Motion Access

for quartet and phones

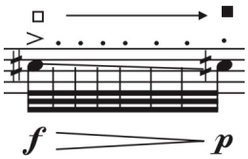
Ryan Carter

(2019)

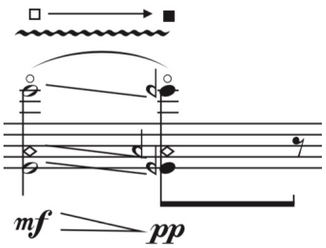
www.ryancarter.org

Performance notes

Flute

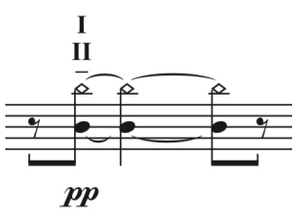


= Gradually turn flute inward in order to partially close off the embouchure-hole, resulting in a downward pitch bend of roughly a quarter tone (the amount of bend does not need to be precisely controlled). This technique should be combined with an increasingly breathy tone.

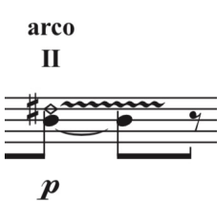


= Bisbigliando: Rapidly alternate between two fundamentals of the same overblown harmonic. May be combined with technique above.

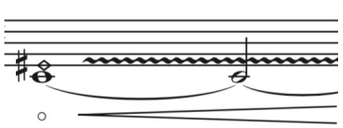
Strings



= Natural harmonics may be notated at sounding pitch or fingered pitch.
(This excerpt for cello represents on open D string and the 4th partial of the A string.)

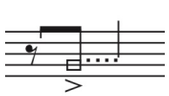


= Natural harmonic tremolo: Rapidly alternate between open string and harmonic.



= Artifical harmonic tremolo: Rapidly alternate between stopped pitch and harmonic.

= Jeté: Throw the bow against the string to create a series of quick bounces.



= Col legno battuto jeté: Same as above, with the wood of the bow. The notated pitch is the fingered pitch; the contact point between the wood and string is not notated.

1/2 clt ⟶ **ord** = Begin with half col legno tratto (equal parts bow hair and wood) and gradually rotate the bow to ordinario.

Instructions for electronics

The electronic sounds are synthesized on and diffused from the built-in speakers of audience members' mobile devices. The audience is invited to take out their phones, open a web browser, and navigate to the URL for the piece (in this case, ryancarter.org/hub). Instructions follow on screen.

One member of the ensemble should log into the cue management panel at the URL provided by the composer (in this case, [redacted] and control cues with a pedal connected to their computer.

The moment when each cue should be triggered is notated in the score. The pedal should always be pressed on the beat.

The first four cues can be used as a tutorial for the audience, as follows:
Cue 0: "waiting" (The piece has not begun.)
Cue 1: "tilt" (This demonstrates the "tilt" mode of interactivity.)
Cue 2: "tacet" (Phones are silenced.)
Cue 3: "shake" (This demonstrates the "shake" mode of interactivity.)
Cue 4: "waiting" (Set to this cue before beginning the actual piece.)

Version date: February 16, 2021

Program notes for *Motion* Access

Perhaps briefly the internet was made entirely of cats. These cats were free to view, and maybe that was the problem. With the best of intentions, early decisions shaping the architecture of the internet privileged openness and free access to these new technologies, but building the web is hard work and the people developing it needed to somehow get paid. The conventional solution has been to fund web development through advertising. Advertisers quickly realized that marketing on the web can target individuals much more precisely than traditional media like newspapers or television. So an entire industry was built around extracting as much data as possible from internet users, toward the goal of gaining a maximally full portrait of a prospective customer.

Like many composers today, my music frequently addresses how emerging technologies effect our experience of music. My program notes tend to function less as a listening guide to a piece and more as a snapshot of what was on my mind as I composed the work. Since 2011 I've composed motion-controlled interactive electronic music for mobile devices, beginning with iMonkeypants (an iOS app album that I released in 2012). This music is generated from code that incorporates data from a phone or tablet's built-in accelerometer, which reports the position in which the device is being held. As a result, listeners can shape the sound by tilting their phones as the music plays. For the last two years, I've been working on building a web-based platform for similar interactivity, inviting audience participation from concertgoers who don't need to prepare for the performance in any way (or even know in advance that they will participate). This relies on accessing accelerometer data within a mobile web browser, which worked fine until last March.

With the release of iOS 12.2, Apple restricted access to motion sensor data in the mobile version of Safari by adding a privacy setting called "Motion & Orientation Access," which is off by default. As it turns out, advertisers had begun using this data in an attempt to infer browsing history, which can be used to refine targeted marketing because a visitor to some type of website may be more amenable to a certain kind of advertisement on another website. In an article called "Privacy Implications of Accelerometer Data: A Review of Possible Inferences," Jacob Leon Kröger, Philip Raschke, and Towhidur Rahman Bhuiyan write "[c]alibration errors in accelerometers, which are caused by imperfections in the manufacturing process, have been found sufficient to uniquely identify their encapsulating device. Such a 'fingerprint' can be used, for instance, to track users across repeated website visits, even when private browsing is activated and other tracking technologies, such as canvas fingerprinting or cookies, are blocked."

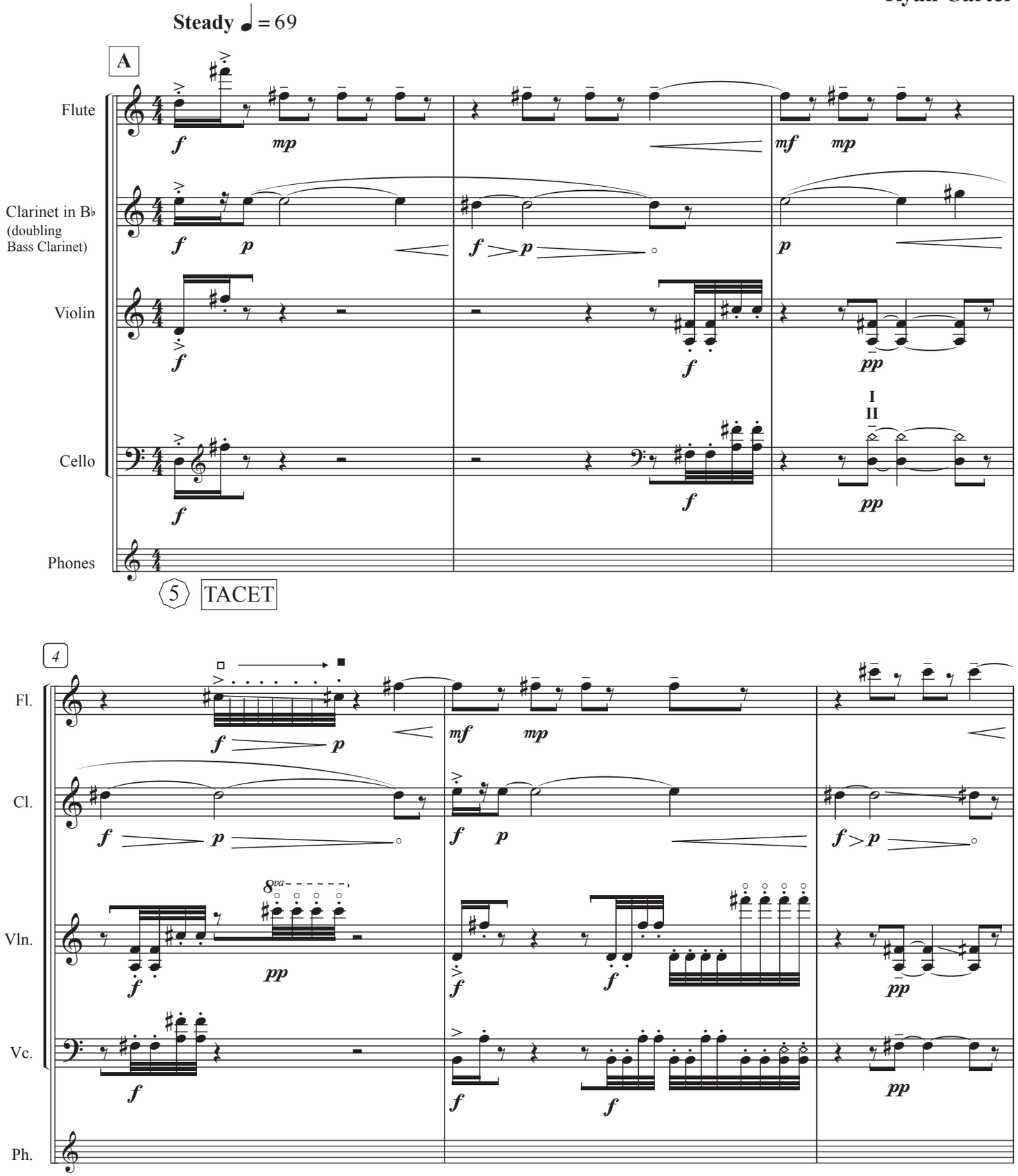
I promise I'm not using your data in any nefarious way (you can see the code here). In fact, I prefer building my own websites from scratch and distributing my work on them to avoid advertising entirely. I'm just trying to make fun interactive music. But art can also exist to push us beyond our comfort zones and to broaden, reorient, and recontextualize our understanding of the rapidly evolving technologies we use so frequently.

Transposed Score

Motion Access

for Hub New Music

Ryan Carter



7

Fl.

Cl.

Vln.

Vc.

Ph.

11

Fl.

Cl.

Vln.

sim. (alternate stopped pitch and harmonic)

Vc.

