4-14-2023 12:45 PM

Transference Music: For Electric Guitar Soloist and Amplified Orchestra

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Supervisor: Frehner, Paul, *The University of Western Ontario*

A thesis submitted in partial fulfillment of the requirements for the Doctor of Philosophy degree in Music

Abstract

Transference Music: for Electric Guitar Soloist and Amplified Orchestra is a concertante work with an approximate duration of 25 minutes. The work is inspired by my experiences as a composer-electric guitarist. Its musical parameters are constructed via the act transferring those experiences between the typically separate designations of 'performer' and 'composer.' These experiences involve aspects of style and genre, electric guitar-specific performance gestures and various timbral or textural ideas, as well as concepts of electronic sound production. These experiences are then used as the basis for the work's form, motivic relationships and orchestration. As the electric guitar is somewhat of an underrepresented instrument in contemporary concert music, the piece also aims to explore the instrument's integration into the style and more specifically, the concerto genre. Prior to an analysis of the work, this document also includes a brief examination of relevant repertoire that includes the electric guitar, as well as a brief discussion of the work's key concepts.

Keywords

Contemporary music, composition, performance, transference, electric guitar, concerto, large ensemble, chamber orchestra, amplification, electronic sound production.

Summary for Lay Audience

Transference Music: for Electric Guitar Soloist and Amplified Orchestra is a piece of music with an approximate duration of 25 minutes. The piece is inspired by my experiences as a composer and electric guitarist. These experiences involve questions of style and genre, the act of playing electric guitar, and ideas surrounding electronic sound production. These experiences are then used as the basis for the work's musical composition. As the electric guitar is somewhat of an underrepresented instrument in contemporary classical music, the piece also aims to explore the instrument's involvement with the style and more specifically, the concerto genre. Following the work's musical score and prior to an analysis of the piece, this document briefly covers relevant existing contemporary classical pieces that also include the electric guitar.

Acknowledgements

This document would not have been possible without the support, guidance and love of many amazing people. I'd like to express my deepest appreciation to those that have contributed in any way to making this PhD dissertation possible, named here or otherwise.

My advisor Dr. Paul Frehner, whose academic and professional insights into all my work was integral for this dissertation's realization. I cannot imagine this project's success without Dr. Frehner's mentorship. His multifaceted background as a professor, composer, and guitarist meant that all of his feedback throughout the process was deeply considered and expertly informed. I look forward to our collaborative exchanges that I'm sure will continue beyond the PhD degree.

My second reader Dr. John Cuciurean, who like Dr. Frehner is also deeply invested in boundary-challenging work within the contemporary music field. While also a guitarist himself, Dr. Cuciurean's theoretical background provided a necessary extension of feedback for finishing this work.

Past mentors, who have become supporters and friends over the years, especially Andrew Staniland, Michael Gordon, Paul Bendzsa, Ellen Waterman, David Myska, and Blue Gene Tyranny, to name only a few.

My post-regional community of friends and collaborators, who are too many to fully cover here. I will however, name those who have been particularly influential to this document's material. My best friends from the NYC and NYU cohort, Aeryn Jade Santillan, Phong Tran, and Adam Cuthbért, who all inspire me to be a better artist and person every day. My longstanding friends and collaborators across Canadian communities, Yang Chen, Greg Bruce, James Lowrie, Andre McEvenue, India Gailey, and many more amazing people, for creating a constant and fluid exchange of ideas and support without which I would be lost. Lastly, my collaborators in

Contaqt Contemporary Music, Jerry Pergolesi, Rob MacDonald, Allison Wiebe, Sara Fraser-Raff, and Mary Katherine Finch, for elevating my work to a whole new level throughout the past few years.

I am also indebted to the obscure but tight-knit and constantly expanding experimental electric guitar network of players, composers, and improvisors who have committed to building grassroots communities for these artists. This especially includes Tim Brady and more recently, Amy Brandon with her leadership of the 21st Century Guitar Conference. My dissertation work pursues many still unbeaten paths that were originally laid out by people like them.

I am thankful for my partner Yaz Lancaster, who not only creatively inspires and elevates me, but is always there to play chess, watch horror movies, eat vegan food or sing karaoke when I desperately need a break from work. Most of all, Yaz has constantly reminded me of my self-worth throughout the writing process, and one's own importance is very easily lost while blinded by the lights of a computer monitor.

Finally, I am incredibly grateful for my close family, especially my parents Andy and Michelle, sister Leah, and grandparents James and Margorie Noftall. Despite having a peripheral view of how the music and academia scene operates, they have always provided unwavering support while I've continued to dive deeper into a specialized and uncertain career path. I feel very fortunate and grateful that they've never dismissed my aspirations and always believed in them.

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Transference Music

For Electric Guitar Soloist
and Amplified Orchestra

Approximate Duration: 25 minutes

Transference Music

Program Notes:

Transference Music: for Electric Guitar Soloist and Amplified Orchestra is an approximately 25-minute, concerto-style work. The work serves as the dissertation piece towards my PhD in Music Composition degree from Western University. The piece is inspired by my experiences as a composer-electric guitarist. Its musical parameters are constructed via the act transferring those experiences between the typically separate designations of 'performer' and 'composer.' These experiences involve aspects of style and genre, electric guitar-specific performance gestures and various timbral or textural ideas, as well as concepts of electronic sound production. These experiences are then used as the basis for the work's form, motivic relationships and orchestration.

Instrumentation:

Amplified Woodwinds:
Flute (doubling Alto Flute)
Oboe (doubling English Horn)
Clarinet in Bb (doubling Bass Clarinet in Bb)
Bassoon (doubling Contrabassoon)

Amplified Brass:
French Horn
Trumpet
Trombone

2 Percussion:
Player 1: Thundersheet, Crotales, Ratchet, Xylophone, Wood Block, Brake Drum, Whip, 5 Relatively Pitched Metals, Tenor Steel Pan, Temple Blocks, Bongos, 3 Roto-toms, Flexatone, Tam-tam
Player 2: Drum Set, Vibraphone, Glockenspiel, Tubular Bells

Electric Keyboard★

Electric Guitar Soloist★

Amplified Strings: (1, 1, 1, 1, 1)
(Contrabass doubling 4-String Electric Bass Guitar)

Sound Engineer for controlling the Amplification and Electronic Processing for the acoustic instruments★

★Consult performance notes for further technical requirements.

Performance Notes

General:

In movements I and VI, aspects of rhythmic pulsations and durations should be perceived as fluid and floating rather than rigid or precise. Despite the specifically notated rhythms, players (and the conductor) should approach these movements with a loose sense of time that primarily emphasizes textures. For this reason, bar lines are dashed and the score is setup so that metric beats are approximately equivalent to seconds (60 bpm). Each measure lasts about 4 seconds, while each page lasts about 20 seconds in total.

For the majority of movement V, most of the instruments perform gestures that emulate the sound of an analog delay effect with its speed changing in real time. This constitutes either a speeding up of the ongoing pulsation while dramatically (but as smoothly as possible) raising the pitch or the reverse process (slowing down and lowering the pitch). This speed shifting technique is shown with feathered beaming that indicates the initial and arrival pulsation speeds and pitches as well as the indeterminate pitches in between. A continued explanation of this technique and notation can be found on the first page of this movement.

Symbols:

Pitch quarter flat.

Shown by the accidental arrow, pitch slightly lower than notated. Not as far as a quarter tone.

Shown by the accidental arrow, pitch slightly higher than notated. Not as far as a quarter tone.

Pitch quarter sharp

Pitch three quarters sharp

"Playing force" dynamic. Dynamics in quotations show the relative amount of force to produce sound, rather than the true sounding dynamic.

Triangle noteheads indicate highest possible pitch.

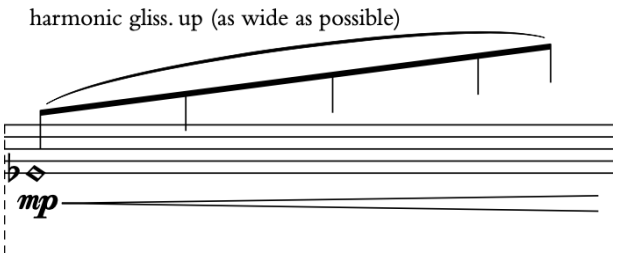
All other relevant performance notes can be found directly in the score.

Woodwinds:

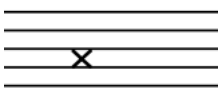
"Player's choice" multiphonic. Full explanation in the score.

Air tone. Mostly air, slight pitch.

Teeth on the reed, pitches approximate.



Harmonic gliss. over notated fundamental.



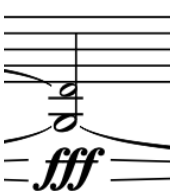
Key clicks.

All other relevant performance notes can be found directly in the score.

Brass:

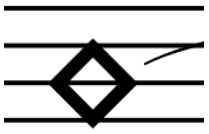
Mutes list:
Harmon Mute, Straight Mute, Cup Mute, Plunger Mute

Symbols:

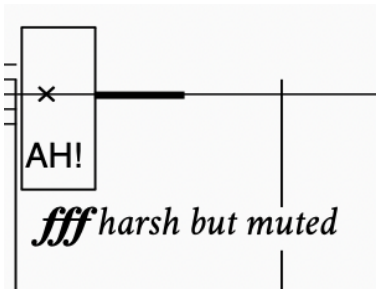


Multiphonic. Sing top pitch (can be approx.) in any octave.

Air tone. Mostly air, slight pitch.



Blowing air through the instrument. No pitch.



Screaming/yelling through the instrument. Full explanation in the score.

All other relevant performance notes can be found directly in the score.

Percussion:

Player 1:

Instrument and Equipment List: Thundersheet, Crotales, Ratchet, Xylophone, Wood Block, Brake Drum, Whip, 5 Relatively Pitched Metals, Tenor Steel Pan, Temple Blocks, Bongos, 3 Roto-toms, Flexatone, Tam-tam, Soft Large Beater, Hard Mallets, Drumsticks, Bow (appropriate size for Thundersheet and Crotales), Steel Pan Mallets, Coins and Metal Objects (for preparing Tam-tam in Mvmt. VI)

Player 2:

Instrument and Equipment List: Drum Set (Kick, Snare, Medium Tom, Floor Tom, Hi-hats, Crash, Ride, China Cymbal, Splash Cymbal), Vibraphone, Glockenspiel, Tubular Bells, Drumsticks, Double Bass Drum Pedal, Bow (for Cymbals), Coin (for scraping Cymbals), Wire Brushes, Medium Vibraphone Mallets, Hard Mallets, Rubber Mallet (for bending Vibraphone pitches), Tubular Bell Mallets, Metal Chains or Objects (for preparations in Mvmt. VI)

Drum Set notation follows standard conventions.

All other relevant performance notes can be found directly in the score.

Keyboard:

An 88-key (weighted or semi-weighted) electric keyboard is required.

The piece requires 5 different tones or patches, which may exist as built-in sounds or triggered by using the keyboard as a midi device that controls an external sound source. These patches include:
A: a muted or dampened and gritty Acoustic Piano, as if the una corda pedal is always depressed and light saturation or "vinyl crackle" is applied.
B: Fender Rhodes-style Electric Piano sound with a slight amount of overdrive.
C: "Reverse" Acoustic Piano, where the sound's dynamic envelope swells from silent into an attack.
D: standard Acoustic Piano with light delay and reverb.
E: a clean/glossy/synth bell-like Electric Piano, like the 1980s Yamaha DX-7's Electric Piano sounds.

Electric Guitar Soloist:

A solid body electric guitar with humbucker pickups and a professional quality amplifier are required. For reference, the piece was written using a Fender Jazzmaster and a Gibson SG. In performance, a 15 to 20-watt, Fender-style tube amplifier should be more than appropriate. The instrument may also have the option for either single coil pickups or "coil tap" humbuckers, as well as the option for a whammy bar (for intense vibrato sections), though these are not absolutely required. Due to the stylistic differences and technical requirements of each movement, the player may switch guitars between movements.

A cleaning sponge with an abrasive side is required for mvmt. I.

Fretboard positions are shown with Roman numerals. String indications are shown with circled Arabic numbers. Fret hand fingering is shown with standard Arabic numbers.

p.m. indicates palm muting.

String bending is shown with "triangle" style slurs in the staff notation and bend arrows in TAB (mvmt. IV). These represent bends and releases without rearticulation. Rearticulation during string bending is shown with the marcato articulation (mvmt. III).

Several movements notate this part using multiple staves. Most often, the bottom staff shows the relative position of an expression-style pedal, such as the Digitech Whammy or an envelope filter. In movement IV, the top staff shows the true sounding gestures while the middle staff notates the part using tablature. The bottom staff shows the pitch shifting position of the Digitech Whammy pedal. The use of tablature in this movement is to aid the player with physical fretboard positions during extended pitch shifting. In movement V, the top staff shows the sounding result of the performed part. The middle staff shows the part to be performed on guitar only, while the bottom staff shows the manipulation of the analog delay speed shifting effect.

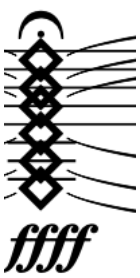
Effects Pedals (in order of suggested signal chain):

Digitech Whammy > Distortion (ie: Proco Rat) > Overdrive (mainly as boost) > Modulations (Chorus, Flanger/Phaser/Uni-Vibe, etc.) > Optional Sample Degrade/Lo-fi effect > Volume > Delays > Heavy Fuzz (ie: Big Muff) > Optional Filter > Reverb

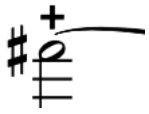
Delay Settings:
1: analog-style, speed=dotted 8th-note pulse at 60bpm (or a quarter note pulse at 80bpm), 3-5 repeats
2: speed=dotted 8th-note pulse at 152bpm, 4-6 repeats
3: light slapback
4: analog-style with mod., speed=quarter note pulse at 84bpm, 3-4 repeats, mix=high
5: analog-style with pitch shifting occurring when the delay speed is adjusted, speed=quarter note pulse at 72 bpm, 8-12 repeats to allow for self-oscillation at faster delay speeds, mix=100%
6: analog-style, not tempo-synced and very light mix

Note: Though standard convention is to place gain effects before delays, I place my heaviest fuzz after delays in order to use it as a sort of "feedback inducer." The result is a much more unstable, noisier and unfocused tone compared to when the fuzz is placed before delays. This can be especially useful for the piece's first movement.

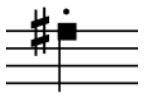
Symbols



Large diamonds indicate feedback occurring following the sustain of notated pitches.



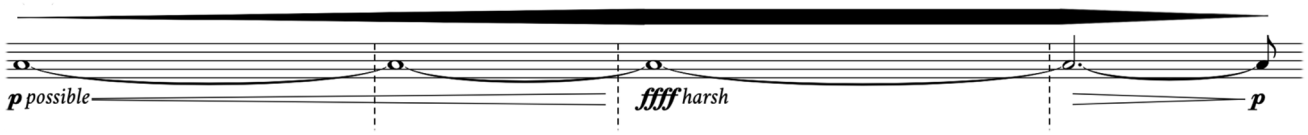
“+” indicates fretboard tapping, no picking articulation. Hand indications in the score.



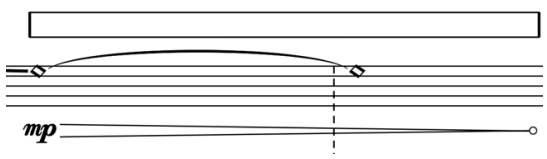
Square notehead indicates fret hand half pressure on the string. More pressure than what is required for harmonics.

All other relevant performance notes can be found directly in the score.

Strings



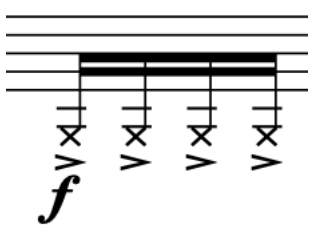
Wedges show amount of string overpressure in combination with bow speed and placement. See score for full explanations.



Empty wedges show extremely slow bow speed, creating a gritty tone with very little pitch content.

Indicates a sudden stopping on the string.

Notehead indicates bowing on the instrument’s body.



X noteheads indicate bowing behind the bridge.

Circular bowing.

Much of the string techniques (and resulting notation) used in this piece regarding bow pressure, speed and placement are inspired by Andrew Norman's work in pieces like *Try* and *The Companion's Guide to Rome*. While Norman's work focuses more so on these detailed techniques applied within medium-to-large ensemble textures, they are here utilized to further integrate (or transfer) different textural sound worlds between the ensemble and the Electric Guitar. For in depth descriptions and demonstrations of these techniques, please see Anne Leilehua Lanzilotti's excellent work on the topic, found at http://www.shakennotstuttered.com/. Lanzilotti's website provides an invaluable resource for composers, performers and academics looking to understand and apply these techniques.

All other relevant performance notes can be found directly in the score.

Electric Bass

A solid body Electric Bass and professional quality amplifier are required.

Fretboard positions are shown with Roman numerals. String indications are shown with circled Arabic numbers. Fret hand fingering is shown with standard Arabic numbers.

String bending is shown with "triangle" style slurs. These represent bends and releases without rearticulation.

Effects Pedals (in order of suggested signal chain):
Distortion or Light Fuzz > Delay

Delay Settings:
1: analog-style, light slapback
2: analog-style, not tempo-synced, very light

All other relevant performance notes can be found directly in the score.

Amplification and Electronic Processing:

The piece's use of amplification and electronic effects for the acoustic instruments is mainly for the purpose of blending the orchestral ensemble's sound world with that of the Electric Guitar Soloist (as well as the Electric Keyboard and Bass Guitar).

Each acoustic instrument (except for all percussion) should be individually miked and amplified via a standard stereo PA system appropriate for the performance venue. Ideally, each instrument should be amplified and processed equally. This should be adjusted at the discretion of the sound engineer though, especially when considering the performance space and amplification equipment used. For example, in a smaller space the brass instruments would need less amplification and the wet/dry mix of brass instruments' processing should be adjusted accordingly. The final amplified and processed signal of the ensemble should be balanced and blended with the acoustic or stage sound of all the instruments.

Depending on the size of venue and so that they are integrated into the ensemble's PA amplification, the Electric Guitar and Bass Guitar amplifiers may also be lightly amplified, either by miking the amps or by using a DI box that sends their signals out to the mixing board. The Electric Keyboard may also use a miked keyboard amplifier or a DI box in combination with a stage monitor. If these instruments are further amplified through the stereo PA system, then they should not use any of the electronic processing that is used for the acoustic instruments.

As shown by the score's Electronic Processing stave, various effects are used on the amplified acoustic instruments throughout the piece. Electronic processing may be accomplished with any combination of mixing board built-in effects, insert rack effects units, computer digital signal processing (DSP), etc. To allow for performance flexibility and given the wide range of (not to mention constantly changing) DSP equipment available, general indications are shown for different effects to be used instead of specific parameters. Effects that are not entirely possible with the equipment being used for a performance may be omitted at the discretion of the sound engineer.

