for Yarn/Wire

Audiëndum Extïmate

for 2 pianos, 2 percussion
and transduced electronic sound

Louis Goldford (2018)

Babel SCORES®

Version 19/08/2020

for Yarn/Wire | dedicated to Peter Szendy

AUDIENDUM EXTIMATE

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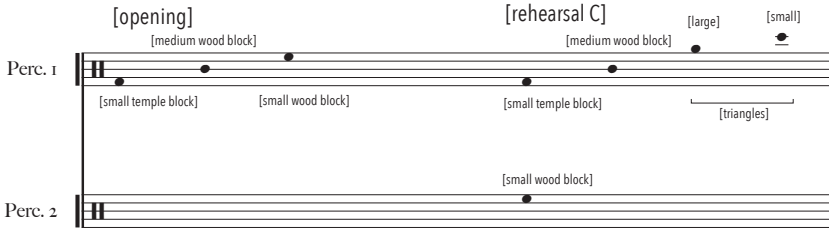
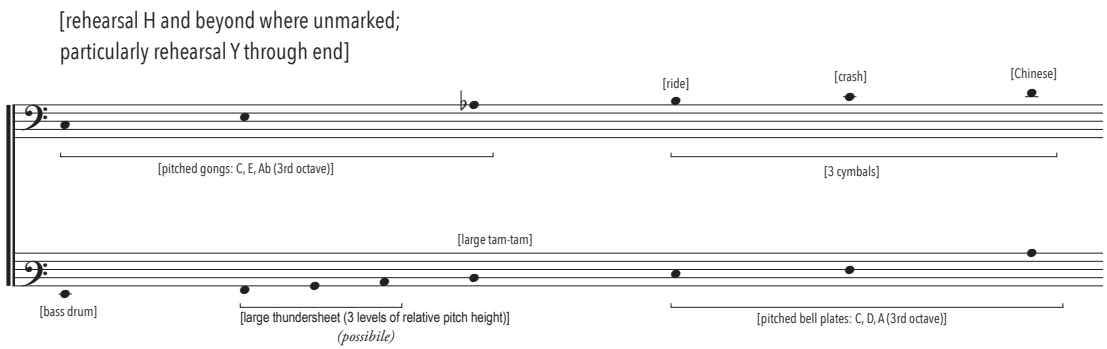
Percussion Staff Notation





Percussion Instruments

PERCUSSION I:

suspended:

small + large triangles (appx. 10 + 30 cm equilateral sides)
Thai gongs: C, E, A♭ (3rd octave)*
3 stacked cymbals:
ride (e.g. 50 cm)
crash (e.g. 41 cm Sabian Studio)
Chinese (e.g. 55 cm Suzhou)

a trap table consisting of:

small temple block (appx. length 10 cm)
small + medium wood blocks (appx. length 10 + 15 cm)
Meinl SH16 Spark shaker
paper "chimes" (e.g. crumbled sheets of newsprint)
small, handheld kola nut rattle

PERCUSSION II:

suspended:

small + medium triangles (appx. 10 + 20 cm equilateral sides)
large thundersheet (appx. 60 x 100 cm)
large tam-tam (e.g. 90 cm Paiste)
pitched bell plates: C, D, A (3rd octave)**

large bass drum (head facing up)

a trap table consisting of:

small wood block (appx. length 10 cm)
small Waldteufel (diameter of skin head appx. 4 cm)
tied bunch of dried yucca leaves
small bunch of aluminum foil

*An original score draft called for 3 Thai gongs pitched at E2 (appx. 82 Hz), A♭2 (103.826 Hz), and C3 (130.813 Hz). Please use these instead, if they are available.
**Similarly, bell plates were originally pitched at C2 (appx. 65 Hz), E2 (appx. 82 Hz), and A2 (110 Hz), and would be preferred to those specified in this updated score. Realizing these lower metals are increasingly rare to find among professional musicians, the current notation has been adapted for more common, higher-pitched metals.

Descriptive Mallet Notation

The score calls for a variety of different mallet types, often in quick succession. The players are often asked to hold multiple mallet types in each hand and to rapidly switch between them. The high density of action between switching mallet types may, at times, be difficult to execute. In cases where this is so, or where specific mallets may not be available, the player may freely redesign the sequence of mallet attacks apart from the notation.

In such cases, the given notation is conceived as "descriptive," that is, a notation in which the rapid succession of mallet types describes the desired attack qualities that may be achieved using an altnerative selection of mallets. The player must choose mallets that yield the same sonic results.

Instrumental Mockup to Reference Desired Percussion Sounds

In order to assess the correct instrument / mallet combination, an instrumental mockup of large sequences of the piece is available upon request. The mockup uses samples that identify the type and size of the instrument, mallet, as well as relative dynamic levels and modes of playing.

Email louis.goldford@columbia.edu for more information. These dense passages occur at the beginning of the piece and at rehearsal Y.

List of Desired Mallets and Exciters

Ideally the percussionists have aceess to as many of the following as possible:

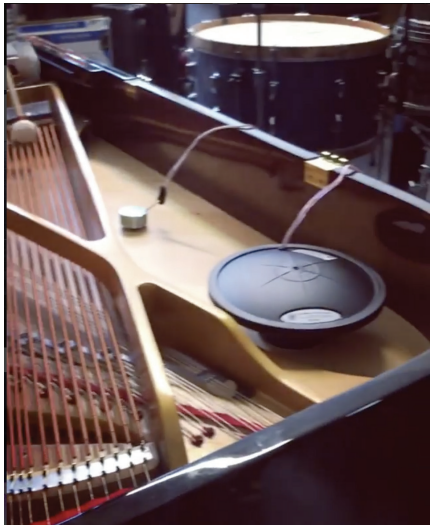
yarn marimba and vibraphone mallets (various degrees of soft—hard)
rubber mallets (various degrees of soft—hard)
triangle beater
tam-tam beaters
bass drum beaters
bell plate mallets
superball mallet
bow for cymbals
wire jazz brush
wooden rods brush
handheld aluminum foil bunch
tied bunch of dried yucca leaves

for the Pianists:

soft timpani mallets (for use on lower inside strings, e.g. Balter T4 Legato mallets)
small + large guitar picks (to be used for wedge multiphonics, e.g. Fender 351 + 355 celluloid)
piece of rubber bike tire (to rub laterally along higher strings)
gaffer tape (to mute the uppermost 2 octaves of PIANO II)

NOTE for concerned pianists, house managers, etc. *— Aside from the use of gaffer tape on the strings, there are no "preparations" in this piece, i.e. items placed on or left inside the strings. The items described above are only placed on strings when the fingers operate them and are immediately removed.* ***All techniques used, especially in consultation with professional piano technicians, are considered safe.*** *The only real "preparations" used are the two transducers placed inside the piano (described below).*

Placement of Transducers in PIANO II



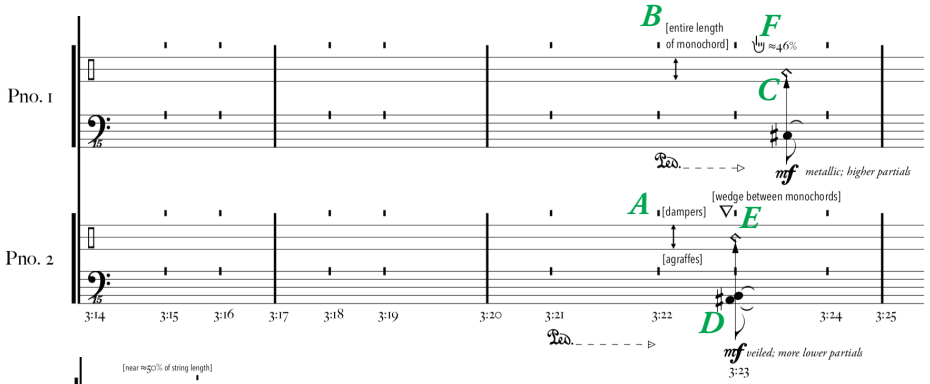
The padded "foot" of each transducer must be placed flat on the surface of the piano soundboard. Lopsided or uneven placement of the transducers will result in a disproportionate frequency response.

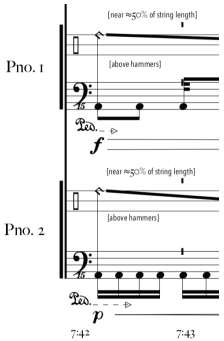
On a baby grand (L) or a grand (R), the space exposing the soundboard between the lowest lengthwise metal crossbar and the outer frame typically provide enough space for the larger bass transducer, whose diameter is around 8 inches (i.e. 20.32 cm).

See TECHNICAL REQUIREMENTS for more information on transducer setup.

The padded "feet" on these transducers ensures vibration against the soundboard WILL NOT scrape or otherwise harm the instrument.

Piano Multiphonics

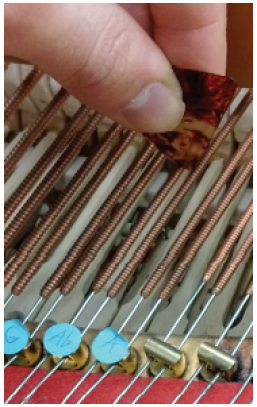




Nodal clefs showing the relative distance between either (A) the agraffes and dampers, or (B) the entire string length from agraffe to bridge. Diamond noteheads (C) indicate where along the length of string the player must lightly touch between nodal points, so as to produce a multiphonic. Where available, a percent (%) of total string length is provided.

The lower clef always indicates the string on which the multiphonic is to be played (D).

The node is either touched with a finger (E) or created by placement of a large or small guitar pick (F). The pick may be placed directly on the nodal point in the case of a monochord, or its triangular "wedge" may be inserted between two dichords tuned to the same pitch (see photo at right).



Vesikkala, Multiphonics of the Grand Piano, p. 34.

At rehearsal T, PIANOS I + II begin node-glissandi along a series of fundamental strings. The strings are rapidly reattacked while the lightly-pressing nodal finger slides laterally between points along the string. These points always move towards the player and alternate between a farthest point away (i.e. towards the middle of the string) to the upper side of the hammers facing away from the player, and is then followed by another series of points between the lower side of the hammers up until the agraffes, i.e. the closest point to the player. This cycle keeps repeating at variously faster and slower rates so as to produce the abstract illusion of a Shepard tone of node glissandi. Attention to the harmonic glissandi of upper partials is necessary to ensure the nodal positions and overall sonic state of this section are executed correctly.

Technical Requirements

Two versions of the technical setup may be used: (1) in which individual transducer cues are triggered flexibly by the players, or by a computer assistant, with the aid of an available iOS device and interface, or with a computer space bar; or (2) in which a general click track is diffused over earbuds to all players while a continuous fixed media sequence feeds the transducers instead of individual cues. The individually numbered cues given in the score may then be ignored.

In the premiere performance, Yarn/Wire opted for scenario #2 using a click track. The specifications and technical rider below are therefore designed for playback with earbuds and a fixed media track. Materials needed only for scenario 2 are highlighted in RED, while those needed only for scenario 1 are highlighted in BLUE. Those materials necessary for both versions are not highlighted. Max patches for both versions are available from the composer:

small *"bone conducting"* surface transducer (for frequencies above 300 Hz, e.g. Dayton Audio BCT-2 45 mm. diameter)
small 2 x 20-Watt amplifier to run the smaller transducer (e.g. Lepai LP-2020A+ 2 x 20 watts RMS, 4-8 Ohms)
large *"bass shaking"* transducer (for frequencies below 300 Hz, e.g. Clark Synthesis TST209 Tactile Transducer, 8 in. diameter)
large 2 x 160-Watt amplifier to run the bass transducer (e.g. SMSL SA-98E TDA7498E 2 x 160 watts 4-8 Ohms)
16 AWG speaker wire connecting transducers to amplifiers (at mix position)
Wago Lever-Nuts may be used to connect speaker wires rather than soldering.

laptop or desktop computer
MaxMSP v. 7+ (or free Runtime version)

audio interface (min. 4 analog outputs; two for stereo click track, 2 for transducer outputs)
mixing console (min. 15 channels)
stereo loudspeakers and amplifiers for the house
11 condenser microphones for live diffusion

4-way headphone amplifier / splitter
4 earbuds and extension cables
long stereo headphone extensions connecting interface to headphone amplifier (on stage)

4 iPhones or other mobile devices capable of launching individual cues from within the ensemble; or 1 device at mix position

Computer assistant at mix position
Live diffusion specialist at mix position

See the TECHNICAL RIDER on the following pages for stage setup, mic positions, connections between equipment, etc. This rider is an earlier draft of that used in the premiere performance featuring Yarn/Wire.

Technical Rider

This is an earlier draft of that used in the premiere on 10 March 2018.

Future performers may freely adapt the general layout of this rider.

This rider also permits multichannel recording as well as live diffusion.

Gear provided by Yarn/Wire –

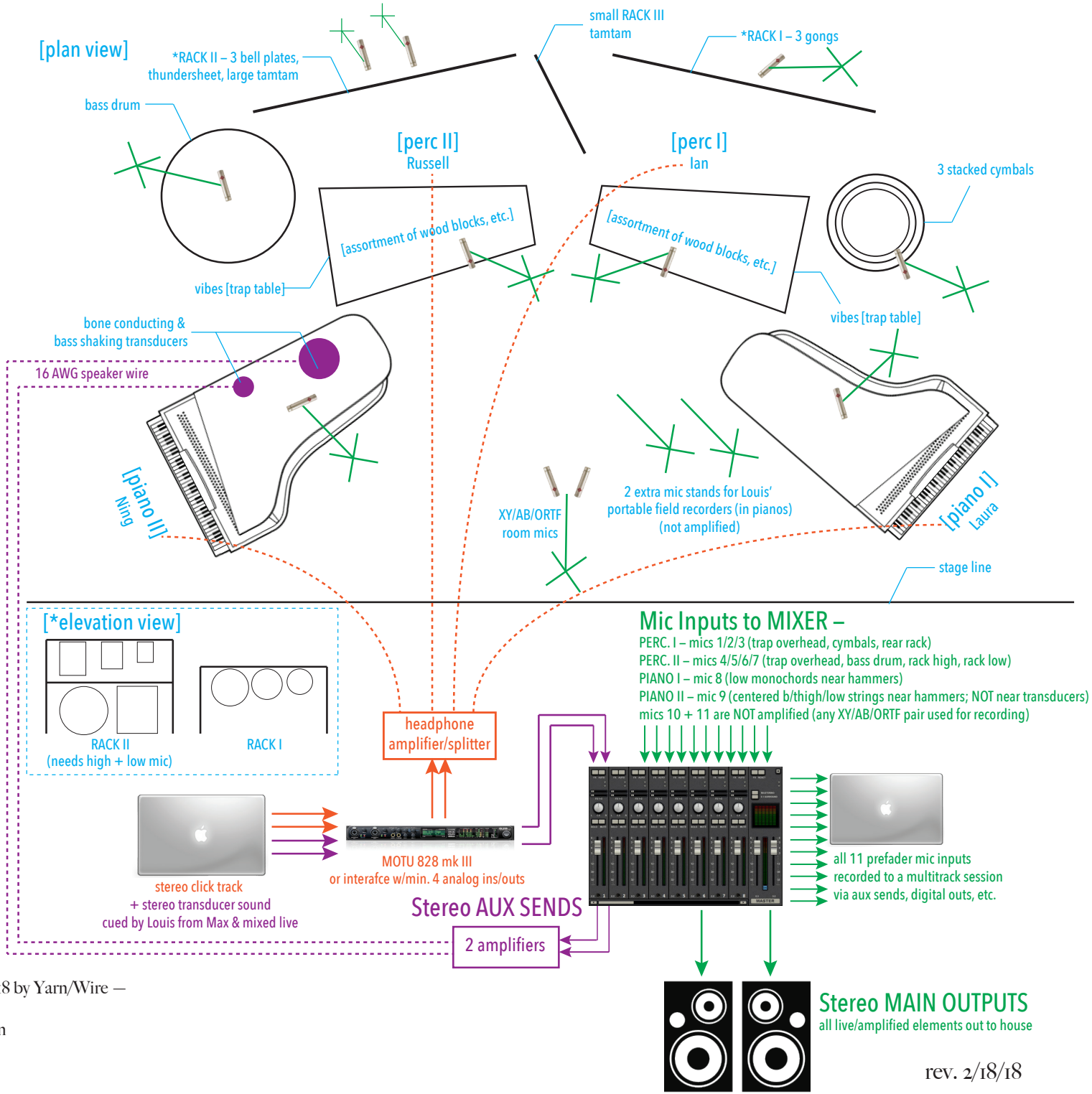
1. headphone amplifiers/splitters
2. 4 headphone extension cables
3. 4 earbuds

Gear provided by Louis –

1. laptop producing click/transducer playback
2. bone conducting + bass shaking transducers
3. all speaker wire
   Distance between stage and mix?
4. 2 amplifiers for transducers
5. **potential audio interface: MOTU 828 mk III
6. **potential mics: 2 x AKG C414s, 2 x Neumann TLM102s, 2 x Audio-Technica Pro 37s + clips
7. **potentially 4 mic stands and cables
8. RCA patch cables or 1/4" patch cables for transducer aux sends
9. 2 portable Zoom field recorders for stereo piano recording