pizz

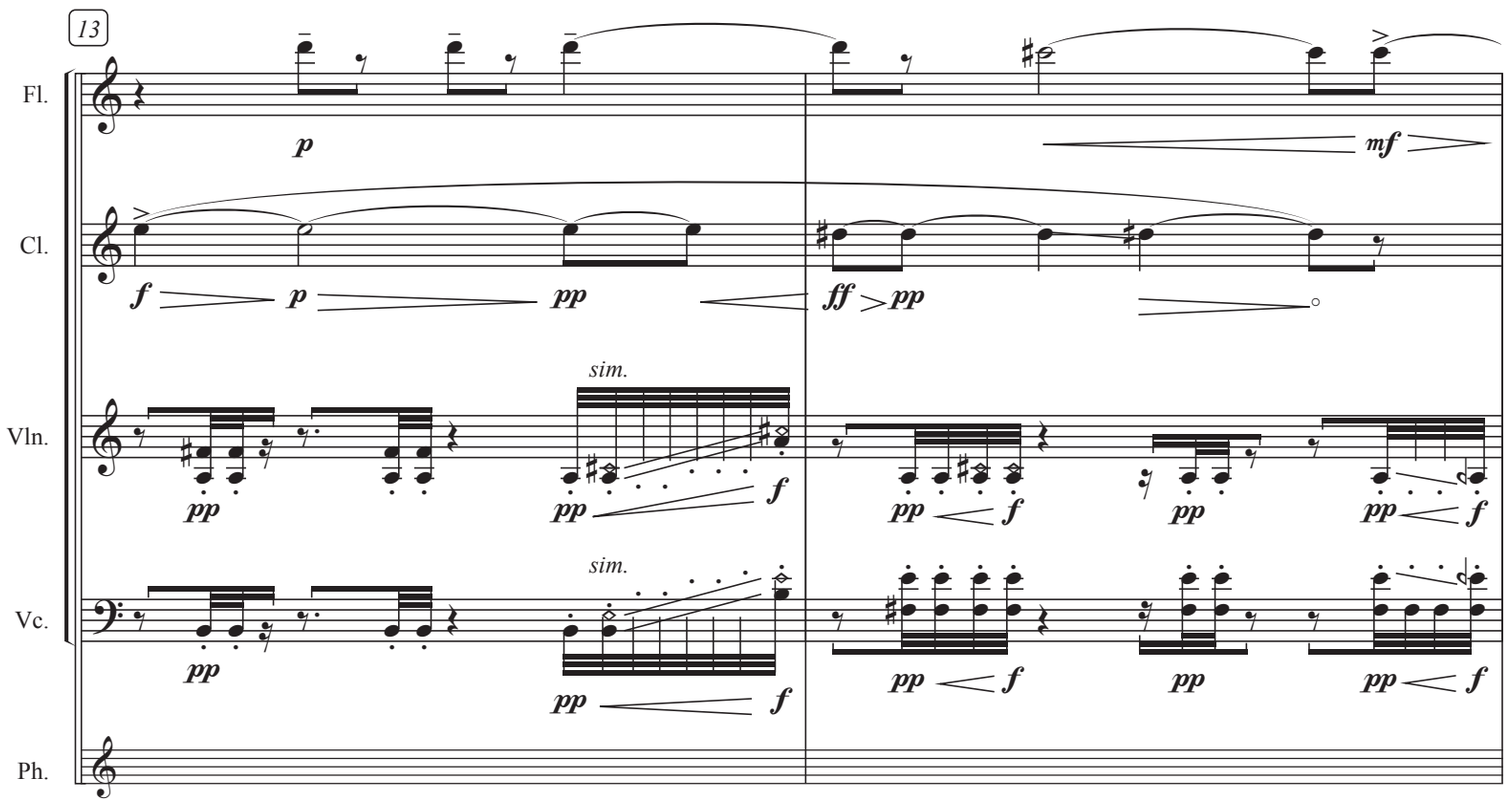
arco

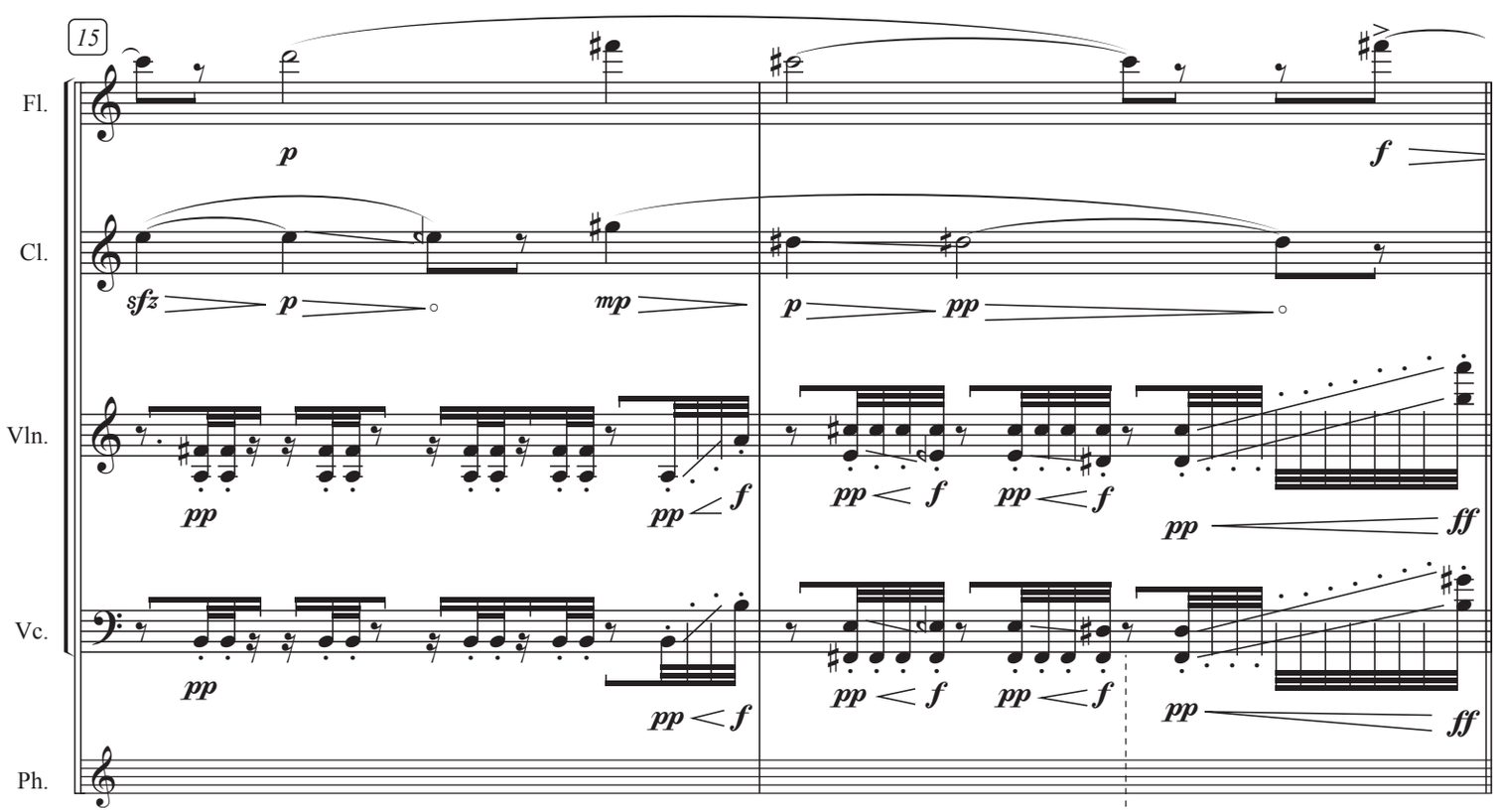
II

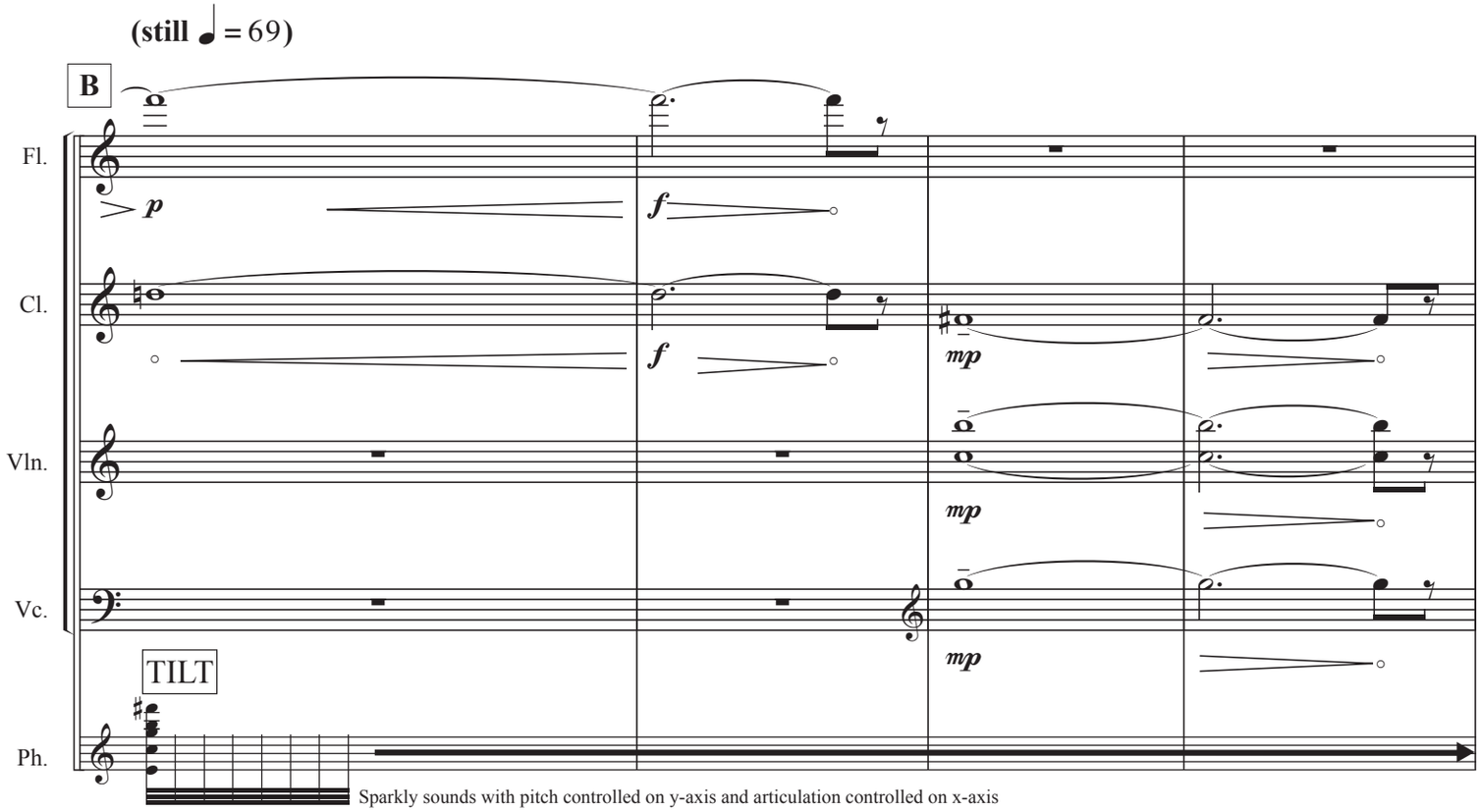
III

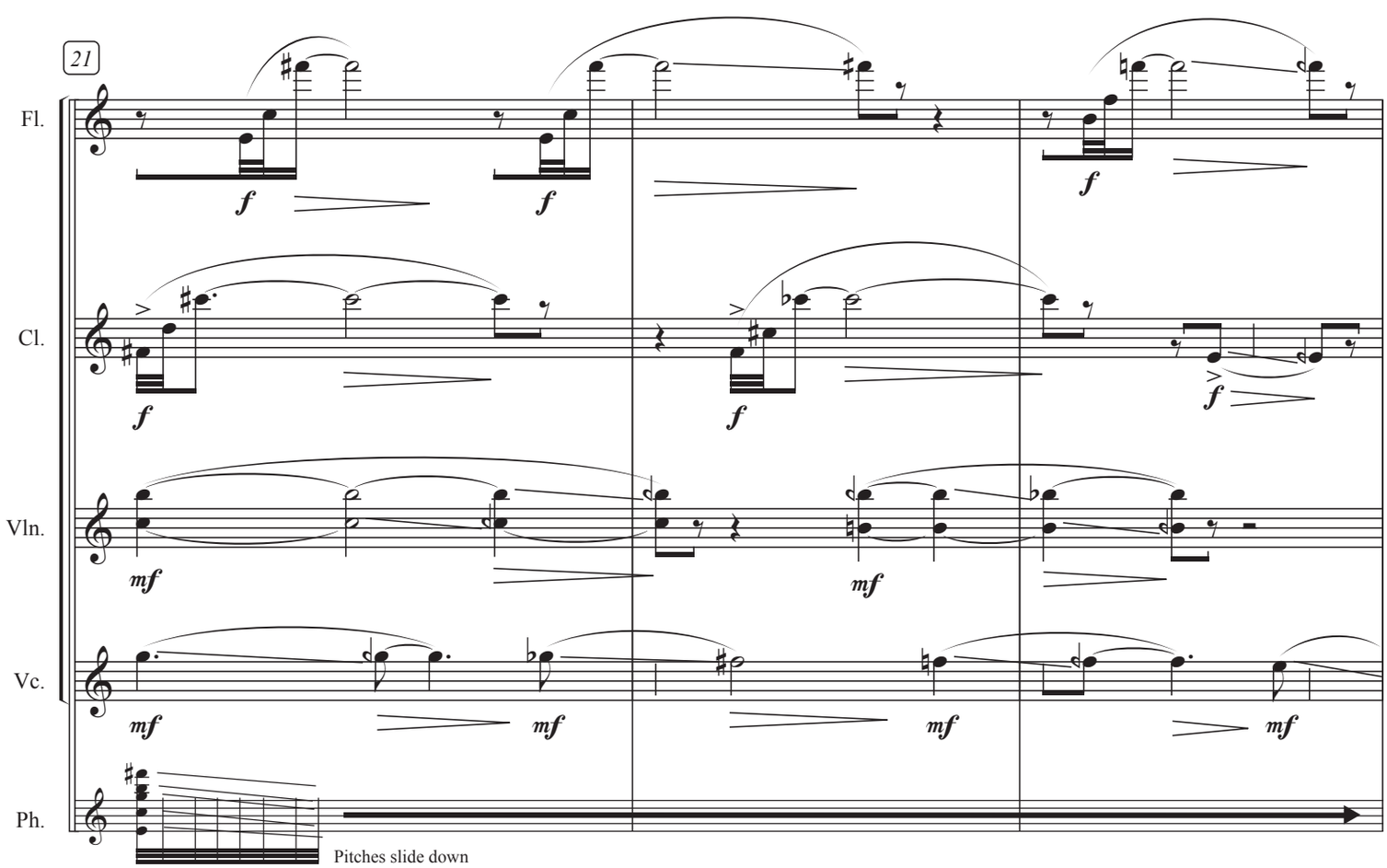
sim. (alternate stopped pitch and harmonic)

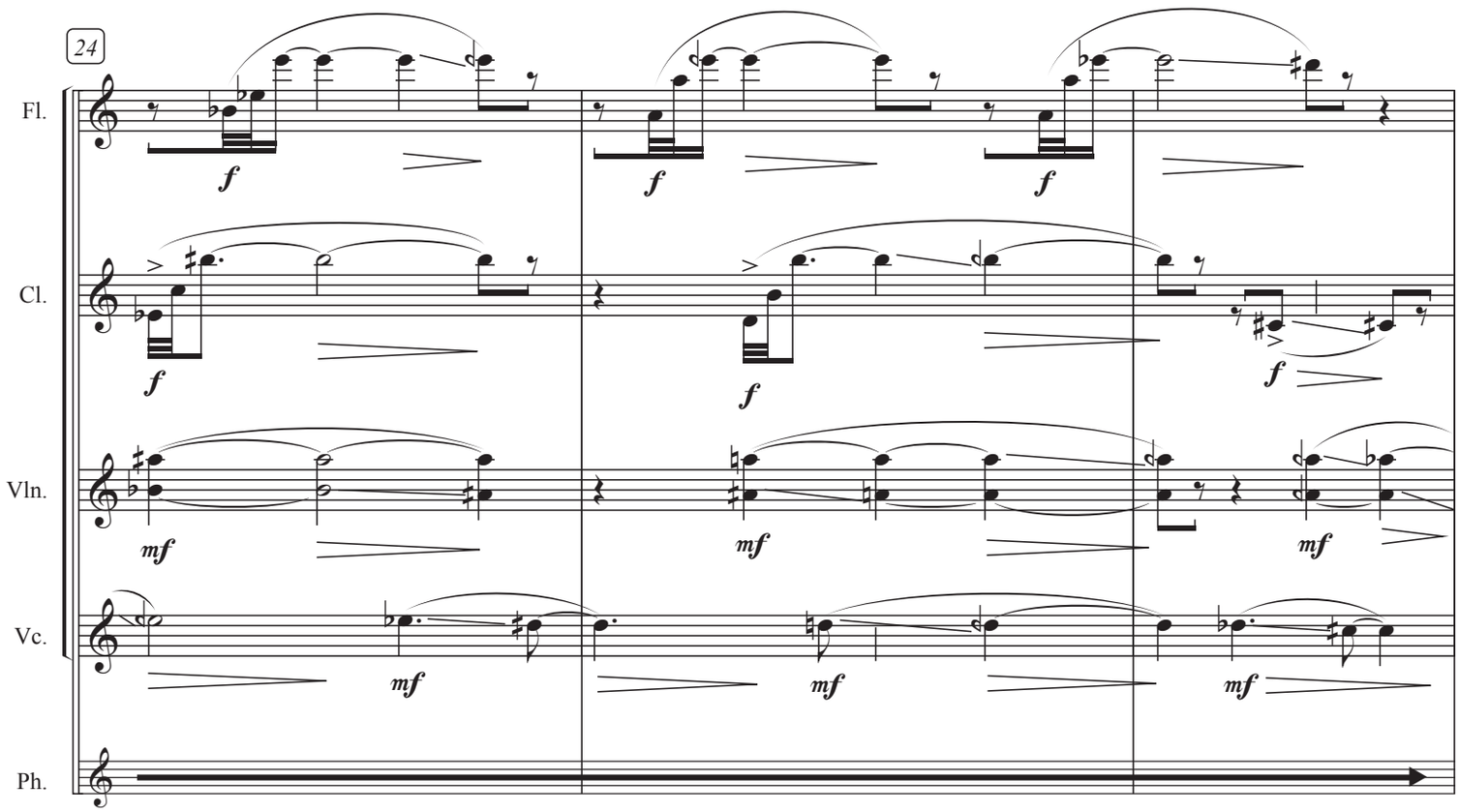
Ph.

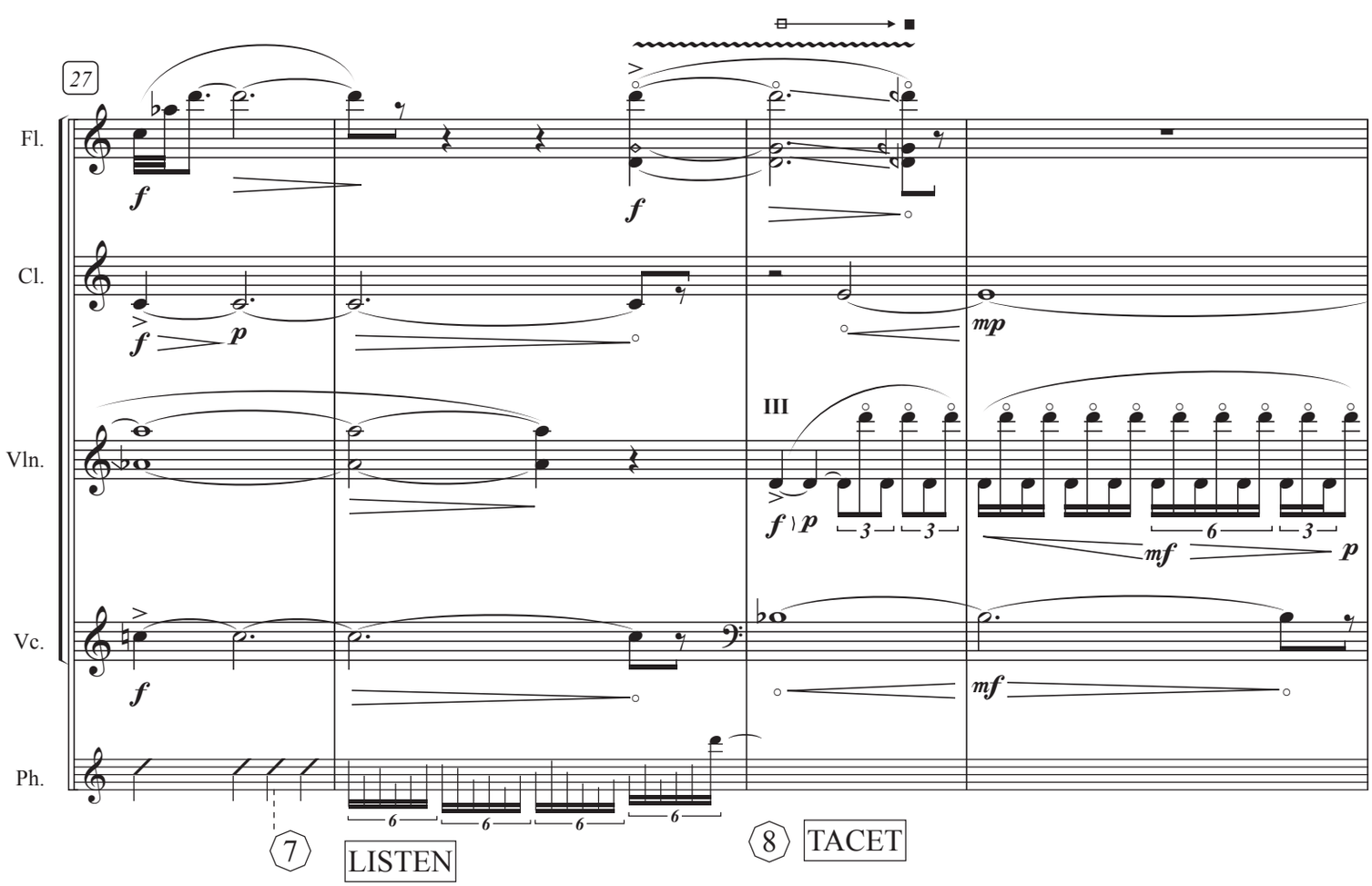

13
Fl.
p
mf
Cl.
f
p
pp
ff
pp
Vln.
sim.
pp
pp
f
pp
f
pp
pp
f
Vc.
sim.
pp
pp
f
pp
f
pp
pp
f
Ph.


15
Fl.
p
f
Cl.
sfz
p
mp
p
pp
Vln.
pp
pp
f
pp
f
pp
f
pp
ff
Vc.
pp
pp
f
pp
f
pp
f
pp
ff
Ph.

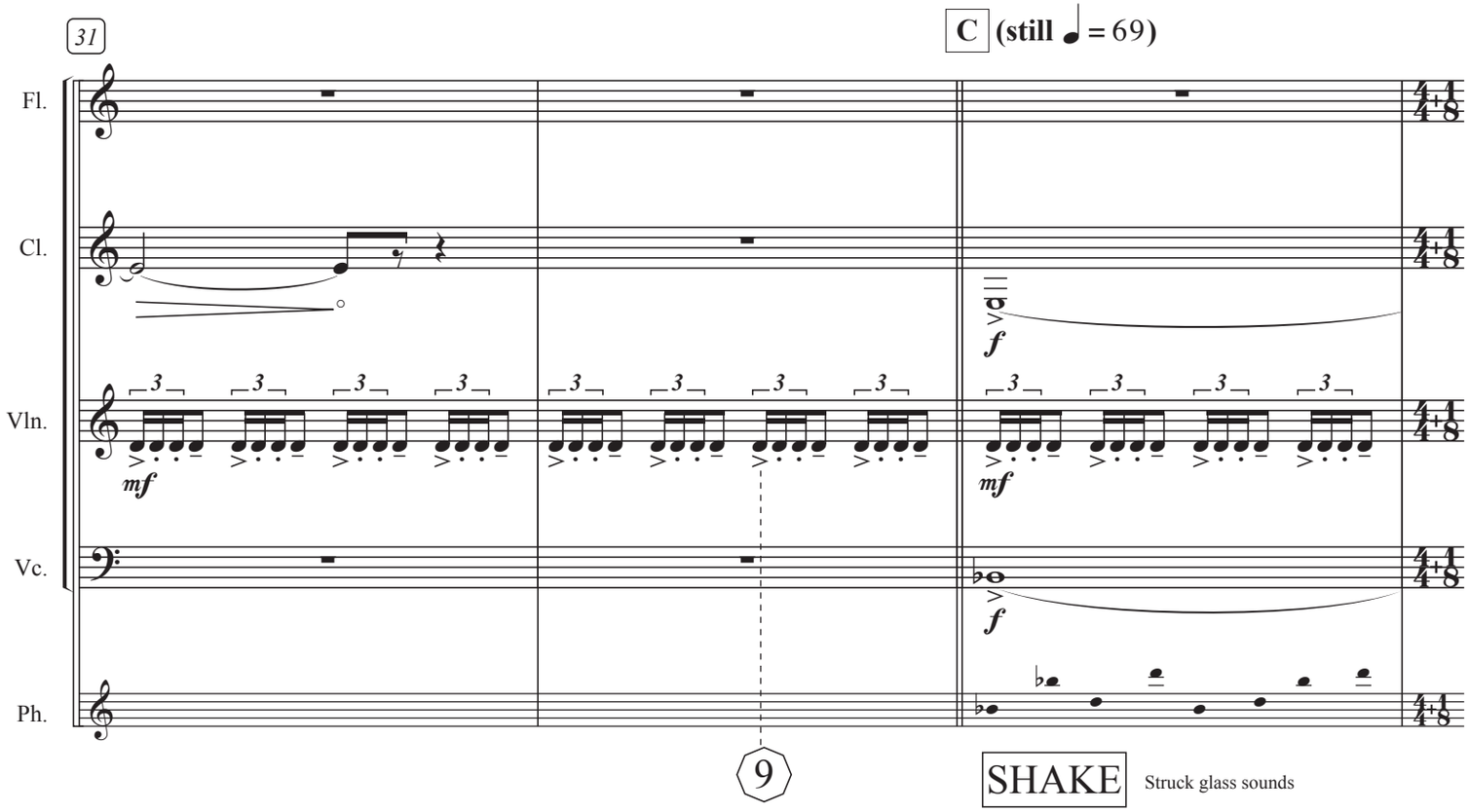

(still ♩ = 69)
B
Fl.
Cl.
Vln.
Vc.
TILT
Ph.
Sparkly sounds with pitch controlled on y-axis and articulation controlled on x-axis