The described effects and their types of settings include:
Reverb: light, long, medium length bright/Plate-style
Delay: short slapback, approx. 8th-note at 72 bpm tempo-synced with 8-12 repeats and high mix, light and not tempo-synced
Saturation/Drive: light, moderate
Modulation: light Chorus or Flanger,
Filtering: Sample Degrade/Lo-fi Effect or Low Pass Filter

Since different venues and performance situations would involve a different setup of microphones, mixers, PA speakers, and electronic processing options, no specific gear list or signal routing path is described here. Therefore, it is critical that the sound engineer is experienced with the venue's equipment, amplifying this instrumentation, using DSP effects, and interpreting the score's electronic processing directions. Except for reading notated scores, these requirements are standard practice for most in-house sound engineers. In some ways, the sound engineer could also be considered like another member of the ensemble. The decisions that they would make regarding live performance amplification are a part of their ongoing artistic practice and essential for the successful realization of this piece.

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Transference Music

For Electric Guitar Soloist
and Amplified Orchestra

I. Feedback and Swells

Andrew Noseworthy (2022)

Spacey yet texturally dense, full of doom and drone, ca. ♩=60 (without a perceivable pulse, durations may also be felt in approx. seconds)

"Feedback Cadenza": Until A, all measures following fermatas begin on soloist and conductor cue

Flute
Oboe
Clarinet in B♭
Bassoon
Horn in F
Trumpet in C
Trombone

Percussion 1 — Thundersheet
Percussion 2 — Drum Set

Electric Keyboard — Patch A: Muted or Dampened and Gritty Acoustic Piano

Electric Guitar Soloist

Digitech Whammy ON: 2 Octaves Up Setting
Heavy Distortion or Fuzz ON
Overdrive ON (pushing the sound into feedback)
All dynamic swells achieved using Volume Pedal
Delay ON: Setting 1 (analog-style, approx. ♪. speed tempo-synced or ♩ at 80bpm, 3-5 repeats)

Articulate pitches quietly before swelling w/Volume Pedal.
Dynamic indications show resulting level from Volume Pedal motion.
Heel down=off. Toe down=full volume.
When at highest volume, sounding pitches should transform into amplifier feedback.
Pitches that are resulting from feedback may vary depending on the exact equipment used.

Feedback now resulting at full volume.
Experiment with the feedback overtones produced by shifting the guitar's position in place.

ffff

Digitech Whammy

Top line: toe down
Bottom line: heel down

(remaining heel down until noted)

Spacey yet texturally dense, full of doom and drone, ca. ♩=60 (without a perceivable pulse, durations may also be felt in approx. seconds)

"Feedback Cadenza": Until A, all measures following fermatas begin on soloist and conductor cue

Violin I
Violin II
Viola
Violoncello
Contrabass — Contrabass

Electronic Processing — Light to Moderate Saturation/Drive ON
Light Reverb ON

6

Fl.

Ob.

Cl.

Bsn.

Hn.

C Tpt.

Tbn.

Thdr. Sht.

Dr.

Kb.

(amplifier hum/noise resulting from the volume being completely OFF while pedals are still ON)

E. Gtr.

ff

Vln. I

Vln. II

Vla.

Vc.

Cb.

Proc.

11

Fl.

Ob.

Cl.

Bsn.

Hn.

C Tpt.

Tbn.

Thdr. Sht.

Dr.

Kb.

E. Gtr.

Uneven, slow and slight string bending (ranging from a microtone to 1 1/2 step), playing with feedback overtones. Rearticulate pitch with the fret hand ad lib.

ff

Vln. I

Vln. II

Vla.

Vc.

Cb.

Proc.

16

Fl.

Ob.

Cl.

Bsn.

Hn.

C Tpt.

Tbn.

Thdr. Sht.

Dr.

Kb.

E. Gtr.

ff

Vln. I

Vln. II

Vla.

Vc.

Cb.

Proc.

21

Fl.

Ob.

Cl.

Bsn.

Hn.

C Tpt.

Tbn.

Thdr. Sht.

Dr.

Kb.

E. Gtr.

begin intensely shaking guitar neck and body (with fret hand rearticulations as needed):

ffff

Vln. I

Vln. II

Vla.

Vc.

Cb.

Proc.

26

A

Fl.
Begin pitch as notated; during cresc. gradually shift to a full noisy multiphonic with this pitch as the fundamental. Emulate the guitar fuzz/feedback. Breathe if needed, staggered with other instruments.
p possibile
multiphonic now fully present
ffff harsh
return to fundamental pitch in decresc.
p
Wide vib. and intense tone, like unstable gtr. feedback.
f

Ob.
Begin pitch as notated; during cresc. gradually shift to a full noisy multiphonic with this pitch as the fundamental. Emulate the guitar fuzz/feedback. Breathe if needed, staggered with other instruments.
p possibile
multiphonic now fully present
ffff harsh
return to fundamental pitch in decresc.
ppp

Cl.
Begin pitch as notated; during cresc. gradually shift to a full noisy multiphonic with this pitch as the fundamental. Emulate the guitar fuzz/feedback. Breathe if needed, staggered with other instruments.
p possibile
multiphonic now fully present
ffff harsh
return to fundamental pitch in decresc.
ppp

Bsn.
Begin pitch as notated; during cresc. gradually shift to a full noisy multiphonic with this pitch as the fundamental. Emulate the guitar fuzz/feedback. Breathe if needed, staggered with other instruments.
p possibile
multiphonic now fully present
ffff harsh
return to fundamental pitch in decresc.
ppp

Hn.
During cresc. sing top pitch (or approx.) in as high an octave as possible. Breathe if needed, staggered with other instruments.
p possibile
multiphonic now fully present
fff
during decresc. gradually remove singing
ppp

C Tpt.
During cresc. sing top pitch (or approx.) in as high an octave as possible. Breathe if needed, staggered with other instruments.
p possibile
multiphonic now fully present
fff
during decresc. gradually remove singing
ppp

Tbn.
During cresc. sing top pitch (or approx.) in as high an octave as possible. Breathe if needed, staggered with other instruments.
p possibile
multiphonic now fully present
fff
during decresc. gradually remove singing
ppp

A

Thdr. Sht.
bowed
ppp
(l.v. and die out naturally)
fff

Dr.
bowed
ppp
(l.v. and die out naturally)
fff

Kb.
f
8vb

E. Gtr.
①
③
②
④
⑤
⑥
fff

A

Vln. I
gradually moving from ord. bow pressure, speed and placement to bow overpressure with slow speed and molto sul pont.
(ord.)
(total overpressure with very slow bow speed)
(molto sul pont.)
(moving back to ord.)
(ord.)
p possibile
ffff harsh
p
Wide vib. and intense tone, like unstable gtr. feedback.
f

Vln. II
gradually moving from ord. bow pressure, speed and placement to bow overpressure with slow speed and molto sul pont.
(ord.)
(total overpressure with very slow bow speed)
(molto sul pont.)
(moving back to ord.)
(ord.)
p possibile
ffff harsh
p
Approx. microtone with wide vib. Like unstable gtr. feedback.
f

Vla.
gradually moving from ord. bow pressure, speed and placement to bow overpressure with slow speed and molto sul pont.
(ord.)
(total overpressure with very slow bow speed)
(molto sul pont.)
(moving back to ord.)
(ord.)
p possibile
ffff harsh
ppp

Vc.
gradually moving from ord. bow pressure, speed and placement to bow overpressure with slow speed and molto sul pont.
(ord.)
(total overpressure with very slow bow speed)
(molto sul pont.)
(moving back to ord.)
(ord.)
p possibile
ffff harsh
ppp

Cb.
gradually moving from ord. bow pressure, speed and placement to bow overpressure with slow speed and molto sul pont.
(ord.)
(total overpressure with very slow bow speed)
(molto sul pont.)
(moving back to ord.)
(ord.)
p possibile
ffff harsh
ppp

31

Fl.
(multiphonic swell sim.)
fff ppp fff p f fff

Ob.
(multiphonic swell sim.)
Approx. microtone with wide vib. Like unstable gtr. feedback.
ppp fff p f fff f

Cl.
(multiphonic swell sim.)
Approx. microtone with wide vib. Like unstable gtr. feedback.
ppp fff p f fff f

Bsn.
(multiphonic swell sim.)
ppp fff ppp

Hn.
(multiphonic sim.)
ppp fff

C Tpt.
(multiphonic sim.)
ppp fff p

Tbn.
(multiphonic sim.)
ppp fff

Thdr. Sht.
(bowed sim.)
ppp fff
(bowed sim.)
ppp fff

Dr.
(bowed sim.)
ppp fff

Kb.
mf
8vb
Ped.

E. Gtr.
① ③ ② ④ ⑤
fff

Vln. I
fff f f fff f

Vln. II
(bow pressure, speed and placement sim.)
fff f p fff ppp

Vla.
(bow pressure, speed and placement sim.)
ppp fff ppp

Vc.
(bow pressure, speed and placement sim.)
ppp fff ppp

Cb.
(bow pressure, speed and placement sim.)
ppp fff ppp

36

Approx. microtone with wide vib.
Like unstable gtr. feedback.

Fl.

Ob.

Cl.

Bsn.

Wide vib. Like unstable gtr. feedback.

(wide vib. on sung pitch)

Hn.

Approx. microtone with wide vib. Like unstable gtr. feedback.

(wide vib. on sung pitch)

C Tpt.

(wide vib. on sung pitch)

Tbn.

To Crot.

Thdr. Sht.

Dr.

Kb.

E. Gtr.

(bow pressure, speed and placement sim.)

(very intense, shaking-like vib.)

Approx. microtone with wide vib.
Like unstable gtr. feedback.

Vln. I

(very intense, shaking-like vib.)

Vln. II

(very intense, shaking-like vib.)

Vla.

(very intense, shaking-like vib.)

Vc.

(very intense, shaking-like vib.)

Cb.

41

Fl.

Ob.

Cl.

Bsn.

Approx. microtone with wide vib. Like unstable gtr. feedback.

Hn.

C Tpt.

Tbn.

Crotales bowed (l.v.)

Thdr. Sht.

scrape stick on cymbal

Dr.

Kb.

Ped.

Previous shape changing positions:
X

E. Gtr.

Vln. I

Vln. II

Vla.

Approx. microtone with wide vib. Like unstable gtr. feedback.

Vc.

Approx. microtone with wide vib.
Like unstable gtr. feedback.

Cb.

46

Fl.
Ob.
Cl.
Bsn.
Hn.
C Tpt.
Tbn.
Crot.
Dr.
Kb.
E. Gtr.
Whammy
Vln. I
Vln. II
Vla.
Vc.
Cb.

B

airy tone

Approx. microtone with wide vib. Like unstable gtr. feedback.

wire brushes rubbing the floor tom with consistent circular motion

15ma

Ped.

mute strings completely with fret hand:

(Roll back volume pedal slightly to avoid excessive feedback during the following sections)

gliss.

extremely slow bow gritty tone with little to no pitch

51

Fl.

Ob.

Cl.

Bsn.

remove reed

remove reed

Hn.

C Tpt.

Tbn.

Crot.

To Rt.

fff

Ratchet

mf

fff

take coin

Dr.

scrape cymbal slowly w/coin

mp

fff

Kb.

Fuzz OFF
Optional Digital Delay/Pitch Shifter ON
(adding unpredictable or irregular pitches to thicken the overall sound)

use a sponge on the strings:
While still muting with the fret hand, freely rub sponge on the strings while affecting the position of the whammy pedal. Shape the resulting sounds and noise by experimenting with sponge speed and direction (circular, back and forth between strings, up and down the fretboard) while irregularly shifting the pitch(es) with the whammy. Graphics show a potential interpretation.

slowly slide muting fret hand up until over the pickups:

E. Gtr.

mp

Whammy

gliss.

f gritty, shifting densities

molto sul pont
lightly finger
generous bow pressure,
bringing out overtones
II

gliss.

Vln. I

mp

molto sul pont
lightly finger
generous bow pressure,
bringing out overtones
III

Vln. II

gliss.

mp

molto sul pont
lightly finger
generous bow pressure,
bringing out overtones
III

Vla.

gliss.

mp

molto sul pont
lightly finger
generous bow pressure,
bringing out overtones
IV

Vc.

gliss.

mp

molto sul pont
lightly finger
generous bow pressure
bringing out overtones
IV

Cb.

gliss.

mp

Proc.

Add slightly more Saturation/Drive
Reverb OFF

56

Fl.
harmonic gliss. up (as wide as possible)
Highest possible note while fluttertonguing.
As much vib. as possible.
mp fff ppp

Ob.
Playing the reed only, very high range slow and uneven gliss. Breathe if needed, staggered with other instruments.
mp fff ppp

Cl.
Teeth on the reed, sustained and unstable pitch fluctuations. Breathe if needed, staggered with other instruments.
8va
mp fff ppp

Bsn.
Playing the reed only, very high range slow and uneven gliss. Breathe if needed, staggered with other instruments.
mp fff ppp

Hn.
stopped
gliss.
mp fff mp

C Tpt.
with Harmon mute (stem out)
gliss.
mp fff mp

Tbn.
with Harmon mute (stem out)
gliss.
mp fff mp

Rt.
fff mf

Dr.
scrape cymbal slowly w/coin
fff mp

Kb.

E. Gtr.
Fuzz ON
Scrape pick hand thumbnail along 6th string.
Approx. "pitch" range and direction shown by
uneven gliss. line
⑥
fff
Fuzz OFF
f
Fuzz ON
mp

Whammy

Vln. I
gliss.
fff mp

Vln. II
gliss.
fff mp

Vla.
gliss.
fff mp

Vc.
gliss.
fff mp

Cb.
gliss.
fff mp

61

(harm. gliss. up and down)

Fl.

Ob.

Cl.

Bsn.

(stopped)

Hn.

C Tpt.

Tbn.

Rt.

Dr.

Kb.

Fuzz OFF

Fuzz ON

nail scrape sim.

Fuzz OFF

Fuzz ON

Fuzz OFF

E. Gtr.

Whammy

Vln. I

Vln. II

Vla.

Vc.

Cb.

66

Fl.
Ob.
Cl.
Bsn.
Hn.
C Tpt.
Tbn.
Rt.
Dr.
Kb.
E. Gtr.
Whammy
Vln. I
Vln. II
Vla.
Vc.
Cb.
Proc.

fff mp

insert reed

(8)

remove Harmon mute

C Sponge/scrape/noise cadenza

(air tone)

blowing air through the instrument:

sfp

mf

(on both drums)

3

Fuzz ON

fret hand slide sim.
approx. XVII position

mp sub.

gliss.

Volume pedal toe down to allow for feedback between gestures.

Sponge/scrape/noise cadenza: eradically perform dramatic pick hand sponge gestures interspersed and in combination. Feedback will also inevitably resul (shown below with diamonds).

ffff

gradually slow down bow speed

71

D **On conductor/soloist cue:**

Fl.

Sparse and out of time key clicks, like little blimps of sound interacting with the soloist and ensemble. Notated pitches show possibilities only.

Ob.

Sparse and out of time key clicks, like little blimps of sound interacting with the soloist and ensemble. Notated pitches show possibilities only.

Cl.

Sparse and out of time key clicks, like little blimps of sound interacting with the soloist and ensemble. Notated pitches show possibilities only.

Bsn.

Sparse and out of time key clicks, like little blimps of sound interacting with the soloist and ensemble. Notated pitches show possibilities only.

Hn.

gliss.

Blow air through the instrument while irregularly moving between stopped and open. Interact with the other brass sounds and guitar noise. Breathe when necessary.

C Tpt.

take plunger mute

gliss.

with plunger mute
Blow air through the instrument while irregularly opening and closing the bell with the mute. Interact with the other brass sounds and guitar noise. Breathe when necessary.

Tbn.

take plunger mute

gliss.

with plunger mute
Blow air through the instrument while irregularly opening and closing the bell with the mute. Interact with the other brass sounds and guitar noise. Breathe when necessary.

D **On conductor/soloist cue:** To Xyl.

Xylophone

Rt.

Using the shaft ends of the mallets, playing very short and out of time pitches in the highest range. Like little blimps of sound interacting with the soloist and ensemble. Notated pitches show possibilities only.

Dr.

using wire brushes on ride cymbal, moving in extremely slow circular motion around the cymbal:

any extremely low to extremely high white key gliss.

In the highest range of the keyboard, playing very short and out of time pitches. Like little blimps of sound interacting with the soloist and ensemble. Notated pitches show possibilities only.

Kb.

15ma

Ped.

fade out any remaining feedback w/Volume pedal:

E. Gtr.

amplifier hum with noise and sharp interjections:
While amplifier/pedal hum and noise sustains with volume pedal heel down, occasionally interject by quickly moving the volume pedal to toe down position and plucking muted strings, always changing position of the muting fret hand across the fretboard and above the pickups. Option to also lightly shape noise with a filter (see below)

sparse and grainy

Optional Wah or Filter effect

Ad lib. shape amplifier hum and noise resulting from pedals being on while volume is off similarly to previous Whammy pedal shaping:

Whammy heel down for the remainder of this movement.

Whammy

gliss.

D **On conductor/soloist cue:**

(any pitch up to highest possible on string)

Vln. I

I

gliss.

While bowing on the body, sparsely play left hand harmonic pizzicatos. Stick to each string's main natural harmonics. These should sound like little blimps of sound that interact with the soloist gestures and the rest of the ensemble. Notated harmonics show possibilities only.

Vln. II

II

gliss.

While bowing on the body, sparsely play left hand harmonic pizzicatos. Stick to each string's main natural harmonics. These should sound like little blimps of sound that interact with the soloist gestures and the rest of the ensemble. Notated harmonics show possibilities only.

Vla.

II

gliss.

While bowing on the body, sparsely play left hand harmonic pizzicatos. Stick to each string's main natural harmonics. These should sound like little blimps of sound that interact with the soloist gestures and the rest of the ensemble. Notated harmonics show possibilities only.

Vc.

III

gliss.

While bowing on the body, sparsely play left hand harmonic pizzicatos. Stick to each string's main natural harmonics. These should sound like little blimps of sound that interact with the soloist gestures and the rest of the ensemble. Notated harmonics show possibilities only.

Cb.

IV

gliss.

While bowing on the body, sparsely play left hand harmonic pizzicatos. Stick to each string's main natural harmonics. These should sound like little blimps of sound that interact with the soloist gestures and the rest of the ensemble. Notated harmonics show possibilities only.

76

Fl.

Ob.

Cl.

Bsn.

Hn.

C Tpt.

Tbn.

Xyl.

To W.B.

Dr.

(15)

Kb.

All effects off
Volume pedal toe down

Tune to Drop D

E. Gtr.

Whammy

Vln. I

Vln. II

Vla.

Vc.

To Bass Gtr.

Cb.

Proc.

All Effects OFF

Transference Music

II. The Heavy Rhythms

81

Screamo ♩=152

E

Fl.

Ob.

Cl.

Bsn.

Hn.

C Tpt.

Tbn.

Screamo ♩=152

Wood Block

E

W.B.

gradually open hats

Dr.

mf

f

Patch B: Slightly Overdriven Electric Piano (Fender Rhodes-style

Kb.

Clean tone

Dropped D tuning

(fret hand muting)

f marc.

p.m.

Dist. ON

ord.

V

E. Gtr.

Screamo ♩=152

sul pont.

