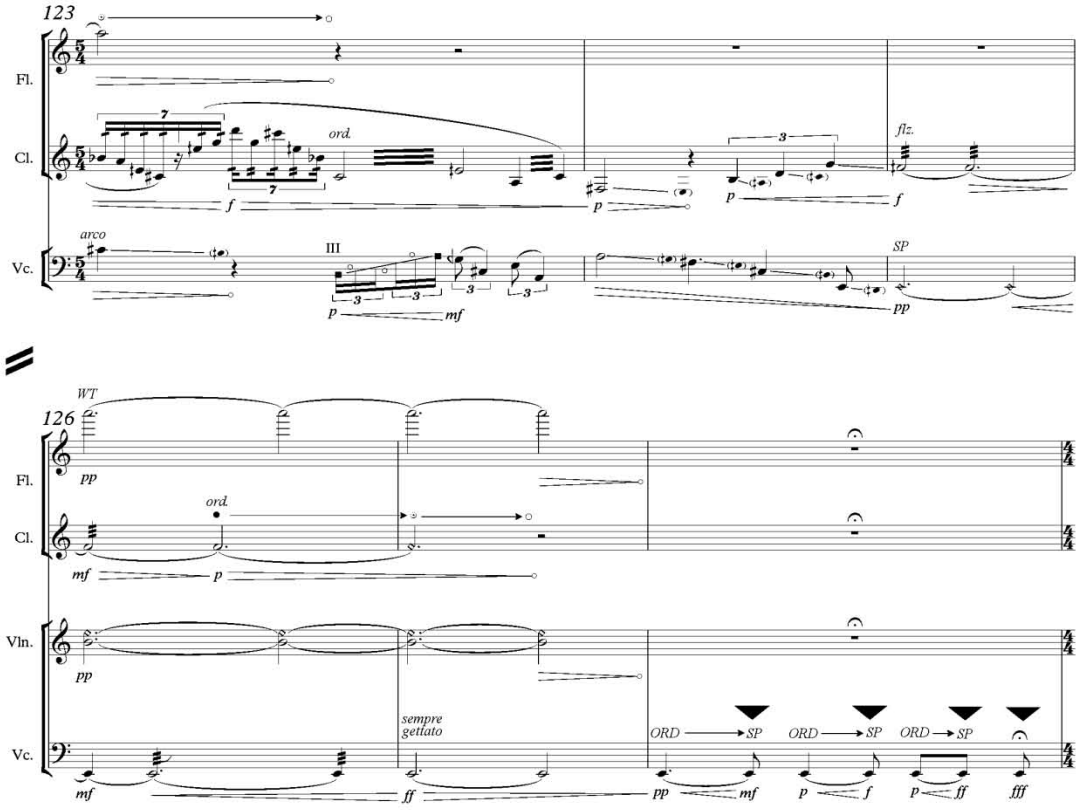

112
Fl.
Cl.
Hn.
Pno.
Vln.
Vla.
Vc.
Db.
flz.
ord.
saltato
gettato
norm.
SP
P.1

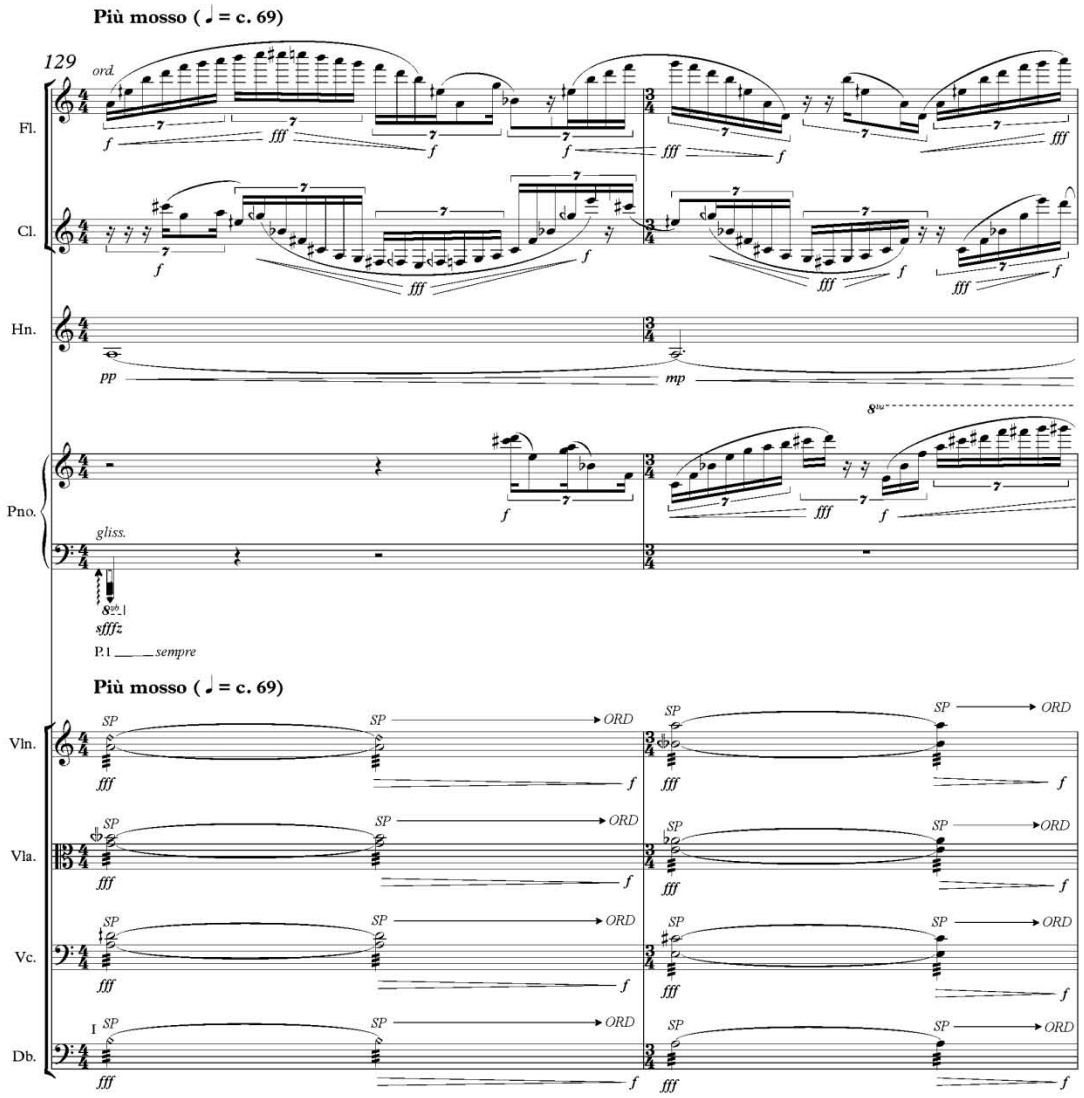