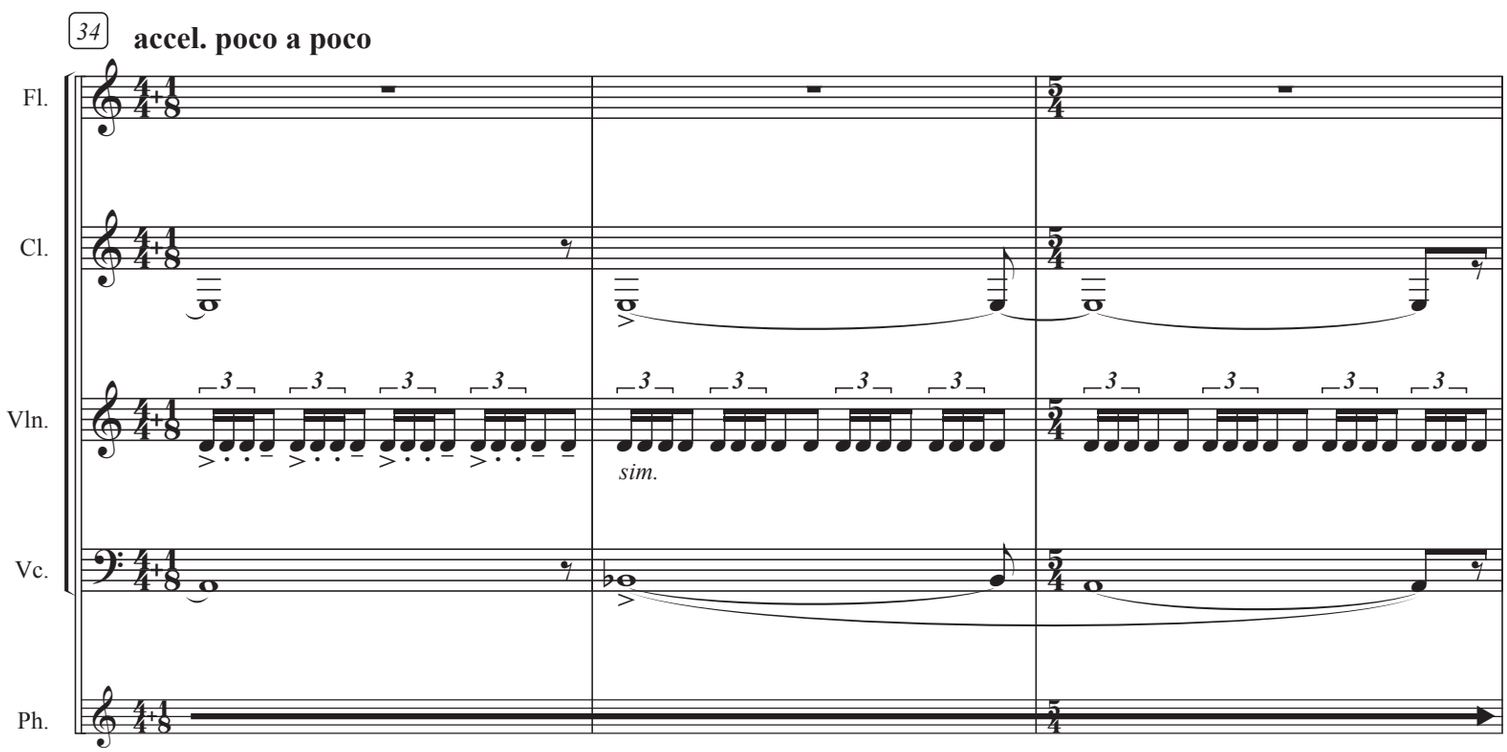

21
Fl.
Cl.
Vln.
Vc.
Ph.
Pitches slide down

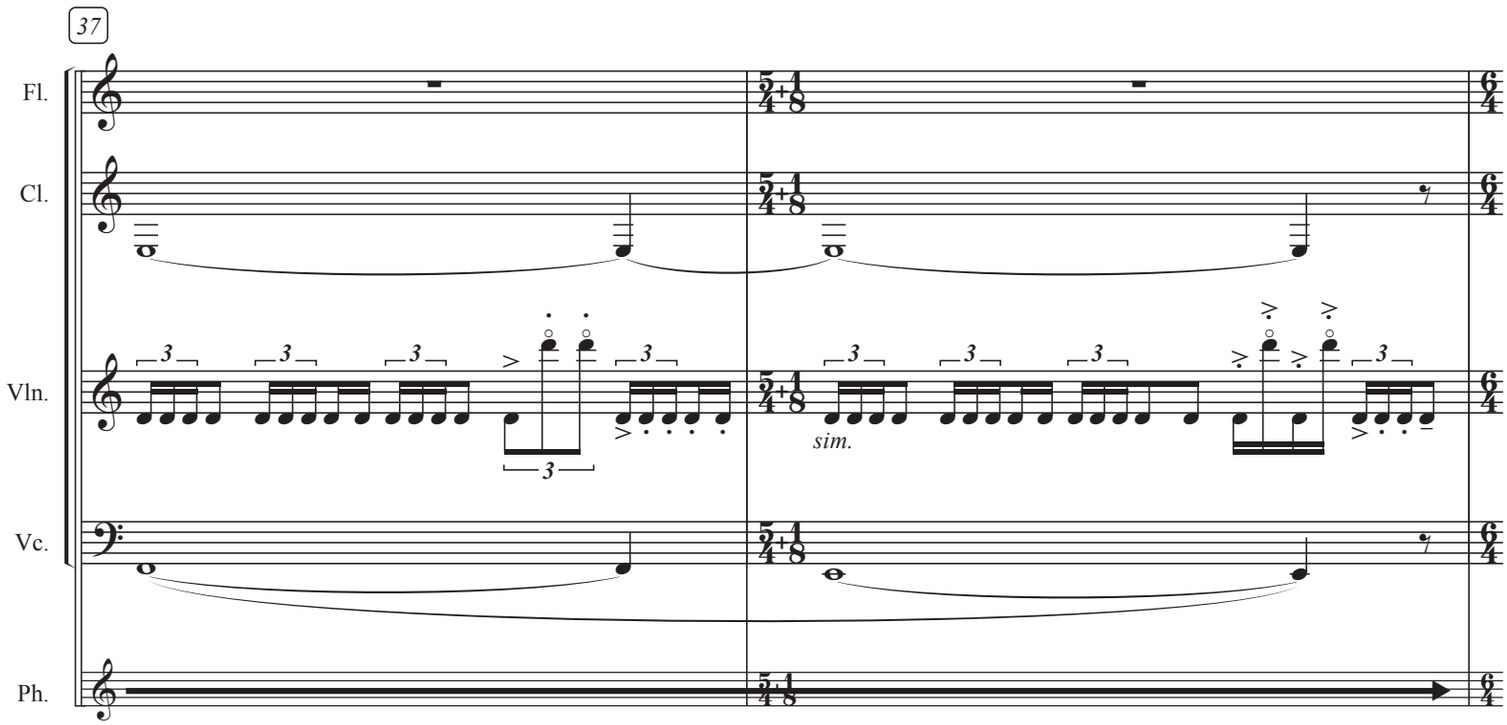


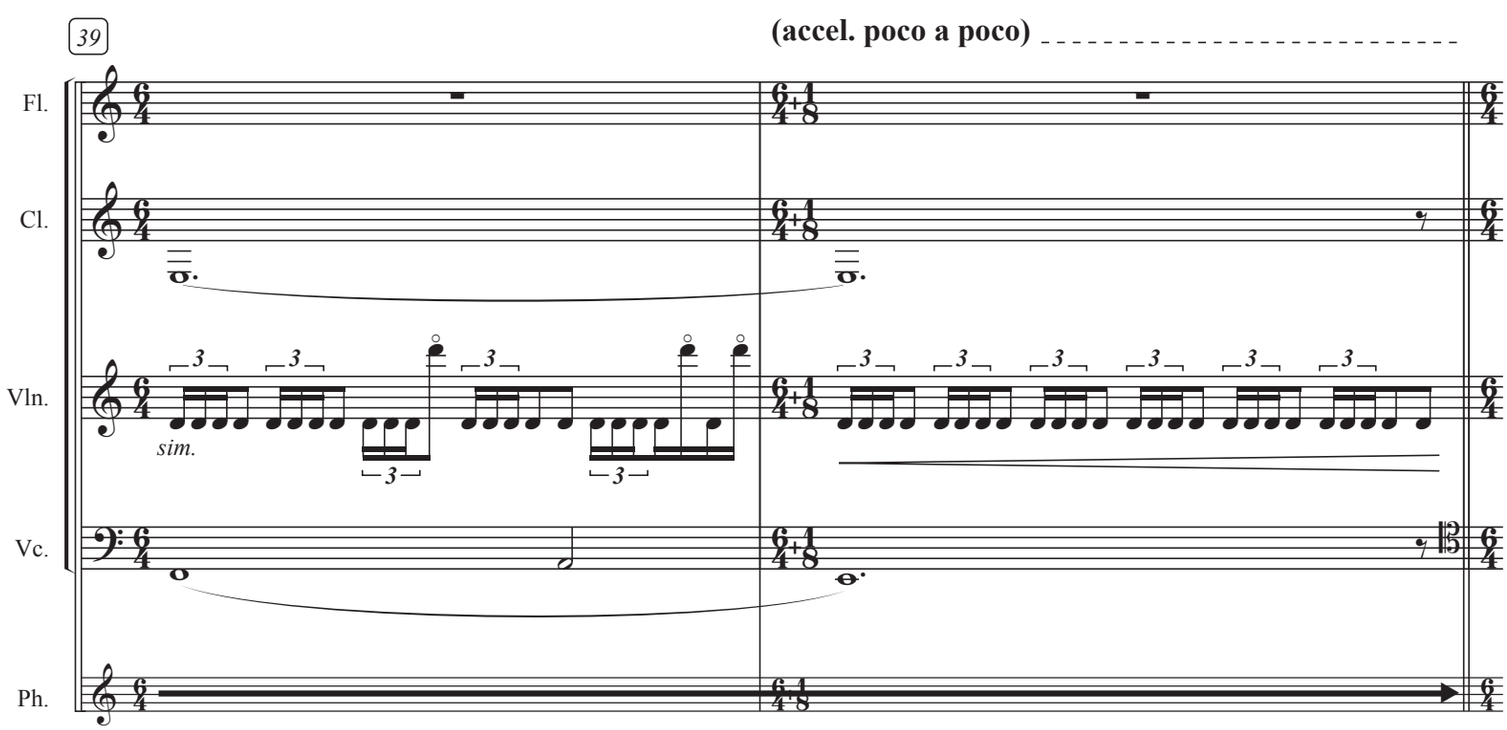


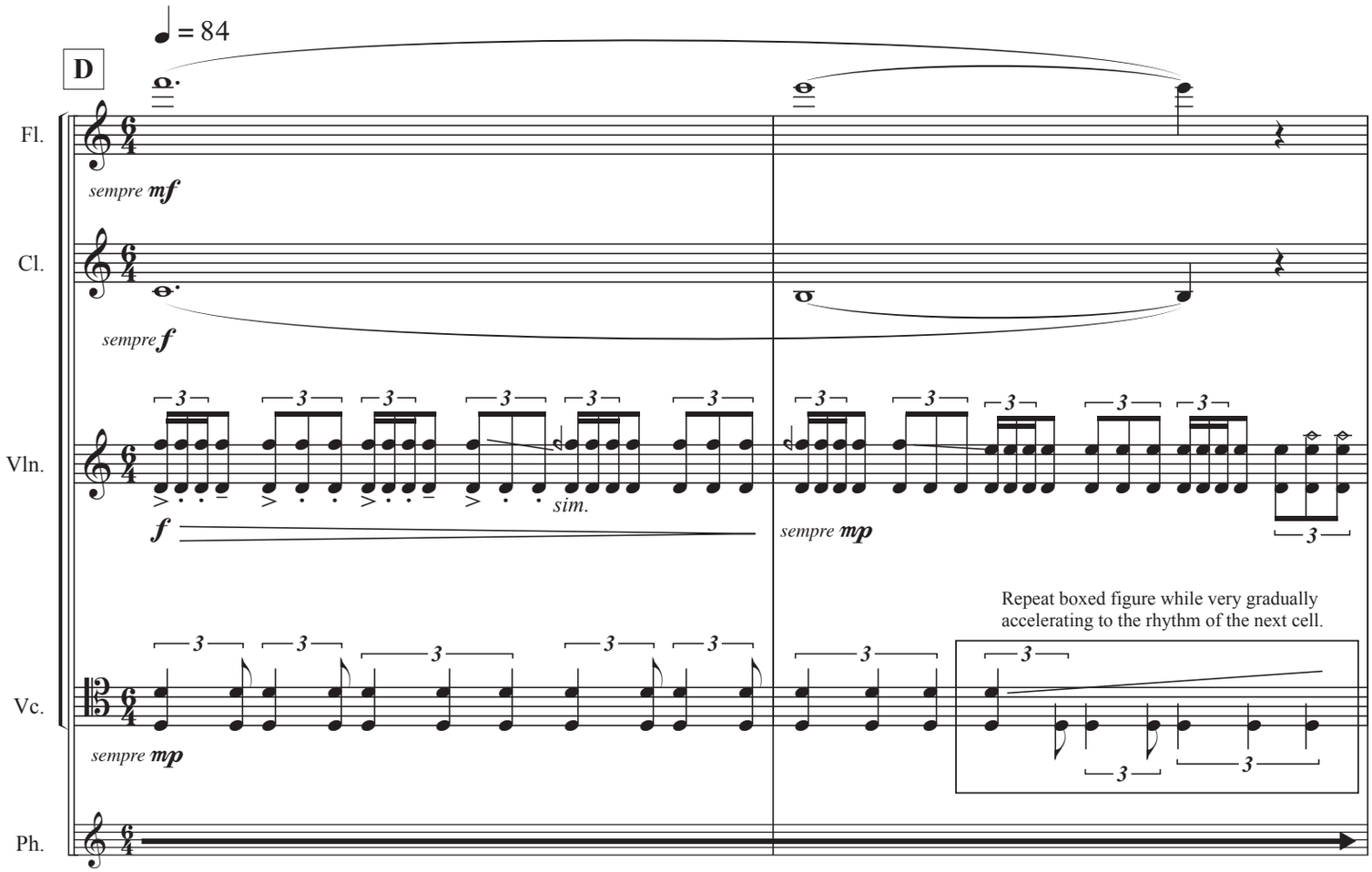
(One measure of non-interactive hocketing sounds)