I

E

Behind the bridge

p *sfz* *molto*

f

Vln. I

Vln. II

sul pont.

III

Vla.

Vc.

4-string Bass Guitar

Dist. or Light Fuzz ON

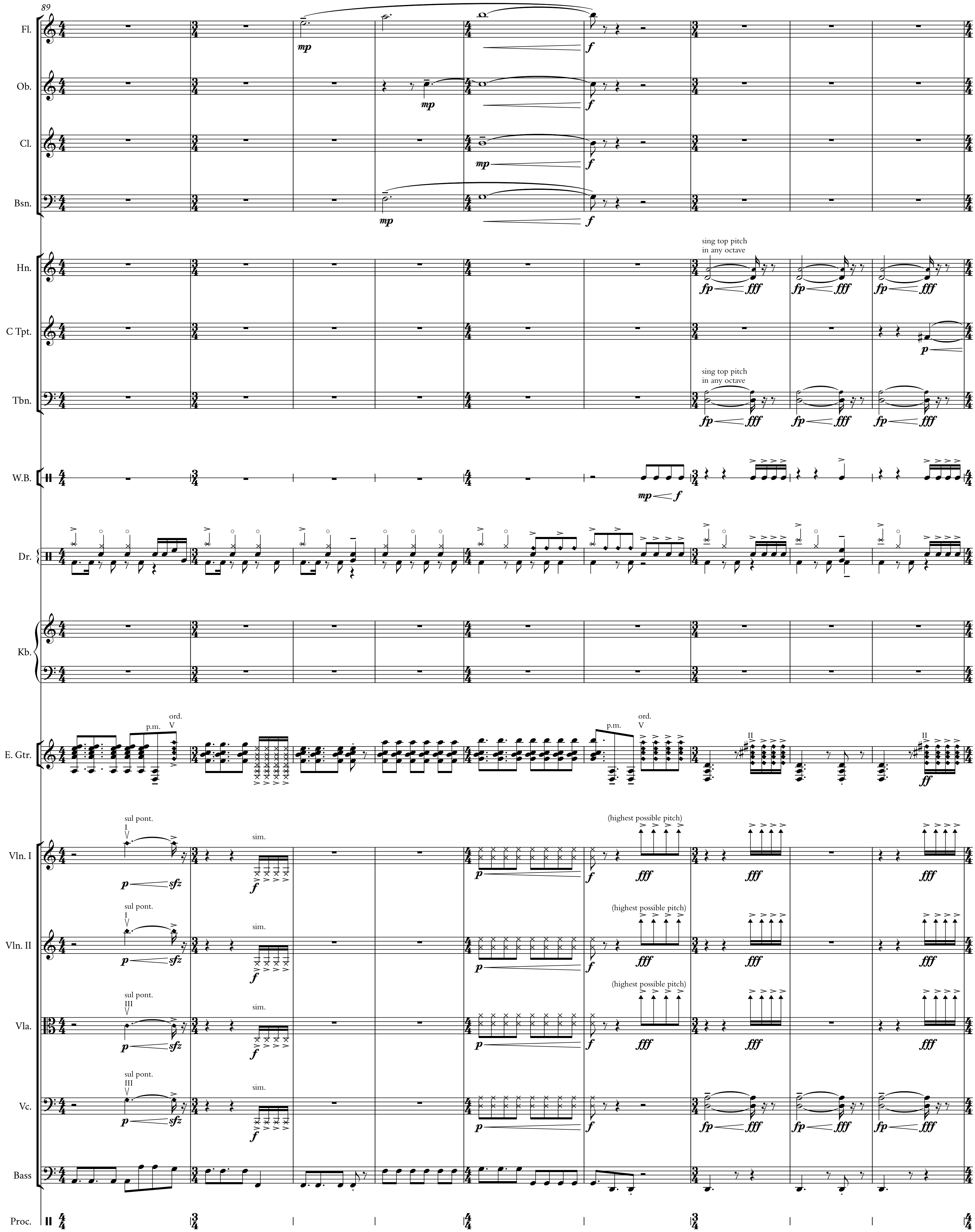
Dropped D tuning

Bass

Proc.

Light Saturation ON

Light Reverb ON


89
Fl.
Ob.
Cl.
Bsn.
Hn.
C Tpt.
Tbn.
W.B.
Dr.
Kb.
E. Gtr.
Vln. I
Vln. II
Vla.
Vc.
Bass
Proc.
mp
f
sing top pitch
in any octave
fp
fff
p
p.m.
ord.
sul pont.
sim.
sfz
(highest possible pitch)
ff
mp
f

98

Fl.
Ob.
Cl.
Bsn.
Hn.
C Tpt.
Tbn.
W.B.
Dr.
Kb.
E. Gtr.
Vln. I
Vln. II
Vla.
Vc.
Bass
Proc.

F

insert straight mute

insert straight mute

Delay ON: Setting 2
(♪. tempo-sync, 4-6 repeats)
Optional Reverb ON: high depth and length (pad-like).

Saturation OFF
Bright/Plate-Style Medium-Length Reverb ON

G

107

Fl.

Ob.

Cl.

Bsn.

Hn.

stopped

stopped

C Tpt.

straight mute

Tbn.

straight mute

(muted)

G

W.B.

To Br.D.

Dr.

Kb.

staccato

E. Gtr.

soaring and spacious

G

Vln. I

poco leggiero

Vln. II

poco leggiero

Vla.

leggiero

sub.

Vc.

leggiero

sub.

Bass

Proc.

117

Fl.

Ob.

Cl.

Bsn.

Hn.

stopped

C Tpt.

(muted)

Tbn.

W.B.

Brake Drum

To Thdr.Sht.

Thunder Sheet

Dr.

Kb.

E. Gtr.

Vln. I

Vln. II

Vla.

Vc.

Bass

marc.

Proc.

124

H **Chill, post-hardcore**

Fl. *mf* *ppp*

Ob. *mf* *ppp*

Cl. *mf* *mf* *ppp*

Bsn. *mf* *mf* *ppp*

Hn. *mf* *mf* *ppp*

C Tpt. *mf* remove mute *ppp*

Tbn. *mf* remove mute *ppp*

H **Chill, post-hardcore**

Thdr. Sht. To Xyl. *f*

Dr. with snare rolls/drags ad lib. *mf lightly*

Kb. *mf* *mp*

E. Gtr. Clean tone
Distortion, Delay and Reverb OFF

H **Chill, post-hardcore**

Vln. I *mf* *ppp*

Vln. II *mf* *ppp*

Vla. *mf* *ppp*

Vc. *mf* *ppp*

Bass Distortion/Fuzz OFF
Delay ON: Setting 1 (analog style, light slapback)

Proc.

133

Fl.

Ob.

Cl.

Bsn.

Hn.

Sparsely scream/yell/shout through instrument.
Text to be decided by the performer or can be a simple exclamation or scream such as "Ah!"
Beams show potential occurences.

AH!

fff harsh but muted

C Tpt.

Sparsely scream/yell/shout through instrument.
Text to be decided by the performer or can be a simple exclamation or scream such as "Ah!"
Beams show potential occurences.

AH!

fff harsh but muted

Tbn.

Sparsely scream/yell/shout through instrument.
Text to be decided by the performer or can be a simple exclamation or scream such as "Ah!"
Beams show potential occurences.

AH!

fff harsh but muted

Thdr. Sht.

Dr.

mp

Kb.

E. Gtr.

X

IX
(string sim.)

VII

XIV

mp

Vln. I

Vln. II

Vla.

Vc.

Bass

Electric Bass Solo:
expressive articulations and variations
ad lib. or improvise in the style.

Am9

G

G7

Fmaj7(♯11)

F6(♯11)

Cmaj7

E7

Am9
XII

XII

G

G7

ff

mf

ff

Proc.

Plate Reverb OFF
Light Reverb Only

145

Fl.
Ob.
Cl.
Bsn.
Hn.
C Tpt.
Tbn.
Thdr. Sht.
Xylophone
pp leggiero
f
Dr.
mf
Kb.
p dolce
E. Gtr.
mf
p.m.
Vln. I
Vln. II
Vla.
Vc.
Bass
Fmaj7(♯11)
F6(♯11)
Cmaj7
V
①
E7
V
②
Am9
G
G7
Fmaj7(♯11)
F6(♯11)
Cmaj7
E7
End solo
mf
ff
Proc.

157

Fl.

Ob.

Cl.

Bsn.

Hn.

Increase frequency and intensity of screams:

C Tpt.

Increase frequency and intensity of screams:

Tbn.

Increase frequency and intensity of screams:

Xyl.

To Whip, Br.D.

Dr.

Kb.

Dist. ON

ord.

E. Gtr.

p.m.

Vln. I

sul pont. II

I

ord.

Vln. II

sul pont. IV

I

Vla.

II

Vc.

pizz.

Delay OFF

Bass

Proc.

168

Fl.
Ob.
Cl.
Bsn.
Hn.
C Tpt.
Tbn.
Xyl.
Dr.
Kb.
E. Gtr.
Vln. I
Vln. II
Vla.
Vc.
Bass
Proc.

f mf f
f mf
p
p
mp mf f
open
p
open
p
mf
p
ord.
mp mf f
mp mf f

174

rall.

Fl.

Ob.

Cl.

Bsn.

Hn.

gradually turn singing into a scream

C Tpt.

sing note in any octave
through instrument

gradually turn singing into a scream

Tbn.

gradually turn singing into a scream

Xyl.

Whip
Brake Drum

Dr.

Kb.

E. Gtr.

ord.

Vln. I

Vln. II

Vla.

arco

Vc.

arco

Bass

Distortion/Light Fuzz ON

Proc.

Moderate Saturation ON

I **Metalcore/nü metal revival breakdown** ♩=126

180

Fl.
flz. ord.
sfp *sffz* *sfp* *sffffz*

Ob.
f espress. *f* *fff*

Cl.
mf *f espress.* *f* *fff*

Bsn.
f *mf* *f* *f* *fff*

Hn.
fff *f* *fff*

C Tpt.
fff *fff*

Tbn.
fff *fff*

I **Metalcore/nü metal revival breakdown** ♩=126

Whip
Br. Dr.
sfz *mf* *sfz* *sfz* *mf* *sfz* *mf*

Dr.
f

Patch C: Acoustic Piano with Reverse Dynamic Envelope (swelling in)

Kb.
mf *f*

E. Gtr.
XIII
f
p.m. I ord. p.m. ord.
XIII VIII XIII

I **Metalcore/nü metal revival breakdown** ♩=126
molto sul pont.

Vln. I
m.s.p.
sfp *sffz* *sfp* *sffffz*

Vln. II
fff

Vla.
mf *f* *fff*

Vc.
f *mf* *f*

Bass
f

Proc.

188

Fl.
Ob.
Cl.
Bsn.
Hn.
C Tpt.
Tbn.
Whip
Br. Dr.
Dr.
Kb.
E. Gtr.
Vln. I
Vln. II
Vla.
Vc.
Bass
Proc.

flz.
sfp
mf
espress.
p
sfz
To Thdr.Sht.
Thunder Sheet
f
I
p.m.
ord.
sul pont.
III
II
mp

196

Fl.
ord.
sfz
breathe as necessary
mp
fff
mf

Ob.
Player's choice multiphonic, like in movement I.
Unstable and noisy.
mf
fff
mf
fff

Cl.
Player's choice multiphonic, like in movement I.
Unstable and noisy.
mf
fff

Bsn.
flz.
ord.
f
sfz
flz.
ord.
f
sfz

Hn.
Sing/yell through instrument.
Pitch can be approximate and in any octave.
AH!
fff
mf
AH!
fff
f
sfz

C Tpt.
ord.
sfz
flz.
ord.
f
sfz
flz.
ord.
f
sfz

Tbn.
Sing/yell through instrument.
Pitch can be approximate and in any octave.
AH!
fff
mf
AH!
fff
f
sfz

Thdr. Sht.

Dr.
(with double bass drum/double pedal)

Kb.

E. Gtr.

Vln. I
sempre sul pont.
gliss.
mf
sfz
sempre sul pont.
gliss.
mf
sfz
sul pont.
III
fff

Vln. II
sempre sul pont.
gliss.
mf
sfz
sempre sul pont.
gliss.
mf
sfz
sul pont.
II
fff

Vla.
sempre sul pont.
gliss.
mf
sfz
sempre sul pont.
gliss.
mf
sfz
sul pont.
II
fff

Vc.
molto sul pont.
Consistently heavy bow pressure, bringing
out wild and unpredictable overtones.
fff

Bass

Proc.

202

Fl.
flz. fff mf ord. sfffz unevenly fluctuating whistle tones f possibile

Ob.
mf fff mf f possibile

Cl.
mf fff mf f possibile

Bsn.
flz. f fff f fff f fff ord. f

Hn.
(scream top pitch in any octave) fp sfffz One final sustained scream through the instrument. Does not need to begin on downbeat, but should end before the ensemble cut off. AH! fff

C Tpt.
flz. fff ord. mf sfffz One final sustained scream through the instrument. Does not need to begin on downbeat, but should end before the ensemble cut off. AH! fff

Tbn.
(scream top pitch in any octave) fp sfffz One final sustained scream through the instrument. Does not need to begin on downbeat, but should end before the ensemble cut off. AH! fff

Thdr. Sht.
p f To 5 Metals

Dr.
(unmeasured cymbal flourishes ad lib.) p To Vib.

Kb.
f

E. Gtr.
Tune 6th string back up to E

Vln. I
mf fff p Molto sul pont. arrhythmic twinkling. Unevenly bowing across strings while lightly muting with the fingering hand and moving up and down the fingerboard, resulting in high-pitched unpredictable partials. I II III IV "fff" "ppp"

Vln. II
mf fff p Molto sul pont. arrhythmic twinkling. Unevenly bowing across strings while lightly muting with the fingering hand and moving up and down the fingerboard, resulting in high-pitched unpredictable partials. I II III IV "fff" "ppp"

Vla.
mf fff p Molto sul pont. arrhythmic twinkling. Unevenly bowing across strings while lightly muting with the fingering hand and moving up and down the fingerboard, resulting in high-pitched unpredictable partials. I II III IV "fff" "ppp"

Vc.
m.s.p. ord. Dist. OFF Tune 4th string back up to E

Bass

Proc.
All Effects OFF

Transference Music

III. Trading Licks

208 **With motion, passing off energy ♩=108**

Fl. Ob. Cl. Bsn. Hn. C Tpt. Tbn.

mp *sfp* *sf* *f* *mf* *marc.* *molto* *poco* *sim.*

insert straight mute

insert straight mute

With motion, passing off energy ♩=108

5 Relatively Pitched Metals

Metals

Vibraphone

Vib.

with medium mallets

Ped.

Patch D: Acoustic Piano with Light Delay and Reverb

Kb.

Distortion ON
Delay ON: Setting 3 (light slapback)

Standard Tuning

E. Gtr.

p.m.

(p.m. gradually moves towards ord.)

ord.

With motion, passing off energy ♩=108

Vln. I Vln. II Vla. Vc.

4-string Bass Guitar

Delay ON: Setting 1

Bass

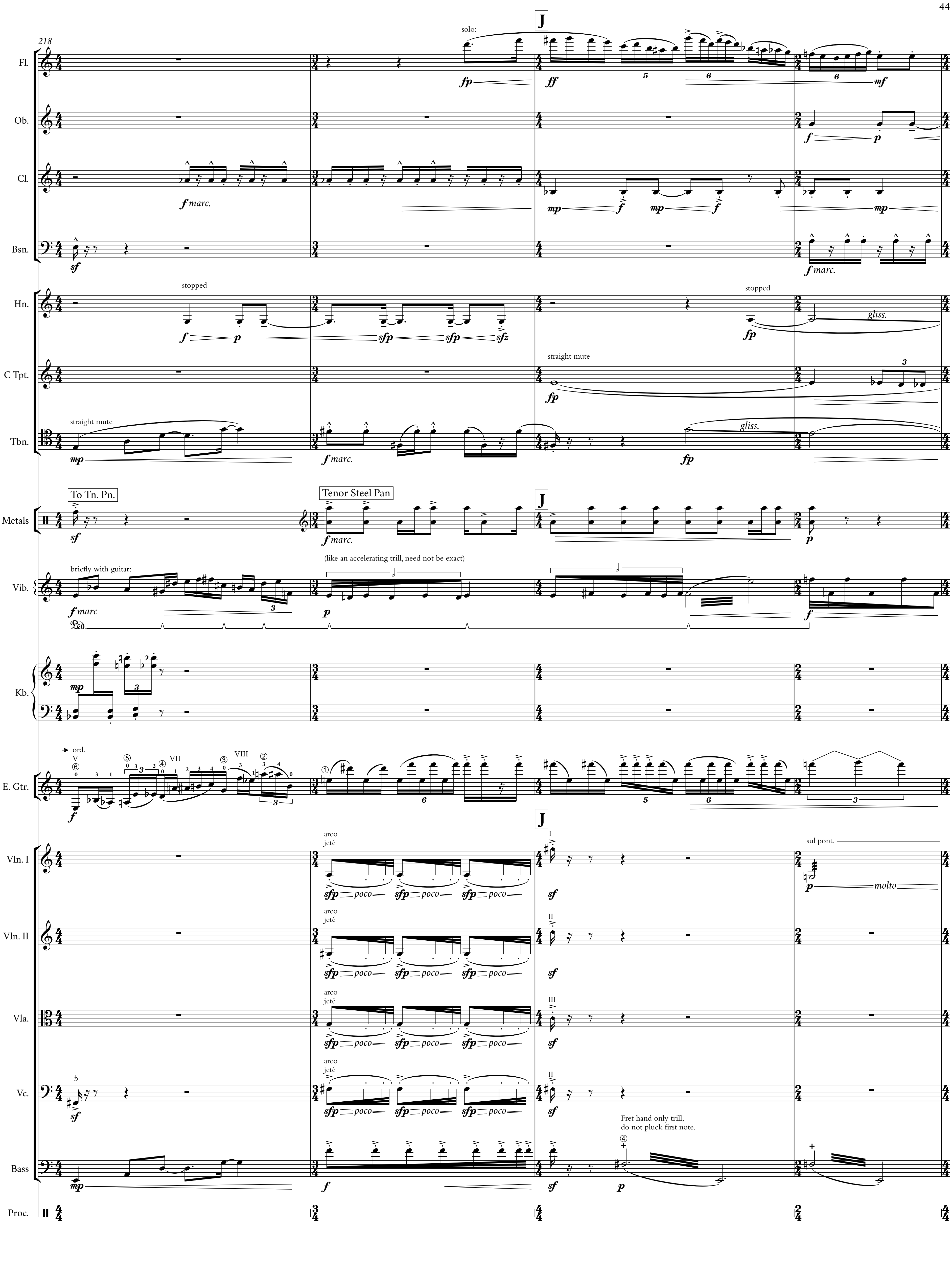
Proc.

