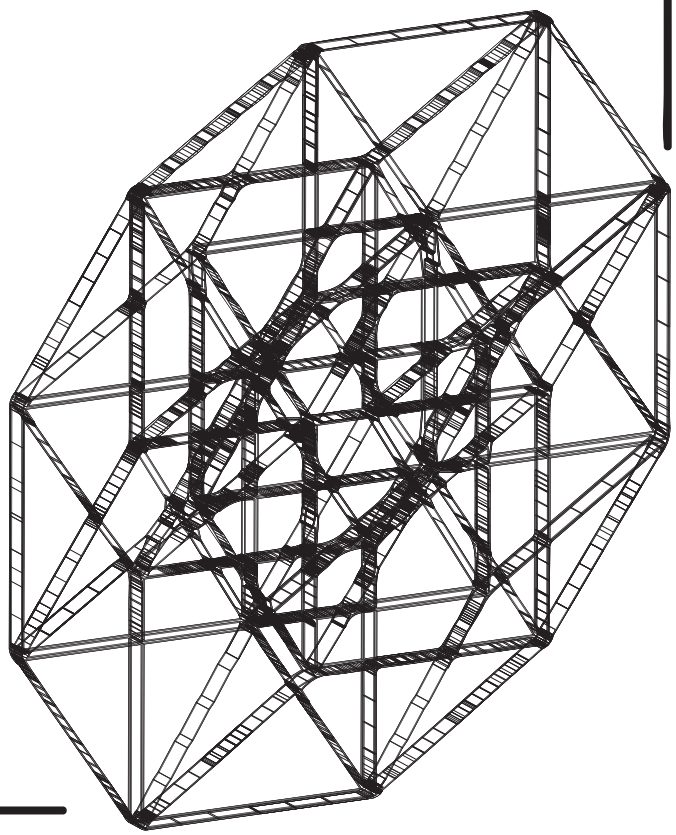
Seth
SHAFER

Polytera II

for flute, piano, and computer

(2017-19)



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Program Note

Polytera II is the second in a series exploring high dimension shapes. The score is composed algorithmically and is generated interactively during the performance. The performers are asked to perform as accurately and expressively as possible as they sight-read. The piece "restarts" three times. Each time it resets I nudge the algorithm in a different direction. *Polytera II* was commissioned by Calliope Duo.

Performance Directions

Performance Overview

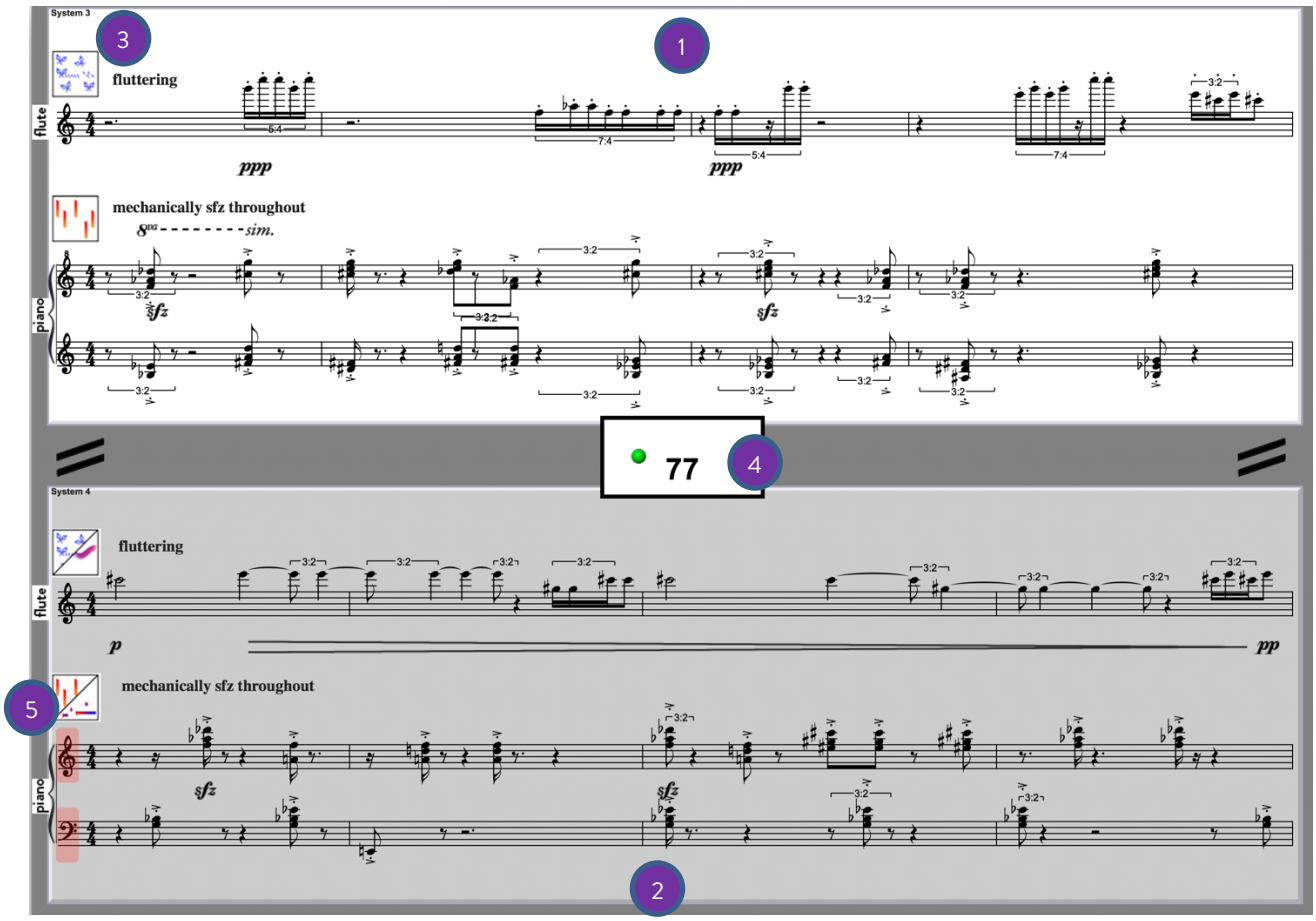
This piece uses real time notation and requires the performers to sight-read music as it is composed during the performance. The large-scale structure of the piece is predetermined while the surface details are decided by performer-mediated generative processes.

Generative Notation and Sight-Reading

The notation for this piece is generated during performance. Microphones capturing each of the performers mediates the resulting notation and electronics. This score mechanism requires the performers to sight-read the notation in front of an audience. The performers should attempt to both read the music as accurately as possible and respond to and influence the computer's musical decisions.

Diagram of the Score

The score for this piece is embedded in software and is read from a computer display. The following image shows an annotated version of the score:



1. Play the top and bottom staff systems alternatively. While you play one, the other refreshes with new material. You play the staff that is bright white.
2. The greyed-out staff shows you what you will play next.
3. Icons (see below)
4. Conductor/Tempo. Green ball moves in standard meter patterns. Tempo is displayed in the middle. Also displays upcoming tempo changes by turning green and displaying the new tempo (eg. 77 → 66).
5. For the pianist, clef changes from the previous staff system are highlighted and notation for octave-displaced clefs are colorized.

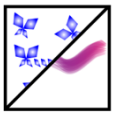
Icons

Style icons are provided for each staff system to help quickly communicate the type of music you will be playing. Some staff systems have one icon associated with it while others have a combination of icons. In the flute part, combination icons indicate that there is a mix of styles. In the piano part, combination icons indicate that the right and left hands have different styles.

Flute/Piano Icons:

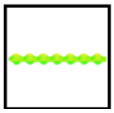
 Butterflies: flittering little staccato figures

 Lyrical: melodic figures, sustained with vibrato

 Butterflies /Lyrical

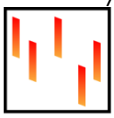
 Points: short, articulate, potentially piercing

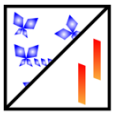
 Multiphonics: play any multiphonic that incorporates the given pitch

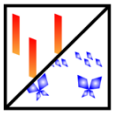
 Flutter tongue

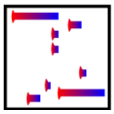
 Upward Motion: lyrical, rising, disappearing into the ether

Piano-only Icons:

 Stabbing Chords: like in Psycho

 Butterflies/Stabbing Chords: flittering little staccato figures

 Stabbing Chords/Butterflies

 Irregular Sustains: resonant and of varying duration

 Butterflies/Sustained Chords:

 Stabbing Chords/Irregular Sustains

 Stabbing Chords/Octave Sustains

 Upward Motion/Octave Sustains: lyrical, rising, disappearing into the ether

Rehearsal and Sample Scores

This piece requires rehearsal despite the fact that you will be sight-reading during performance. Rehearsal with the software will give the performer a general sense of how the piece unfolds, what they might expect to play, and an ear for the types of interactions available between computer and performer.

Further Questions

Please address all further questions and concerns directly to the composer at sethshafer@gmail.com. Please contact directly for links to download the performance software and sample scores.