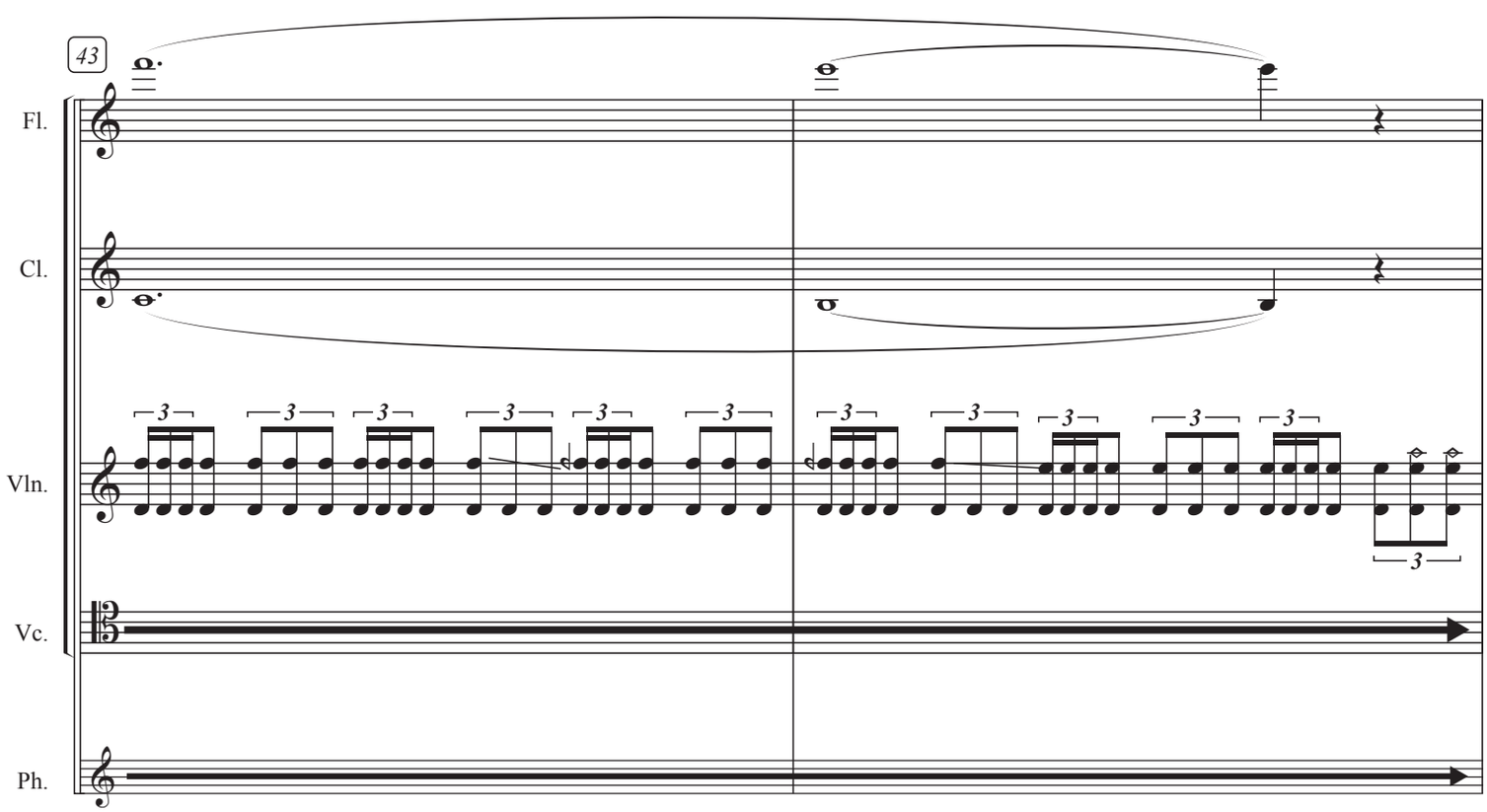

31
C (still ♩ = 69)
Fl.
Cl.
Vln.
Vc.
Ph.
mf
f
9
SHAKE
Struck glass sounds

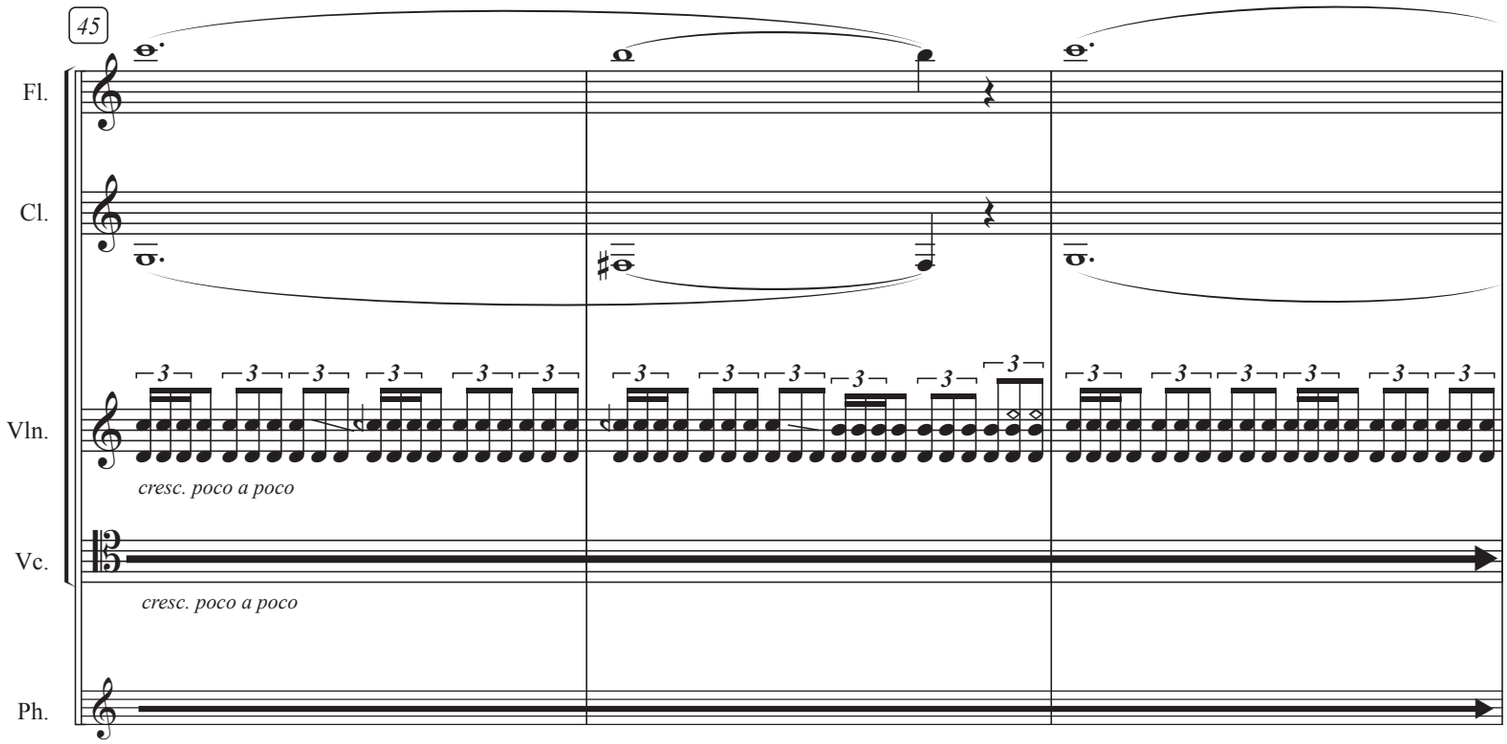

34
accel. poco a poco
Fl.
Cl.
Vln.
Vc.
Ph.
sim.

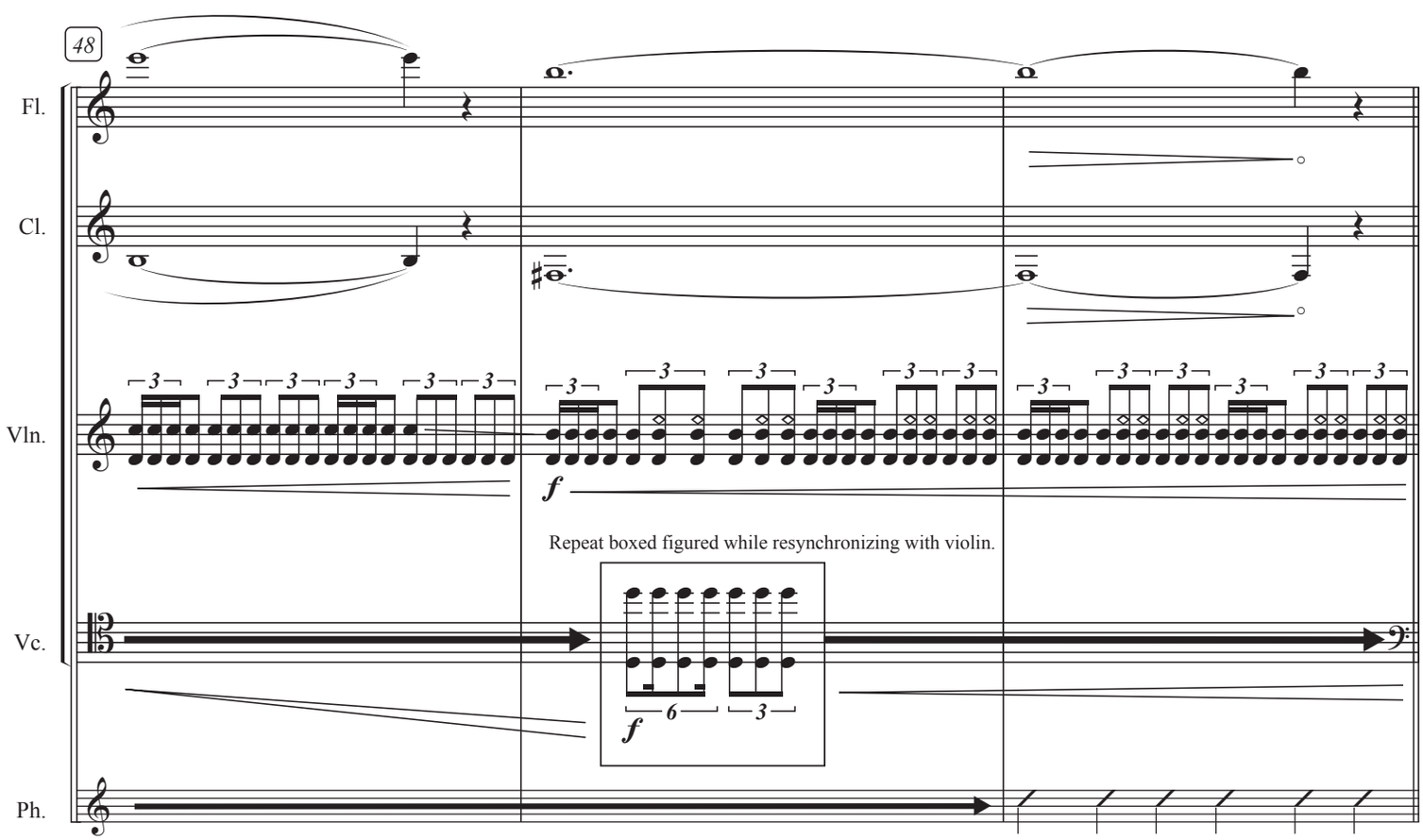

37
Fl.
Cl.
Vln.
sim.
Vc.
Ph.

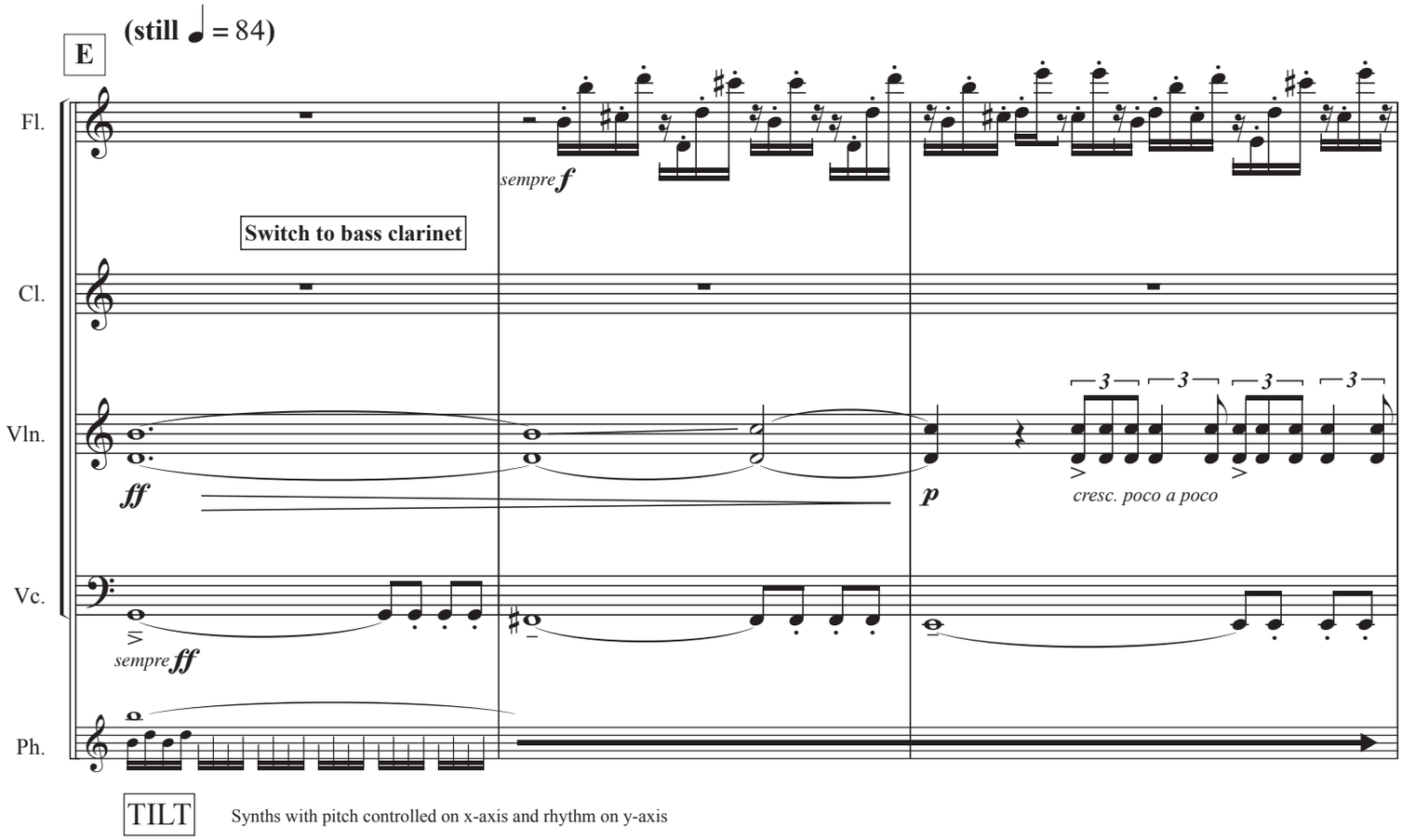

39
(accel. poco a poco)
Fl.
Cl.
Vln.
sim.
Vc.
Ph.

