

daniel silliman

# scanner/scrawler

for violin, drones & live electronics

(2015-16)

*for clara kim*

## instrumentation

violin (amplified with dynamic mic + contact mic)

laptop (with Max 6 or later)

audio interface (with at least 2 inputs for the violin's mics and 4 outputs for stereo speakers)

4 speakers (+ subwoofer if available)

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the violin is tuned in the following way:



(the G and E strings, tuned normally,  
sound where they are stopped.)

the D and A strings sound one quarter-tone  
lower than where they are stopped.)

duration: ca. 11-12'

# violin key

most of the violin material is notated on three staves:

The top staff indicates bow pressure.

The central line is the point at which distortion enters into the sound, so a shape which crosses this line indicates an increasingly distorted tone as it approaches the top line.

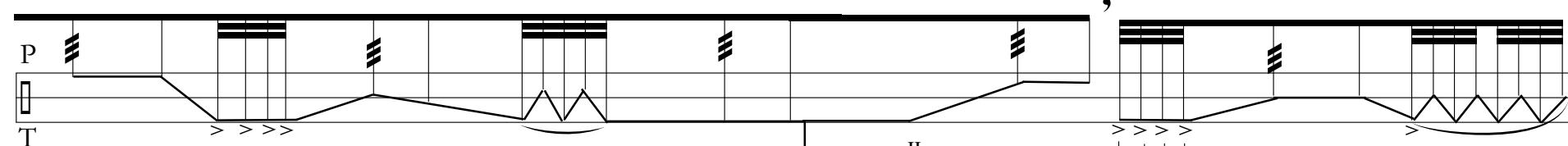
In this staff, an inverse relationship between bow pressure and bow speed is assumed (greater pressure = slower bow; lighter pressure = faster bow) *unless* the context dictates otherwise, e.g. fast bowstrokes w/ heavy pressure, or, a verbal indication (e.g. "slow", "fast", etc.) is given above the bow pressure shape.

When bowing the strings (as opposed to other parts of the instrument), think of a fully shaded staff as about 90% noise, 10% pitch, such that changes in string bowed, notes stopped, etc., still make for slightly audible differences.

A barely shaded staff indicates a minium amount of pressure, usually *flautando*.

## note about dynamics/expressive markings:

As bow pressure, to a certain extent, will dictate the sounding volume as well, this staff often implicitly indicates dynamics. Occasionally, though, conventional dynamic markings and character descriptions are given as a kind of guide in order to make poetic (or 'musical') sense out of some gestures and phrases. Maybe these can be thought of more like a 'mindset', or a 'mood'...

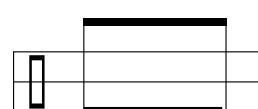


The second staff indicates bow action and bow placement.

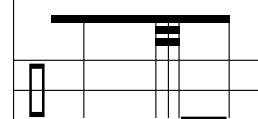
The top line indicates extreme *sul pont.*, the middle line indicates *ord.*, the bottom line indicates extreme *sul tasto*, with gradations in between.

Special verbal indications are sometimes given when a more precise bow placement (or technique, e.g. *col legno battuto*) is called for.

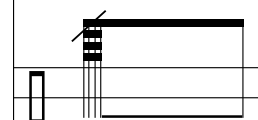
Nearly all actions of the bow are executed *on* the string:



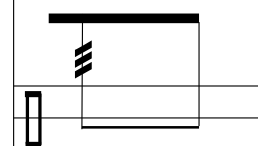
an unbroken beam indicates continuous contact with the bow on the string(s). The ends of the stems are tied together in order to distinguish the ceasing of bow contact with that of another re-taking of the bow.