Gear needed from CMC, Shapeshifter, and/or Recording Engineer –

1. 11 x condenser mics** for amplification/recording
2. house mixing console supporting 13 inputs;
   Alternatively, will a CMC mixer support this?
3. 12 x tripod boom mic stands + mic clips**
4. potentially: on stage power strips & extension cords for headphone amplifier(s) + transducer amplifiers
5. power at mix position for laptop, interface, and potentially headphone amps
6. potential audio interface: MOTU Traveler or UltraLite
7. multitrack recording session via laptop, field recorder, etc.
8. potential snake between onstage mics and house PA



Premiere performance given on 10 March 2018 by Yarn/Wire —
Laura Barger + Ning Yu, pianos
Russell Greenberg + Ian Antonio, percussion

at Shapeshifter Lab, Brooklyn, NY

rev. 2/18/18

Score

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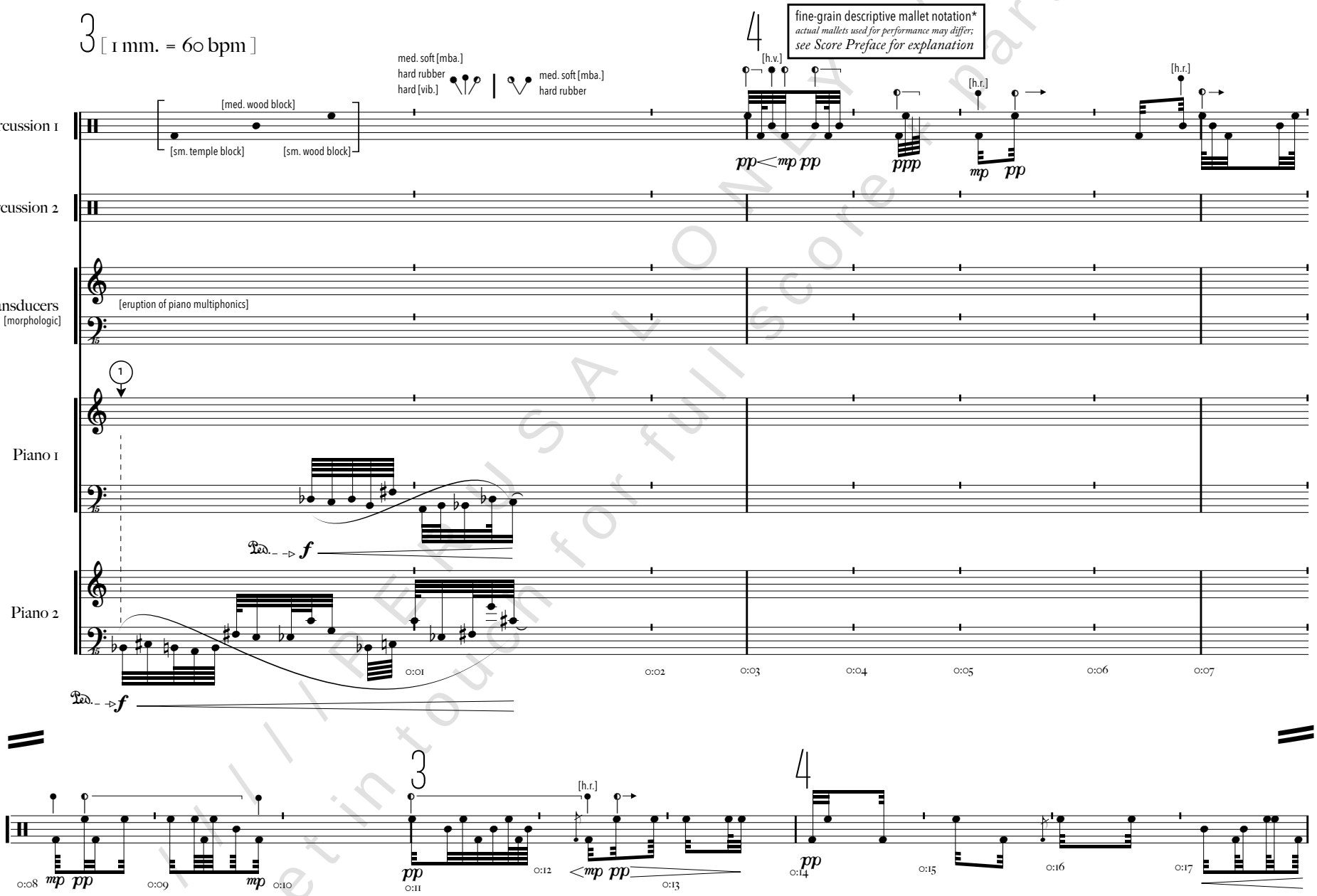
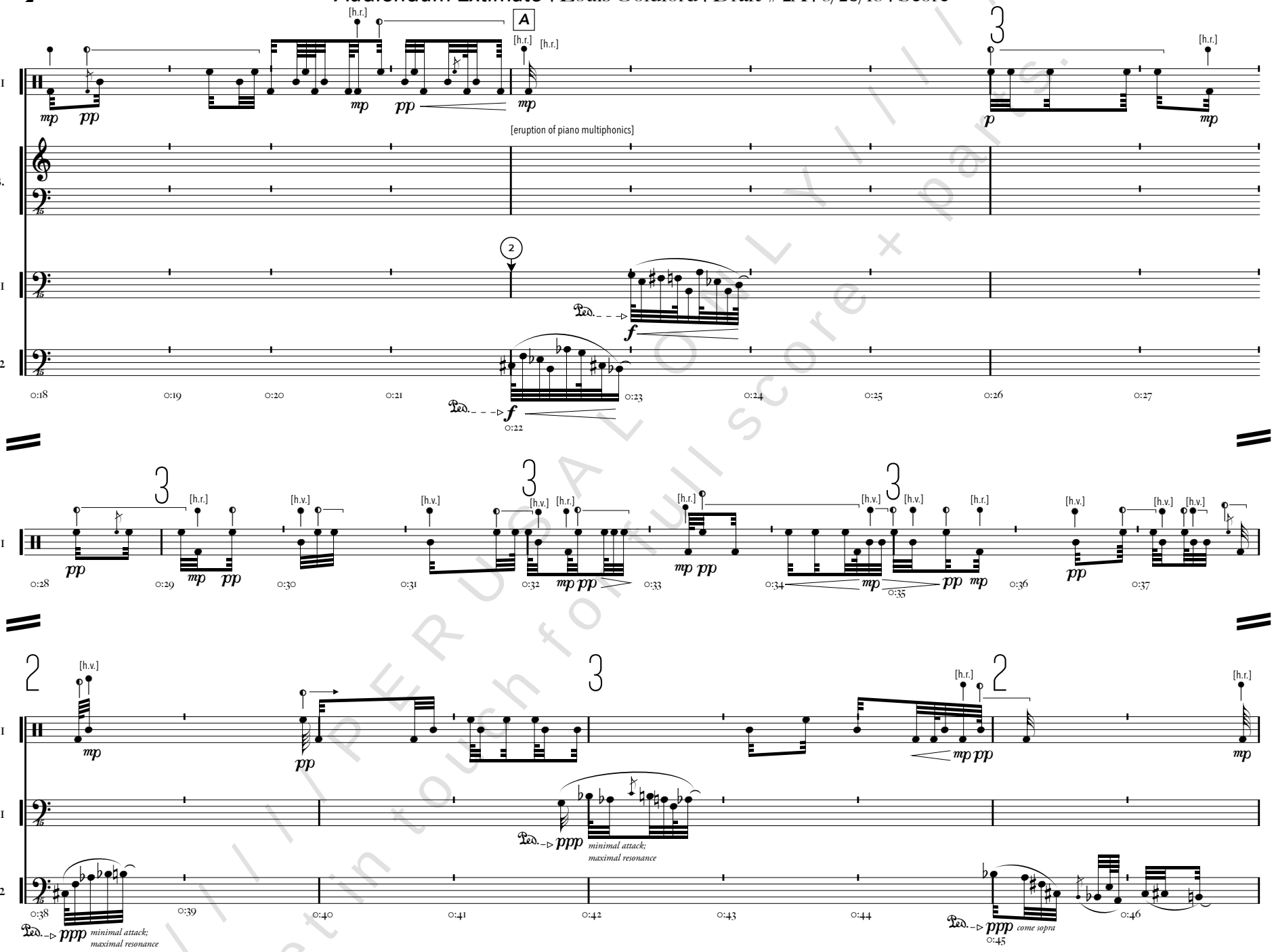
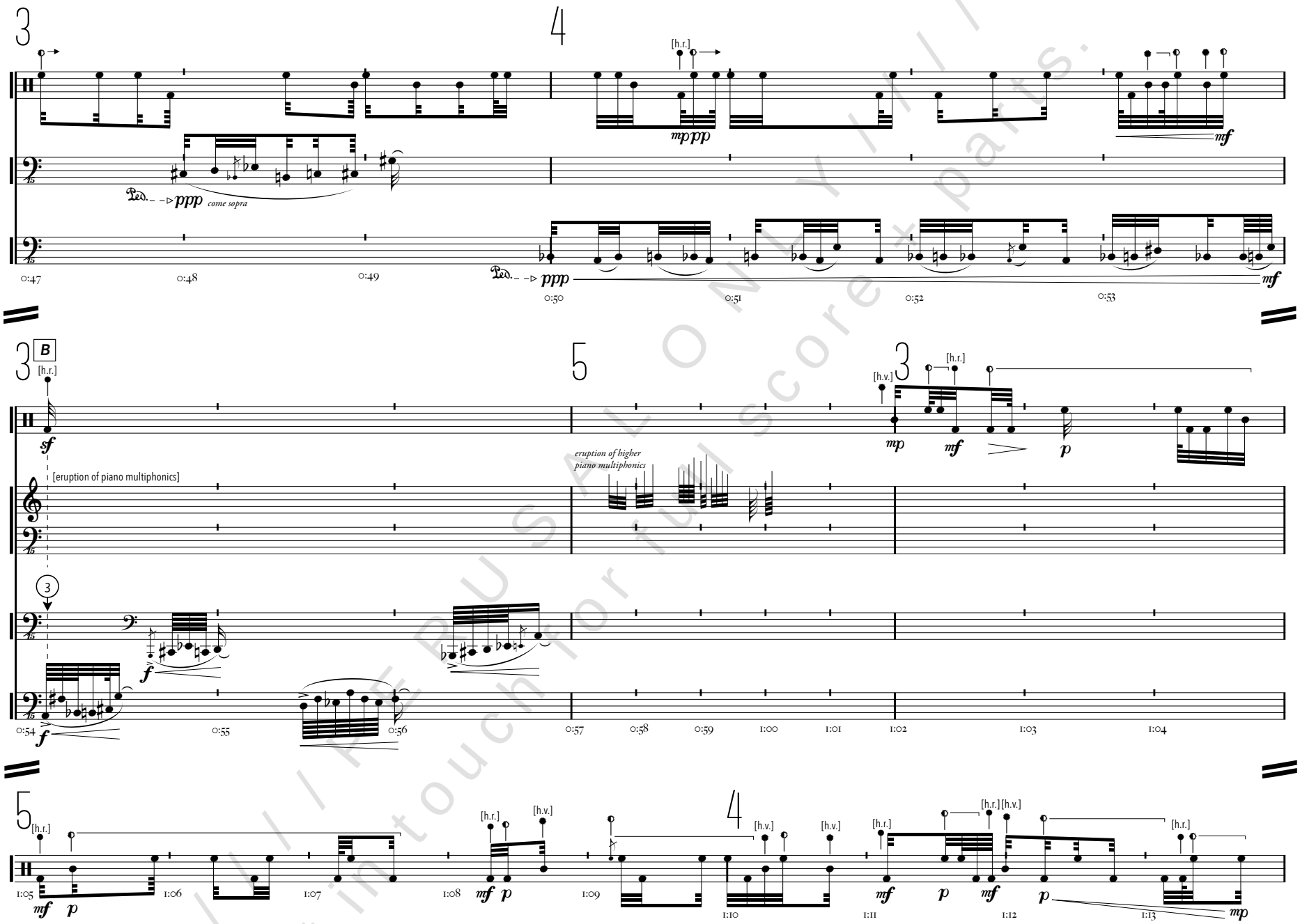
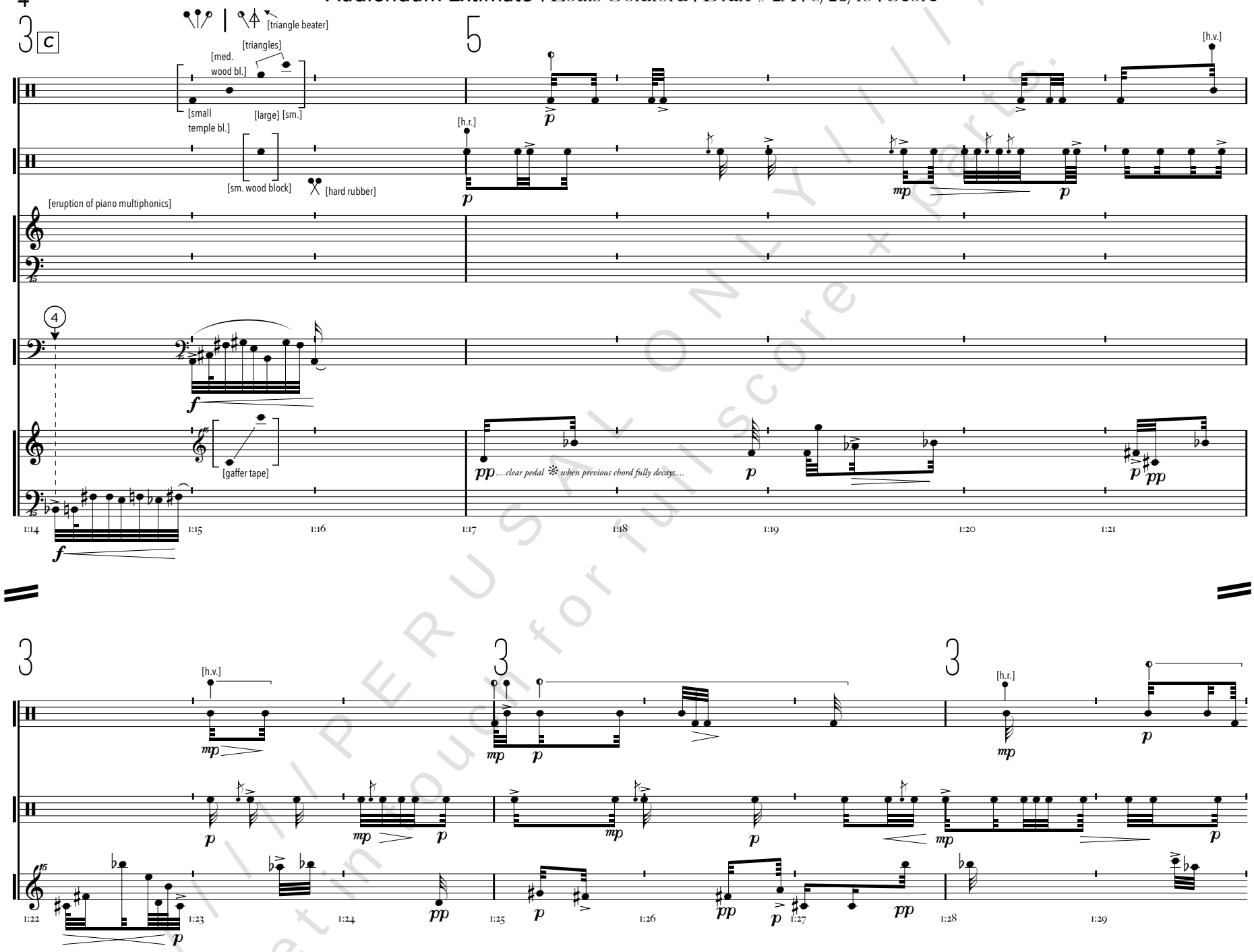
Draft #2A

