LEE WESTWOOD
& SAMA MARA

'A HIDDEN ORDER' SUITE

FOR FLUTE, COR ANGLAIS,
MARIMBA/PERCUSSION & CELLO

2013-2014

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'A Hidden Order' Suite

by Lee Westwood & Sama Mara

(2013-2014)

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All scores in C

Duration – c. 30 mins

First performed by the 'A Hidden Order' Ensemble at The Prince's School Of Traditional Arts, Shoreditch, London, on March 19th 2014.

Personnel: Philippe Barnes – flute; Suzie Shrubb – cor anglais; Adam Bushell – marimba/percussion; Susie Winkworth – cello; Lee Westwood – additional percussion; Danny Bright – engineer.

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...at first there is silence, darkness. Then, from out of the void, a sound, and with it a colour, a shape. The sounds become a rhythm, and we're surrounded by a swirling pattern, building in form and complexity, where disparate points in time reach out and connect with one another over a spider's web of shimmering geometry.

And so, a hidden order is revealed...

What would pattern sound like if interpreted as a rhythm or melody?
How would music look if transposed into the visual realm?

'A Hidden Order' is the culmination of several years of collaboration between composer Lee Westwood & geometer Sama Mara, exploring the relationship between music and geometry. A new theory discovered by Sama Mara reveals a relationship between the fundamental laws of harmony of sound and space, through which music is directly embodied as visual patterns and, in turn, imagery may be deciphered as music. Number and ratio, the root principles governing the rhythm and pitch of music, are also the foundation of geometric art: pattern and colour. The implementation of Mara's theory has enabled a unique creative process whereby geometric space is explored through musical composition.

The artistic process was set in motion by the workshopping of musical motifs and the examination of their resulting geometric patterns. Drawing on these early forays, a suite of ten musical compositions was developed: whilst making continual reference to their visual counterpart for guidance, some pieces followed a more free musical direction (within the basic constraints of the corresponding grid, such as time signature); in other cases a visual template or a set of geometric rules heavily guided the composition of the music, leading to more specific visual results.

An emphasis should be layed on the fact that the images are a direct geometric representation of the music, the final, exhibited prints in fact being generated by recordings of this suite using a bespoke computer programme. In turn, the music is simultaneously an auditory shadow of the geometric design which, in many of the cases documented within this suite, preceded any sound whatsoever. With this in mind, it should be remembered that, whether we are looking at the image, or we are hearing the musical composition, we are, in fact, perceiving the very same artistic 'object', from a different angle, or through the eyes of a different medium (sound or visual pattern).

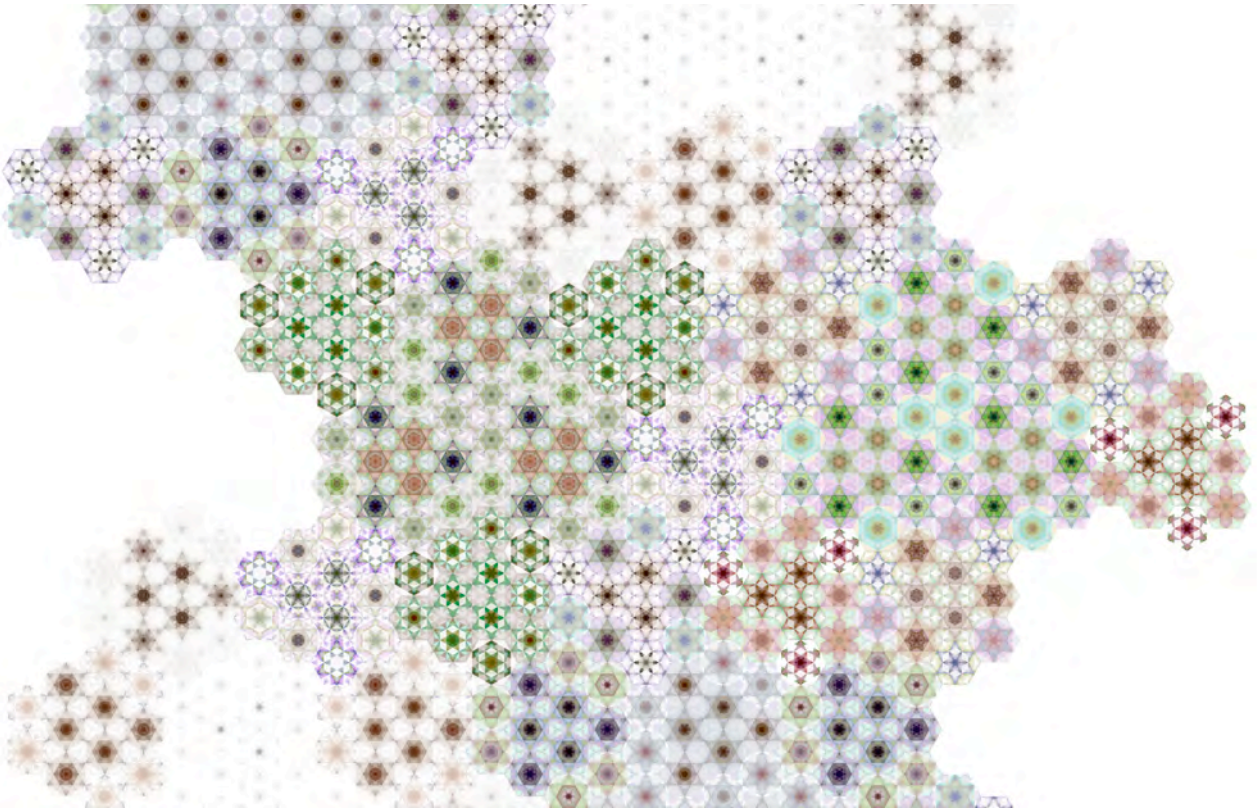
As such, on a linguistic level, each image may be viewed as a very unique form of notation for the music, one in which the aesthetic value of the notation itself governs musical choices. Conversely, the music may be considered as a means of sonic notation for the geometric image, the more traditional musical scores (the staves themselves) found here being yet another representation of the same artistic material.

On a cellular level, the detail of the information contained within the image spans way beyond the traditional bounds of musical notation, to a timbral level: the very texture of each unit of the grid is a direct result of the upper partials which constitute the notes there present, made accessible through the Fast Fourrier Transfer analysis used to analyse the soundsource in the production of each print. As a result, the unique nuances of tone which distinguish one performance from another (as well as other musical parameters such as timing, intonation and dynamics) will lead to the very same 'personalisations' in the generation of the image.

The fruits of this undertaking are a resultant suite of 10 new works for mixed ensemble, and their corresponding geometric artworks. This document contains the complete scores and accompanying images for the 'A Hidden Order' Suite, the core body of work from which all aspects of the exhibition of the same name are derived. In addition, an 11th work, a study for solo conga based on octagonal symmetry, has been included.

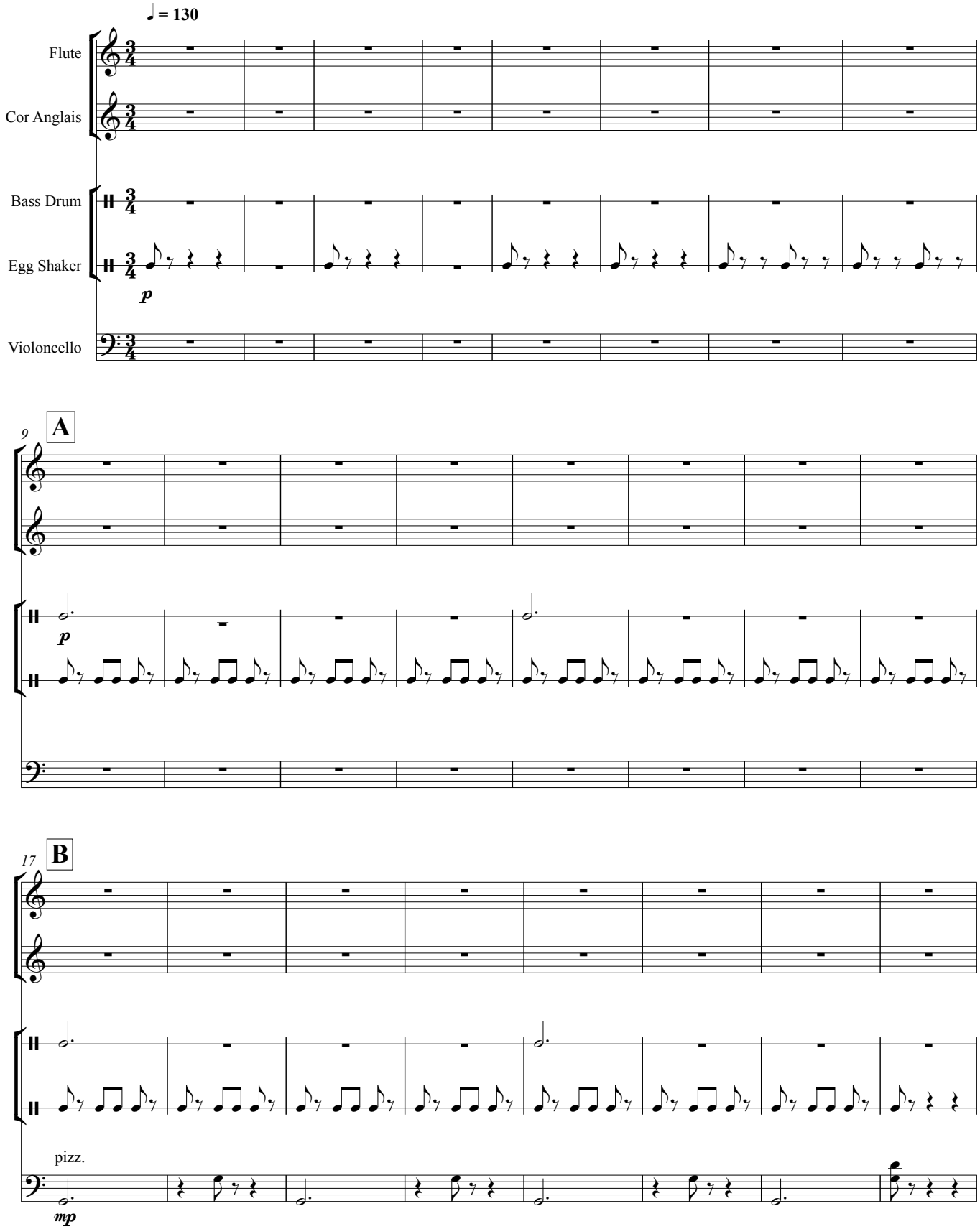
Hexagon I – Ensemble

Composed freely within the hexagon grid's inherent time signature (multiples of 3 and 4, suiting groupings such as 3/4 and 6/8), this simple piece acts as a musical introduction to the system, the light percussion of the opening bars clearly demonstrating a relationship between sound and visuals.



'A Hidden Order' Suite
- I -
Hexagon I - Ensemble

Lee Westwood
(Brighton 2013)



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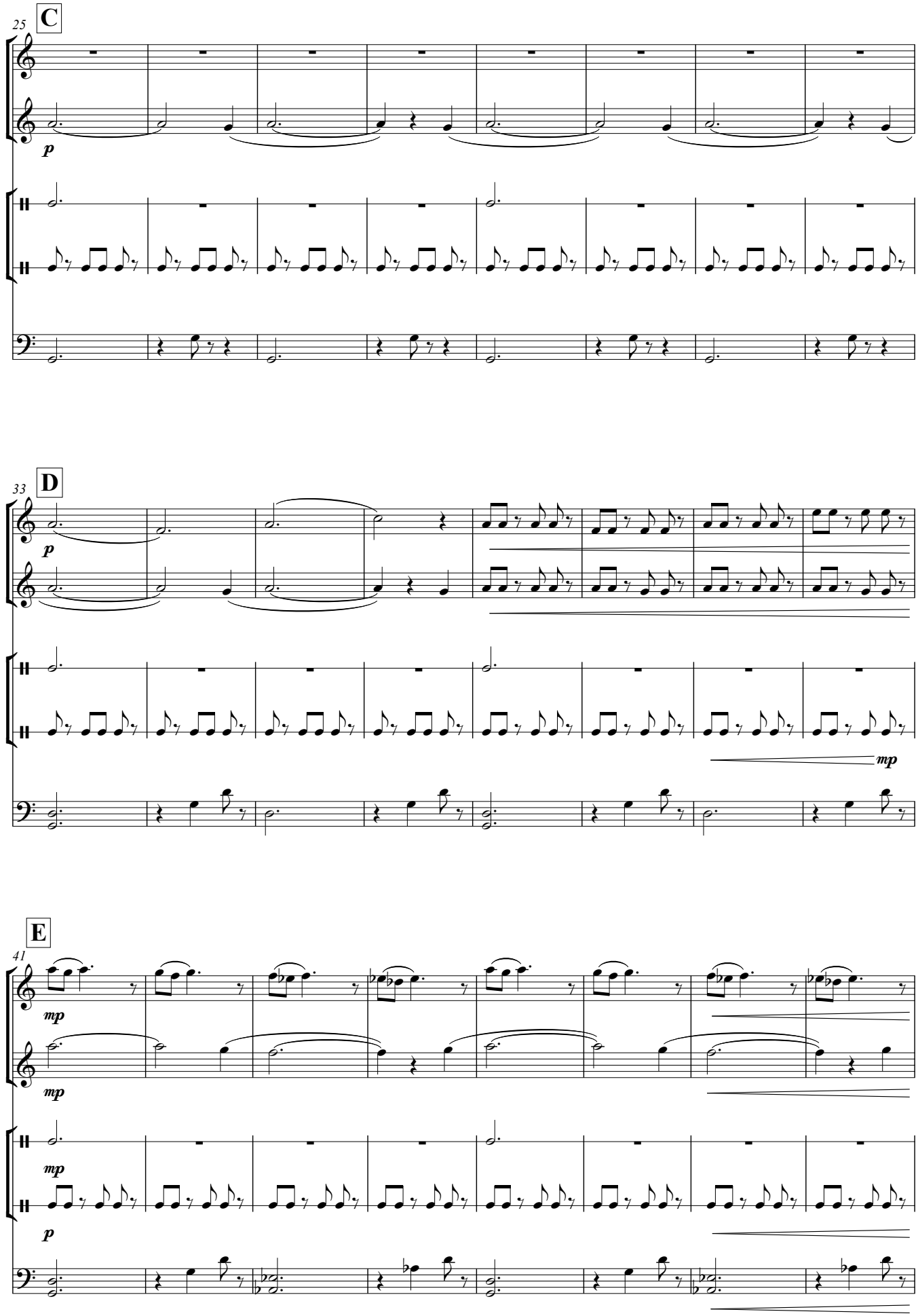
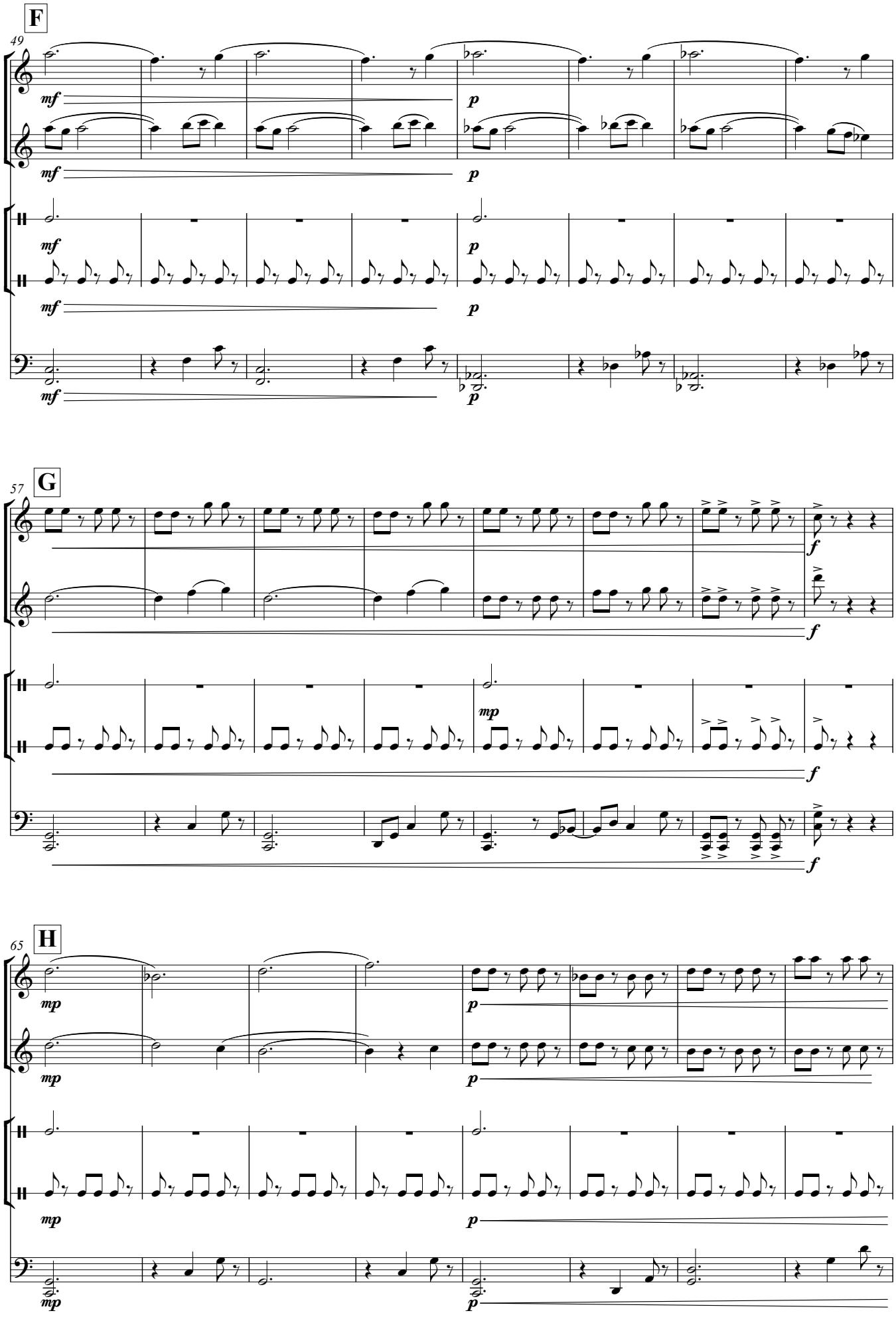
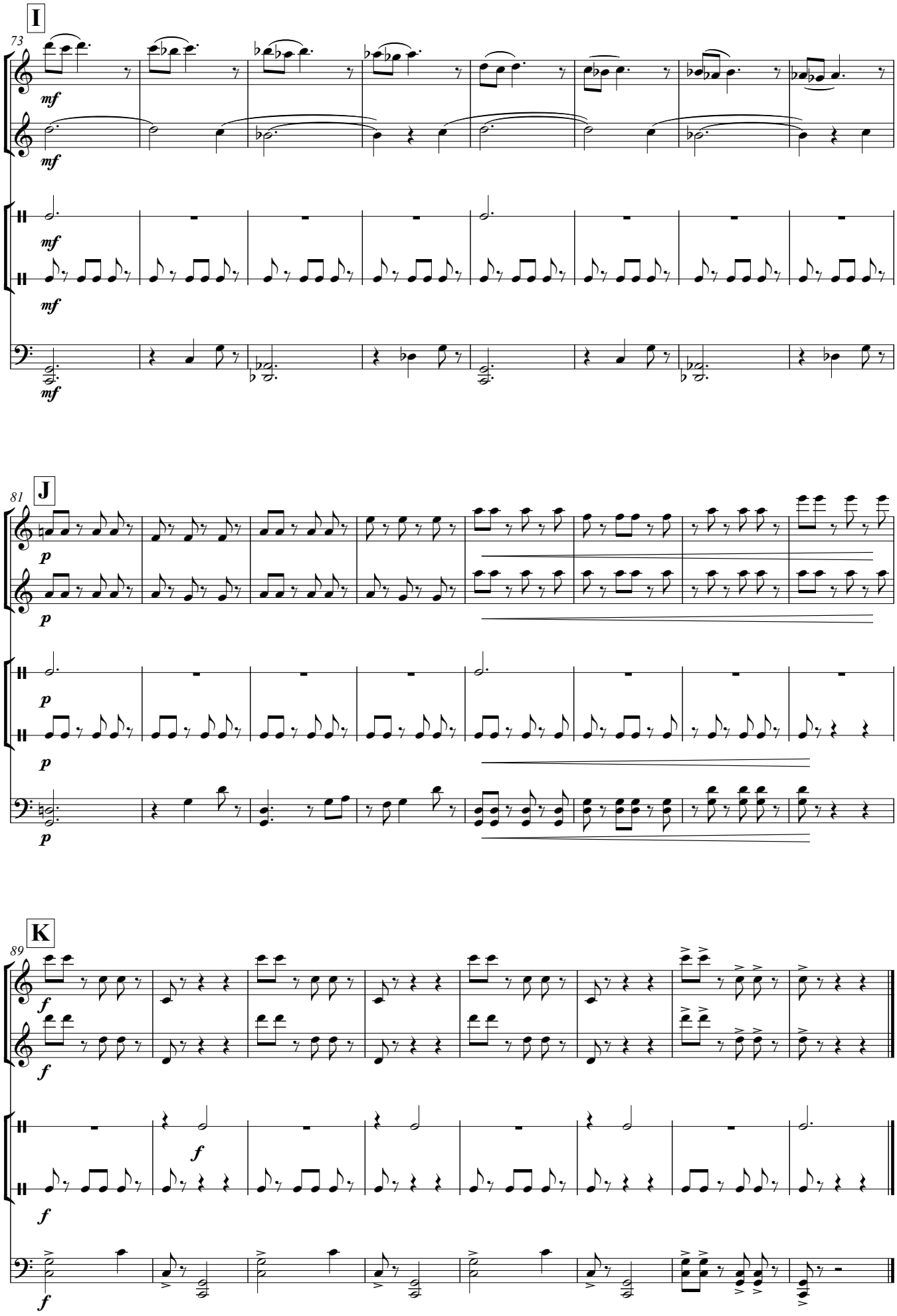
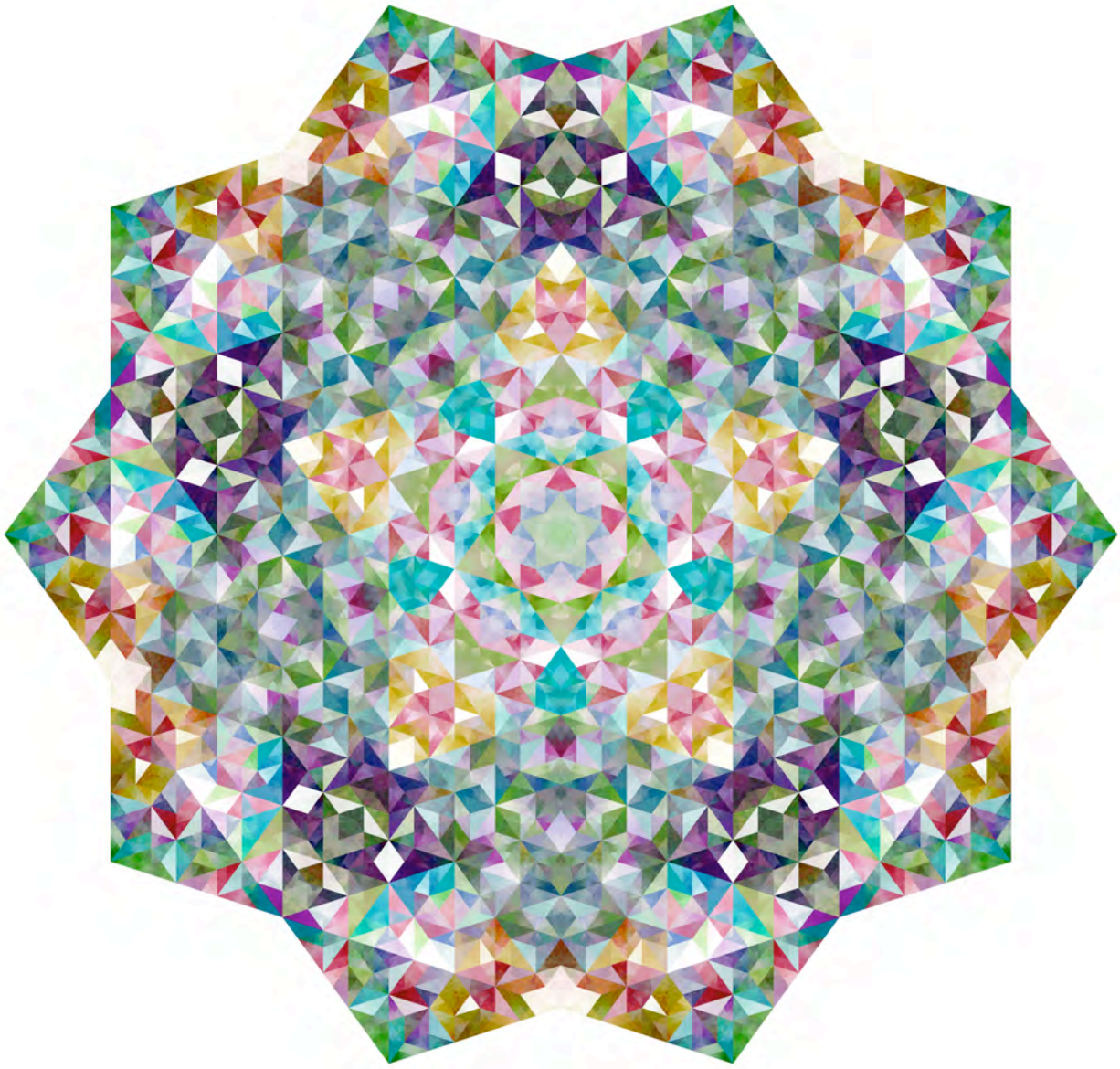

25
C
p
33
D
p
mp
41
E
mp
mp
mp
p


F
49
mf
p
G
57
mp
f
H
65


I
73
mf
J
81
p
K
89
f

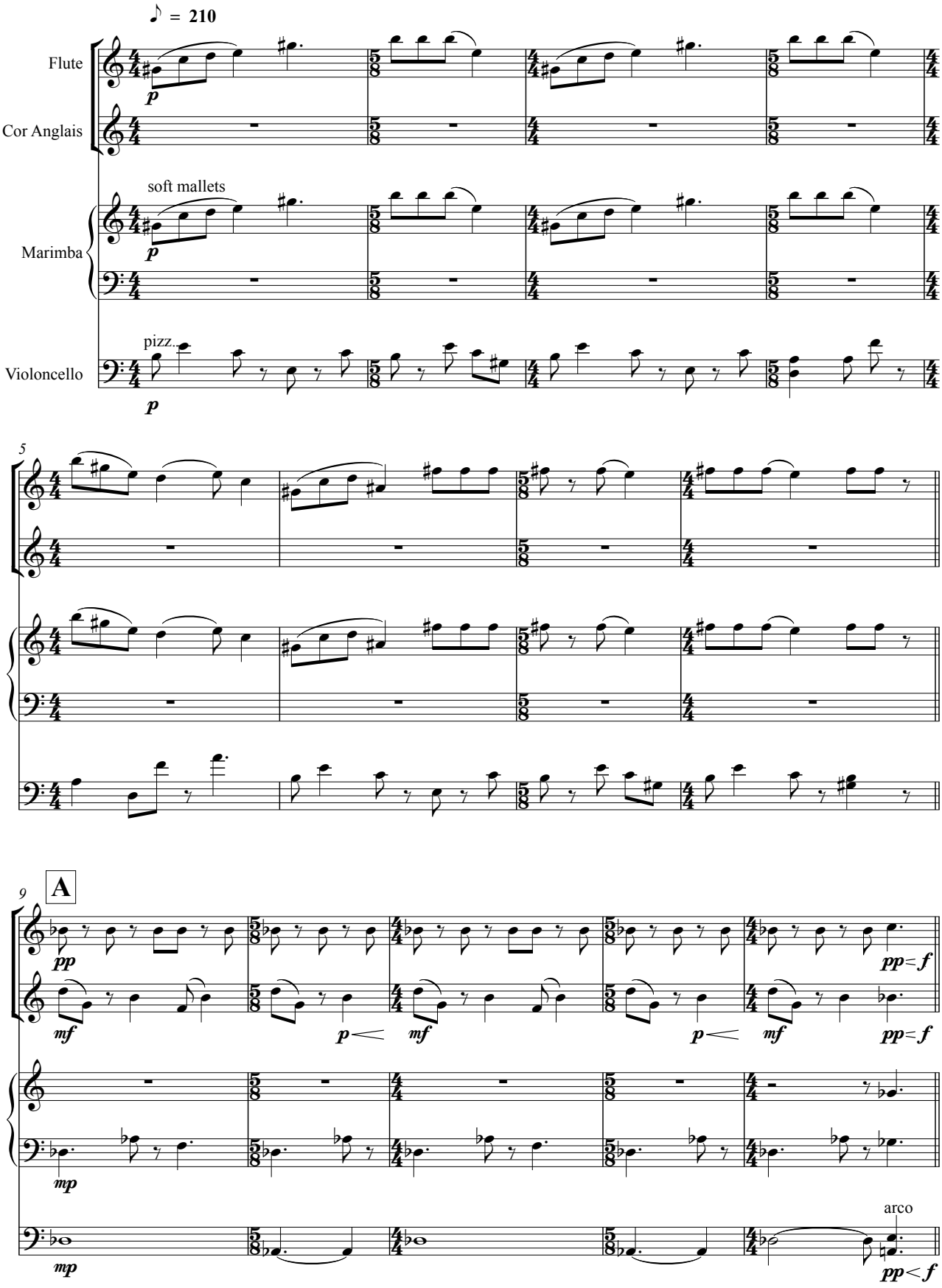
Pentagon I – Ensemble

The pentagonal grid, also known as the 'Penrose Tiling', is based on a nested sequence (a → b a; b → a), and is intrinsically related to the golden ratio. This composition follows very general visual guidelines, in that certain beats and bars should be related in their use of rhythm and pitch, and that musical phrases should stress the underlying structure of the grid.