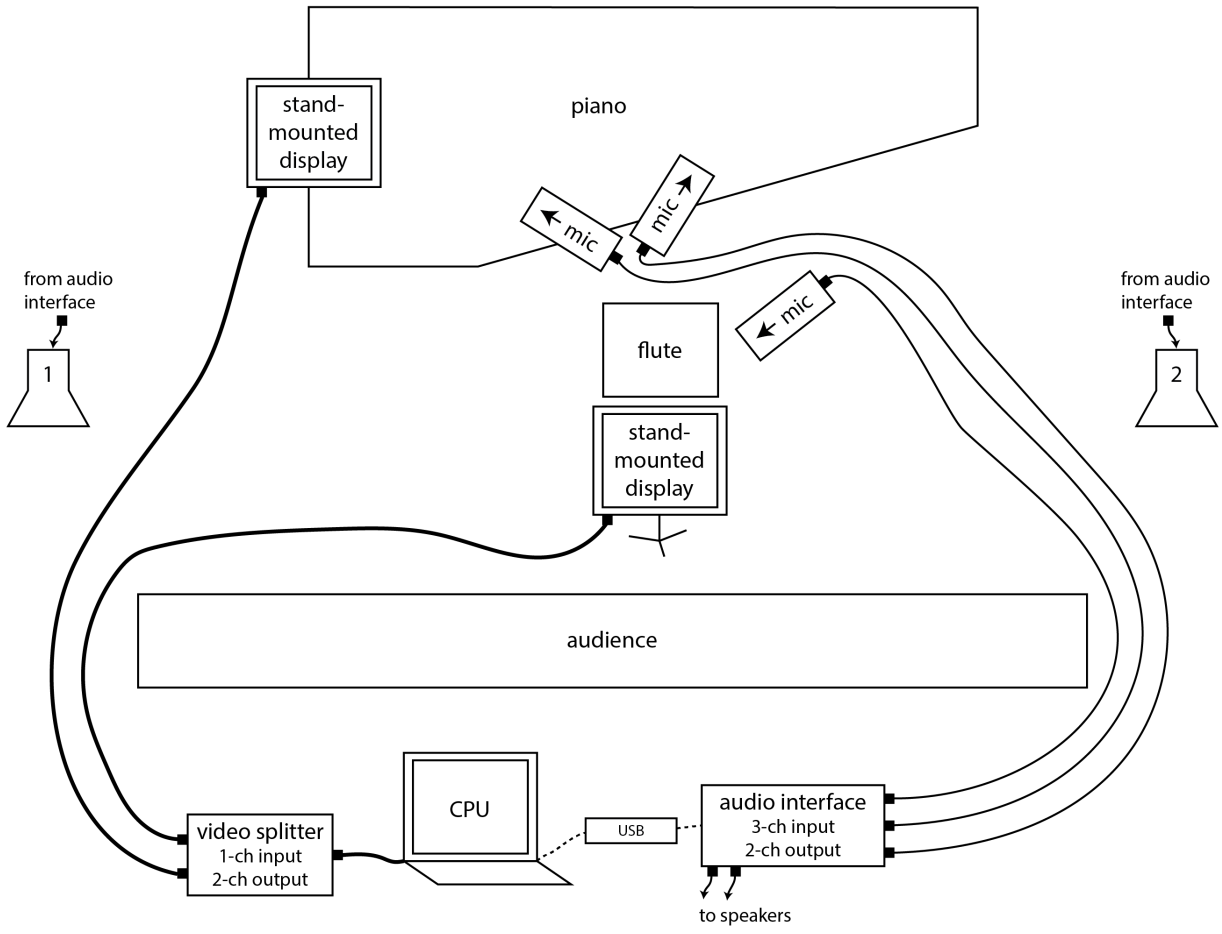
Tech Rider

Technical Notes

The following is needed to perform the piece:

- 1 computer or laptop to run the Max 8 (OS X) audio and score patches
- 2 stand-mounted displays and associated cables from which the performers will read notation
- 1 video splitter that takes a video signal (minimum 1280 x 1024px) and duplicates it across all displays
- 3 microphones, stands, and cables, one (1) for flute and two (2) for piano
- 1 audio interface connected to the computer with at least three (3) microphone inputs and two (2) outputs
- 2 loudspeakers

Stage Diagram



Software Patch Installation and Description

The software for this piece uses Max 8 (OS X). The following external packages need to be installed before opening the main patch:

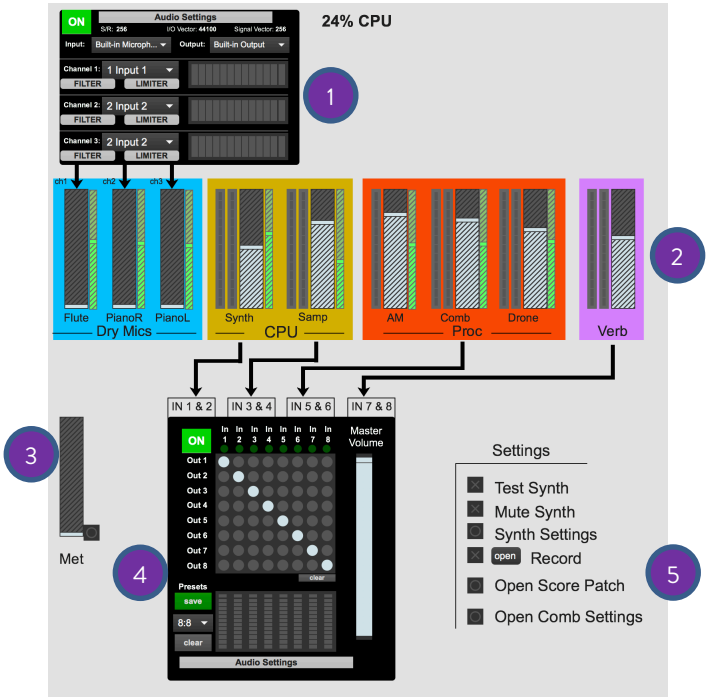
- bach automated composer's helper 0.8.0.5 (included with performance patch)

This package must be extracted and placed inside the following directory:

~/Documents/Max 8/Packages

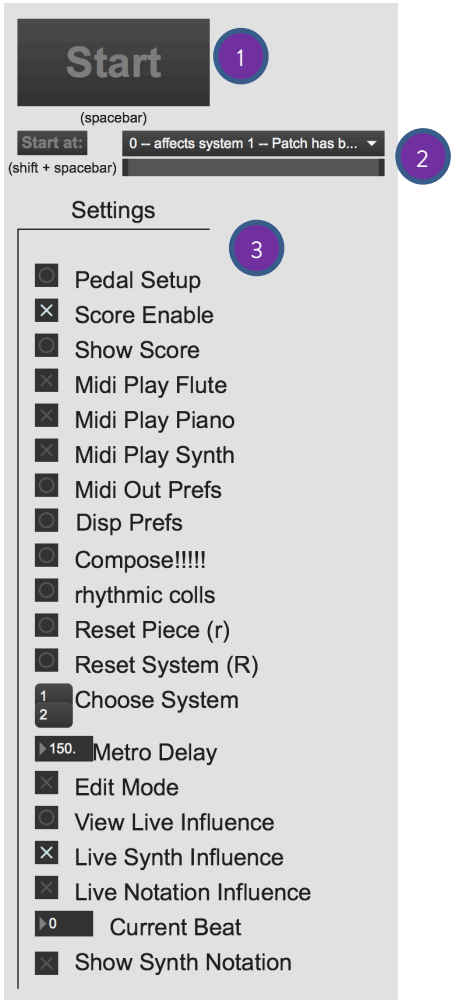
After installing *bach*, open the patches "_Flute and Piano v.2.28 (audio)" and "_Law of Fives v.3.0 (score).maxpat." Three windows will open: the audio patch window, the score patch window, and the notation window.

Audio Patch Window



1. Microphone inputs. Input 1 = flute, Inputs 2-3 = piano (stereo miking).
2. Mixer section. Large faders send to outputs, small fader sends to reverb. Fader levels can be saved with the patch.
3. Metronome for rehearsal purposes only.
4. Audio outputs. 8 mix inputs (from faders) can be routed to 8 (or less) physical outputs. The piece is intended for stereo loudspeaker projection, but multiple outputs allow for optional multichannel hardware mixing/recording.
5. Additional settings including a multichannel recorder for capturing the raw signals from the microphones and the CPU (pre-fader).

Score Patch Window



1. Press to start or stop the piece. You may also use spacebar. Lowercase “r” resets the piece back to the beginning.
2. Rehearsal system: choose starting location, watch the progress bar for the location to load, choose “Start at” or press shift + spacebar.
3. Additional settings: use for troubleshooting only. They will default to appropriate performance settings.

Automatic Documentation

The software will make two forms of documentation automatically each time the piece is started.

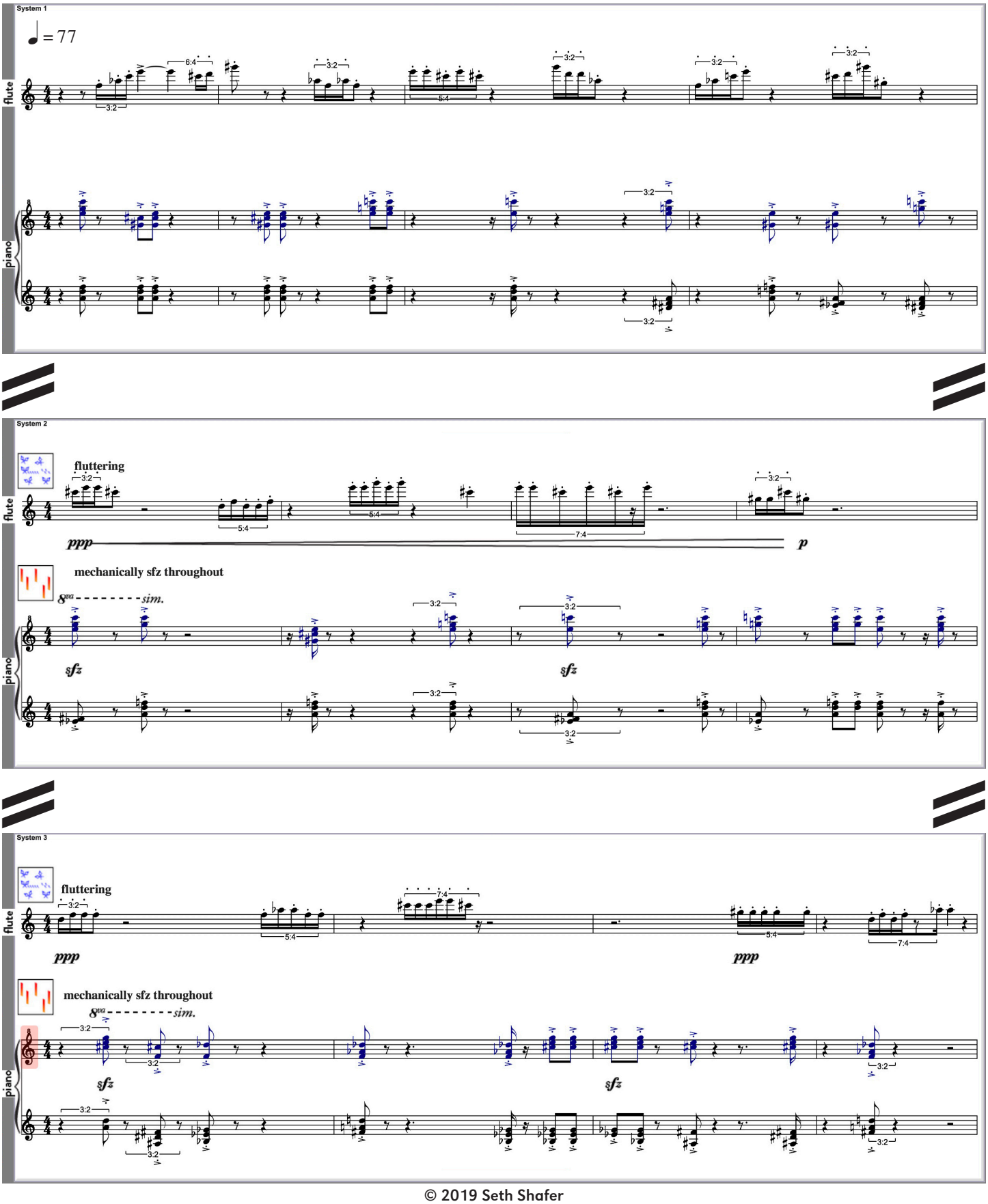
- Screenshots: Each time the notation is refreshed the system will request a screenshot. The resulting image files will be named by their timestamp. This will be stored on the Desktop in a new folder called “ScreenRecorder.” This folder and screenshot images can be deleted without harming the patch.
- MIDI: Each time the piece is started the system will record a standard MIDI file with the flute, piano, and computer parts. The resulting MIDI file will be named by its timestamp and stored on the Desktop in a new folder called “MIDIRecorder.” This folder and MIDI files can be deleted without harming the patch.