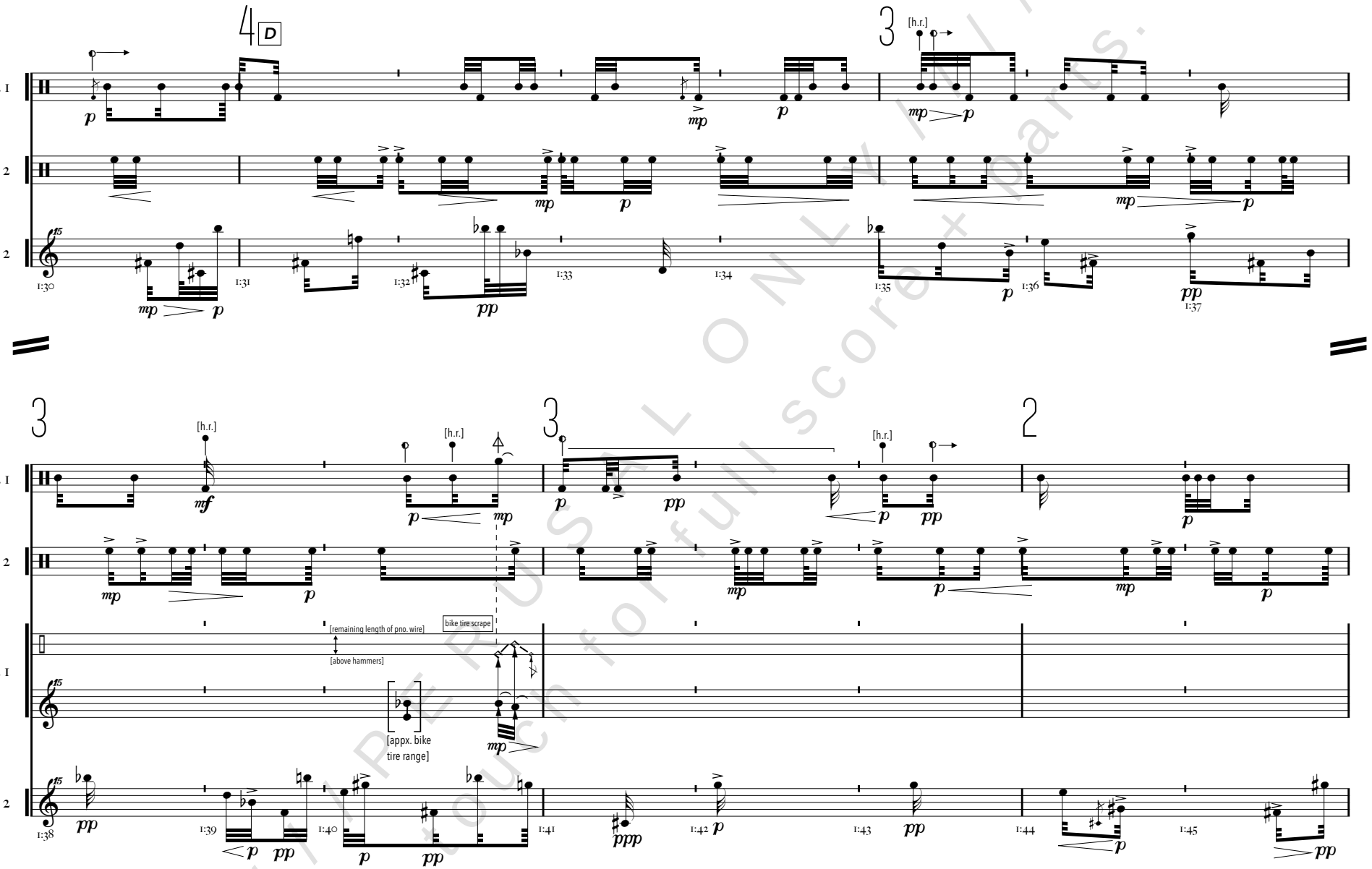
Louis GOLDFORD (2018)