- II -
Pentagon I - Ensemble

Lee Westwood
(Brighton 2013)



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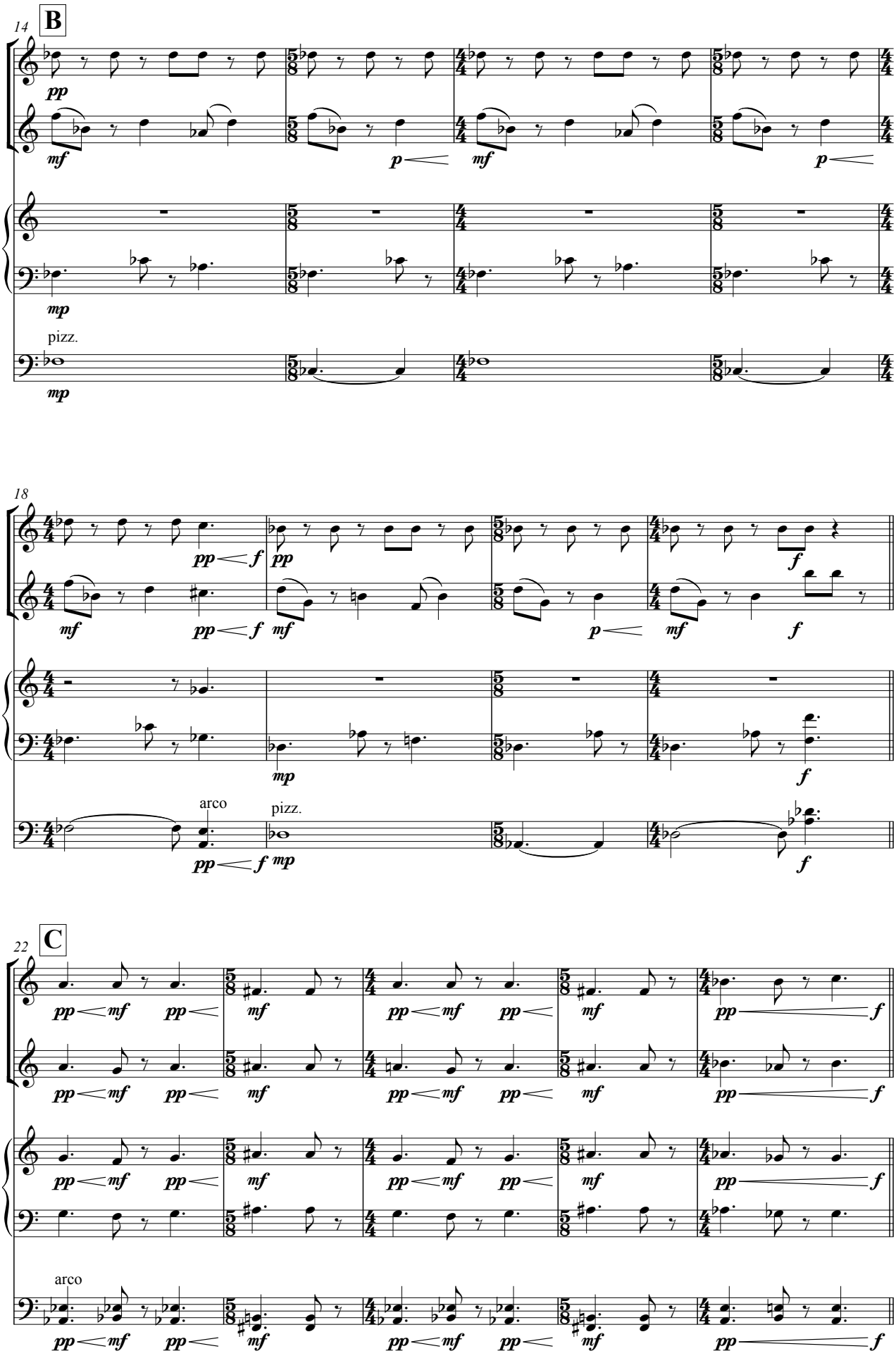
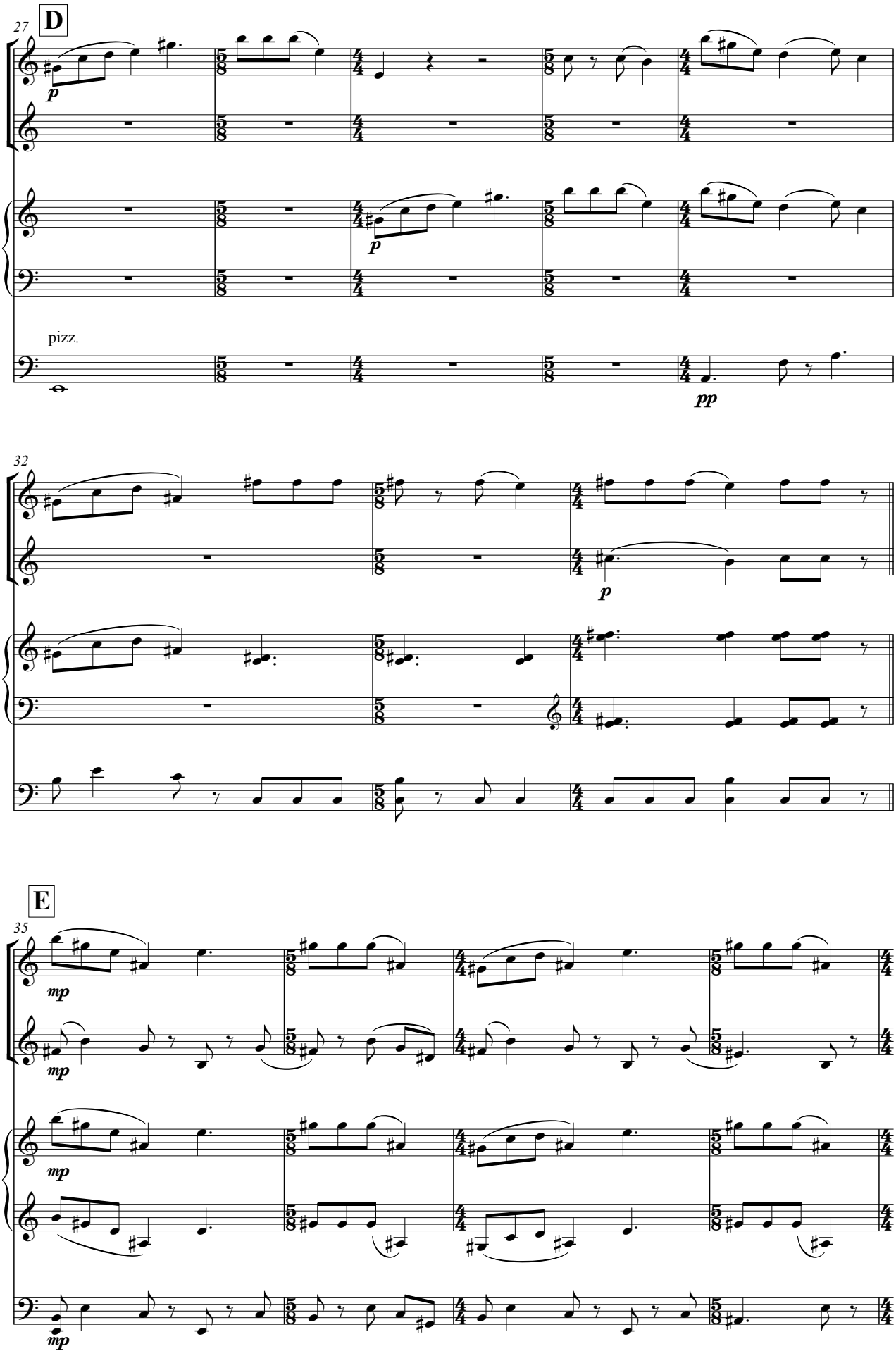
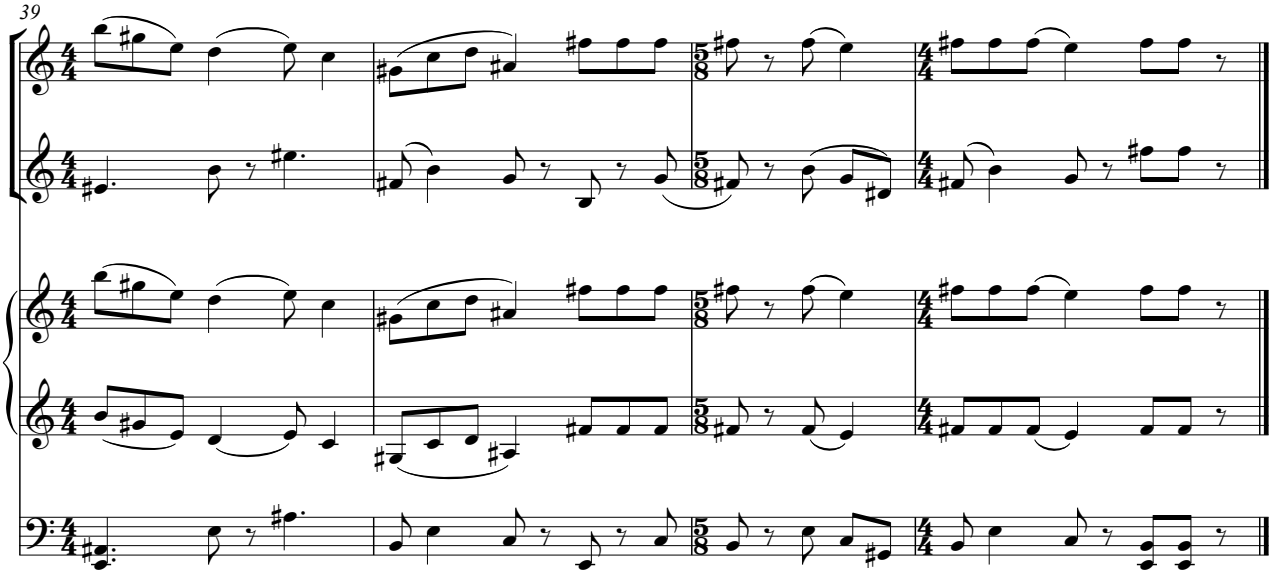
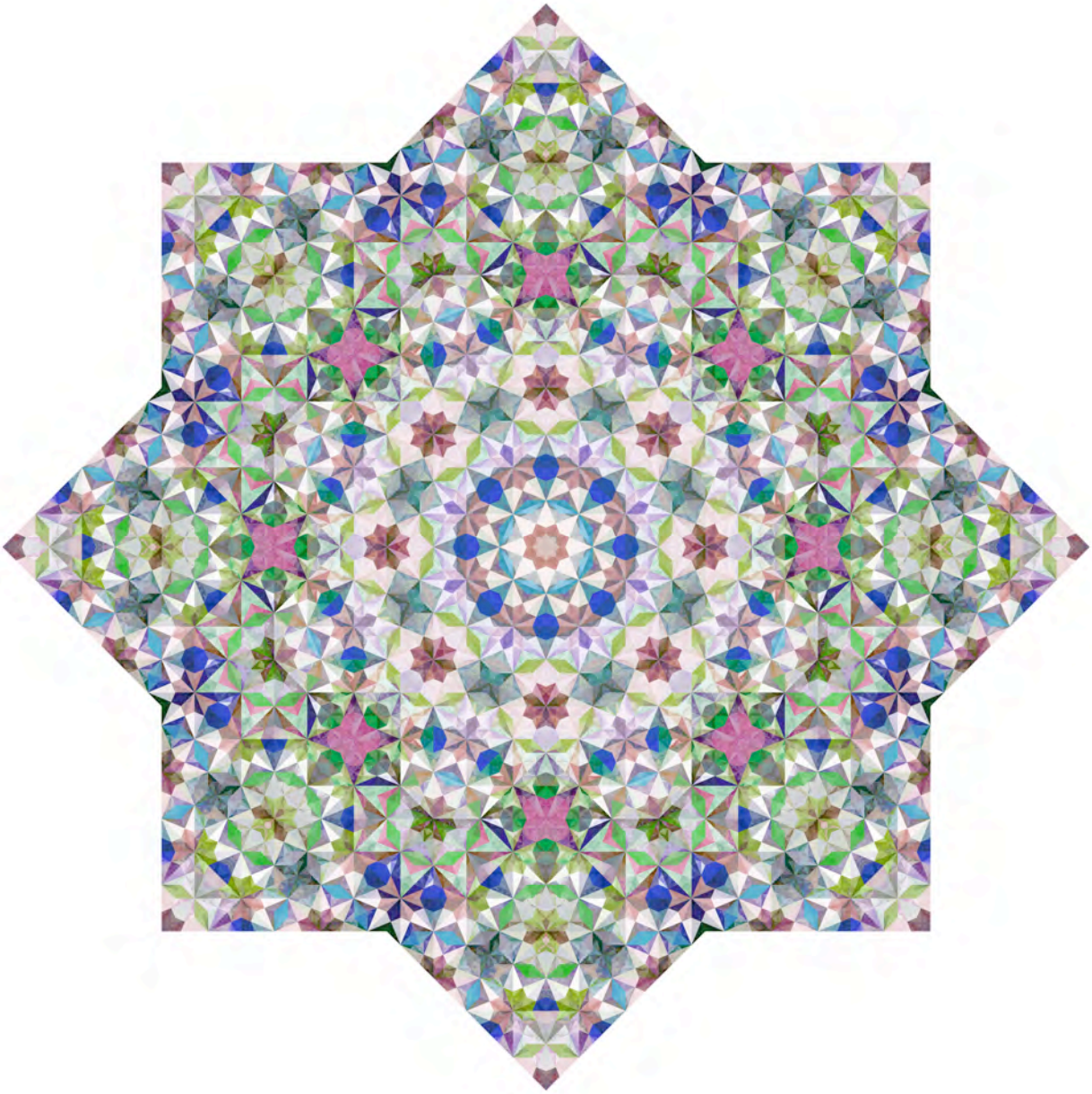

14
B
pp
mf
p
mf
p
mp
pizz.
mp
18
pp
f
pp
f
mf
pp
f
mf
p
mf
f
mp
f
arco
pizz.
pp
f
mp
f
22
C
pp
mf
pp
mf
pp
mf
pp
mf
f
arco
pp
mf
pp
mf
pp
mf
pp
mf
f


27
D
p
p
pizz.
pp
32
p
E
35
mp
mp
mp
mp


39

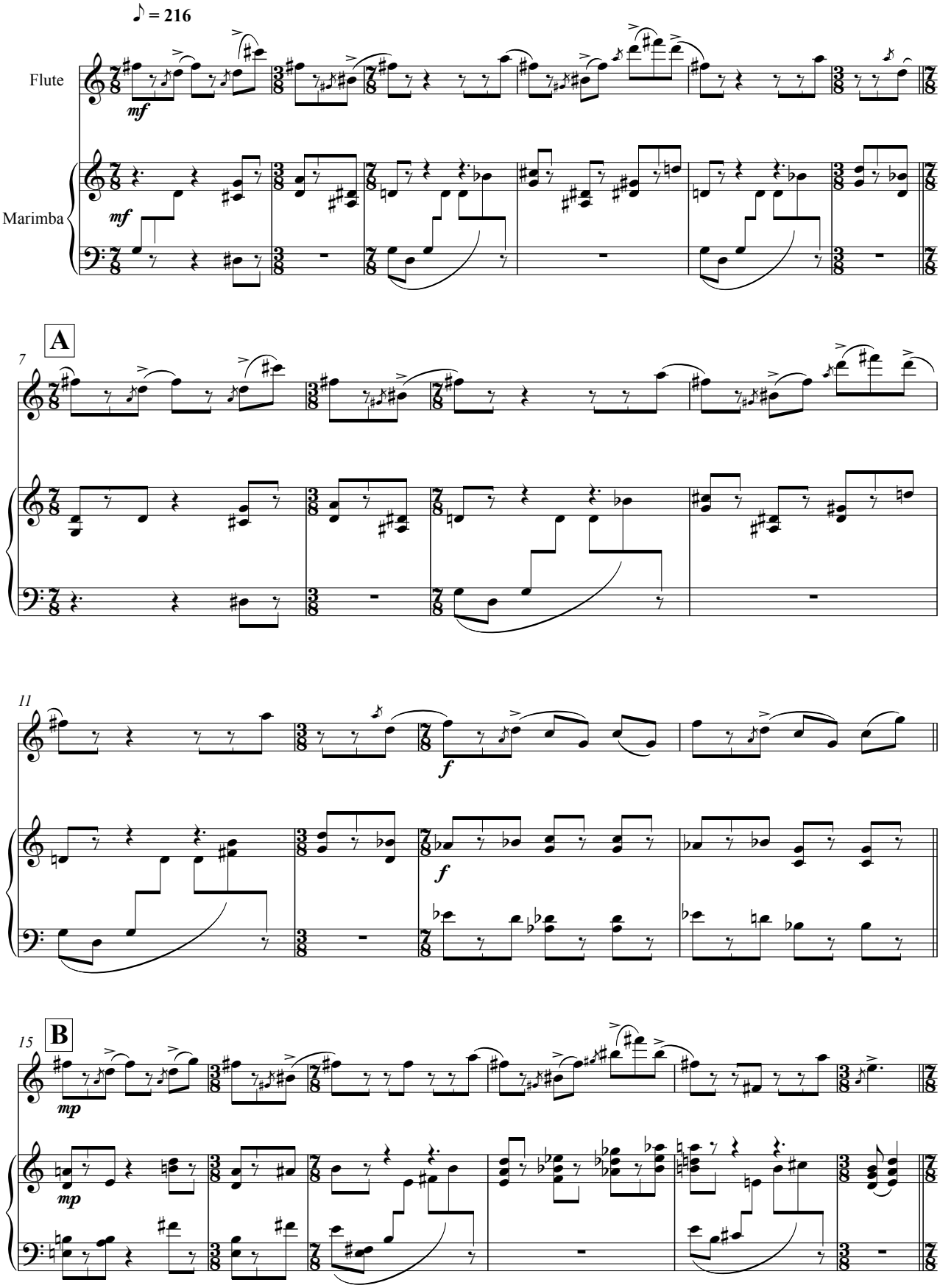
Octagon I – Flute & Marimba

The octagonal grid is also based on a nested sequence (a = aba; b = abab), this time describing the silver ratio. In this case the visual element was designed first, and the music was worked into this fairly strict template. The flute part follows the grid's structure more closely, whilst the marimba accompaniment has been allowed slightly more freedom.



- III -
Octagon I - Flute & Marimba

Lee Westwood
(Brighton 2013)



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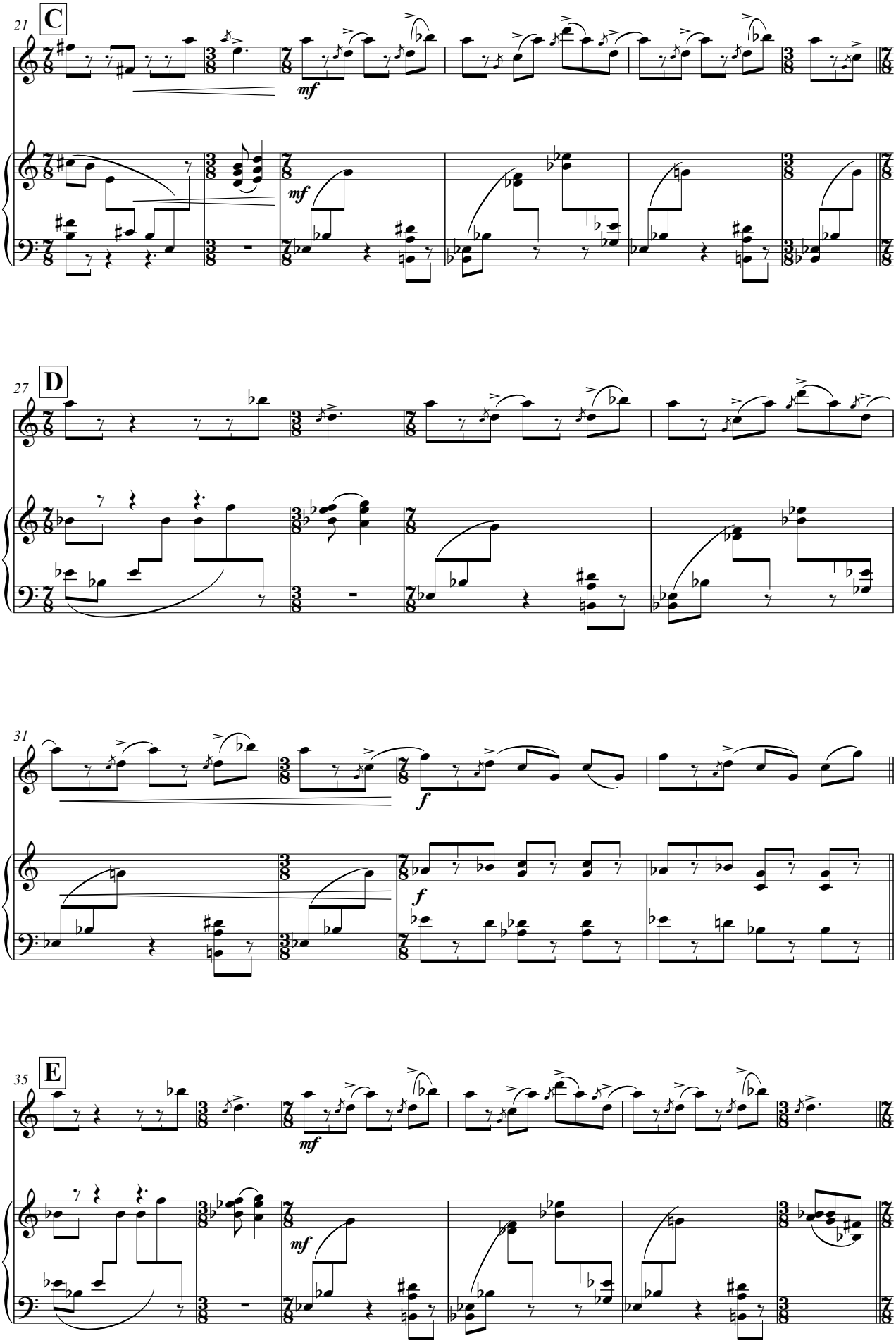
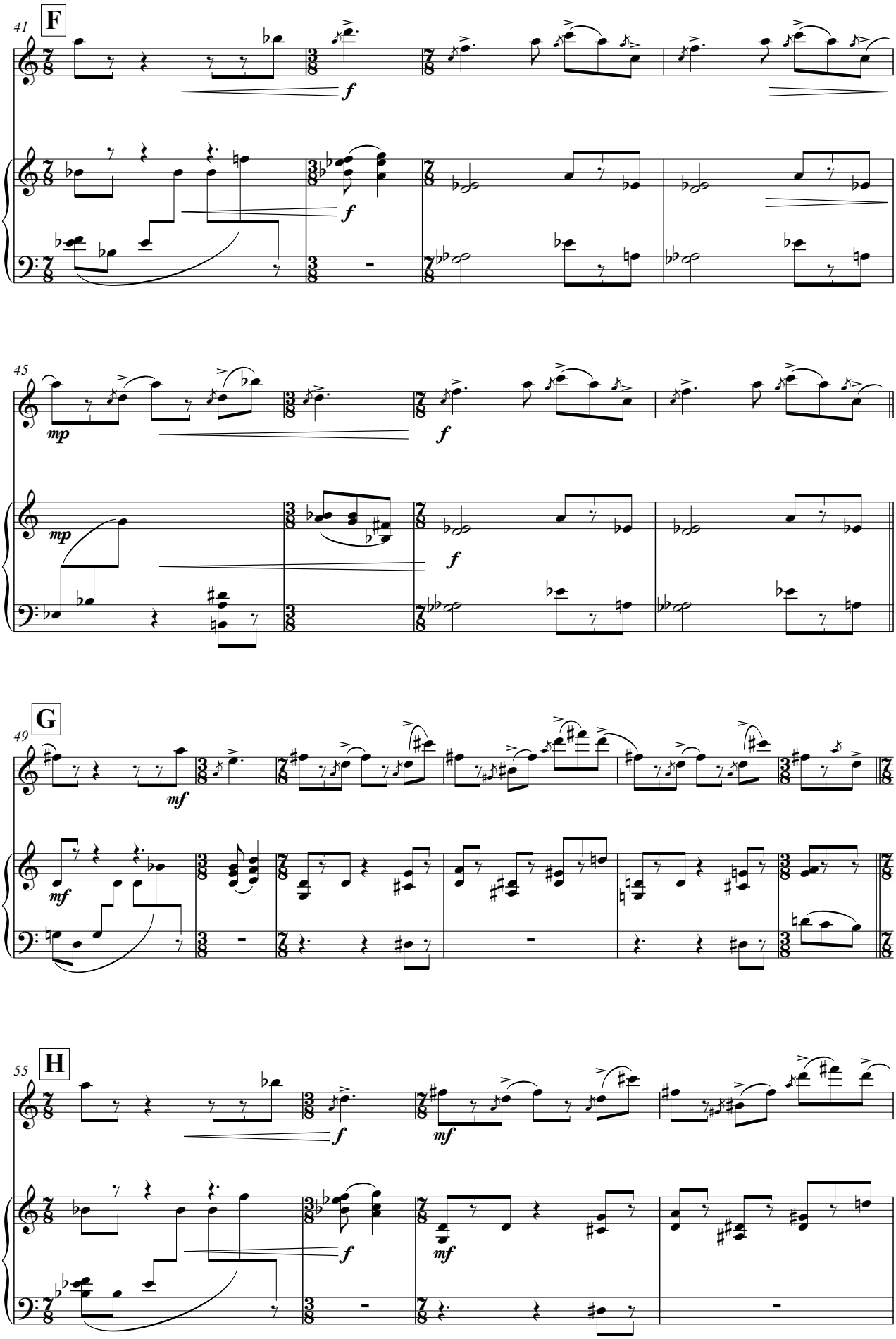
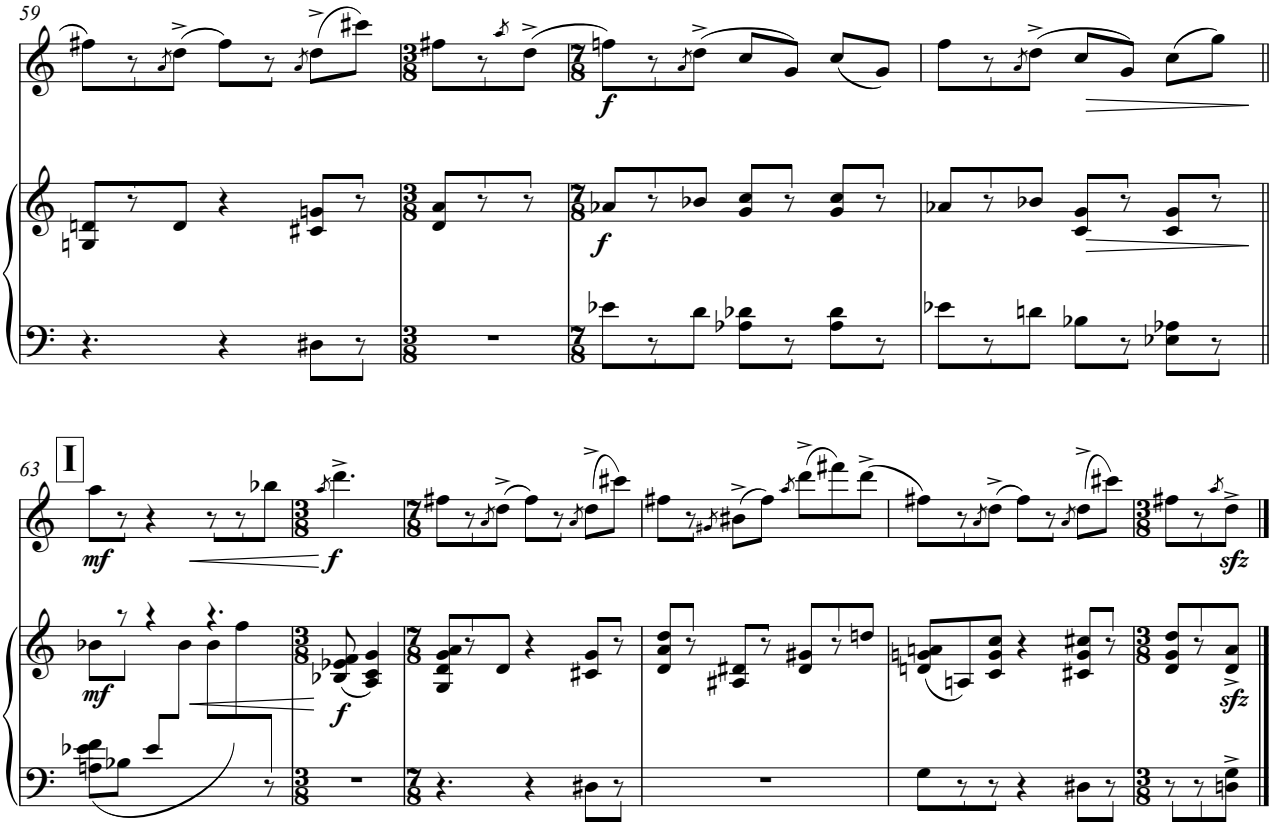