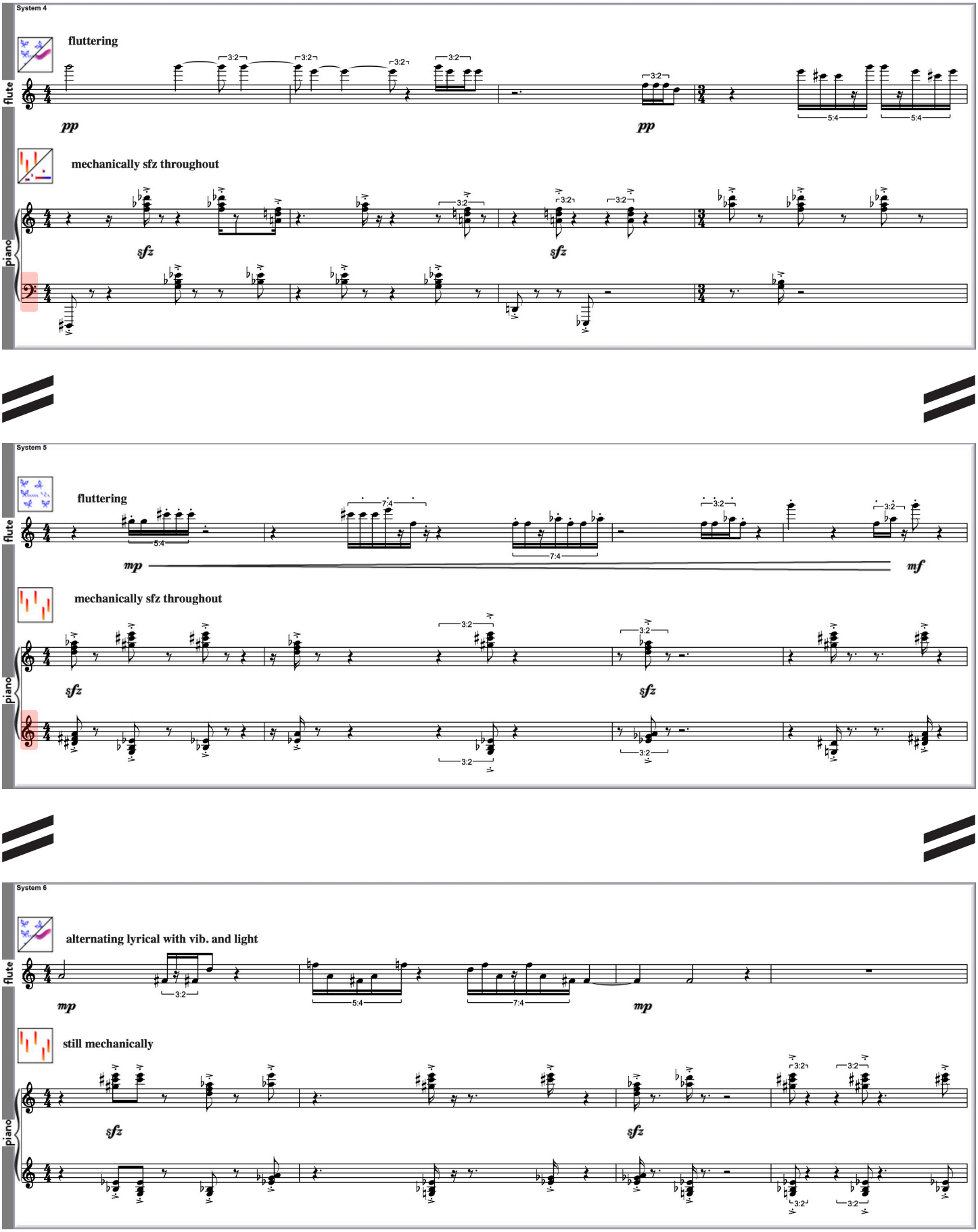
Score captured from
performance on April 8, 2019