Short Slapback Delay ON
Light Reverb ON

214

Fl.
Ob.
Cl.
Bsn.
Hn.
C Tpt.
Tbn.
Metals
Vib.
Kb.
E. Gtr.
Vln. I
Vln. II
Vla.
Vc.
Bass
Proc.

sf
f marc.
mp
sf
solo:
ff
mp
f
p
marc.
sf
mp
mf
sf
solo:
p
f marc.
decresc.
(continuously bending string w/rearticulation)
p
f
p sub.
p.m.
pizz.
sfz
pizz.
sfz
pizz.
sfz
pizz.
sfz f marc.
sf


218
J
Fl.
Ob.
Cl.
Bsn.
Hn.
C Tpt.
Tbn.
Metals
Vib.
Kb.
E. Gtr.
Vln. I
Vln. II
Vla.
Vc.
Bass
Proc.
solo:
f marc.
stopped
straight mute
gliss.
To Tn. Pn.
Tenor Steel Pan
briefly with guitar:
(like an accelerating trill, need not be exact)
ord.
arco
jeté
poco
sul pont.
molto
Fret hand only trill,
do not pluck first note.

222

Fl.
Ob.
Cl.
Bsn.
Hn.
C Tpt.
Tbn.
Tn. Pn.
Vib.
Kb.
E. Gtr.
Vln. I
Vln. II
Vla.
Vc.
Bass
Proc.

flz.
ord.
remove mute
solo: open
open
(flz.)
(ord.)
Fret hand only trill, do not pick first note.
p.m.
solo: ord.
pizz.
arco sul pont.
gliss.
solo:
leggiero

227

Fl.
Ob.
Cl.
Bsn.
Hn.
C Tpt.
Tbn.
Tn. Pn.
Vib.
Kb.
E. Gtr.
Vln. I
Vln. II
Vla.
Vc.
Bass
Proc.

solo
open

insert straight mute

insert straight mute

ord.

sul tasto

sul tasto

sul tasto moving to

sul tasto moving to

231

Fl.

Ob.

Cl.

Bsn.

Hn.

stopped

C Tpt.

straight mute

Tbn.

straight mute

Tn. Pn.

To T. Bl.

Temple Blocks

Vib.

Ped.

Kb.

E. Gtr.

Vln. I

Vln. II

Vla.

solo:
ord.

gliss.

sul pont.

espress.

Vc.

sul pont.

gliss.

Bass

Proc.

236

K **Electric Guitar (quasi) Cadenza,**
Slower, with slightly flexible tempo (♩=100)

Fl. Ob. Cl. Bsn. Hn. C Tpt. Tbn.

sffz

air tone — moving to: — *ppp*

T. Bl.

fff

Vib.

fff

Kb.

E. Gtr.

fff

p.m. → ord.

mp — *fff espress.*

mf

Vln. I Vln. II Vla. Vc. Bass

fff

harm. pressure
sul pont.
I

Proc.

243

Fl.
Ob.
Cl.
Bsn.
Hn.
C Tpt.
Tbn.
T. Bl.
Vib.
Kb.
E. Gtr.
Vln. I
Vln. II
Vla.
Vc.
Bass
Proc.

full tone
normal pressure
fff
rit. accel. A tempo (♩=100)
p.m.
ord.
(l.v. open strings)
(1/2)
ff
mf
sf
f
mp

251

poco rit. A tempo (♩=100)

Fl.

Ob.

Cl.

Bsn.

Hn. — stopped — ppp

C Tpt. — (muted) — ppp

Tbn. — (muted) — ppp

poco rit. A tempo (♩=100)

T. Bl.

Vib.

Kb.

E. Gtr. — (string sim.) — mf — f — mp — ff — f — mf

poco rit. A tempo (♩=100)

Vln. I — molto sul pont. — ppp — fff harsh

Vln. II — molto sul pont. — ppp — fff harsh

Vla. — molto sul pont. — ppp — fff harsh

Vc. — molto sul pont. — ppp — fff harsh

Bass

Proc.

257

Fl.

Ob.

Cl.

Bsn.

(air tone)
ppp

Slightly slower,
allowing for a groove ♩=92

Hn.

C Tpt.

Tbn.

fff

remove mute

T. Bl.

Vib.

Out of time twinkling using the pitches shown in any octave.
With fingers/nails on the bars. Rhythms shown as examples.

p leggiero

Kb.

mp

E. Gtr.

Previous shape moved to new positions:
VI III

pick hand tap (XIX)

gliss. to open string with pick hand (XII):

w/ fret hand:

gliss.

mp f p ppp ff

Vln. I

Vln. II

Vla.

Vc.

Bass

molto sul pont.
circular bow bringing out overtones:
I II III

Delay OFF

Proc.

Delay OFF
Light Chorus or Flanger ON

L

263 ord.

Fl.

Ob.

Cl.

Bsn.

Hn.

C Tpt.

Tbn.

L

T. Bl.

Vib.

Kb.

E. Gtr.

L

Vln. I

Vln. II

Vla.

Vc.

Bass

270

Fl.

Ob.

Cl.

Bsn.

Hn.

C Tpt.

Tbn.

T. Bl.

Vib.

Kb.

E. Gtr.

Vln. I

Vln. II

Vla.

Vc.

Bass

flz.

ord.

key clicks (pitches only if possible)

(sung multiphonic in any octave, gradually introduced)

To Bongos

Bongos (w/ sticks)

secco

leggiero

pesante sub.

decresc.

String half pressure, over the pickups. (pitches approx.)

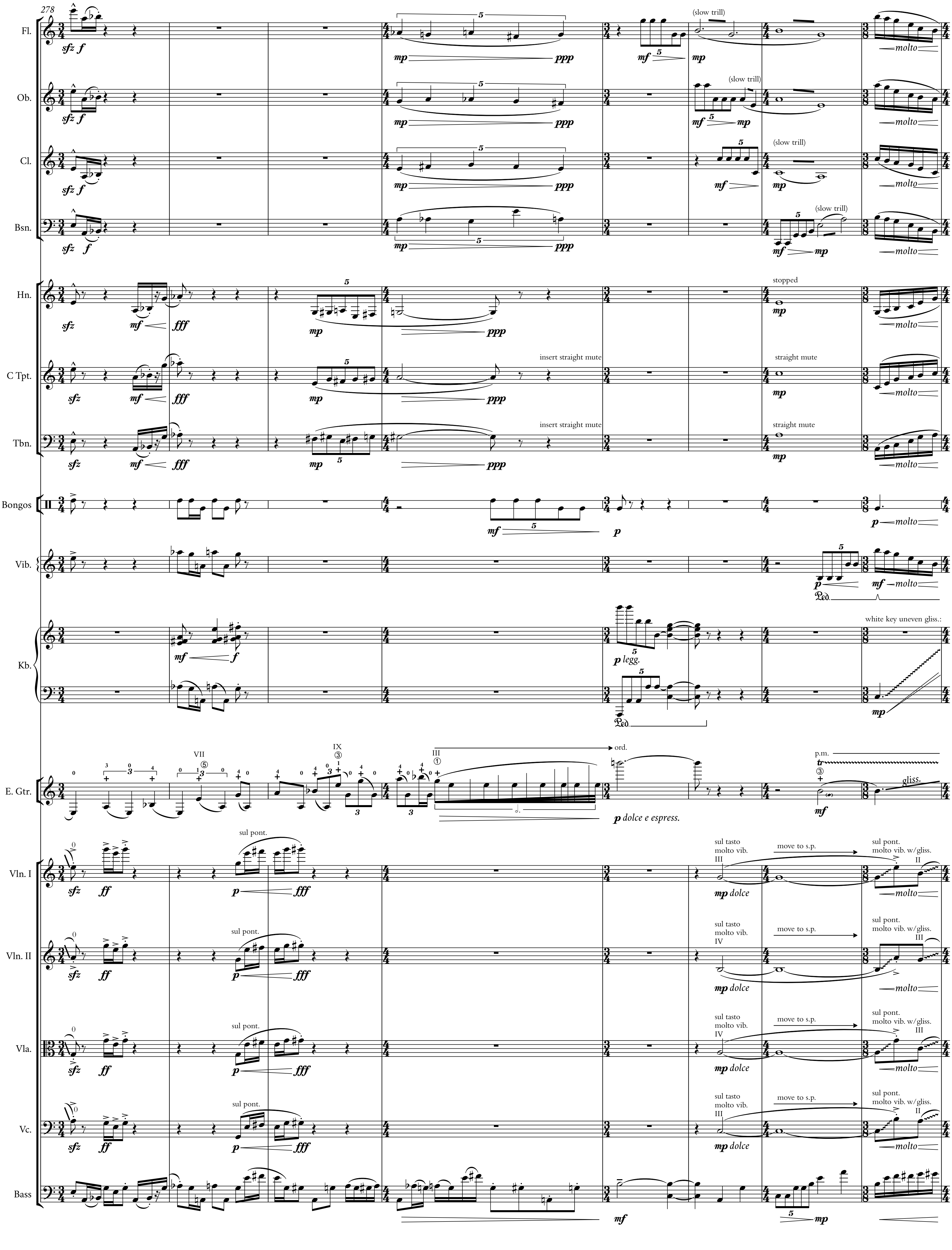
p.m.

sul pont.

arco molto sul pont.

arco ord.

pizz.


278
Fl.
Ob.
Cl.
Bsn.
Hn.
C Tpt.
Tbn.
Bongos
Vib.
Kb.
E. Gtr.
Vln. I
Vln. II
Vla.
Vc.
Bass
(slow trill)
molto
stopped
insert straight mute
straight mute
white key uneven gliss.:
legg.
ord.
dolce e espress.
p.m.
gliss.
sul pont.
sul tasto
molto vib.
move to s.p.
molto vib. w/gliss.
dolce

286

M

Fl.

Ob.

Cl.

Bsn.

Hn.

C Tpt.

remove mute

Tbn.

remove mute

M

Bongos

Vib.

Kb.

E. Gtr.

ord.

XIV

molto espress.

M

Vln. I

Vln. II

Vla.

Vc.

Bass

Proc.

Chorus/Phaser OFF
Light Reverb Only

292

Fl.
Ob.
Cl.
Bsn.
Hn.
C Tpt.
Tbn.
Bongos
Vib.
Kb.
E. Gtr.
Vln. I
Vln. II
Vla.
Vc.
Bass
Proc.

f *mp* *sf* *f* *p* *f legato* *mp* *mf* *mp mysterious* Ped. *p molto dolce* p.m. ord. *ppp*

297

Fl.
Ob.
Cl.
Bsn.
Hn.
C Tpt.
Tbn.
Bongos
Vib.
Kb.
E. Gtr.
Vln. I
Vln. II
Vla.
Vc.
Bass
Proc.

f legato *mp*
f *mp*
ff *mp*
fff
p
p dolce
p leggiero
mf
f *mf*
(open)
(slow trill)
(speed up)
To Crot.
Crotales
Ped.

302

Fl.
Ob.
Cl.
Bsn.
Hn.
C Tpt.
Tbn.
Crot.
Vib.
Kb.
E. Gtr.
Vln. I
Vln. II
Vla.
Vc.
Bass
Proc.

ff *mf* *mp* *f* *pp* *p*

Ped.

heavy p.m.
gradually moving to ord.
with each string change.

fingering sim.

p cresc. poco a poco

305

Fl.
Ob.
Cl.
Bsn.
Hn.
C Tpt.
Tbn.
Crot.
Vib.
Kb.
E. Gtr.
Vln. I
Vln. II
Vla.
Vc.
Bass
Proc.

To Roto-t.
To Glock.
To Cb.
All Effects OFF

moving to above the pickups, pick with approx. pitch when you run out of frets.

ord.

XI

Transference Music

IV. More Slides, Bends and Shifts (After Tim Brady)

311 **With steady, fluid motion and building layers ♩=84**

Fl.

Ob.

Cl.

Bsn.

Hn.

insert straight mute

C Tpt.

insert straight mute

Tbn.

With steady, fluid motion and building layers ♩=84

3 Roto-toms
10"=B3, 8"=A4, 6"=C#5

Roto-t.

Glockenspiel

Glock.

Patch A

Kb.

Middle or Neck Pickup
Digitech Whammy ON: 4th Down Setting (all slides with whammy for duration of movement)
Overdrive ON: Slight Boost
Subtle Modulation Effect ON (Uni-Vibe/Phaser/Flanger or similar)
Delay ON: Setting 4 (w/mod, ♩ tempo-synced speed, 3-4 repeats, high mix)

Notation staff shows results of performed gestures+whammy effect.
Tab staff included to show performed gestures alone.
VII position

E. Gtr.

f yet contemplative

E. Gtr.

T
A
B

Whammy

With steady, fluid motion and building layers ♩=84

Vln. I

Vln. II

Vla.

Vc.

sul pont

p leggiero

ppp

Contrabass

Cb.

sul pont

p leggiero

ppp

Proc.

Light Chorus ON
Long Reverb ON

323

N

Fl.
Ob.
Cl.
Bsn.
Hn.
C Tpt.
Tbn.
Roto-t.
Glock.
Kb.
E. Gtr.
E. Gtr.
Whammy
Vln. I
Vln. II
Vla.
Vc.
Cb.

ppp
mp molto legato
stopped
straight mute
mf
p
straight mute
mf leggiero
8va
IX
VII
X
XIV
gliss.
f
sul pont
ord.
sul pont.
sul pont

332

Fl.

Ob.

Cl.

Bsn.

Hn.

C Tpt.

Tbn.

Roto-t.

Glock.

Kb.

E. Gtr.

E. Gtr.

Whammy

Vln. I

Vln. II

Vla.

Vc.

Cb.

O

open

Buzz roll with one stick. Gliss. by tuning tom with the other hand. Rearticulate after gliss./tune. (8")

(6")

Tuning: 10"=B3, 8"=E4, 6"=F#4

slow and unmetered single stroke trem. while gliss./tuning (6")

To Dr.

Drum Set

gradually open H.H.

To Glock.

(silent whammy reset)

Whammy: 5th Up Setting

II Position

(silent reset)

(reset anytime before next phrase)

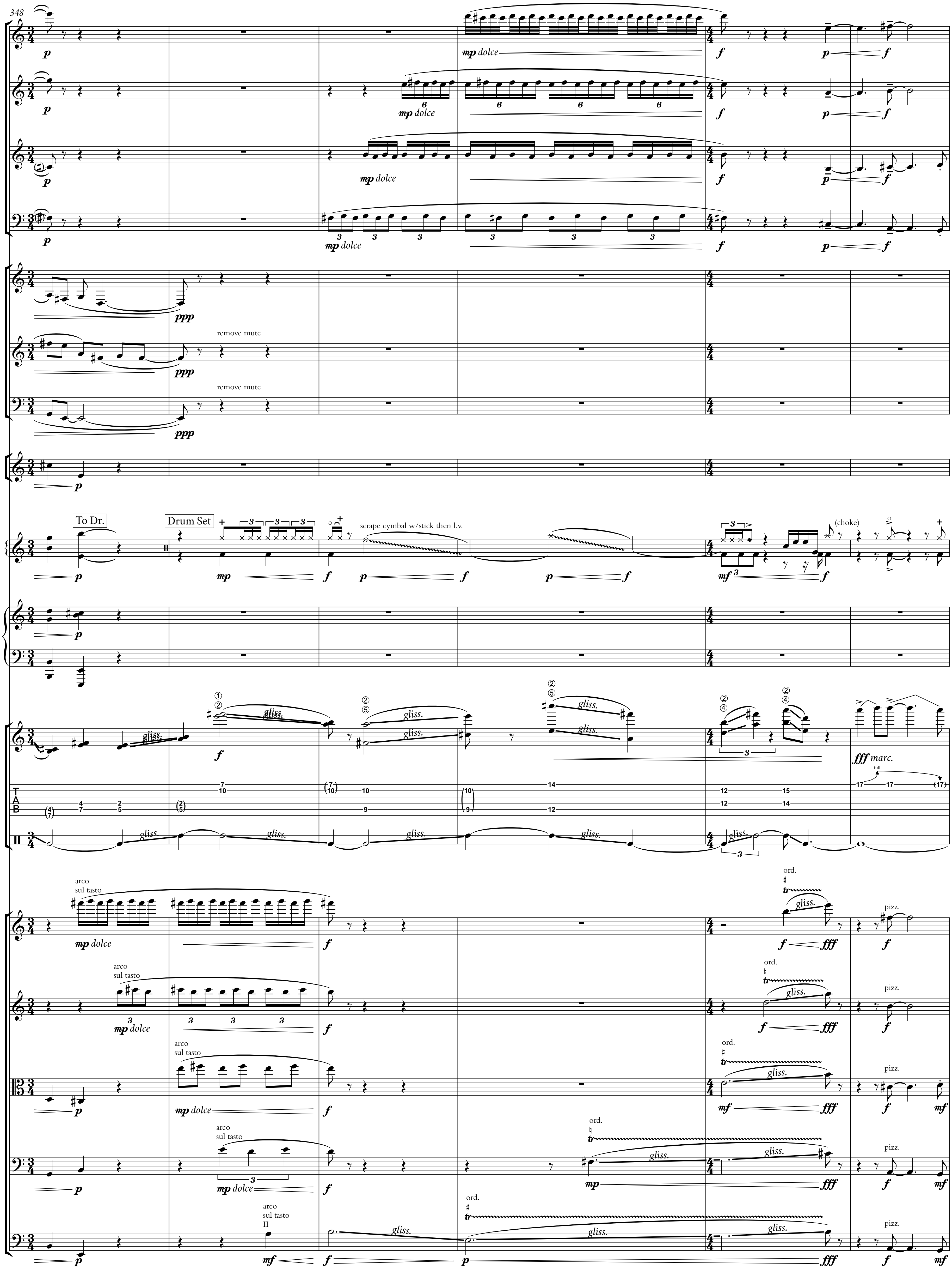
sul tasto

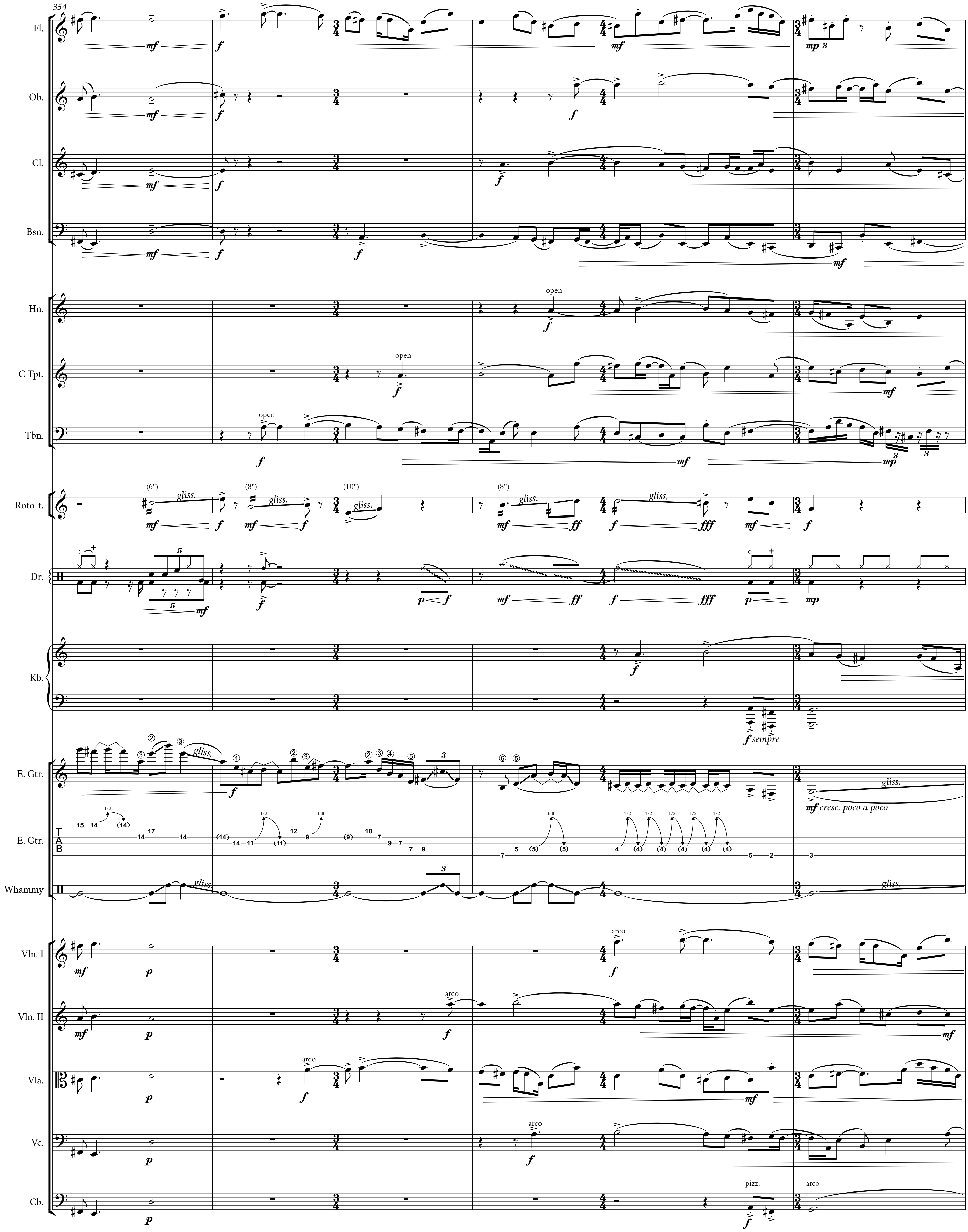
pizz.