21
C
mf
27
D
31
f
f
35
E
mf

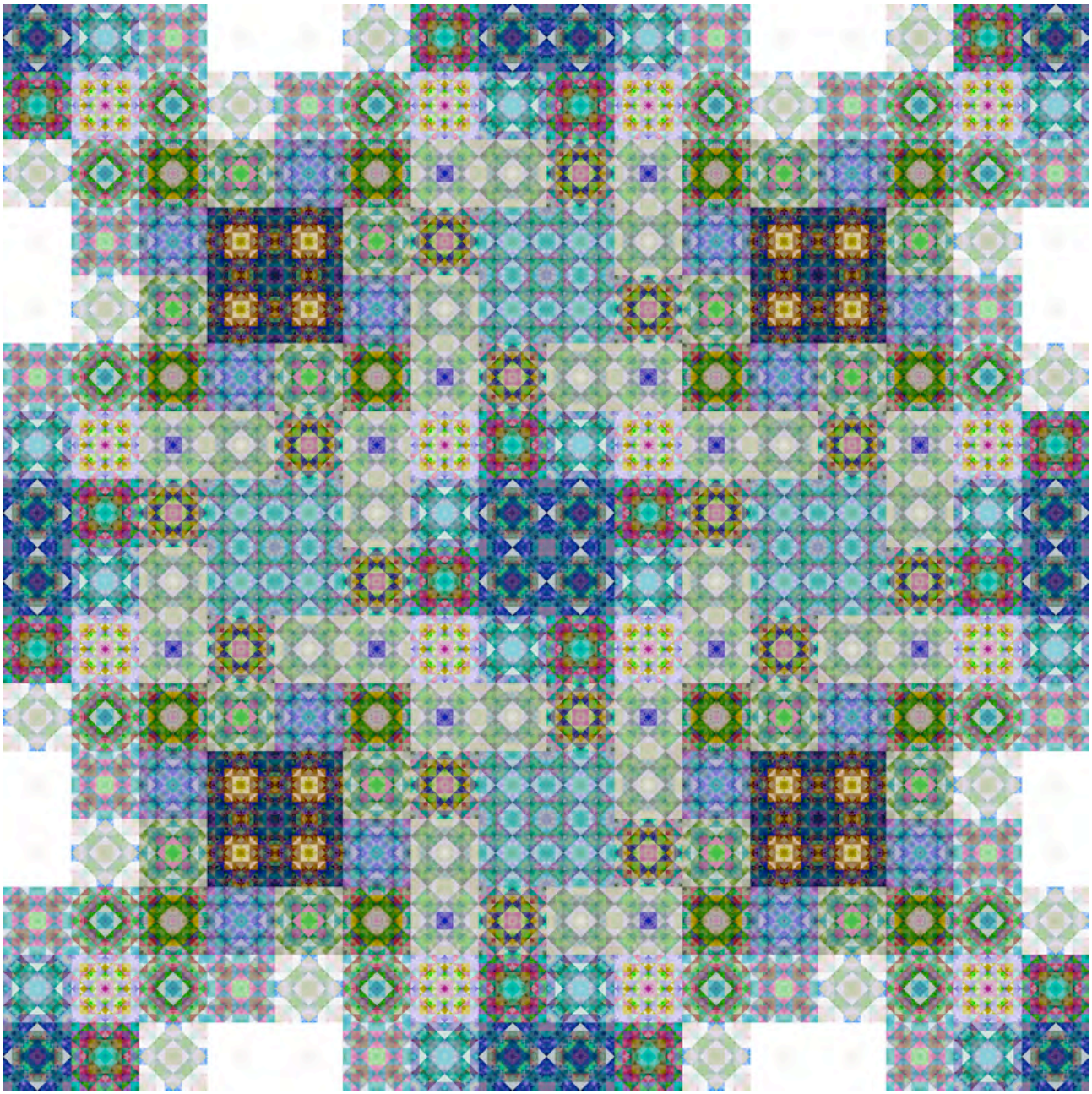

41
F
f
f
45
mp
mp
f
f
49
G
mf
mf
55
H
f
mf
mf


59
f
f

63
I
mf
f
mf
f
sfz
sfz

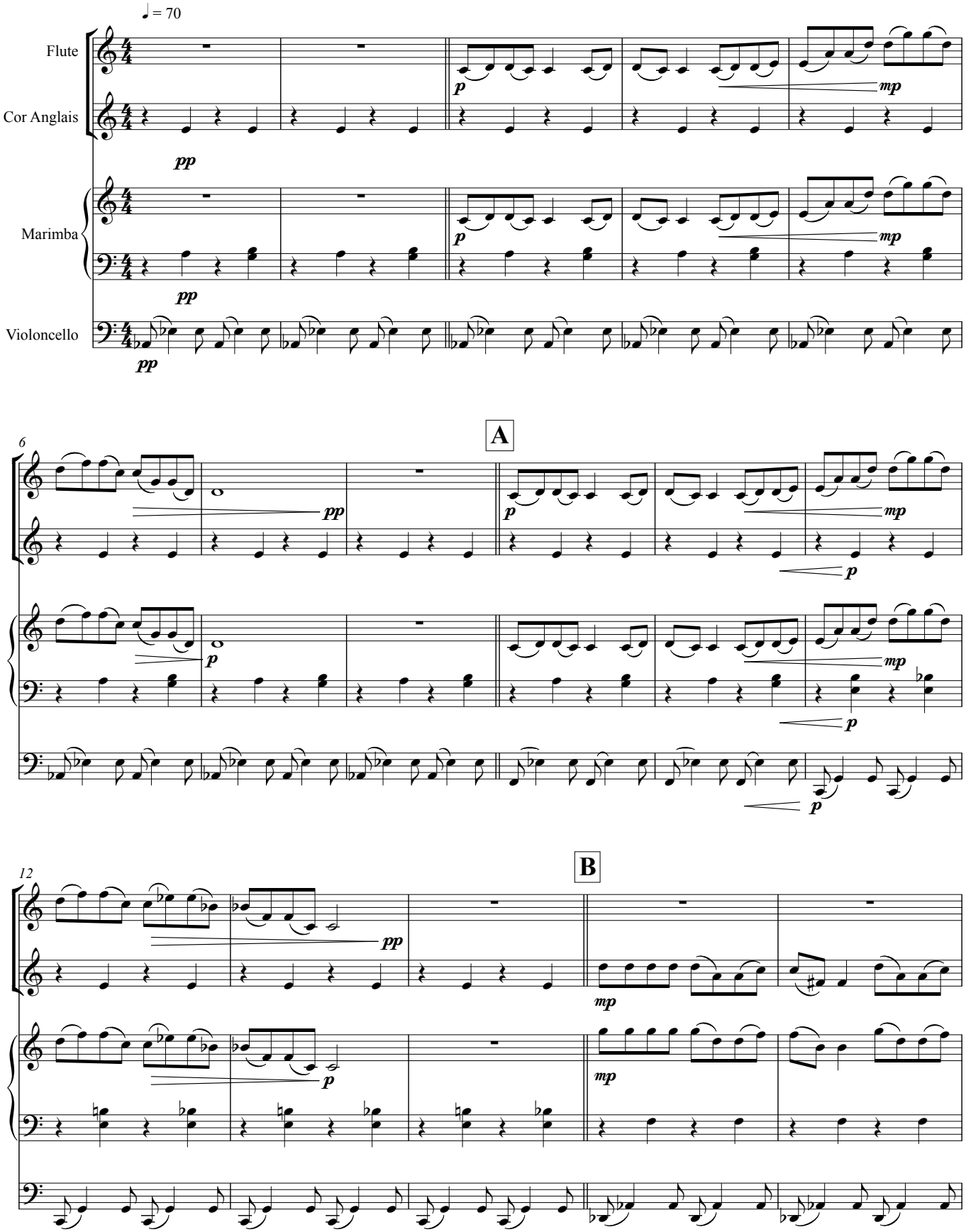
Square – Ensemble

Based on multiples of 2 and 4, the square grid suits time signatures such as 4/4, and the repetition of phrases over bar groupings of 4. This piece was composed freely within these guidelines.



- IV -
Square - Ensemble

Lee Westwood
(Brighton 2013)



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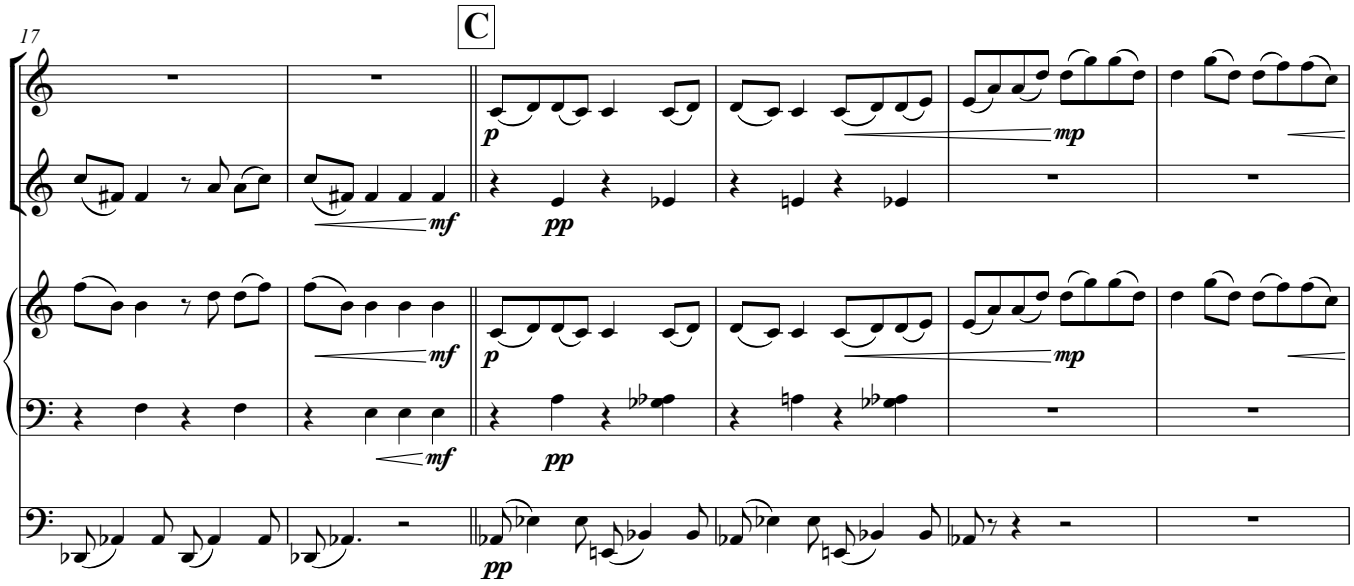
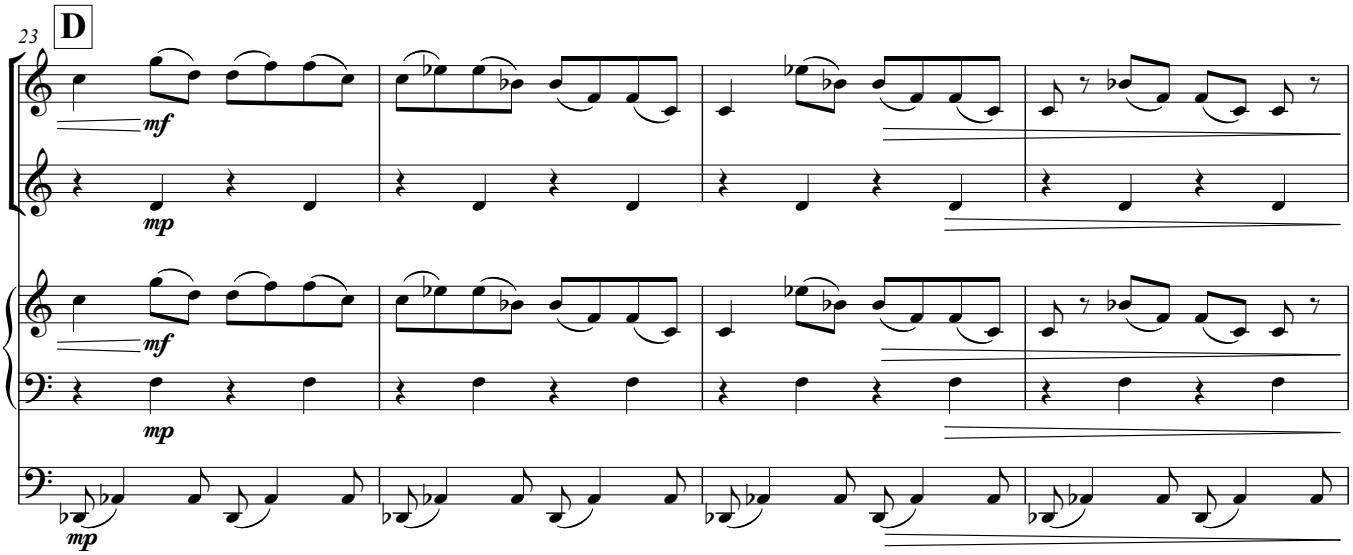
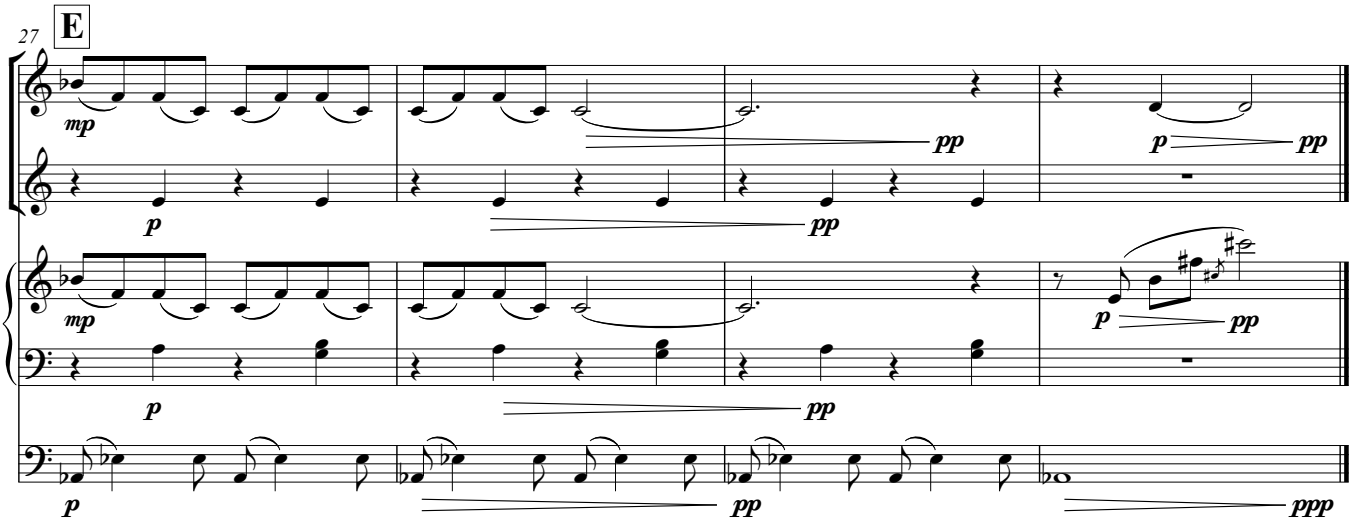
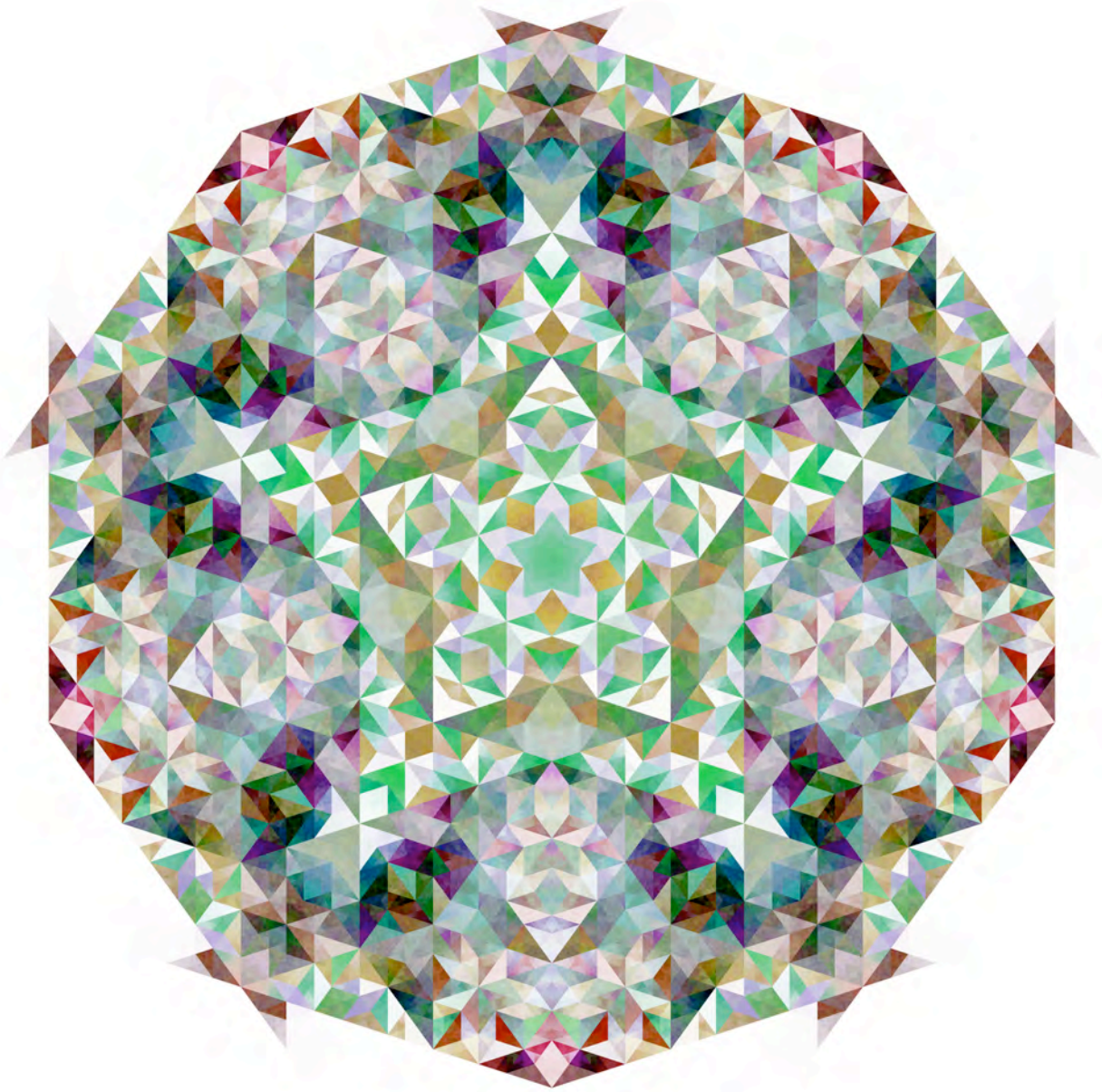

17
C
p
mf
pp
mp


23
D
mf
mp


27
E
mp
p
pp
ppp

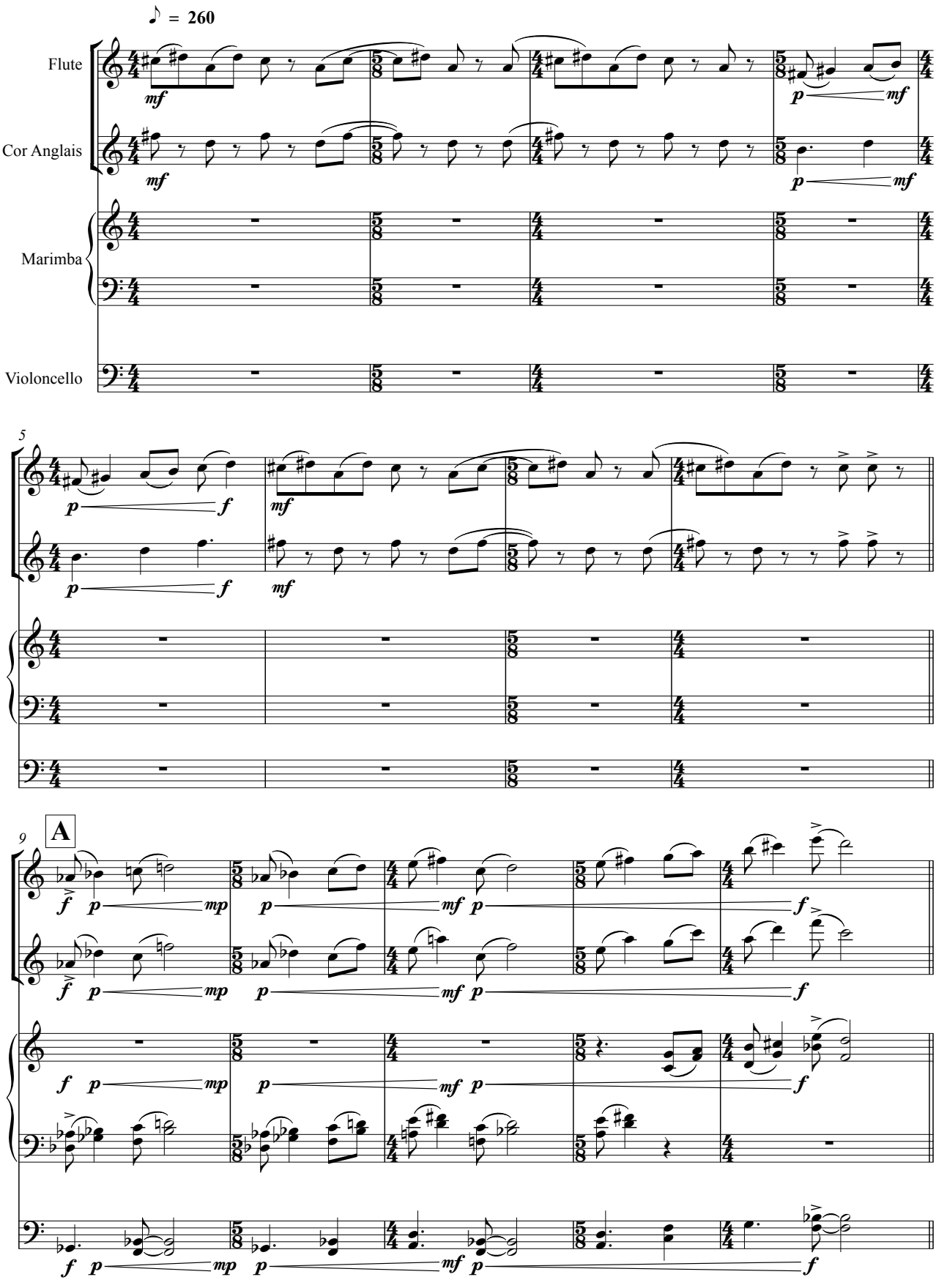
Pentagon II – Ensemble

A second short piece on the pentagonal grid, this was composed in much the same way as 'Pentagon I – Ensemble', in that both the music's phrasing and structure follows general visual guidelines which relate to the way the grid is constructed.



- V -
Pentagon II - Ensemble

Lee Westwood
(Brighton 2013)