36



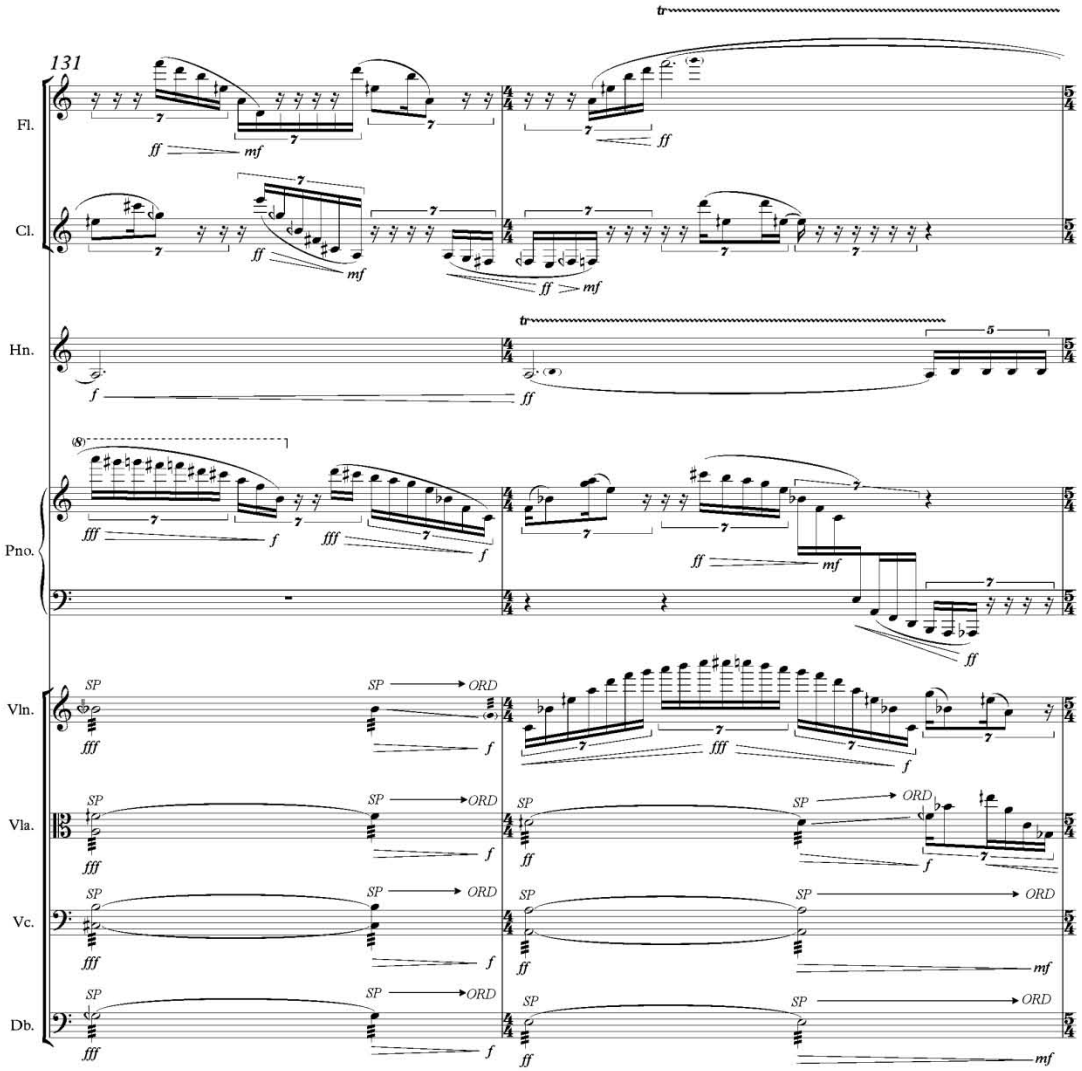

118
Fl.
Cl.
Pno.
Vln.
Vc.
flz.
ord.
(tr)
(P.1)
ORD
SP
III
120
WT
Db.
H

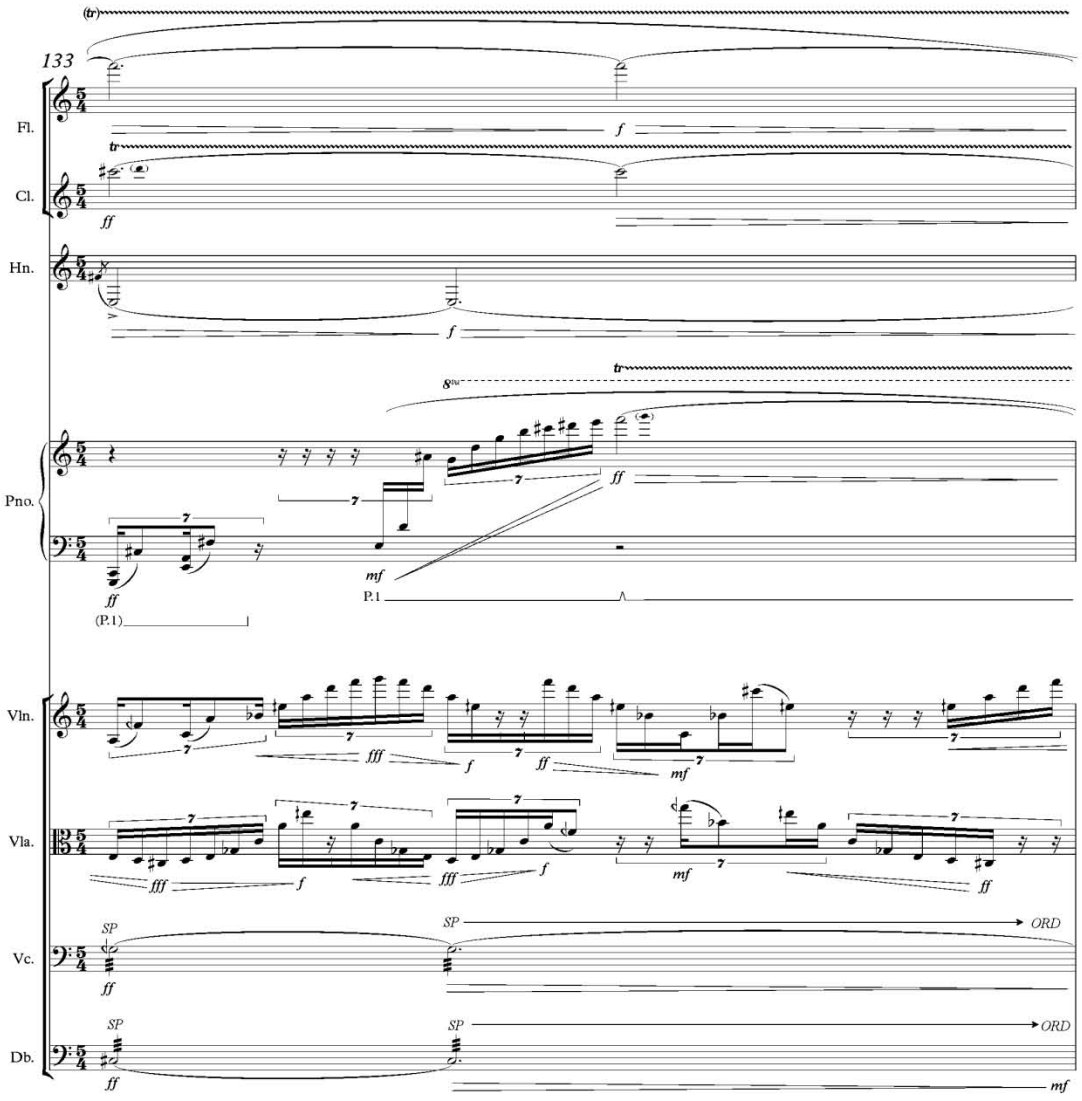