341

Fl.
Ob.
Cl.
Bsn.
Hn.
C Tpt.
Tbn.
Roto-t.
Dr.
Kb.
E. Gtr.
E. Gtr.
Whammy
Vln. I
Vln. II
Vla.
Vc.
Cb.

mf leggiero
p
mf
stopped
f
gliss.
(muted)
(lip bend)
mp
(8")
(no buzz roll)
(10")
(6")
Glockenspiel
mp leggiero
IV
full
1/2
sul pont.
arco
sul pont.
pizz.
ppp


348
Fl.
Ob.
Cl.
Bsn.
Hn.
C Tpt.
Tbn.
Roto-t.
Glock.
Kb.
E. Gtr.
E. Gtr.
Whammy
Vln. I
Vln. II
Vla.
Vc.
Cb.
p
mp dolce
f
ppp
remove mute
remove mute
To Dr.
Drum Set
mp
scrape cymbal w/stick then l.v.
(choke)
mf
gliss.
fff marc.
full
arco
sul tasto
ord.
pizz.
mp
mf
fff
II


354
Fl.
Ob.
Cl.
Bsn.
Hn.
C Tpt.
Tbn.
Roto-t.
Dr.
Kb.
E. Gtr.
E. Gtr.
Whammy
Vln. I
Vln. II
Vla.
Vc.
Cb.
open
open
open
arco
arco
arco
arco
pizz.
arco
gliss.
(6")
(8")
(10")
(8")
f sempre
mf cresc. poco a poco
full
1/2

360

Fl.
Ob.
Cl.
Bsn.
Hn.
C Tpt.
Tbn.
Roto-t.
Dr.
Kb.
E. Gtr.
E. Gtr.
Whammy
Vln. I
Vln. II
Vla.
Vc.
Cb.

breathe if needed, staggered with other instruments

(10")
(6")
(8")
gliss.
opening hi-hats

365

Fl.
breathe if needed, staggered with other instruments
pp cresc. poco a poco *mf* *f* *ff*

Ob.
breathe if needed, staggered with other instruments
p *mf* *f*

Cl.
breathe if needed, staggered with other instruments
mp *f*

Bsn.
breathe if needed, staggered with other instruments
p *f*

Hn.
lip bend
p *mf* *f* *gliss.*

C Tpt.
breathe if needed, staggered with other instruments
p *f*

Tbn.
pp *f* *gliss.*

Roto-t.
solo:
(8") (10") (6") (10") (6") (6")
ff marc. e espress. *gliss.*

Dr.
f *fff* *mf* *f*

Kb.
p
Ped.

E. Gtr.
fff *gliss.*

E. Gtr.
T
A
B

Whammy
Whammy: 4th/5th Up Harmony Setting
(toe stays down)
gliss.

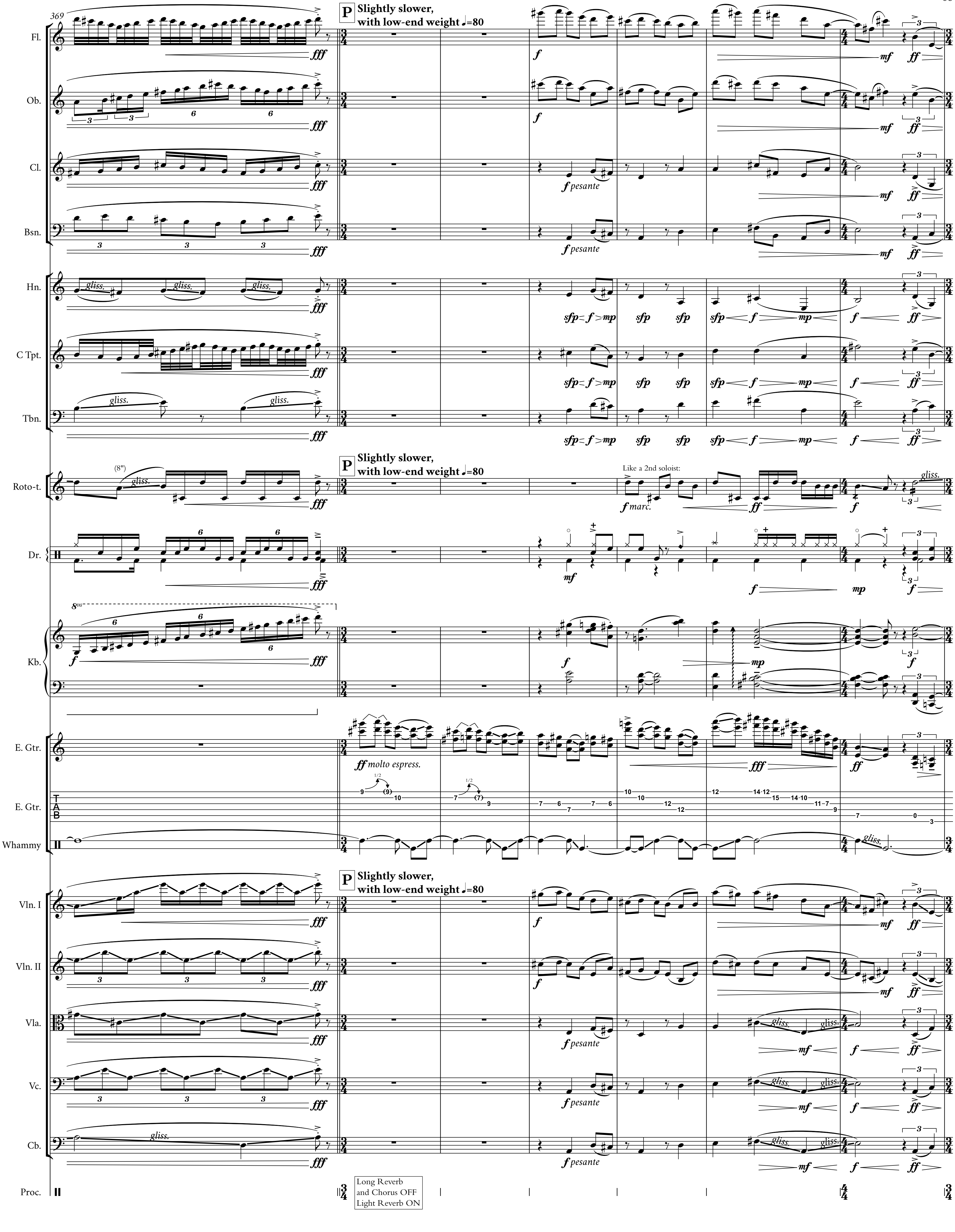
Vln. I
as legato as possible
p *mf* *f*

Vln. II
as legato as possible
p *mp* *f* *gliss.*

Vla.
as legato as possible
p *f* *gliss.*

Vc.
as legato as possible
p *mf* *f* *gliss.*

Cb.
as legato as possible
mf *f* *gliss.*


369
Fl.
Ob.
Cl.
Bsn.
Hn.
C Tpt.
Tbn.
Roto-t.
Dr.
Kb.
E. Gtr.
E. Gtr.
Whammy
Vln. I
Vln. II
Vla.
Vc.
Cb.
Proc.
P
Slightly slower, with low-end weight ♩=80
gliss.
molto espress.
pesante
marc.
Like a 2nd soloist:
Long Reverb and Chorus OFF Light Reverb ON

376

Fl.

Ob.

Cl.

Bsn.

Hn.

sing smaller pitch in any octave, can be approx.

C Tpt.

sing smaller pitch in any octave, can be approx.

Tbn.

sing smaller pitch in any octave, can be approx.

Roto-t.

Dr.

(scrape)

(scrape crash)

Kb.

E. Gtr.

E. Gtr.

Whammy

Vln. I

Vln. II

Vla.

Vc.

Cb.

383

Fl.

Ob.

Cl.

Bsn.

Hn.

C Tpt.

Tbn.

lip bend

lip bend w/valve change

Roto-t.

Dr.

Kb.

E. Gtr.

E. Gtr.

Whammy

Whammy: Octave Up Setting

Vln. I

Vln. II

Vla.

Vc.

Cb.

390

Fl.

Ob.

Cl.

Bsn.

Hn.

C Tpt.

Tbn.

Roto-t.

Dr.

Kb.

E. Gtr.

E. Gtr.

Whammy

Vln. I

Vln. II

Vla.

Vc.

Cb.

Q

poco vib. then uneven bend
arrival pitch not specific

reverse of previous gesture

gliss.

To Vib.

Vibraphone

Uneven bend with rubber mallet
on the bar. Hard mallet used for striking.
Arrival pitches approx.

Reset whammy to heel down position
before next phrase. Whammy gliss. can
be played with generous rubato

All strings: gliss. with quadruple
stop shape (intervals can be approx.)
while arpeggiating and bowing
in the rhythm shown above.

molto sul pont.
Slow and uneven nat. harm. gliss. bringing out unexpected harmonics.
Pitch always shows fingered position
IV

move to normal
fingerboard pressure

back to harmonic pressure

finger pressure shifting sim.

ff sempre

396

Fl.

Ob.

Cl.

Bsn.

Hn.

uneven bend up from unspecified pitch

poco vib. then uneven bend arrival pitch not specific

C Tpt.

Tbn.

Roto-t.

gliss.

To Flex.

Flexatone

Vib.

Kb.

E. Gtr.

E. Gtr.

Whammy

Vln. I

Vln. II

Vla.

Vc.

Cb.

402

Woodwinds and Brass:
bend down as low as possible
then back up to original pitch

Woodwinds:
start as low as possible
then bend into pitch

Fl.
Ob.
Cl.
Bsn.
Hn.
C Tpt.
Tbn.
Flex.
Vib.
Kb.
E. Gtr.
E. Gtr.
Whammy
Vln. I
Vln. II
Vla.
Vc.
Cb.

stopped

insert straight mute

straight mute

Whammy: Octave Down Setting

move to

ord.
Like a 2nd soloist:

411

Fl.
Ob.
Cl.
Bsn.
Hn.
C Tpt.
Tbn.
Flex.
Vib.
Kb.
E. Gtr.
E. Gtr.
Whammy
Vln. I
Vln. II
Vla.
Vc.
Cb.

airy tone
stopped
remove mute
To Crot.
gliss.
pizz.
arco
sub.
IV
III

417

short pause, then attacca

Fl.

Ob.

Cl.

Bsn.

Hn.

C Tpt.

Tbn.

short pause, then attacca

Flex.

Vib.

Kb.

All effects
(including Whammy) OFF

E. Gtr.

gliss.

E. Gtr.

Whammy

gliss.

short pause, then attacca

Vln. I

arco
II
p leggiero

Vln. II

arco
III
p leggiero

Vla.

arco
II
p leggiero

Vc.

arco
III
p leggiero

Cb.

I
mf
p leggiero

Proc.

Transference Music

V. Interlude - Echo Trails

423

Like overlapping, interacting and pulsating echoes ♩=72

Fl.

Choppy, emulating the guitar's eventual delay trails:

Like a tape/analog delay trail changing speed*:

Ob.

Like a tape/analog delay trail changing speed*:

Choppy, emulating the guitar's eventual delay trails:

Cl.

Choppy, emulating the guitar's eventual delay trails:

Bsn.

stopped

Hn.

insert cup mute

C Tpt.

insert cup mute

cup mute

Tbn.

Like overlapping, interacting and pulsating echoes ♩=72

Crotales

Crot.

quintuplets, septuplets need not be exact

Vib.

Patch E: Clean/Glossy/Synth Bell-like Electric Piano (Yamaha DX-7-style)

quintuplets, septuplets need not be exact

Kb.

Chorus ON
Delay ON: Setting 5 (analog-style:pitch shifts occur when delay speed is adjusted, ♩ tempo-synced, 8-12 repeats/self-oscillating at faster speeds, mix: 100%)

Top staff shows results of performed gestures+delay effect.
Middle staff shows gestures performed with the Electric Guitar alone.
Bottom staff shows delay time knob turning gestures.

Gtr.+Dly.

E. Gtr.

Delay Pedal Speed

Delay

Like overlapping, interacting and pulsating echoes ♩=72

Choppy, emulating the guitar's eventual delay trails:

Like a tape/analog delay trail changing speed*:

Vln. I

Choppy, emulating the guitar's eventual delay trails:

Like a tape/analog delay trail changing speed*:

Vln. II

Choppy, emulating the guitar's eventual delay trails:

Vla.

arco
sul tasto

arco
sul tasto

Vc.

Cb.

Light Chorus ON
Light Reverb ON

Proc.

*Tape/delay trail shifting effect (feathered beams):
Gradual and directional change in speed and pitch towards indicated arrival point. For strings, perform with gliss. For winds/brass, add bends to imitate gliss./microtones if possible. Square noteheads indicate non-specified pitches within that range. Rhythmic values above show starting and arriving pulsation (feathered beam stems are not to be taken literally).

428

Like a tape/analog delay trail changing speed*:

Fl.

Ob.

Cl.

Like a tape/analog delay trail changing speed*:

Bsn.

Choppy, emulating the guitar's eventual delay trails:
stopped

Hn.

cup mute

C Tpt.

Choppy, emulating the guitar's eventual delay trails:
with cup mute

Tbn.

bowed

Crot.

Vib.

Kb.

(delay repeats)

Gtr.+Dly.

E. Gtr.

(triplet quarter note speed)

Delay

arco
I

Vln. I

arco
II

pizz.

Vln. II

Like a tape/analog delay trail changing speed*:

Vla.

ord.
III
IV

Like a tape/analog delay trail changing speed*:

Vc.

pizz.

Choppy, emulating the guitar's eventual delay trails:
arco (ord.)

(pizz.)

Cb.

432

Fl.

Ob.

Cl.

Bsn.

Hn.

C Tpt.

Tbn.

Crot.

with hard mallets

quintuplets, septuplets need not be exact

Vib.

Kb.

Gtr.+Dly.

delay feedback accumulating into self oscillation:

E. Gtr.

Delay

Vln. I

Vln. II

arco

Vla.

Vc.

sul pont.
III

Cb.

436

Fl.

Ob.

Cl.

Bsn.

Like a tape/analog delay trail changing speed*:

Hn.

Choppy, emulating the guitar's eventual delay trails:
with cup mute

C Tpt.

Like a tape/analog delay trail changing speed*:

Like a tape/analog delay trail changing speed*:

Tbn.

(gradually speed up trem.)

Crot.

(gradually speed up trem.)

Vib.

Ped.

8va

Kb.

Ped. 8vb

self-oscillations:

Gtr.+Dly.

E. Gtr.

Delay

Vln. I

Vln. II

Vla.

ord.

Vc.

Like a tape/analog delay trail changing speed*:

Cb.

439

Fl.
Ob.
Cl.
Bsn.
Hn.
C Tpt.
Tbn.
Crot.
Vib.
Kb.
Gtr.+Dly.
E. Gtr.
Delay
Vln. I
Vln. II
Vla.
Vc.
Cb.

S

fff
fp
ppp
f
mf
sf
sfp
sim.

remove mute

(very uncertain pitch)

(accel. values not specific)

Ped.

444

Fl.

Ob.

Cl.

Bsn.

Hn.

C Tpt.

Tbn.

Crot.

Vib.

Kb.

(previous trails continue and fade, etc.)

Gtr.+Dly.

E. Gtr.

Delay

Vln. I

Vln. II

Vla.

Vc.

Cb.

448

Fl.
Ob.
Cl.
Bsn.
Hn.
C Tpt.
Tbn.
Crot.
Vib.
Kb.
Gtr.+Dly.
E. Gtr.
Delay
Vln. I
Vln. II
Vla.
Vc.
Cb.

solo:
without mute
solo:
gliss.
(no delay repeats during this gliss. like a slur)
pulsation not necessarily exact, accumulating into self-oscillation:

451

T

Fl.
Ob.
Cl.
Bsn.
Hn.
C Tpt.
Tbn.
Crot.
Vib.
Kb.
Gtr.+Dly.
E. Gtr.
Delay
Vln. I
Vln. II
Vla.
Vc.
Cb.

solo:

(a sound mass by this point)

454

Fl.

Ob.

Cl.

Bsn.

Hn.

C Tpt.

Tbn.

Crot.

Vib.

Kb.

Gtr.+Dly.

E. Gtr.

Delay

Vln. I

Vln. II

Vla.

Vc.

Cb.

"tape gliss." durations are all ♩ until U

(lip bend)

bowed

Ped.

8va

8vb

pitch arrival more important than pulsation here:

(dropping a whole step in pitch)

self-oscillating:

sul pont.

ord.

pizz.

arco

458

U

Fl.
Ob.
Cl.
Bsn.
Hn.
C Tpt.
Tbn.
Crot.
Vib.
Kb.
Gtr.+Dly.
E. Gtr.
Delay
Vln. I
Vln. II
Vla.
Vc.
Cb.

pizz.
arco
bowed
Ped.

463

Fl.
Ob.
Cl.
Bsn.
Hn.
C Tpt.
Tbn.
Crot.
Vib.
Kb.
Gtr.+Dly.
E. Gtr.
Delay
Vln. I
Vln. II
Vla.
Vc.
Cb.
Proc.