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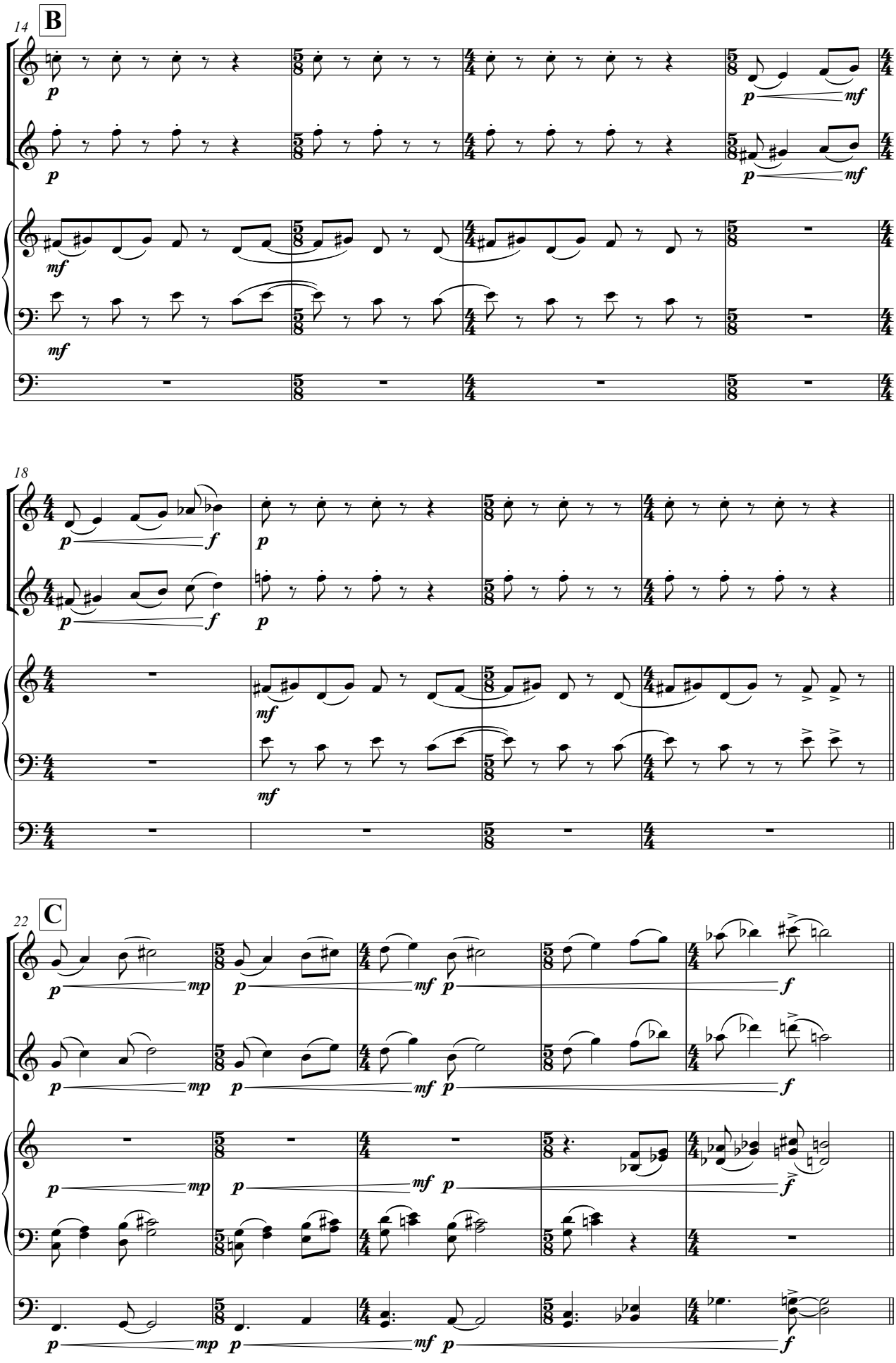
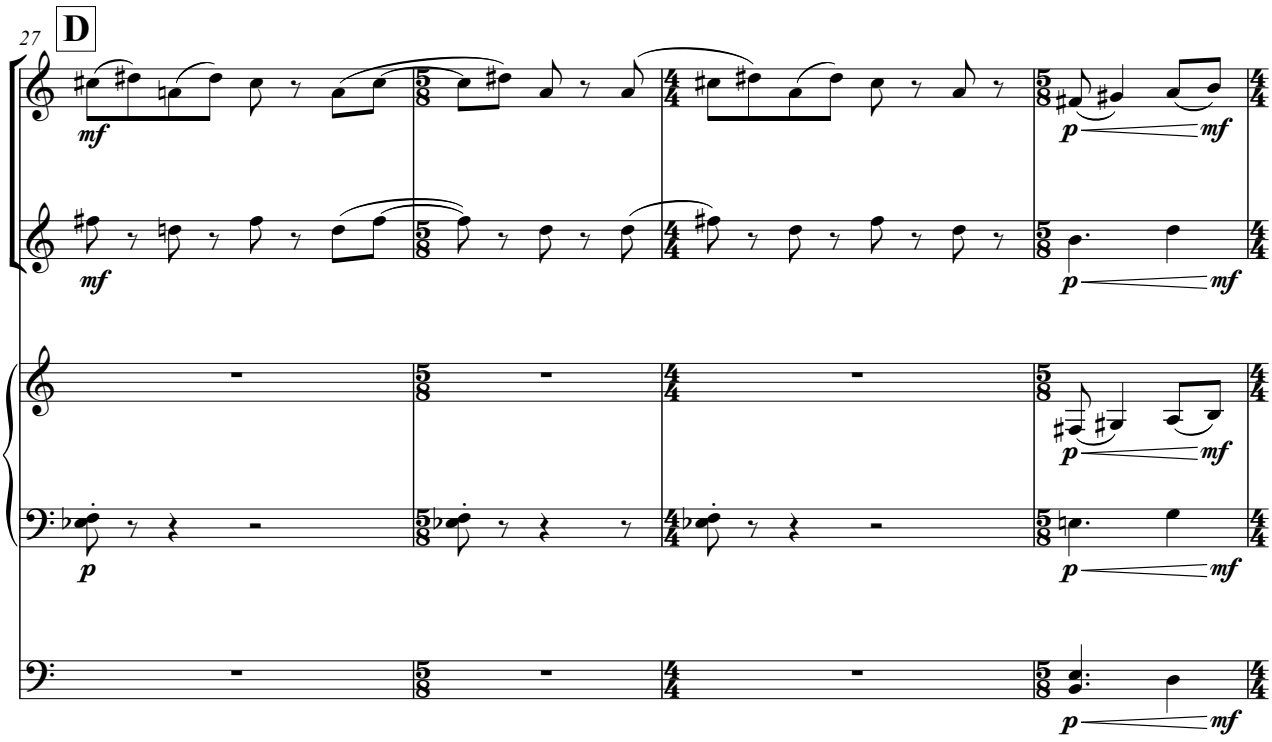
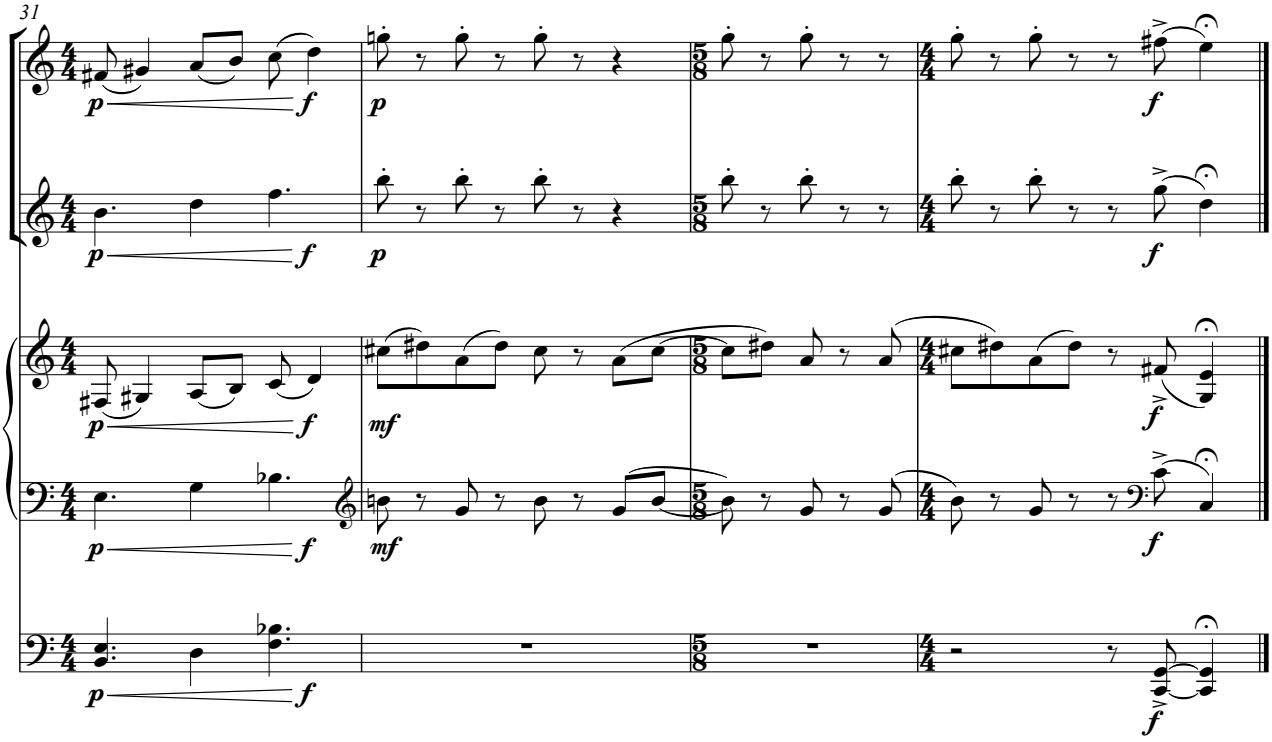
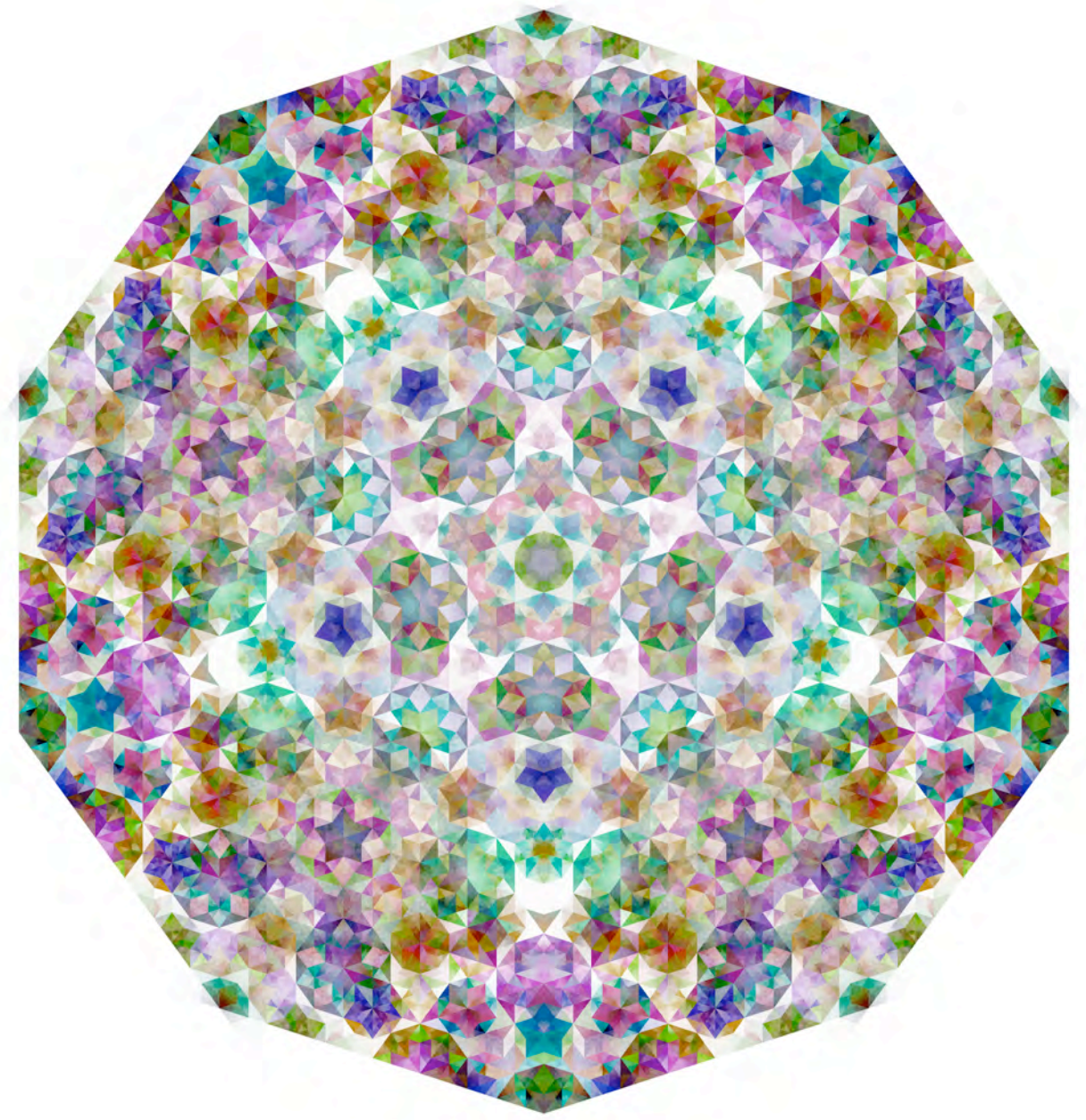

14
B
18
22
C


27
D
mf
p
mf


31
p
f
mf

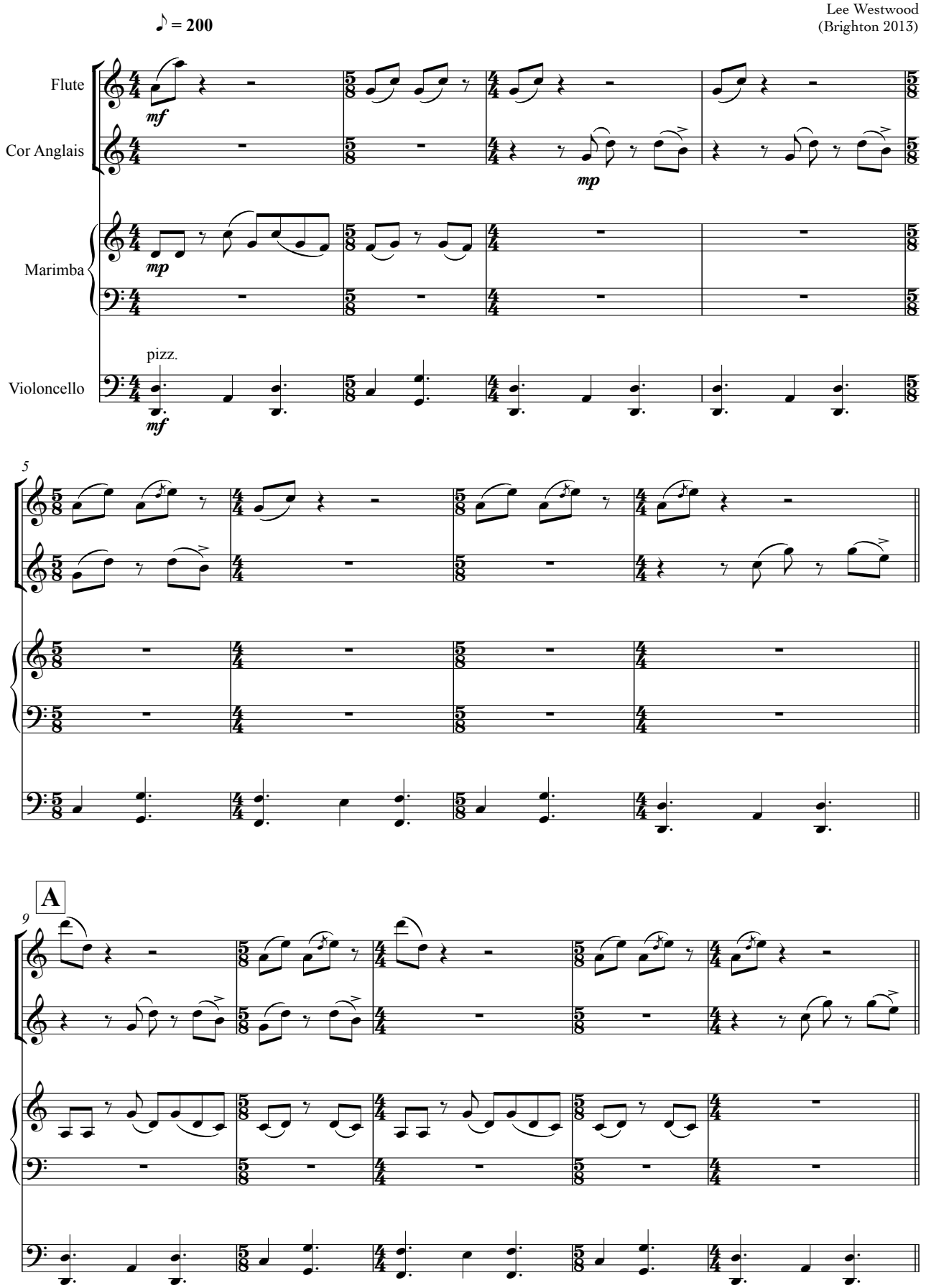
Pentagon III – 'Roundels' Ensemble

This movement was one of the strictest in terms of the music being predetermined by visually cued rules, and based on a subtly different grouping to the other pentagonal grids (a a b; b a). Each instrument describes a circle around key vertices at a different magnitude of the Penrose tiling, with the flute's two-note phrases filling in the smallest, and the cello's long bass patterns revealing the largest. Each distinct phrase creates a new circle.



- VI -
Pentagon III - 'Roundels' Ensemble

Lee Westwood
(Brighton 2013)