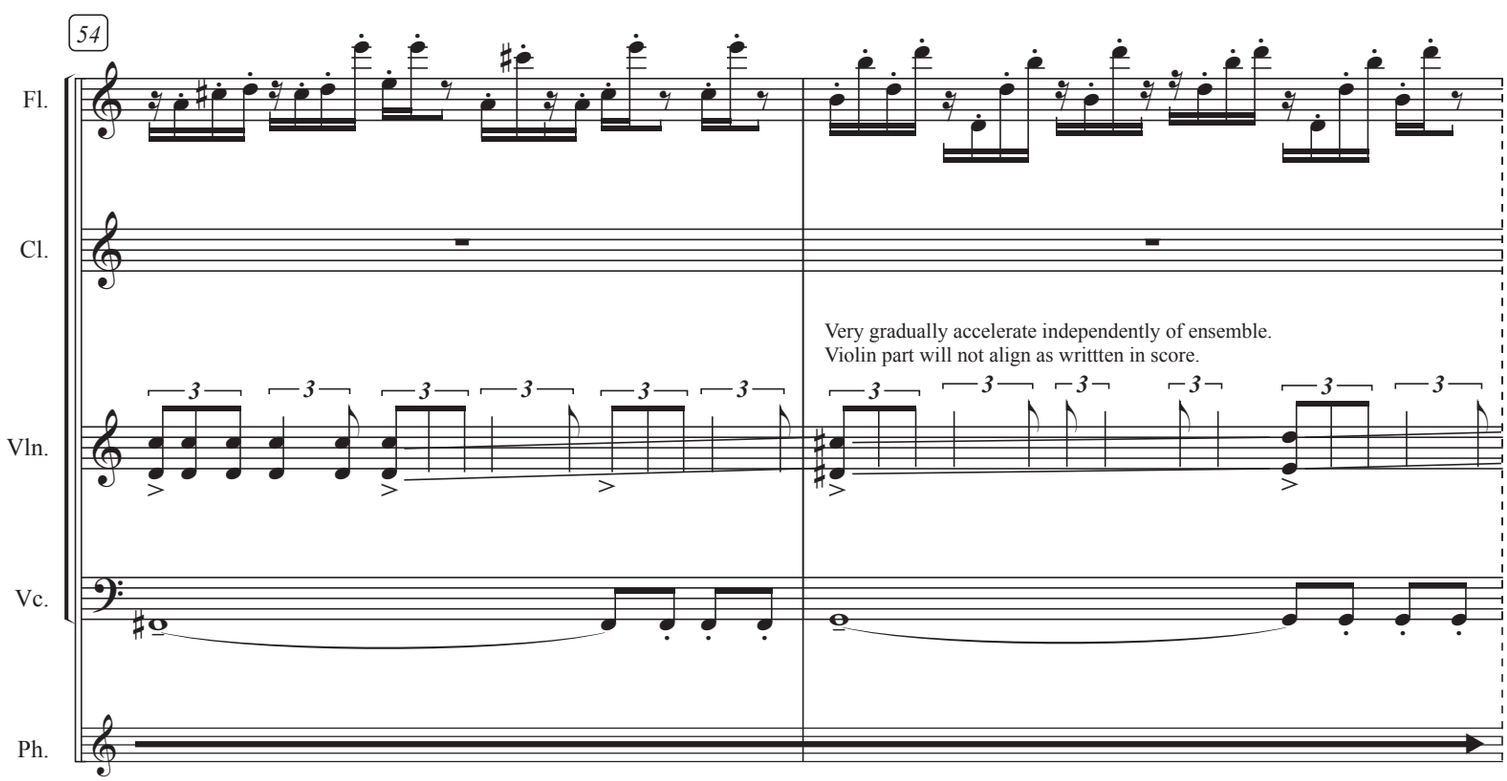

♩ = 84
D
Fl.
sempre mf
Cl.
sempre f
Vln.
f
sim.
sempre mp
Vc.
sempre mp
Repeat boxed figure while very gradually accelerating to the rhythm of the next cell.
Ph.

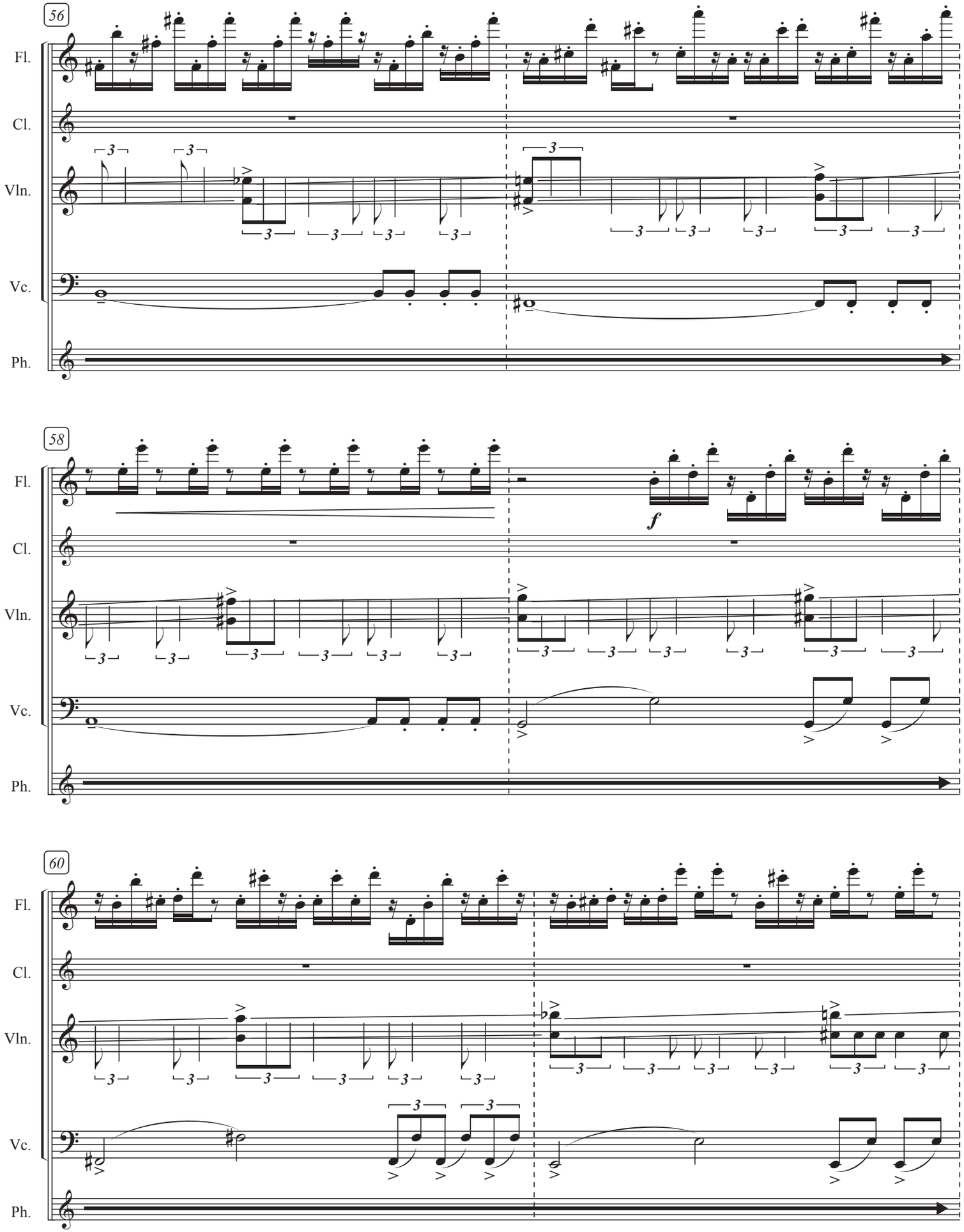

43
Fl.
Cl.
Vln.
Vc.
Ph.

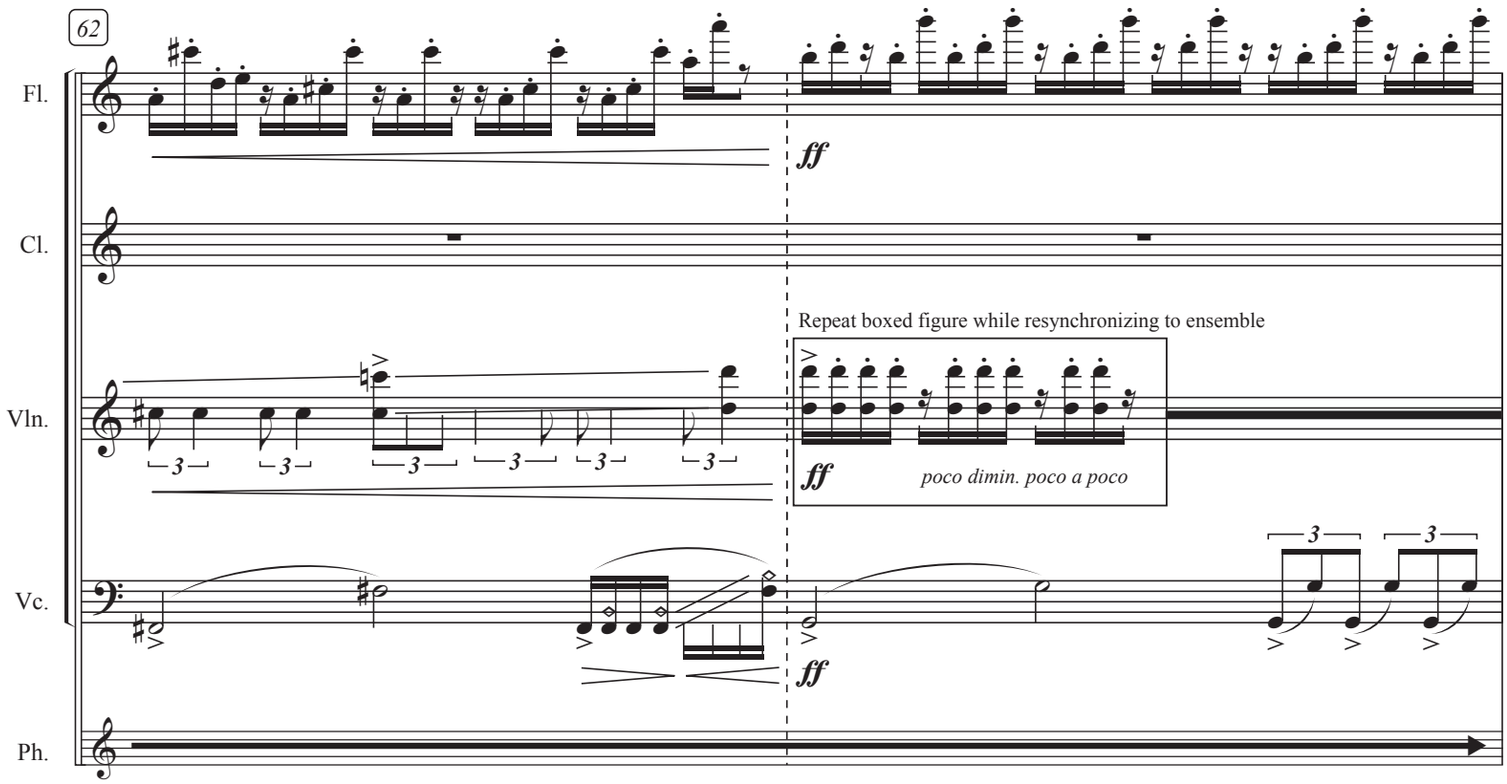

45
Fl.
Cl.
Vln.
cresc. poco a poco
Vc.
cresc. poco a poco
Ph.

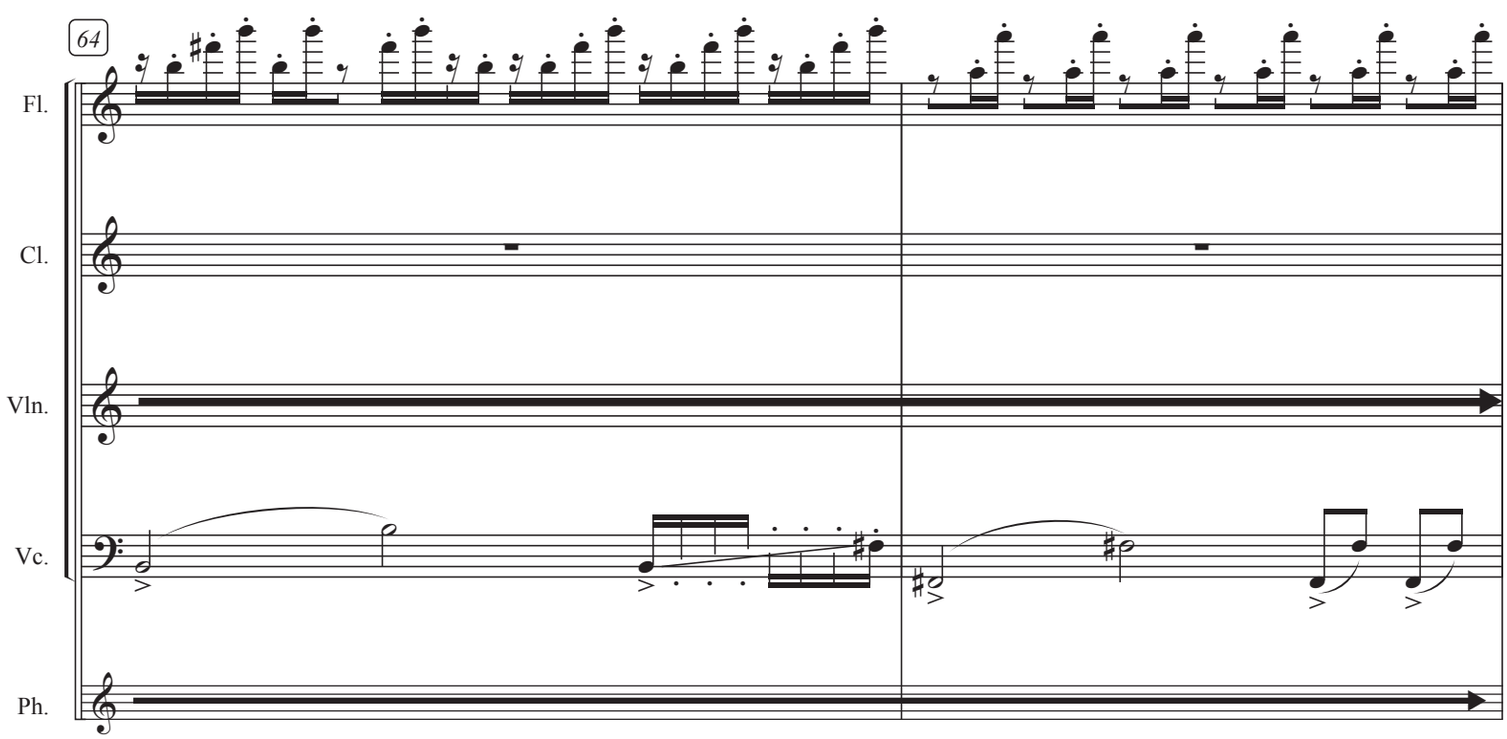

48
Fl.
Cl.
Vln.
f
Repeat boxed figured while resynchronizing with violin.
Vc.
f
Ph.

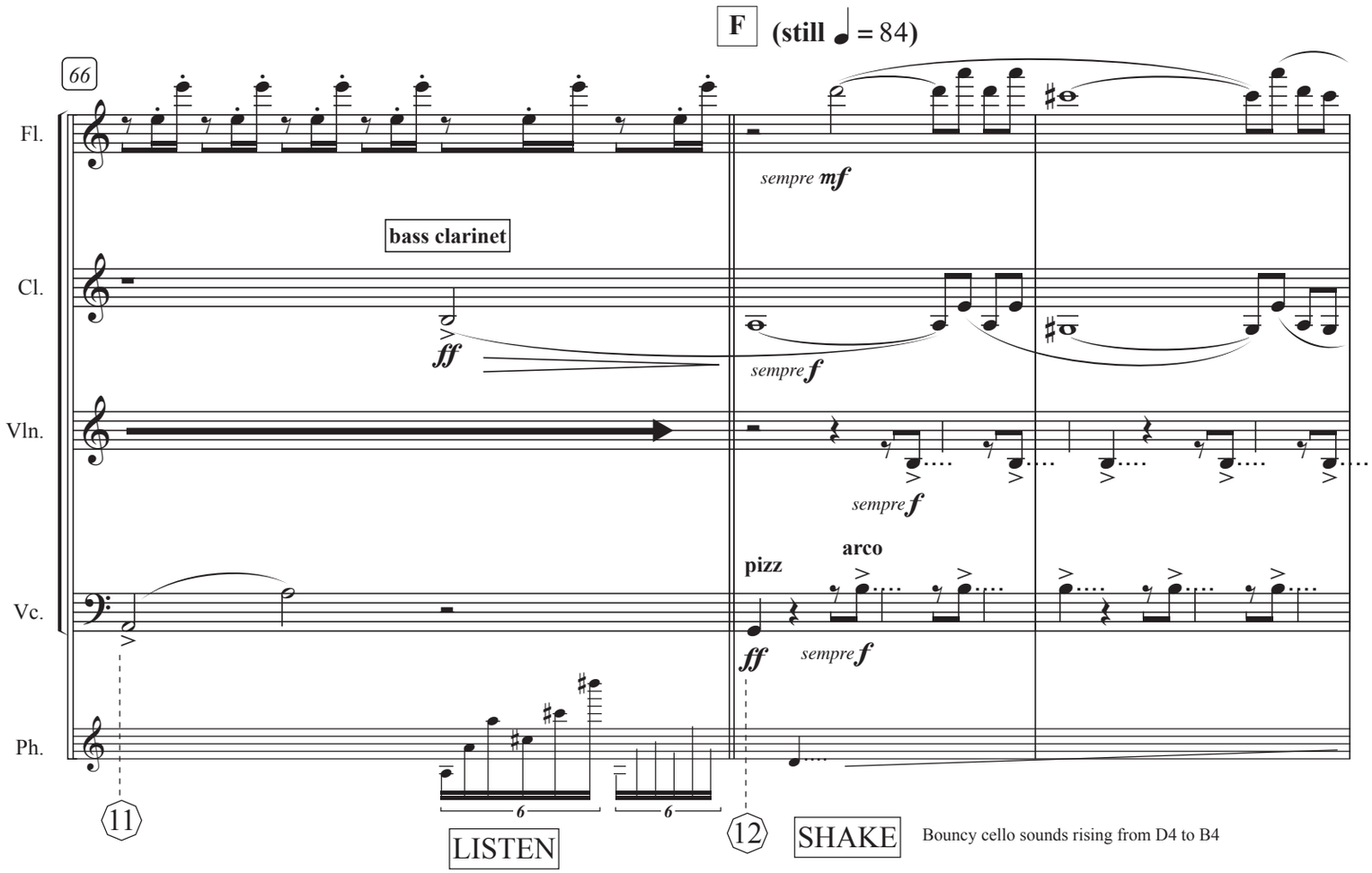

E
(still ♩ = 84)
Fl.
sempre f
Switch to bass clarinet
Cl.
Vln.
ff
p
cresc. poco a poco
Vc.
sempre ff
Ph.
TILT
Synths with pitch controlled on x-axis and rhythm on y-axis

