Paresthesia

for
distributed woodwinds and percussion

Naithan Bosse

Paresthesia

Composed: June, 2016
Duration: 3-5 minutes

Instrumentation

Woodwind parts 1-3 may be performed by any woodwind instrument capable of playing the notated range and corresponding dynamic levels in the score. Woodwind parts 1b and 2b are optional.

Woodwind ranges by part:

- Woodwind 1a-2a: F4-Ab5.
- Woodwind 2b: Eb4-Ab5
- Woodwind 3: F3-Ab4.

Note: Each woodwind performer must also have an additional "granular" instrument. This could be any granular material dropped onto a resonant body, such as rice into a glass bowl. The sound produced should not be overly bright or noisy. (For example, dropping coins into a metal bowl).

Optional woodwind 3 preparation: When directed in the score, fix a heavy paper card flat across the bell. The card should vibrate against the instrument causing a buzzing sound.

Percussion 1:

- Suspended cymbal (with bow). (Sizzle cymbal and china cymbals can be substituted).
- 1 "granular" instrument (rice or some other dull sounding objects dropped in a bowl).
- 1 "rubbing" instrument (rubbed to produce a breath-like white noise effect such as paper, cloth, or your own skin)
- 1 "bursting" instrument (such as popping a balloon or paper bag, or firing a cap gun)
- 1 "crinkling" or "tearing" instrument (such as paper or thin plastic)
- 1 chiming instrument (tuned to F if pitched)
- Unpitched ideophones (either all wooden or all metal)

Percussion 2:

- 1 "bursting" instrument (such as popping a balloon or paper bag, or firing a cap gun)
- 1 "crinkling" or "tearing" instrument (such as paper or thin plastic)
- 1 chiming instrument (If pitched, preferably tuned to an F)
- 1 "granular" instrument (rice or some other dull sounding object dropped in a bowl)

- 1 “scratching” instrument (For example, clawing a carpet sample)
- Unpitched ideophones (either all wooden or all metal)

Percussion 3 (optional):

- 1 “bursting” instrument (such as popping a balloon or paper bag, or firing a cap gun)
- 1 “rubbing” instrument (rubbed to produce a breath-like white noise effect such as paper, cloth, or your own skin)
- 1 “growling” instrument (this could be produced by rubbing a drum skin with a superball mallet or with a lions roar. This could also be produced by rubbing a superball mallet along a gong. If using a gong, it should be placed far from the mic and its resonance should be damped. The instrument should not overpower the woodwind multiphonics on page 4-5)
- 1 “crinkling” or “tearing” instrument (such as paper or thin plastic)
- 1 chiming instrument (If pitched, preferably tuned to an F)
- 1 “granular” instrument (rice or some other dull sounding objects dropped in a bowl)
- 1 “scratching” instrument (such as clawing a carpet sample)
- Unpitched ideophones (either all wooden or all metal)

Distribution of performers

Ideally, Paresthesia should be performed with an 8+ channel speaker system surrounding the audience. The ensemble performs from offstage or at a remote site. The performers should be amplified to allow sounds which are usually very quiet or inaudible to become audible during performance.

The following section provides technical instructions for a 3 node network setup. In a non-networked setting, the performers simply need to be mic'd offstage. The speaker configuration detailed below remains the same in a non-networked context.

Note: Pop filters for the microphones might help to avoid overly “boomy” sounds during sections involving breathing or plosives.

3 node network setup:

Nodes 1 and 2 are performer nodes (figure 1). Each performer node should have two microphones – one mic on each side of the room. The microphones connect to a computer running Artsmesh (or other network audio software) so that the audio can be routed between the three nodes.

Node 1: Woodwinds 1a, 2a, and percussion 3.
Woodwinds 1a and 2a choose opposite mics and percussion 3 is either located in the centre of the room and may be free to move up to either microphone at points during the performance. This would create a spatialization effect.

Node 2: Percussion 1, 2, and woodwind 1b, 2b, 3.
Percussion 1 moves between mic 1 and the centre of the room. Percussion 2 is located near mic 2. Woodwinds 1b and 2b choose opposite mics and woodwind 3 may move from one mic to another during the performance.

Node 3: Audience and mixer
The audience may be set in darkness or semi-darkness. A technician should be present to monitor the audio levels.

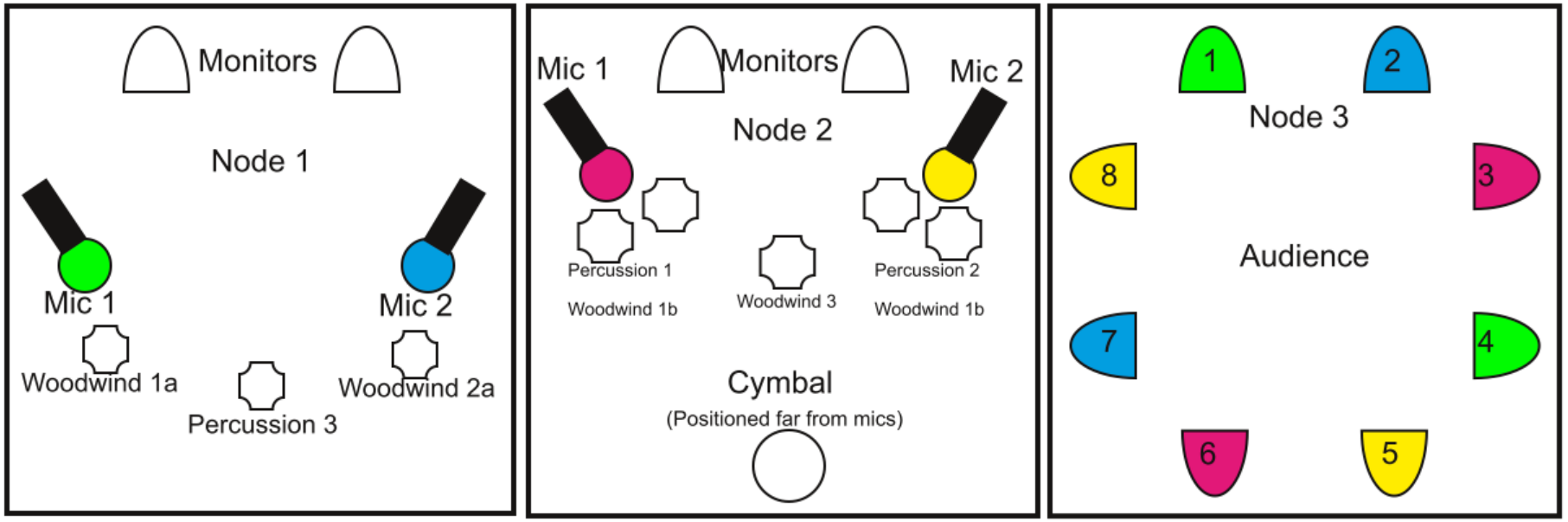


Figure 1: Configuration of network nodes

Artsmesh setup instructions:
(Follow steps 1-11 at each node)

1. Open network preferences and make sure that each computer is connected to the correct network and has an appropriate IP address.
2. Ensure that the audio interfaces are properly connected and selected in the computer audio settings.
3. Open Artsmesh
4. Open preferences->general. Check that your IP address is correct in Artsmesh and tick the "mesh using ipv6" box if connecting via ipv6. (Otherwise make sure this option remains unchecked).
5. Open preferences->Jack Server. Select the correct driver and devices. Set the sample rates to 48000 and the buffer size to 512.
6. Open profile->User. Set your name.
7. Open profile->Group. Set your group.
8. Open groups->local. Check that your user account name appears under the correct group.
9. Click "Mesh"
10. Open groups->live. Check that all accounts appear properly. Select a single group for all users to join.
11. Click the "Jack" button.
12. Node 3: open network_mixer.maxpat and ensure that jackrouter is set as the input and output devices and that the appropriate sample rate and vector sizes are selected.

Establishing audio connections between nodes:

Node 1 to Node 3:

1. Open routing tab.
2. Click “+”
    1. Node 1: Set “role” to “client”.
    2. Node 3: Set “role” to “server”.
    3. Node 1: Set “connect to” to Node 3's account name.
    4. Node 3: Set “connect to” to Node 1's account name.
    5. Both nodes:
        1. Channel count: 2
        2. Port offset: 0
        3. Queue buffer length: 4
        4. Packet redundancy: 1
        5. Bit rate resolutions: 16
        6. Zero underrun: unchecked
        7. Loopback: unchecked
        8. Use IPV6: (checked if using ipv6, unchecked otherwise)
        9. Click “run”

Node 2 to Node 3:

1. Open routing tab.
2. Click “+”
    1. Node 2: Set “role” to “client”.
    2. Node 3: Set “role” to “server”.
    3. Node 2: Set “connect to” to Node 3's account name.
    4. Node 3: Set “connect to” to Node 1's account name.
    5. Both nodes:
        10. Channel count: 2
        11. Port offset: 1
        12. Queue buffer length: 4
        13. Packet redundancy: 1
        14. Bit rate resolutions: 16
        15. Zero underrun: unchecked
        16. Loopback: unchecked
        17. Use IPV6: (checked if using ipv6, unchecked otherwise)
        18. Click “run”

Routing instructions:

Node 1:

1. System in 1 *(mic 1) -> Node 3 in 1
2. System in 2 *(mic 2) -> Node 3 in 2
3. Node 3 in 1 -> System out 1
4. Node 3 in 2 -> System out 2

Node 2:

1. System in 1 *(mic 1) -> Node 3 in 1
2. System in 2 *(mic 2) -> Node 3 in 2
3. Node 3 in 1 -> System out 1
4. Node 3 in 2 -> System out 2

Node 3

1. Node 1 in 1 -> Max in 1
2. Node 1 in 2 -> Max in 2
3. Node 2 in 1 -> Max in 3
4. Node 2 in 2 -> Max in 4
5. Max out 1 -> System out 3, 6
6. Max out 2 -> System out 8, 5
7. Max out 3 -> System out 1, 4
8. Max out 4 -> System out 2, 7
9. Max out 5 -> Node 1 out 1
10. Max out 6 -> Node 1 out 2
11. Max out 7 -> Node 2 out 1
12. Max out 8 -> Node 2 out 2