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B

14

mp

mp

18

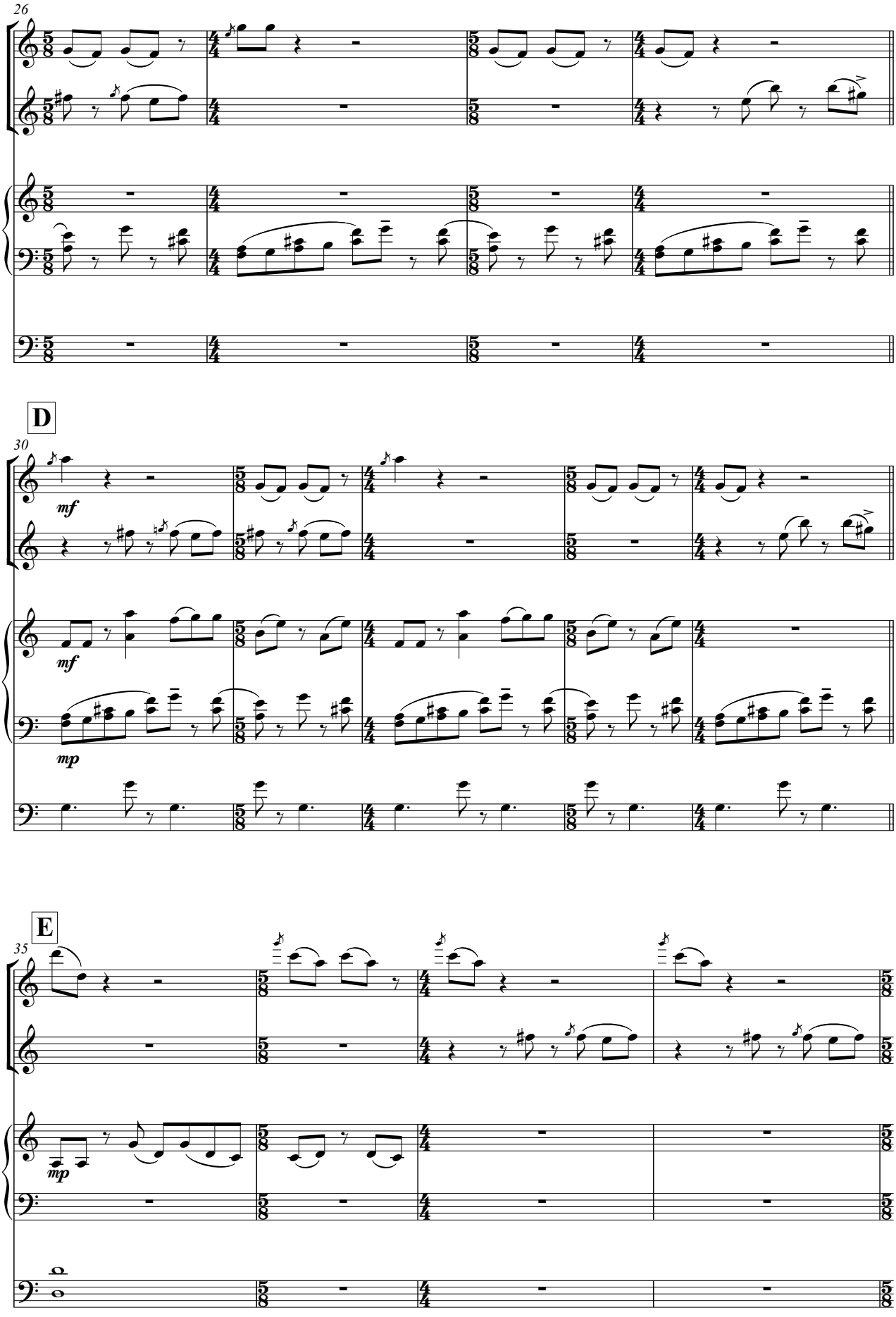
mf

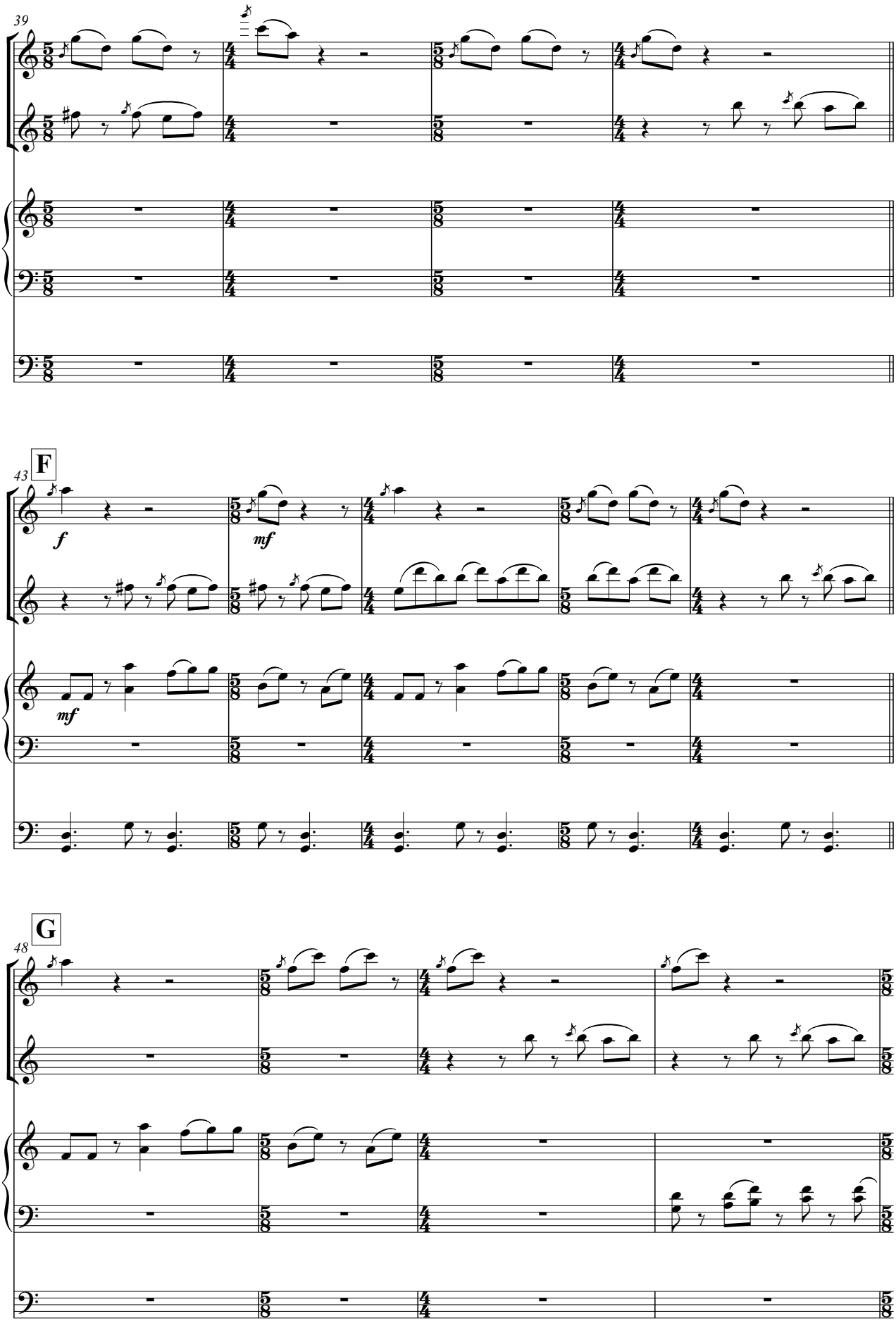
C

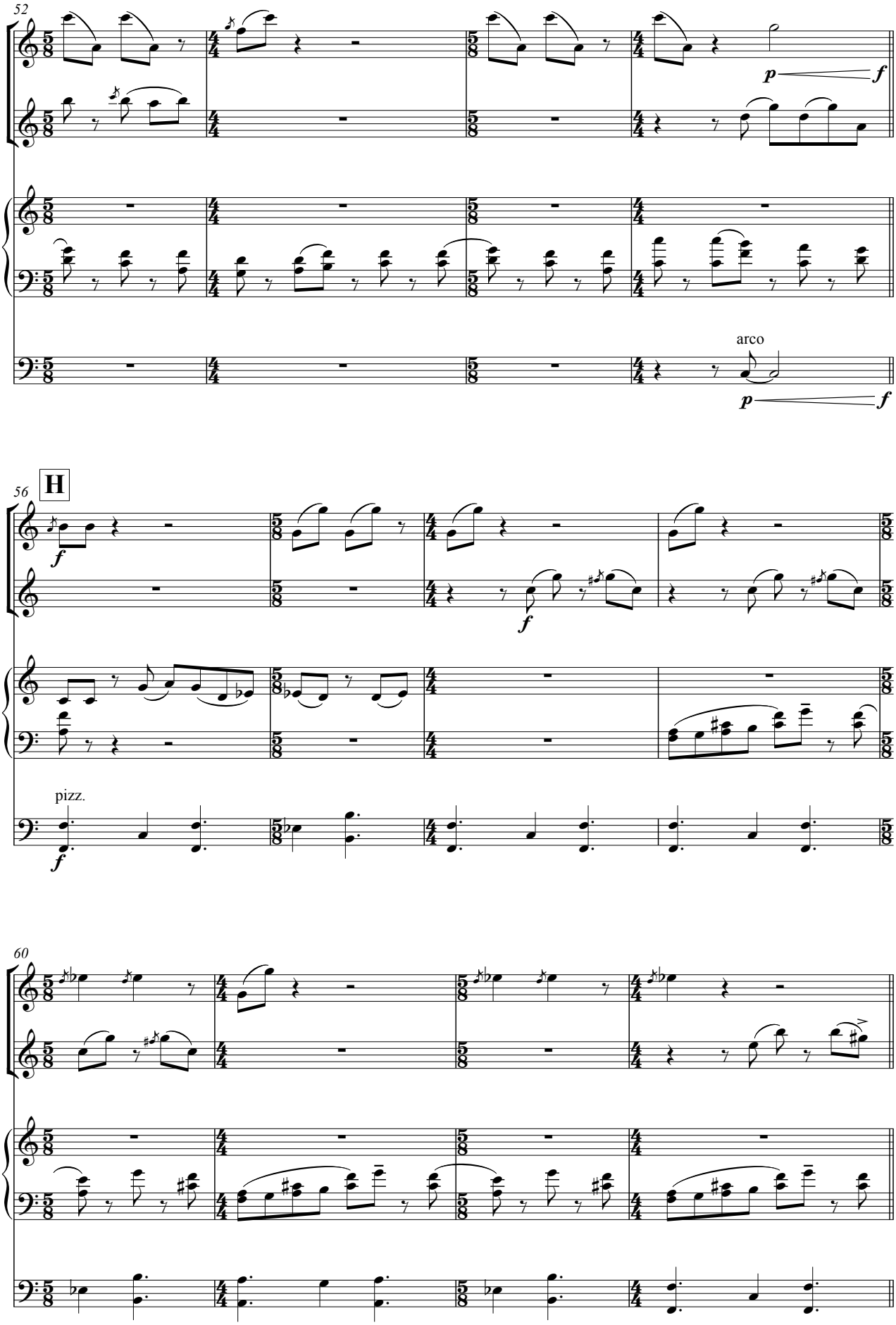
22

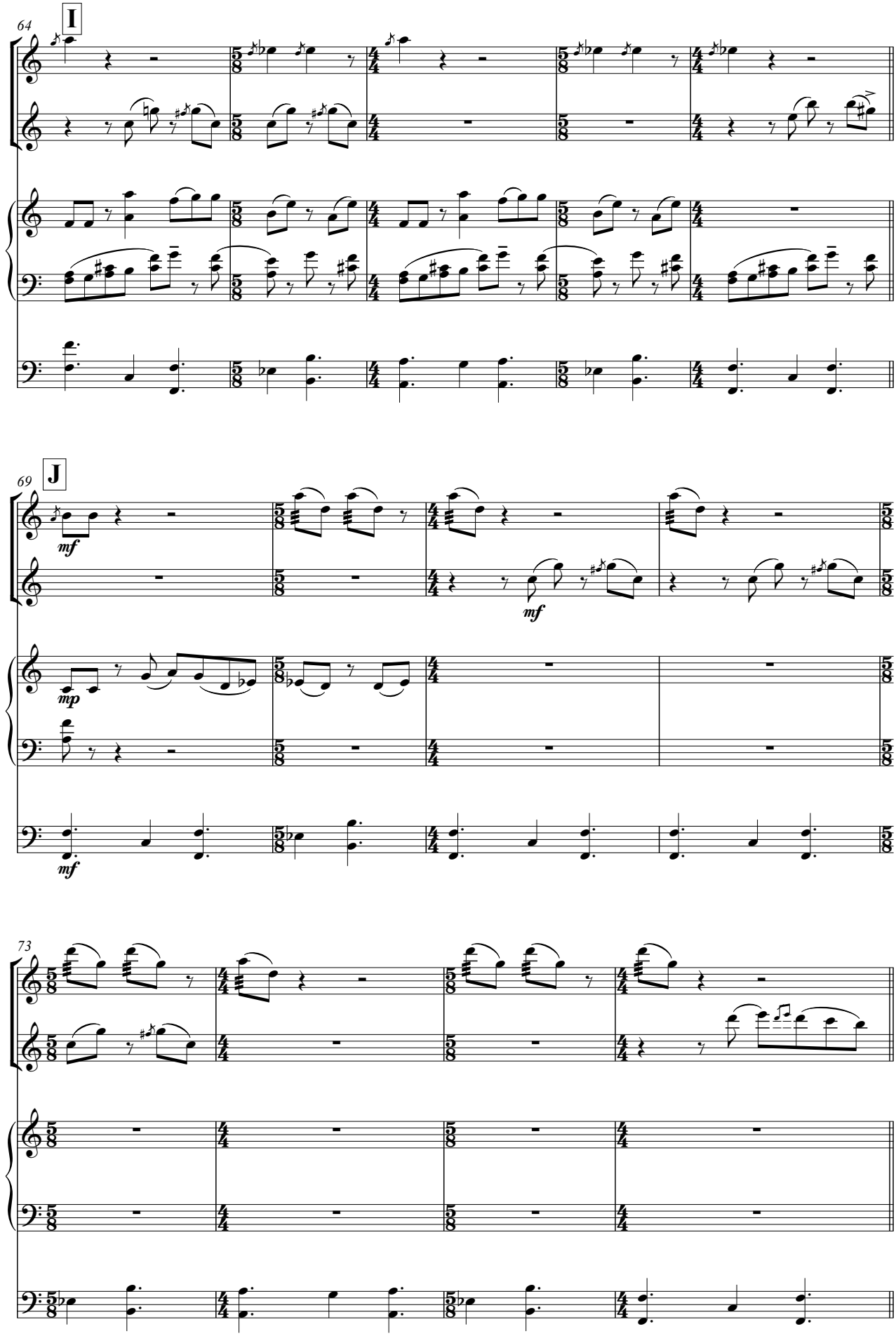
mf

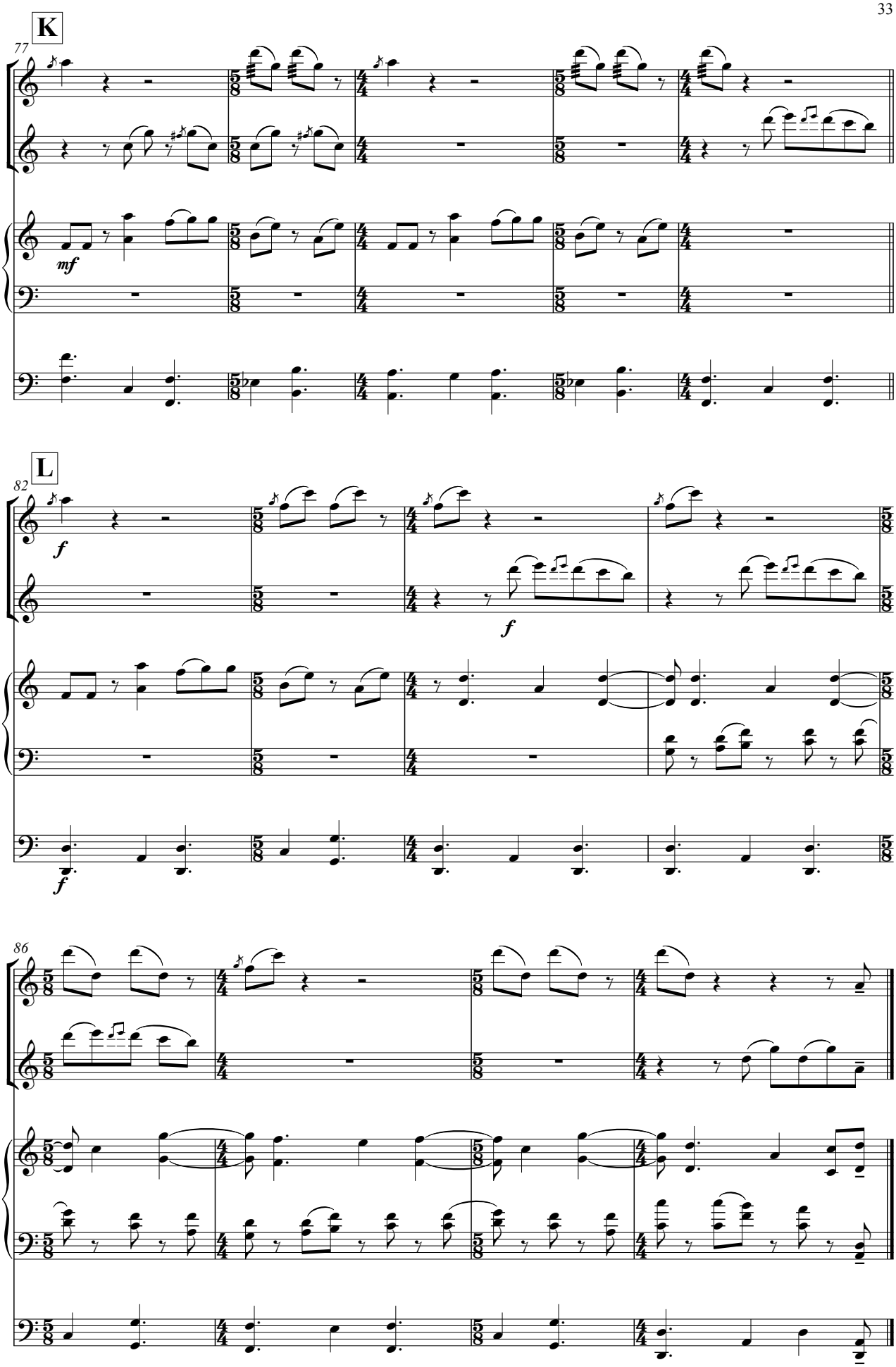
mp


26
D
30
mf
mf
mp
E
35
mp


39
43
F
f
mf
mf
48
G

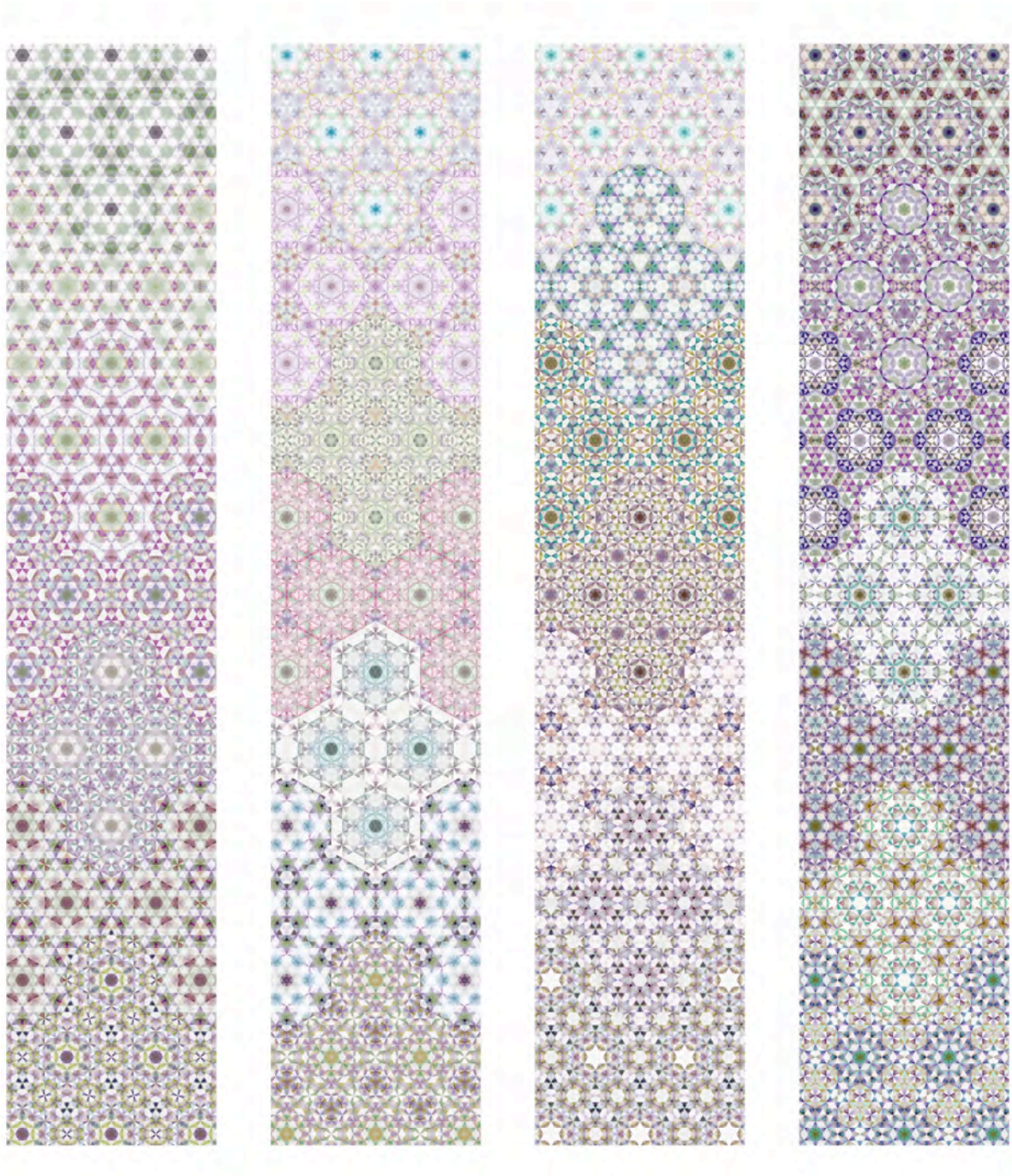

52
p
f
arco
p
f
56
H
f
f
pizz.
f
60


64
I
69
J
mf
mp
mf
mf
73


K
77
mf
L
82
f
f
f
86

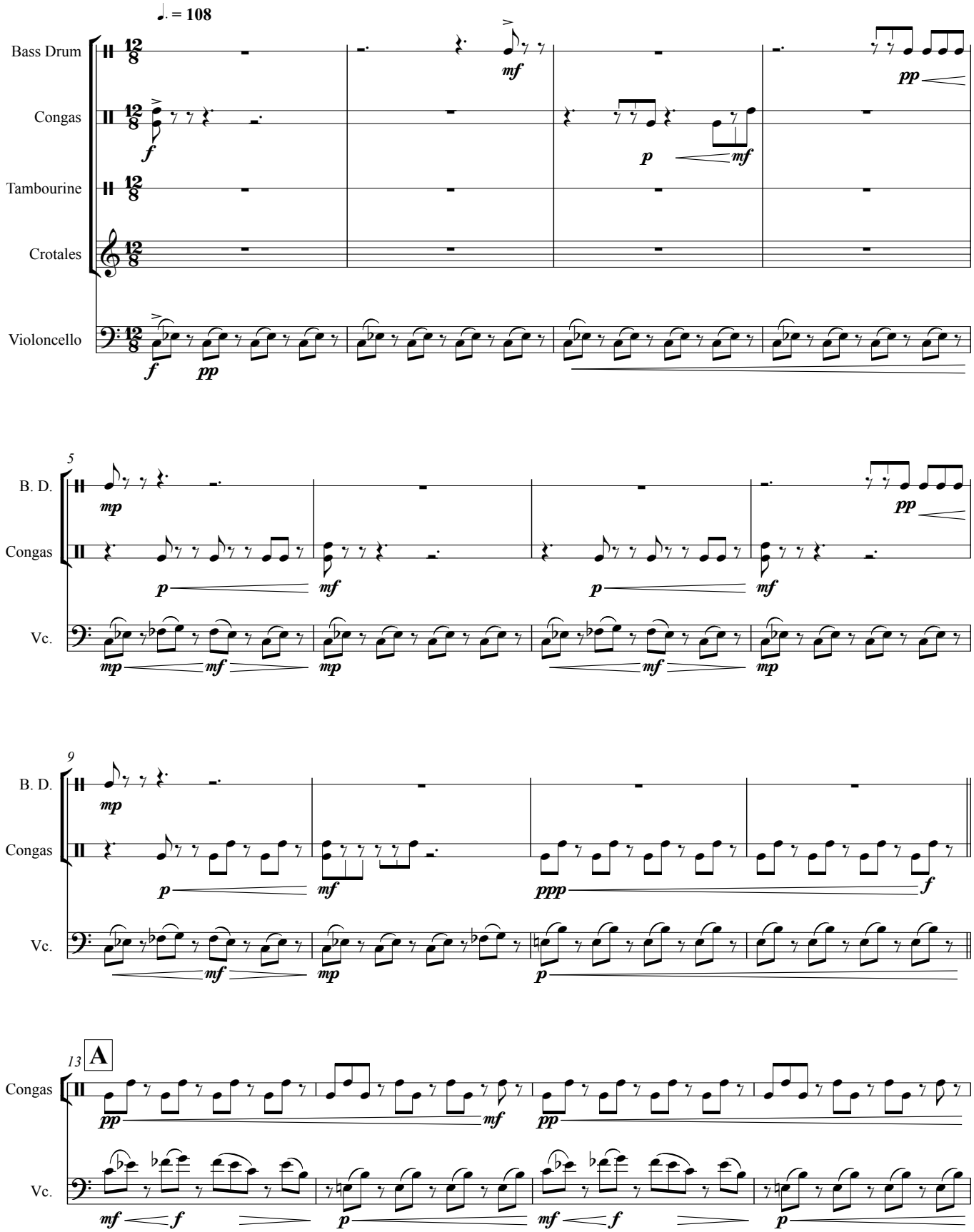
Hexagon II – Cello & Percussion

Based on extensive rhythmic trials from earlier versions of the hexagonal grid, this piece was composed freely, yet built from phrasing we found to be visually strong. The introduction of each rhythm leads on to its gradual decay, venturing to obscure the listener's sense of meter.



- VII -
Hexagon II - Cello & Percussion

Lee Westwood
(Brighton 2013)



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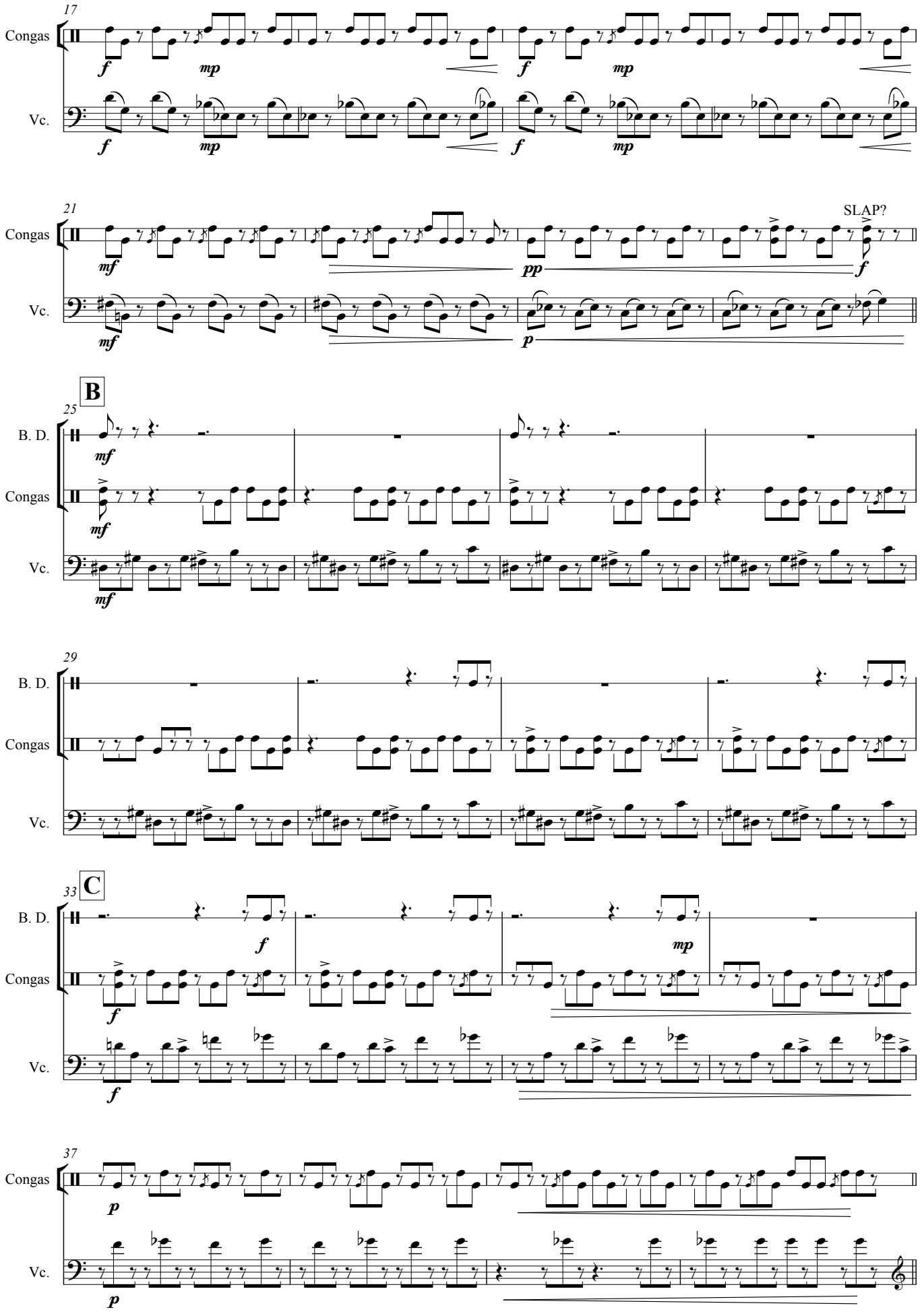

17
Congas
Vc.
f
mp
21
SLAP?
mf
pp
p
B
25
B. D.
29
33
C
37

D

41

B. D.

Congas

Tamb.

Vc.

f

f

mp

f

45

B. D.

Congas

Tamb.

Vc.

ff

49

B. D.

Congas

Tamb.

Vc.

mp

pp

mf *pp* *mp* *pp*

p

mf *p*

ppp

p

mf *p*

53 **E**

Congas

Tamb.

Crot.

Vc.

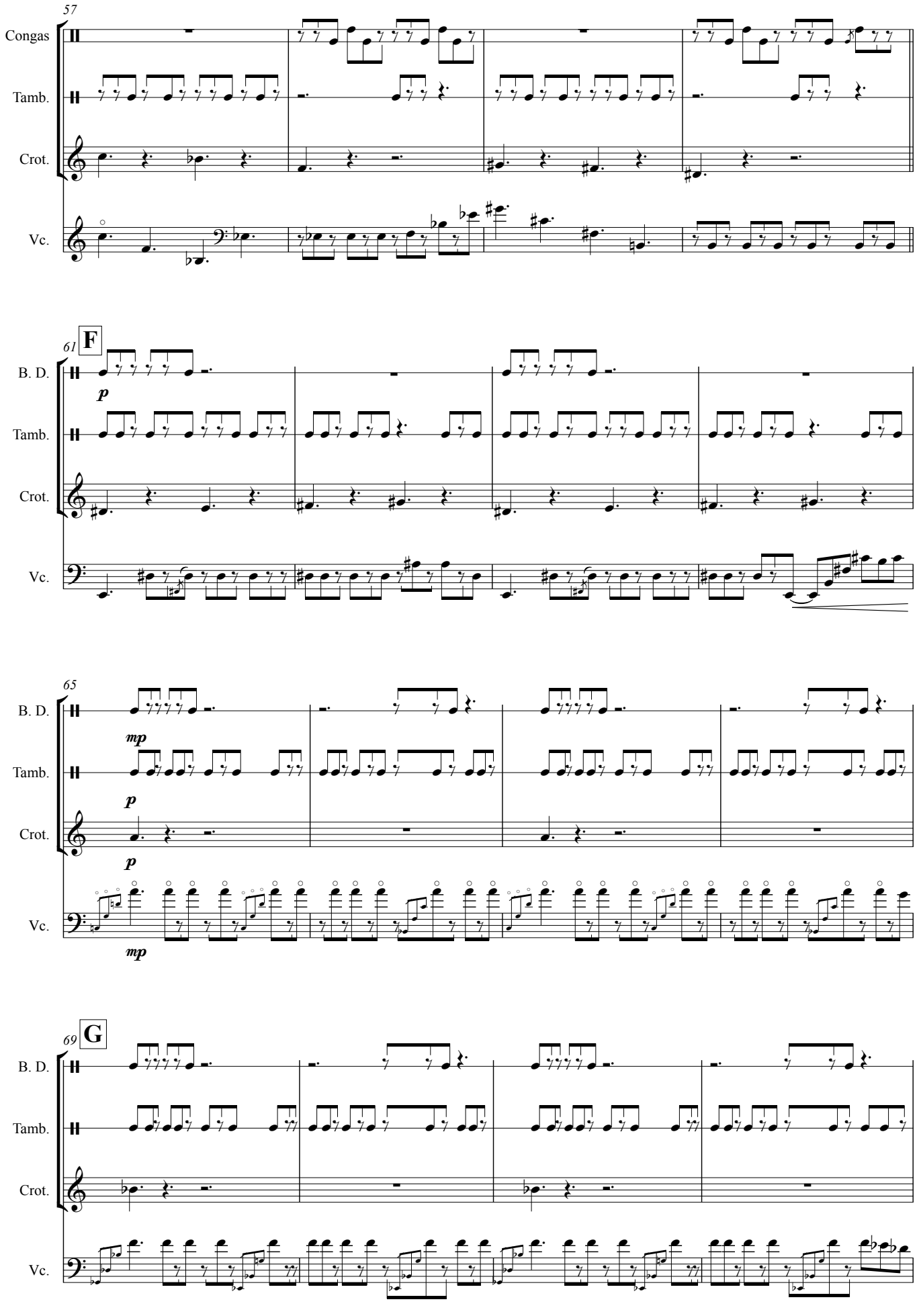
pp

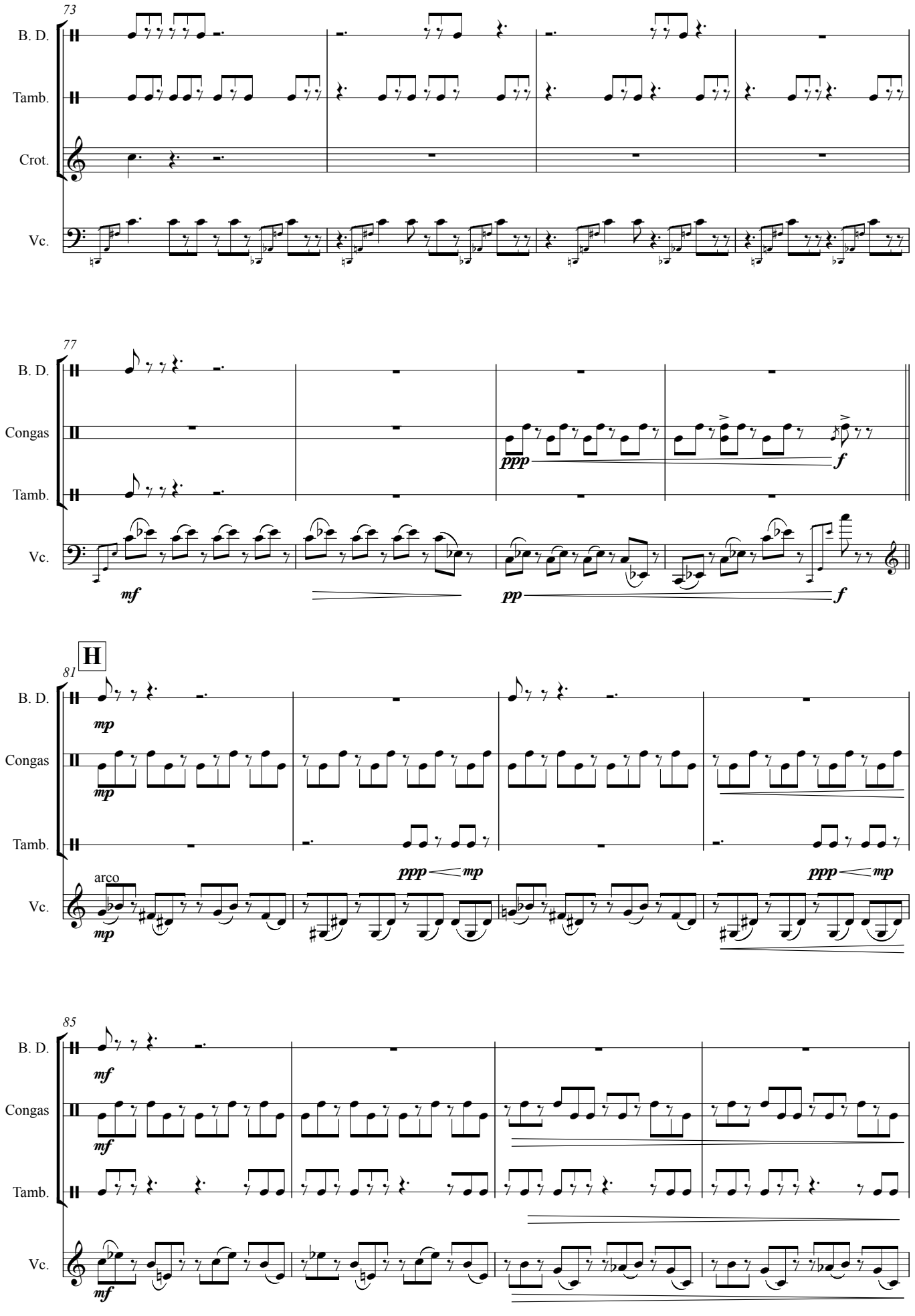
pp

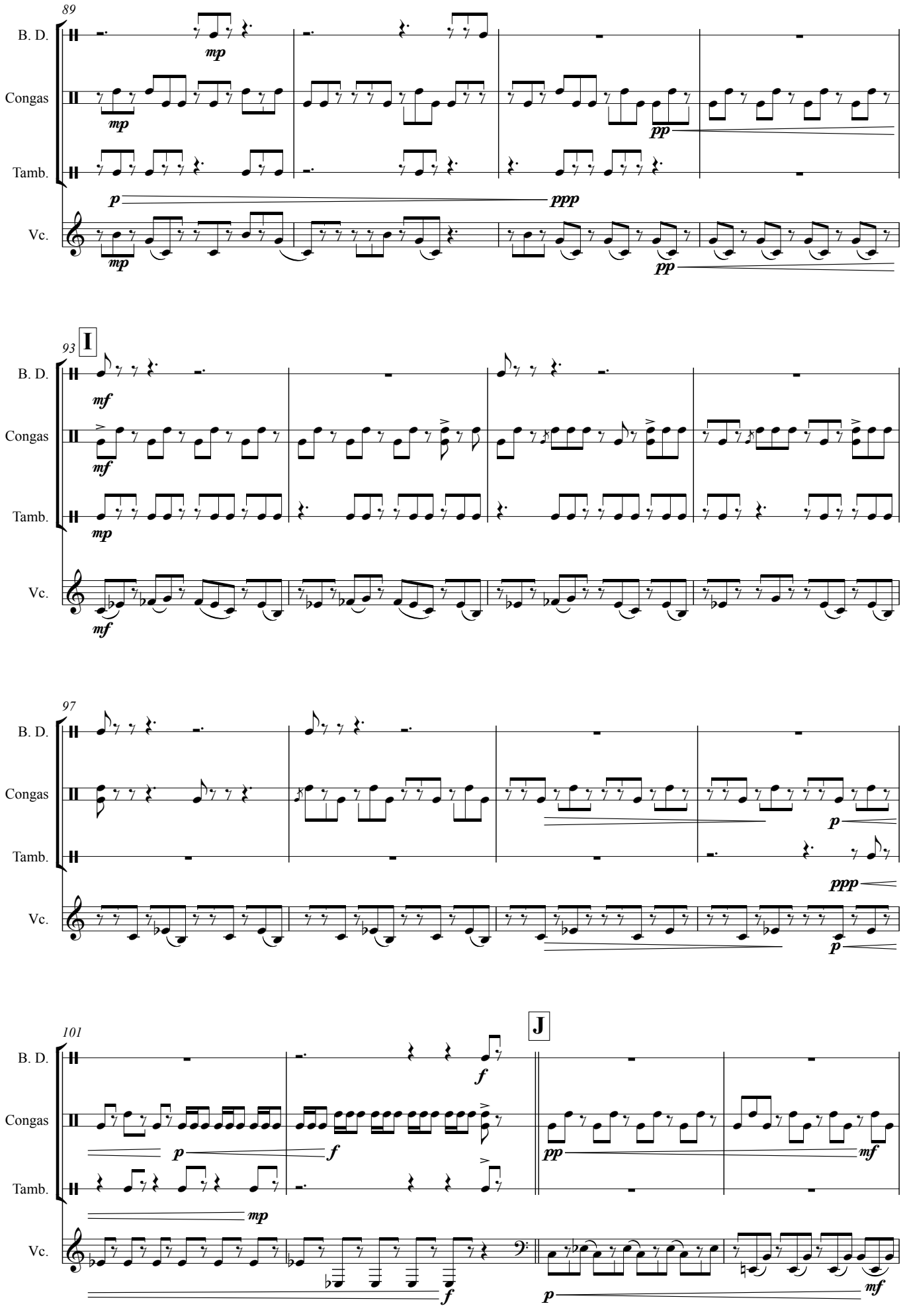
pp

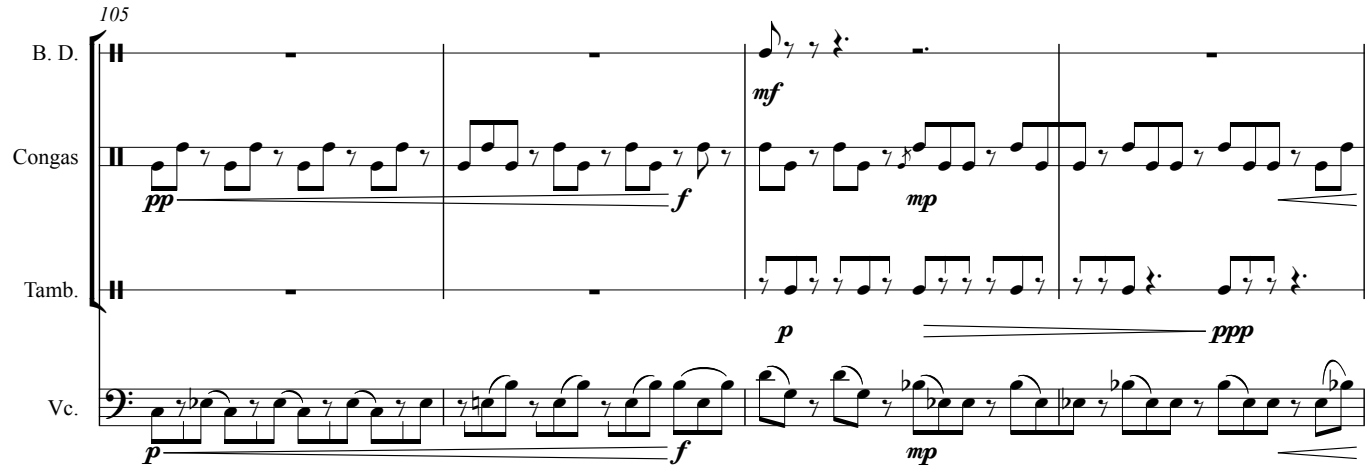
pizz.