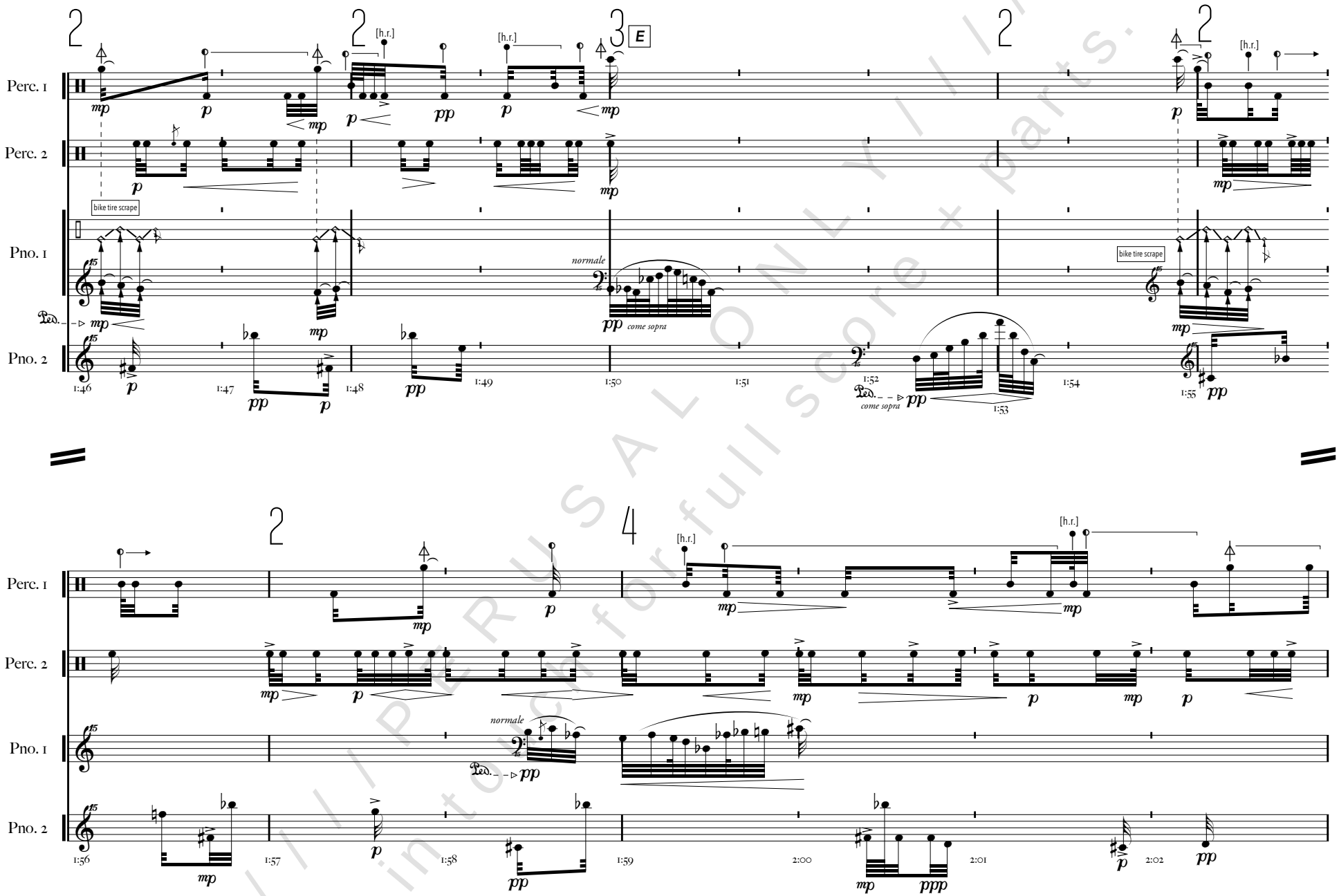


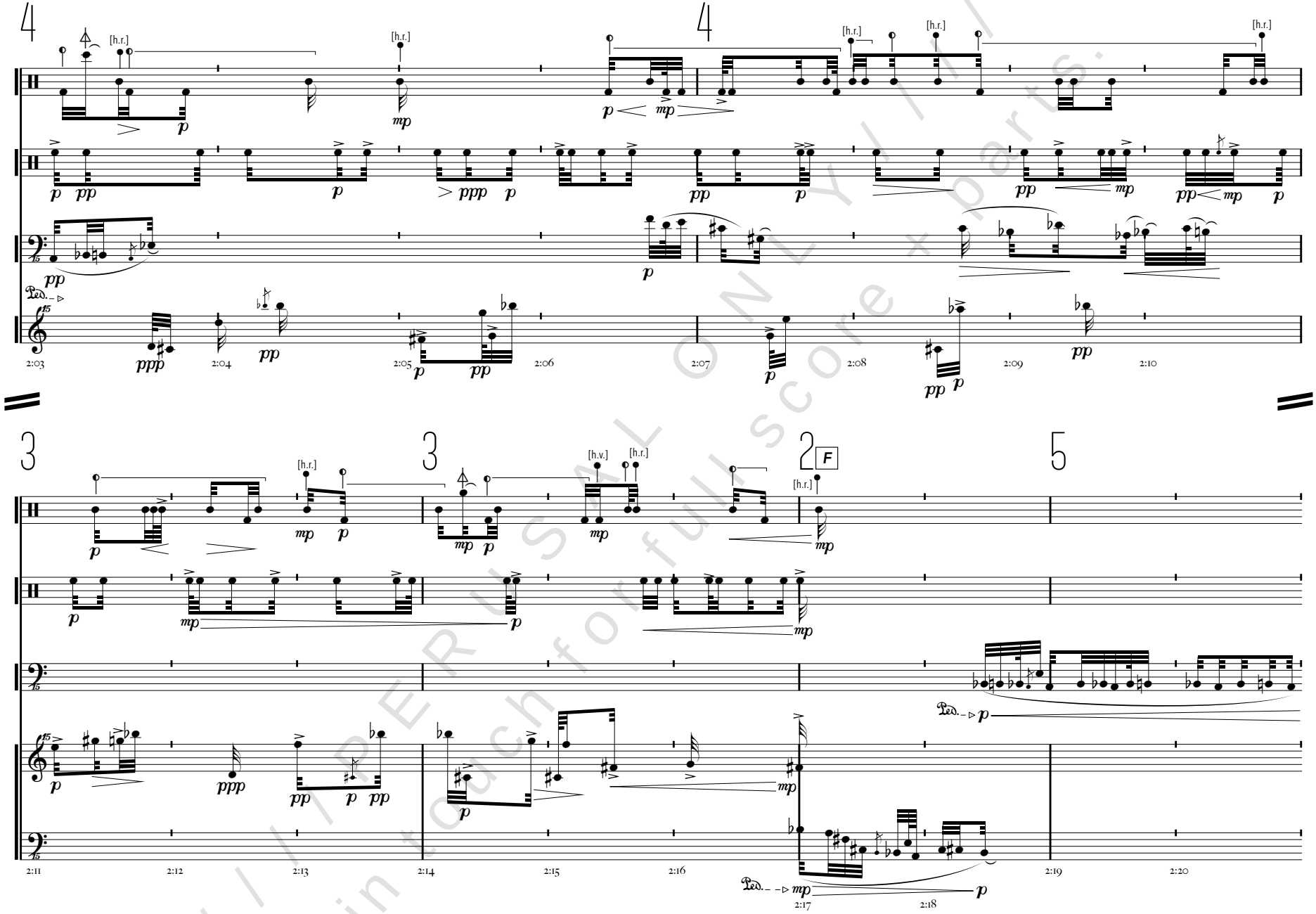


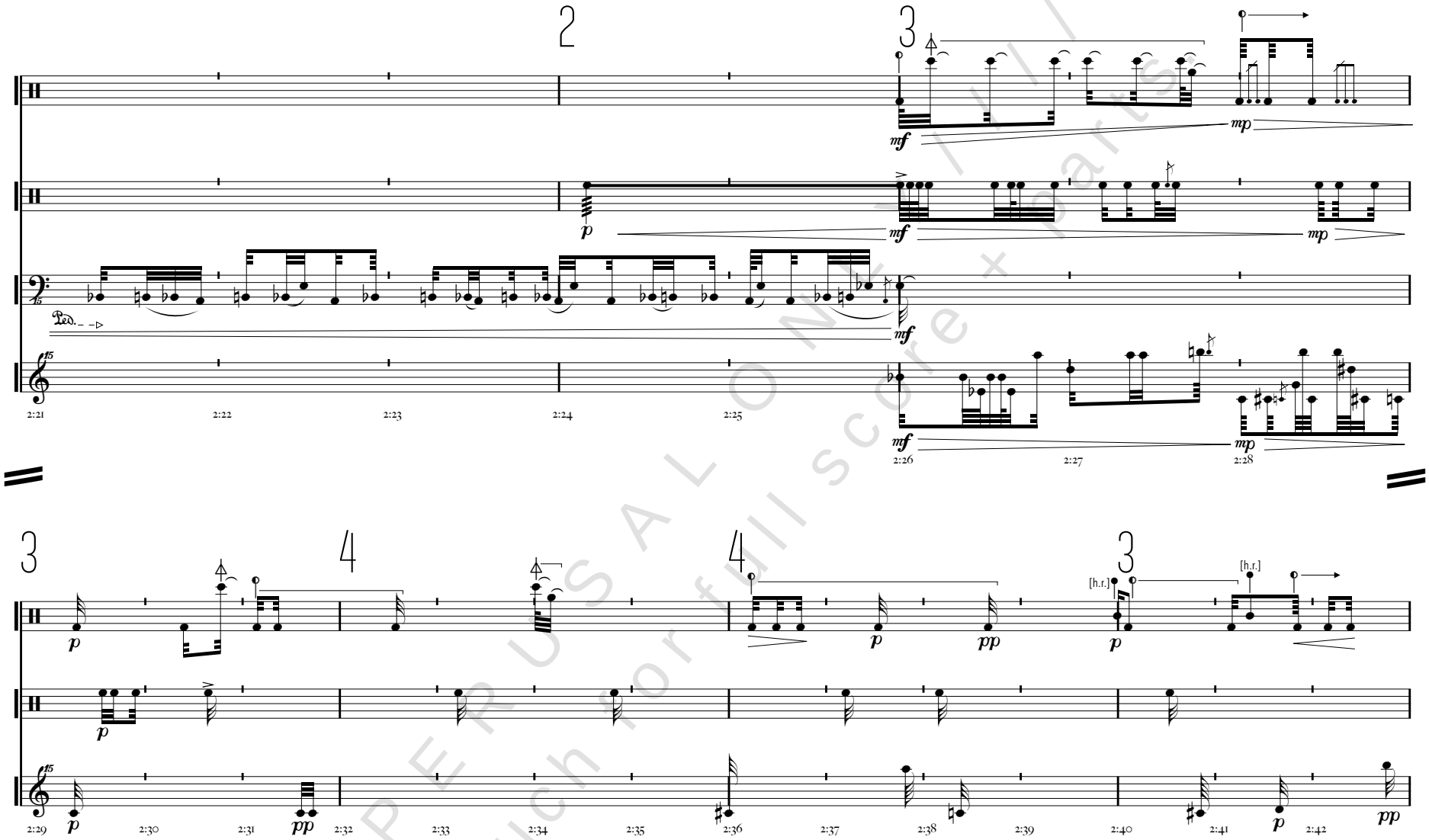


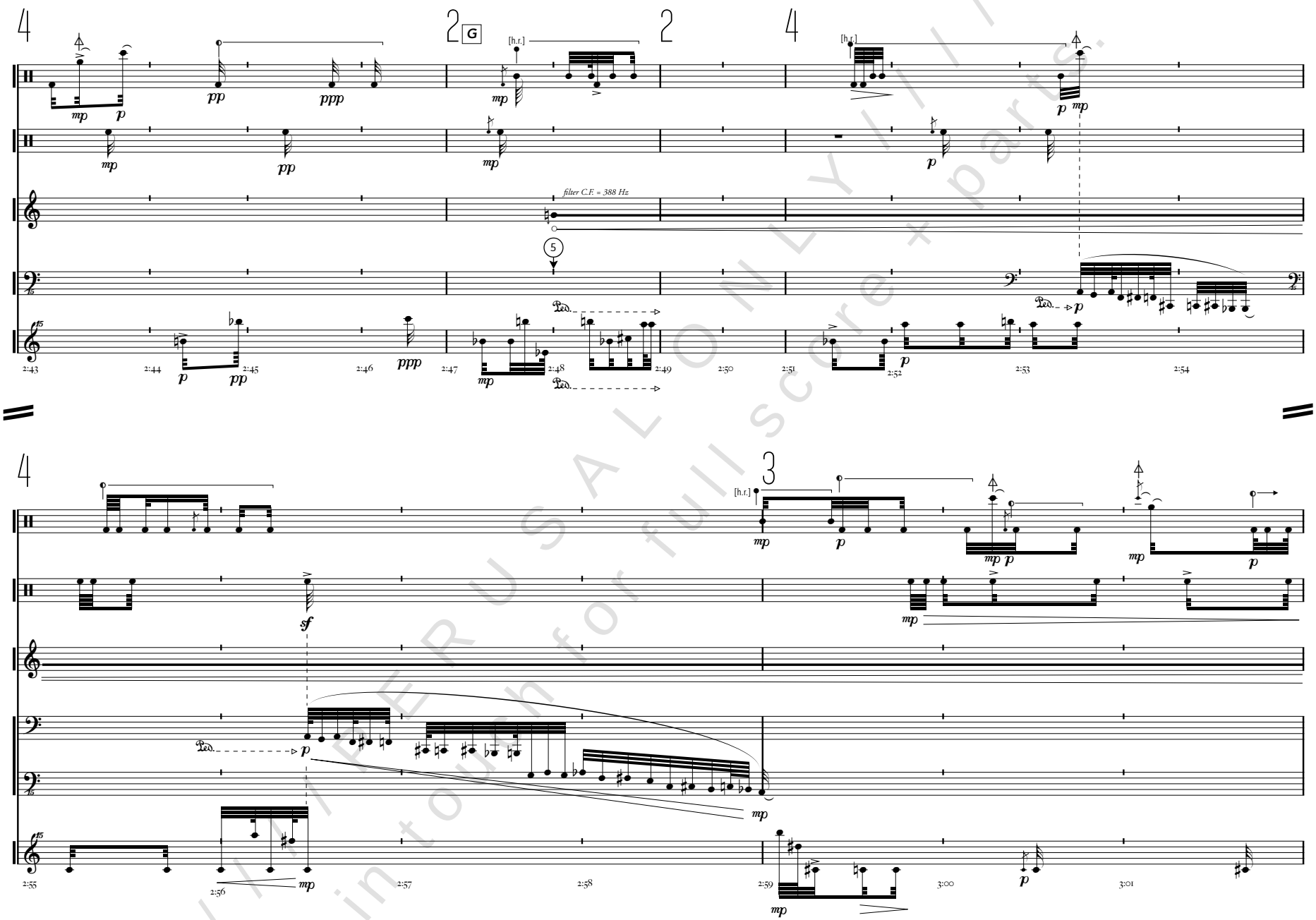


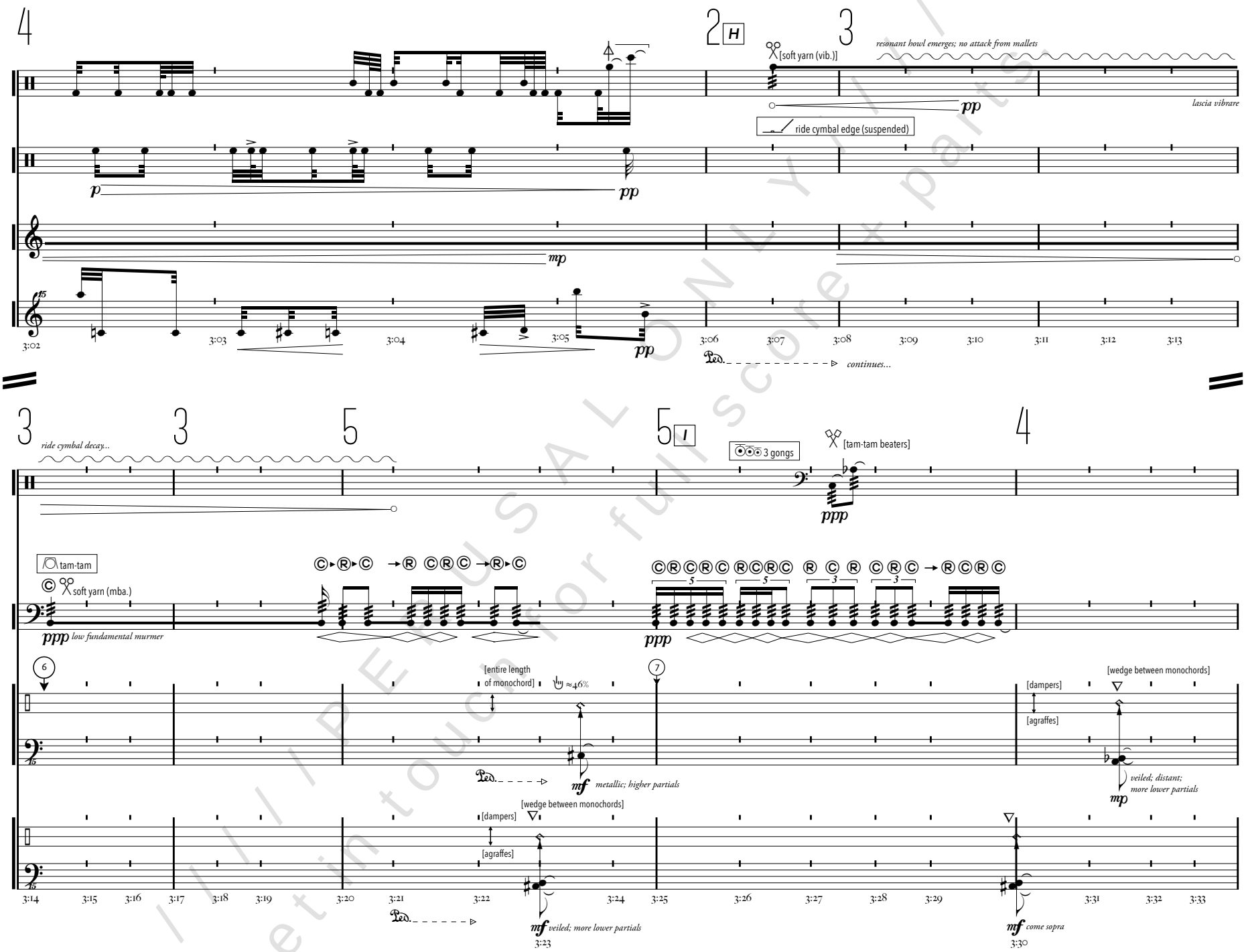


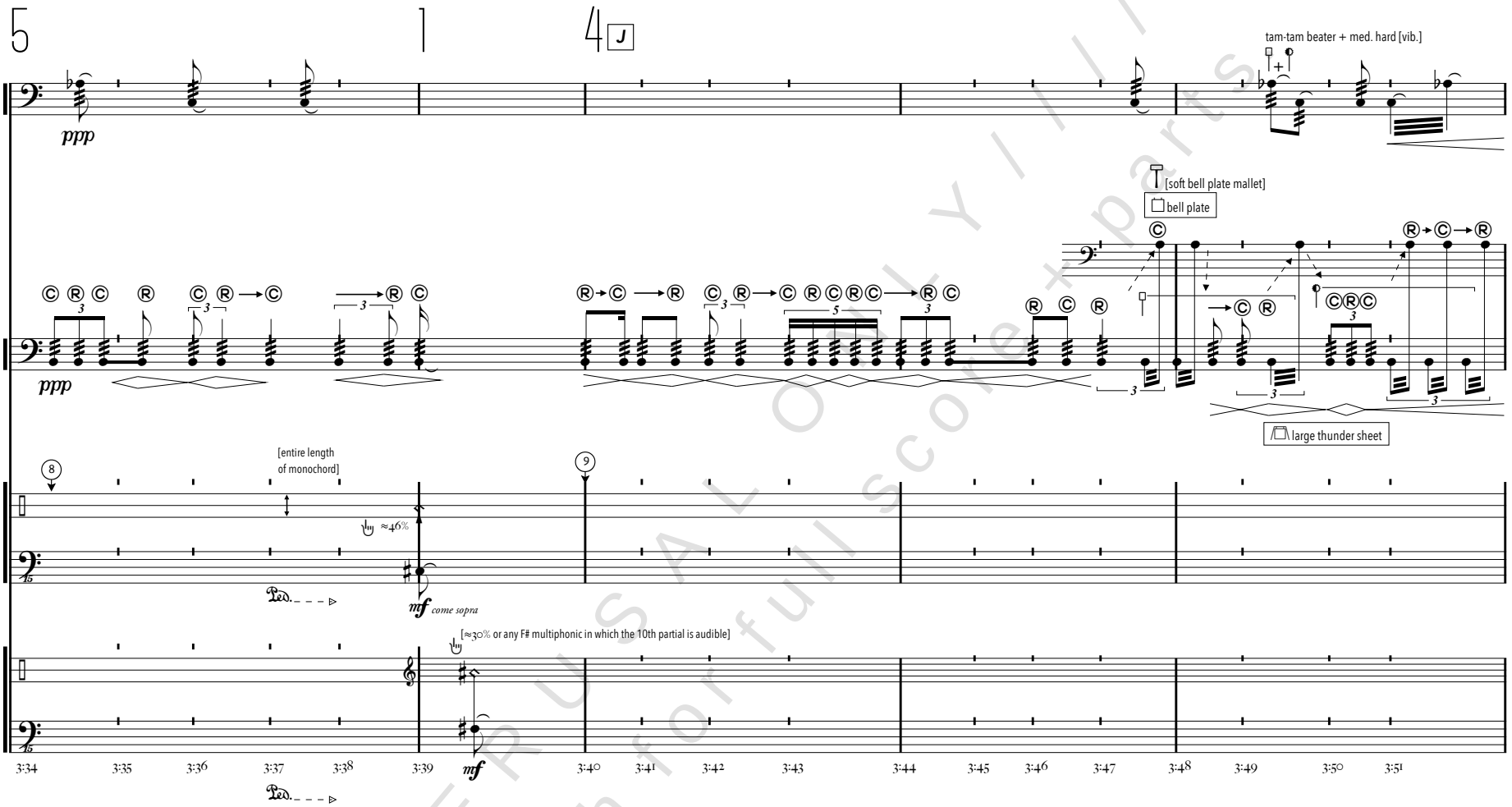