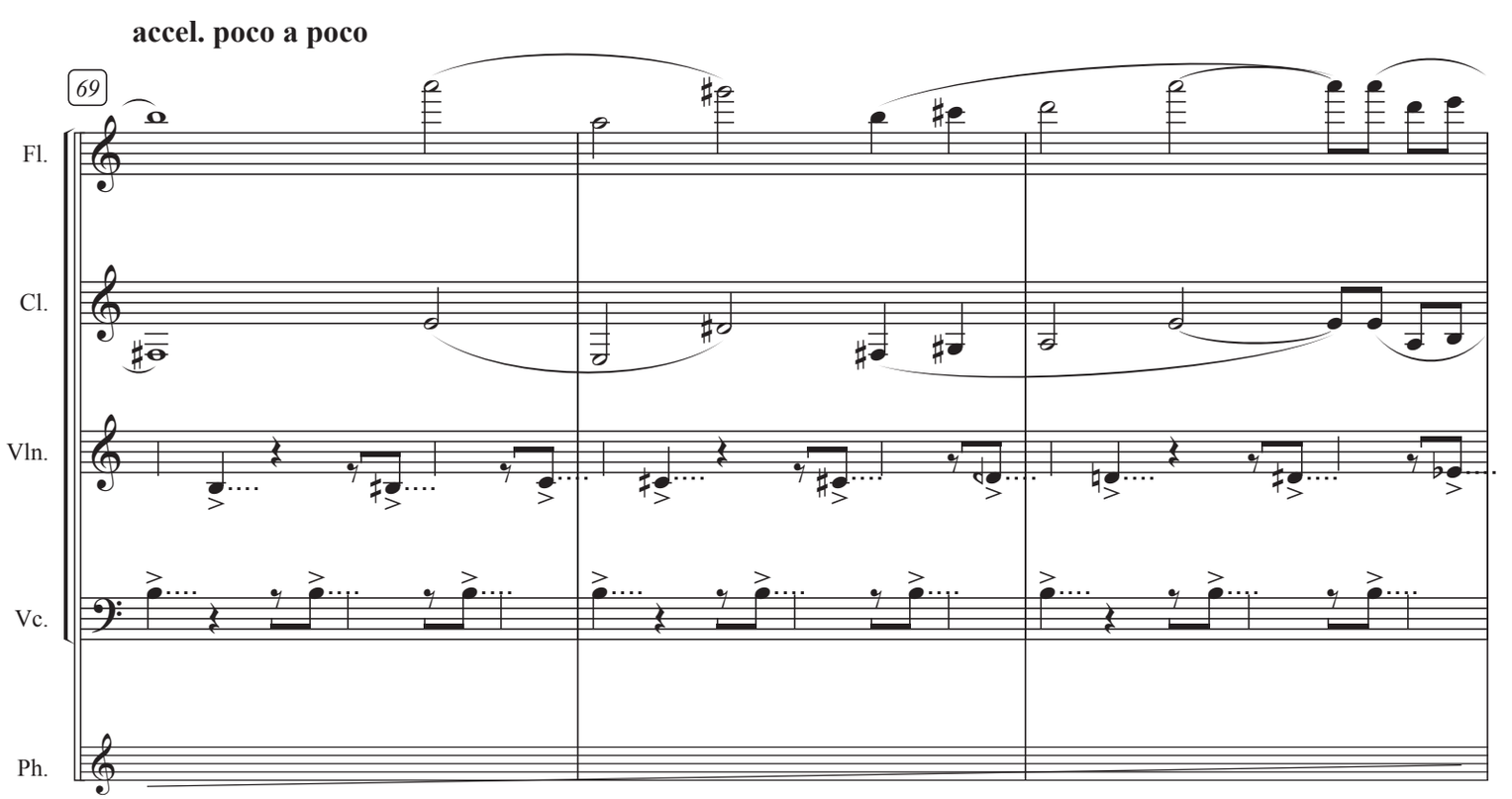

54
Fl.
Cl.
Very gradually accelerate independently of ensemble.
Violin part will not align as writtten in score.
Vln.
Vc.
Ph.

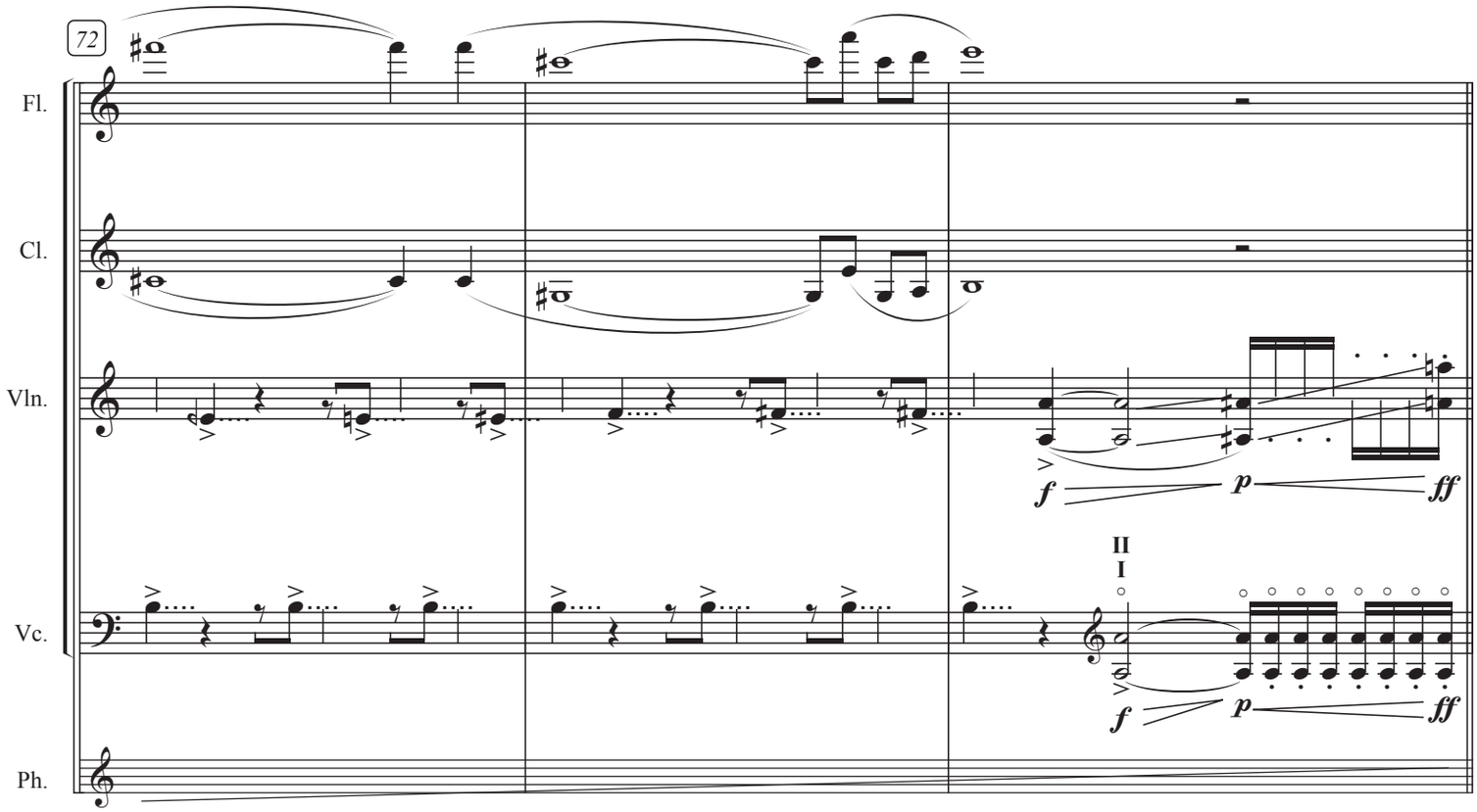

56
Fl.
Cl.
Vln.
Vc.
Ph.
58
f
60

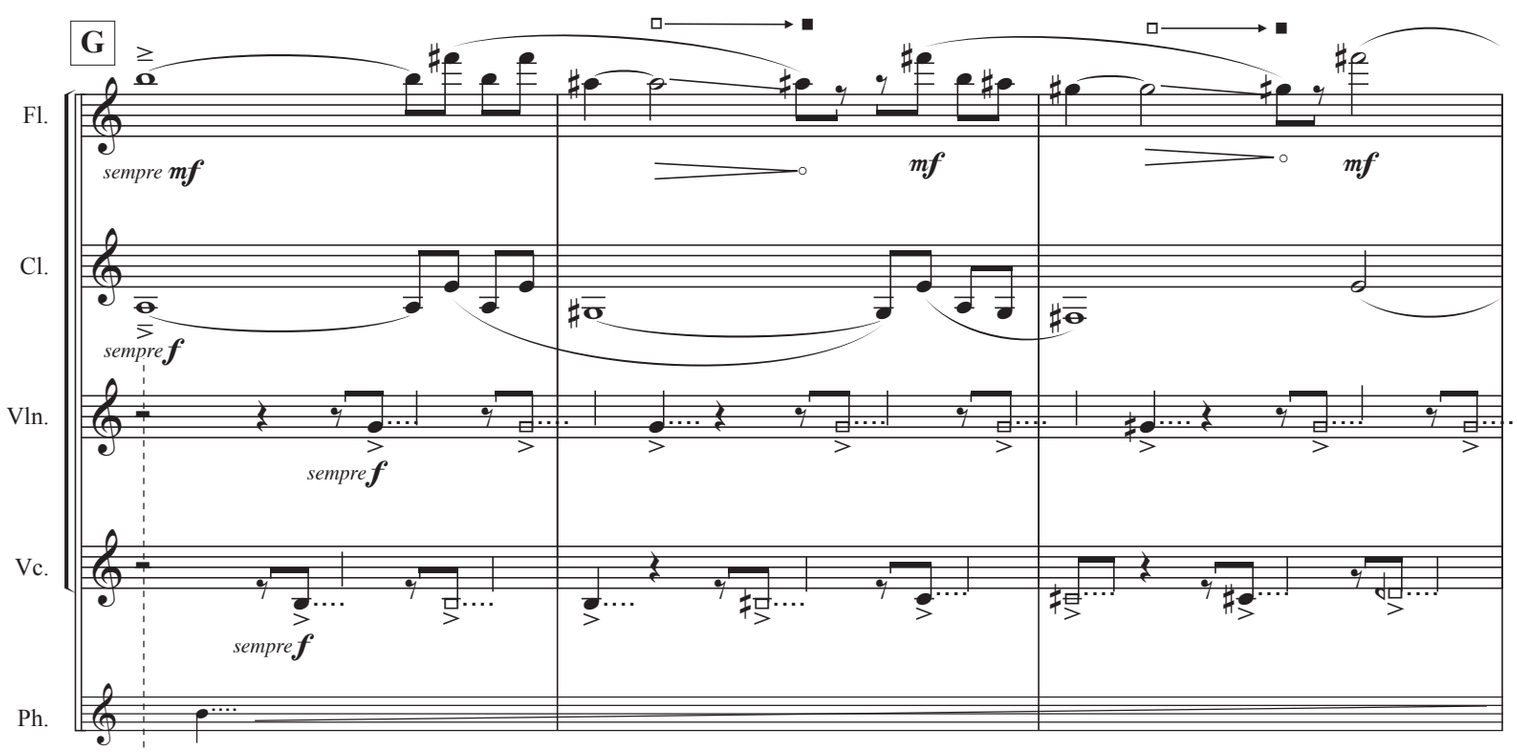

62
Fl.
ff
Cl.
Repeat boxed figure while resynchronizing to ensemble
Vln.
ff
poco dimin. poco a poco
Vc.
ff
Ph.


64
Fl.
Cl.
Vln.
Vc.
Ph.

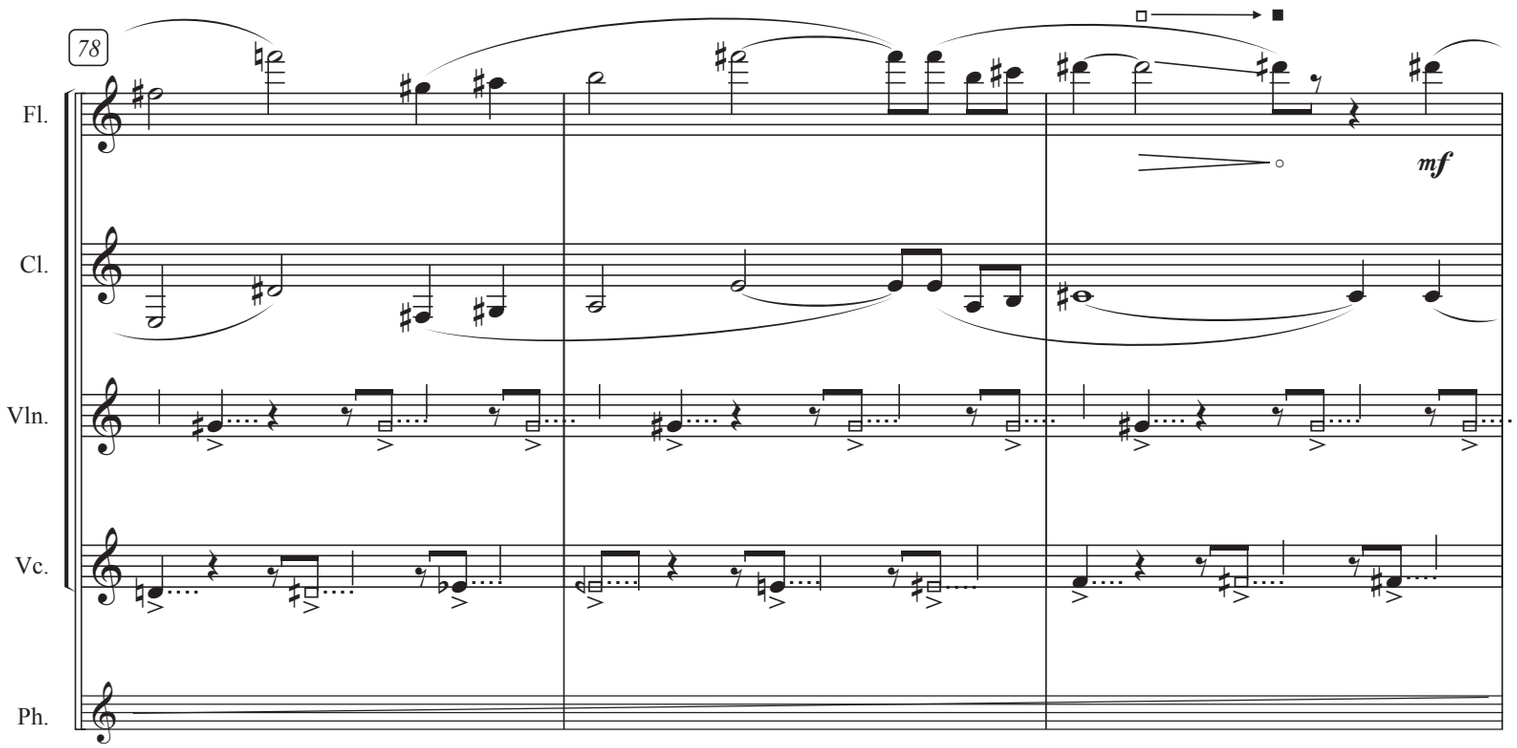

F
(still ♩ = 84)
66
Fl.
sempre mf
bass clarinet
Cl.
ff
sempre f
Vln.
sempre f
pizz
arco
Vc.
ff
sempre f
Ph.
11
LISTEN
12
SHAKE
Bouncy cello sounds rising from D4 to B4