Performance Instructions

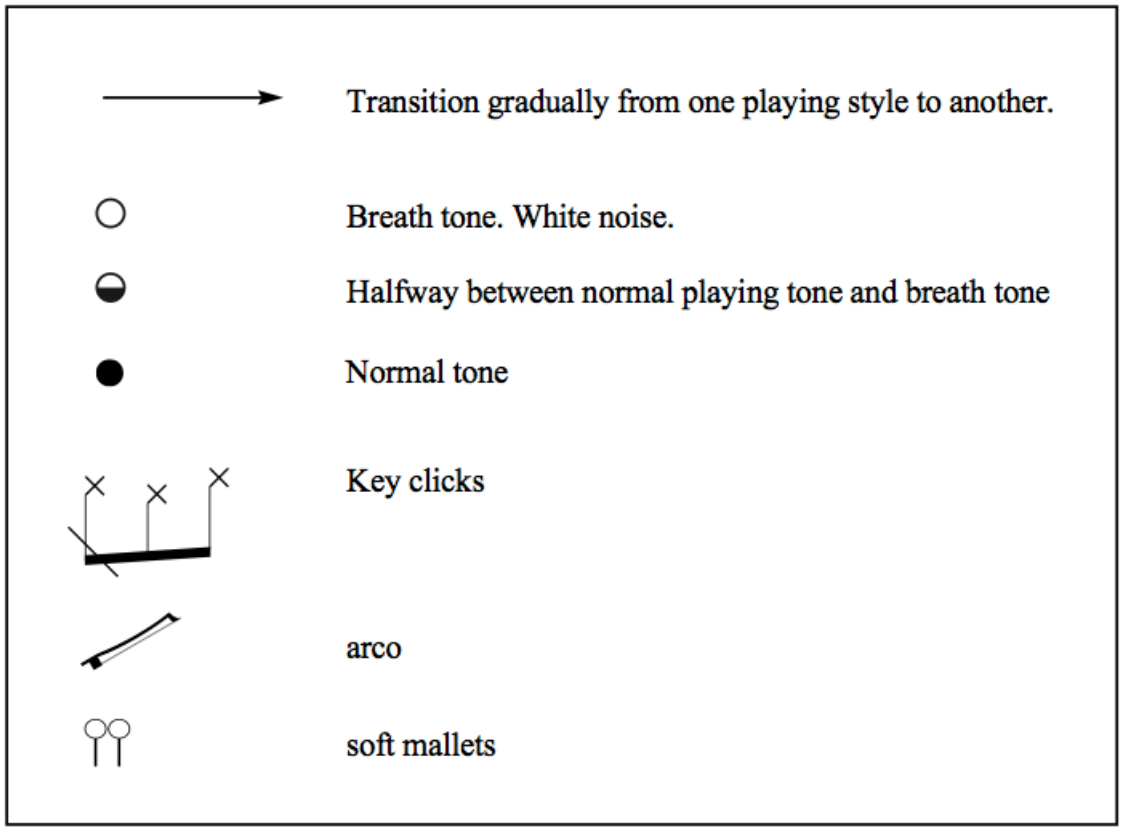
Sound Technician(s)

One technician is located in the audience node to balance the audio levels between the two remote sites. When performed over a network, *Paresthesia* contains sections in which the performers are unable to hear their remote counterparts. These sections are cued by the technician using network_mixer.maxpat. These cues are indicated on the conductor staff in the score with the heading “inter-nodal audio.”

Timing

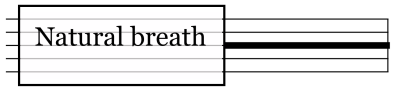
Use a stopwatch during unmetered sections.

Notation



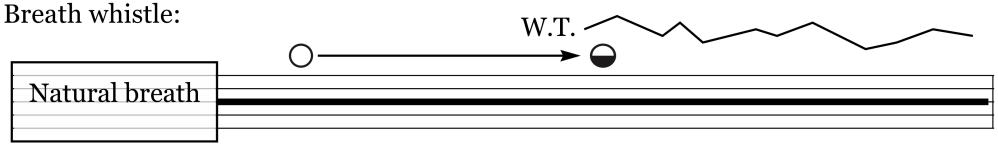
Performance Instructions (continued)

Breathe into the microphone:



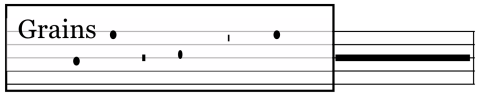
For all box notations, perform the effect for the length of time indicated by the duration line. For this example, breathing should be calm and somewhat meditative. (Not through your instrument). Exhales should be significantly longer than inhales. Breathe very close to the microphone. The effect experienced in the audience node should be soft and intimate – not boomy. If this effect creates too much bass, try moving back from the mic, breathing at an angle to the mic, or reducing your dynamic level.

Breath whistle:



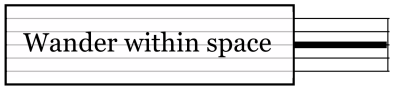
Halfway between a breath and a whistle. The pitch of the whistle should be a bit unsteady, fluctuating within a small range (roughly a minor 2nd). The pitch fluctuation may be a natural result of the low dynamic, as if the sound is not being properly supported. A flute may substitute a whistle tone. An oboe or clarinet may also substitute a whistle tone by removing the reed and blowing directly into the reed socket.

Granular instrument:

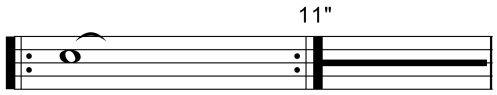


Perform with your granular instrument (described above). Use the graphic as an indication for attack density. This should be a fairly sparse effect. If possible, listen to the other performers and create a dialogue. Perform at a very close distance to the microphone.

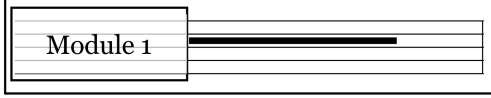
Wander through the performance space.



The audience should just barely hear footsteps and maybe the rustle of clothing.



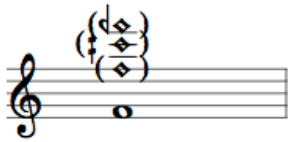
Repeat for the length of the duration bar. The duration of each repetition is indicated above the repeat sign.



Perform *Module 1* - An aleatoric section included after the main score.

Perform *Module 2* - A second aleatoric section included after the main score.

Multiphonics

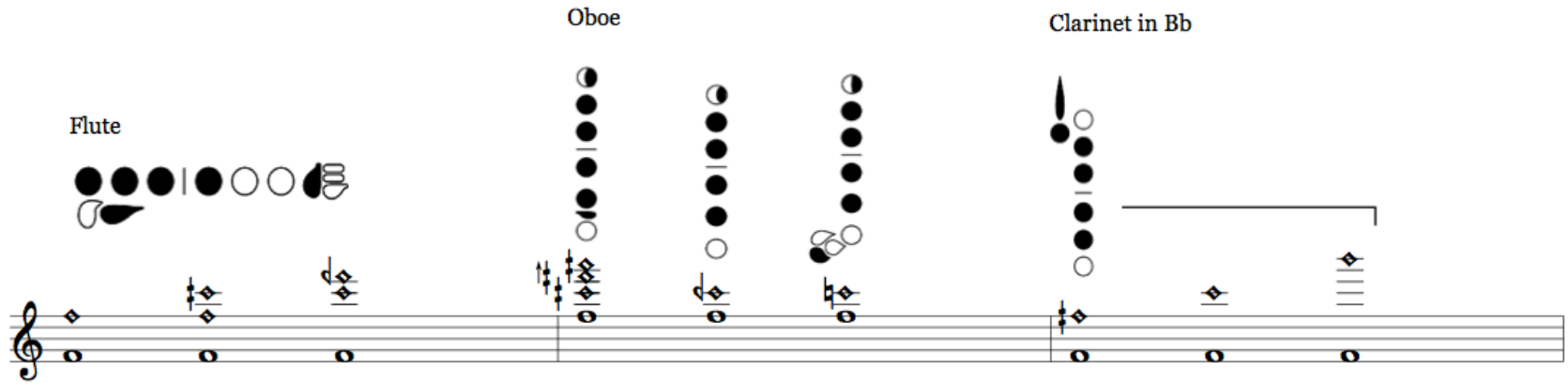


Choose a multiphonic with the indicated fundamental (here F4).
Excite one of the suggested overtones notated as diamond noteheads in parentheses.
Change the chosen overtone on each repetition if possible.
Multiphonics must be capable of being played at a very soft dynamic level.
Acceptable multiphonics, for several instruments are included below.

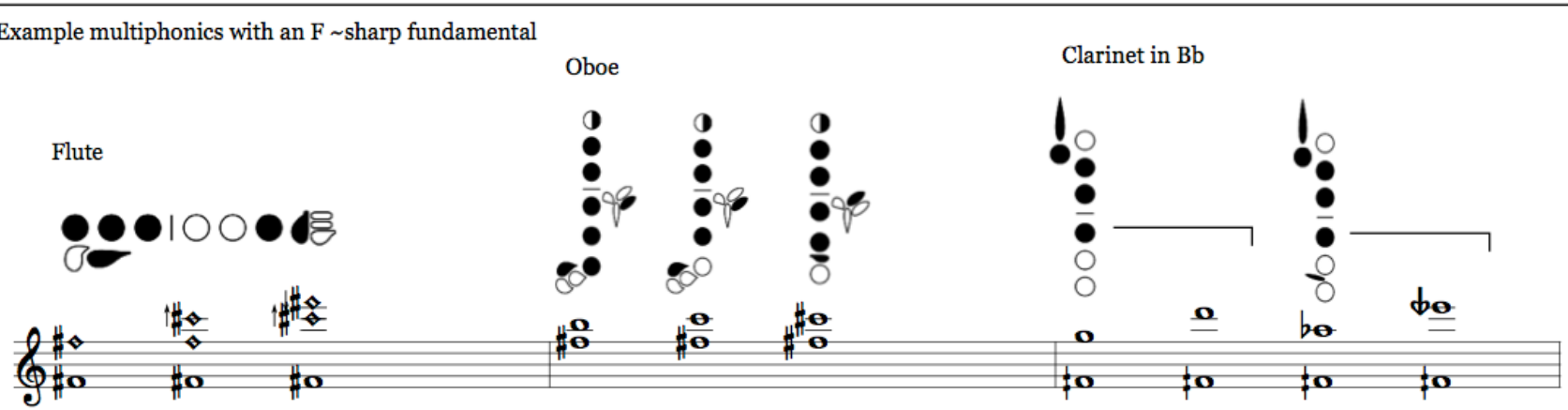
The multiphonics should sound somewhat unstable. The overall amplitude and balance between the top and bottom notes should fluctuate slowly but irregularly.

If a soft multiphonic with the desired fundamental is not possible on your instrument, perform the suggested notes as individual tones. Add a slight periodic pulsation to your dynamic level.