stems which are not tied-over indicate a re-articulation of the bow



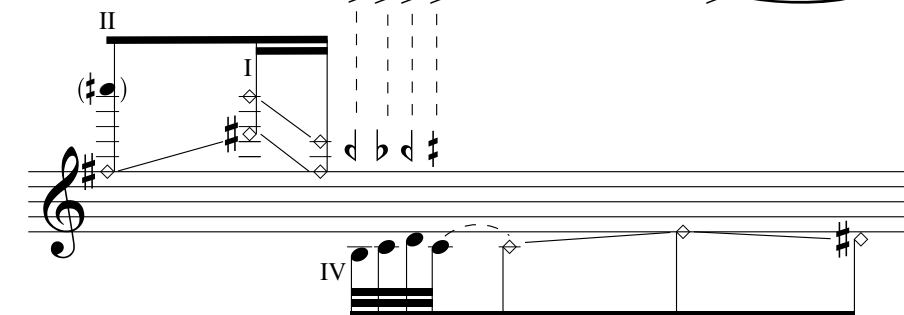
*gettato*; approximate the number of bounces based on the duration of the figure



*tremolo*; as above, the second, tied-over stem indicates the point at which the action ceases, and is not a re-articulation of the bow; *tremoli* are always as fast as possible.

N.B. Slurs indicate the actions take place under a single bow; in the slurred passage in the above example, this indicates moving the bow vertically back and forth from *molto sul tasto* to *ord.* while drawing the bow in a single horizontal stroke across the string. To help distinguish between ties and slurs, curved ties are not used in this staff.

The 4-line staff (e.g. p. 11) indicates bow actions behind the bridge.




The third staff indicates actions of the left hand on the strings.

By extension, this staff also indicates which strings are being bowed. With the exception of open strings, strings that are not being stopped by the left hand are not bowed by the right. Roman numerals clarify ambiguous cases.

- (●) stop string at notated position normally.
- (◇) stop string at notated position with harmonic pressure.
- (◆) stop string at notated position forcefully, percussively
- (-----) continuous transition between string stopping techniques
- (♯ / ♭) raise/lower a quarter-tone
- (↑ / ↓) raise/lower by an indeterminate amount, less than a quarter-tone

Accidentals apply only to the notes they precede. Tied over notes maintain their accidentals only for the duration of the tie.

trills are executed for the duration of the  line

(⊕) mute indicated strings with left hand to prevent open strings from ringing

N.B. When discrete natural harmonics are called for, their node, as well as sounding pitch (given a quarter-tone flatter for natural harmonics on II & III) are indicated. *These are the only instances where music on the retuned strings is notated where it sounds.*

## rhythmic scheme

In the piece, there is no tempo or meter *per se*. These were eschewed in favor of a proportional notation system, in which the horizontal distribution of actions indicates relative density or sparsity of activity:

For most of the piece, a constant horizontal distance of 18mm = 1" of music. When the horizontal-distance-to-second ratio changes (necessary for some of the denser passages), it is conspicuously marked in the score. To help with counting out the time, a "bar-line" is given every five seconds (or four, in the case of larger horizontal-distance-to-second ratios).

For pauses which exceed about 2", and/or are of a specific-yet-difficult-to-eyeball-duration, second values are given in brackets; e.g. [6.7] indicates 6.7 seconds of pause.

Since normal beaming conventions are generally not used, arabic numerals in parentheses, e.g. (13), are given to help parse gruppetti that are rather large.

The performer will also probably notice that the actions of the left and right hands often aren't synchronized in the usual way. In cases where they ought to be synchronized exactly, and the context does not make this explicitly clear, vertical dashed lines (see right) are given.