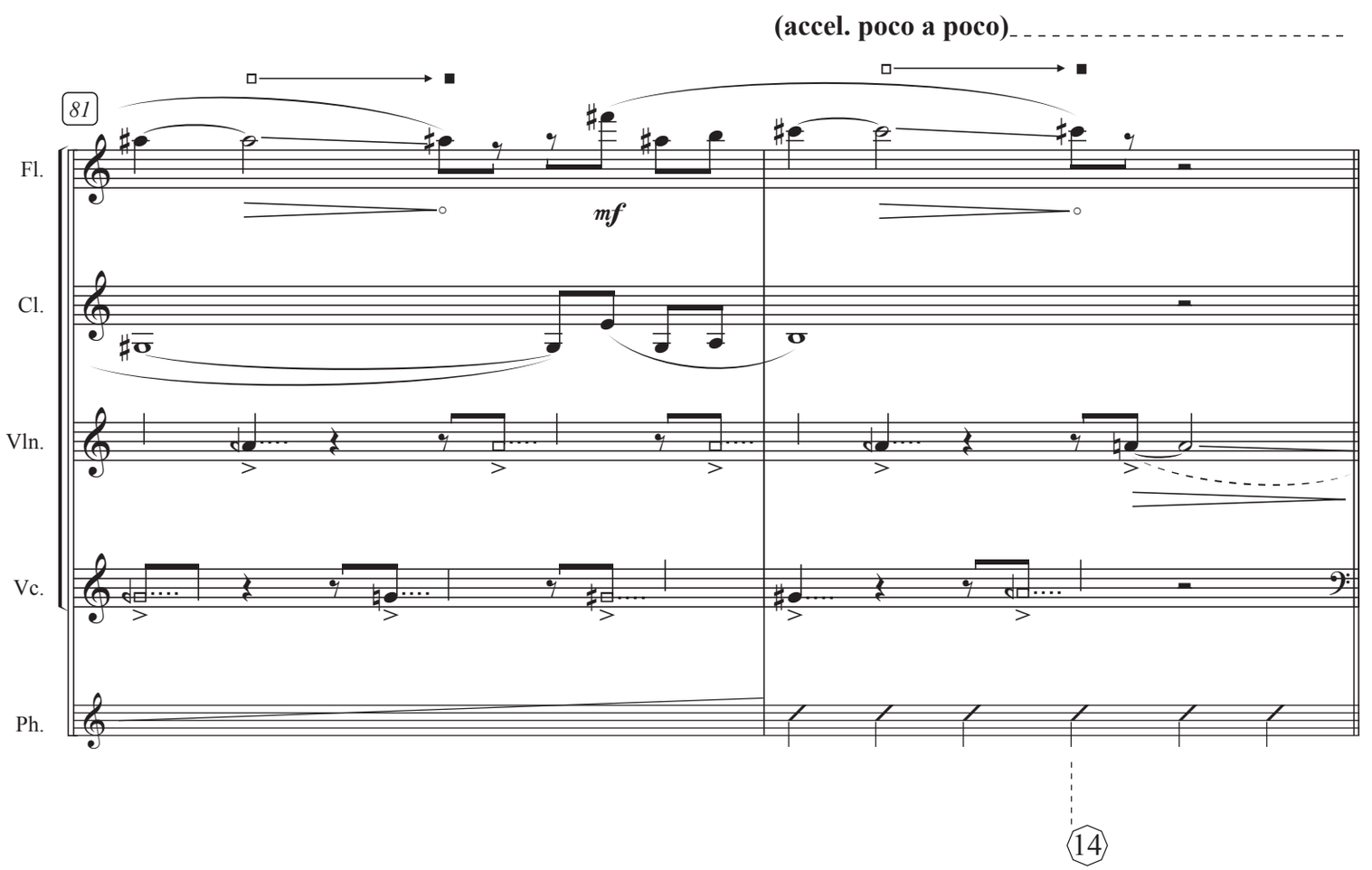

accel. poco a poco
69
Fl.
Cl.
Vln.
Vc.
Ph.

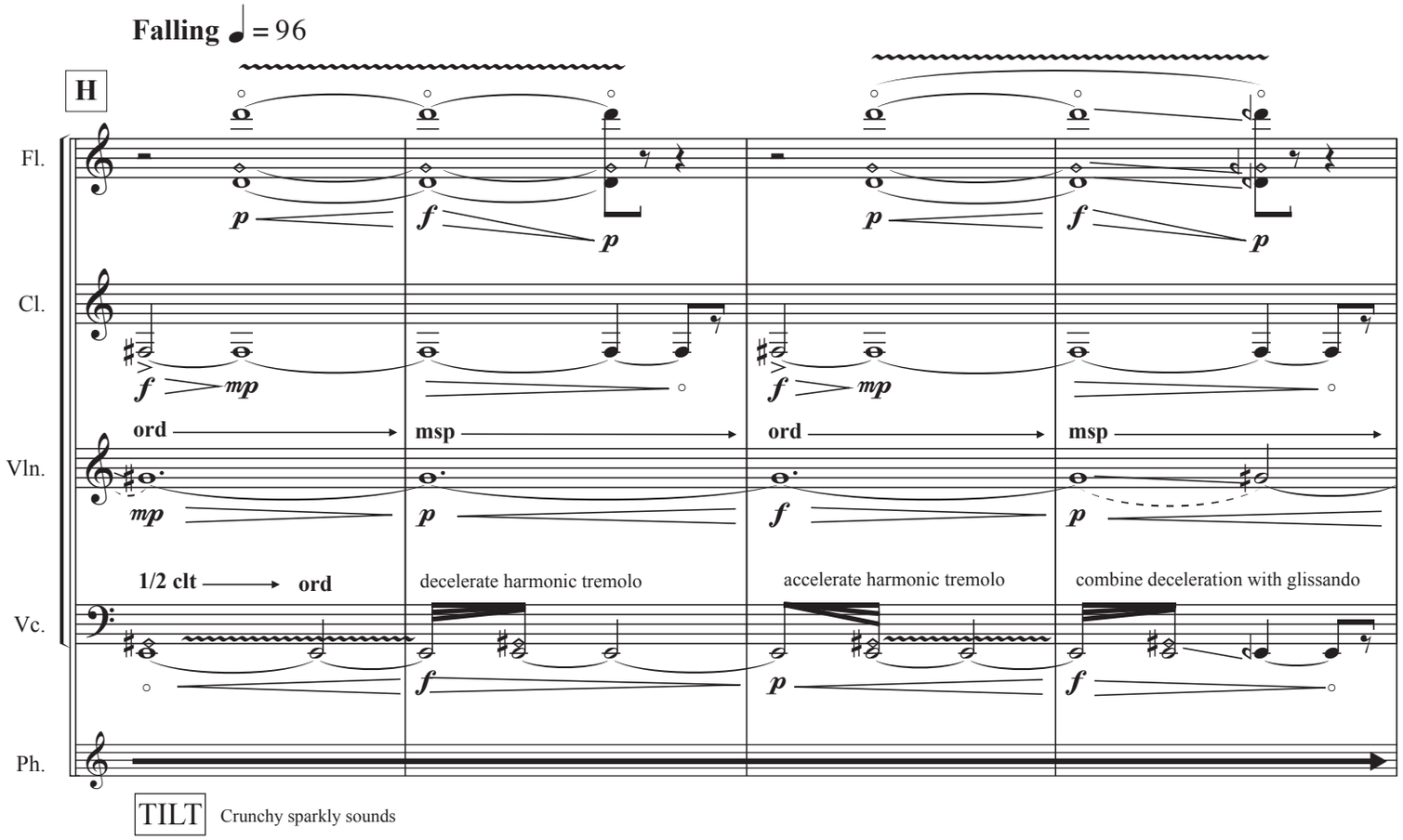


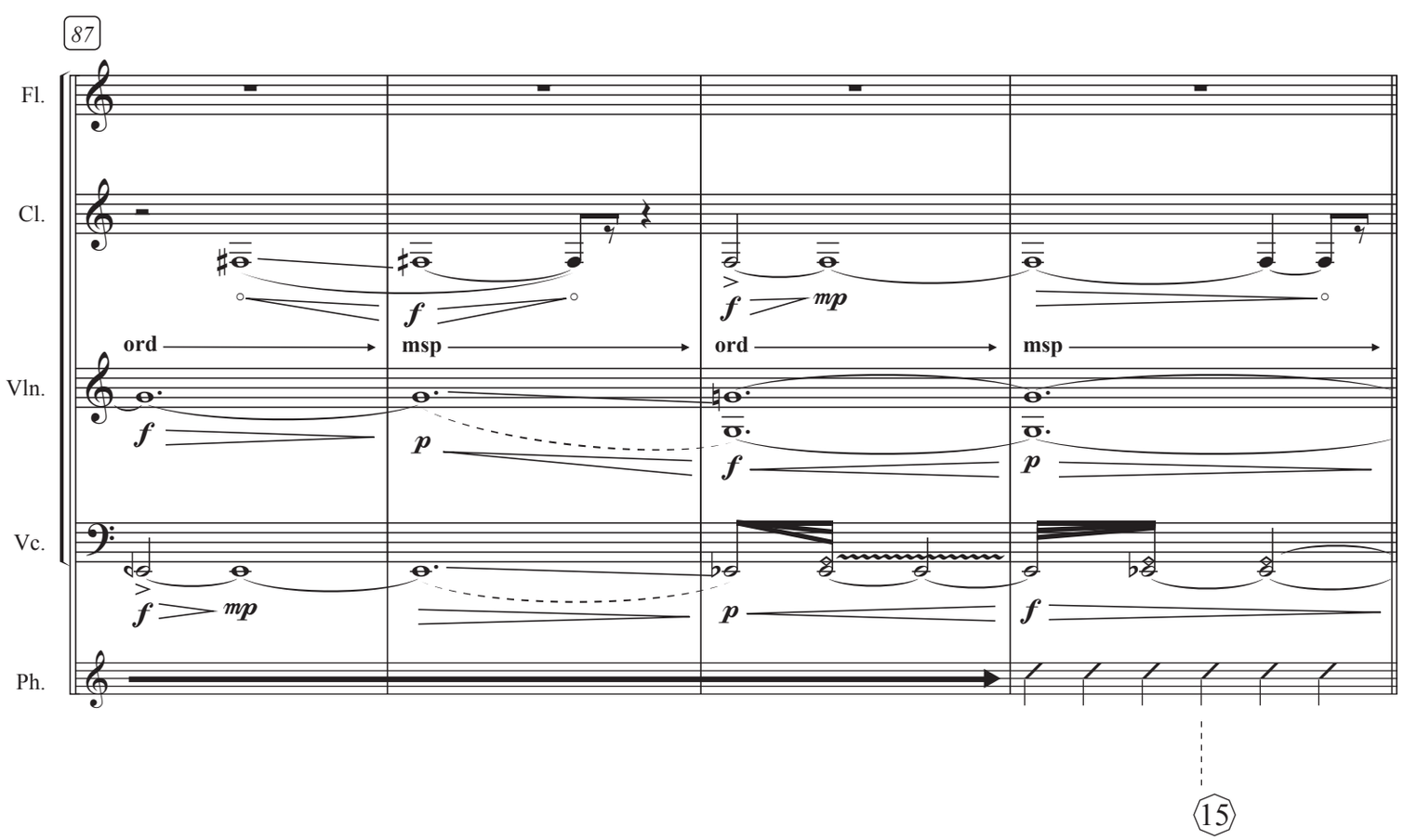


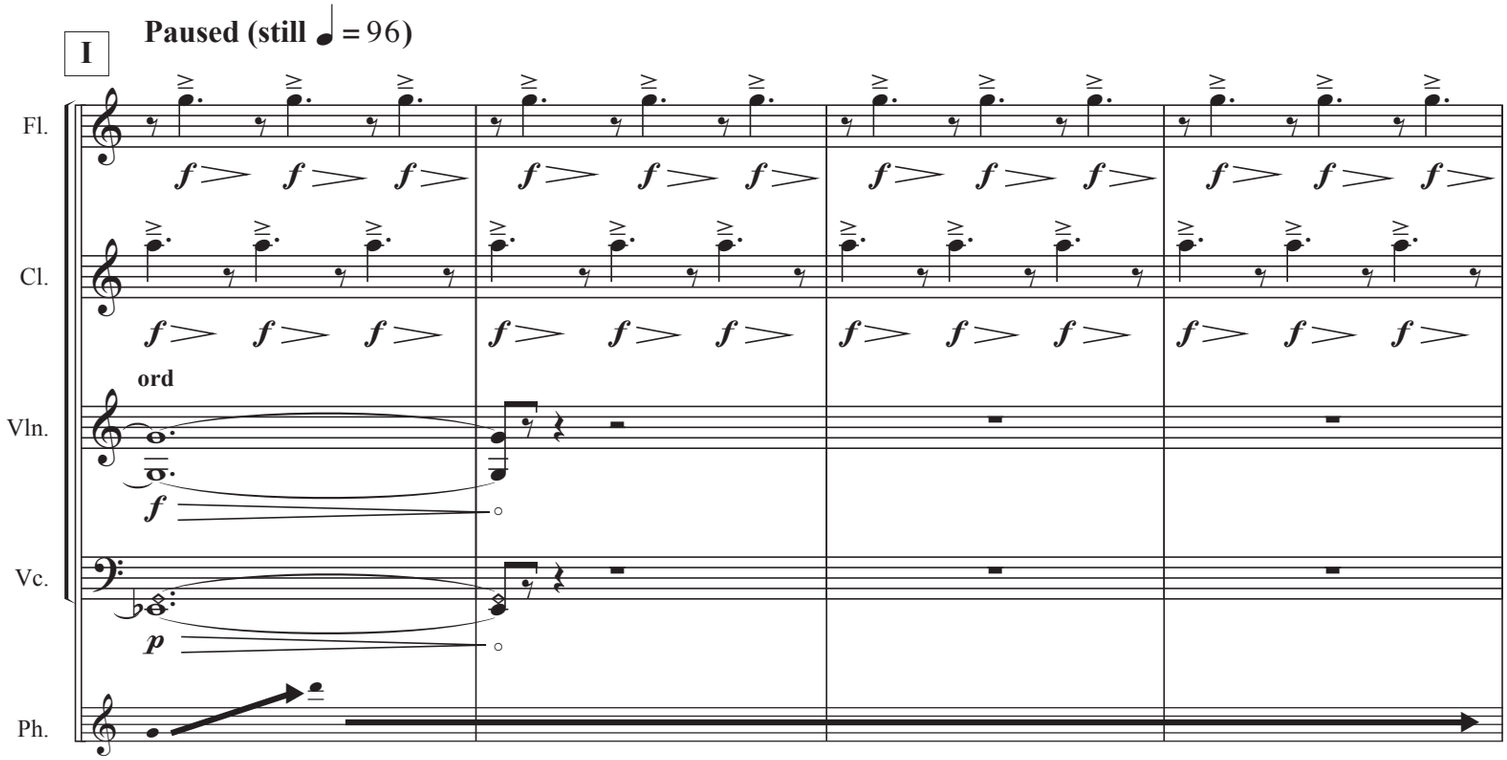
13 SHAKE Bouncy glass sounds rising from B4 to G#5