Example multiphonics with an F fundamental

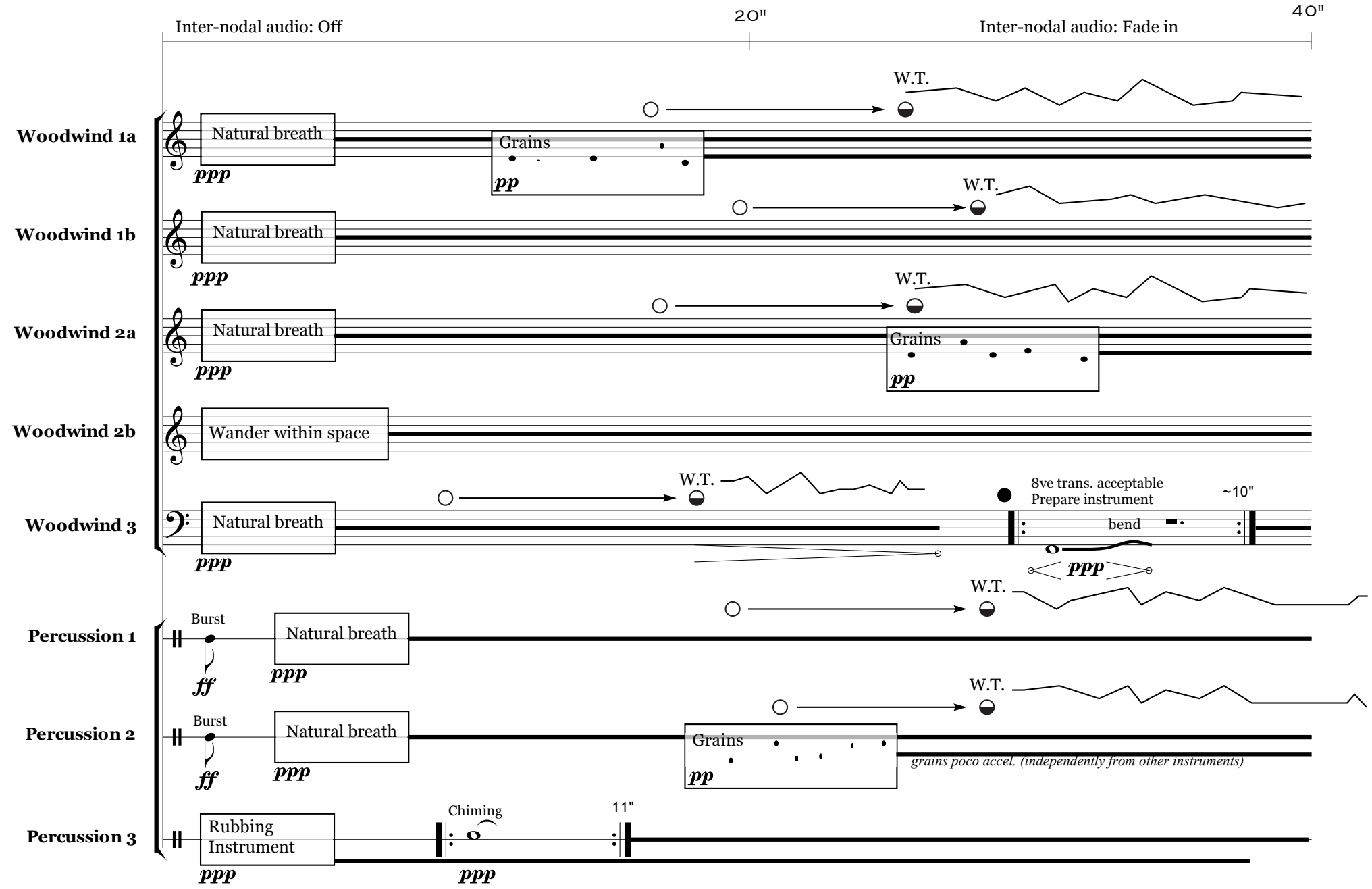


Example multiphonics with an F ~sharp fundamental



Paresthesia

Naithan Bosse



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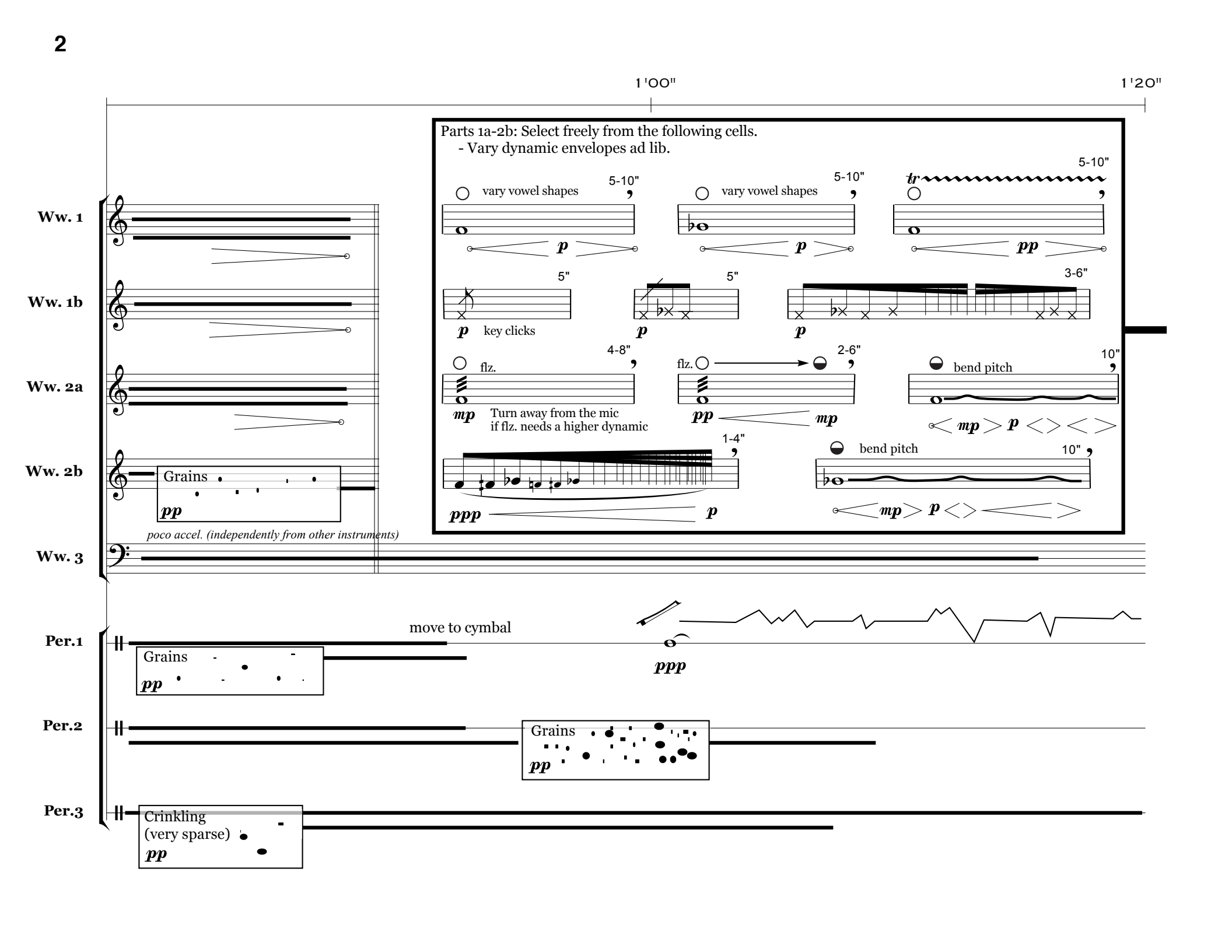
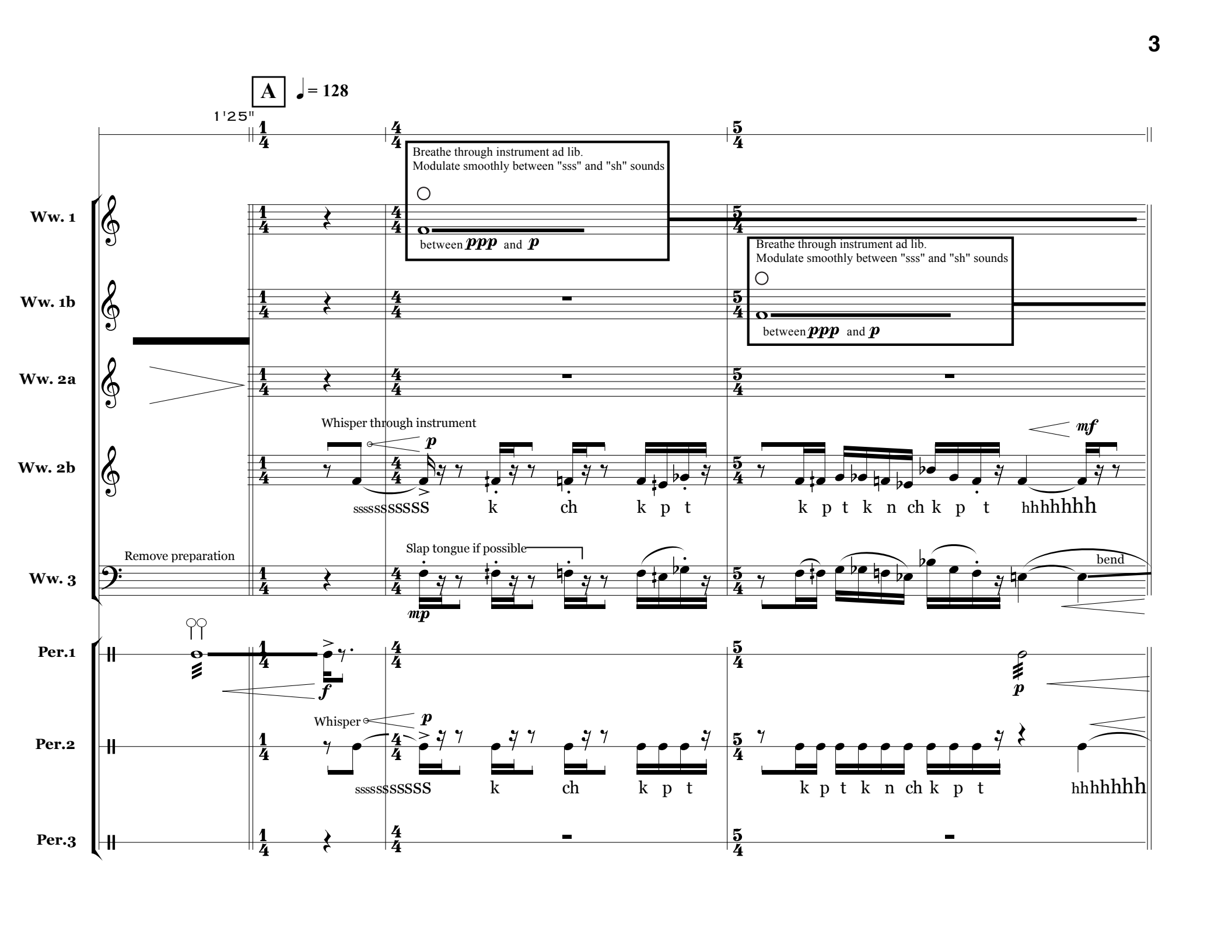
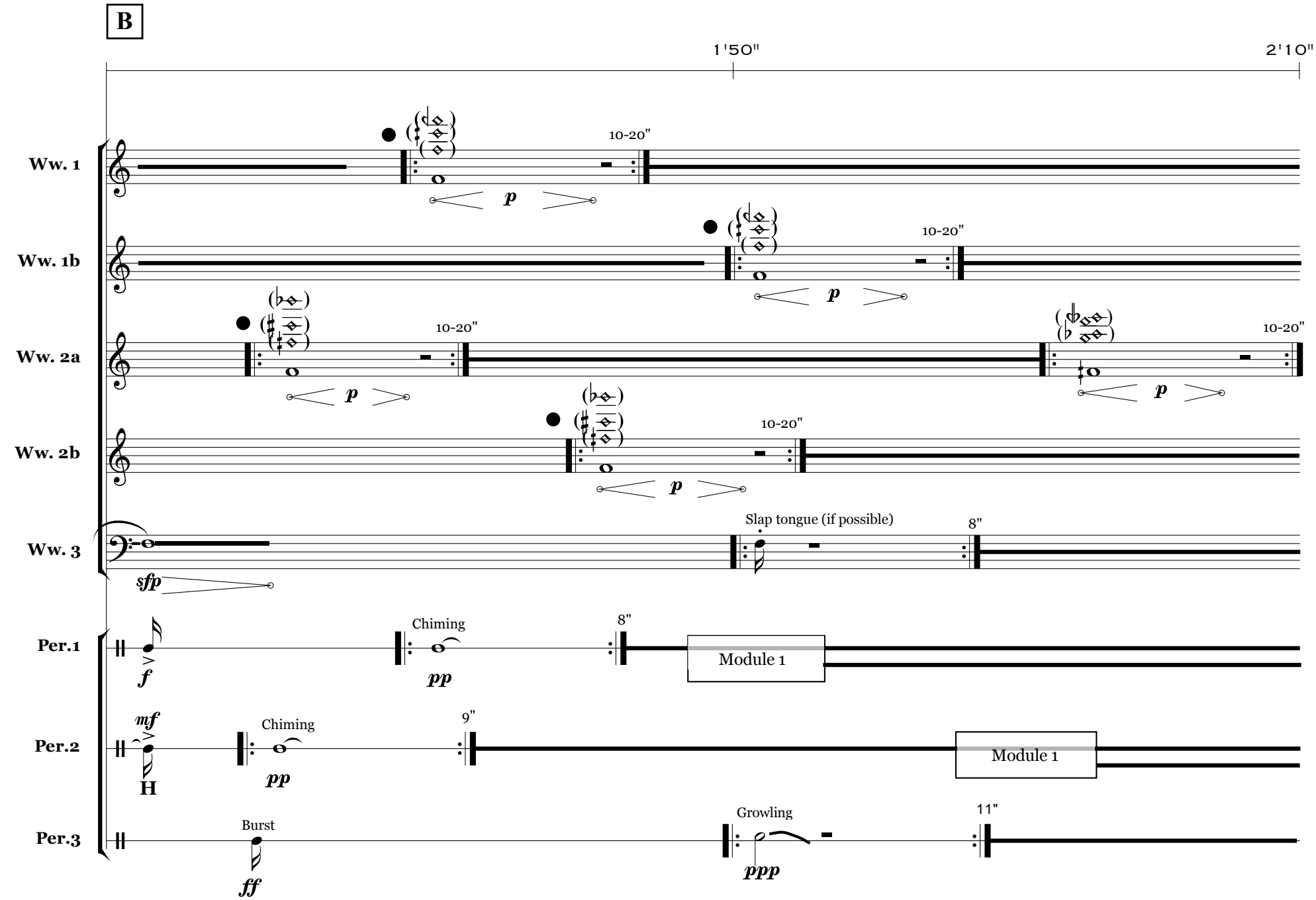
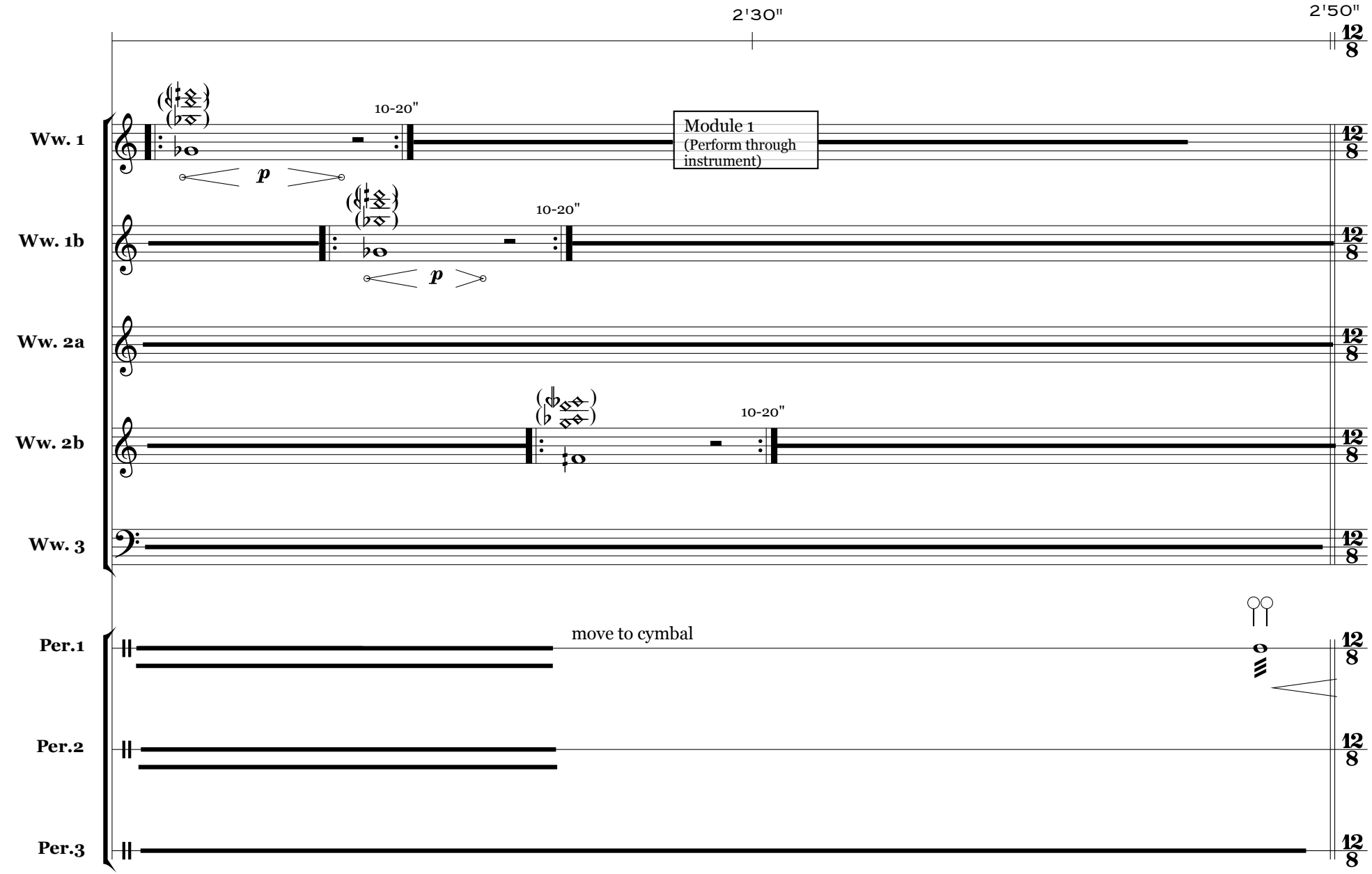

1'00"
1'20"
Parts 1a-2b: Select freely from the following cells.
- Vary dynamic envelopes ad lib.
vary vowel shapes
5-10"
p
vary vowel shapes
5-10"
p
tr
5-10"
pp
5"
p
key clicks
5"
p
3-6"
p
flz.
4-8"
mp
Turn away from the mic
if flz. needs a higher dynamic
flz.
2-6"
pp
mp
bend pitch
10"
mp
p
1-4"
ppp
p
bend pitch
10"
mp
p
Ww. 1
Ww. 1b
Ww. 2a
Ww. 2b
Grains
pp
poco accel. (independently from other instruments)
Ww. 3
move to cymbal
ppp
Per.1
Grains
pp
Per.2
Grains
pp
Per.3
Crinkling
(very sparse)
pp


A
♩= 128
1'25"
Ww. 1
Ww. 1b
Ww. 2a
Ww. 2b
Ww. 3
Per.1
Per.2
Per.3
Breathe through instrument ad lib.
Modulate smoothly between "sss" and "sh" sounds
between ppp and p
Breathe through instrument ad lib.
Modulate smoothly between "sss" and "sh" sounds
between ppp and p
Whisper through instrument
p
mf
sssssssssss k ch k p t
k p t k n ch k p t hhhhhhh
Remove preparation
Slap tongue if possible
mp
bend
f
p
Whisper
p
sssssssssss k ch k p t
k p t k n ch k p t hhhhhhh