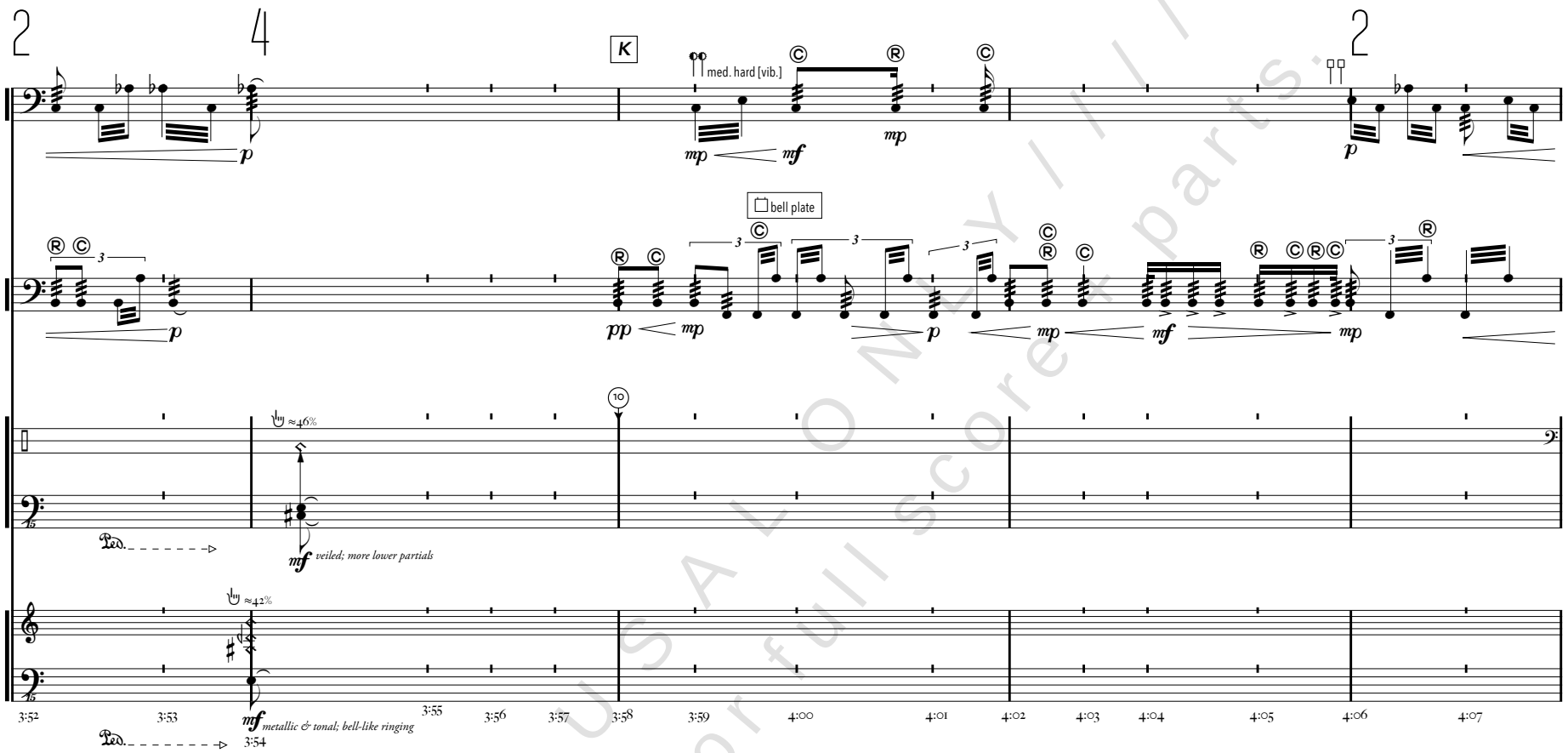


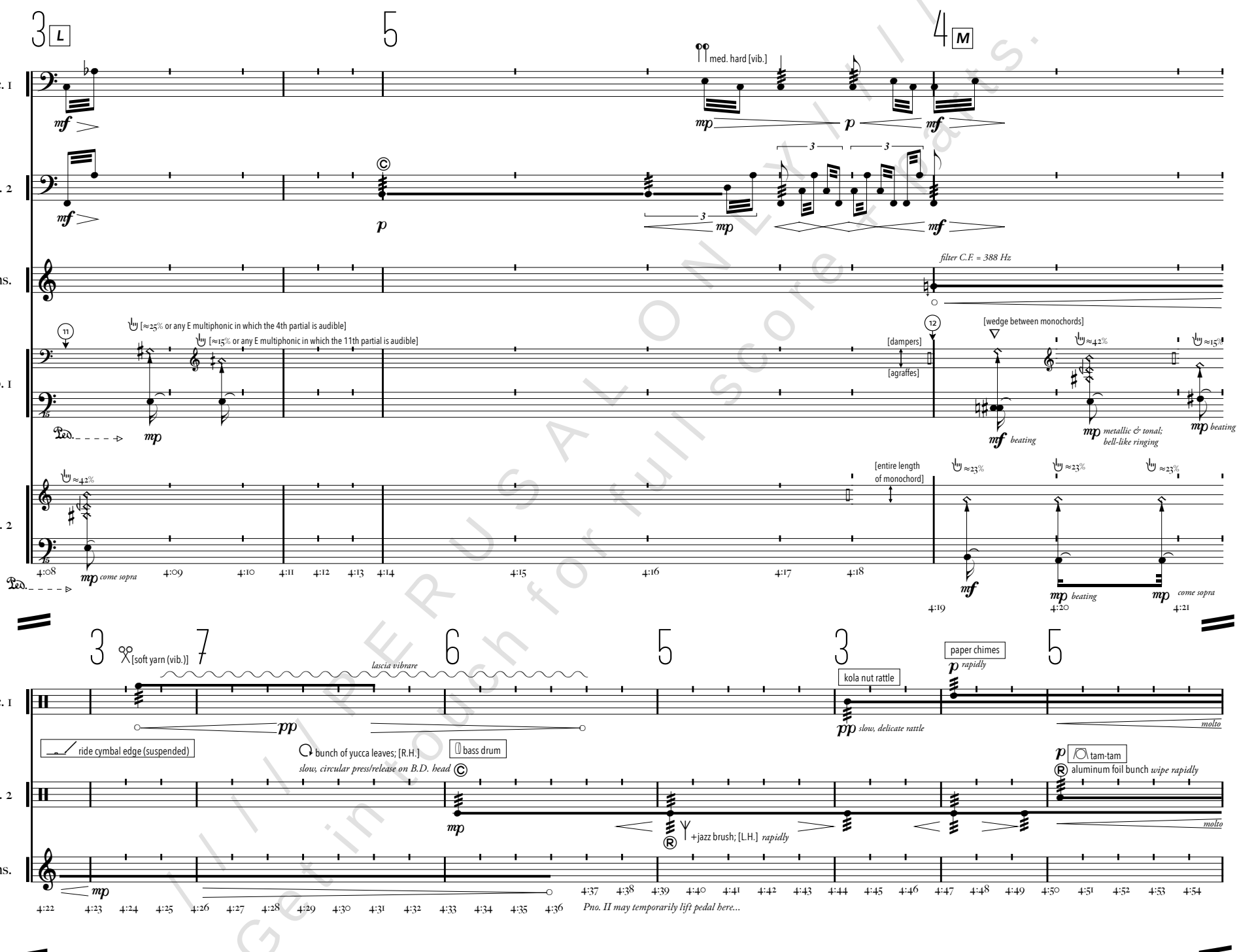


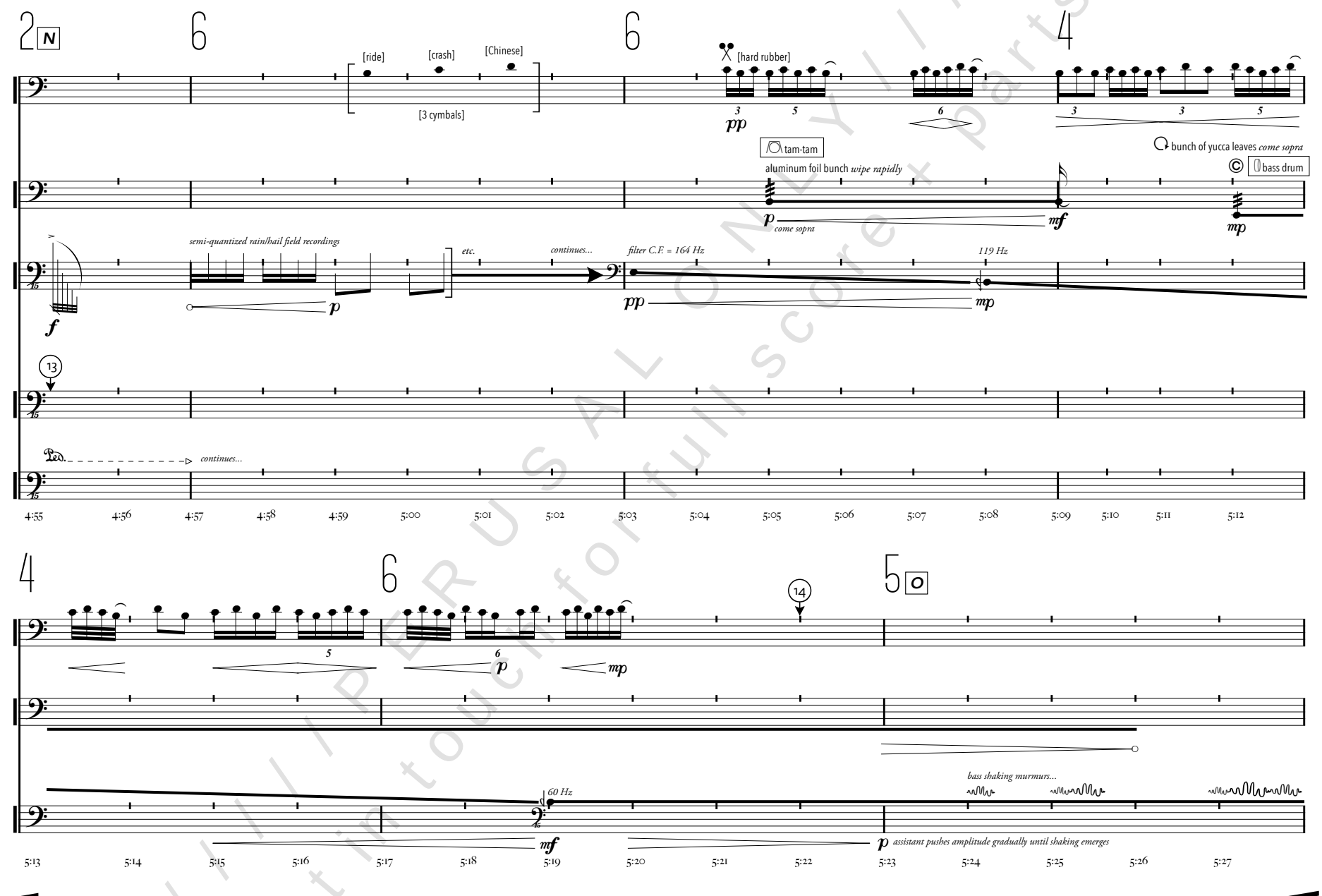


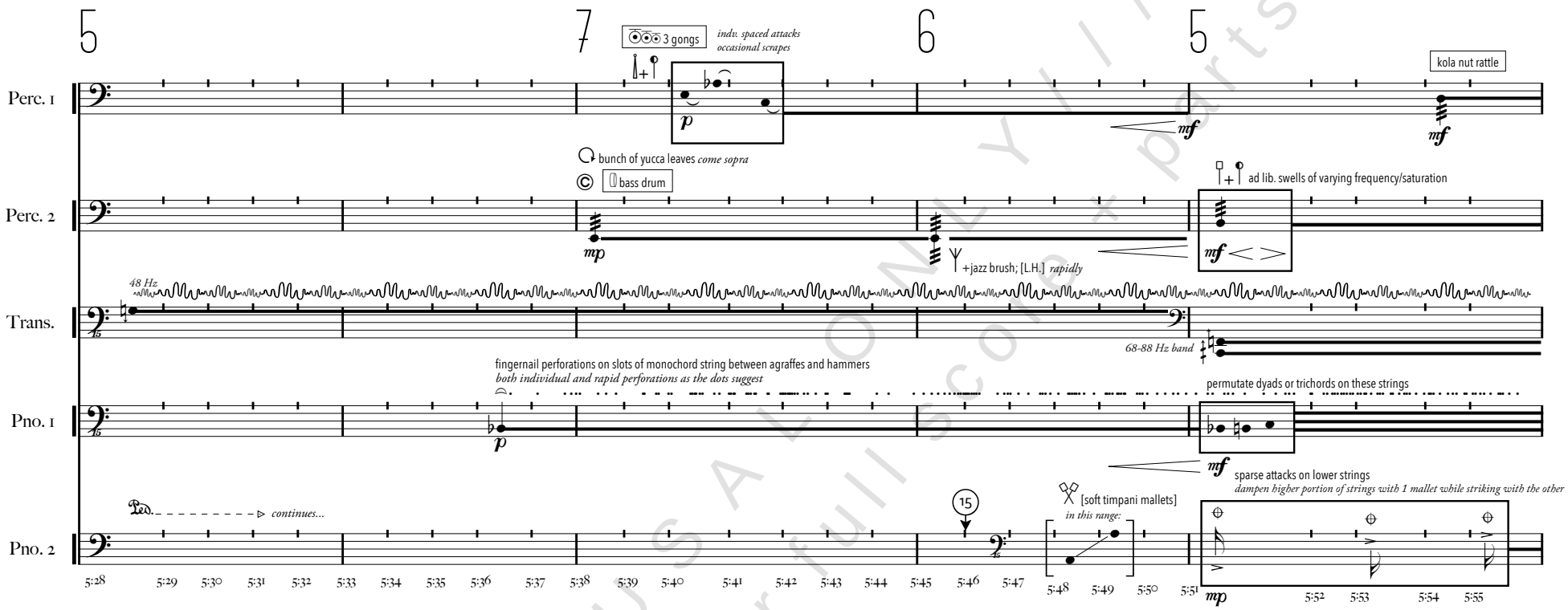


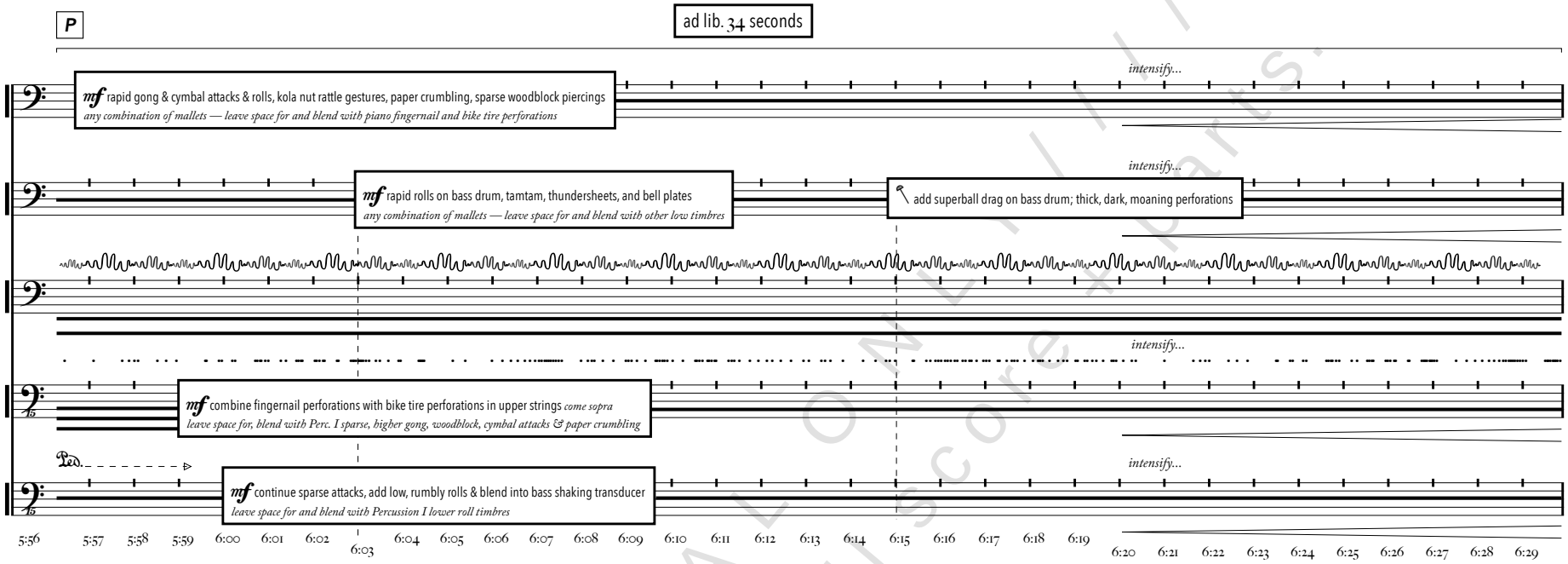


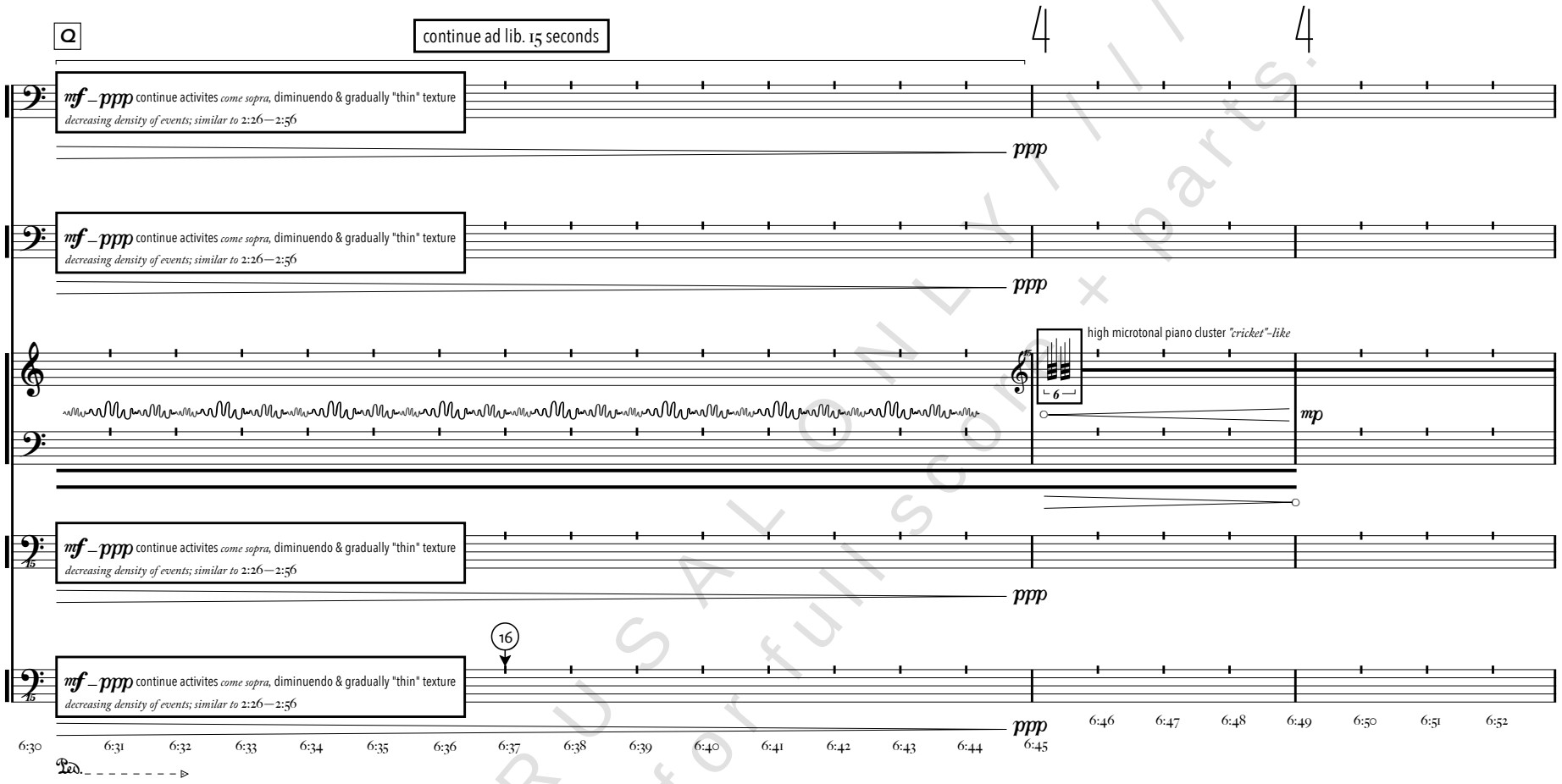