V

insert cup mute

Delay ON (approx. ♪ tempo-synced speed, 8-12 repeats, high Mix)
Chorus and Reverb still ON

467

Fl.
Ob.
Cl.
Bsn.
Hn.
C Tpt.
Tbn.
Crot.
Vib.
Kb.
Gtr.+Dly.
E. Gtr.
Delay
Vln. I
Vln. II
Vla.
Vc.
Cb.
Proc.

quintuplets, septuplets need not be exact
To A. Fl.
To E. H.
To B. Cl.
To Cbsn.
cup mute
pizz.
(pizz.)
To Bass Guitar
(delay trails from previous measure)

471

Fl.

Ob.

Cl.

Bsn.

Hn.

C Tpt.

Tbn.

Crot.

To Thdr.Sht.

p *f*

Vib.

To Tub. B.

p *f*

Kb.

Let feedback accumulate as long as possible before it gets too loud, then slowly turn down speed knob to lowest value.

Let trail die out

Gtr.+Dly.

mf *p* *f* *mp* *fff* *n*

E. Gtr.

mf *mp*

Delay

Vln. I

Vln. II

Vla.

Vc.

Cb.

Proc.

All Effects OFF

Transference Music

VI. Depths

476

Degrading drone, like a vaporwave/dreampunk landscape ca. ♩=60
(without a perceivable or regular sense of pulse, as in first movement)

A. Fl. — Alto Flute
E. H. — English Horn
B. Cl. — Bass Clarinet in B♭
Cbsn. — Contrabassoon

mf tenuto *pp* *f* *ppp*

Hn.
stopped sempre
mf *ppp* *f* *ppp*

C Tpt.
(with cup mute)

Tbn.
(with cup mute)
mf *ppp* *f* *ppp*

Degrading drone, like a vaporwave/dreampunk landscape ca. ♩=60
(without a perceivable or regular sense of pulse, as in first movement)

Thdr. Sht. — Thunder Sheet
with soft large beater
mf *ppp* *mf* *ppp*

Tub. B. — Tubular Bells
f

Kb. — Patch E
3 3
f

E. Gtr.
Chorus ON
Digitech Whammy ON: 2 Octaves Down Setting, starting toe down
Delay ON: Setting 6 (very light analog-style, not tempo-synced)
Option for very light Sample Degrade/Lo-Fi effect
Bridge Pickup, with Single Coil or Coil Tap sound if possible
mf
15mb

Degrading drone, like a vaporwave/dreampunk landscape ca. ♩=60
(without a perceivable or regular sense of pulse, as in first movement)

Vln. I
Vln. II
Vla.
arco
con sord.
mf *ppp* *p* *f* *ppp*

Vc.
arco
con sord.
mf *ppp* *p* *f* *ppp*

Bass — 4-string Bass Guitar
Dropped D tuning
Chorus ON
Delay ON: Setting 2 (analog-style, not tempo synced, very light)
f *mp* *f*

Proc.
Sample Degrade/Lo-Fi Effect/Filter ON
Delay ON (very light, not tempo synced)
Long Reverb ON

481

A. Fl.
E. H.
B. Cl.
Cbsn.
Hn.
C Tpt.
Tbn.
Thdr. Sht.
Tub. B.
Kb.
E. Gtr.
Vln. I
Vln. II
Vla.
Vc.
Bass

arco
con sord.

486

A. Fl.
E. H.
B. Cl.
Cbsn.
Hn.
C Tpt.
Tbn.
Thdr. Sht.
Tub. B.
Kb.
E. Gtr.
Vln. I
Vln. II
Vla.
Vc.
Bass

Set Whammy approx. midway between heel and toe for octave down. Tune in time if necessary.

IV

Whammy toe down

491

A. Fl.
E. H.
B. Cl.
Cbsn.
Hn.
C Tpt.
Tbn.
Thdr. Sht.
Tub. B.
Kb.
E. Gtr.
Vln. I
Vln. II
Vla.
Vc.
Bass

496

A. Fl.
E. H.
B. Cl.
Cbsn.
Hn.
C Tpt.
Tbn.
Thdr. Sht.
Tub. B.
Kb.
E. Gtr.
Vln. I
Vln. II
Vla.
Vc.
Bass

Whammy midway between heel and toe

IV

CIV

CVII

(bend both pitches)

501

A. Fl.
E. H.
B. Cl.
Cbsn.
Hn.
C Tpt.
Tbn.
Thdr. Sht.
Tub. B.
Kb.
E. Gtr.
Vln. I
Vln. II
Vla.
Vc.
Bass

To Xyl.
Xylophone
Middle or Neck Pickup
Whammy heel down position
pizz.
arco
gliss.

506

A. Fl.
E. H.
B. Cl.
Cbsn.
Hn.
C Tpt.
Tbn.
Xyl.
Tub. B.
Kb.
E. Gtr.
Vln. I
Vln. II
Vla.
Vc.
Bass

gliss.
(very wide vib.)
pizz.
arco
espress

511

A. Fl.
E. H.
B. Cl.
Cbsn.
Hn.
C Tpt.
Tbn.
Xyl.
Tub. B.
Kb.
E. Gtr.
Vln. I
Vln. II
Vla.
Vc.
Bass

quarter tones can be approximate or fluctuate

gliss.

arco

pizz.

516

A. Fl.
sim.

E. H.
sim.

B. Cl.
sim.

Cbsn.
sim.

Hn.
gliss.
ppp
f

C Tpt.
gliss.
ppp
f

Tbn.
gliss.
ppp
f

Xyl.
mp
f

Tub. B.
mp
ppp
f

Kb.
mp
p
ppp
f

E. Gtr.
mp
f
mf < f
mf
f
mf
f

Vln. I
arco
mf
f
ppp
f

Vln. II
arco
mf
f
ppp
f

Vla.
f

Vc.
mf
f
ppp
f

Bass
mp
f

521

A. Fl.

E. H.

B. Cl.

Cbsn.

Hn.

gliss.

mf *f* *mp* *ppp*

C Tpt.

gliss.

mf *f* *ppp*

Tbn.

gliss.

mf *f* *mp* *ppp*

Xyl.

To T.-t.

To Dr.

Tub. B.

Kb.

mf *mp*

E. Gtr.

fff espress

Bridge Pickup
Whammy toe down

Vln. I

pizz.

f

Vln. II

pizz.

f

Vla.

Vc.

pizz.

f

arco

mp *ppp*

Bass

mf

526

A. Fl.
E. H.
B. Cl.
Cbsn.
Hn.
C Tpt.
Tbn.
Xyl.
Dr.
Kb.
E. Gtr.
Vln. I
Vln. II
Vla.
Vc.
Bass

All pitches slightly flatter than notated ad lib. until end of piece. Don't tune with others.

Tam-tam
With coins and/or small metal objects taped to tam-tams surface
slow tremolo

Drum Set
With a splash cymbal on the snare head and chains/metal objects on the cymbals

arco

531

A. Fl.

E. H.

B. Cl.

Cbsn.

Hn.

C Tpt.

Tbn.

T.-t.

Dr.

Coming in and out of the ensemble texture with the Electric Guitar and Electric Bass:

Kb.

Coming in and out of the ensemble texture with the Keyboard and Electric Bass:

E. Gtr.

string sim.

Vln. I

Vln. II

Vla.

Vc.

Coming in and out of the ensemble texture with the Keyboard and Electric Guitar:

Bass

536

A. Fl.
E. H.
B. Cl.
Cbsn.
Hn.
C Tpt.
Tbn.
T.-t.
Dr.
Kb.
E. Gtr.
Vln. I
Vln. II
Vla.
Vc.
Bass

541

A. Fl.

E. H.

B. Cl.

Cbsn.

Hn.

C Tpt.

Tbn.

T.-t.

Dr.

Kb.

E. Gtr.

Vln. I

Vln. II

Vla.

Vc.

Bass

unstable and uneven flz.
omit flz. whenever not possible

"player's choice" multiphonic sim. from earlier movements

multiphonic/singing sim. from earlier movements

Hi-hats slightly open.
Very loose, not a distinct drum beat but a "splashing" of drum sounds within the overall texture.

546

A. Fl.
ord.
sim.
E. H.
B. Cl.
Cbsn.
Hn.
C Tpt.
ord.
sim.
Tbn.
T.-t.
Dr.
mf leggiero
Kb.
E. Gtr.
(15)
Vln. I
sul pont.
slow and uneven trem.
Vln. II
sul pont.
very slow and uneven trem.
Vla.
sul pont.
very slow and uneven trem.
Vc.
sul pont.
vary degrees of bow pressure and speed until the end
Bass

551

A. Fl.
E. H.
B. Cl.
Cbsn.
Hn.
C Tpt.
Tbn.
T.-t.
(mute)
Dr.
Kb.
E. Gtr.
(15)
Vln. I
Vln. II
Vla.
Vc.
Bass
Proc.
All Effects OFF

PART II: Discussion Document

Introduction

Transference Music: for Electric Guitar Soloist and Amplified Orchestra is an approximately 25-minute, six-movement musical composition. The entire work is inspired by my diverse experiences as a regularly performing electric guitarist and composer. The piece is therefor deeply informed by a longstanding relationship with the instrument. The music explores expressive ways for the electric guitar's integration within contemporary classical music. As such, the soloist part demonstrates technically and technologically intricate writing. The large ensemble parts, meanwhile, are nearly all amplified and electronically processed as well to allow for their integration within the electric guitar's sound world.

With some notable exceptions, the electric guitar is not commonplace in the contemporary concert music world. Therefore, this document's first chapter provides a brief but relevant repertoire study that highlights the instrument's usage within the genre since its invention. The second chapter describes *Transference Music*'s use of electronic elements, including both the electric guitar's use of amplification and effects as well as the ensemble's amplification and processing. The document's third chapter then clearly defines the term "transference" as used within this work while also providing examples of past musical occurrences. Finally, the fourth chapter provides a brief musical analysis of the work's salient points of interest, and the conclusion chapter summarizes the document's previously discussed material.

1. Relevant Repertoire Study

In his book *Instruments of Desire*, author Steve Waksman almost immediately discusses the lack of academic writing and research surrounding the electric guitar.[1] His book goes on to track in detail the instrument's technological and musical developments over its first few decades of existence while connecting these developments to important larger social or cultural issues, most notably class, race, and gender. Although the book is an important musicological text that I reference elsewhere in this document, these questions are primarily concerned with popular music and culture rather than the contemporary or avant-garde.[2] Throughout my own academic studies, I have discovered that the lack of research and academic writing is further apparent when considering the instrument's place within contemporary classical music. Italian composer-electric guitarist Sergio Sorrentino's 2019 book, *La chitarra elettrica nella musica da concerto: La storia, gli autori, i capolavori* is perhaps the only text completely devoted to this highly specified subject area.[3] Sorrentino's work exclusively focuses on the instrument in contemporary concert music and provides a detailed repertoire survey of key works in the genre along with artist interviews.[4] Unfortunately, the publication is only available in Italian, though it can still provide a list of notable pieces involving the instrument and composers who work with it. Since discovering his work, I have been in contact with Mr. Sorrentino, and an English article summarizing the book's major points is planned for the future.

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[1] Steve Waksman, *Instruments of Desire* (Cambridge: Harvard University Press, 1999), 10.

[2] Ibid.

[3] There have been however, select publications that have devoted sections or individual chapters to the topic, such as John Schneider's *The Contemporary Guitar.*

[4] Sergio Sorrentino, *La chitarra elettrica nella musica da concerto: La storia, gli autori, i capolavori* (Rome: Arcana, 2019).

My research into this repertoire then, is primarily informed by my own practice of performing these works, analyzing their scores, and studying the few short analyses that might already exist. The compiling of a repertoire list culminated in a course that I delivered on the topic, hosted by the Gabriela Lena Frank Creative Academy of Music and their online TIDRIKS Distanced Learning Program.[5] I have structured this chapter similarly to the course's lectures while summarizing the key works and why they are relevant when composing for the electric guitar. As this list of works is not comprehensive, an appendix is also provided at the end of this document which lists further composers, performers and pieces for consideration. The final subsection of this chapter briefly discusses other compositions that are relevant to *Transference Music*.

1.1 Early Curiosities, New Possibilities

Across all musical genres, the electric guitar nearly always presents an opportunity to develop new sound worlds that are unique to the instrument.[6] This intriguing quality has been the driving force behind many composers' curiosities when considering the earliest known scores for the instrument. Most often however, these composers have not been electric guitar players themselves, which has led to pieces that lack idiomatic or intricate writing. These scores often do not follow the standard or classical guitar notation conventions, and in many of these cases the writing process was facilitated in collaboration with a performer. Evident among these works is also an element of aesthetic conflict concerning whether the composer chooses to embrace the instrument's popular music associations or attempts to reject them. This conflict would remain

[5] Further information about the course can be found at: https://www.glfcam.com/distance-learning-program/electric-guitar.

[6] Steve Waksman, *Instruments of Desire* (Cambridge: Harvard University Press, 1999), 7-9.

present among many subsequently written electric guitar works, and these questions of style and genre are also present throughout *Transference Music*.

American composer Morton Feldman's 1966 piece, *The Possibility of a New Work for Electric Guitar*, is one of these earliest known works. Feldman's score, written for fellow composer and "amateur"[7] electric guitarist Christian Wolff, was initially thought lost before compositional sketches were discovered and reconstructed by guitarist Seth Josel in the late 2000s. The score was later published in 2015 with help from several Feldman scholars and various archivists.[8] In Feldman's own words, "I wrote a piece for electric guitar, and I tried to overcome the fact of an electric guitar. And so Christian came over to the house and I had him try various things, very strange things and strange registers, and when it didn't sound like an electric guitar, I wrote it down… it seemed too obvious just to write a piece for electric guitar."[9] Following the piece's initial performances, composer and close colleague John Cage as well as others in attendance would remark the piece's extremely quiet dynamics, despite the electric guitar being an amplified instrument most commonly used for rock music.[10] With *The Possibility of a New Work for Electric Guitar*, Morton Feldman sought to create a work that was reflective of his own compositional voice and as such, written almost in spite of the instrument's popular associations and conventions. This is further exemplified by early sketches of the piece, which involve details that are alien to the instrument such as using a two-staff and two-clef notation

[7] Chris Villars, "The Story of Morton Feldman's *The Possibility of a New Work for Electric Guitar*," Score notes for *The Possibility of a New Work for Electric Guitar*, (London: Edition Peters, 2015), 9. Wolff performed the piece in a sitting position that placed the instrument flat across his lap rather than standard playing conventions. He also admits here that he had no formal guitar training or knowledge of classical playing conventions.

[8] Seth Josel, "Reconstructing Morton Feldman's *The Possibility of a New Work for Electric Guitar,*" Score notes for *The Possibility of a New Work for Electric Guitar*, (London: Edition Peters, 2015), 3-6.

[9] Chris Villars, "The Story of Morton Feldman's *The Possibility of a New Work for Electric Guitar*," Score notes for The Possibility of a New Work for Electric Guitar, (London: Edition Peters, 2015), 8.

[10] Ibid.

system,[11] dynamic swelling over sustained pitches[12] and whammy-bar glissandi long before it became a popular device for the instrument decades later.[13]

Steve Reich's *Electric Counterpoint* (for electric guitar and tape, 1987), Louis Andriessen's *Hout* (for tenor saxophone, marimba, guitar and piano, 1991) and several works by the British composer-performer Gavin Bryars, including *After the Requiem* (for electric guitar, 2 violas and cello, 1990), showcase further examples of relevant and relatively early works involving the electric guitar. These pieces are among the most widely performed and celebrated concert music pieces for the instrument today, yet they still display certain curiosities that are like those found in the Feldman piece. In many ways, *Electric Counterpoint* and *Hout* both present a sound world that is analogous to popular electric guitar music. Both pieces are entirely pulse-based, very repetitive, and are played at consistent and louder dynamic levels. Both the Reich and Bryars scores make explicit use of and reference to the amplification that is required for a performance. Though vague in its directions, *After the Requiem* in particular calls for common electric guitar effects to sustain, swell and blend the guitar with the bowed strings.[14] Finally, both works were also premiered by renown jazz guitarists, as Reich's piece was first performed by Pat Metheny[15] while the ensemble for the Bryars included Bill Frisell.[16] All three pieces, however, showcase scoring that is not always ideal for the instrument. For instance, there

[11] Both the classical and electric guitar are almost always notated on a single staff using a treble clef and sounding one octave lower than written.

[12] Tones on the guitar decay fairly quickly following the initial attack, not unlike a piano without the use of a pedal. Sustained swelling can truly only occur with the use of a volume knob or volume pedal in combination with effects that create sustain or feedback. The first movement of *Transference Music* features this technique prominently, see section 4.2.1.

[13] Morton Feldman, *The Possibility of a New Work for Electric Guitar* (London: Edition Peters, 2015).

[14] Gavin Bryars, *After the Requiem* (Mainz: Schott Music Corporation, 2017). Unlike the Feldman piece, Bryars' work achieves the sustained dynamic swell articulations.

[15] Steve Reich, "Electric Counterpoint," Pat Metheny, Tracks 4-6 from *Different Trains/Electric Counterpoint*, Elektra Nonesuch 9 79176-2, 1989, compact disc.

[16] Gavin Bryars, "After the Requiem," Track 1 from *After the Requiem*, ECM Records ECM 1424, 1991.

is a general lack of technical indications in the scores;[17] slurs are often used to indicate phrasing instead of articulations;[18] and finally, much of the writing is not idiomatic for the instrument.[19]

One final work to consider from this category is *Vampyr!* (1987) by the French composer Tristan Murail. Like other composers who may be foreign to the electric guitar's cultural associations, Murail initially had his own concerns of referencing rock or heavy metal sounds simply by using the instrument.[20] Despite this however, *Vampyr*'s score features some of the earliest examples of intricate and idiomatic solo electric guitar scoring and, perhaps begrudgingly, shows a clear connection to the popular music styles that Murail attempted to distance himself from. It features detailed fingerings added by guitarist Claude Pavy, slurring, string indications and picking patterns, along with many electric guitar-specific techniques such as open-string "riffs"[21], "licks"[22] that resemble heavy metal lead guitar parts, precisely notated whammy-bar transpositions, pick scraping[23], harmonics and tremolo picking.[24] This piece is another frequently performed electric guitar recital work, and its popularity has led to widely differing performance practice interpretations in recent years. For example, some performers prefer to play the piece in a standing position that is closer to popular music playing styles, while others remain in a sitting position that resembles the established classical guitar posture.[25]

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[17] Louis Andriessen, *Hout* (London: Boosey & Hawkes, 1991); Steve Reich, *Electric Counterpoint* (New York: Boosey & Hawkes, 1987).

[18] Slurring on the guitar, whether classical or electric, typically notates what occurs under a single pluck or pick attack, rather than larger phrases.

[19] *Hout* is especially well known for its playing difficulty, as many of the melodic lines skip multiple strings and/or fretboard positions in the middle of fast 16th-note phrases.

[20] Ben Jameson, "'ROCK SPECTRALE': THE CULTURAL IDENTITY OF THE ELECTRIC GUITAR IN TRISTAN MURAIL'S vampyr!" *Tempo*, no. 69(274): 24, https://doi.org/10.1017/S0040298215000340.