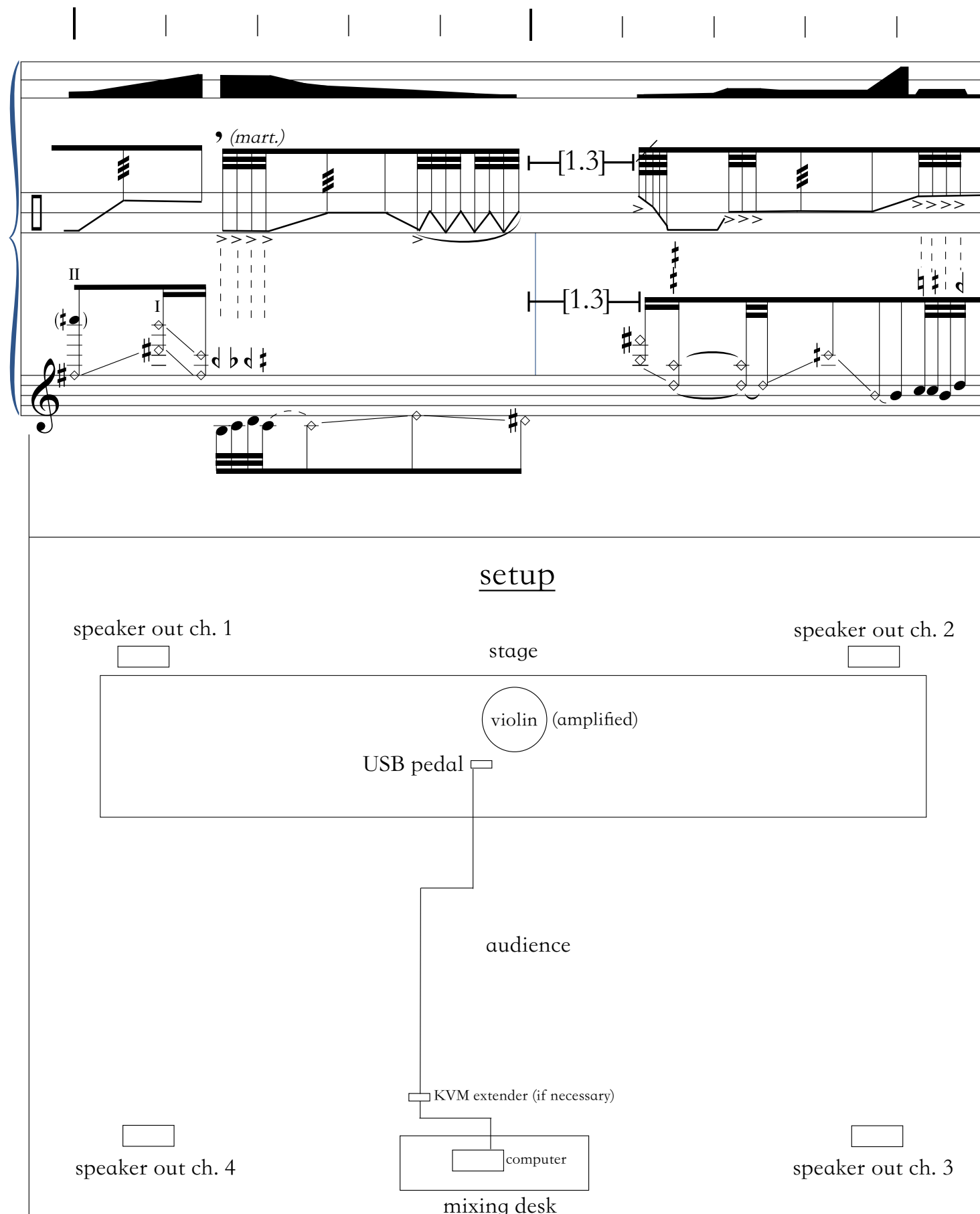
## electronics/amplification/logistics

The violinist is amplified with a mic placed overhead (SM58 or similar) as close to the body of the instrument as possible without obstructing bow movement.

Optionally, an additional small contact mic is placed on the left topmost corner of fingerboard, underneath the G string. It should be thin enough so that none of the passages played on the G string cause the string and mic to touch, causing unwanted vibration. This is typically possible with the smallest of such mics. While the condenser mic picks up the violinist's overall sound, the contact mic magnifies the sounds of the violinist's actions on the fingerboard.