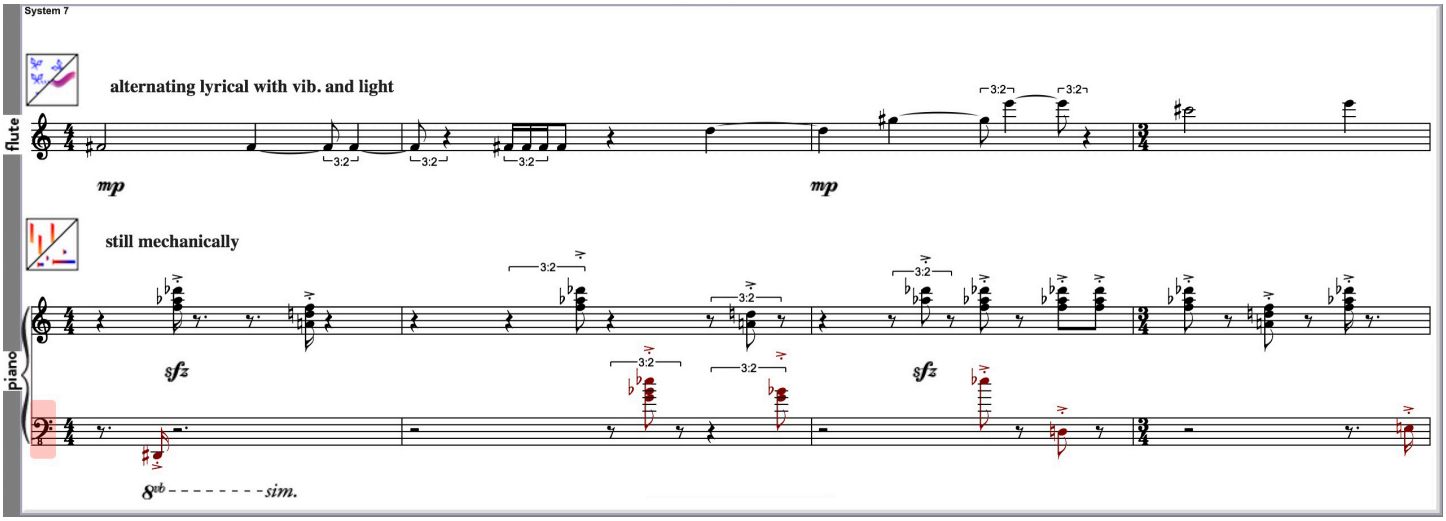
Polytera II

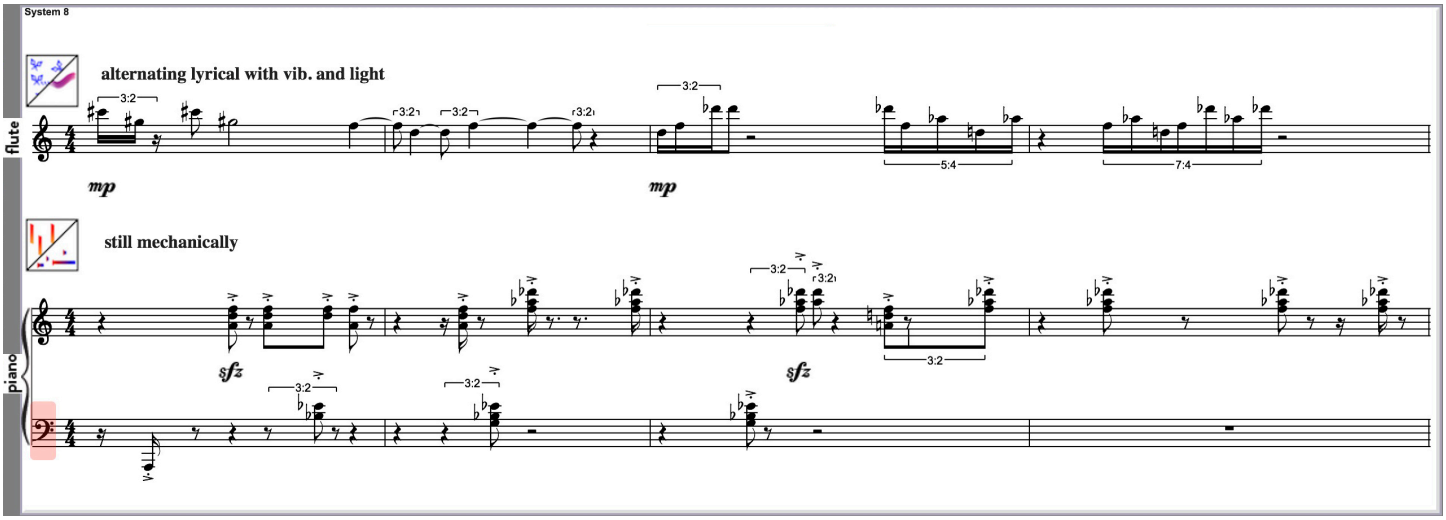
for Callope Duo

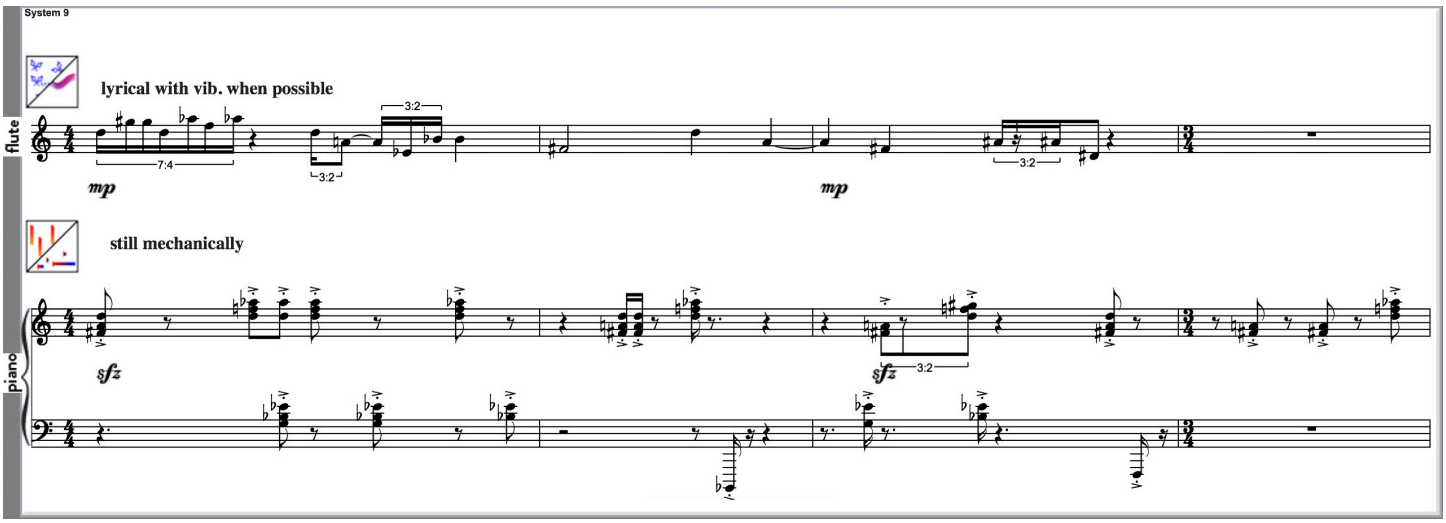
Seth Shafer



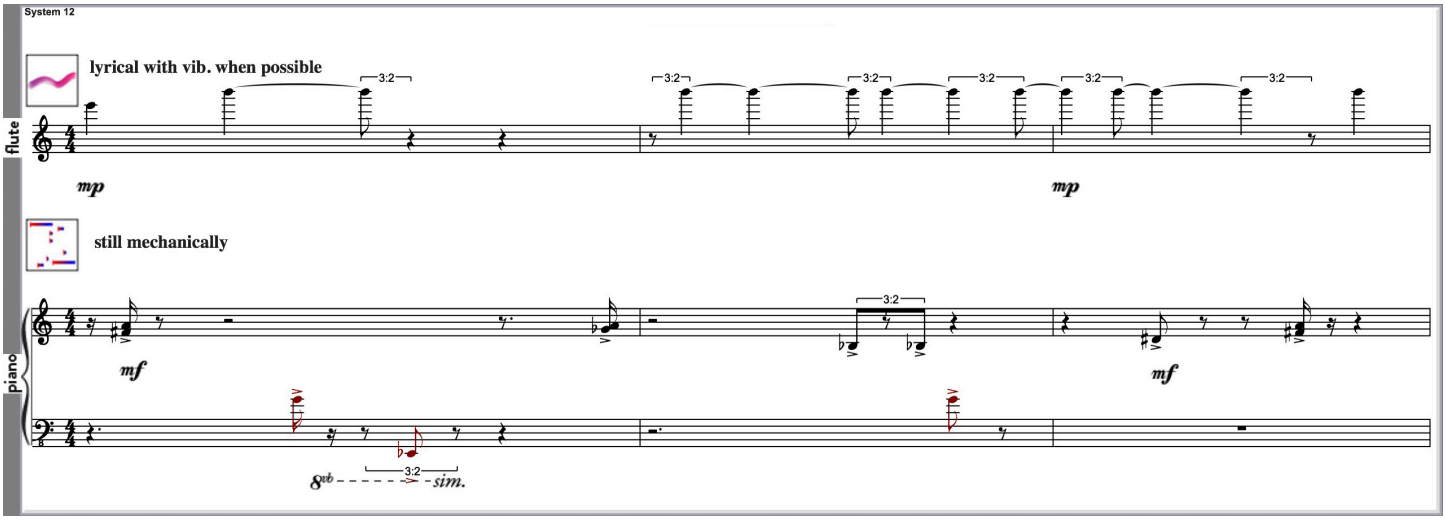

System 4
fluttering
flute
pp
pp
mechanically sfz throughout
piano
sfz
sfz
System 5
fluttering
flute
mp
mf
mechanically sfz throughout
piano
sfz
sfz
System 6
alternating lyrical with vib. and light
flute
mp
mp
still mechanically
piano
sfz
sfz

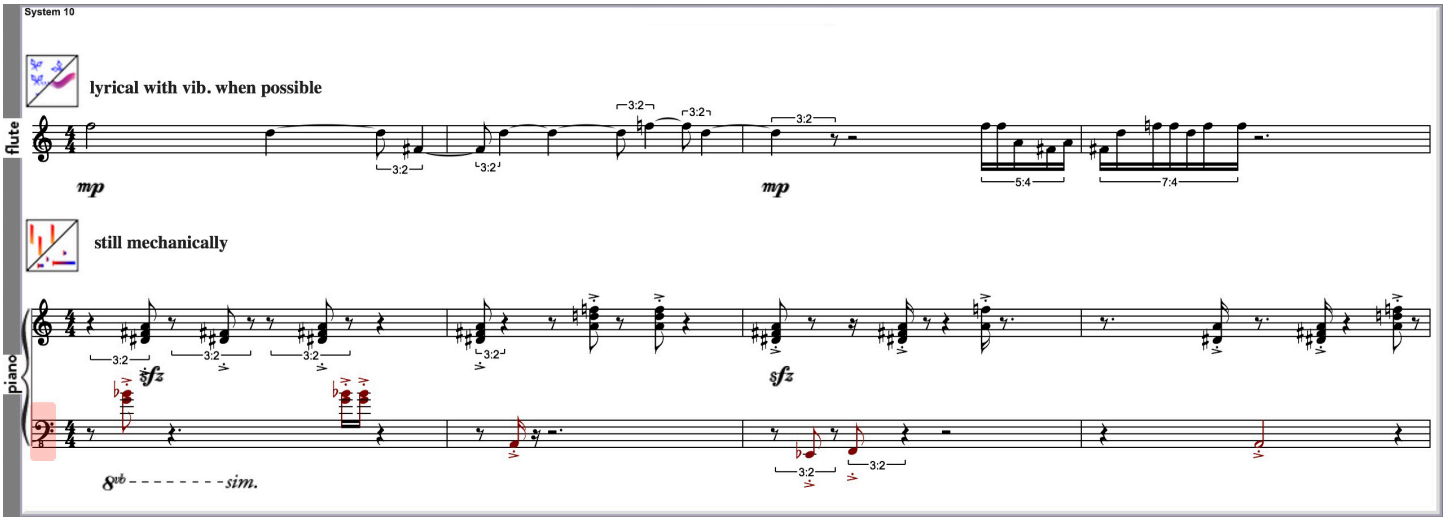

System 7
alternating lyrical with vib. and light
flute
mp
mp
still mechanically
piano
sfz
sfz
8vb - - - - - - - - sim.


System 8
alternating lyrical with vib. and light
flute
mp
mp
still mechanically
piano
sfz
sfz

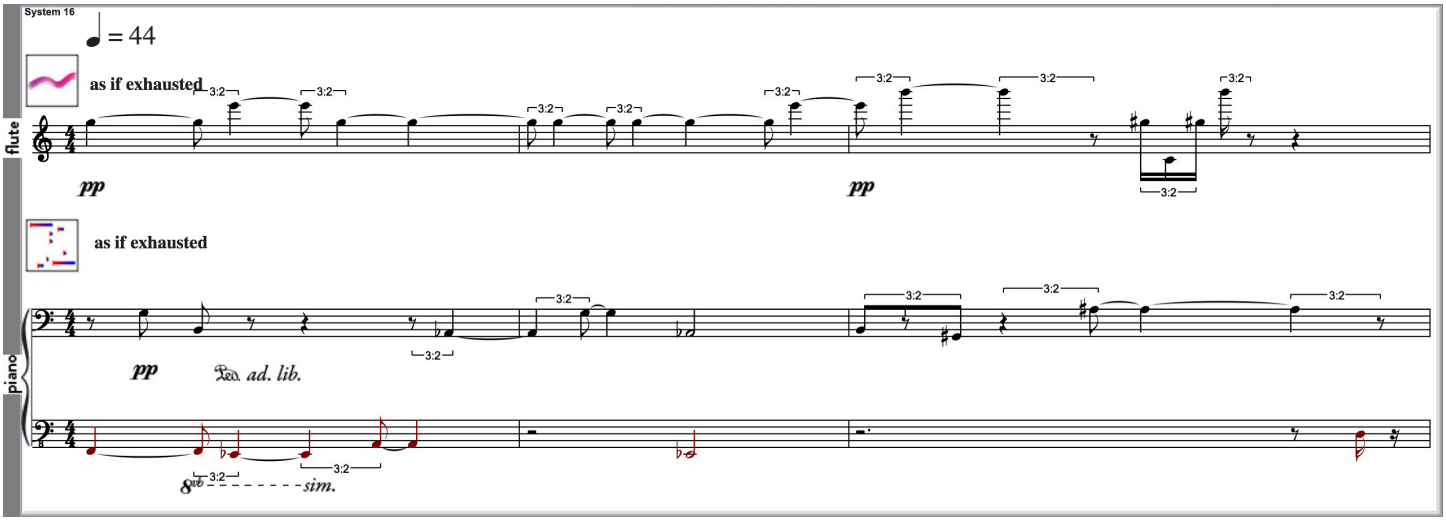

System 9
lyrical with vib. when possible
flute
mp
mp
still mechanically
piano
sfz
sfz

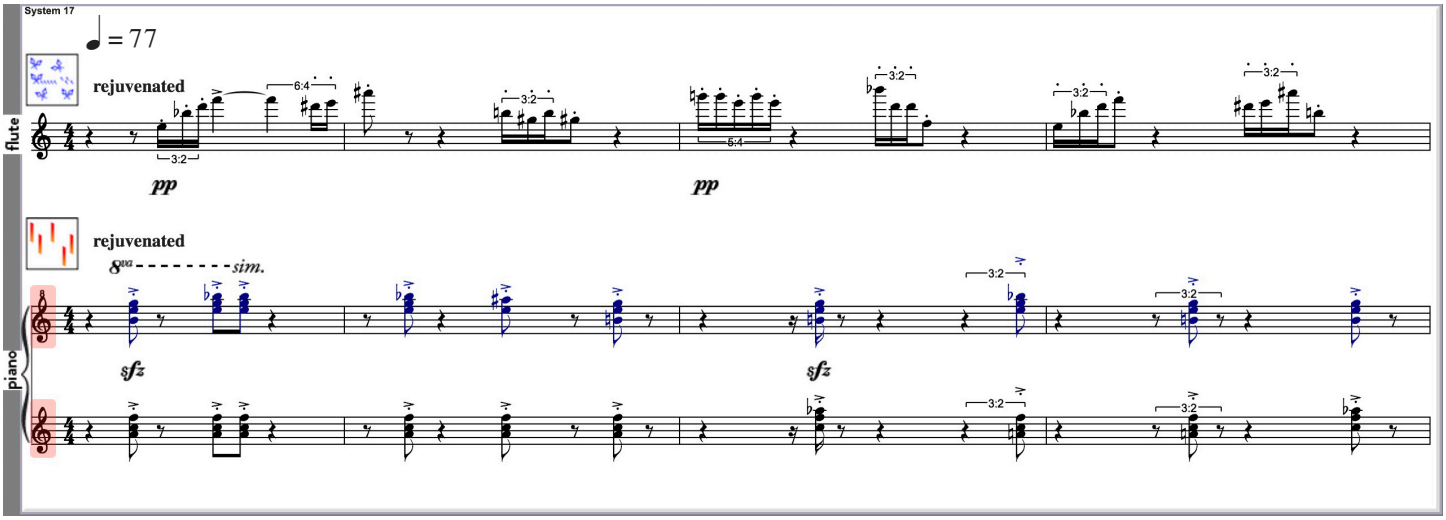

System 11
lyrical with vib. when possible
flute
mp
mp
still mechanically
piano
sfz
sfz
8vb
sim.