[21] A term that is frequently used in rock and pop music to describe a repeated melodic motif.

[22] Richard Middleton, *Studying popular music* (Philadelphia: Open University Press, 1990), 137. Another term frequently used in popular music that describes short melodic phrases or fragments. This term is especially common in blues, jazz, and rock idioms.

[23] As the name describes, a harsh effect where the player scrapes the side of a pick along the lower strings.

[24] Tristan Murail, *Vampyre!* (Paris: Editions Henry Lemoine, 2004).

[25] Ben Jameson, "'ROCK SPECTRALE': THE CULTURAL IDENTITY OF THE ELECTRIC GUITAR IN TRISTAN MURAIL'S vampyr!" *Tempo*, no. 69(274): 31-32, https://doi.org/10.1017/S0040298215000340.

1.2 The Electric Guitarist-Composer

Between the late 1970s and early 1990s, several experimental composers emerged who were accomplished electric guitarists that featured the instrument as central to their creative practice. What is most notable about this period is how their music involved the electric guitar's amplification as integral to their work all while focusing on the deep exploration of the instrument's technical and sonic capabilities. This would lead into the development of a repertoire that heavily featured the electric guitar and showcased scores for classical music genres such as solo, chamber, quartet, large ensemble, symphonic, electroacoustic and large spatialized ensemble. Among the earliest wave of these composers, that included Fred Frith, René Lussier, Rhys Chatham and Elliot Sharp, Glenn Branca is perhaps the most influential and widely referenced. Rather than pursuing academic studies in composition, Branca's creative background stemmed from studying and working in experimental theatre and being involved in the late 1970s noise rock or "no wave" scenes of then-New York City.[26] In 1979 and 1980, he released the instrumental experimental guitar albums *Lesson no.1* and *The Ascension,* respectively, before composing an ongoing sequence of numbered *Symphony* works. Contrary to the standard symphonic orchestra, Branca's initial symphonies were led by large groups of electric guitars and joined by the electric bass, drum kit, and occasionally keyboards or brass. In Branca's idiosyncratic compositional style, these collections of loud instruments created dense, rhythmically propulsive, and often abrasive masses of sound that would repeat or drone for long periods of time. Concerning his 'symphonic' works, Branca would later state,

> "…the term symphony—this is the perfect analogy for creating something that develops over the entire evening… the way a play develops in acts. So it seemed like an obvious thing to do, although I knew that I was sticking my neck way, way, way out on the line to

[26] "Biography." *Glenn Branca.* https://www.glennbranca.com/bio.html.

> call my funky, primitive, loud rock music a symphony… it worked. They liked it. I liked it. It became basically what I wanted to do."[27]

Glenn Branca's work in the symphonic genre would go on to feature tuning systems based on the harmonic series, custom-fretted guitars for performing with these tunings, and new notational systems for scoring them. As a bandleader, Branca was also known for an aggressive conducting style. It is only in later works that the composer would write for traditional symphonic instrumentation and orchestral performance practices.[28] While controversial,[29] these developments would go on to influence many electric guitarist-composers. Members of the Glenn Branca ensemble would be inspired to form their own highly influential bands such as Sonic Youth and Helmet, while other composers would emphasize how Branca's legacy contributed to a legitimization of the electric guitar as a versatile concert instrument beyond its rock associations.[30]

Following Glenn Branca and his peers, Canadian composer-performer Tim Brady along with Steve Mackey from the United States comprised the next wave of new music electric guitarists. Aside from their vastly prolific outputs involving the electric guitar,[31] it is especially interesting how both of their careers and artistic contributions are connected. In contrast to the previously discussed generation, both composers pursued academic training in classical

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[27] Frank J. Oteri, "Glenn Branca: Where My Ears Want To Go," in *New Music Box*, https://nmbx.newmusicusa.org/glenn-branca-where-my-ears-want-to-go/.

[28] Nicole Gagne, "Glenn Branca," in *Soundpieces 2: Interviews with American Composers*, (Metuchen: The Little Scarecrow Press, Inc., 1993), 1-21.

[29] "New Sounds: Glenn Branca," *SPIN*, October 15th, 2019, https://www.spin.com/2019/10/new-sounds-glenn-branca/. A performance by the Glenn Branca ensemble would famously offend John Cage, who immediately prepared a lecture detailing everything wrong with Branca's music and equating his practice to fascism.

[30] Geeta Dayal, "Glenn Branca: punk composer who turned minimalism maximal," *The Guardian*, May 15th, 2018, https://www.theguardian.com/music/2018/may/15/glenn-branca-punk-composer-minimalism-maximal-tribute-guitarist-composer.

[31] Frank J. Oteri, "An introduction to Mackey's music," *Boosey & Hawkes*, 2013, https://www.boosey.com/pages/cr/composer/composer_main?composerid=2739&ttype=INTRODUCTION; "List of Works," *Tim Brady.ca*, https://www.timbrady.ca/TB_list_of_works.html.

composition separate from their electric guitar upbringings.[32] Following their studies, both composers would continue to write traditionally notated solo, chamber and large ensemble scores that prominently included the electric guitar, rather than developing a completely new or experimental approach to writing for the instrument. This meant that both composers would develop a notated practice for many of the techniques that are emblematic to electric guitar performance. This includes string bends,[33] fretboard tapping[34] or unique chord voicings combining both fretted and open-string pitches. Both composers would also write score indications for the instrument's electronic specifications such as pickup selection[35], amplifier selection and usage of effects pedals.[36] For example, Tim Brady's *Playing Guitar: Symphony #1* (1997-2002) is one of the composer's earliest representative works for electric guitar and partially amplified orchestra that ambitiously involves all of these important details directly within the score.[37] The use of popular electric guitar techniques is then further connected to both composer's overt references to popular music forms across their catalogue of works. Two representative examples, Mackey's solo electric guitar piece Grungy (1994) or Brady's most recent of many electric guitar concertos, Désir (2016-2017), both feature clear allusions to different subgenres of rock music that are only strengthened by the idiomatic electric guitar

[32] Frank J. Oteri, "An introduction to Mackey's music," *Boosey & Hawkes*, 2013, https://www.boosey.com/pages/cr/composer/composer_main?composerid=2739&ttype=INTRODUCTION; Tim Brady, "#INTERVIEW WITH TIM BRADY (AUGUST 2017) ON #NEUGUITARS #BLOG," interview by Andrea Aguzzi, *NEUGUITARS,* August 6th, 2017, https://neuguitars.com/2017/08/06/interview-with-tim-brady-august-2017-on-neuguitars-blog/.

[33] Perhaps one of the most popular electric guitar techniques. Involves a pulling of the string to raise the pitch.

[34] As the name implies, percussively tapping with the fingers of either hand on the fretboard rather than picking the string. This could be used to enact a very fast single line or used in a way that closer resembles a pianistic playing style.

[35] Most electric guitars are outfitted with multiple pickups and have the option to switch between which are in use. Pickup brand and style as well as instrument body position can greatly affect the instrument's timbre.

[36] The sound of an electric guitar can be subtly or dramatically modified via any number of "stompbox" devices. See section 2.1.

[37] Tim Brady, *Playing Guitar: Symphony #1* (Montréal: Centre de Musique Canadienne, 2005).

scoring.[38] Of final note is how both composers intimately involve the electric guitar in their compositional process. Mackey has noted previously that his pre-composition phase most often consists of improvising with the instrument,[39] while Brady's entire approach to orchestration is dictated by his relationship with the instrument. He describes that,

> "…when I compose for an orchestra, I'm constantly trying to recreate a guitar sound with pedals, and related effects… I'm an electric guitarist, and I always play electric guitar. I try to play at least two hours a day. Many composers eventually give up playing their instrument, and develop a more "abstract" conception of orchestration. I'm never far from my instrument. It rubs off on my orchestral scores, and conversely, it also rubs off on my electronic writing, which looks like, as you say, an orchestra that looks like a guitar with pedals, fuzz, and all the rest! I build with masses, with densities, or on the contrary, I build solo lines. But I do very little counterpoint. All this comes from the nature of my instrument, imprinted in me, and the fact that it is always at the center of my practice."[40]

1.3 Experimental European Approaches in the New Millennium

In recent years, the electric guitar has increasingly become more commonplace in new music and several contemporary music communities involving the instrument have formed in the geographic locations where previously referenced composers are based such as Montréal, The Netherlands and New York City.[41] Recent works for the instrument, especially those by European composers from the 2000s onwards, showcase more complex electric guitar scoring

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[38] Steve Mackey. *Grungy* (New York: Boosey & Hawkes, 1994); Tim Brady, *Désir: Concerto for electric guitar and large ensemble,* Unpublished Score, 2016-2017.

[39] Dave Weininger, "Composer Steven Mackey: from rock guitar to 'this new language in my head,'" *Boston Globe,* October 10th 2018, https://www.bostonglobe.com/arts/music/2018/10/10/composer-steven-mackey-from-rock-guitar-this-new-language-head/RVY96Fjm6MQmLUzJGRpZGP/story.html.

[40] Tim Brady. "TIM BRADY: MAKING HISTORY WITHOUT LABELS," Interview by Frédéric Cardin, *PANM360*, https://panm360.com/en/interviews-panm360/tim-brady-interview-electric-guitar-making-history-without-labels/. This document's musical analysis chapter explores these guitaristic concepts further.

[41] Michael Ross, "Tim Brady," *Guitar Player*, Vol. 45, No. 2 (2011): 75; Tim Brady, "Spotlight: Tim Brady Part I," interview by Guitar Moderne, *Guitar Moderne,* October 28th, 2019, https://www.guitarmoderne.com/artists/spotlight-tim-brady-part-i#more-4584; Tim Brady, "Spotlight: Tim Brady Part II," interview by Guitar Moderne, *Guitar Moderne,* November 5th, 2019, https://www.guitarmoderne.com/artists/spotlight-tim-brady-part-ii?fbclid=IwAR32PDReSk8jlyX3SCcvLAQEyEc8c6Rvr_pasq_ohEkH3eoGt5U7nktfyPM. Tim discusses in the *Guitar Player* interview how the influence of Louis Andriessen's music and *Hout* in particularly has created a culture in Holland where conservatory-trained electric guitarists learn to read scores and play chamber music. This has resulted in many Dutch composers regularly composing for the instrument.

while engaging further with the instrument's technological advances. Despite their compositional innovations, these scores feature the same preoccupations with the instrument's popular music associations while continuing to develop its notated performance practice. Each of the works that I have found to be significant and influential from this category have been written in collaboration with two accomplished players, Tom Pauwels and Yaron Deutsch. Both musicians are virtuosic performers whose work focuses on commissioning composers, directing ensembles and providing educational resources for working with the electric guitar in contemporary music.[42]

Written in collaboration with Tom Pauwels, Italian composer Fausto Romitelli's *Trash TV Trance* (2002), has become one of the most popular electric guitar recital pieces. Romitelli's unique compositional voice has been praised for its blending of post-spectralist techniques with popular music aesthetics, especially due to the use of psychedelic and distorted textures. In the composer's own words:

> "I believe that popular music has changed our perception of sound and established new forms of communication… Long, composers of art music, "the last defenders of the art", refused any interbreeding with "commercial" music… The boundless energy, violent and visionary impact, the relentless search for new sounds able to open the "doors of perception": these aspects [of] most innovative rock seem to join the expression [that] worries some contemporary composers."[43]

Considering Romitelli's compositional interests, the electric guitar and amplification in general tend to be a natural fit for his music, and the composer has also employed the instrument to great effect in the multi-movement large chamber ensemble piece *Professor Bad Trip* (1998-

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[42] Pauwels directs the ensemble *Ictus* and has taught contemporary guitar at the Royal Conservatory of Ghent while developing a master's program there. Deutsch founded the ensemble *Nikel* and is a regular player with *Klangforum Wien*, while also holding the position of electric guitar tutor at the *Darmstadt International Summer Courses*.

[43] "Fausto Romitelli Trash TV Trance," *Prepared Guitar*, July 13th, 2015, http://preparedguitar.blogspot.com/2015/07/fausto-romitelli-trash-tv-trance.html.

2000) as well as the video opera *An Index of Metals* (2003).[44] Performing *Trash TV Trance* in particular is an especially intricate and intense physical experience, as the piece features a wide array of extended electric guitar techniques in combination with the use of standard electric guitar gear and miscellaneous gadgets. Along with the work's complicated rhythms and melodic phrases, the player must also practice an extended sense of choreography, as the player's hands break from the traditional designations of fretting hand and picking hand while their feet must precisely time the manipulations of multiple effects pedals including a live looper.[45] The player must fluidly alternate between these techniques while also an array of non-standard objects in combination with the instrument including the instrument cable's input jack,[46] the e-bow,[47] a sponge,[48] the wood of a cello bow, a metal slide,[49] and an electric razor[50] among many others. Due to these extensive demands, the piece's score features a detailed set of performance notes written by Pauwels that includes a suggested equipment list and specific electronic settings. The notes also include other small yet relevant details that are critical to the piece's success, such as using batteries for the effects pedals when possible, to avoid parasitic noise from electrical grounding issues.[51]

Like the previously mentioned artists before him, Yaron Deutsch's work as an electric guitarist has also addressed concerns surrounding the instrument's classical music associations. It

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[44] Ibid.

[45] As the name implies, a pedal which can loop then layer recorded fragments of audio in real time.

[46] Used in contact with the string and bridge to create rhythmized static noise.

[47] A device which synthetically vibrates the string to sustain a pitch indefinitely.

[48] Used in a circular rubbing motion on the strings, often in combination with a wah-wah pedal for a filter effect. This also occurs during the first movement of *Transference Music.*

[49] Both the cello bow and slide are used to slide along the string between specified pitches. The player's hands are crossed during these sections, as the pick hand holds the bow or slide while the fretting hand taps out independent melodies in higher fretboard positions

[50] Encountering the pickups to create dynamically swelling noises.

[51] Graham Banfield's video on *YouTube* is perhaps the highest quality and most representative capture of the piece's performance intricacies. https://youtu.be/Pkba-j_iVVs.

was only following a last-minute call to perform Andriessen's *Hout* at Tel Aviv University in 2006 that the performer found,

> "…possible resolution of an internal conflict I was haunted by since my academy days: my attempt of being artistically innovative, honest, and in sync with my cultural European roots and upbringing while at the same time holding to my playing style and musical language derived completely from an Afro-American heritage of Blues, Jazz, and Rock n' Roll, which I never felt I could call "my own."[52]

Deutsch would go on to form the ensemble *Nikel* using nearly the same instrumentation from *Hout*.[53] The group focuses primarily on new commissions and Israeli American composer Chaya Czernowin was among the group's first commissions and longest-running collaborators.[54] Czernowin's works for the group in various configurations include *Sahaf* (2009)[55] and *Knights of the Strange* (2014).[56] Her music features dynamically intimate moments that are characterized with highly detailed timbres and the fusing of singular instrumental parts into composite textures. As such, she has incorporated the electric guitar within ensemble textures in innovative ways. *Sahaf* prominently features the use of microtonal inflections as well many different string muting techniques with both hands. *Knights of the Strange* on the other hand, expands upon previously mentioned innovations from Romitelli's *Trash TV Trance* including the use of a sponge as well as effects pedal-induced electronic noise. The electric guitar's timbres along with those from the second soloist, an accordion, are then combined with wind instrument effects including wide gradations of air-tones, articulations using mouth vowel shapes and pitch glissandos. The

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[52] Yaron Deutsch, "Nikel – A Decade," Liner notes for *A DECADE* by Ensemble Nikel, Self-released, 2017, 4 compact discs and DVD.

[53] A quartet made up of saxophone (using any SATB model), electric guitar, multi-percussion, and piano.

[54] Chaya Czernowin, "Preface," Liner notes for *A DECADE* by Ensemble Nikel, Self-released, 2017, 4 compact discs and DVD; Yaron Deutsch, "Nikel – A Decade," Liner notes for *A DECADE* by Ensemble Nikel, Self-released, 2017, 4 compact discs and DVD.

[55] For the core quartet.

[56] Two versions of this piece exist. One for electric guitar and accordion duo, another for the duo plus an amplified ensemble that includes flute (doubling piccolo), clarinet, alto saxophone, percussion, piano, viola, cello and double bass. I specifically reference the second version below.

orchestration also demonstrates detailed string instrument indications such as precise bowing directions, placements and fingerboard pressure.[57] Both works also employ muted tones played above the electric guitar's pickups in combination with prepared piano. All instruments in *Knights of the Strange* are amplified with closely placed microphones which capture each texture's fine details.[58]

Beyond Deutsch's ensemble work, the electric guitarist has also collaborated with many composers on the development of new solo pieces. The most notable of these projects is Italian composer Pierluigi Billone's triptych of *Sgorgo* works which include *Sgorgo Y*, *N* and *oO*. Billone's process has been described as, "…radical methods [that] have led him to explore uncharted soundworlds and to develop idiosyncratic instrumental and vocal techniques."[59] The composer's phenomenal sonic results in using the electric guitar are strongly evident across these ambitious works, each spanning approximately 20 minutes. Prior to these pieces, Billone had stayed away from writing for the instrument to avoid mixing contemporary classical and popular music aesthetics. This is not due to a dismissal of popular music as lacking in substance, but rather because he respected the instrument's popular culture contributions and did not want to diminish them by transplanting the electric guitar into contemporary classical music.[60] In an attempt to avoid the typical pop and rock music associations, Billone crafted a set of scores that almost completely redefine the electric guitar's performance practice and instead develop a sort of ritualistic environment similar to those found throughout his music. His pre-composition

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[57] These orchestration effects are explored further in the first movement of *Transference Music*.

[58] Chaya Czernowin, *Knights of the Strange: Tutti version for ensemble* (Mainz: Schott Music Corporation, 2015); Chaya Czernowin, *Sahaf* (Mainz: Schott Music Corporation, 2009). The first and third movements of *Transference Music* demonstrate the influence of these two pieces by also implementing these techniques.

[59] "biography," *pierluigi billone*, https://www.pierluigibillone.com/en/biography/.

[60] Barbara Eckle, Liner notes for *Sgorgo Y. N. oO*, Kairos 0015016KAI, 2016, compact disc. Somewhat ironically, *Sgorgo Y* is a quasi-tribute to jazz guitarist Allan Holdsworth, while *Sgorgo oO* is dedicated to "the right hand of Jeff Beck."

process involved borrowing a Fender Stratocaster from Deutsch and purchasing a Boss GT10 multi-effects unit, which resulted in performance indications that are precisely tailored towards the use of this equipment.[61] While it is noted that these indications can provide starting points for realizing the music with your own equipment, these scores are almost entirely based upon the use of this specific gear and would be either unattainable or very difficult to achieve using anything else.[62] The specifications required include purposeful single coil pickup hum,[63] pickup selector notation and precise volume knob positions along with detailed descriptions of how these choices affect the guitar's tone. *Sgorgo Y*'s notation features exact string transpositions when using the whammy bar,[64] while both *Sgorgo N* and *oO* call for a "slow gear" effect and guitar synth patch that create a voice-like articulation when combined. The "slow gear" effect creates a consistently automated swelling of the guitar's volume while the synth patch doubles the guitar's original sound with a sawtooth-style waveform. This results in unique audio artifacts that occur from the synth patch's pitch tracking, and therefore the Boss GT10 is absolutely required for one to realize this exact effect.[65] Aside from equipment specifications, all three works require an incredible amount of discipline from the performer as the pieces are based around using precise physical playing gestures that are critical to creating the sound world. This includes specifically notated degrees of fret hand finger pressure, manners of fretboard attack,[66] and additional body-

[61] Yaron Deutsch, Liner notes for *Sgorgo Y. N. oO*, Kairos 0015016KAI, 2016, compact disc.