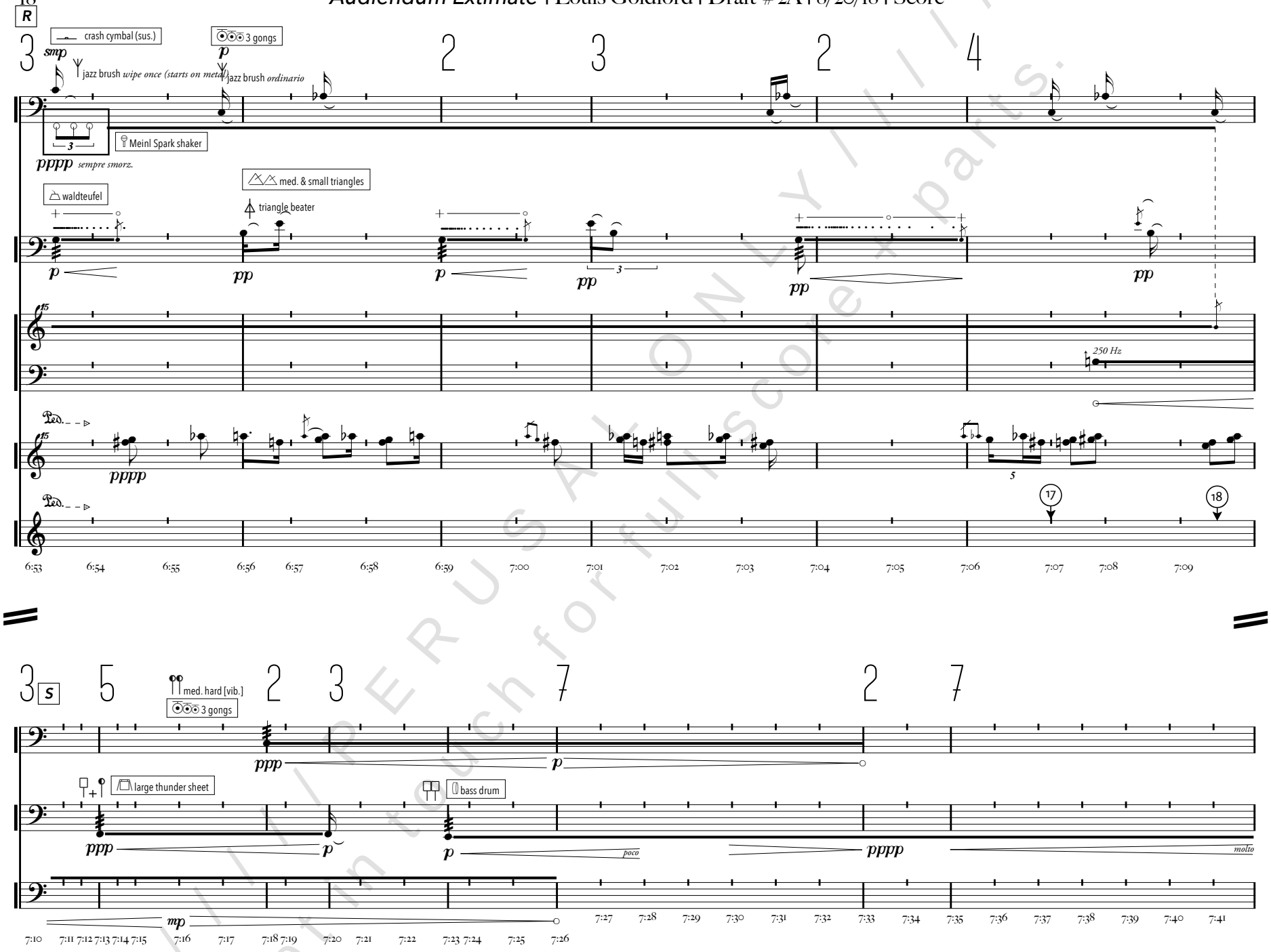


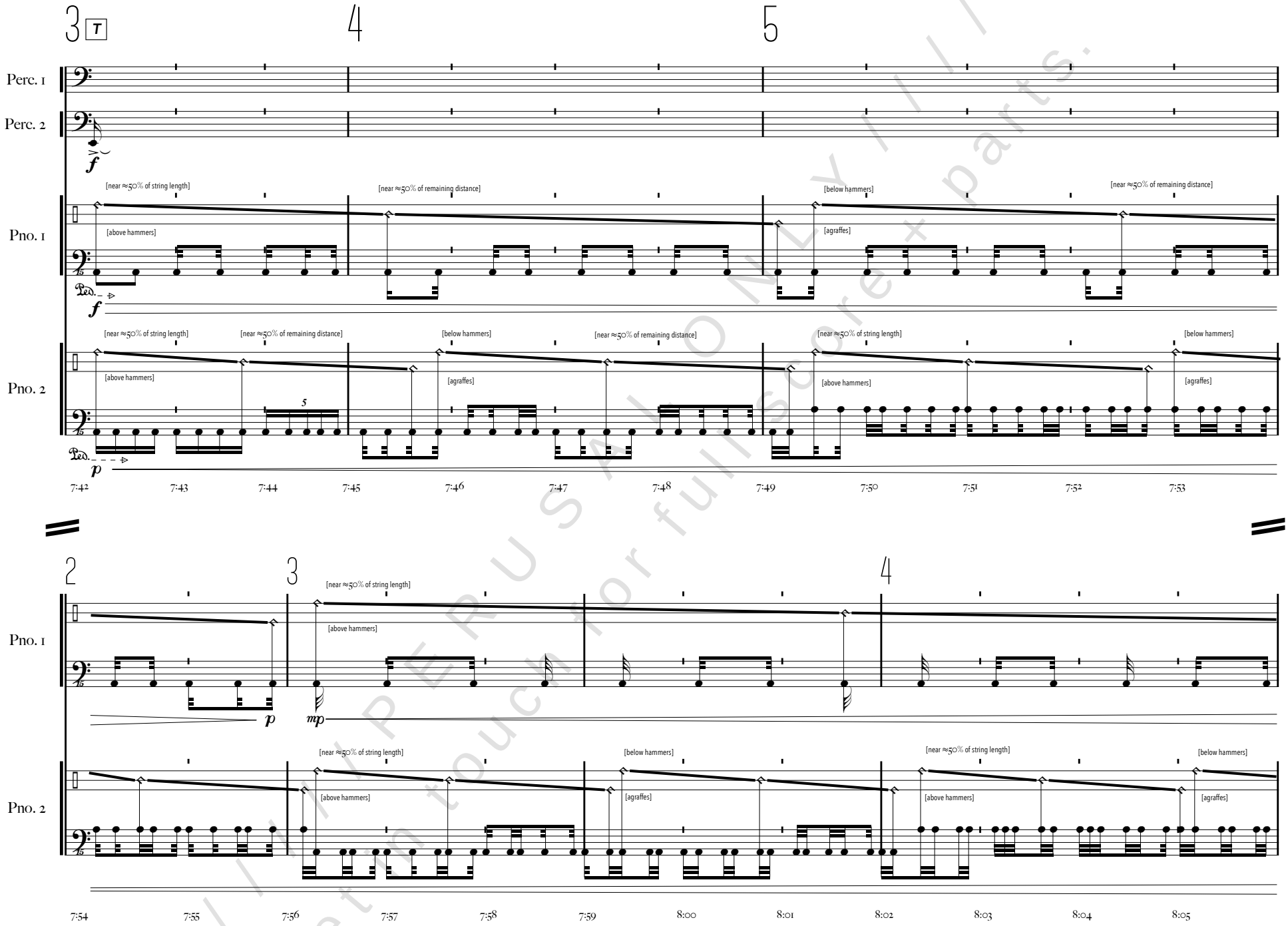


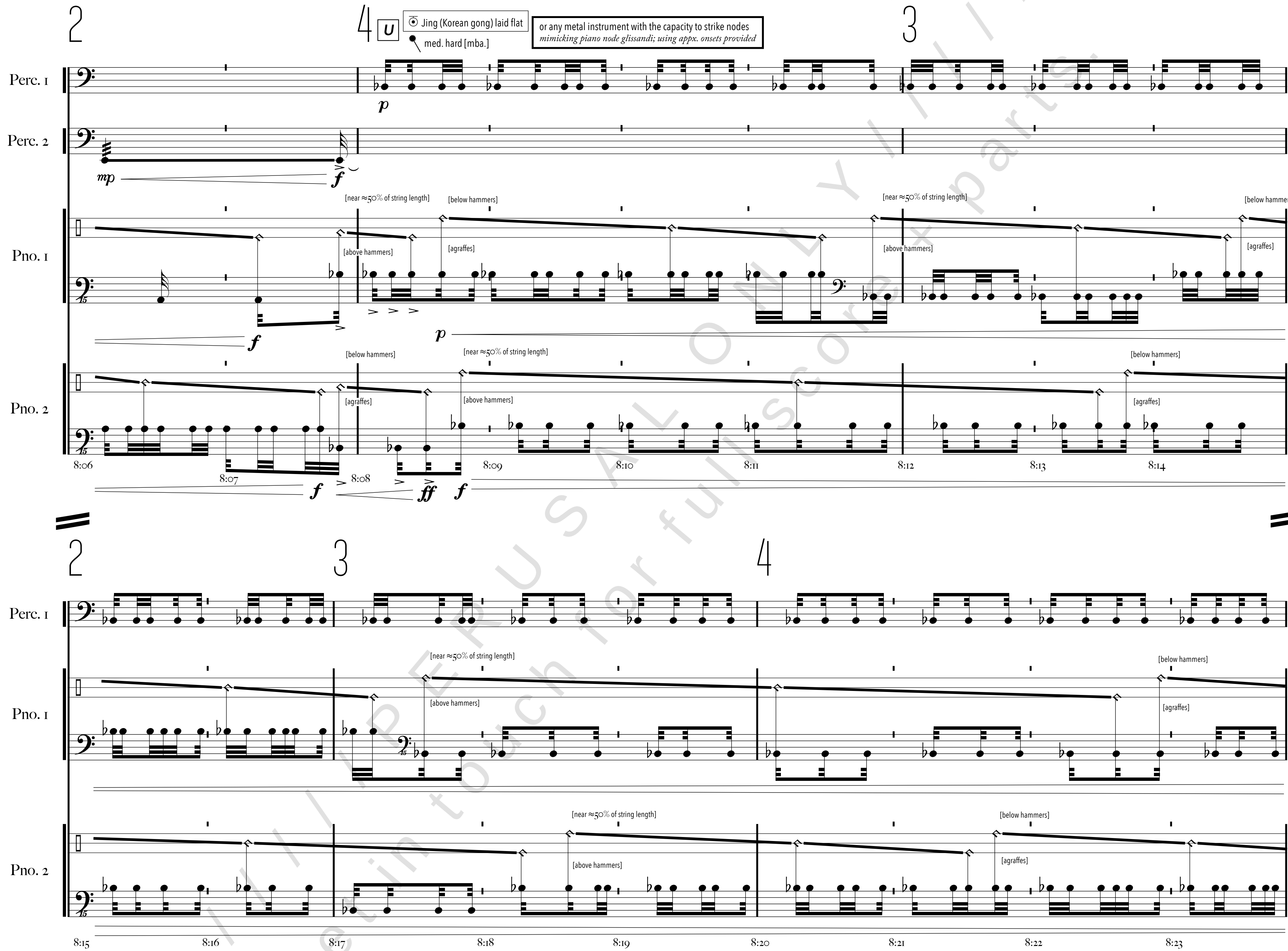


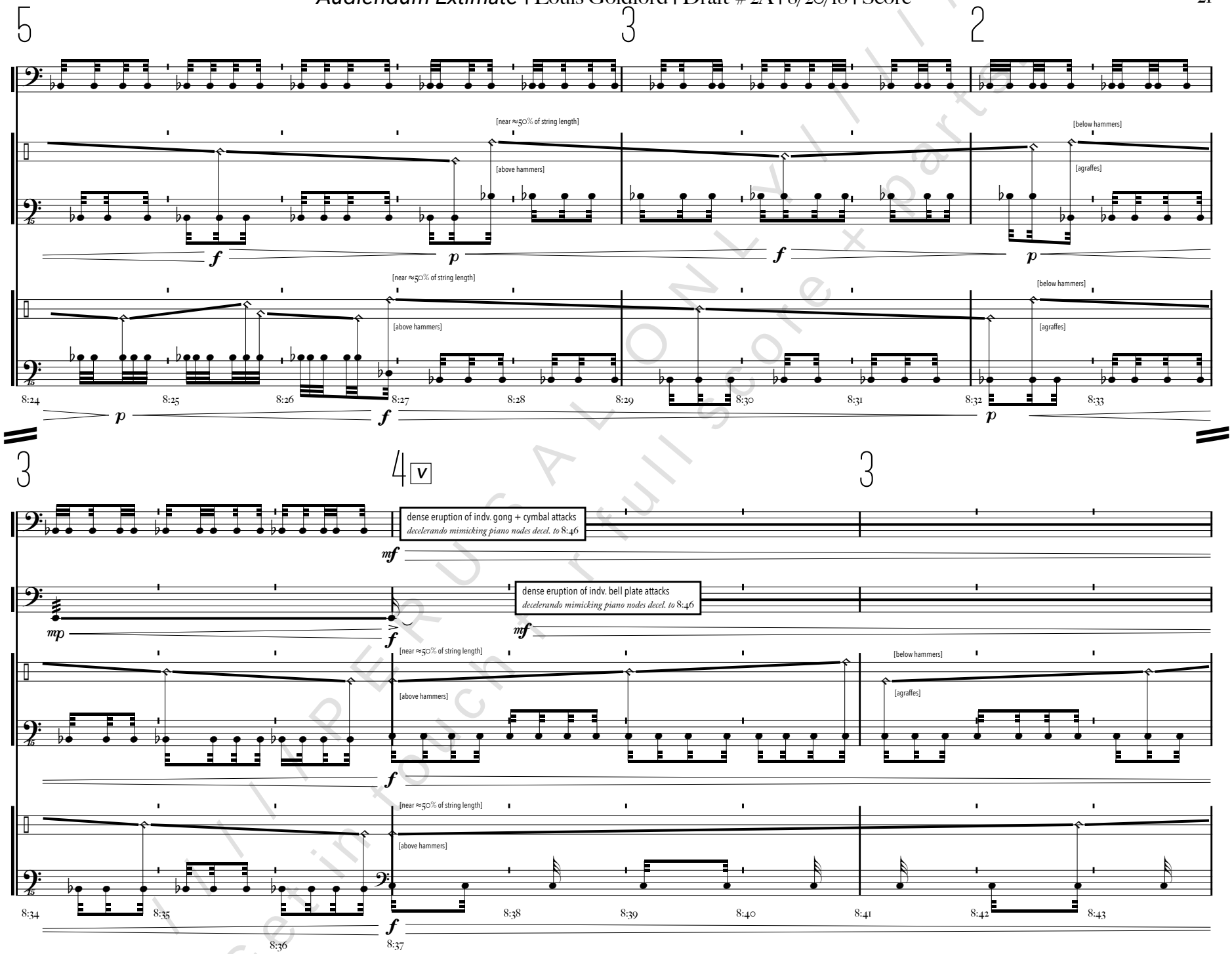


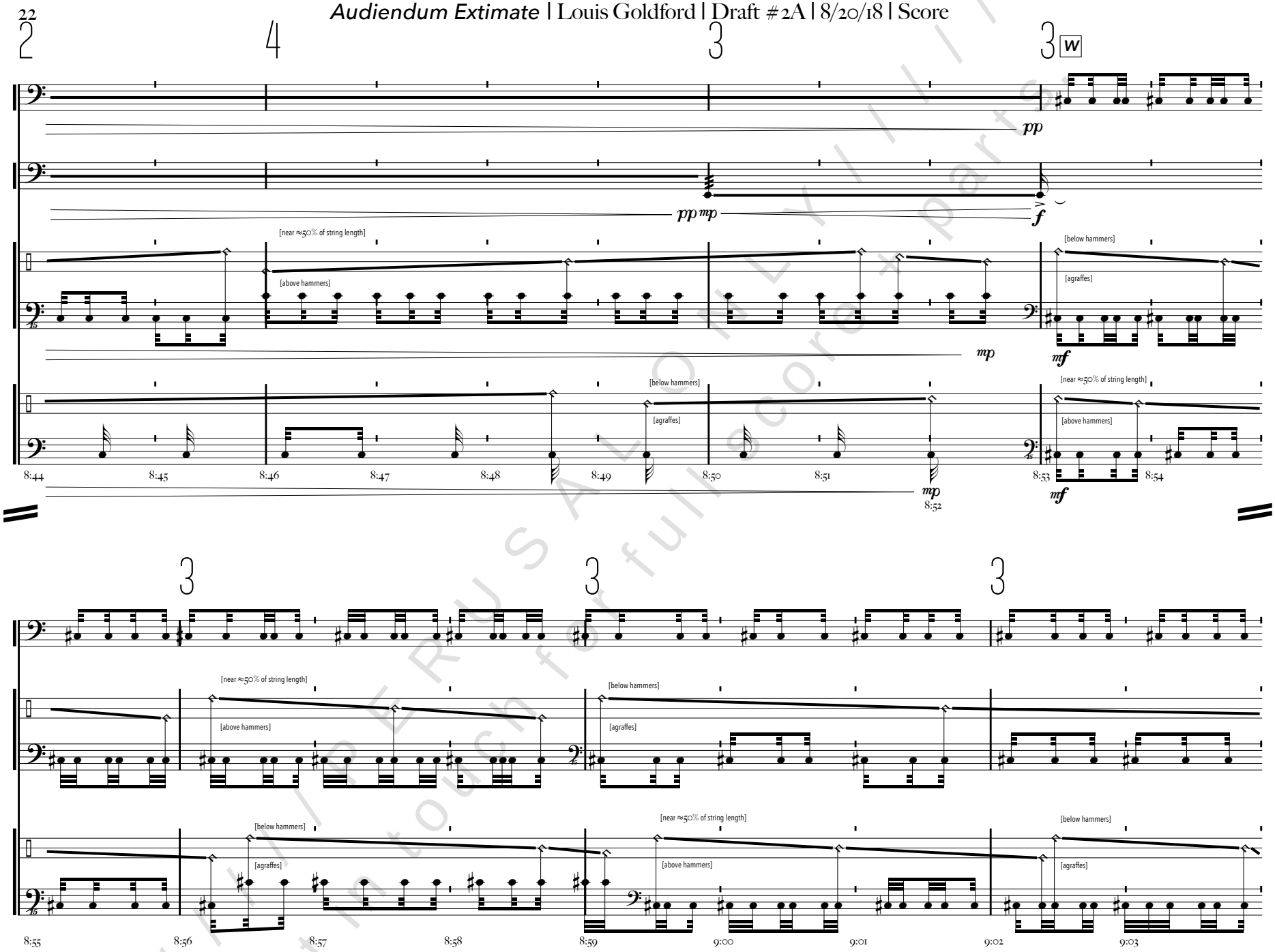


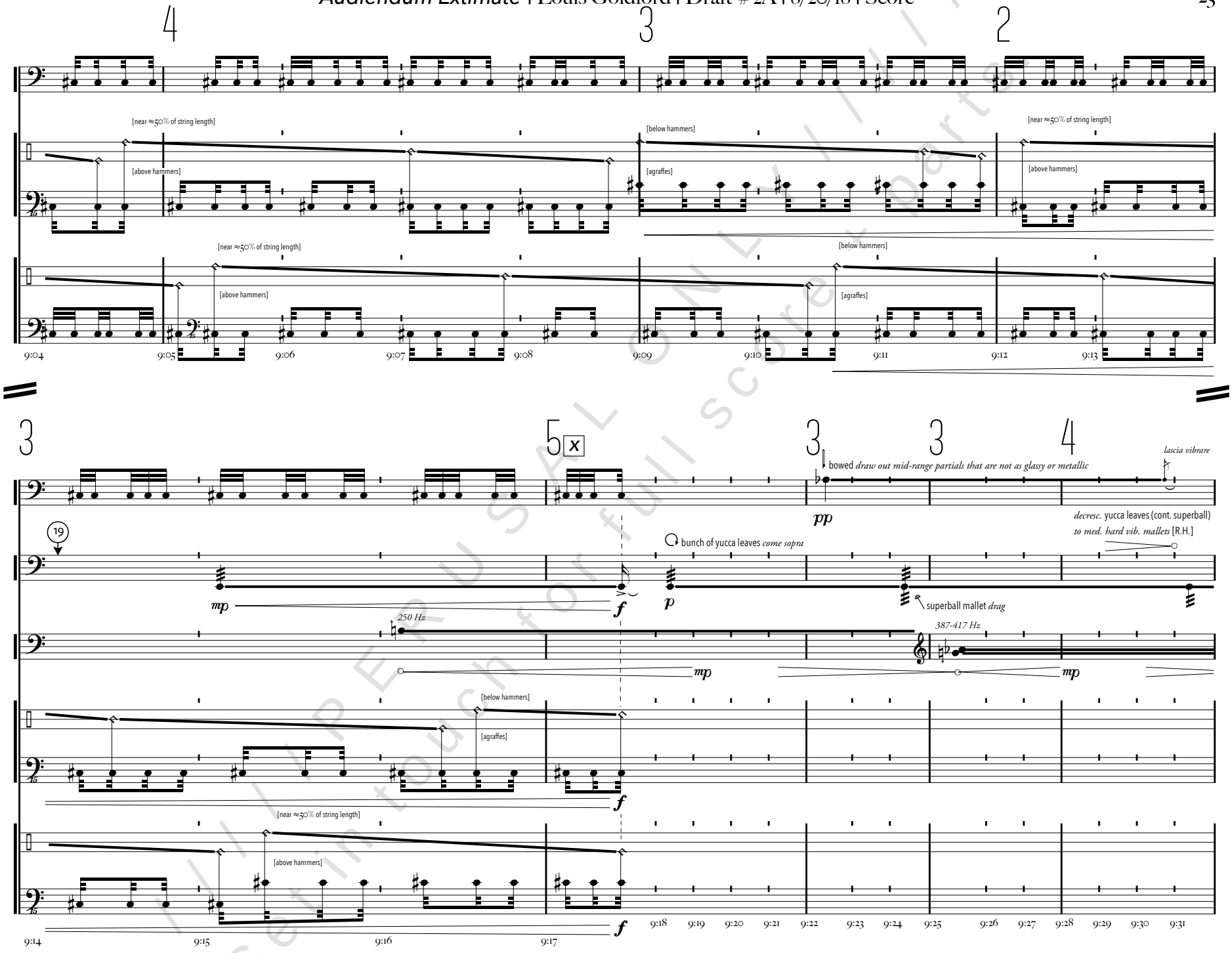