38

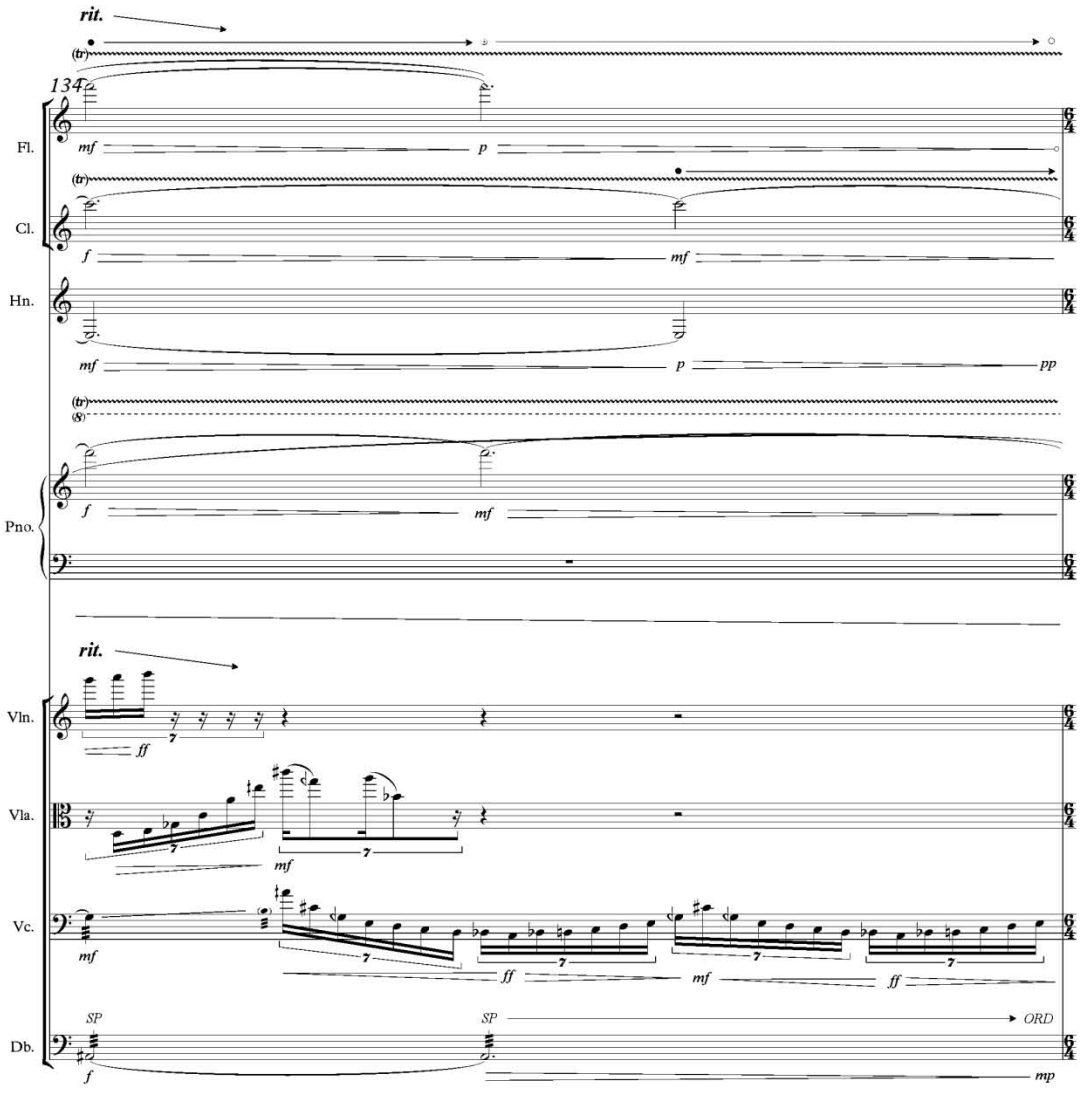

123
Fl.
Cl.
Vc.
ord.
arco
III
flz.
SP
WT
126
Vln.
sempre
gettato
ORD
SP