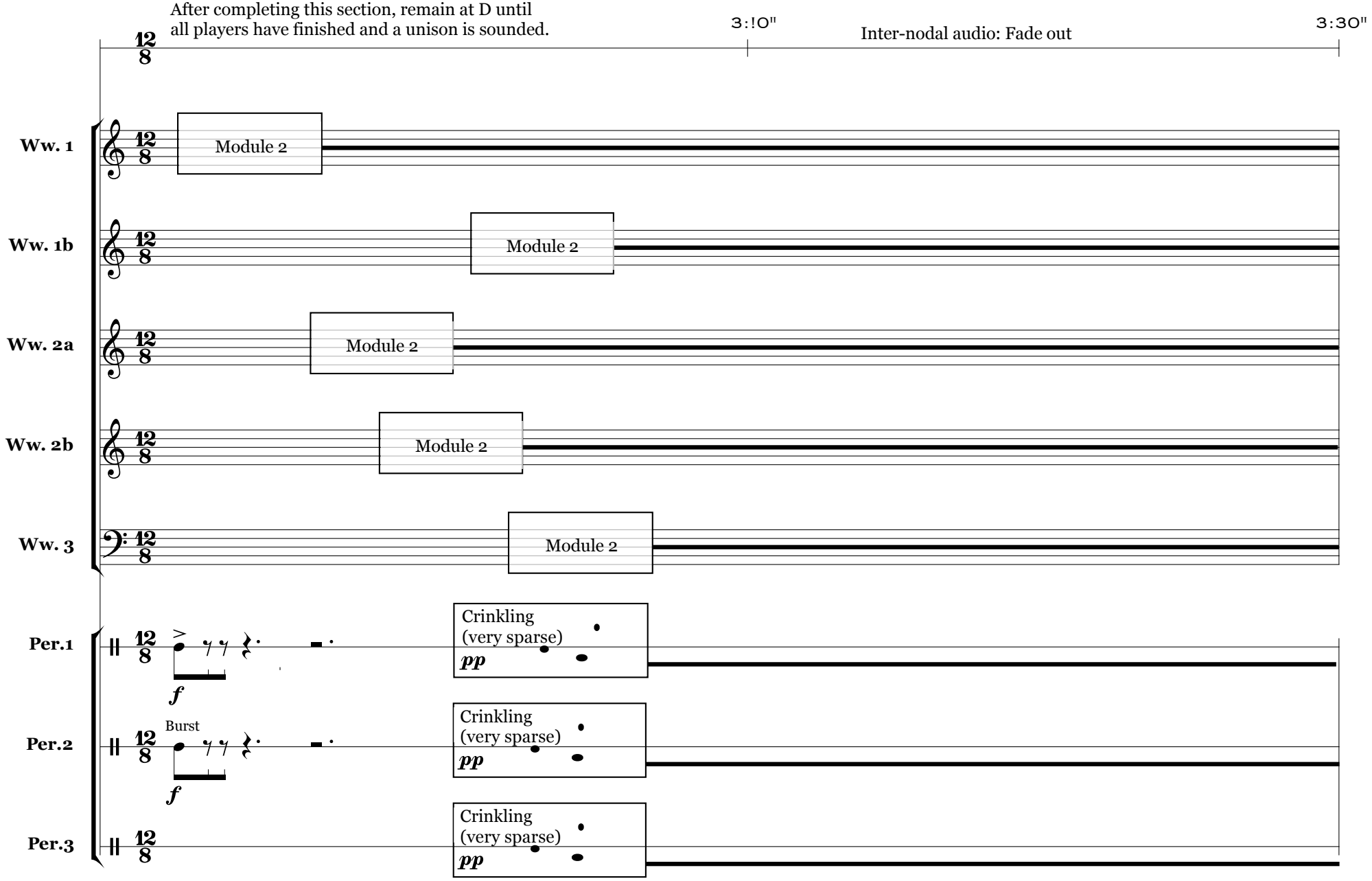

B
1'50"
2'10"
Ww. 1
Ww. 1b
Ww. 2a
Ww. 2b
Ww. 3
Per.1
Per.2
Per.3
10-20"
p
sfp
Slap tongue (if possible)
8"
f
Chiming
pp
Module 1
mf
H
9"
ff
Burst
Growling
ppp
11"

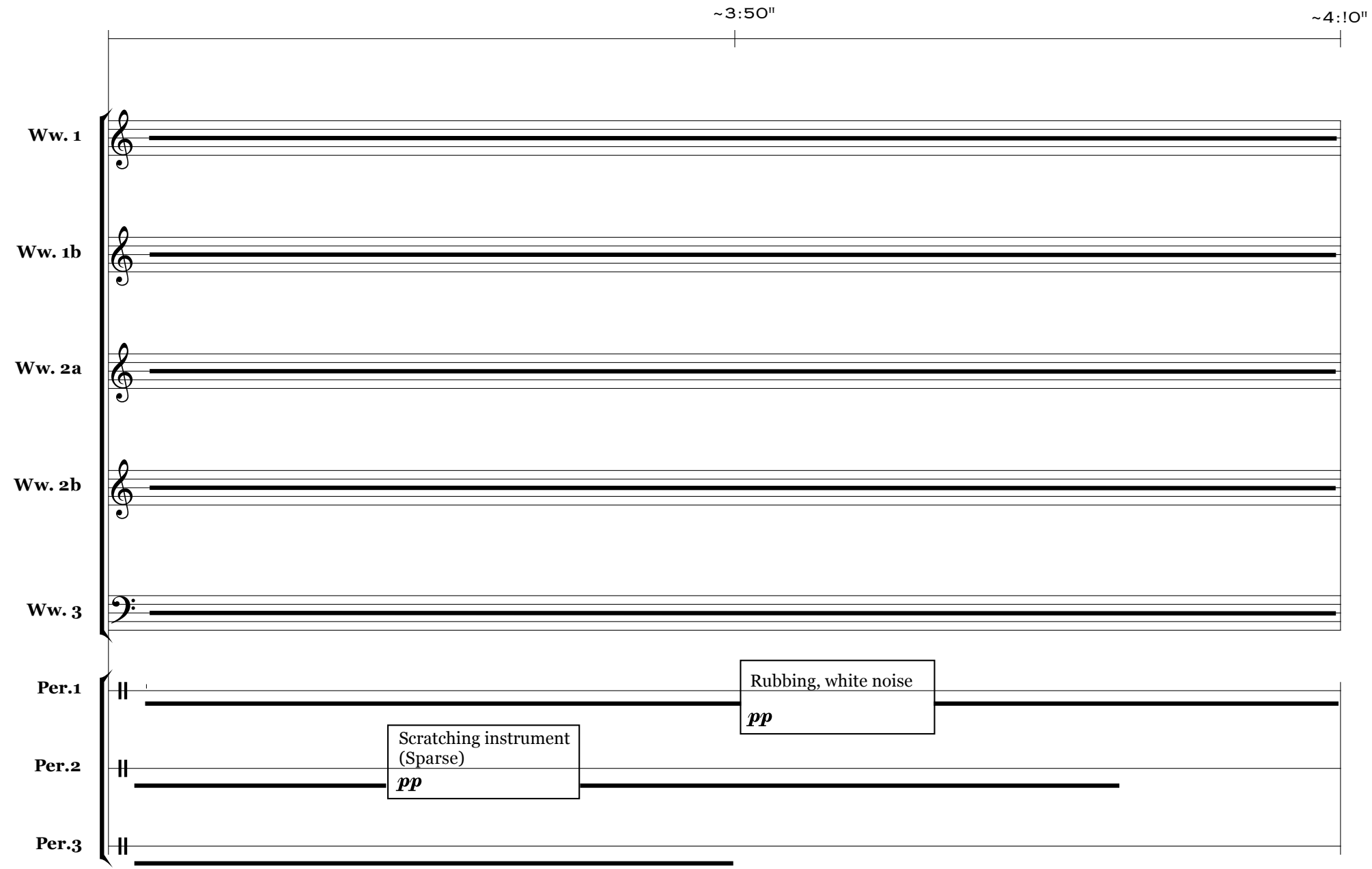

2'30"
2'50"
Ww. 1
Ww. 1b
Ww. 2a
Ww. 2b
Ww. 3
Per.1
Per.2
Per.3
10-20"
10-20"
10-20"
p
p
Module 1
(Perform through instrument)
move to cymbal
12
8

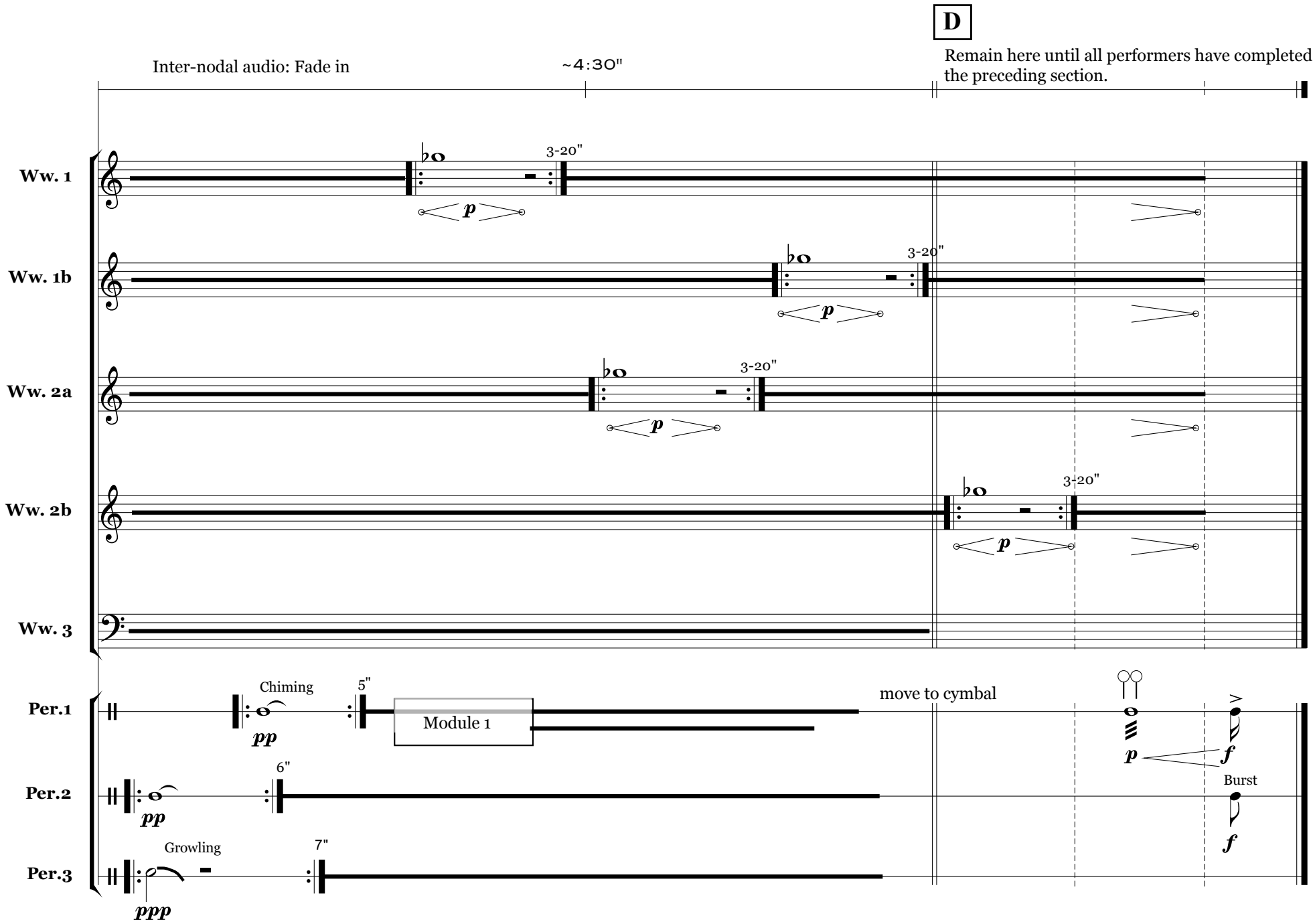
C ♩. = 84-100

After completing this section, remain at D until all players have finished and a unison is sounded.