The electronics are notated on their own staff/staves. Numbers in circular enclosures correspond to specific, sequentially ordered events in the electronics. The fixed media, consisting mostly of drones, will begin to inconspicuously loop itself if a certain time threshold is passed between triggers, therefore a click-track is unnecessary. These events are triggered by the violinist with a USB pedal plugged into the computer which is running the patch in Max/MSP, which also comes with a countdown display to give the violinist a general idea of the ideal time between triggers. NB: If the computer is more than 20 feet from the pedal, a KVM extender may be necessary to ensure the USB signal does not attenuate before reaching the computer. An additional computer connected to the same ad hoc network as the first computer, running a second patcher (also available from the composer) which sends information between computers may also be workable.

The thickness of lines in the electronics staff indicates the relative gain of either the fixed media (drones) or the delays. These changes in gain are mostly automated, but additional mixing may be necessary depending on the needs of the space. In any case, an additional person monitoring the levels, EQ, and, if necessary, helping with triggering events, will prove useful.



"Some environments are conducive to the state of mind in which a person feels that everything is a dream and is not real. This state of mind occurs, for example, in the Arctic winter when it is night 24 hr a day. It is also known to occur in some youths who have been brought up on television as a substitute to reality...

...This state of mind can be easily produced in an environment where everything is artificial, where everything is like a theater stage, where every wish can be fulfilled by a push-button, and where there is nothing beyond the theater stage and beyond an individual's control."

– "The Solipsism Syndrome in Artificial Environment," from *Space Settlements: A Design Study*, Chapter 3, Appendix A; published 1976 by NASA

"In many respects, the ocean is more hostile than space.

Even with a futurist exoskeleton, the human body is too liquescent to contemplate stepping onto an ocean floor.

There will never be a Neil Armstrong moment.

Space flight is about weightlessness, speed, and the pressure inside the capsule against the airless void outside.

Ocean descent is about weight, slowness, tonnes of sea water bearing down, and the discomfiting realisation that humans are alien to most of our own planet.

Space offers a sighted journey towards infinity, the ocean a blind journey towards finitude."

– JM Ledgard, *Submergence*

scanner/scrawler

daniel silliman (2015-16)

I.2.i

18mm = 1"

:05

:20

violin

slow...

(gett.) (free bowing, but: retake the bow as infrequently as possible →)

P

T

I →

*pp* (quiet, suspended; in glass...)

very lightly amplified, slight reverb; hardly supernatural →

elec. ||

v.

[4.75]

[4.75]

(etc. →)

e. ||

I.2.ii

slow...

v.

(gliss. sempre)

*pp*

e.

Detailed description: This system contains the first part of the score for section I.2.ii. It features three staves: a grand staff (violin and viola) and a cello/bass staff. The violin part has a 'slow...' marking above it. The viola part includes a '(gliss. sempre)' instruction. The cello/bass part begins with a piano (*pp*) dynamic. The music consists of sustained notes with various articulations and a glissando in the viola.

I.2.iii

(bow as indicated →)

[6.7]

[6.7]

(meno *pp*)

v.

Detailed description: This system contains the second part of the score for section I.2.iii. It features three staves: a grand staff (violin and viola) and a cello/bass staff. The violin part has a '(bow as indicated →)' instruction. Both the violin and cello/bass parts have a '[6.7]' marking. The cello/bass part concludes with a '(meno *pp*)' dynamic. The music includes sustained notes, a glissando in the viola, and specific bowing instructions.



I.3.ii

v.

(p)

(mf)

I.2.iv

I.1.ii

I.3.iv

v.

sul tasto poss.  
(V V V V)

[4.2]

(al tall.)

(pp)

(p)

(frenetic, veiled)

IV

f

II

III

IV

III

v.

(mart.)