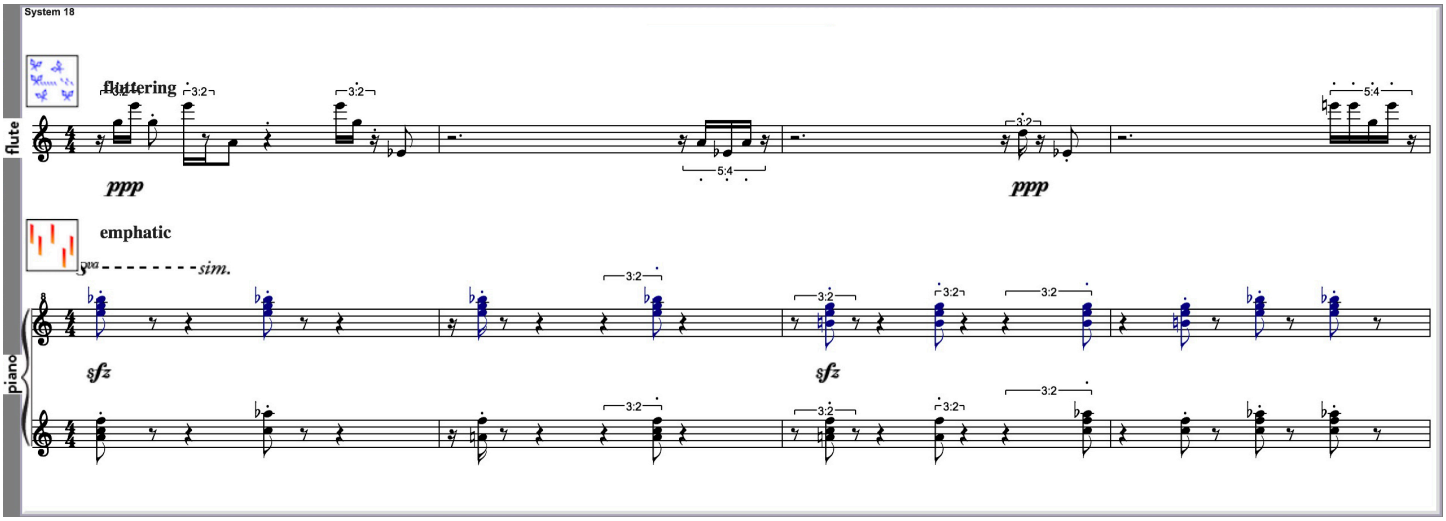

System 12
lyrical with vib. when possible
flute
mp
mp
still mechanically
piano
mf
mf
8vb
sim.

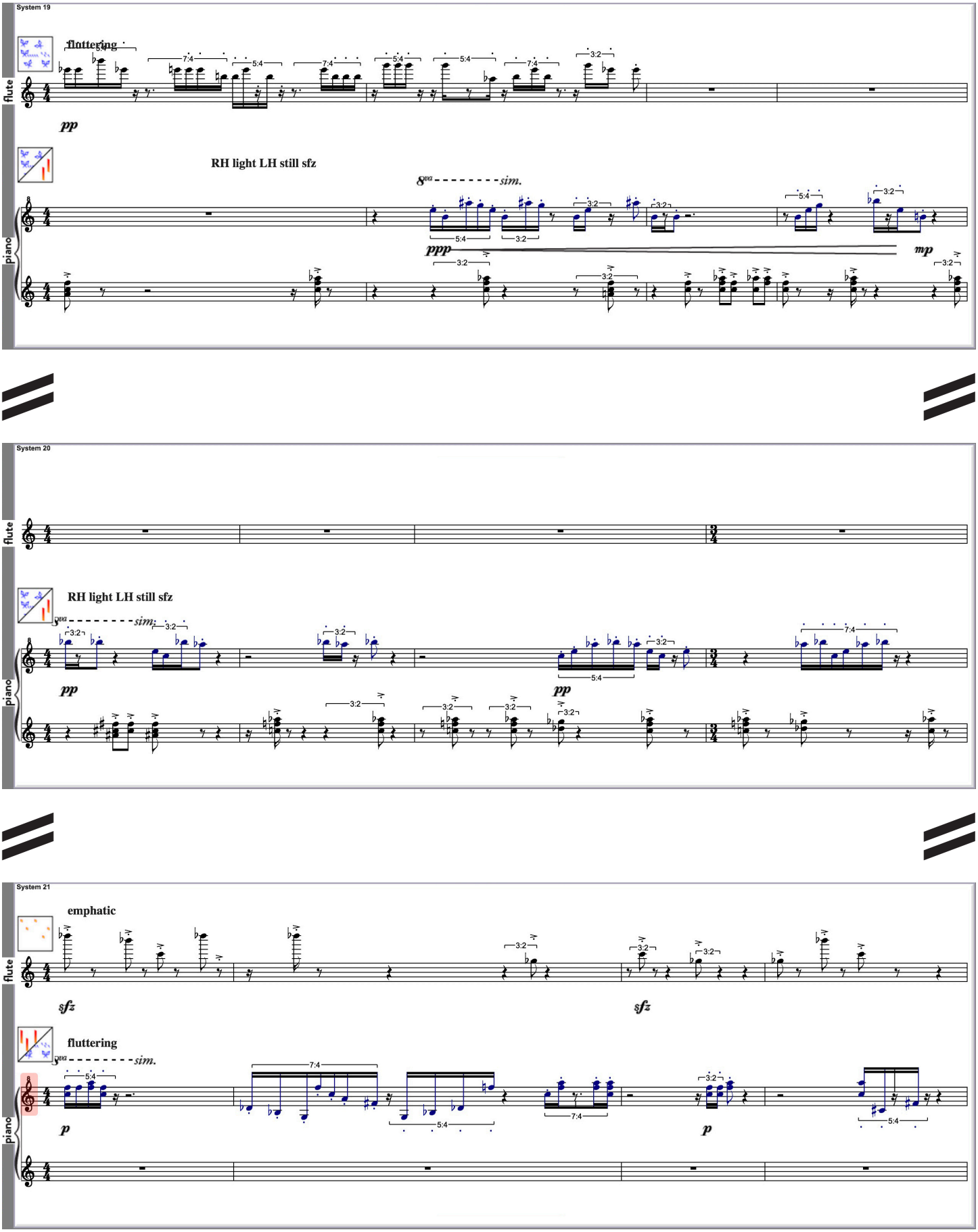

System 10
lyrical with vib. when possible
flute
mp
mp
still mechanically
piano
sfz
sfz
8vb
sim.

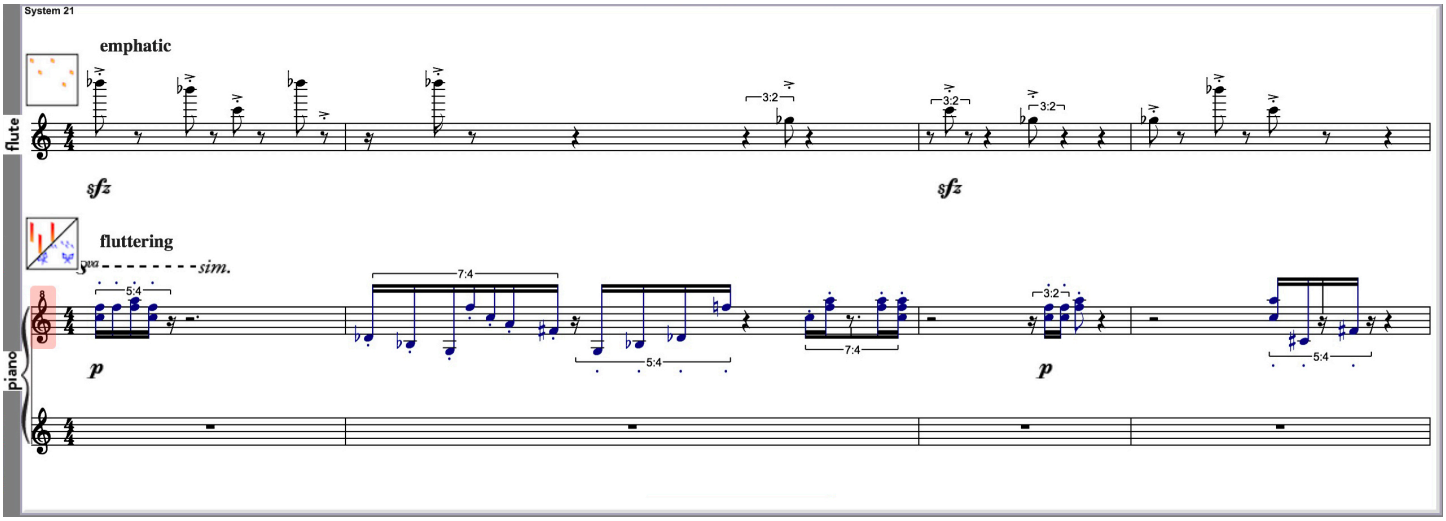

System 13
♩ = 66
becoming sluggish
flute
mf
mf
sluggish ped. ad. lib.
piano
mp
ad. lib.
8vb
sim.
System 14
becoming sluggish
mp
mp
sluggish ped. ad. lib.
mp
ad. lib.
8vb
sim.
System 15
♩ = 55
becoming sluggish
ppp
p
sluggish ped. ad. lib.
p
ad. lib.
8vb
sim.