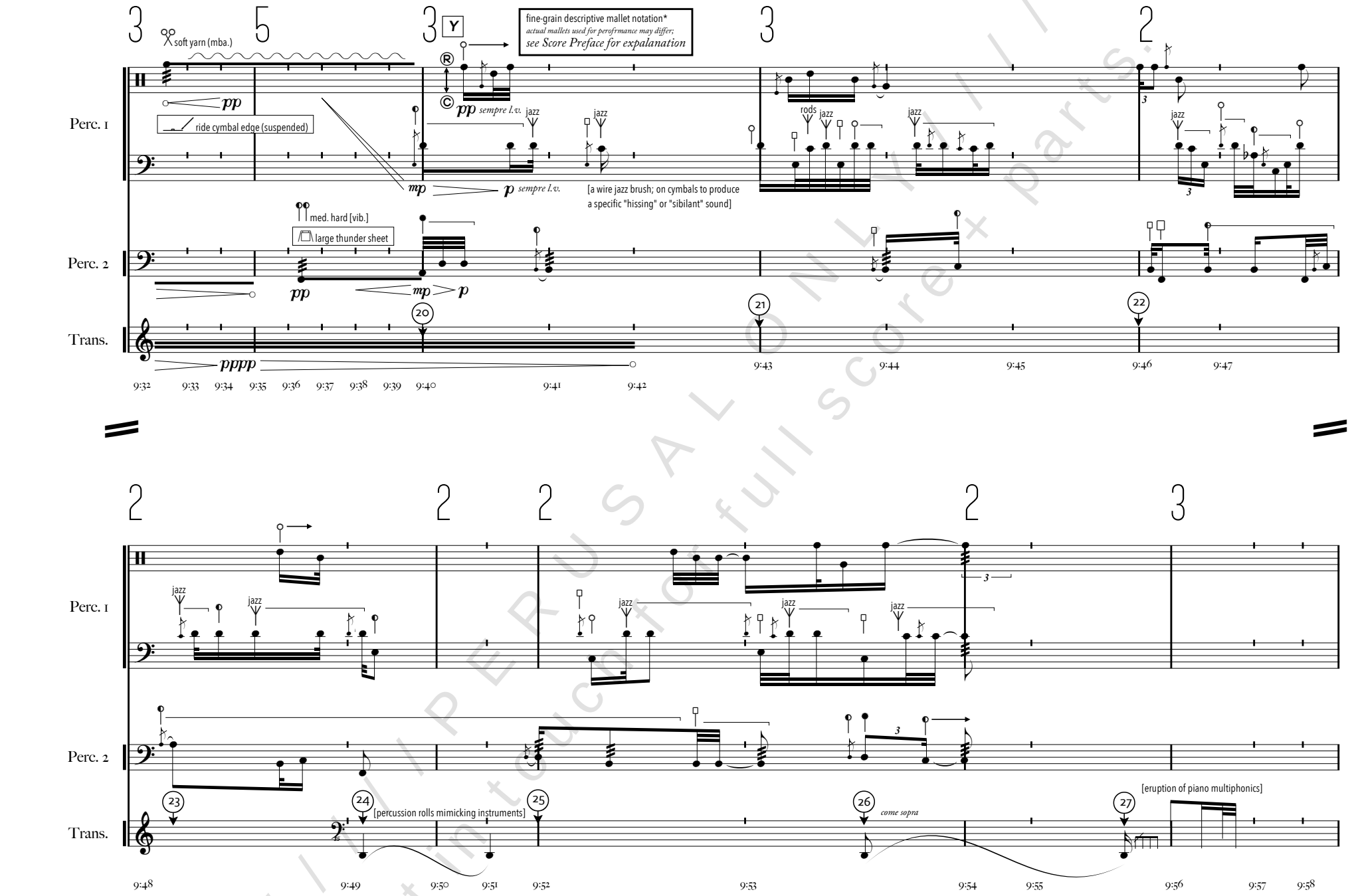


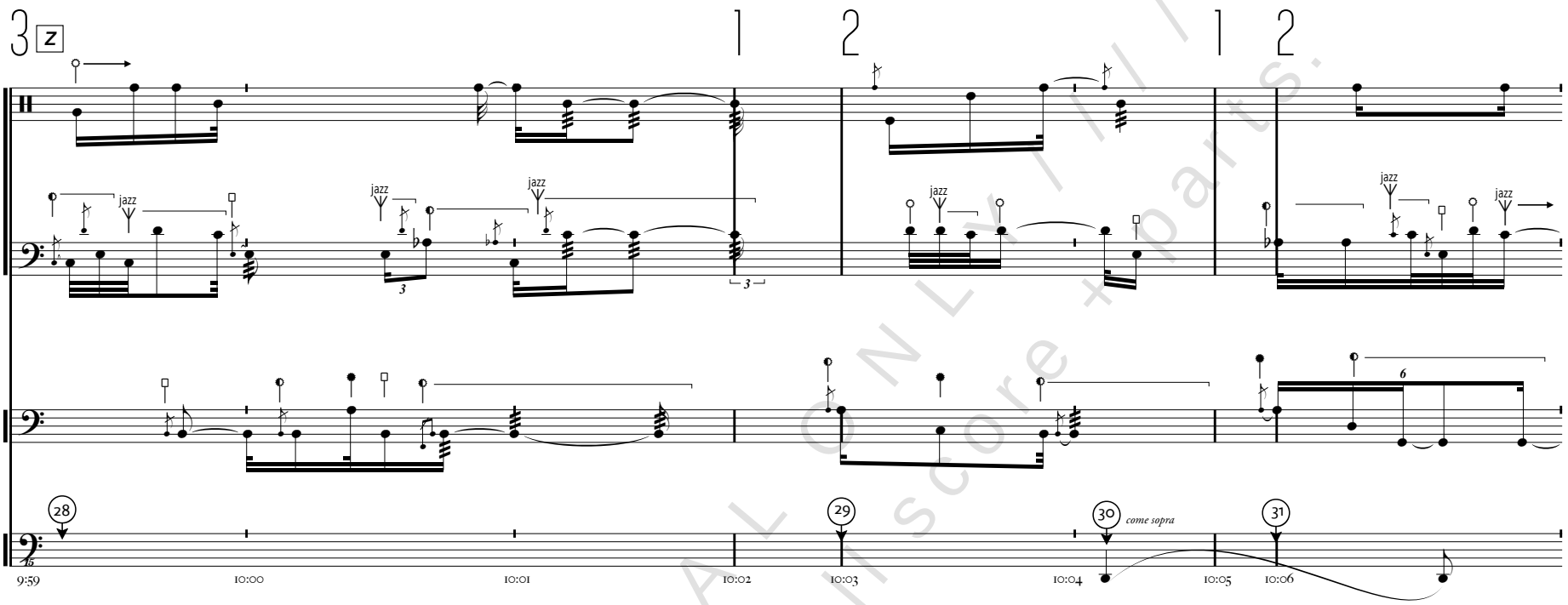


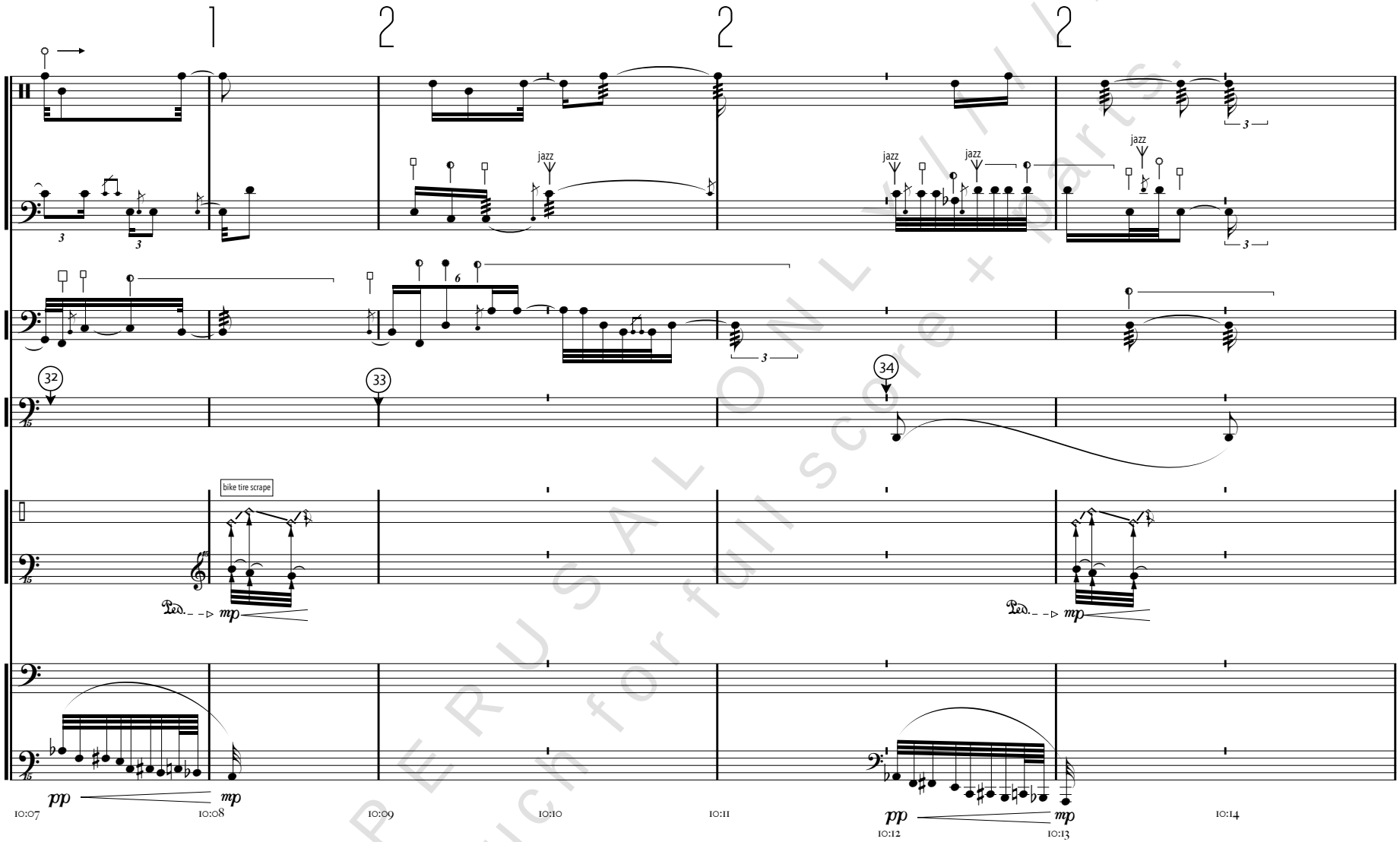


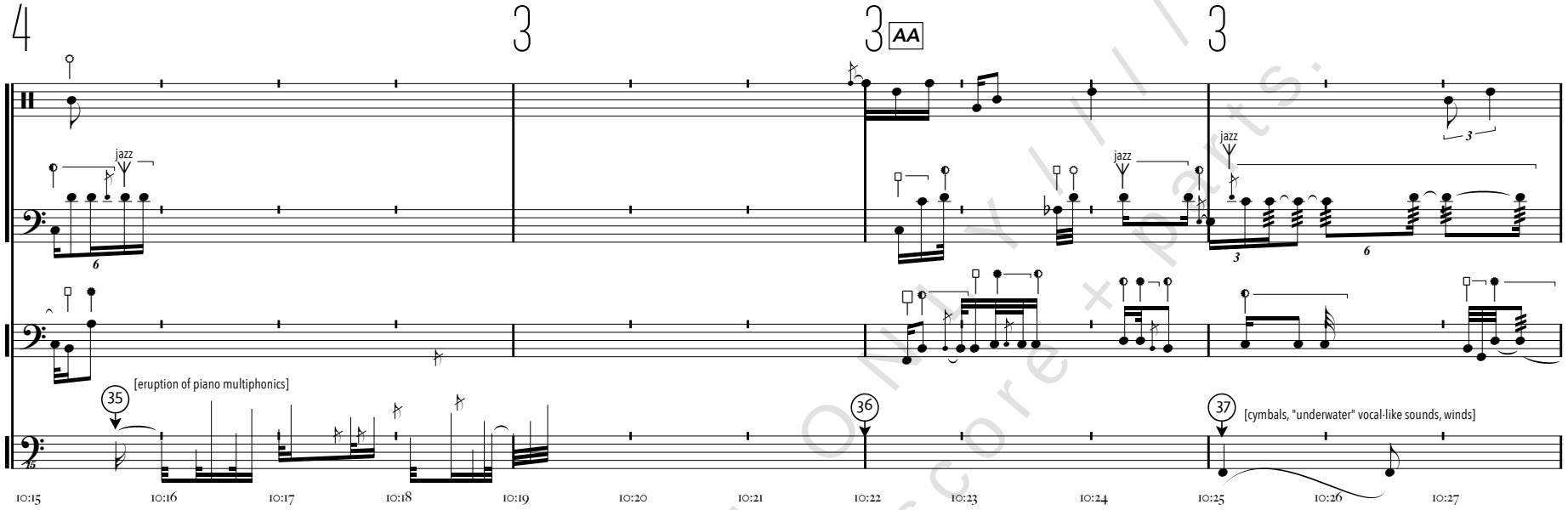


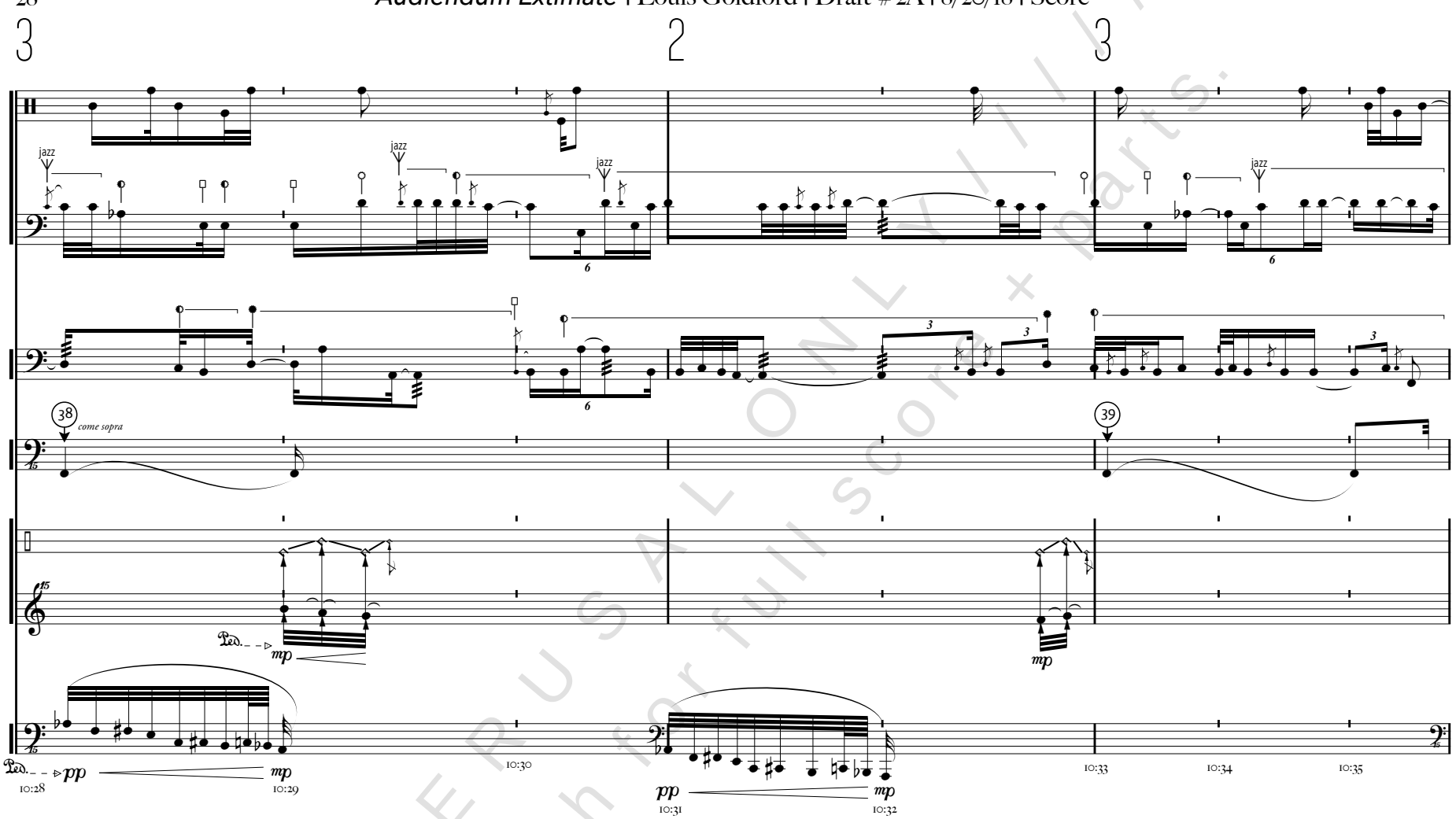


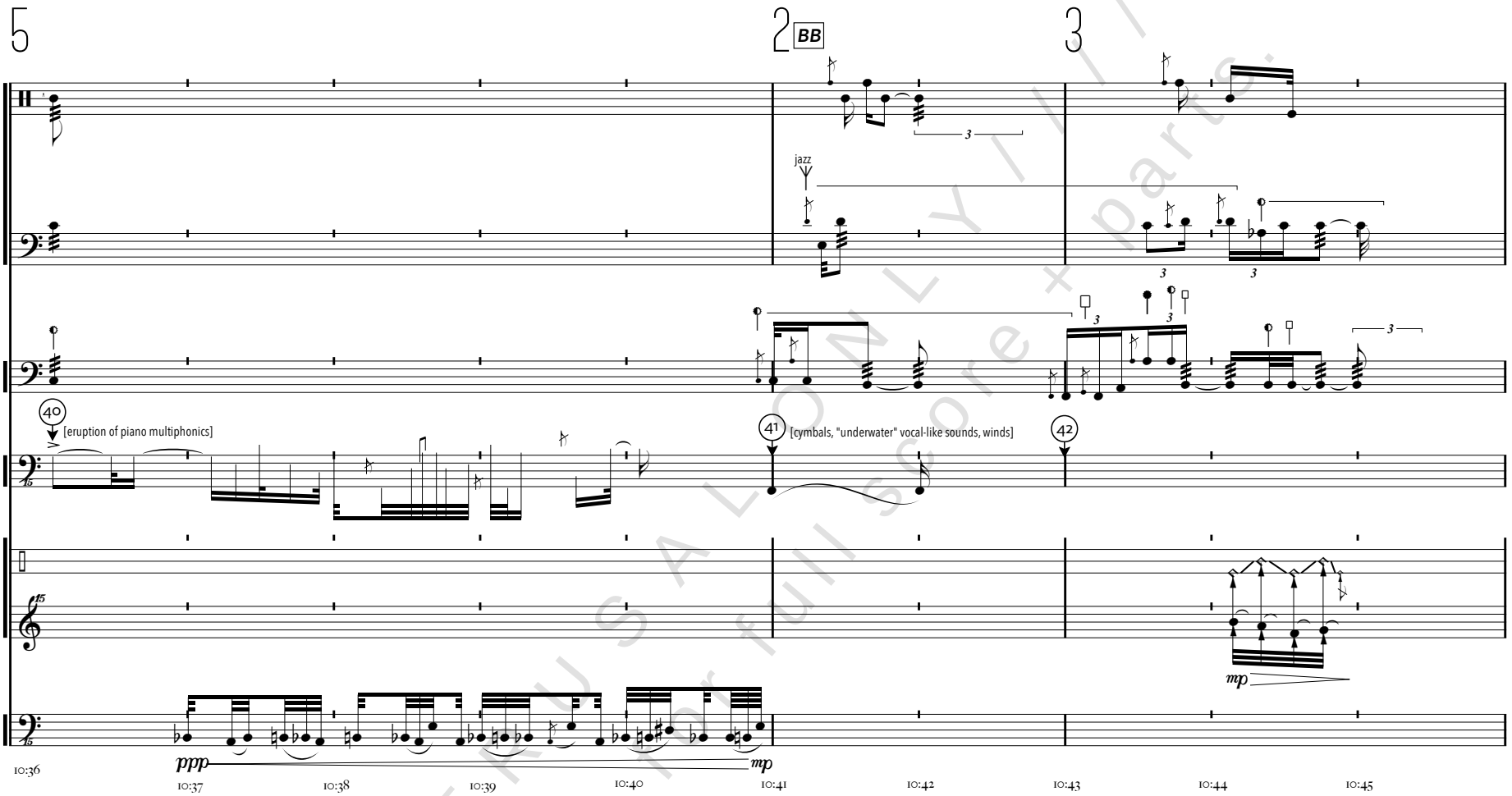