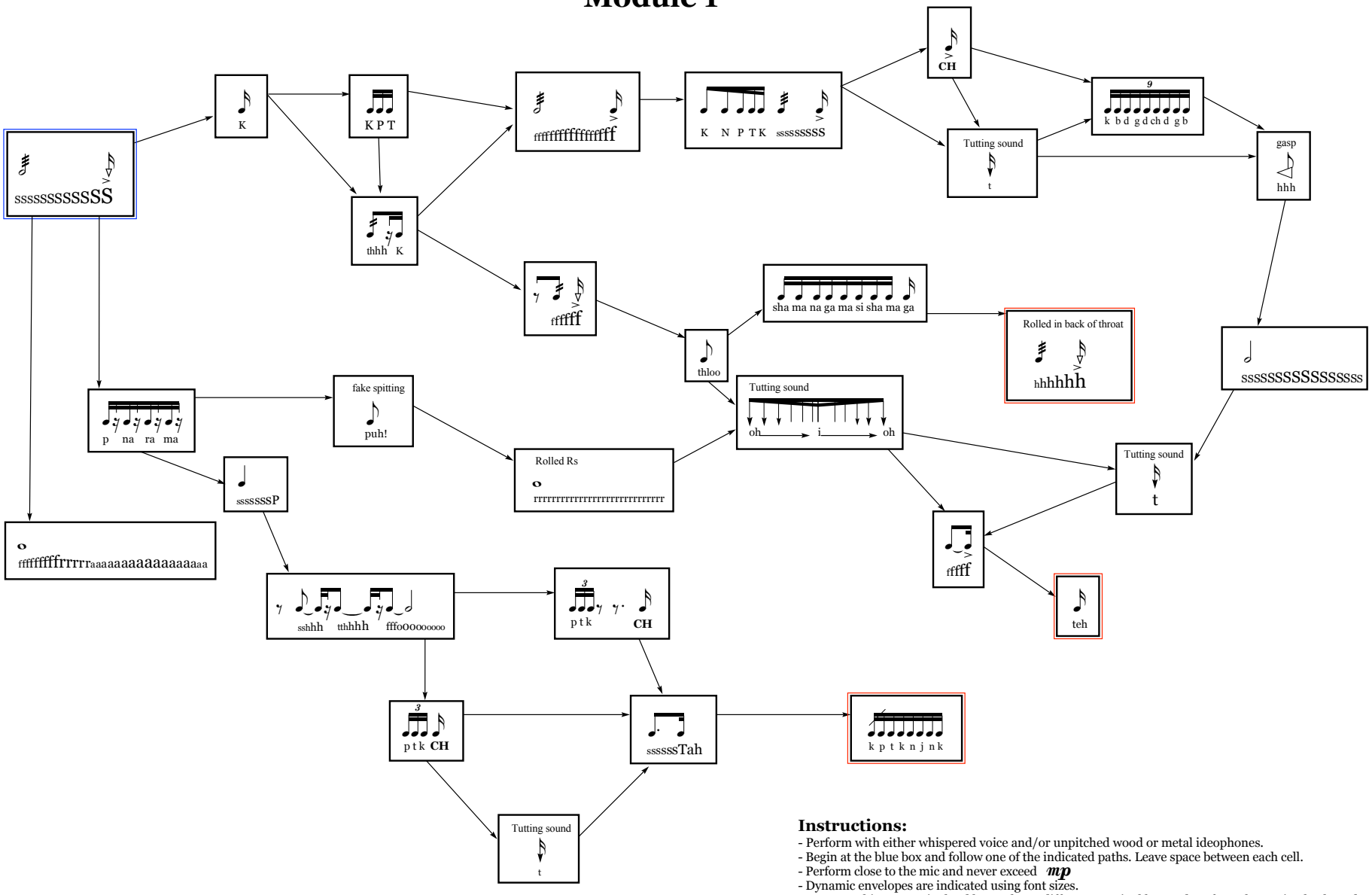
3:!0" Inter-nodal audio: Fade out 3:30"




~3:50"
~4:10"
Ww. 1
Ww. 1b
Ww. 2a
Ww. 2b
Ww. 3
Per.1
Per.2
Per.3
Rubbing, white noise
pp
Scratching instrument
(Sparse)
pp


D
Remain here until all performers have completed the preceding section.
Inter-nodal audio: Fade in
~4:30"
Ww. 1
Ww. 1b
Ww. 2a
Ww. 2b
Ww. 3
3-20"
p
Per.1
Per.2
Per.3
Chiming
5"
6"
7"
pp
ppp
Module 1
move to cymbal
Growling
Burst
f

Module 1



Instructions:

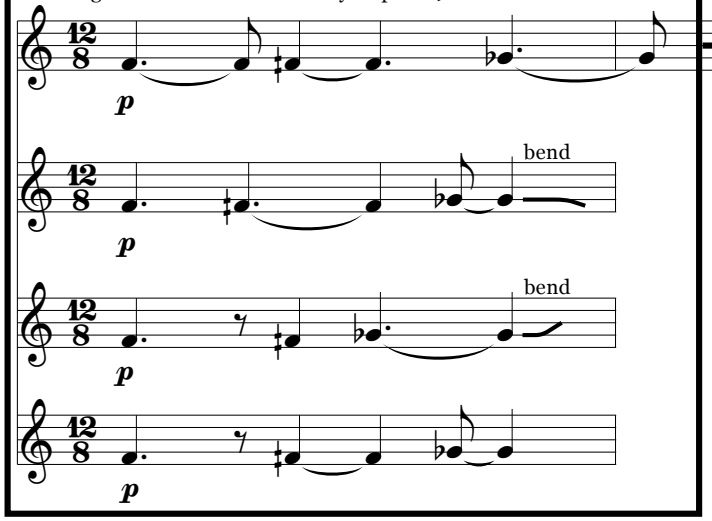
- Perform with either whispered voice and/or unpitched wood or metal ideophones.
- Begin at the blue box and follow one of the indicated paths. Leave space between each cell.
- Perform close to the mic and never exceed ***mp***
- Dynamic envelopes are indicated using font sizes.
- Upon reaching a terminal red box, select a different terminal box and perform the section backwards.
- A forward reading should be between 15 and 30 seconds in duration.

Module 2

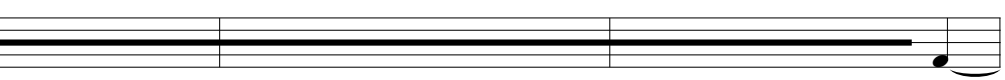
Woodwinds 1a-2b

Very free
Perform at your own tempo (♩. = 84-100)

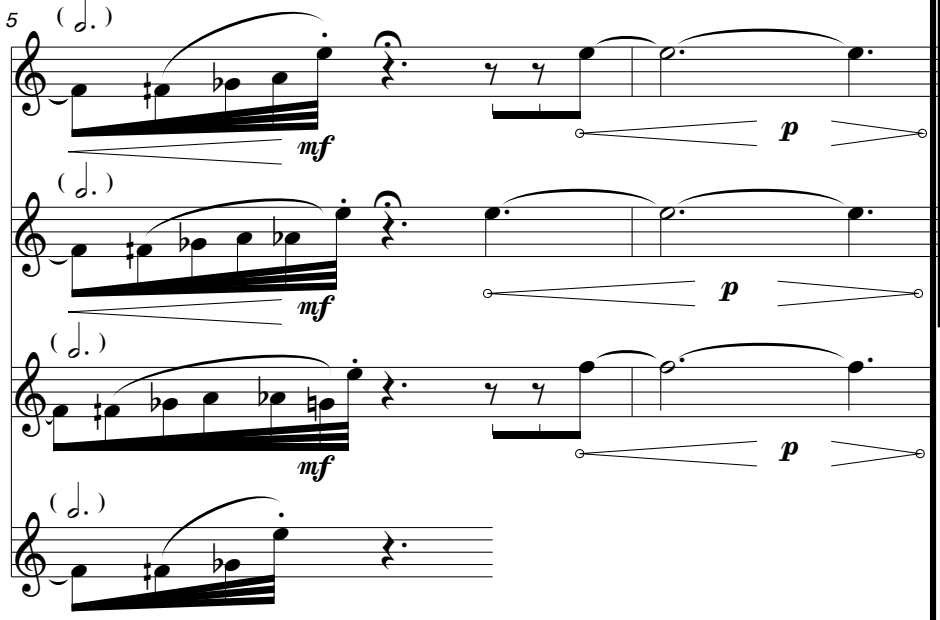
Play each cell once. (Any order)
No break in between cells
(note that cells 2-4 are only 11 beats. A cell directly following an 11 beat cell will sound syncopated.)



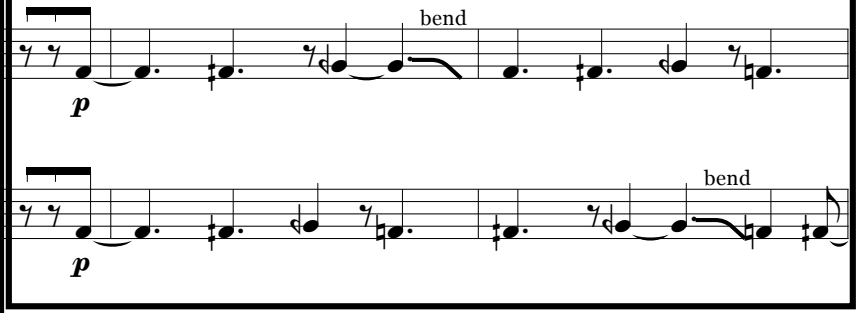
poco a poco accel. continuously throughout section