[1.3]

frog

(bells)

(f) (p)

(sfz) (sfz) (sfz)

(ff)

I.3.v

v.

(mp)

1 start recording

v. [2.1] *mp* (f) *fz* *f* (12) c.l.batt. (2) (stop recording)

Musical score for the first system, featuring piano and violin parts. The piano part includes dynamics such as *mp*, *fz*, and *f*. The violin part includes a section marked *fz* and *f*. Performance instructions include *(fleeing)*, *(12)*, and *c.l.batt.*. A circled number 2 indicates a stop recording point.

I.3.iii (& I.3.v)

22mm = 1" :04

v. (norm.) \* H[1.2]H (mf) (bells) (loco) (più f)

Musical score for the second system, including piano, violin, and electronic parts. The piano part includes dynamics such as *mf* and *f*. The violin part includes a section marked *f*. Performance instructions include *(norm.)*, *(bells)*, *(loco)*, and *(più f)*. A circled number 3 indicates a playback delay. The electronic part (e.) includes a *fade in...* instruction.

\*(this pause not to scale)

v. *(f)* *(cresc. poco a poco...)* (loco) III *(più f)* (loco) III *(più f)* (loco) III *(più f)* s.t. poss.

e. ||

v. "huffing" (11) (13) (6) (free bowing, but: don't change bow and string simultaneously unless indicated →) (s.t. poss. sempre) →

(loco) II → I → (D) (indiscernible pitch, each string its own filtered noise...)

*(sfz)* *(f)* *ff* *ff* *fff* *(pp sub., suspended; in stasis)* II III IV II

⓪ 4 stop delay playback

e. ||

The first system of the score consists of three horizontal tracks. At the top is a timeline with vertical tick marks. Below it is the violin part (labeled 'v.'), which includes a bowing diagram with horizontal lines and arrows indicating bow direction. The musical notation for the violin is in treble clef with a key signature of one sharp (F#). The notes are: F#4 (quarter), G4 (quarter), A4 (quarter), B4 (quarter), C5 (quarter), B4 (quarter), A4 (quarter), G4 (quarter), F#4 (quarter), E4 (quarter), D4 (quarter), C4 (quarter). Fingerings are indicated as I, III, and II. A circled number '5' is placed above the C5 note. Below the violin part is the electric guitar part (labeled 'e.'), which shows a sustain pedal indicator (two vertical bars) and a volume envelope diagram that rises to a peak at the C5 note and then decays. Text annotations include: "(keeping horizontal bow position, tilt bow angle to bow right side of instrument)" above the B4-C5 notes, and "(start recording, fade in delay) 5" below the C5 note.

The second system of the score follows the same layout as the first. The violin part (labeled 'v.') has a bowing diagram with arrows pointing right, then left, then right, and finally left. The musical notation continues from the first system: D4 (quarter), C4 (quarter), B3 (quarter), A3 (quarter), G3 (quarter), F#3 (quarter), E3 (quarter), D3 (quarter), C3 (quarter), B2 (quarter), A2 (quarter), G2 (quarter), F#2 (quarter). Fingerings are indicated as I, III, and II. A circled number '6' is placed above the F#2 note. Below the violin part is the electric guitar part (labeled 'e.'), which shows a sustain pedal indicator and a volume envelope diagram that rises to a peak at the F#2 note and then decays. Text annotations include: "(as before, on the left side of the instrument)" below the B3-C3 notes, "delay" with an arrow pointing right below the B2 note, and "6 fade out delay" below the F#2 note.