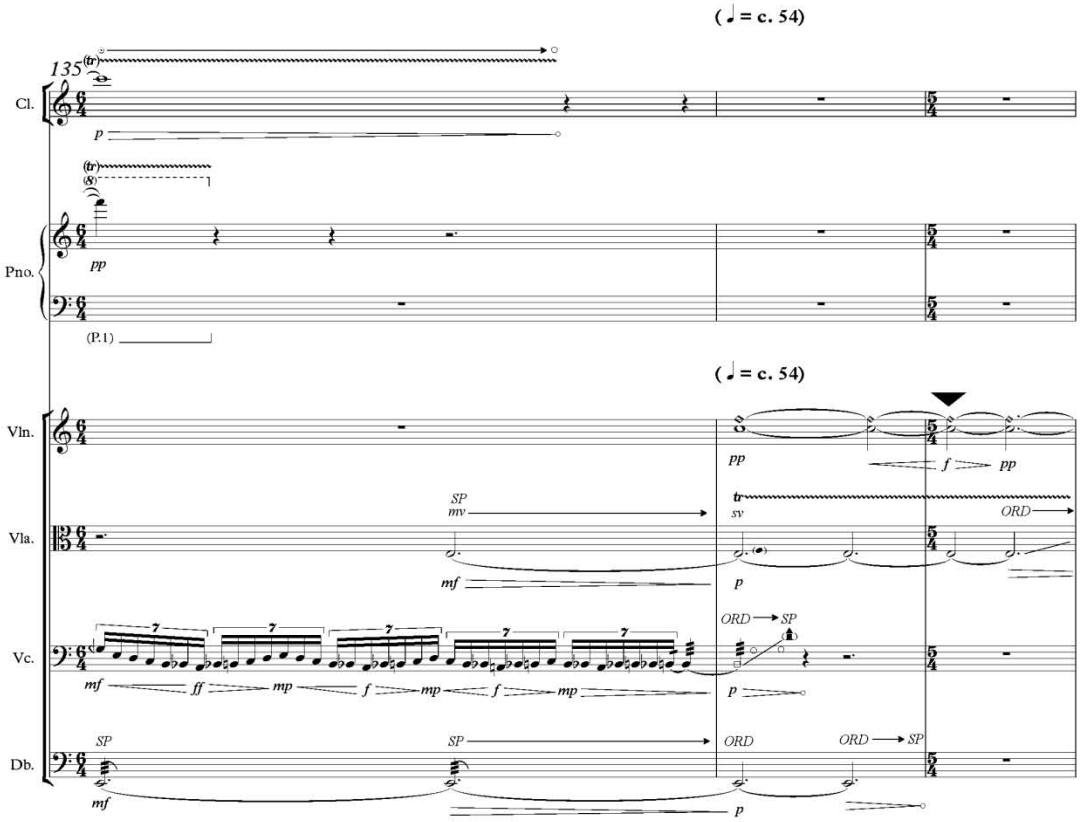

Più mosso (♩ = c. 69)
129
ord.
Fl.
Cl.
Hn.
Pno.
gliss.
sfffz
P.I _____ sempre
Più mosso (♩ = c. 69)
Vln.
Vla.
Vc.
Db.
SP
ORD