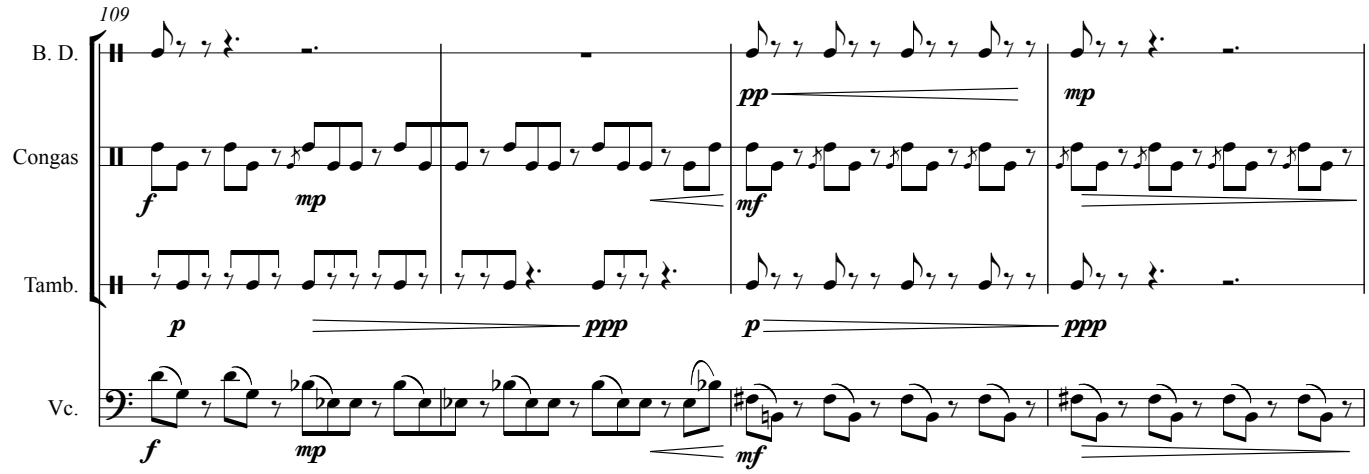
p

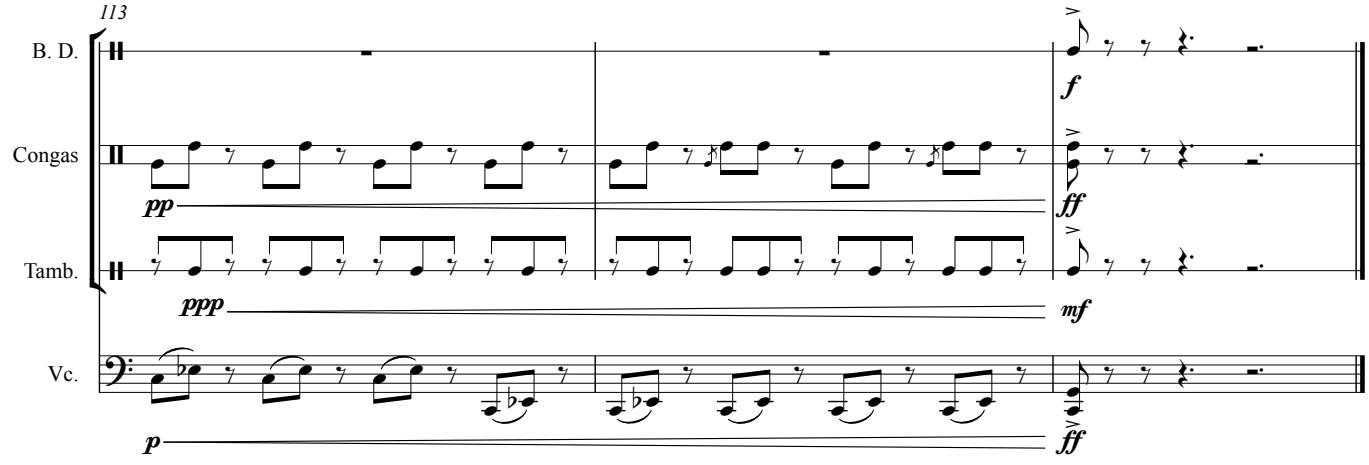

57
Congas
Tamb.
Crot.
Vc.
61
F
B. D.
Tamb.
Crot.
Vc.
p
65
B. D.
Tamb.
Crot.
Vc.
mp
p
p
mp
69
G
B. D.
Tamb.
Crot.
Vc.


73
B. D.
Tamb.
Crot.
Vc.
77
B. D.
Congas
Tamb.
Vc.
ppp
f
mf
pp
f
H
81
B. D.
Congas
Tamb.
Vc.
mp
mp
arco
mp
ppp
mp
ppp
mp
85
B. D.
Congas
Tamb.
Vc.
mf
mf
mf


89
B. D.
Congas
Tamb.
Vc.
mp
pp
ppp
93
I
mf
97
p
101
J
f

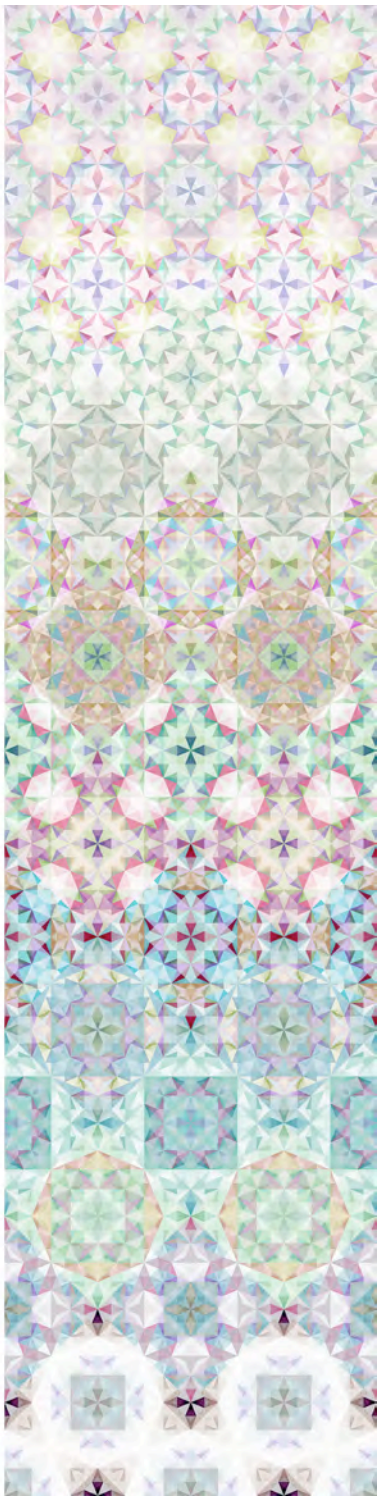

105
B. D.
Congas
Tamb.
Vc.
pp
f
mf
mp
p
ppp


109
B. D.
Congas
Tamb.
Vc.
f
mp
pp
mf
p
ppp


113
B. D.
Congas
Tamb.
Vc.
pp
ppp
p
f
ff
mf

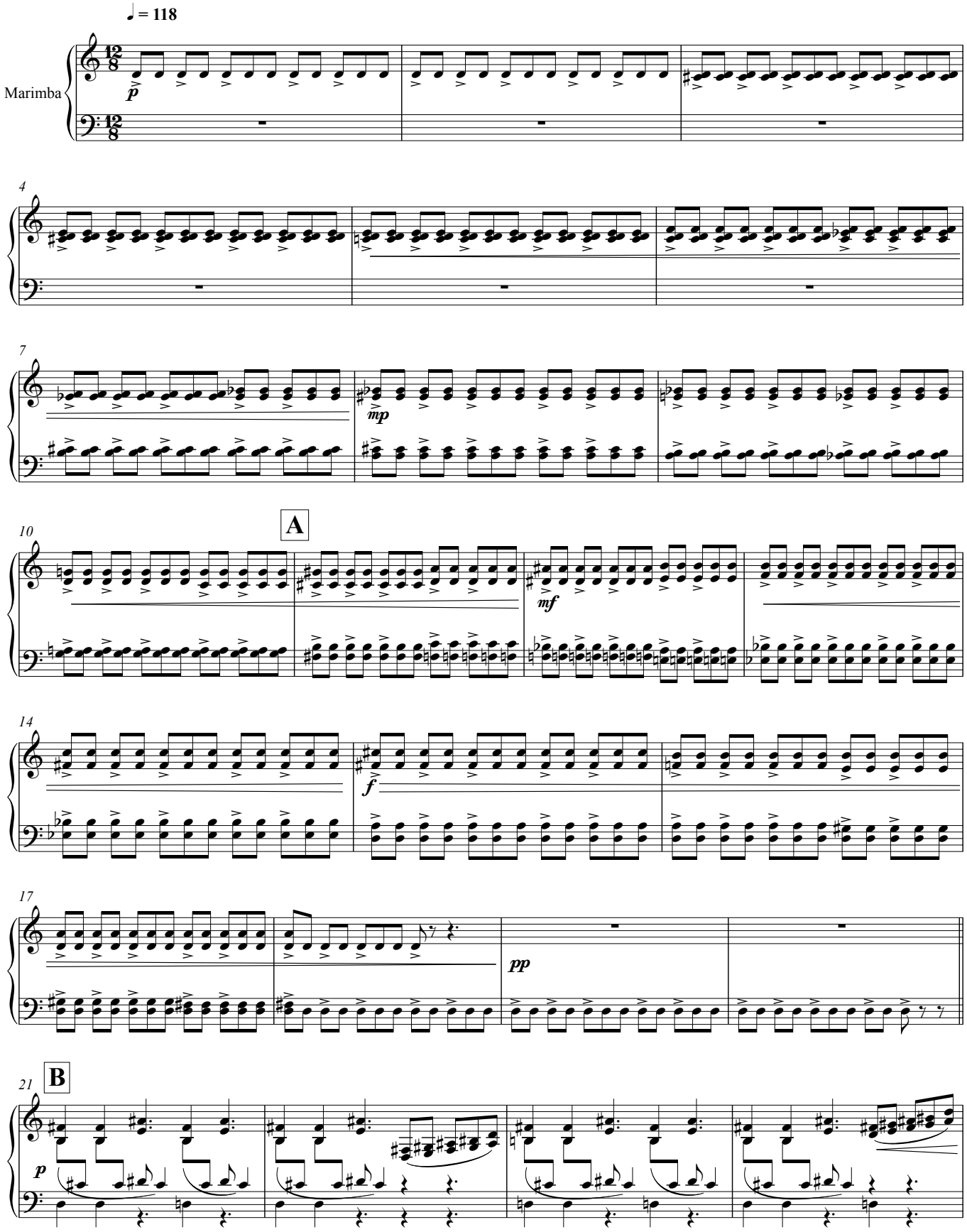
Octagon Square – Marimba

This grid, as with other octagonal grids, is based on the silver mean, but by only extracting a small phrase (ab ab aba ab aba) we create a musical bar which, when repeated, enables octagonally derived phrases to be built up into square tiles made from groups of 2, 4, 8 bars and so on, a more traditionally musical nested sequence.



- VIII -
Octagon Square - Marimba

Lee Westwood
(Brighton 2013)



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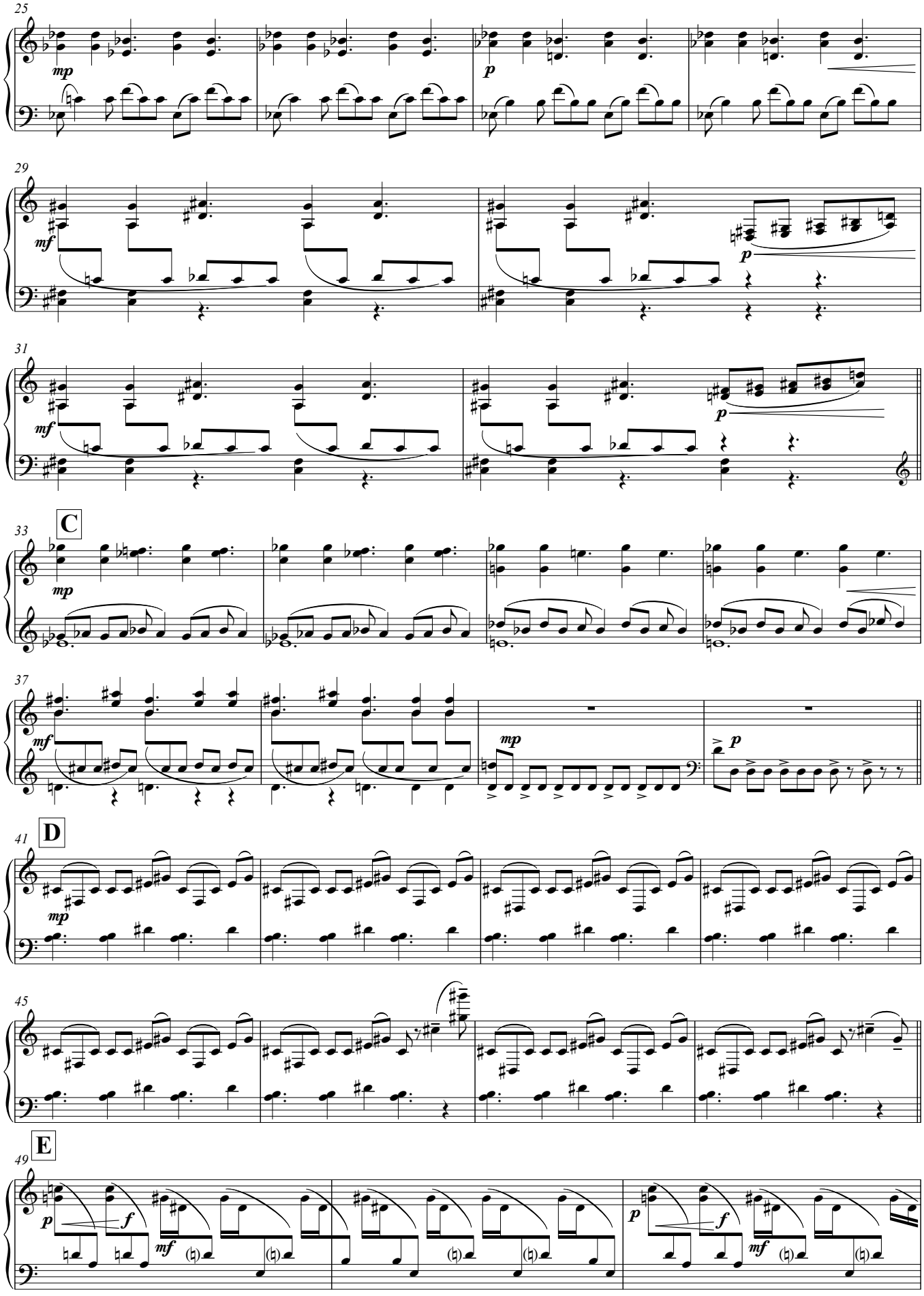
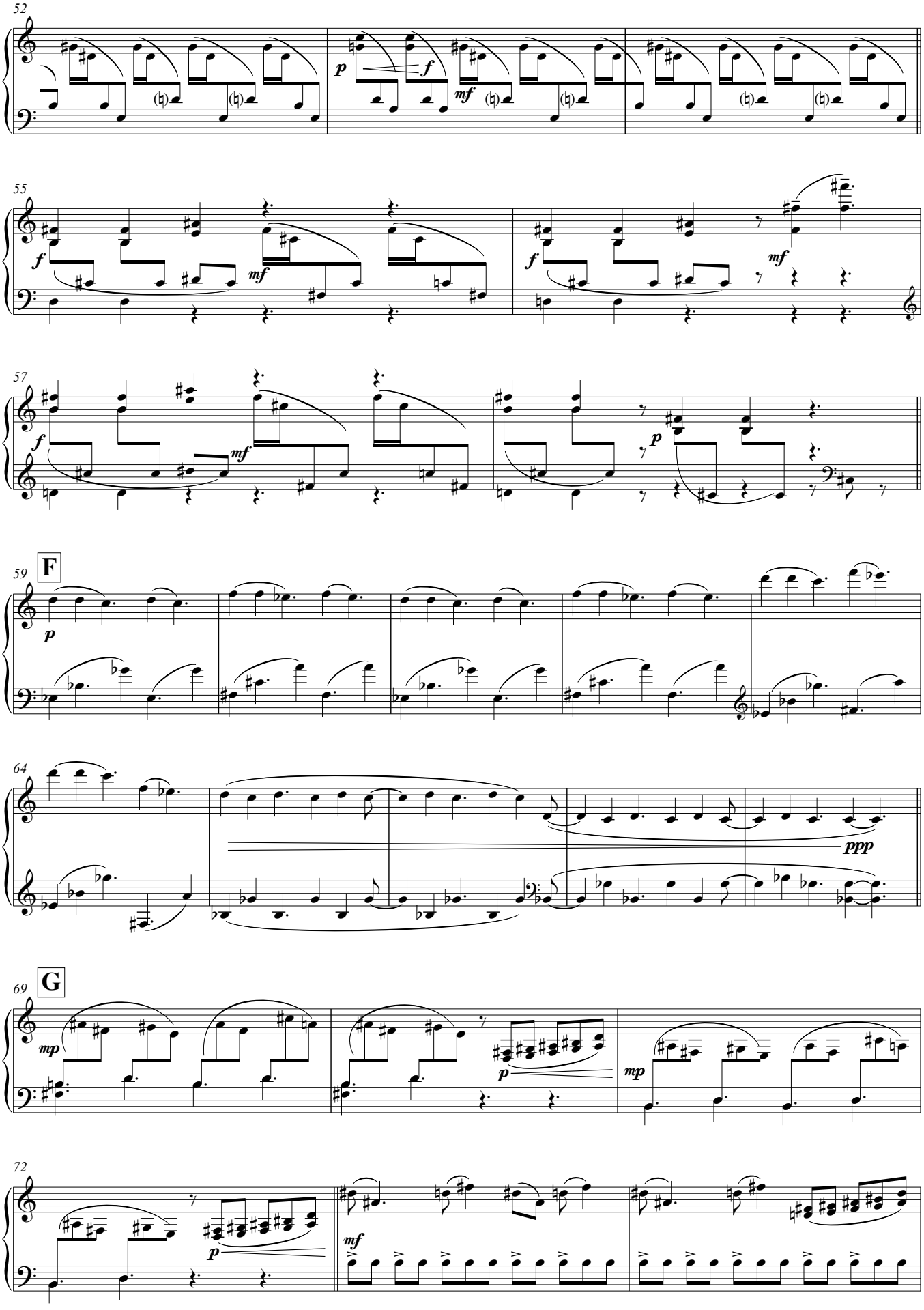
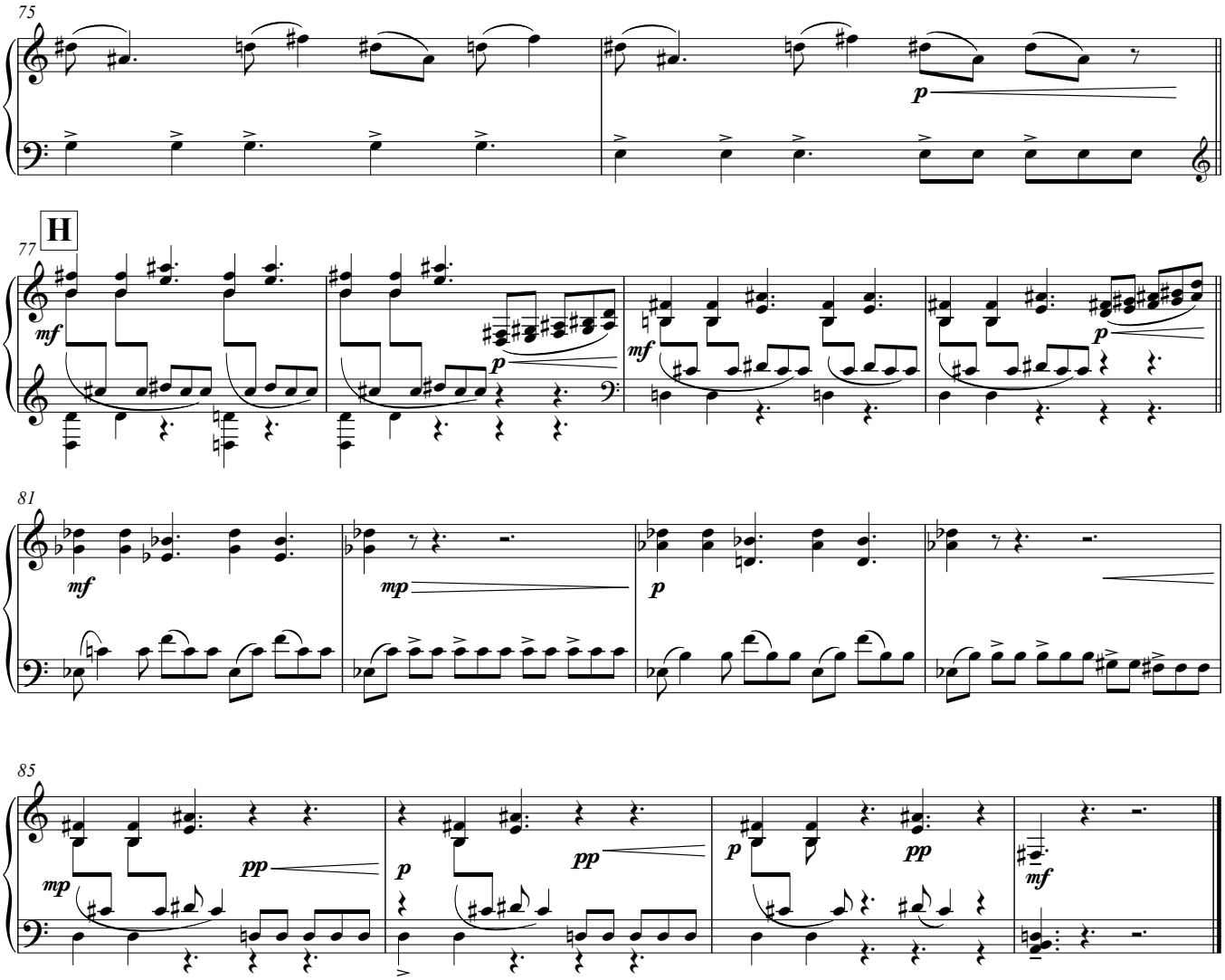
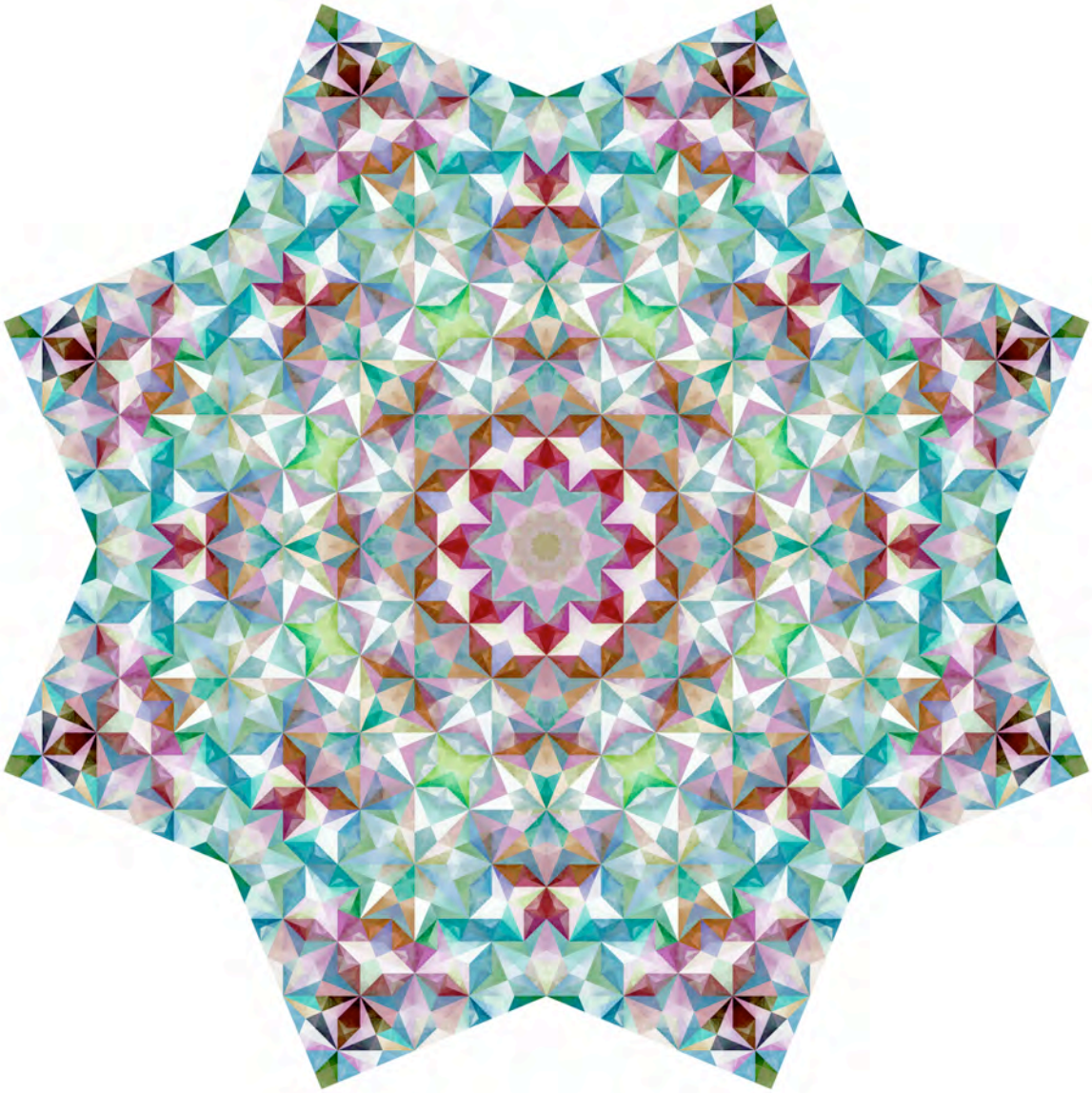

25
mp
p
29
mf
p
31
mf
p
C
33
mp
37
mf
mp
p
D
41
mp
45
E
49
p
f
mf
p
f
mf


52
55
57
59
F
64
69
G
72


75
p
H
77
mf
p
mf
p
81
mf
mp
p
85
mp
pp
p
pp
p
pp
mf

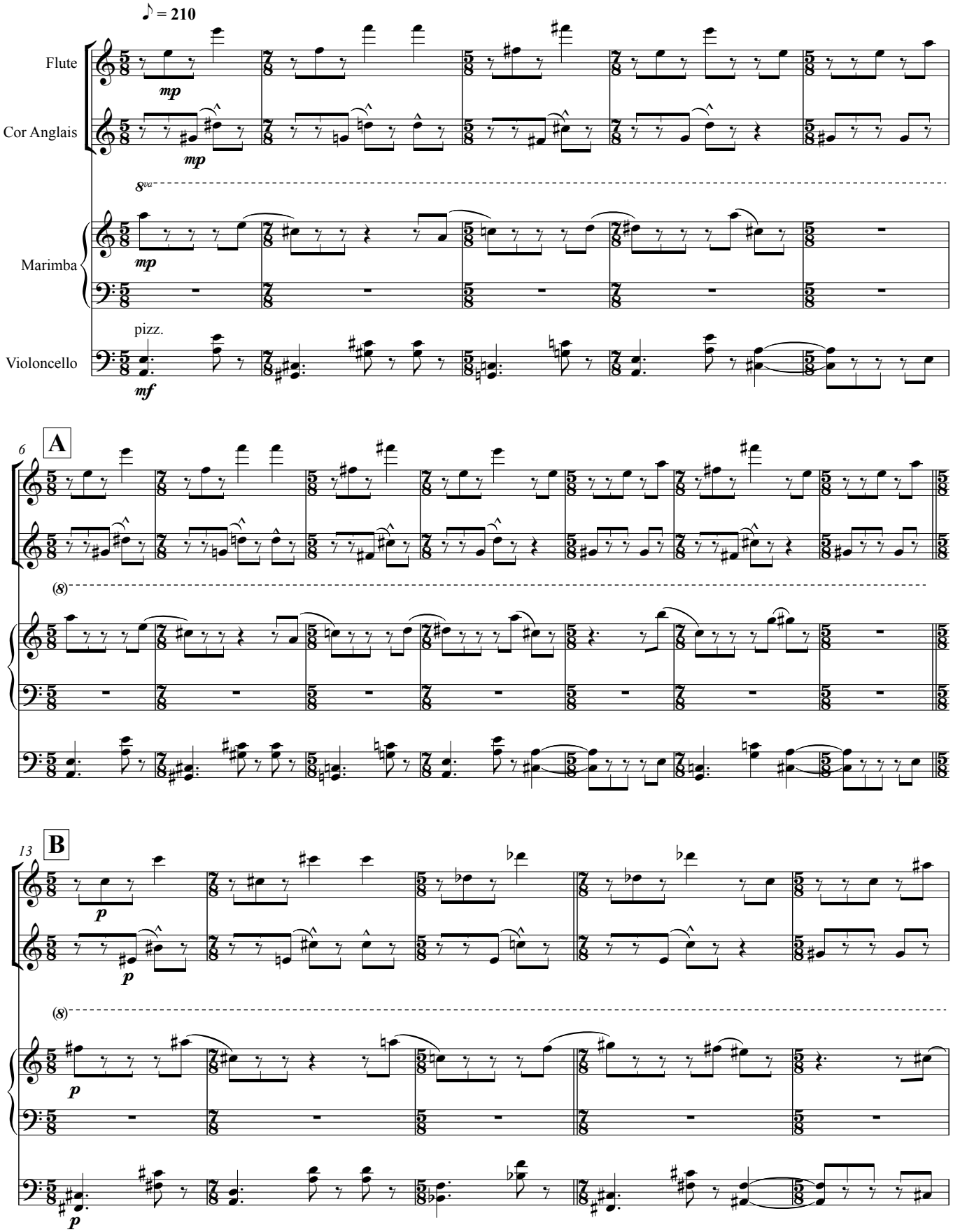
Octagon II – Ensemble

This piece was composed with fairly strict musical guidelines, to really bring out the core features of the octagonal grid (a = aba ba; b = aba ba ba). A simple and repetitive theme, each instrument describes a different part of the nested sequence.