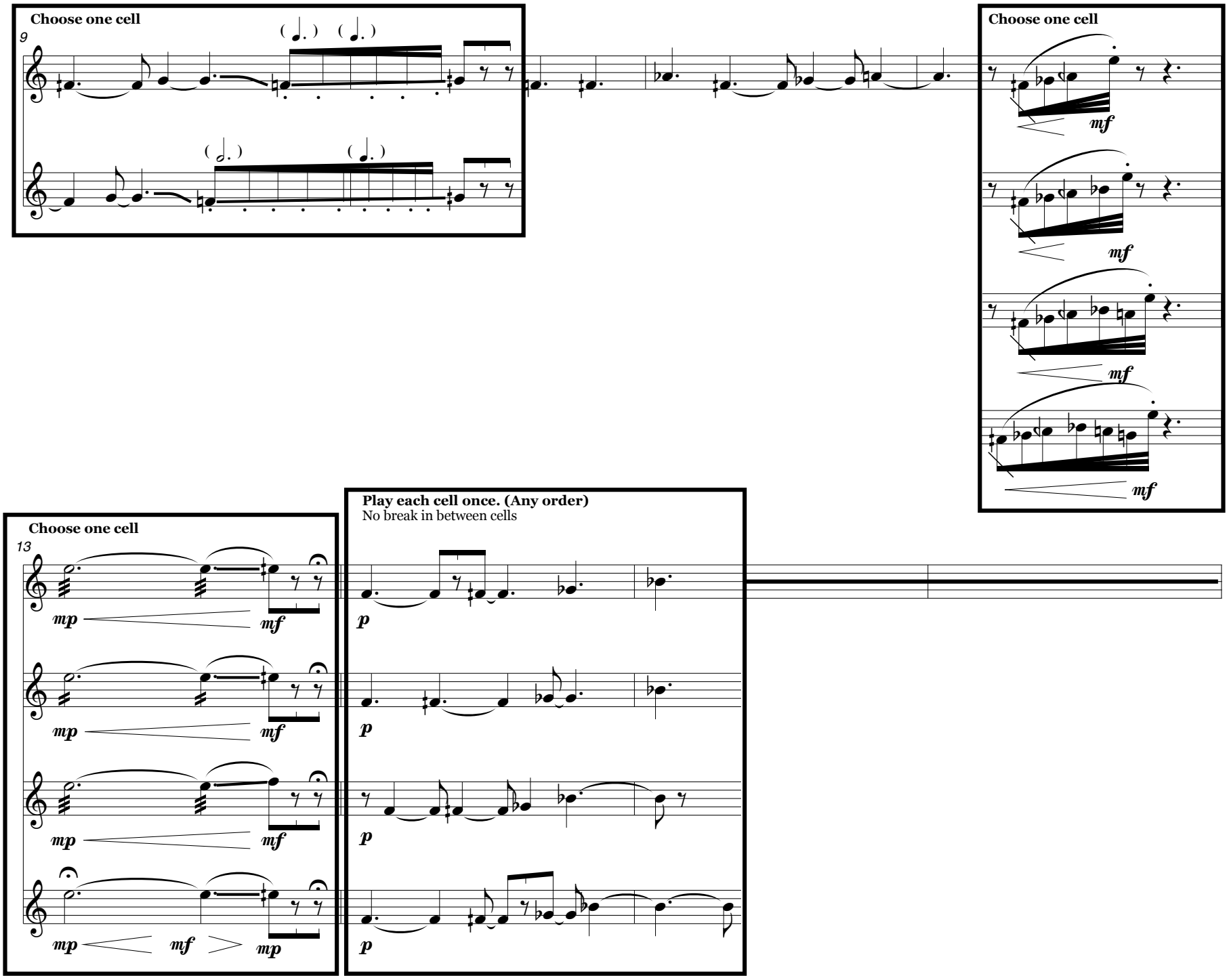
Choose one cell

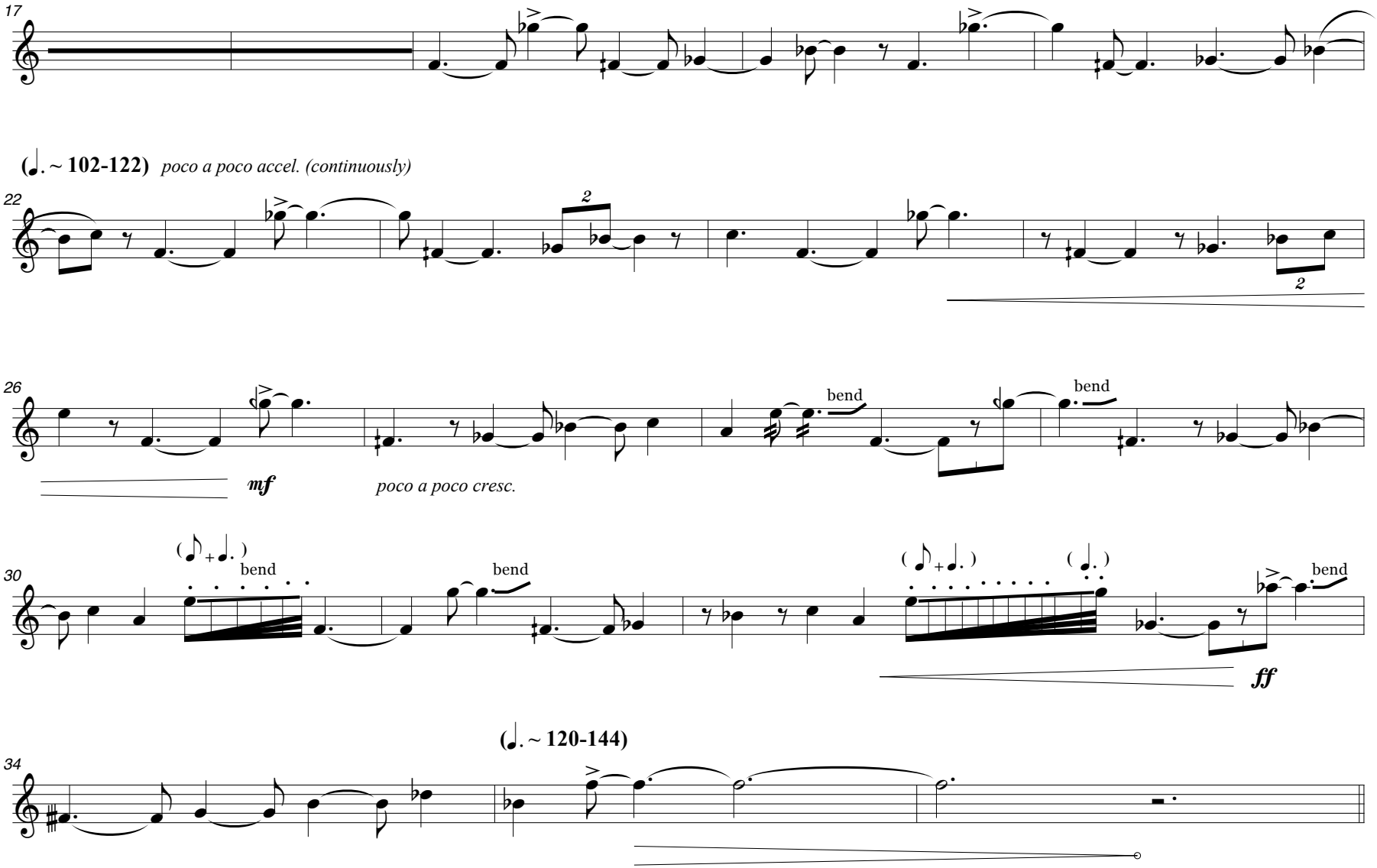


Choose one cell



poco a poco cresc.


Choose one cell
9
Choose one cell
mf
Choose one cell
13
mp
mf
Play each cell once. (Any order)
No break in between cells
p


17
(♩. ~ 102-122) poco a poco accel. (continuously)
22
2
2
26
bend
bend
mf
poco a poco cresc.
30
(+)
bend
bend
(+)
( )
bend
ff
(♩. ~ 120-144)
34