40

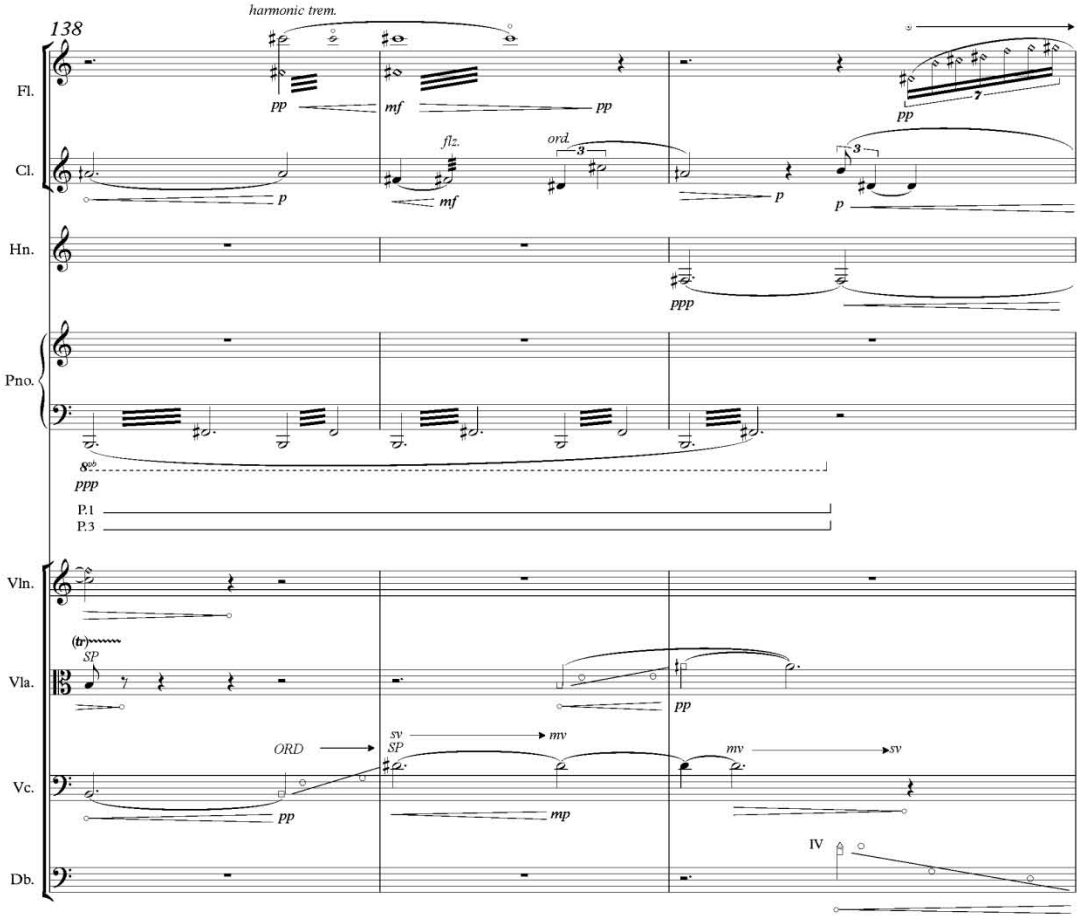


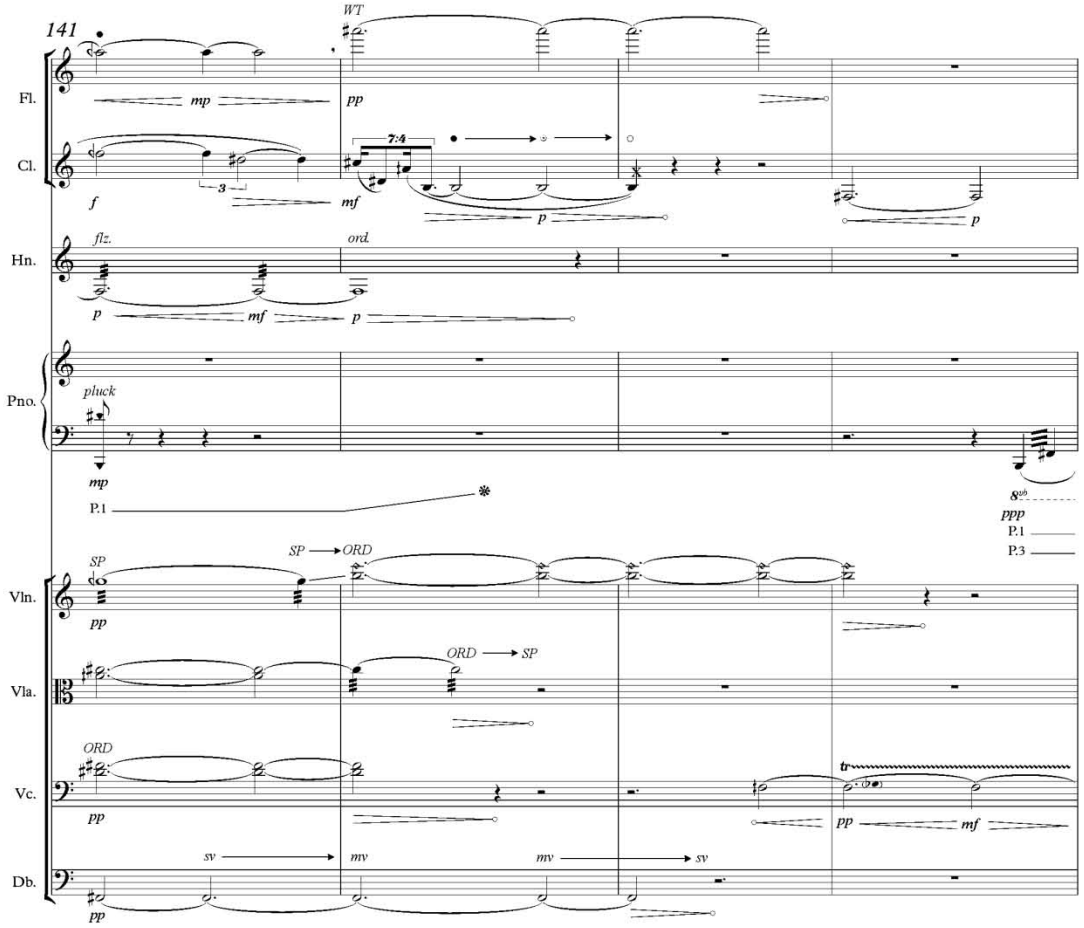

133
Fl.
Cl.
Hn.
Pno.
Vln.
Vla.
Vc.
Db.
(P.1)
P.1
SP
ORD


rit.
134