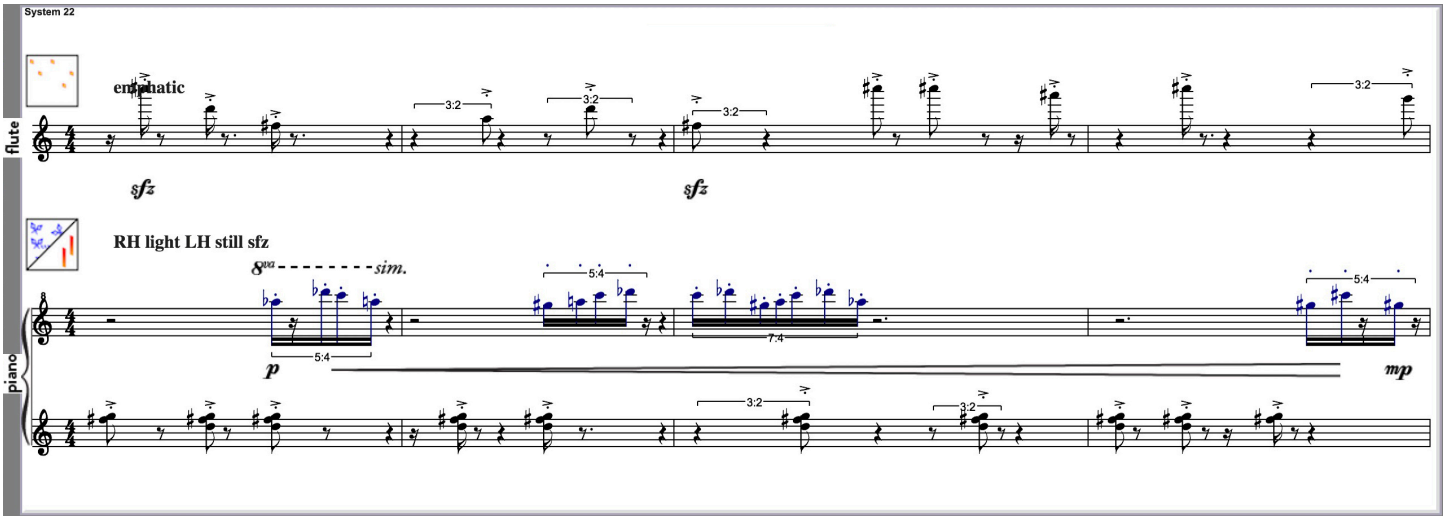

System 16
♩ = 44
as if exhausted
flute
pp
pp
as if exhausted
piano
pp
ad. lib.
8va
sim.

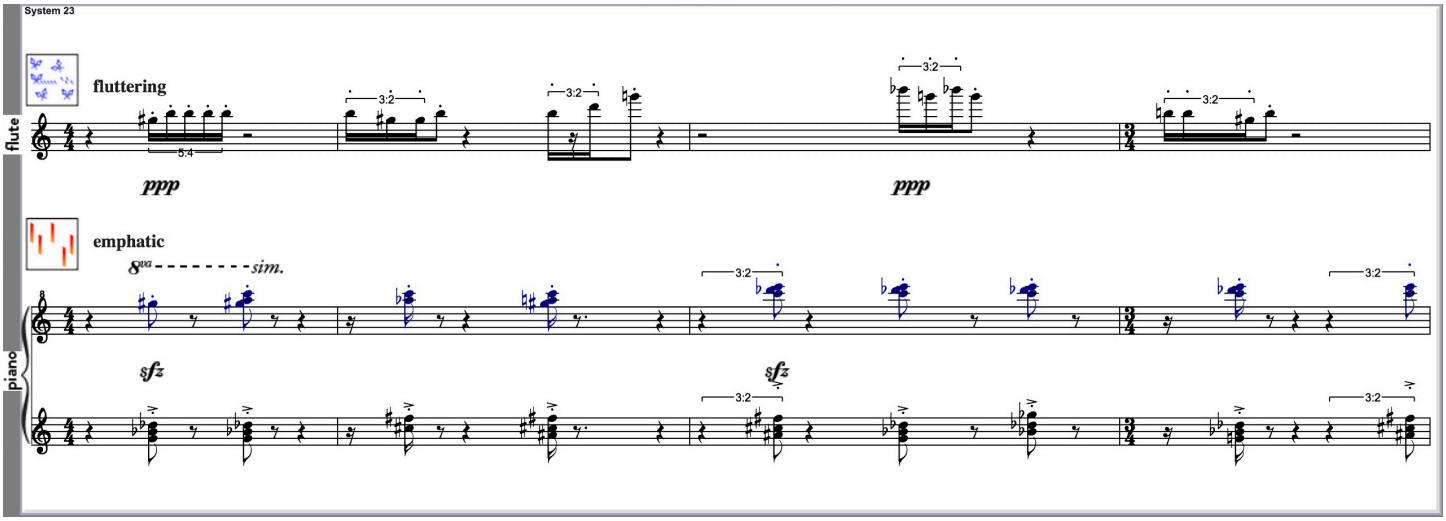

System 17
♩ = 77
rejuvenated
flute
pp
pp
rejuvenated
8va
sim.
piano
sfz
sfz

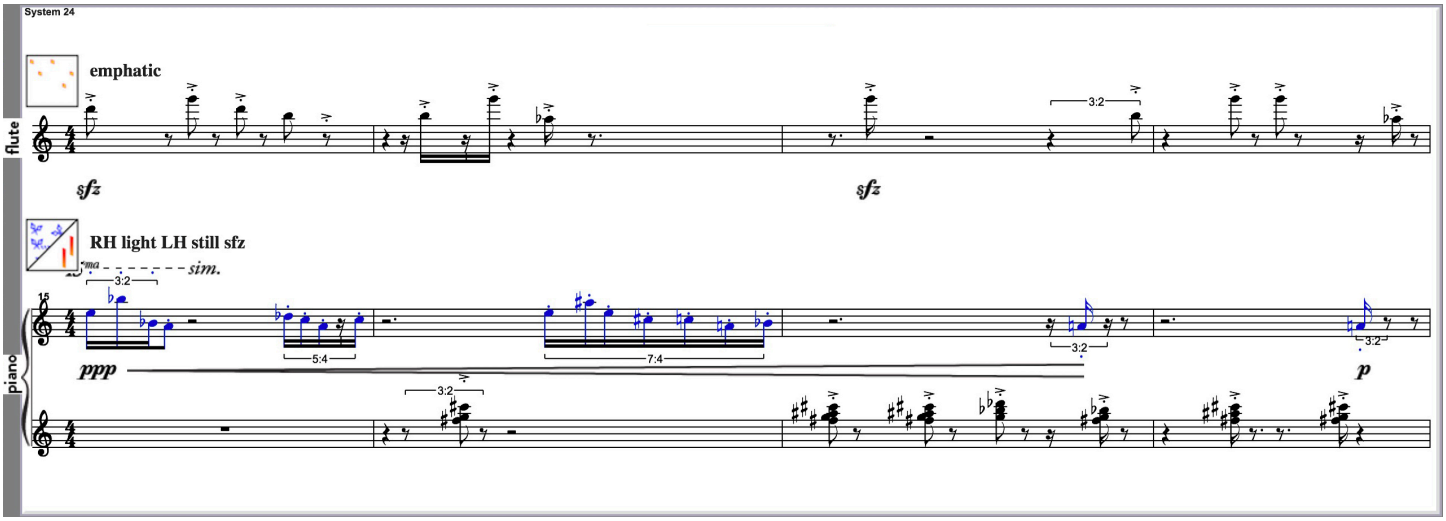

System 18
fluttering
flute
ppp
ppp
emphatic
8va
sim.
piano
sfz
sfz

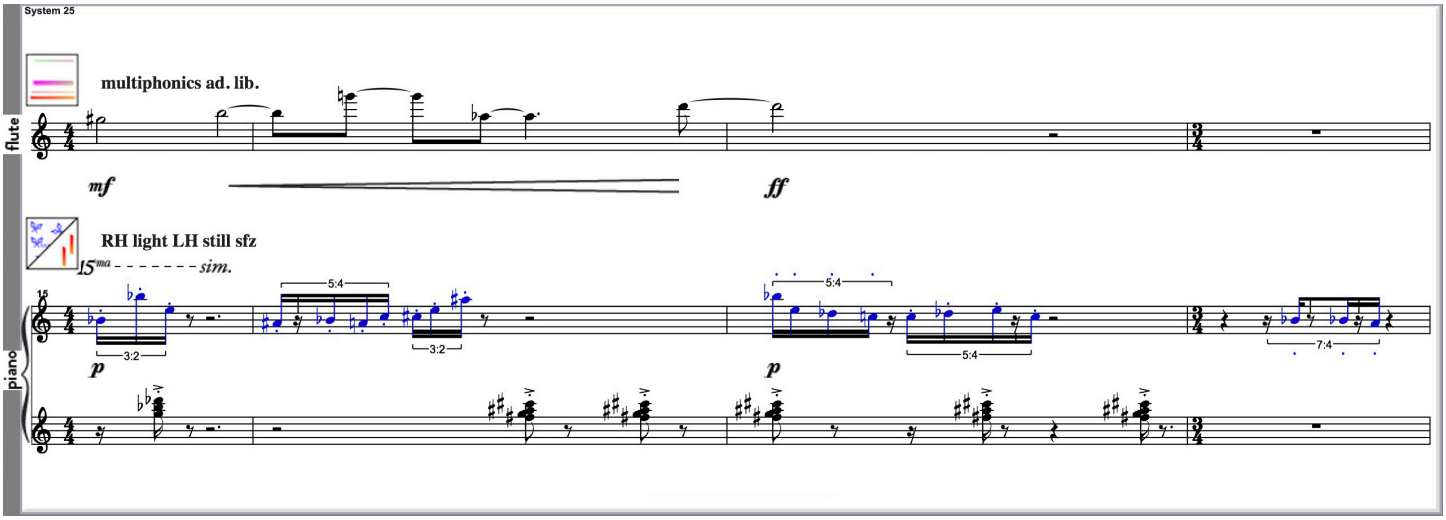

System 19
flute
fluttering
pp
RH light LH still sfz
8va
sim.
piano
ppp
mp
System 20
flute
RH light LH still sfz
8va
sim.
piano
pp
pp
System 21
flute
emphatic
sfz
sfz
fluttering
8va
sim.
piano
p
p