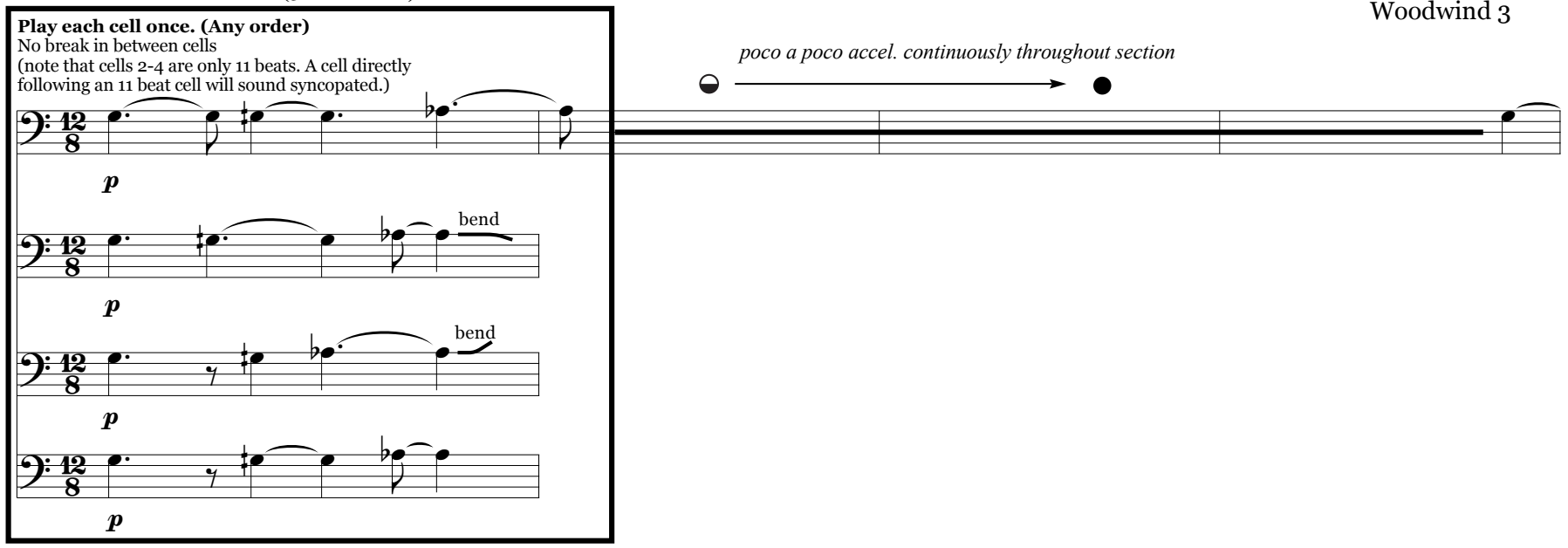
Module 2

Woodwind 3

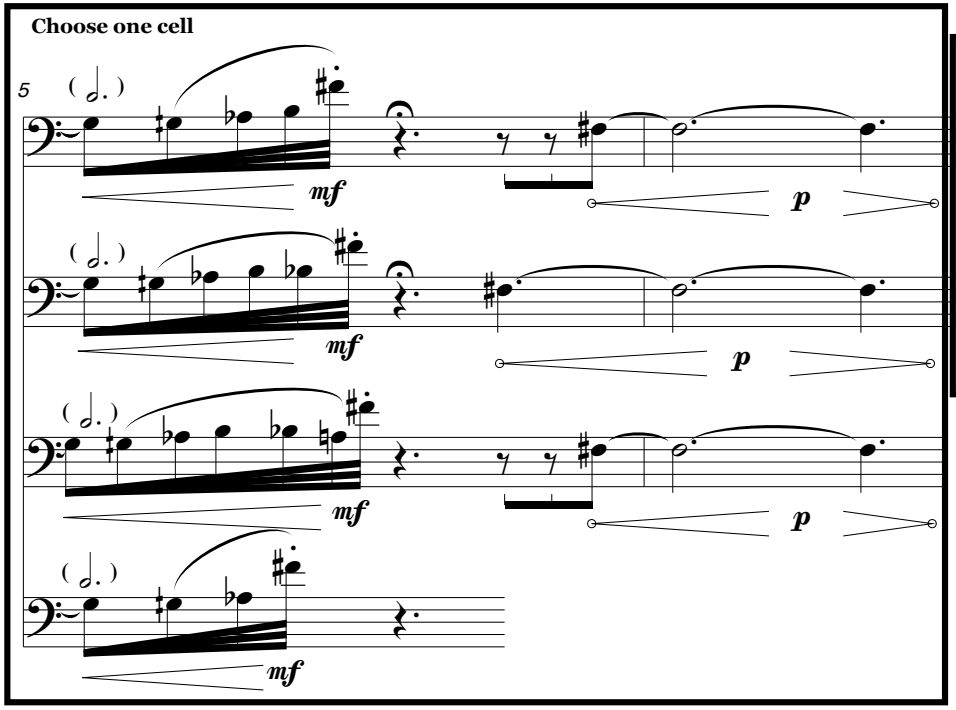
Very free
Perform at your own tempo (♩. = 84-100)

Play each cell once. (Any order)
No break in between cells
(note that cells 2-4 are only 11 beats. A cell directly following an 11 beat cell will sound syncopated.)

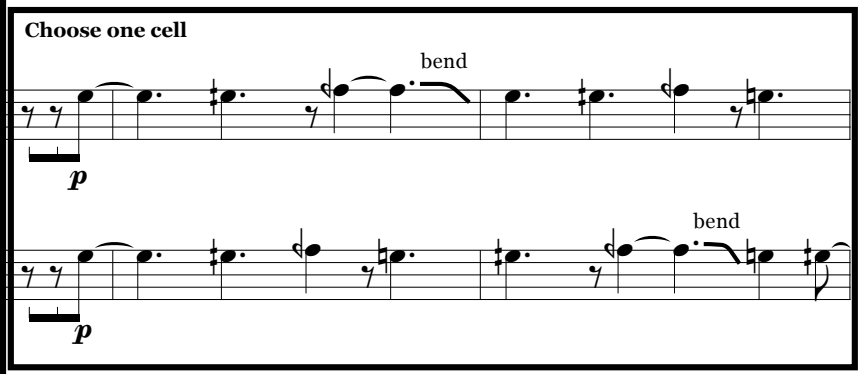
poco a poco accel. continuously throughout section



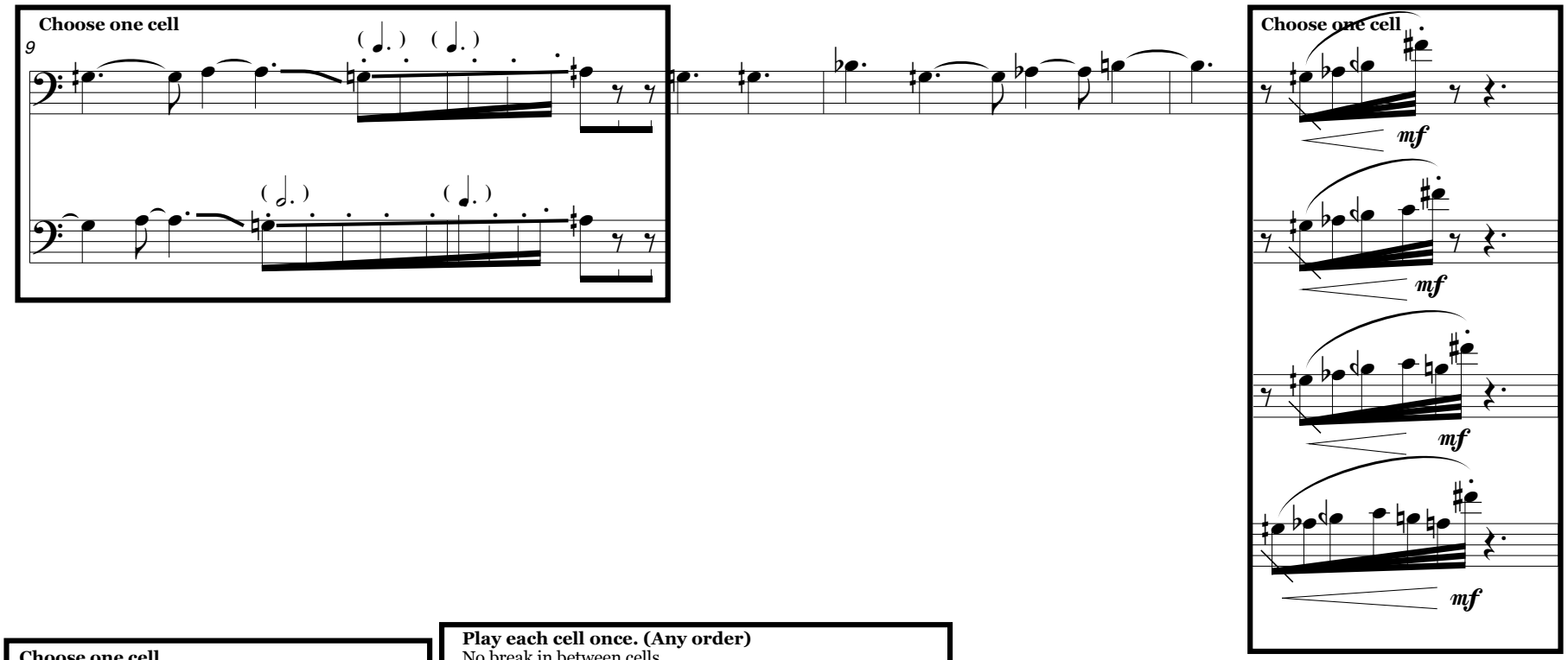
Choose one cell

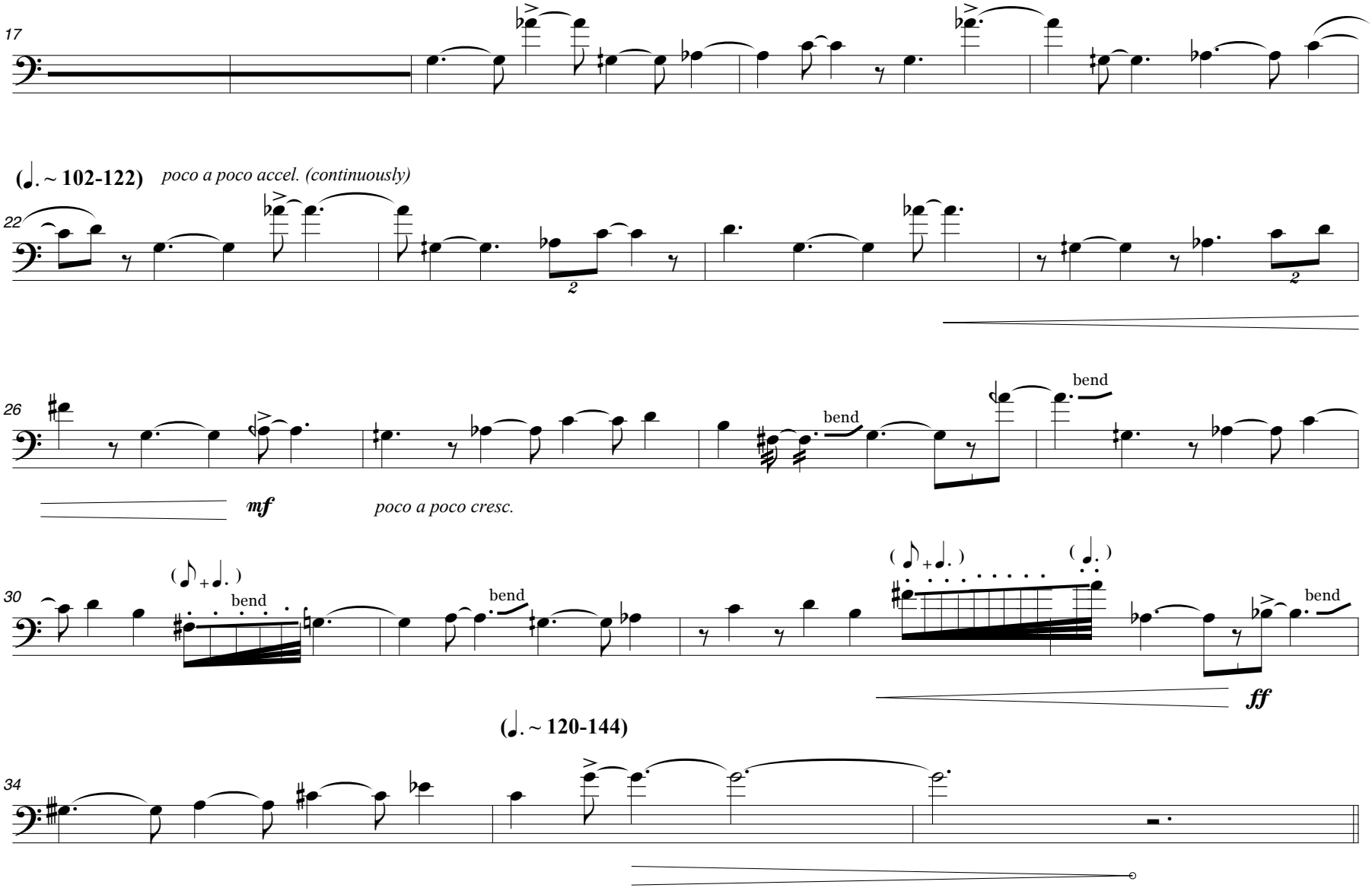


Choose one cell



poco a poco cresc.


Choose one cell
9
Choose one cell
mf
mf
mf
mf
Choose one cell
13
mp
mf
mp
mf
mp
mf
mp
mf
mp
Play each cell once. (Any order)
No break in between cells
p
p
p
p


17
(♩. ~ 102-122)
poco a poco accel. (continuously)
22
2
2
26
bend
bend
mf
poco a poco cresc.
30
(𝅘𝅥𝅯 + ♩.)
bend
bend
(𝅘𝅥𝅯 + ♩.)
(♩.)
bend
ff
(♩. ~ 120-144)
34