Fl.
Cl.
Hn.
Pno.
rit.
Vln.
Vla.
Vc.
Db.
SP
ORD

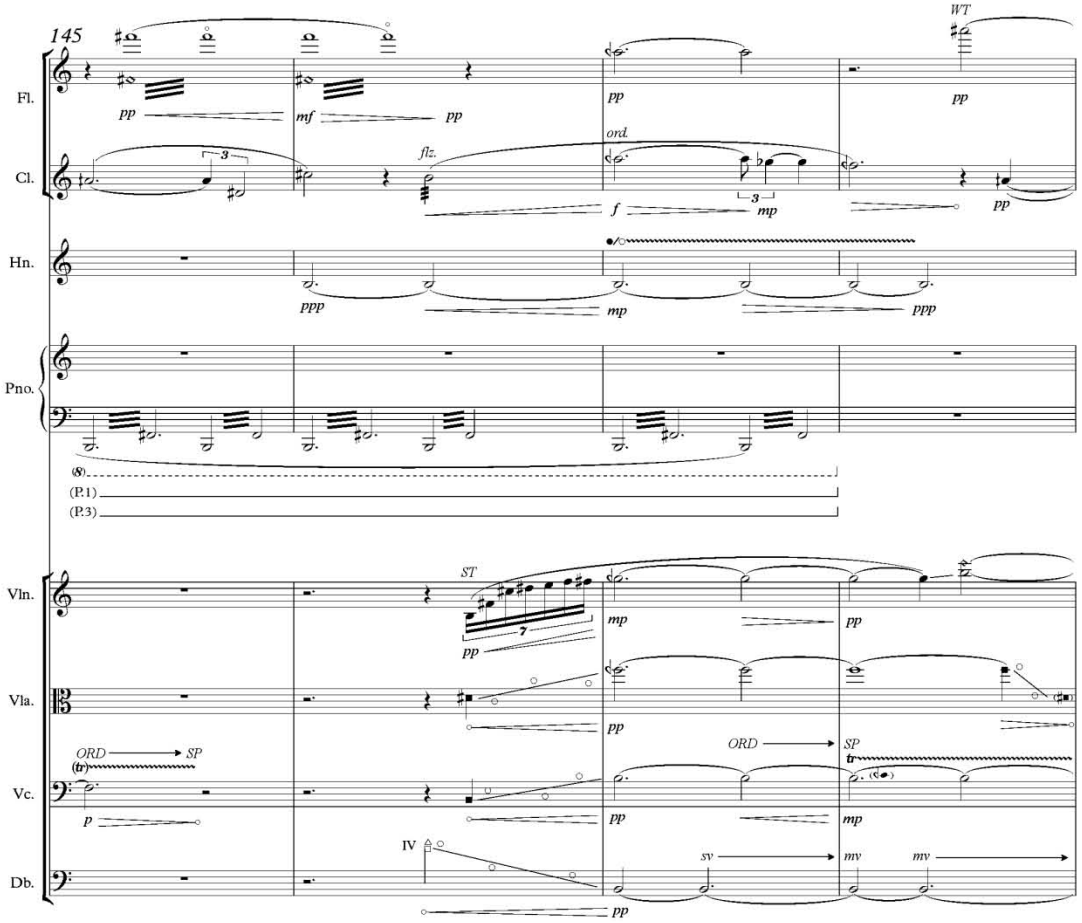

(= c. 54)
135
Cl.
Pno.
(P.1)
(= c. 54)
Vln.
Vla.
Vc.
Db.
SP
mv
sv