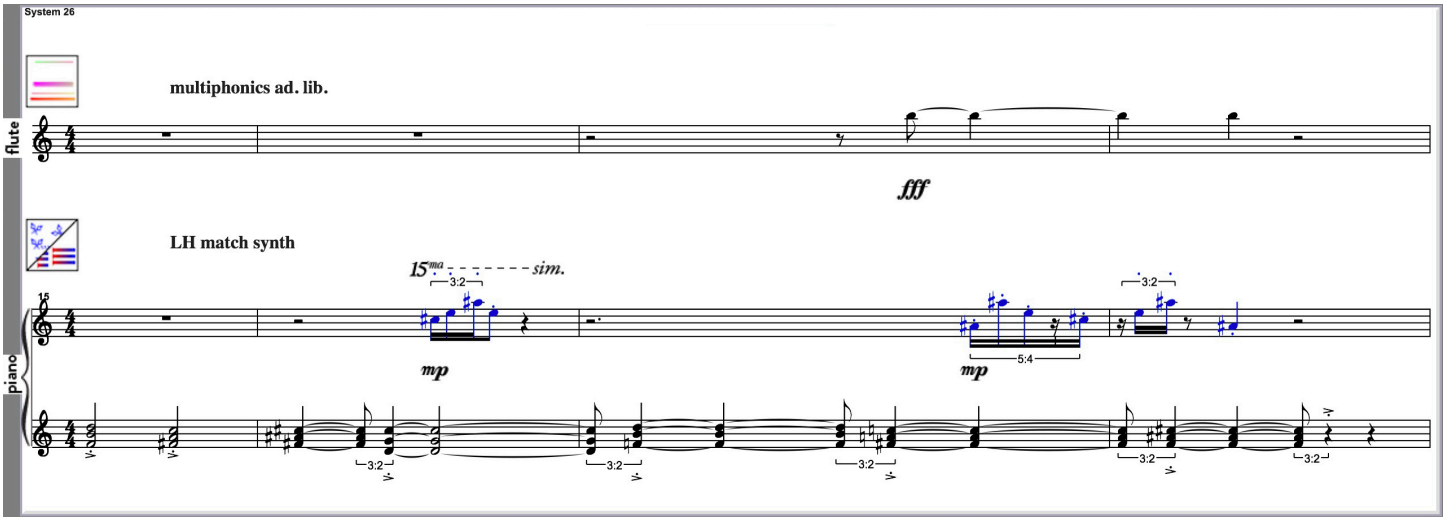

System 21
emphatic
flute
sfz
sfz
fluttering
8va
sim.
piano
p
p


System 22
emphatic
flute
sfz
sfz
RH light LH still sfz
8va
sim.
piano
p
mp


System 23
fluttering
flute
ppp
ppp
emphatic
8va
sim.
piano
sfz
sfz

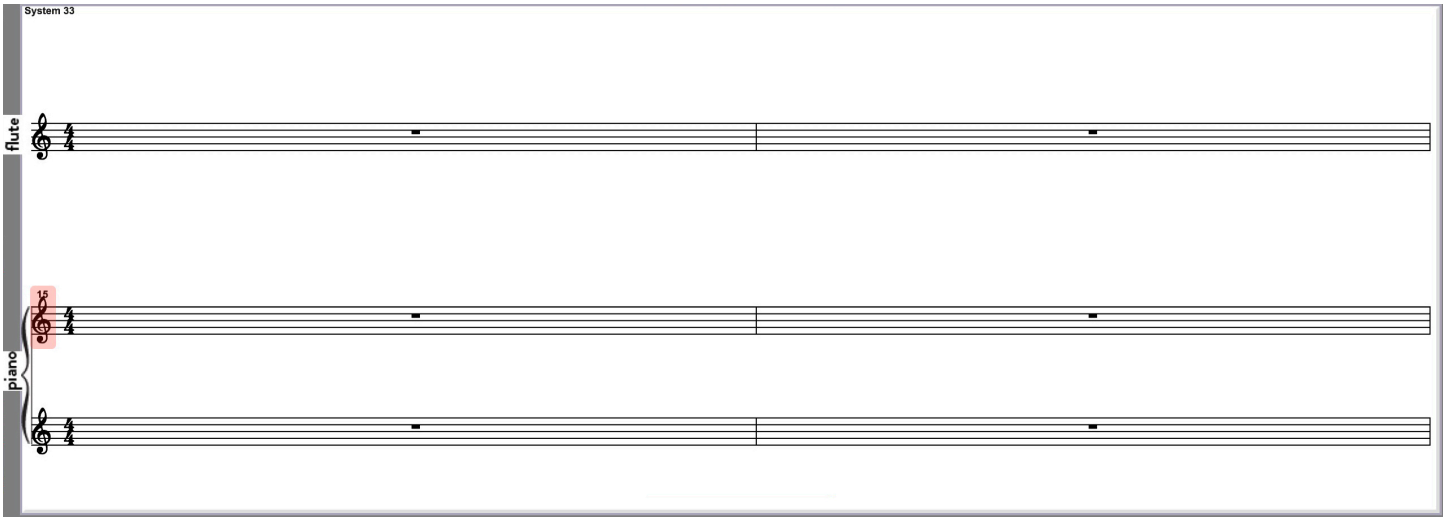

System 24
emphatic
flute
sfz
sfz
RH light LH still sfz
15ma
sim.
piano
ppp
p

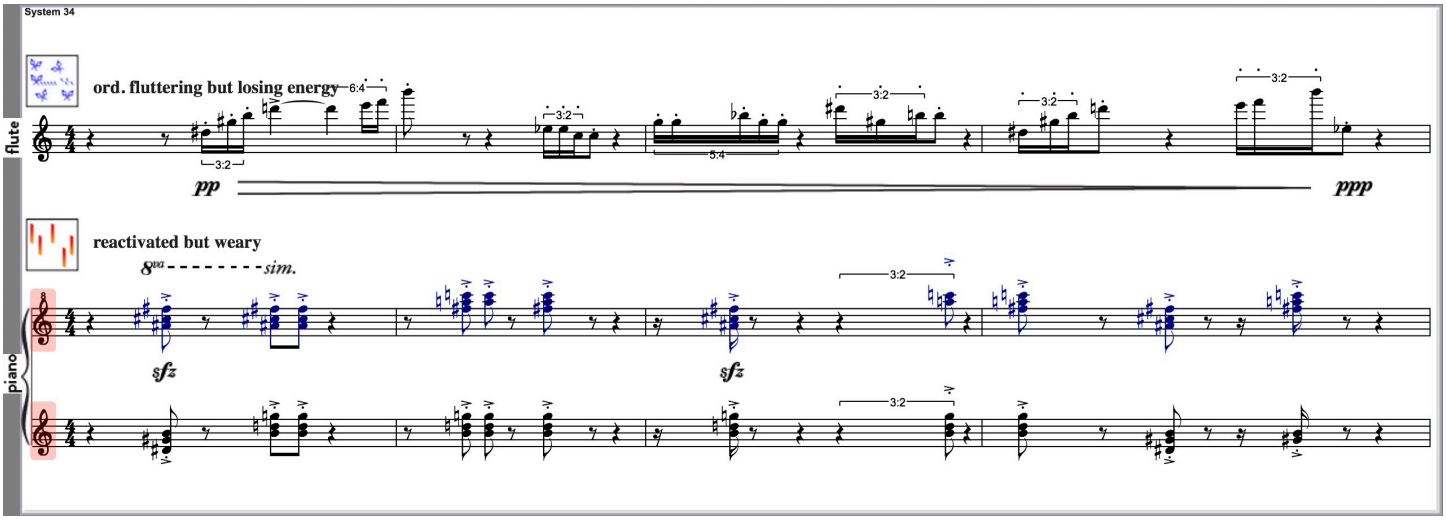

System 25
multiphonics ad. lib.
flute
mf
ff
RH light LH still sfz
15ma
sim.
piano
p
p

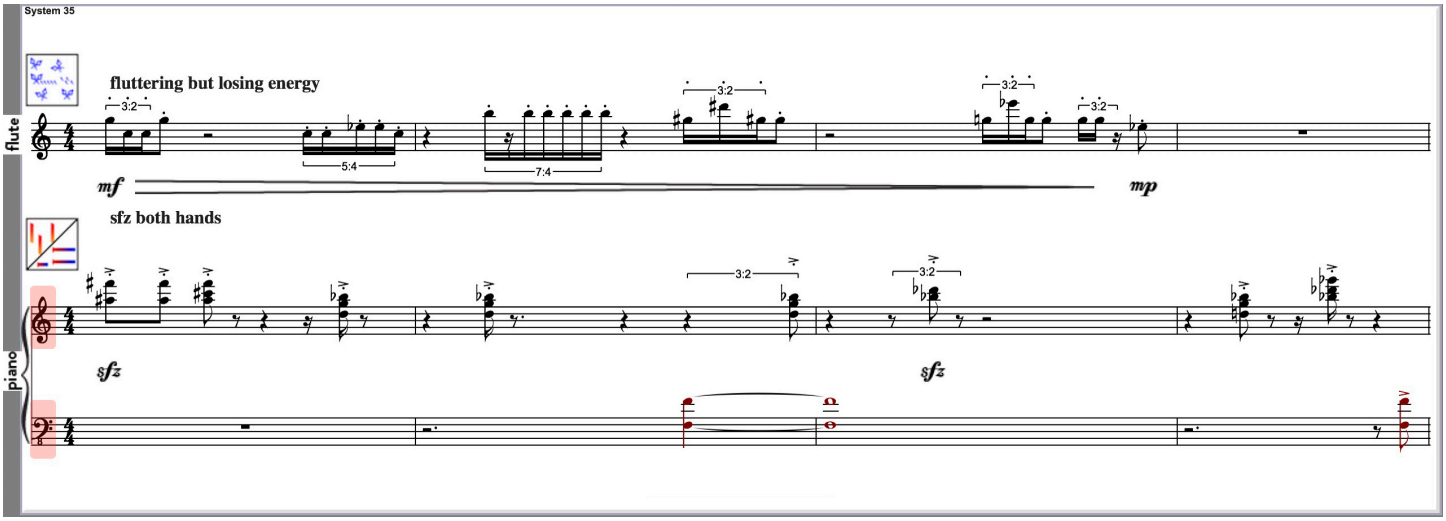

System 26
multiphonics ad. lib.
flute
fff
LH match synth
15ma
sim.
piano
mp
mp


System 27
multiphonics ad. lib.
flute
ff
mf
15ma - - - - - - - sim.
piano
mf
mf
System 28
ord. growing intensity
flute
p
mf
growing intensity
15ma - - - - - - - sim.
piano
p
cresc.
System 29
Arrival coming up! multiphonics ad. lib.
flute
mf
ff
Arrival coming up!
15ma - - - - - - - sim.
piano
cresc.