78
Fl.
Cl.
Vln.
Vc.
Ph.
mf

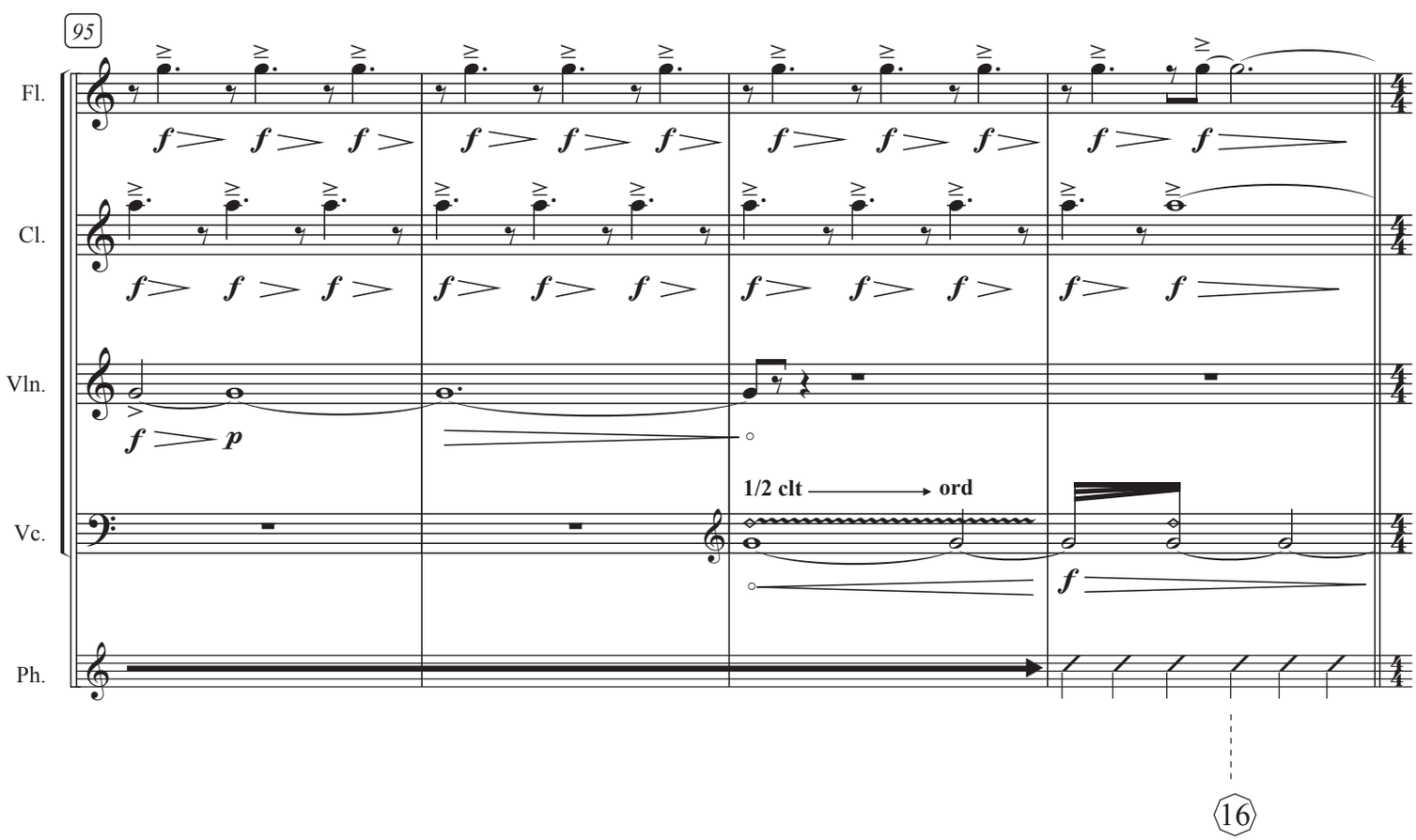

(accel. poco a poco)
81
Fl.
Cl.
Vln.
Vc.
Ph.
mf
14

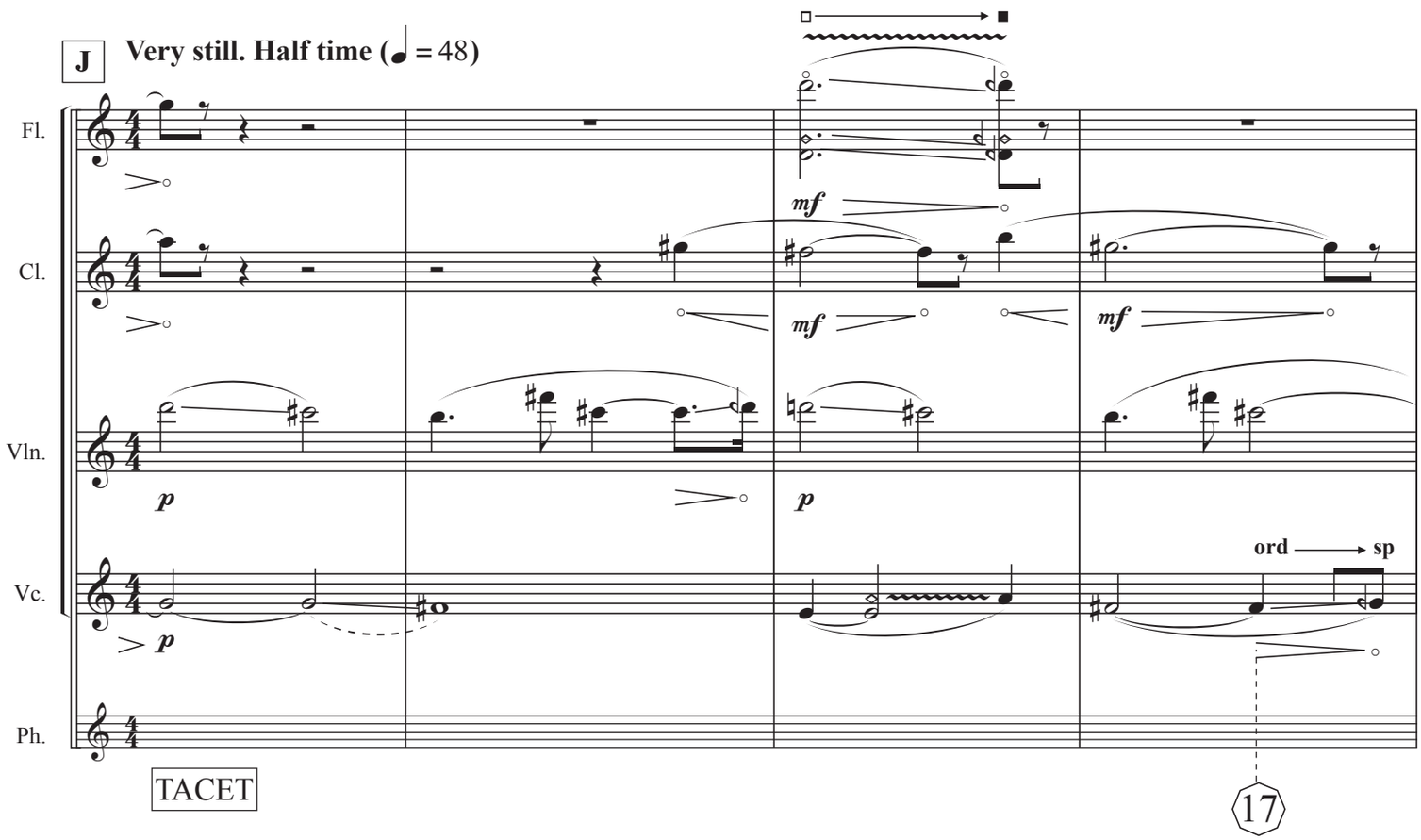

Falling ♩ = 96
H
Fl.
Cl.
Vln.
Vc.
Ph.
ord
msp
ord
msp
1/2 clt
ord
decelerate harmonic tremolo
accelerate harmonic tremolo
combine deceleration with glissando
TILT
Crunchy sparkly sounds


87
Fl.
Cl.
Vln.
Vc.
Ph.
ord
msp
ord
msp
15

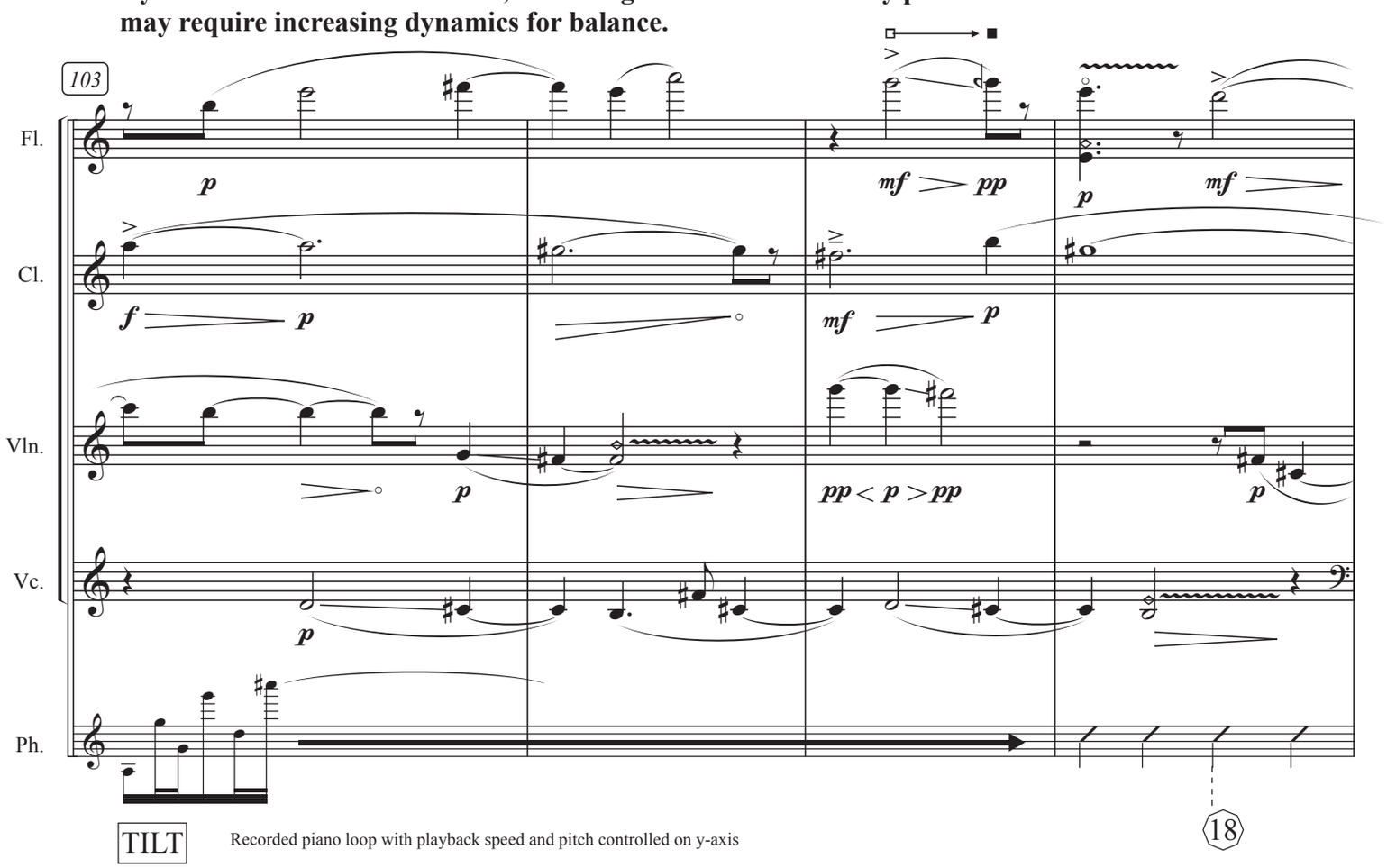


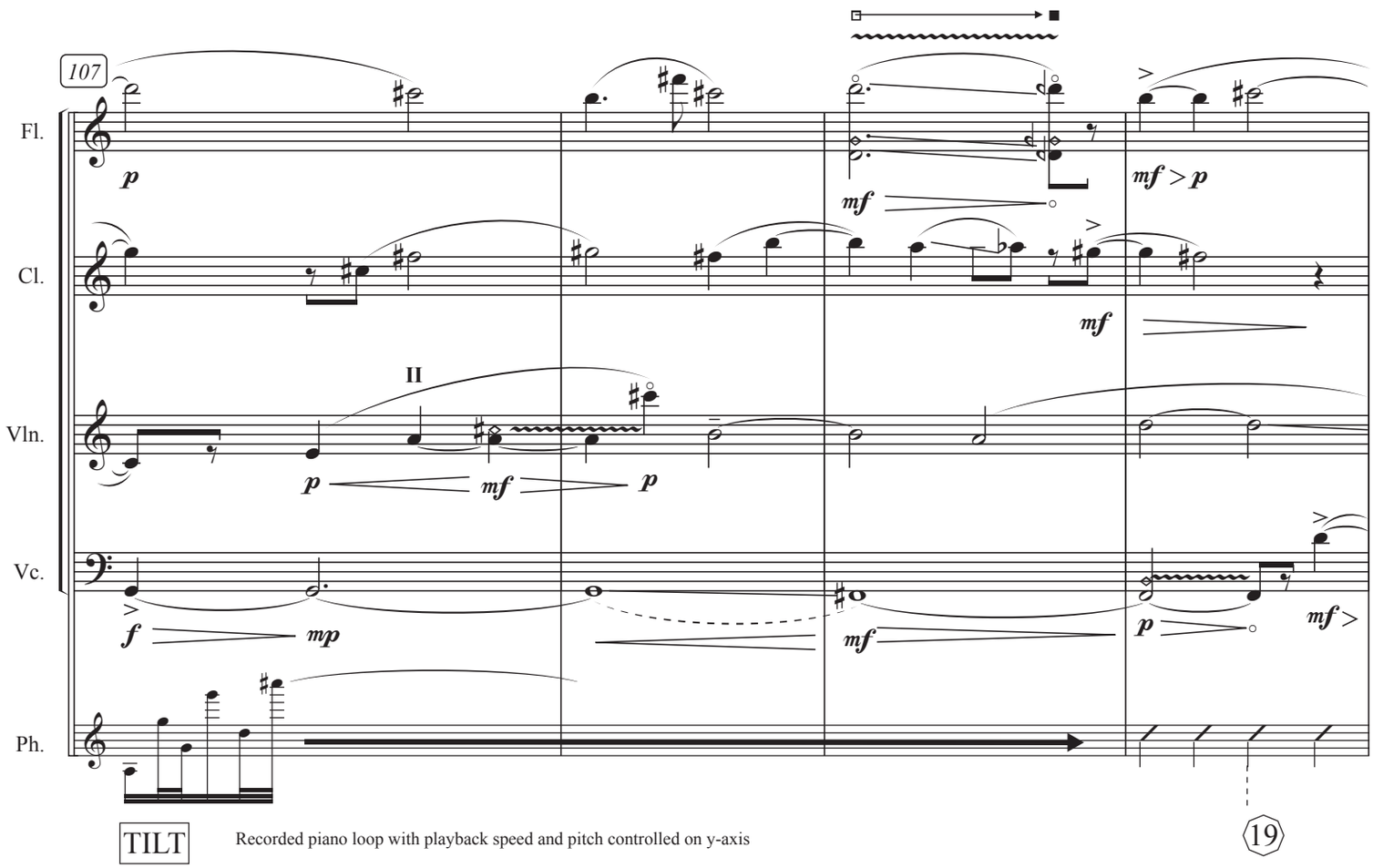
SHAKE Glass sounds starting on G4 and switching later to D6

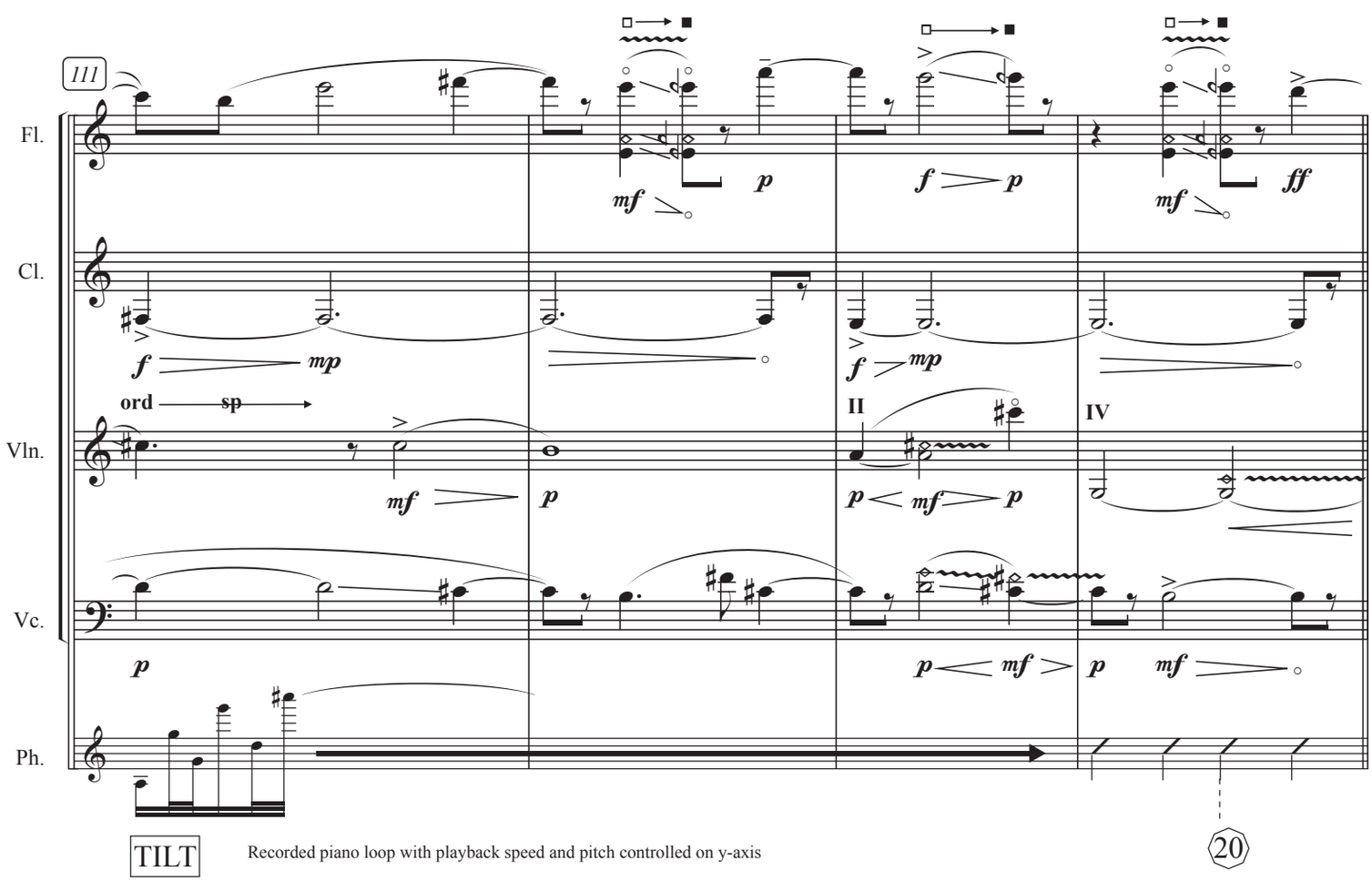




Dynamics should be soft overall, but a large audience with many phones may require increasing dynamics for balance.




107
Fl.
Cl.
Vln.
Vc.
Ph.
II
TILT
Recorded piano loop with playback speed and pitch controlled on y-axis
19


111
Fl.
Cl.
Vln.
Vc.
Ph.
ord
sp
II
IV
TILT
Recorded piano loop with playback speed and pitch controlled on y-axis
20

K

Fl.

Cl.

Vln.

Vc.

Ph.

ord msp ord msp

SHAKE Alternating octaves of piano Es

119

Fl.

Cl.

Vln.

Vc.

Ph.

ord msp ord

IV
III

TACET

21