ORD
pp
mf
p
f
ff
mp

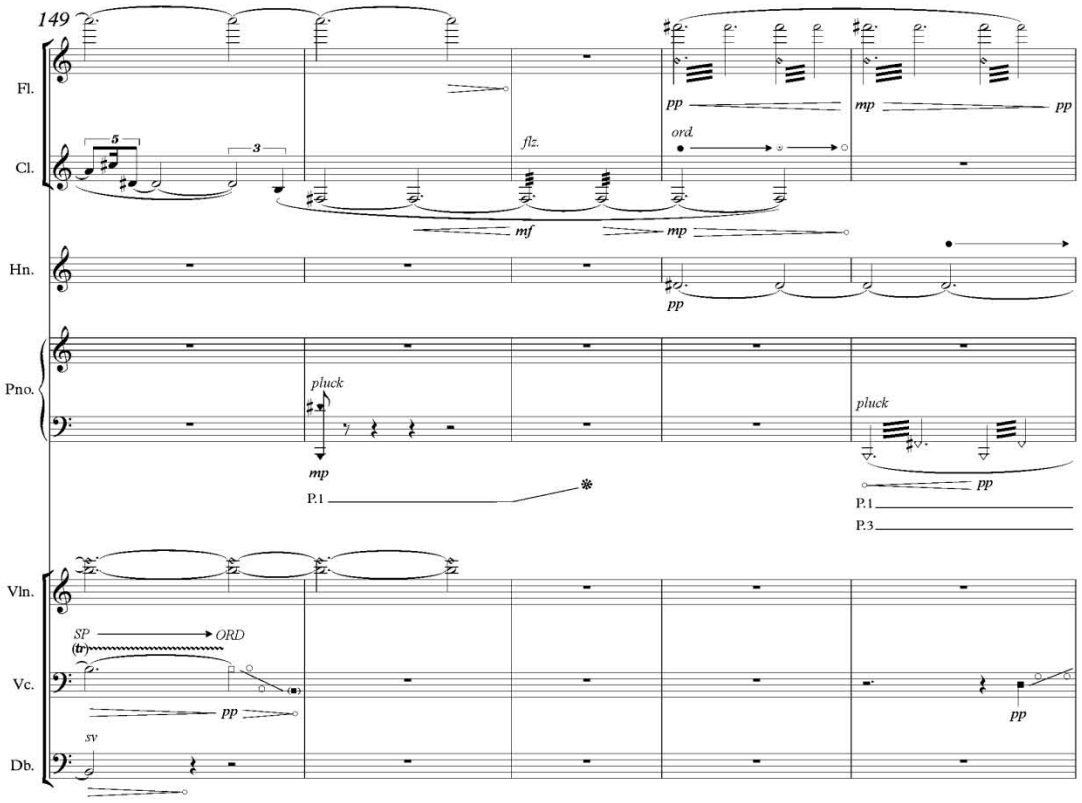
44


138
harmonic trem.
Fl.
Cl.
Hn.
Pno.
Vln.
Vla.
Vc.
Db.
flz.
ord.
P.1
P.3
SP
ORD
sv
mv
IV