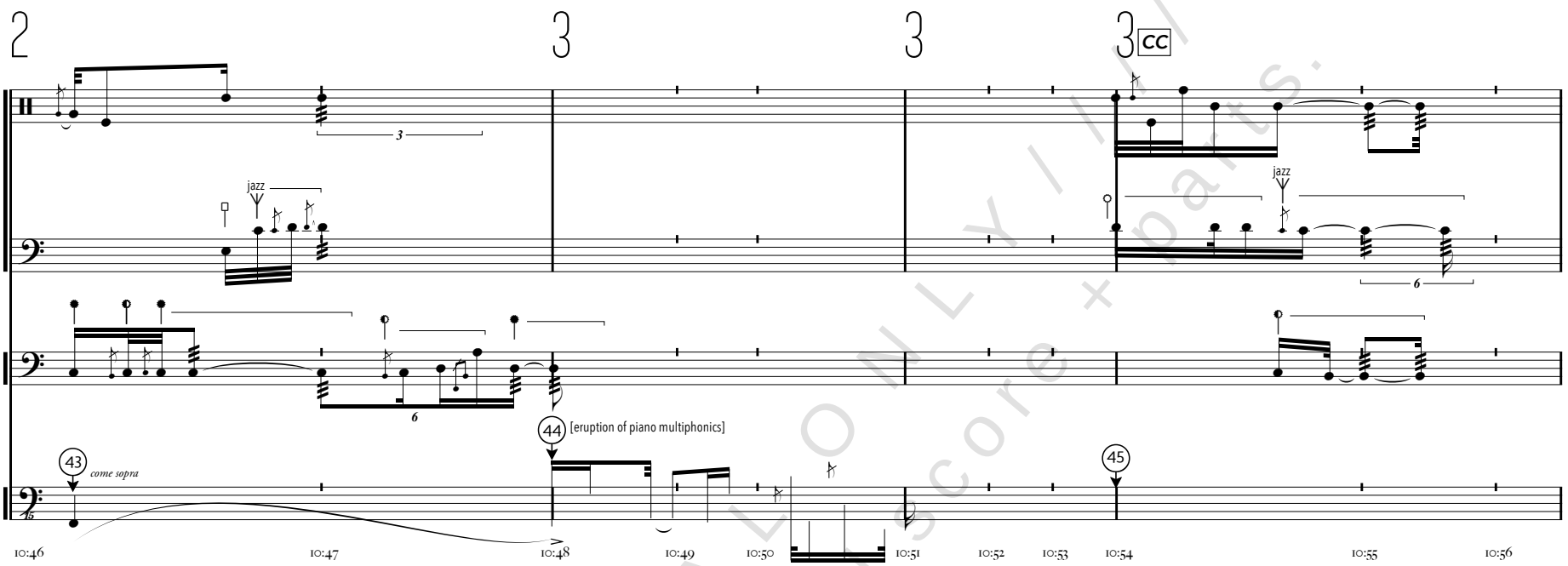


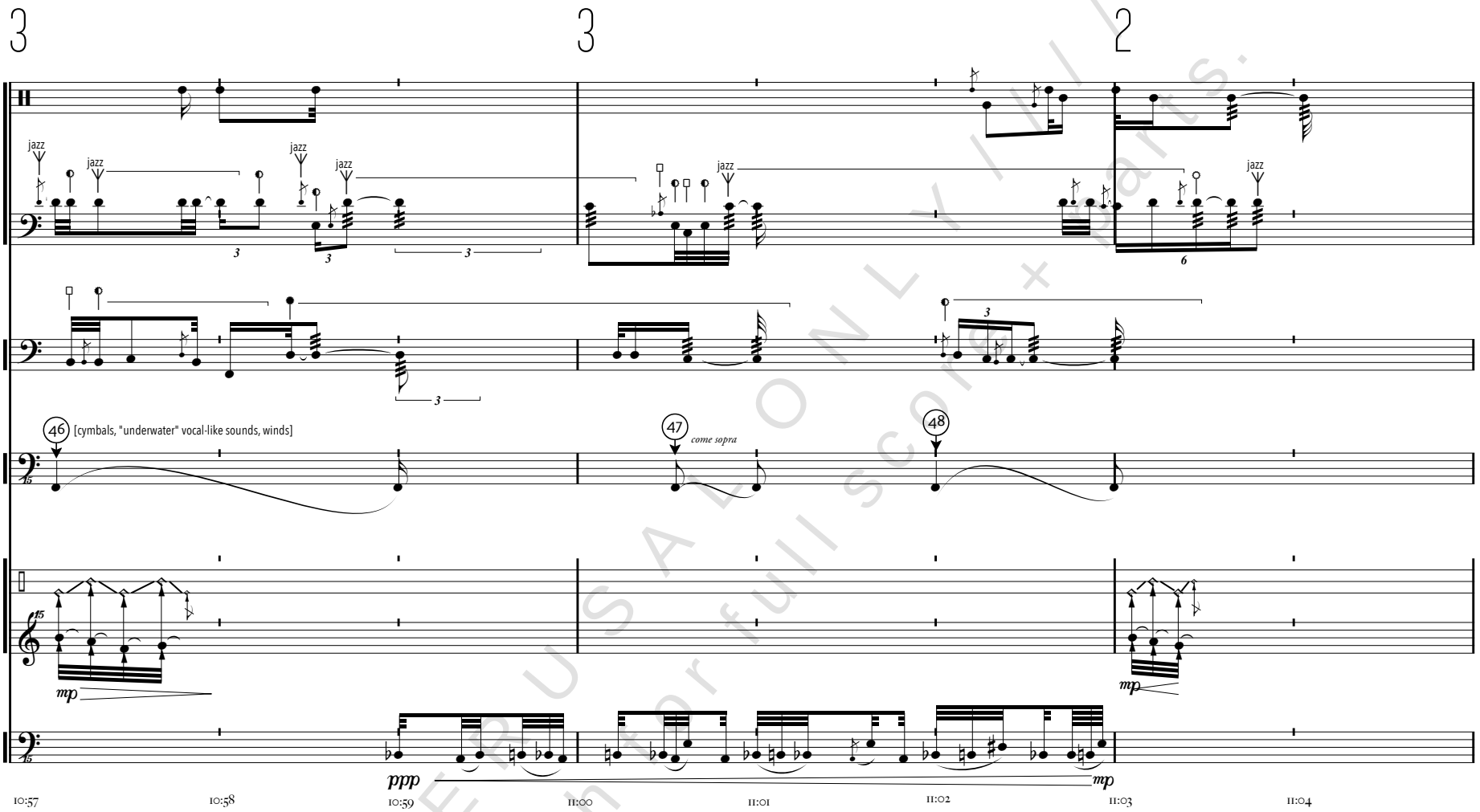


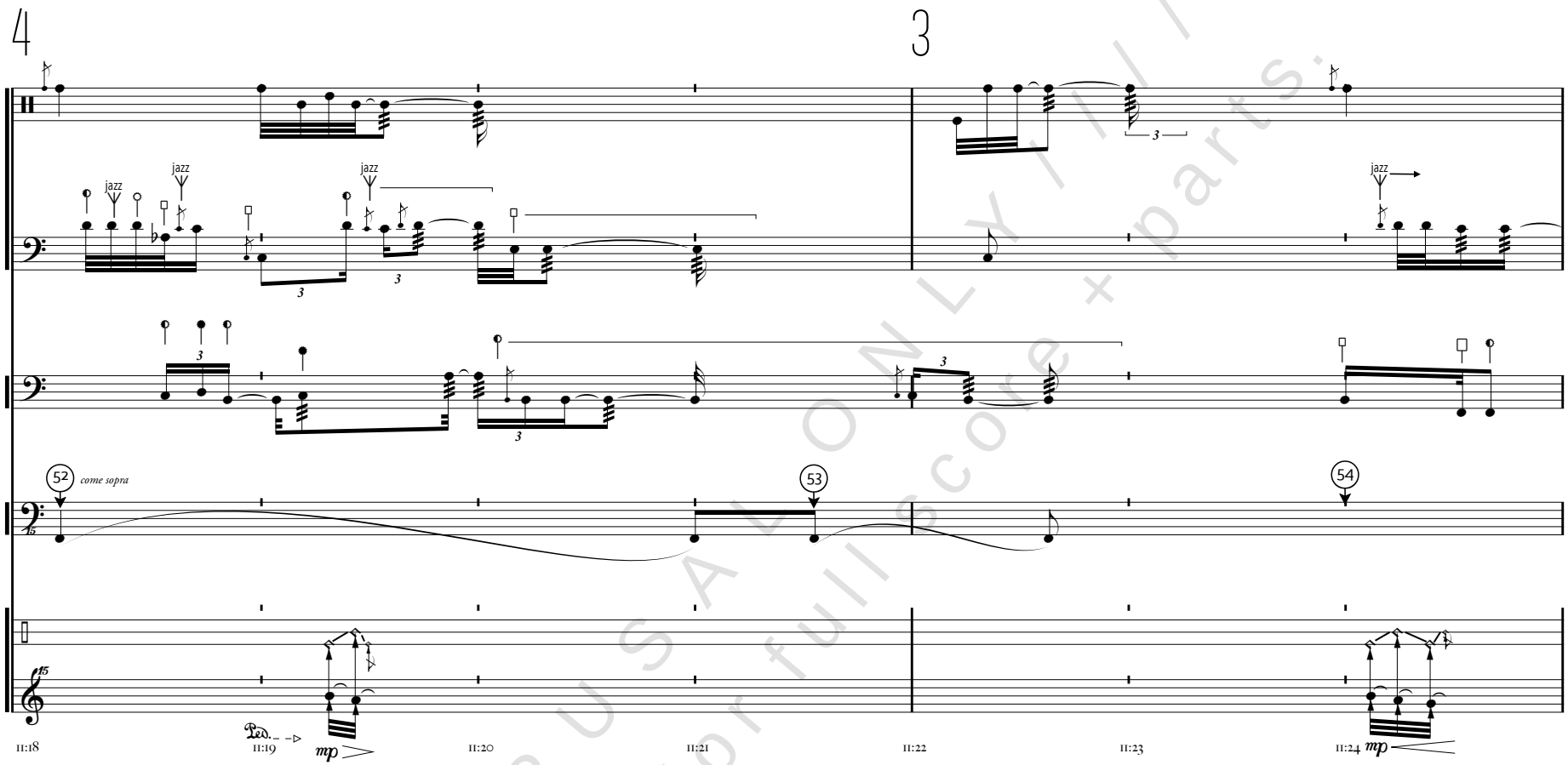


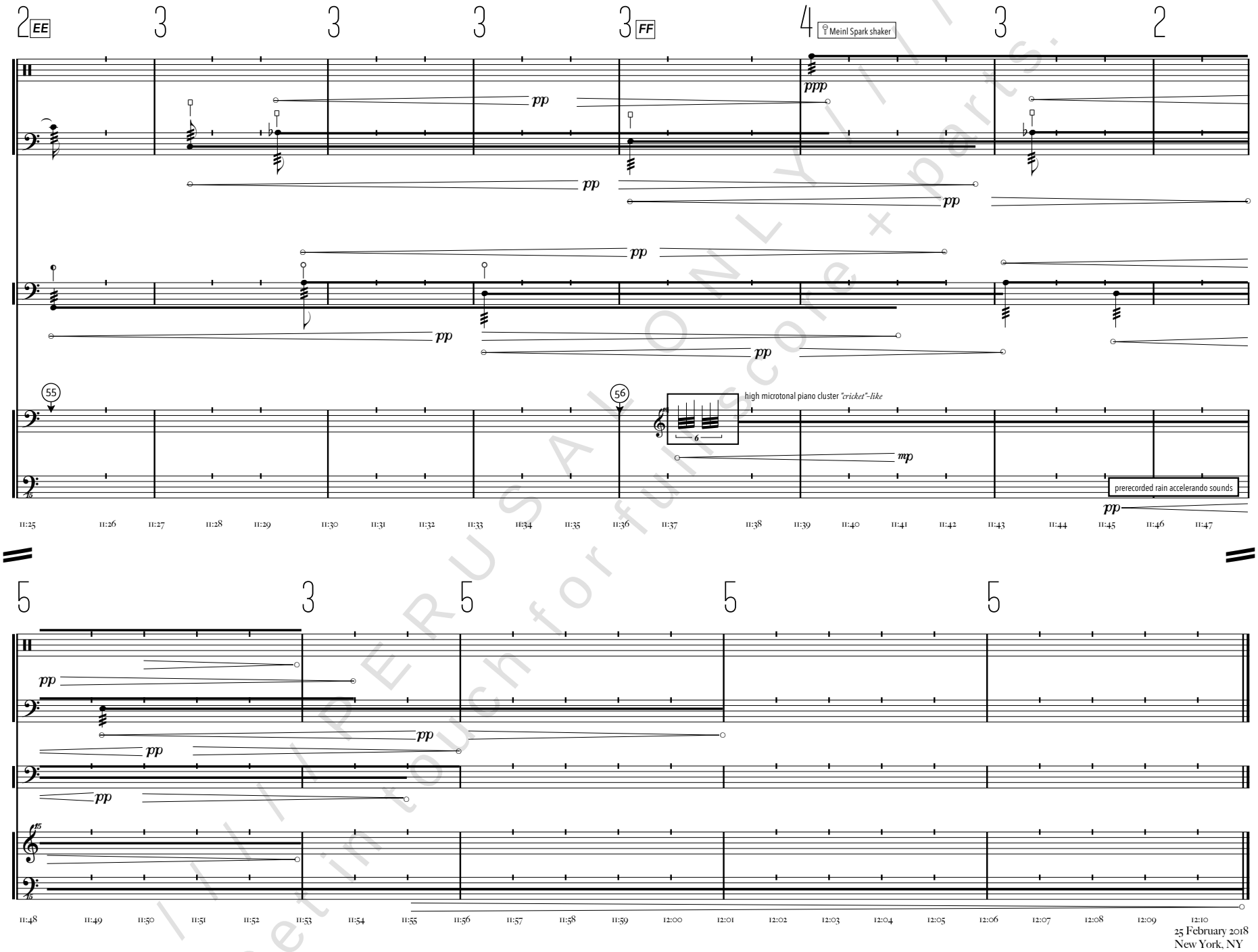












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