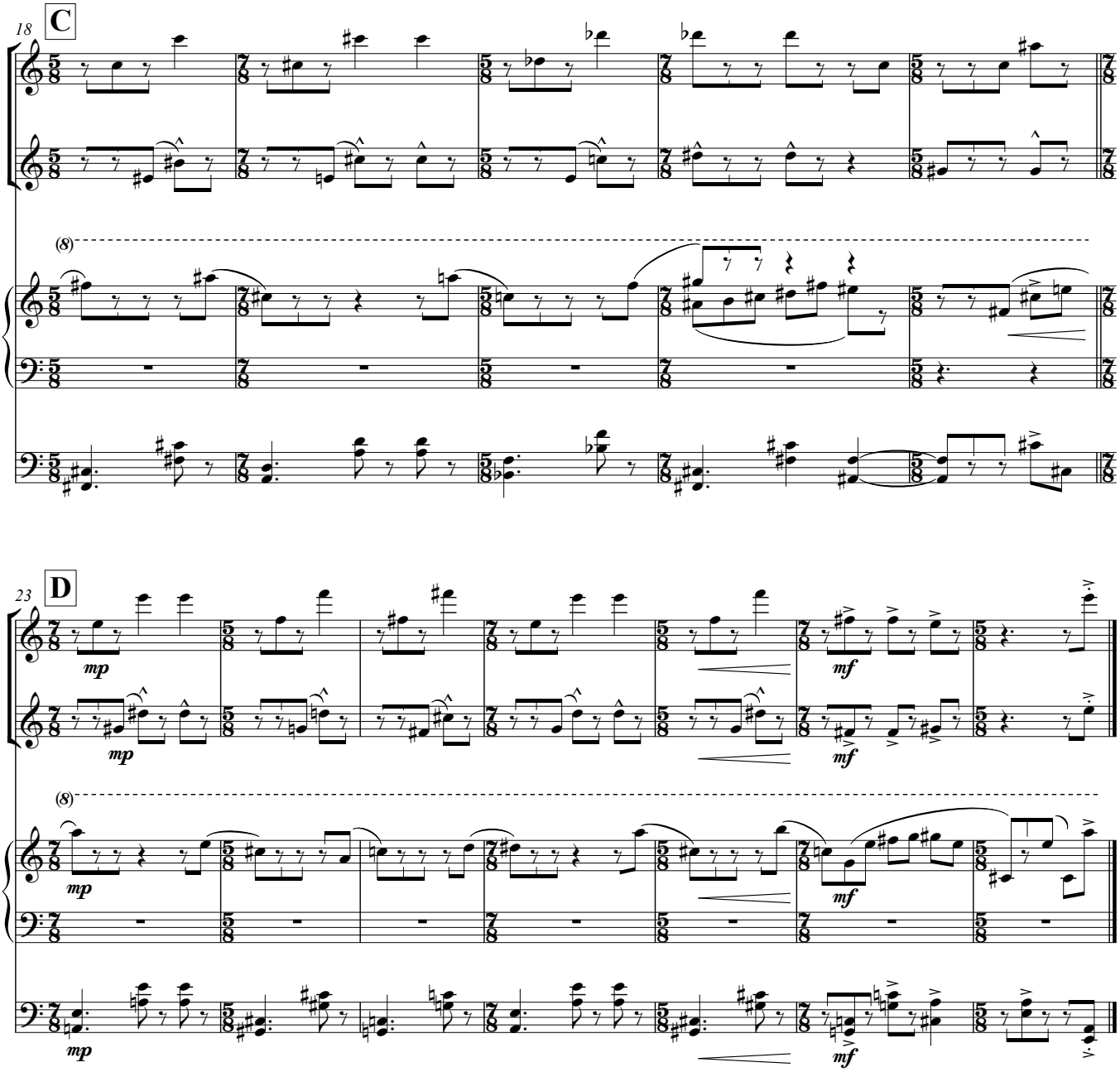


- IX -
Octagon II - Ensemble

Lee Westwood
(Brighton 2013)

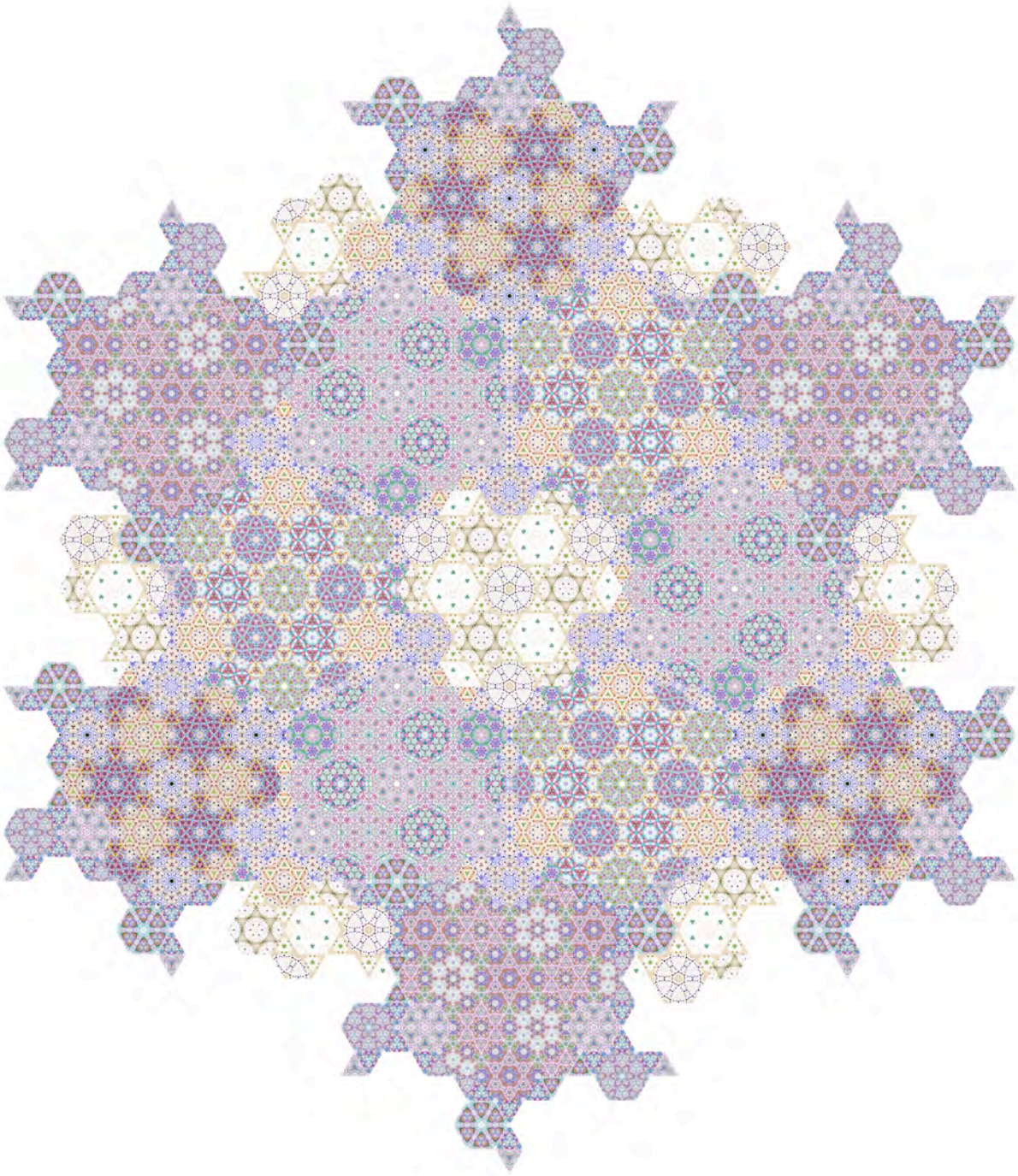


Copyright © Lee Westwood 2013


18
C
(8)
23
D
(8)
mp
mf

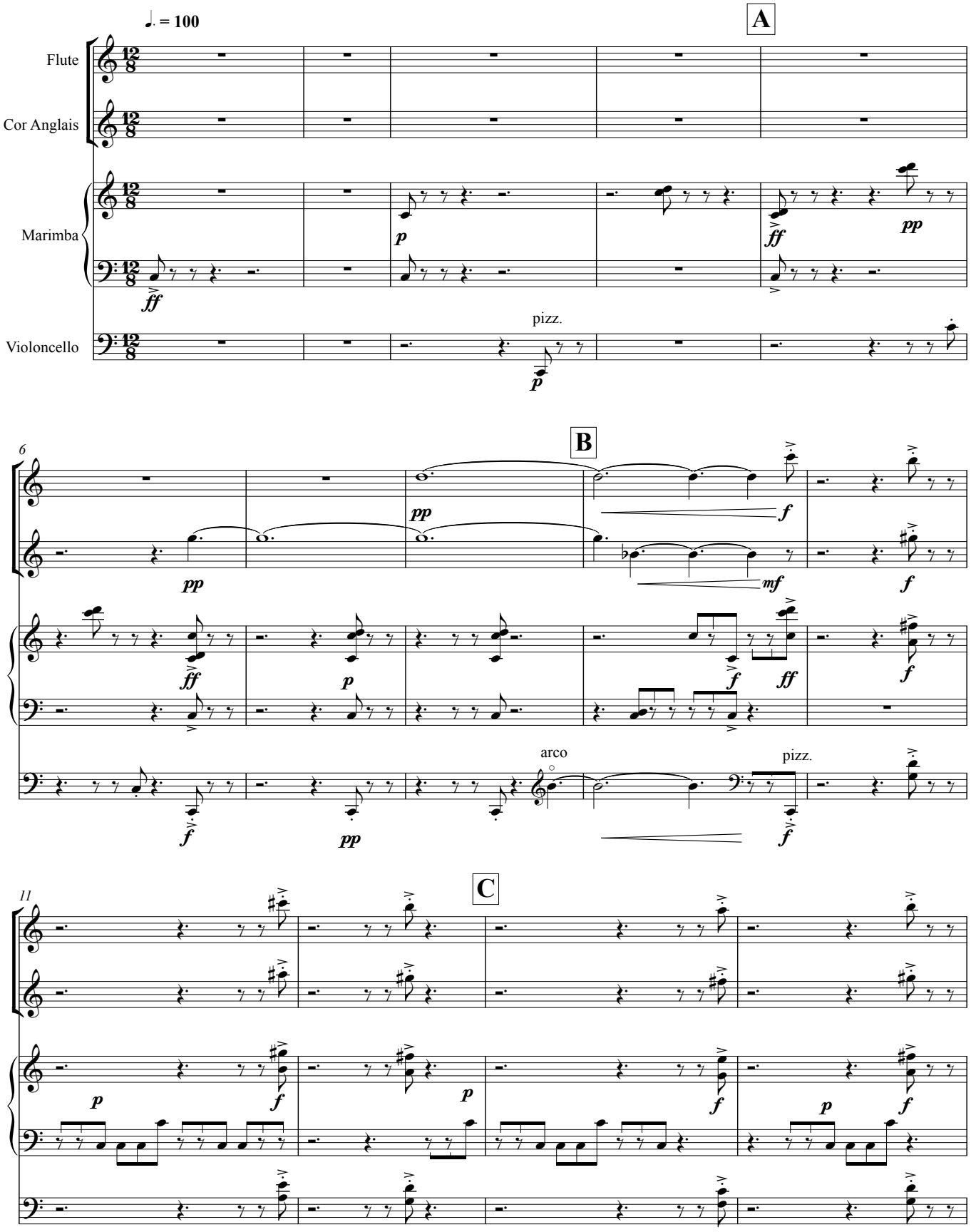
Triangle – Ensemble

This piece was composed freely within the broad guidelines of time signature to which the triangular grid is inclined. As with 'Hexagon – Ensemble', the sparse intro was written once again to demonstrate to the viewer the relationship between the introduction of a sound and its effect on the image.



- X -
Triangle - Ensemble

Lee Westwood
(Brighton 2013)



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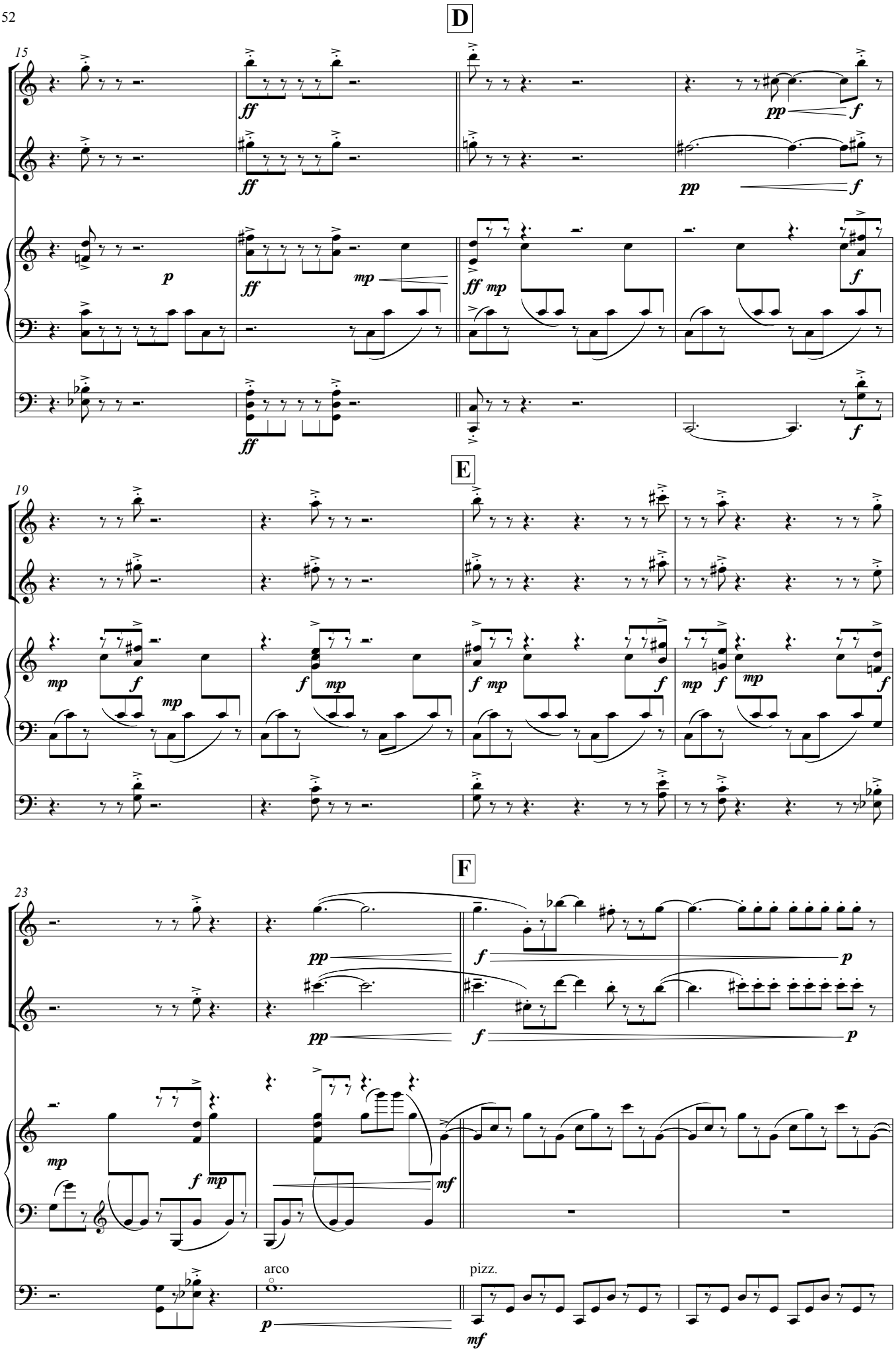
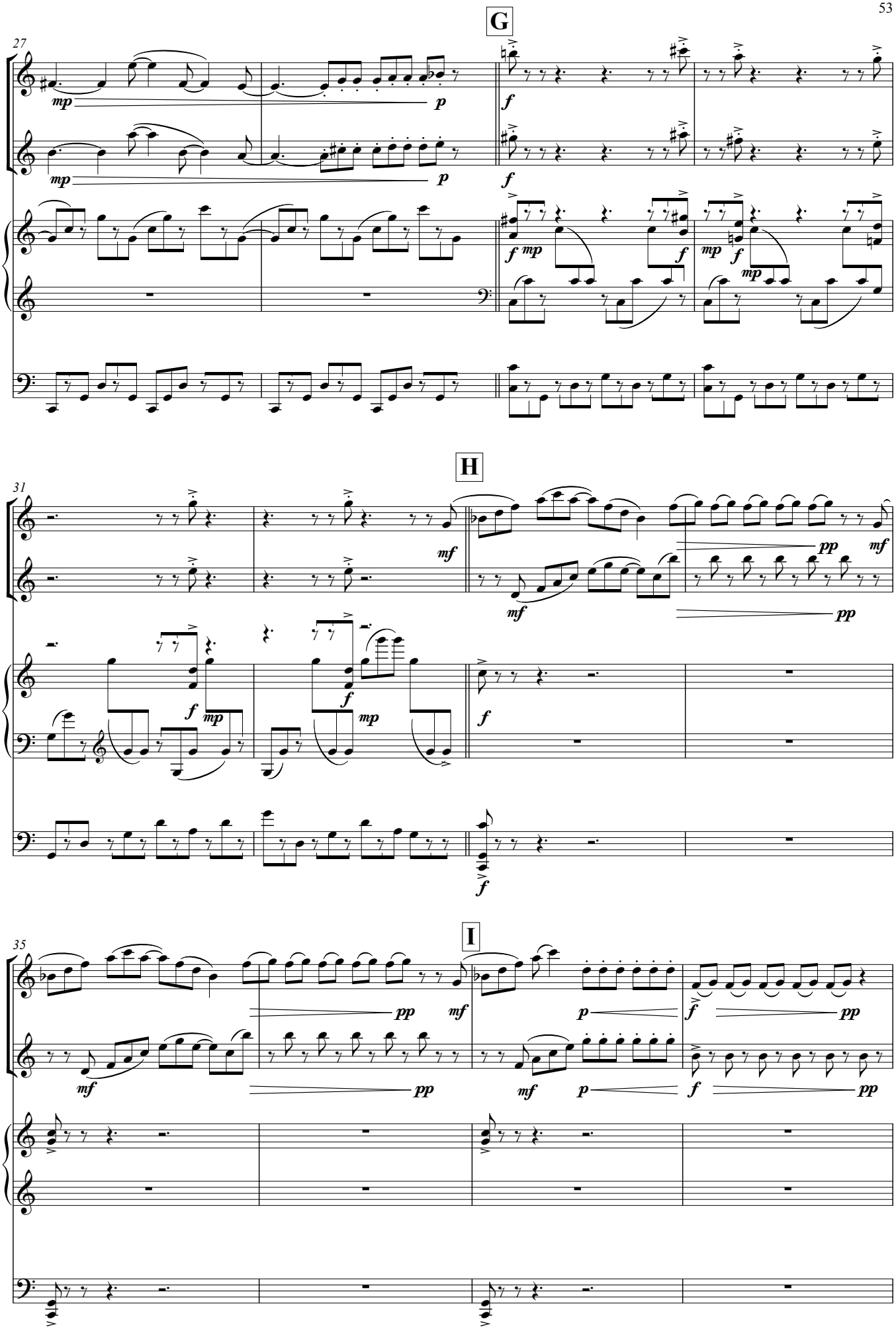
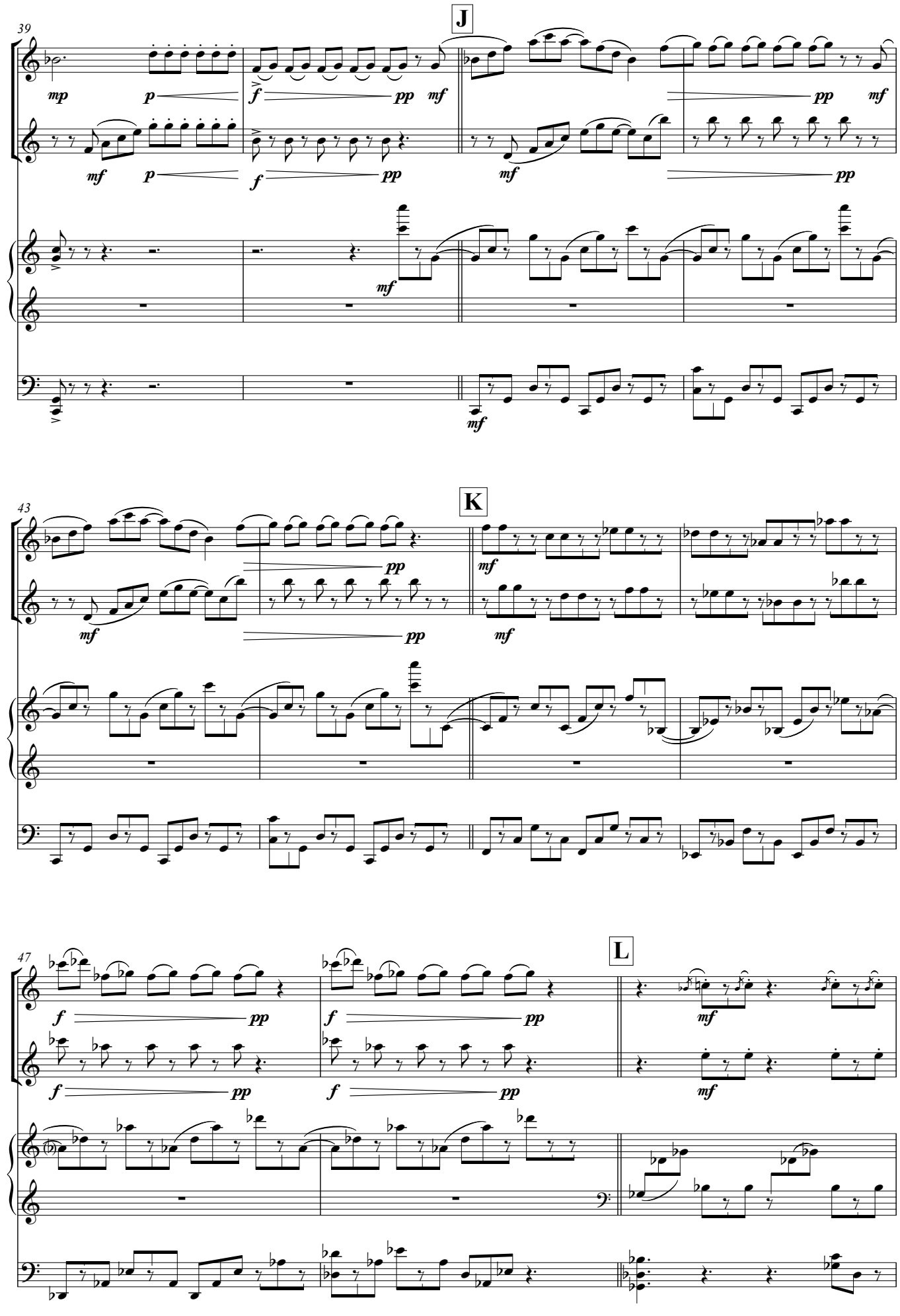
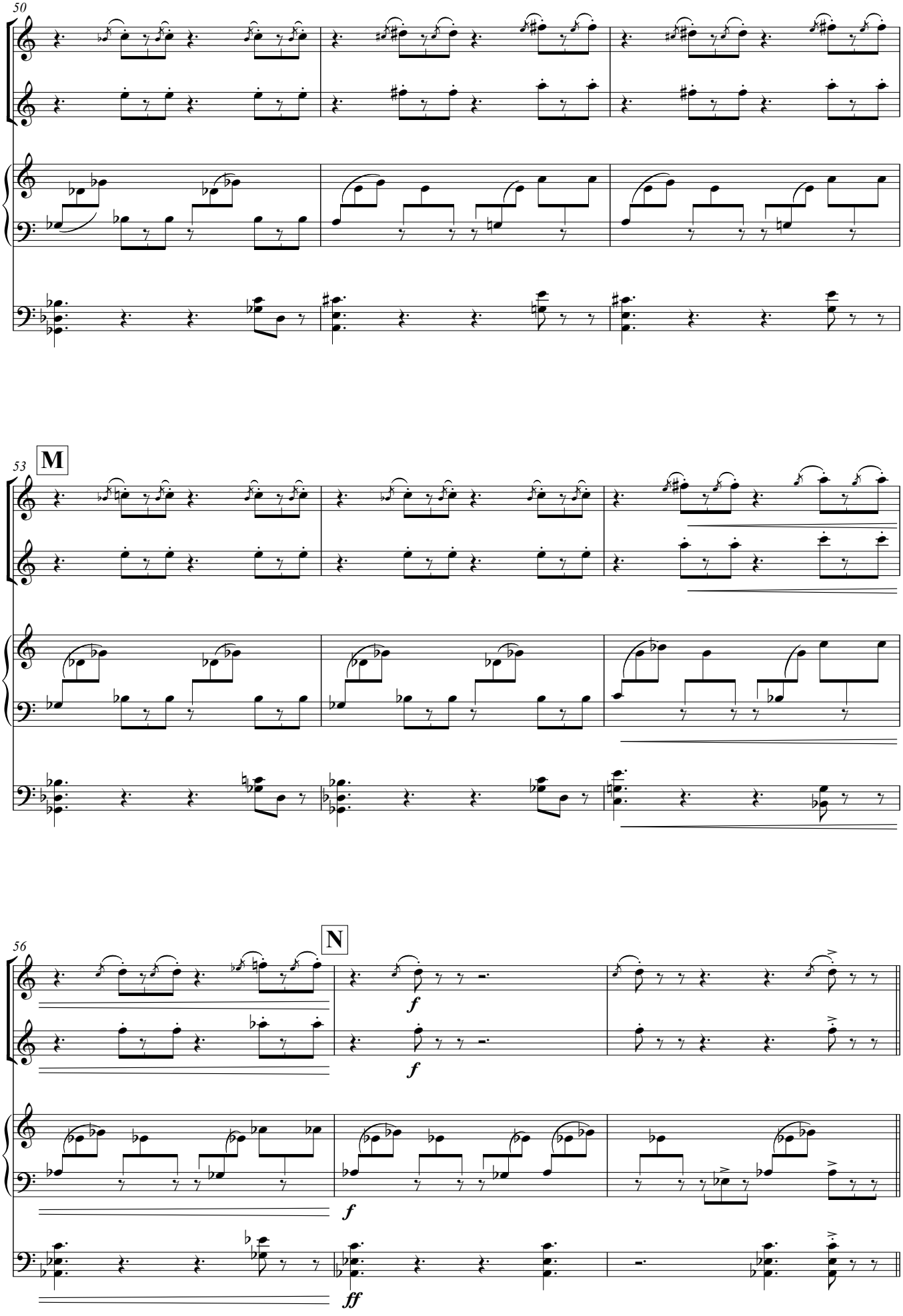
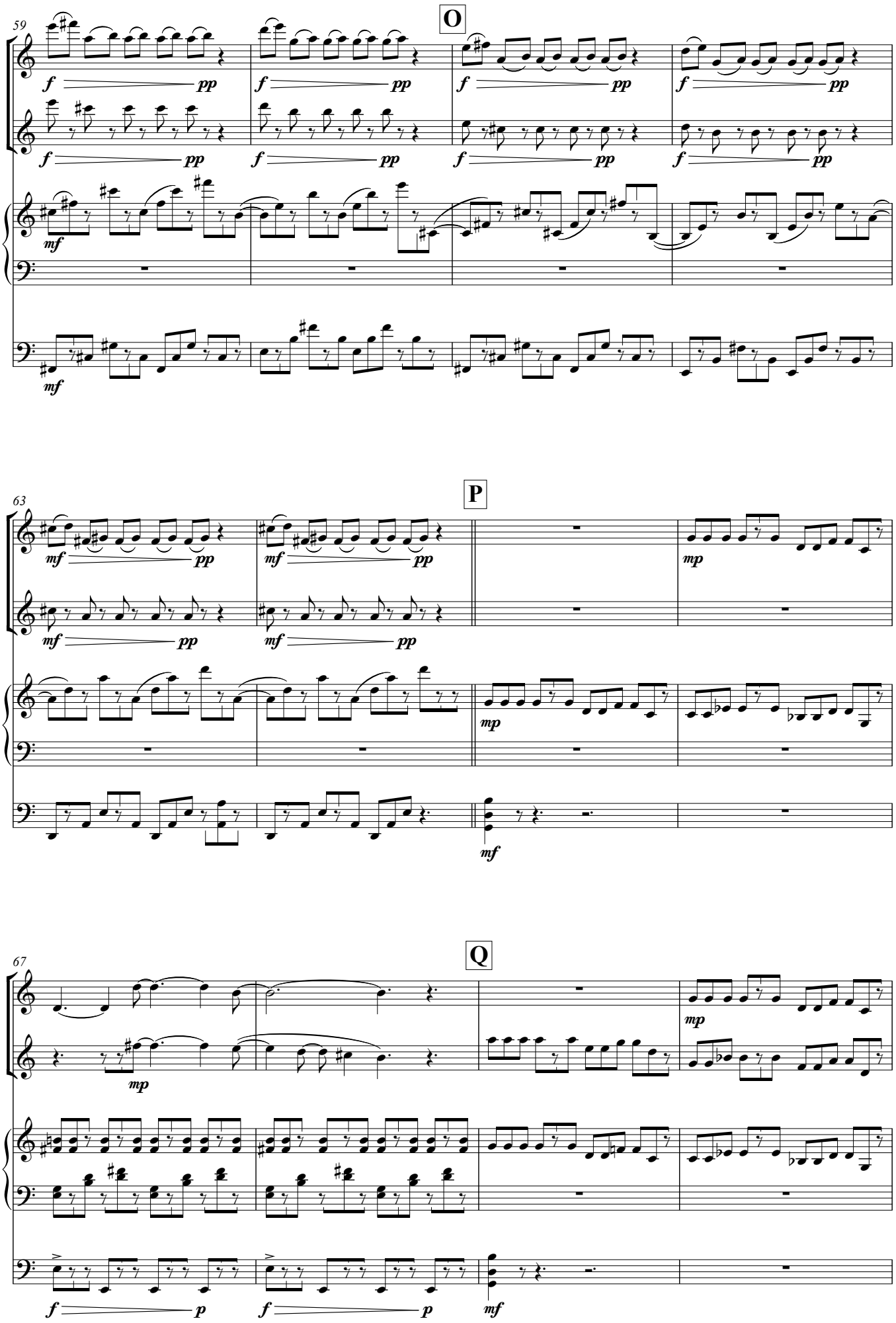
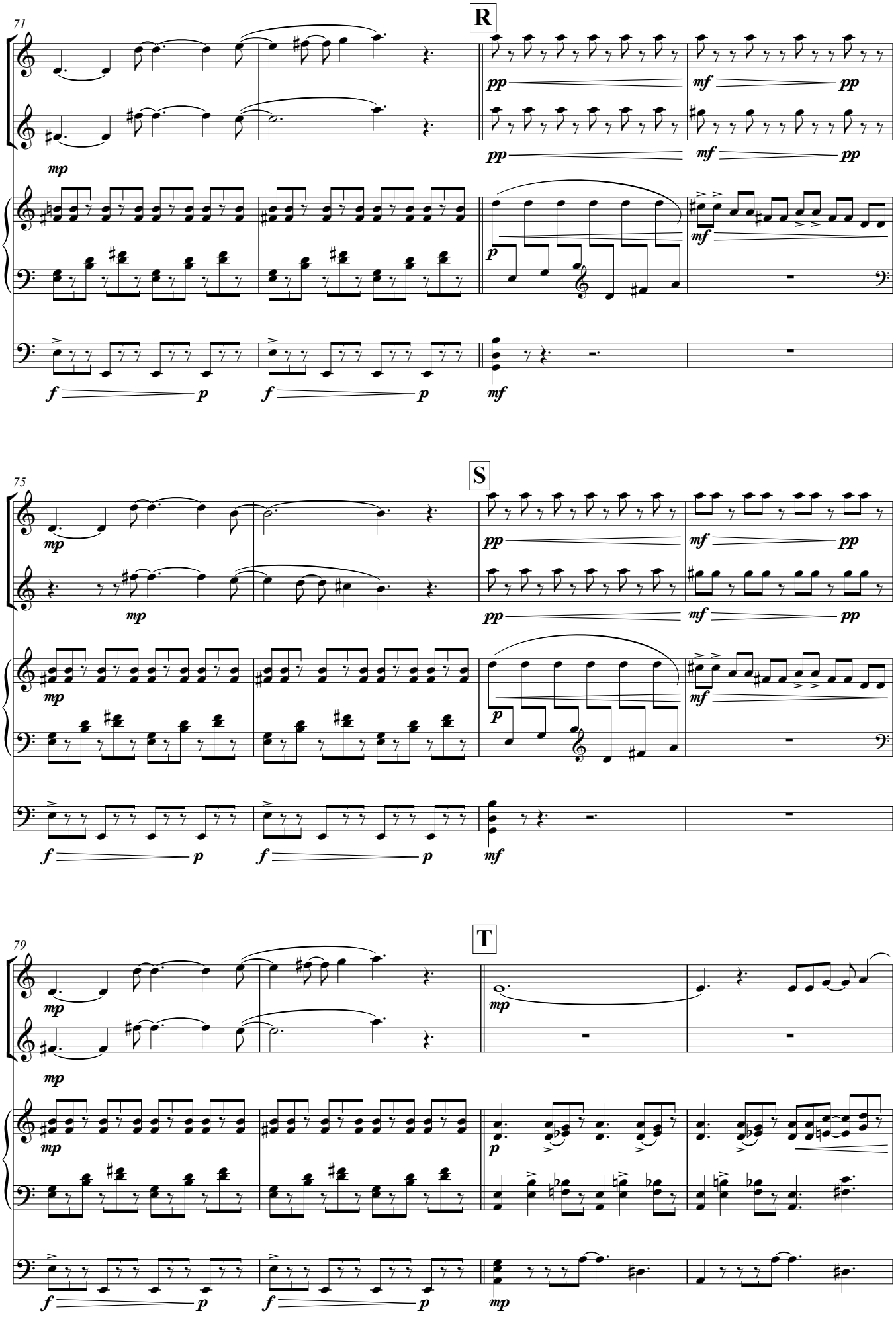

D
15
ff
pp
f
p
mp
E
19
F
23
arco
pizz.