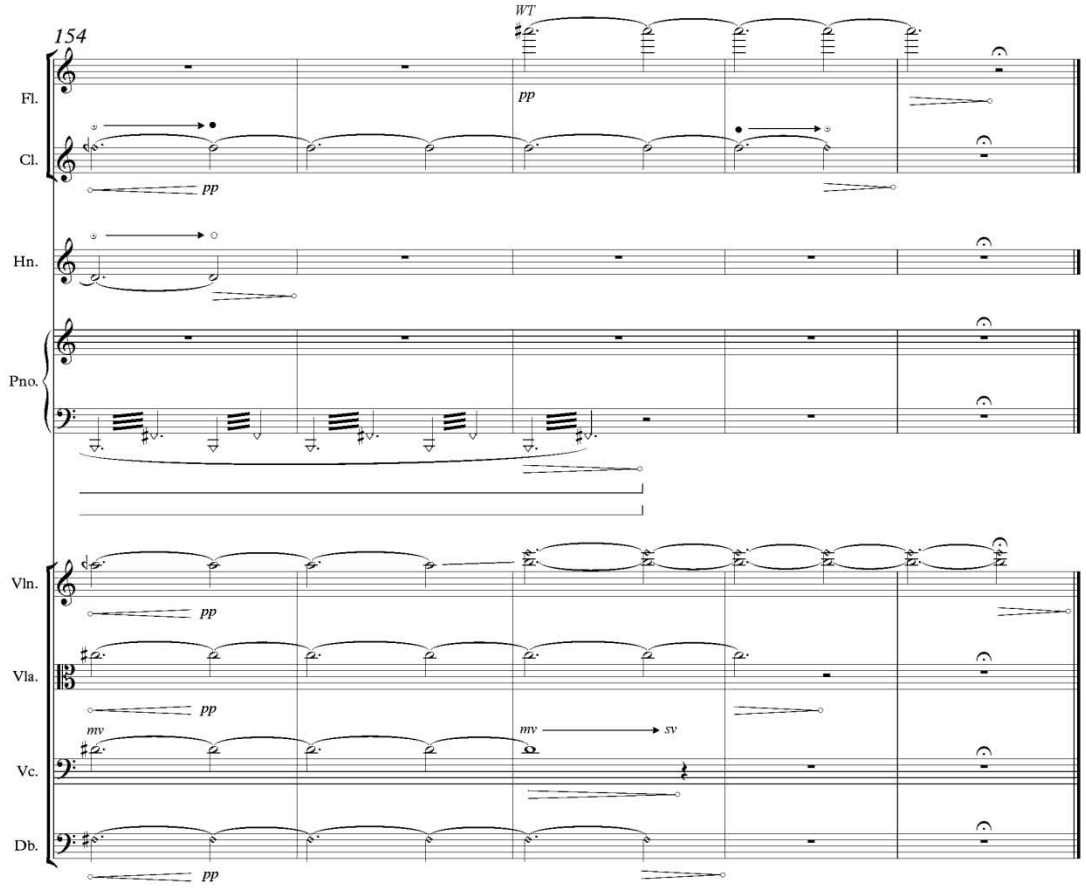

141
WT
Fl.
Cl.
Hn.
Pno.
Vln.
Vla.
Vc.
Db.
mp
pp
f
mf
p
flz.
ord.
pluck
P.1
P.3
ppp
SP
ORD
sv
mv
tr

46




149
Fl.
Cl.
Hn.
Pno.
Vln.
Vc.
Db.
5
3
flz.
ord.
pp
mp
mf
pluck
P.1
P.3
SP
ORD
(tr)
sv

48



VITA

Zihua Tan was born in Kelantan, Malaysia. Notable recent works of his include: *Pangu* (2011) for zheng and tape, which was performed at the Kansas City Electronic Music & Arts Alliance's (KcEMA) Season Finale concert; *Leptosporangiate* (2011), which was featured in the Electronic Music Midwest Festival 2011; *Striation: Picea Abies* (2011) for Pierrot quintet, which earned him an honorable mention in the Mu Phi Epsilon Composition Competitio*; Quercus* (2011) for solo timpani; *Omniya* (2010), an orchestral piece premiered by the Malaysian Philharmonic Orchestra (MPO); *Under the Homotopic Silhouettes* (2009), a quintet premiered by Ensemble Mosaik at the 1st Kuala Lumpur Contemporary Music Festival; and *Entanglement Entropy* (2008) for chamber orchestra, which was premiered by MPO during the MPO's Forumplus event, in which he was the youngest composer to be invited.

Tan's latest work, *Biloba*, will be performed by ensemble L'Arsenale at the Composit New Music Festival in Reiti, Italy. In 2011, he was the featured composer at the Beijing International Composers' Workshop. In 2008, he won the first prize at the HSBC Young Composers Competition with *Images of Wind II*. He also became one of the finalists of Ton de Leeuw International Composition Competition with *Gate of Tears*. From 2007 to 2009, he was the composer-in-residence of the Penang State Symphony Orchestra and Chorus (PESSOC).

Tan is currently pursuing his master's degree in music composition at the University of Missouri – Kansas City, under the tutelage of Chen Yi, James Mobberley, Paul Rudy and Zhou Long. Prior to that, he worked as an IC design engineer at Altera Corporation. He obtained his engineering degree from the University of Michigan, Ann Arbor.