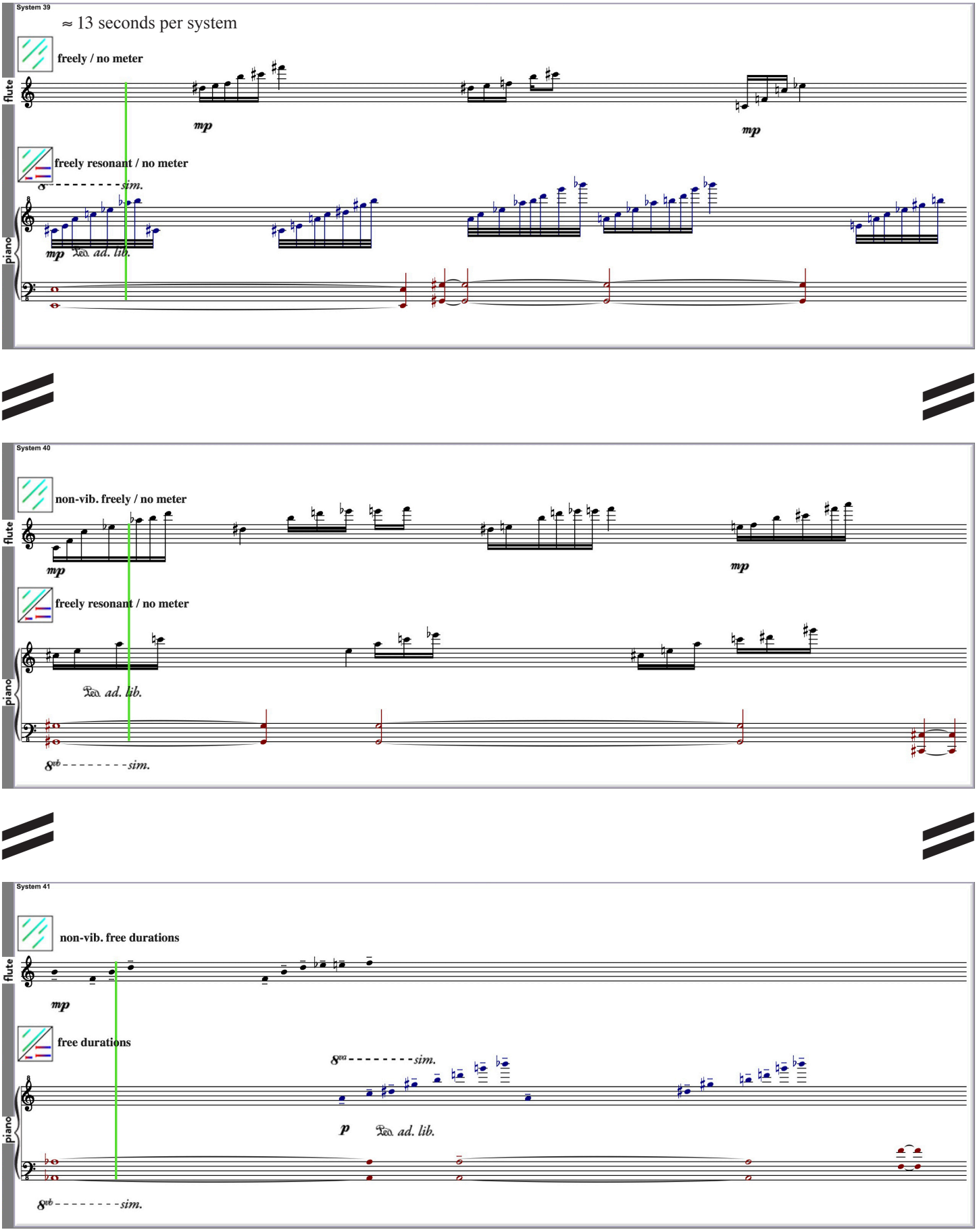

System 30
ARRIVAL! multiphonics ad. lib.
flute
ff
descresc.
ARRIVAL!
15ma - - - - - - - sim.
piano
ff
descresc.
System 31
flz retreating
flute
mp
descresc.
retreating
15ma - - - - - - - sim.
piano
mp
descresc.
System 32
flz dissapear completely
flute
pp
descresc.
dissapear completely
15ma - - - - - - - sim.
piano
8va - pp. - descresc. sim.

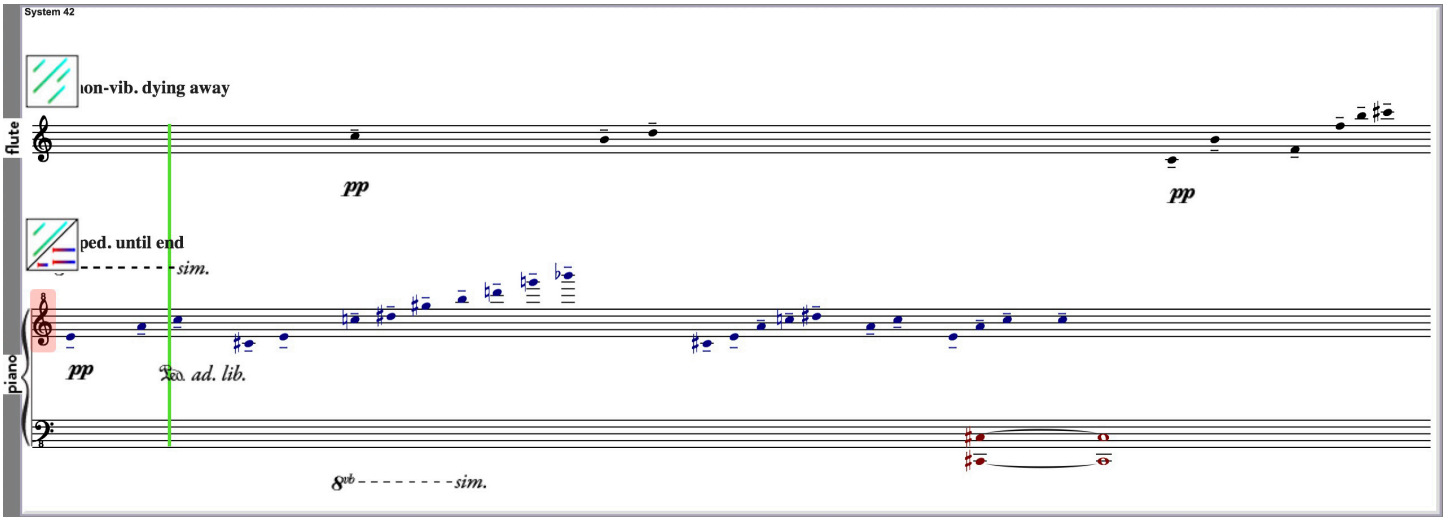

System 33
flute
15
piano

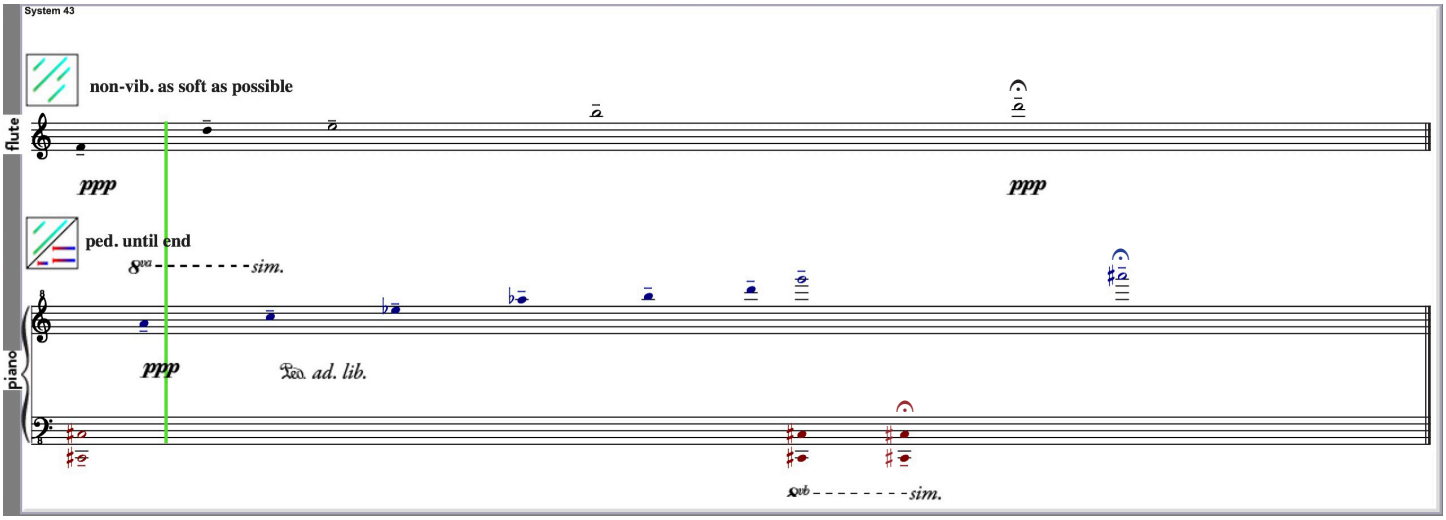

System 34
flute
ord. fluttering but losing energy
6:4
3:2
5:4
pp
ppp
reactivated but weary
8va
sim.
sfz
piano


System 35
flute
fluttering but losing energy
3:2
5:4
7:4
mf
mp
sfz both hands
sfz
piano


System 36
fluttering but losing energy
flute
mp
mp
RH legato
piano
f
ad. lib.
8vb
sim.
System 37
legato non-vib.
flute
ff
ff
RH legato
piano
f
ad. lib.
8vb
sim.
System 38
♩ = 66
non-vib. temporal slackening ahead
flute
mp
mp
temporal slackening ahead
piano
mf
ad. lib.
8vb
sim.


System 39
≈ 13 seconds per system
freely / no meter
flute
mp
mp
freely resonant / no meter
sim.
piano
mp
ad. lib.
System 40
non-vib. freely / no meter
flute
mp
mp
freely resonant / no meter
piano
ad. lib.
8vb
sim.
System 41
non-vib. free durations
flute
mp
free durations
8va
sim.
piano
p
ad. lib.
8vb
sim.


System 42
non-vib. dying away
flute
pp
pp
ped. until end
sim.
piano
pp
ad. lib.
8vb
sim.


System 43
non-vib. as soft as possible
flute
ppp
ppp
ped. until end
8va
sim.
piano
ppp
ad. lib.
8vb
sim.