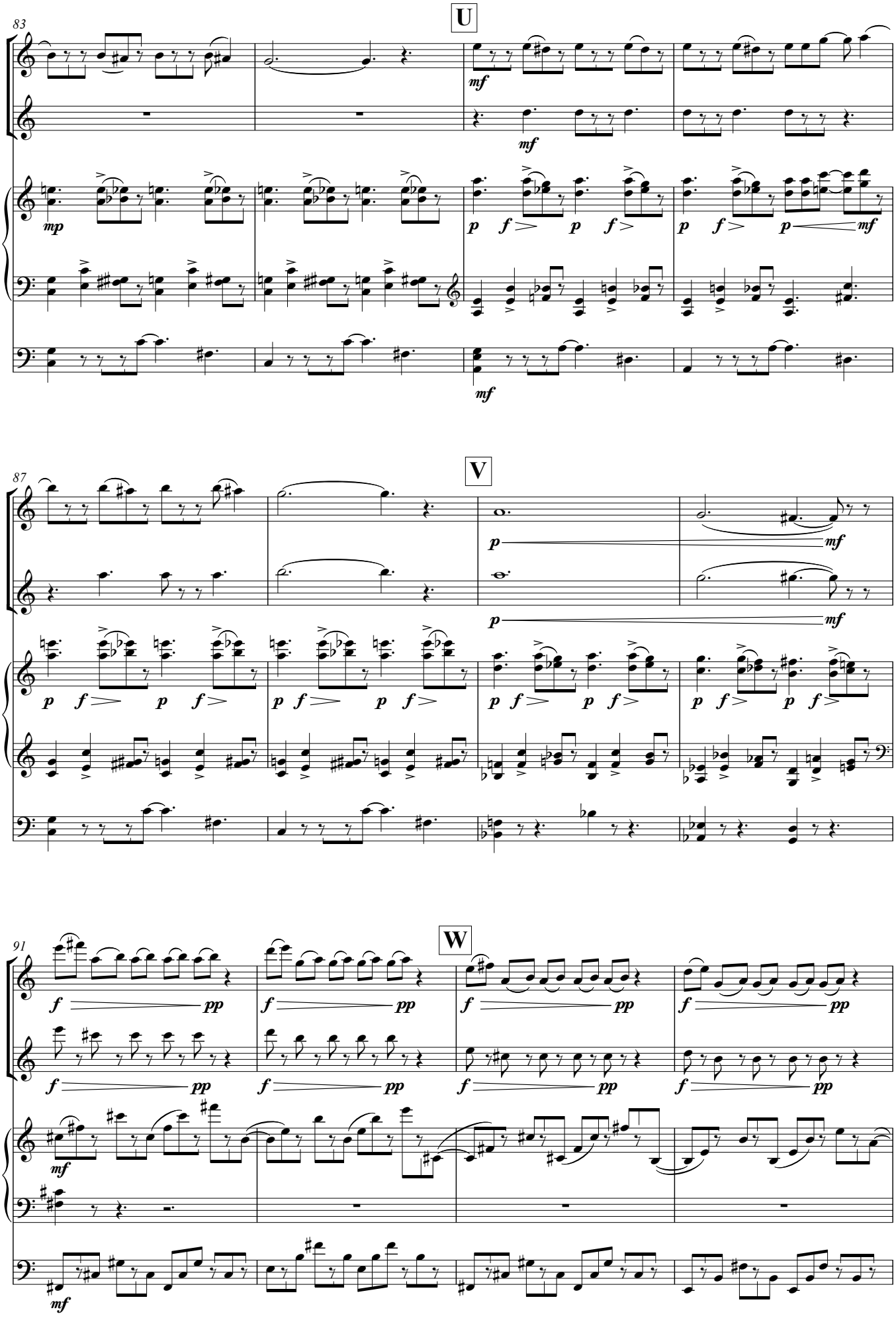

G
27
H
31
I
35

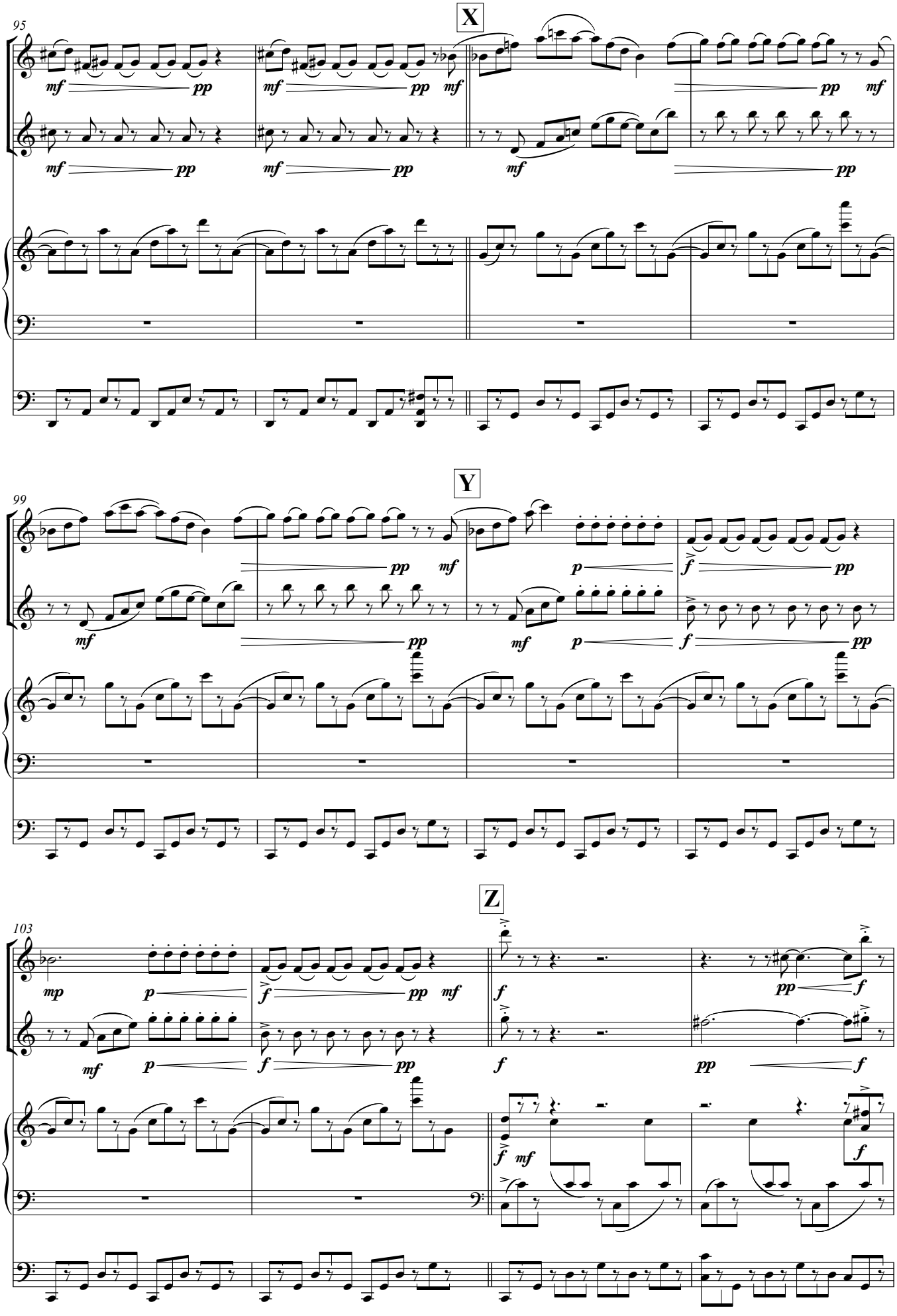

39
J
mp
p
f
pp
mf
43
K
47
L


50
53
M
56
N
f
f
f
ff

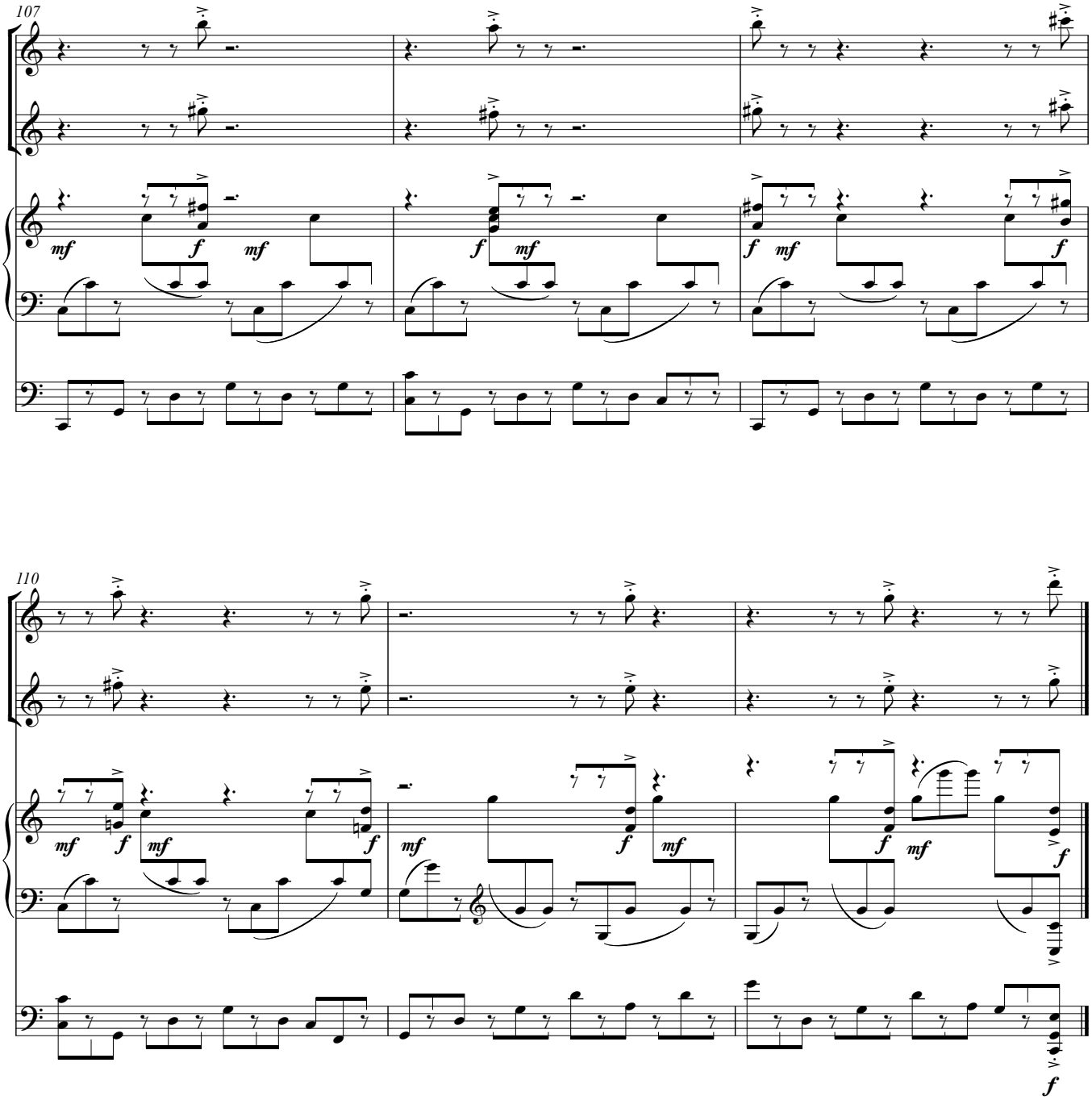

59
O
f
pp
mf
63
P
mp
67
Q
p


71
R
mp
pp
mf
pp
f
p
mf
75
S
79
T


83
U
mf
mp
p
f
87
V
91
W
pp

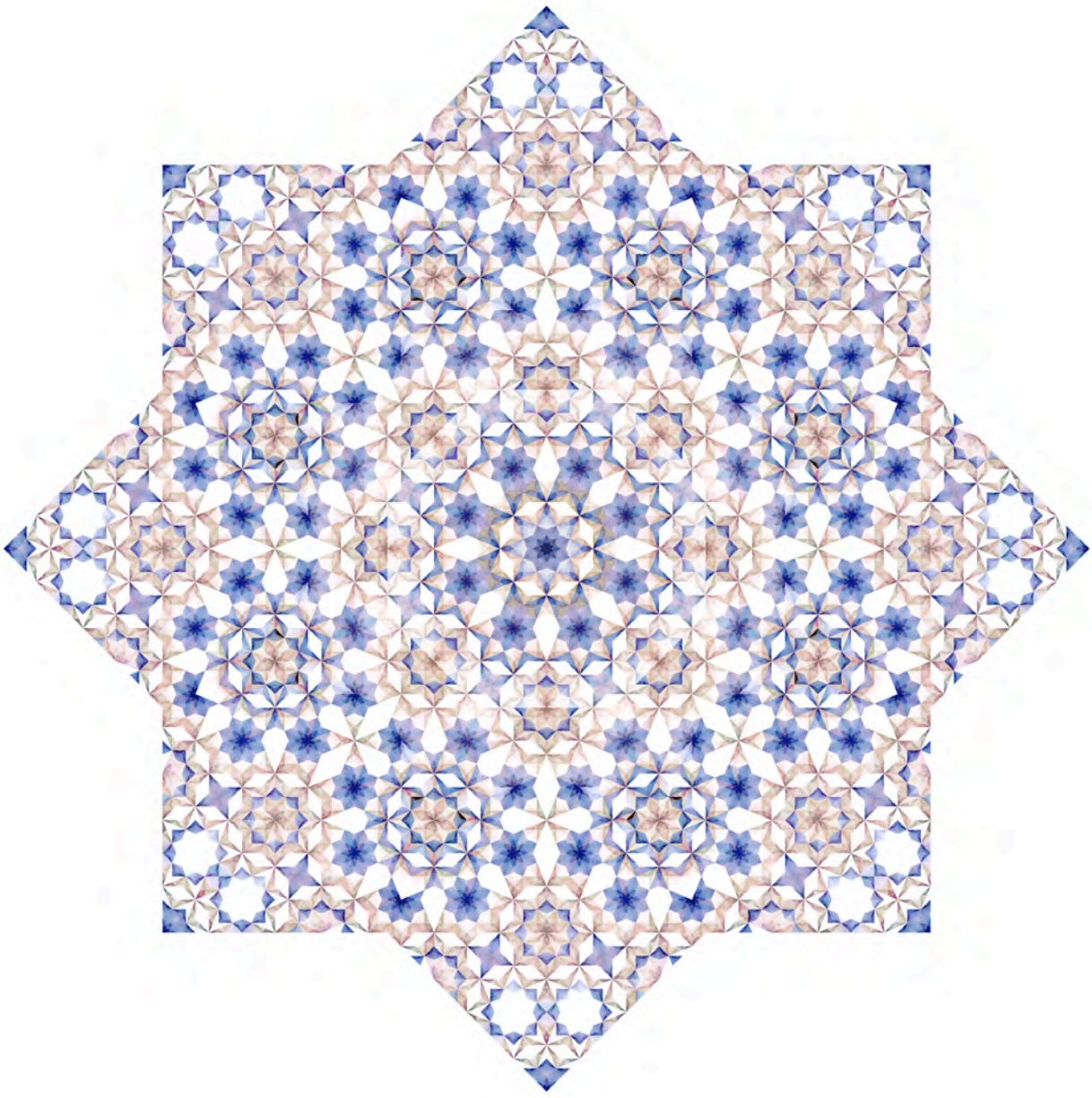

95
X
mf
pp
99
Y
103
Z

AA



Octagon III – Solo Conga – Study
(music by S. Mara)

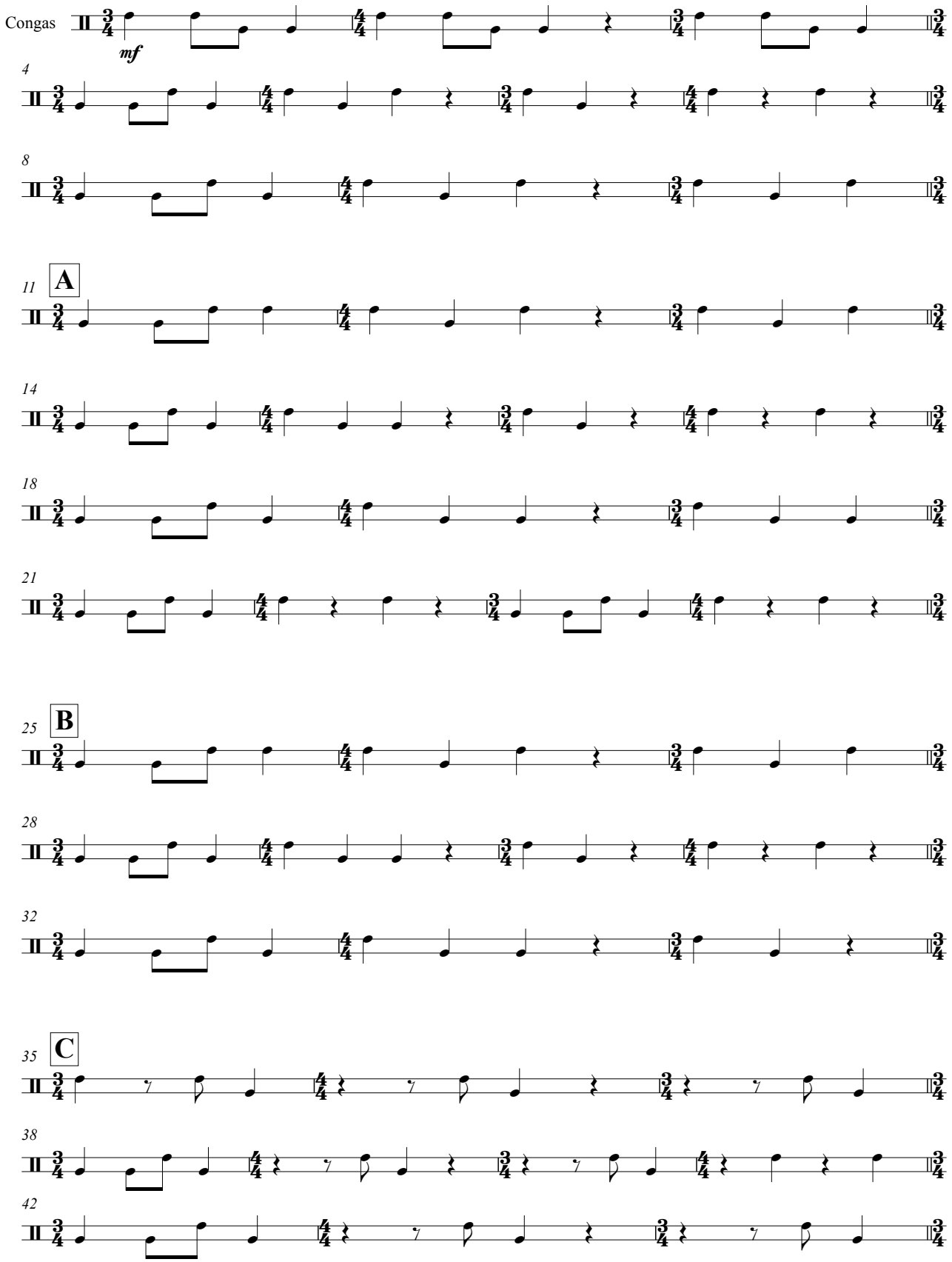
This piece was composed by Sama Mara as a study in octagonal symmetry (a = aba; b = abab), and as such, the music was crafted to create a very particular geometric design. The simplicity of its duochrome colour scheme is due to the limited pallete of tones provided by the two congas (high & low).



- XI -
Octagon III - Solo Conga - Study

Sama Mara
(Germany 2013)

♩ = **240**



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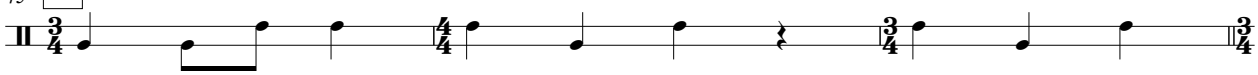
45 **D**



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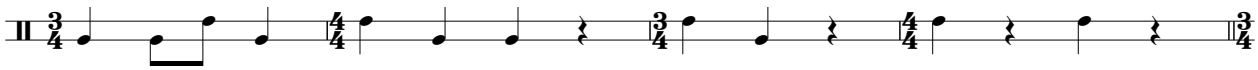

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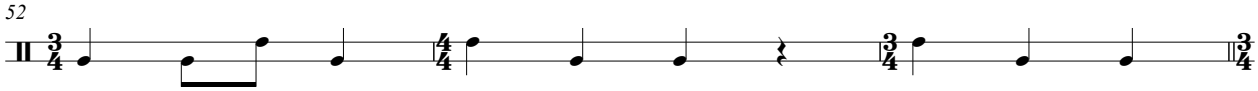

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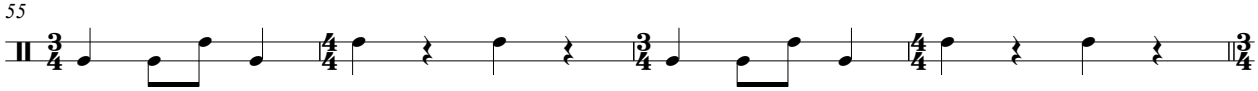
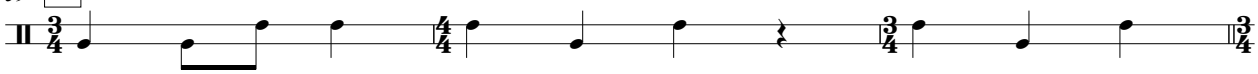


59 **E**



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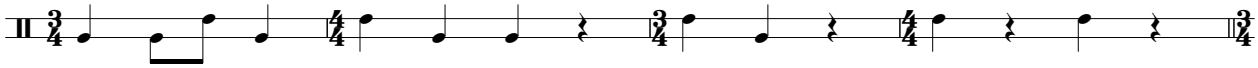
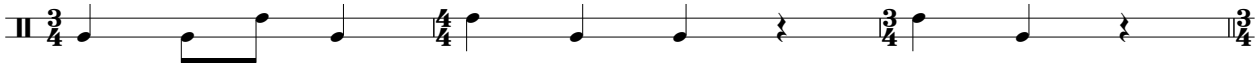
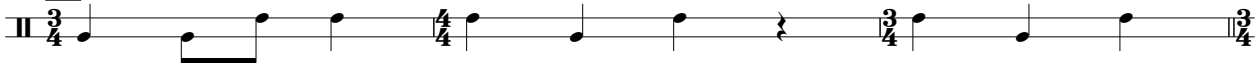


66



69 **F**



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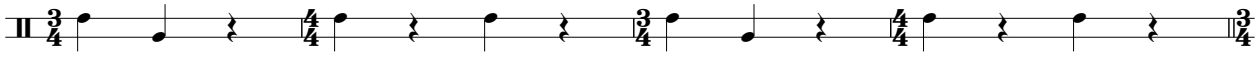

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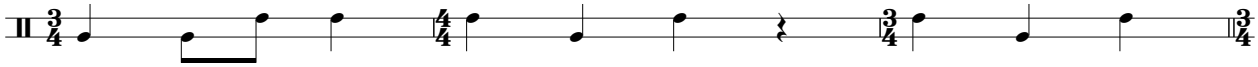

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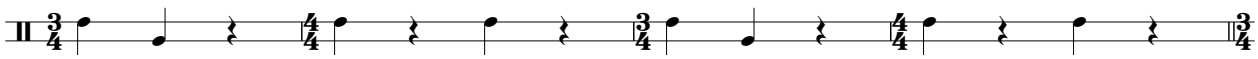
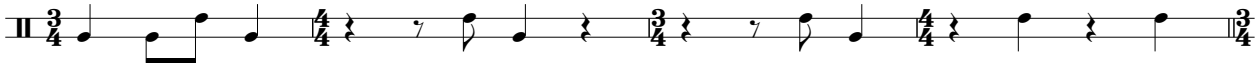


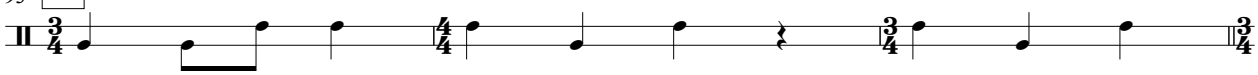
83 **G**

86



90

93 **H**



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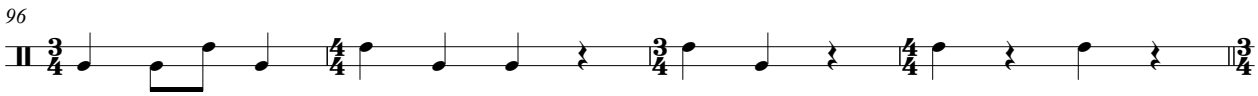
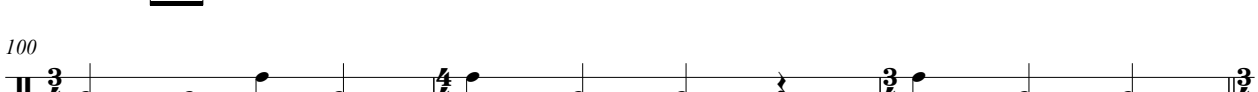


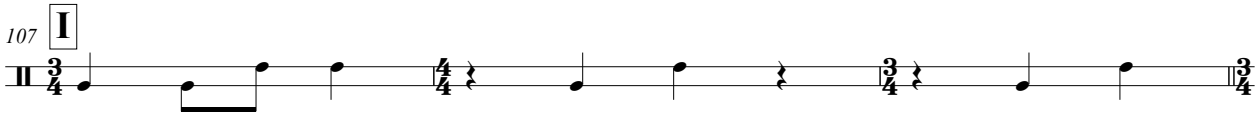
100



103

107 **I**

110



114