I.3.i | I.vi.3 [2.6] (not to scale)

v. [0.9] (al tall.) c.l.batt. frozen [18.4]

(loco) (fleeting) [0.9] l.h. finger perc. I + II *ad lib.* l.h. pizz. frozen (not to scale) [18.4]

(IV) delay (stop recording) (mp) (muffled, veiled) r.h. finger perc. III + IV *ad lib.*

e. all amplification and reverb OFF

II.1.i

v. tailpiece (drag fingernail across ridges of fine tuner)

use mostly lower half of bow; rich sound with lots of overtones  
 ⊕ I, II, III, IV

e. (amplification & reverb as before)

II.1.ii

v. (I, II, III, IV →)

c. 7 (start recording) 8 (imperceptibly fade in drone)

II.1.iv

v. [6.3] [6.3]

c. 9 (stop recording) (drone still hardly audible)

drone →

v.

(strings) (tailpiece)

( $\emptyset$  I, II, III, IV  $\rightarrow$ )  $\emptyset$  I, II, III, IV  $\emptyset$  I, II, III, IV

(pp) (pp)

drone  $\rightarrow$

e.

II.1.iii

v.

drone  $\rightarrow$

e.



v.

(I, II, III, IV →)

10 (proceed to next part of drone)

e.

drone →

11 (fade in delay)

v.

(on the strings)

5

tip

tip

(behind bridge)  
make bow changes as connected as possible

(one bow)

(in front of bridge)

(III) (*mp*)

(suddenly unchained, capricious)

III

IV

(*pp*)

II

III

II, III

III IV (*p*) (*sf*)

II

III

(in front of bridge)  
III, IV

(*ff*) (*sfz*) (+ 1.h. nail pizz.)

II *ad lib.*

(*pp* suspended, intense)

delay →

drone →

12 (start recording, proceed to next part of drone)

13 (delay OFF)

v.   
 e.   
 (ppp)   
 (p sub.)   
 (ppp)   
 (p sub.)   
 drone →

I.3.vi (& I.2.v)

v.   
 e.   
 (p sub.)   
 (mp)   
 (fz)   
 (mf)   
 14 delay →   
 (start delay playback, keep recording)

v.

e.

delay →

drone →

15 (begin slowing down delay playback; pitch-shifting up)

II.2.i

v.

e.

delay →

drone →

16 (delay/drone OFF, stop recording)

17 (drone ON, start recording and playing back with narrow, pitch-shifted delay)

v. *more and more at the frog*

5 6

*ff* (*sffz-ff*) (*sffz*)

IV

delay →

18 (fade out delay)

e. drone →

I.iv.3 I.1.iv

(sporadically distorted)

col legno norm. c.l. (II-) III IV IV IV (c.l.) (I+II) norm. V

*f* *sf* *p* (*f, full-bodied*)

III II *ad lib.* (ossia) I (sounding perfect fifths) (3:2) (3:2) (3:2) (3:2) (3:2)

19 (drone filter on) delay →

20 (drone filter off, fade in delay)

e. drone →

v.

tip frog c.l.b. 5 frog

*ff* (3:2) III (3:2) *ff*

II I III II IV III

delay →

21 (drone filter on, fade out delay)

e.

drone →

I.iii.3

v.

(come sopra)

II: *f*  
I&III: *mf*

(arco, behind bridge)  
make bow changes as connected as possible

(one bow)

*ff* *ff* *ff*

III + IV *ad lib.* III + IV *ad lib.*

III (III only: *pp*)

22 drone filter sweep, sporadic delay entrances

delay →

e.

drone →

I.3.viii

I.1.i

(in front of bridge)

steady as possible. . .

*(sf)* *(mf)* *f* *p*

*tr*

III

IV

*(p)* (pitch is fleeting but mostly audible)

(roll first finger down to (•) third harmonic node) (and back up...)

23 (fade out delay)

24 (proceed to next part of drone)

25 (proceed to next part of drone)

delay →

drone →

\*press bow into string and turn counter-clockwise like a crank

drone →

8va

v. *(gliss. lentiss.)*

e. drone → (drone continues)

v. [20.4]

e. drone →

I.ii.3 (not to scale) [2.7]

col legno (I+II)

l.h. I + II *ad lib.*

r.h. III + IV *ad lib.*

(mf)

26 drone off