[62] Pierluigi Billone, *Sgorgo N* (Austria: Eigenverlag Wien, 2013); Pierluigi Billone, *Sgorgo oO* (Austria: Eigenverlag Wien, 2013); Pierluigi Billone, *Sgorgo Y* (Austria: Eigenverlag Wien, 2013).

[63] Single coil pickups, in contrast to humbuckers which use two magnetic coils wired out of phase and in opposite polarity, are sensitive to external electromagnetic interference and can have an audible hum noise, especially when used in combination with effects processing.

[64] Pierluigi Billone, *Sgorgo Y* (Austria: Eigenverlag Wien, 2013).

[65] Pierluigi Billone, *Sgorgo N* (Austria: Eigenverlag Wien, 2013); Pierluigi Billone, *Sgorgo oO* (Austria: Eigenverlag Wien, 2013). Once again, exact settings required for the Boss GT10 are indicated in the scores. The climax of both these pieces is also centred around the occurance of these unpredictable synth tracking glitches.

[66] *Sgorgo Y* and *N* feature no standard pick hand articulations. All manners of attack occur as articulations on the fretboard.

instrument actions.[67] In *Sgorgo N*, Billone switches from contemporary notation to guitar tablature.[68] This style of notation can indicate further physical position precision, and Billone has also stated that he uses this notation as a reference to blues guitar playing conventions.[69] All three pieces involved collaborative contributions from Yaron Deutsch to create an instrumental sound that is an extension of the body and, "A sound that breathes, speaks, hums, and prays while serving the importance of an as-natural-as-possible execution manner, to the inner and outer life that is in the heart of the piece."[70] Deutsch lists several of his contributions in the liner notes for the studio recording of these works, and they include an automated detuning effect ranging between +/- 13 cents, eliminating grounding so that the only hum noise is that which is notated, specifying that the guitar synth tone be run through analogue tube systems and adding extreme equalization and "room coloring" effects.[71] On his official website, Billone details their longstanding collaboration and friendship in an analysis article of these works. Their collaboration is not unlike those previously mentioned that date back to the Feldman-Wolff outlined in section 1.1, but extends deeper into the world of electric guitar performance practice as Deutsch is completely immersed in his instrument's "Sound-system."[72] Billone states that,

> "In the field of the written contemporary music - at least till now – the Electric Guitar is played generally by flexible Classical guitar performers, who cannot but use and think the instrument simply like a "classical guitar with an electric plug" (nowadays extended to the endless galaxy of the digital possibilities)… they approach this electrified sound as if it were a simple special colour, an extension of the classical guitar sound culture. Yaron Deutsch, on the contrary, belongs to the generation of performers whose education (and

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[67] Pierluigi Billone, "Yaron Deutsch's Sgorgo Interpretation, Some Relevant Topics," *pierluigi billone,* https://www.pierluigibillone.com/en/texts/yaron_deutschs_sgorgo_interpretation_some_relevant_topics.html.

[68] A system of guitar notation that displays the strings and frets to be played rather than the pitches and rhythms of traditional staff notation.

[69] Pierluigi Billone, "Yaron Deutsch's Sgorgo Interpretation, Some Relevant Topics," *pierluigi billone,* https://www.pierluigibillone.com/en/texts/yaron_deutschs_sgorgo_interpretation_some_relevant_topics.html.

[70] Yaron Deutsch, Liner notes for *Sgorgo Y. N. oO*, Kairos 0015016KAI, 2016, compact disc.

[71] Ibid.

[72] Pierluigi Billone, "Yaron Deutsch's Sgorgo Interpretation, Some Relevant Topics," *pierluigi billone,* https://www.pierluigibillone.com/en/texts/yaron_deutschs_sgorgo_interpretation_some_relevant_topics.html.

> sound culture) has been associated from the beginning with the medium of the Electric guitar. This different starting point is essential."[73]

1.4 Current and Future Collaborations

Most influential of all to the compositional process for *Transference Music* are my close collaborations with fellow composers and performers. While the previously surveyed repertoire is important for the instrument's historical development in new music, working directly with close friends and colleagues towards the creation of new works has been most influential to my creative practice. Of note are multiple works by Bekah Simms including *impurity chains* for solo guitar (2015) and *Granitic* for large chamber ensemble (2018), *meditations on auxin* for solo guitar (2018-2019) by Yaz Lancaster, *Microlocking II* for solo guitar (2020) by Saman Shahi, *reconnect.* for electric guitar and string quartet (2020) by Aeryn Jade Santillan, and my own work for spatialized electric guitar quartet, *Traps, taboos, tradition* (2020). For each of the works by other composers, I was involved in the commissioning, premiering and/or workshopping of the work, while my own piece was commissioned by Tim Brady's electric guitar quartet, *Instruments of Happiness.* Each piece has inadvertently incorporated the ongoing questions of style and genre relationships to the electric guitar in some way. These stylistic references range from psychedelic heavy metal,[74] post-hardcore[75] and traditional Iranian folk music.[76] These works also show a wide variety of approaches to using electronics and electric guitar-specific techniques. The pieces by Simms and Lancaster provide more flexible indications throughout,

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[73] Ibid.

[74] Bekah Simms, *Granitic* (Toronto: Canadian Music Centre, 2018); Bekah Simms, *impurity chains* (Toronto: Canadian Music Centre, 2016); Scott A Gray, "Bekah Simms: impurity chains," *Exclaim!* September 7th, 2018, https://exclaim.ca/music/article/bekah_simms-impurity_chains.

[75] Aeryn Santillan, *reconnect.* (Self-published Score, 2020); Vanessa Ague, "Track Premiere: Yaz Lancaster, "Meditations on Auxin,"" *The Road to Sound*, October 21st, 2019, https://theroadtosound.com/2019/10/31/track-premiere-yaz-lancaster-meditations-on-auxin/?fbclid=IwAR2oz6kdOHO0P0LPaeWBBuCrrZfdofzb4pAif1SzZTDKJOUsC7QneVQF8FE; Yaz Lancaster, *meditations on auxin.* (Self-published Score, 2019).

[76] Saman Shahi, *Microlocking II* (Unpublished Score, 2020).

while the scores by Santillan and Shahi call for my specific amplifier and effects pedal setup as well as techniques that are frequently employed in my playing style. My own cited piece, *Traps, taboos, tradition*, involves very specific techniques and effects while expanding upon many of the intensely physical gestures mentioned in the previous subchapter.[77] This has led to Tim Brady describing the piece as… "obsessively guitaristic, it's like totally about the noise of the strings on the frets, it's like something only a guitar player would imagine."[78] As will be discussed in the analysis chapter of this document, my direct involvement among these varied compositional perspectives has influenced the motivic development, incorporation of electronics and notational approach throughout *Transference Music.*

1.5 Further Relevant Works

Besides new music that prominently feature the electric guitar, *Transference Music* also displays select influences from contemporary works that are relevant to reference here. Most evident in the score is the influence of American composer Andrew Norman's approach to string writing and orchestration, especially considering pieces such as *Try*, *Play*. As a violist himself, Norman writes very intuitively for strings and has developed intricate notation indications that show specific bow placements, movements and pressure. These include techniques such as playing behind the bridge, circular bowing and wide degrees of bow overpressure that span loud and quiet dynamic levels.[79] Detailed explanations and demonstrations of Norman's string techniques have been covered in the research of composer-performer Anne Leilehua Lanzilotti

[77] Andrew Noseworthy, *Traps, taboos, tradition.* (Self-published score, 2020).

[78] "Tim Brady on "Slow Quiet Music in Search of Electric Happiness," *Contemporary Guitar Blog*, April 23rd, 2022, https://www.youtube.com/watch?v=p5xvok2AT5A&t=1184s.

[79] Andrew Norman, *Play* (Mainz: Schott Music Corporation, 2013); Andrew Norman, *The Companion's Guide to Rome* (Mainz: Schott Music Corporation, 2010); Andrew Norman, *Try* (Mainz: Schott Music Corporation, 2011).

and can be found on her interactive website, *Shaken Not Stuttered*.[80] In *Transference Music*, these techniques are employed so that the string may either emulate or blend with the electric guitar's complex and distorted timbres. They are most prominent in the first and last movements of the work, and the specific musical events in question will be covered further in the analysis chapter. Instrumentation wise, the use of single winds and brass as well as one string player per part was not only a logistical choice but was also influenced by the scoring of György Ligeti's *Concerto for Piano and Orchestra*. The first movement in particular from this piece was influential to the fluid percussion and consistent ensemble writing of *Transference Music*'s third movement.[81] Other influences include the riff-based music of Lee Hyla,[82] the dense yet mobile sonorities of Luigi Nono's operatic works[83] and the notational styles of Simon Steen-Andersen.[84] Outside of the contemporary music sphere, *Transference Music* also displays inspirations from various subgenres found within hardcore punk, extreme metal, noise, drone and ambient electronic music. The incorporation of these influences is discussed further in section 4.5.

2. Electronic Sound Production in *Transference Music*

2.1 Electric Guitar Amplification and Effects

As referenced frequently throughout Chapter 1 of this document, an electric guitar player's use of electronic equipment that amplifies and modifies the instrument's sound is critical to the work that is performed. The use of amplification and "stompboxes"[85] are a

[80] Anne Leilehua Lanzilotti, *Shaken Not Stuttered*, http://www.shakennotstuttered.com/.
[81] György Ligeti, *Konzert für Klavier und Orchester* (Mainz: Schott Music Corporation, 2004).
[82] Lee Hyla, *Pre-Pulse Suspended* (New York: Carl Fischer, LLC, 2007); Lee Hyla, *Riff and Transfiguration* (New York: Carl Fischer, LLC, 1998).
[83] Luigi Nono, *Intolleranza 1960* (Mainz: Ars Viva Verlag, 2013).
[84] Simon Steen-Andersen, *Studies for String Instrument #1-3* (Edition·S, 2007-2011).
[85] Colloquial term for electric guitar effects pedals. Devices are typically placed on the floor in front of a player and activated by stepping on a footswitch located on the top of their encasings.

standard part of electric guitar performance practice, though further clarification regarding this equipment to be used is still required when considering a newly written piece of music. This is because the incorporation of electric guitar gear can be both a universal and a highly personal experience that ranges from player to player. This has been the case for the instrument dating back to its beginnings, as guitar's technological developments have been deeply connected to larger developments in music technology. This has led to the case of electronically produced sounds becoming just as personal to a player's artistic voice as the acoustic sound production would be.[86] Certain sounds have become directly tied to the instrument, such as distortion or echo, and devices that produce these tones have become so mass produced that they could be considered a standard part of any electric guitarist's equipment setup. Other effects, such as elaborate harmonizers or modulated delays, are stranger and idiosyncratic. This can cause issues for composing with these specific effects in mind, since many players will not have access to them. For these reasons, *Transference Music* uses a combination of specific as well as open-ended indications for the use of amplification and effects pedals.

The specific effects pedal setup that was used when composing *Transference Music* (See Figure 1) included a wide array of both conventional and unconventional devices. For the sake of

[86] Steve Waksman, *Instruments of Desire* (Cambridge: Harvard University Press, 1999).

clarity, I categorize these effects as utility, gain staging, pitch shifting, modulation, time-based and miscellaneous effects. See the table below the figure for further details.

Figure 1: *Transference Music* Pedalboard Setup

Table 1: Pedalboard Effects Details

	Category	**Pedals Included**	**Notes**
A	Utility	-Empress Buffer+ -Dunlop Volume Mini -Korg Pitch Black Tuner -GigRig QuarterMaster Loop Switcher -Donner Noise Killer	Pedals that perform various utility functions such as tuning, bypassing effects or filtering unwanted noise. The use of these devices depends on the player. Only the volume pedal from this category is often specifically called for in scores.
B	Gain Staging	-ProCo Rat Distortion -Bardic Audio Devices BLM Overdrive -Electro-Harmonix Ram's Head Big Muff	Pedals that provide different levels and varied timbres of distortion.
C	Pitch Shifting	-Digitech Whammy -Earthquaker Devices Rainbow Machine	Pedals that can harmonize or transpose the instrument's sounding pitch either subtly or dramatically. The Digitech Whammy does this in real time with the use of its expression pedal. The Rainbow Machine could arguably by classified under category F as it also provides several unique functions.
D	Modulation[87]	-Ibanez Chorus Mini -Boss Rotary Ensemble	Pedals that affect the overall colour of the instrument and provide subtle or dramatic motion to its timbre.
E	Delay and Reverberation	-MXR Carbon Copy Analog Delay -Earthquaker Devices Afterneath Reverb -TC Electronic Flashback X4 Delay and Looper	Pedals that provide a sense of space for the instrument's sound, either through the use of echo or reverb.
F	Miscellaneous	-Dr. Scientist Bit Quest (multi-effect) -Red Panda Particle Granular Delay	Highly idiosyncratic or multi-effect pedals.

In the performance notes for *Transference Music*, the required effects pedals are listed, and the signal chain order is shown. Most of the indications regarding equipment settings are shown throughout the score and described using flexible descriptions of the desired sound rather than exact parameters for a specific pedal. For example, a distortion effect may be described in terms of the relative amount of gain or the distortion style to be employed such as "light

[87] Like the pedals in the "Delay and Reverberation" category, "Modulation" effects may also be considered as "time-based" effects since their colouring of the instrument's sound may be achieved in part by the doubling of the signal with a very short of delay. The categorizations here more so reflect how these effects are implemented and their place within a signal chain.

overdrive" or "heavy fuzz." As previously described, equipment setups can vary greatly between different players and therefore, this approach to effects pedal notation can allow for performance flexibility while still yielding similar results in performance. Two effects that require further parameter details however, are the spatial and pitch shifting effects. For clarity, the six different styles of delay/echo effects to be used are labeled and described in the score's performance notes. Some of these settings specify the exact speed and number of delay repeats, while others describe the delay sounds to be achieved in a more flexible manner, such as "analog-style" or "light slapback." These are terms that are commonly understood by professional electric guitarists, and this notation style again allows the player to realize the effects with their own gear. All of the echo effects found in the score can be realized either with the use of a digital multi-delay device, various combined delay pedals and/or with changes to the pedal parameter settings throughout a performance.

All of the pitch shifting effects in *Transference* Music utilize the Digitech Whammy pedal, and settings are again indicated with a mix of notation styles. When a fixed interval is used in relation to harmonizing or shifting a given pitch, that interval's setting is simply written above the staff at that moment it is activated. Throughout movement IV however, rhythmic pitch shifting is required, and extra staves are shown. The bottom stave shows two lines that indicate the expression pedal's heel or toe down position as well as the durational values over which position changes occur. A tablature stave is shown in the middle while a traditional notation staff is shown on top. The standard notation staff shows the sounding results of each phrase while the tab displays what is to be played on the guitar only. Figure 2 below shows the opening measures from this movement.

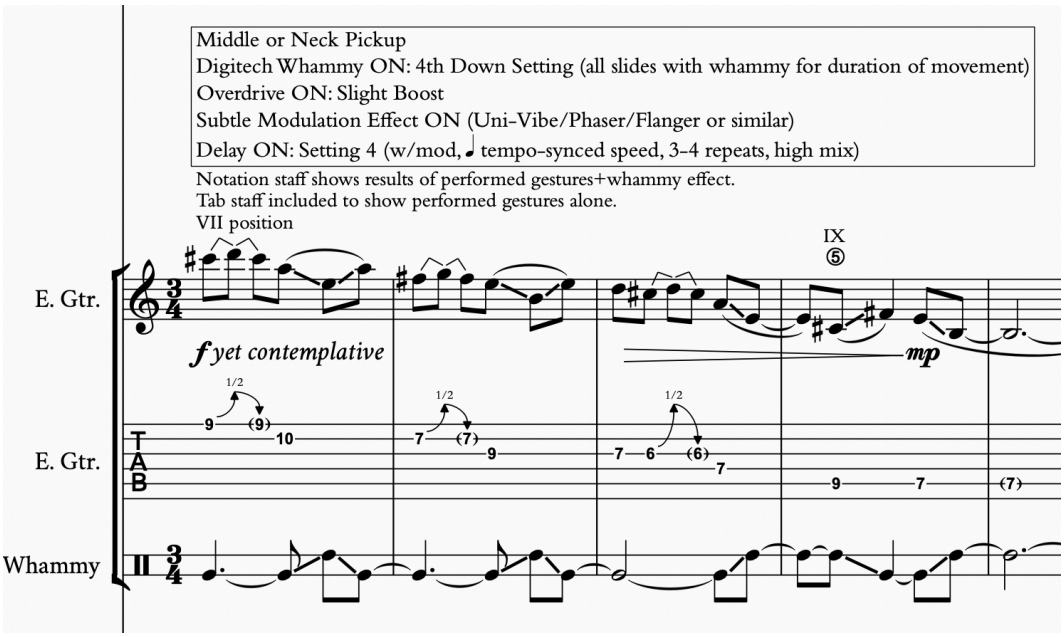

Figure 2: *Transference Music: IV. More Slides, Bends and Shifts (After Tim Brady)* mm. 311-315, Electric Guitar Soloist part.

This approach to Digitech Whammy notation was influenced by Simon Steen-Andersen's piece, *Study for String Instrument #2*, which was referenced in this document's previous chapter.[88] *Transference Music*'s fifth movement also involves unorthodox staff notation for the soloist part that involves the speed parameter of an analog delay effect being manipulated in real time. This is shown once again by additional staves in the part.

[88] Simon Steen-Andersen, *Studies for String Instrument #1-3* (Edition·S, 2007-2011).

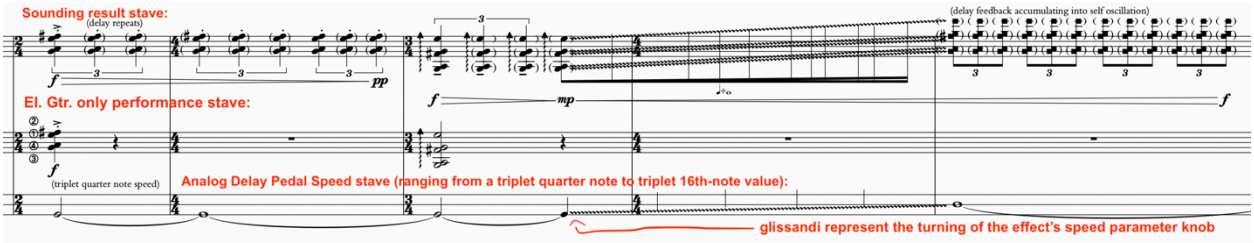

Figure 3: *Transference Music: V. Interlude – Echo Trails* mm. 431-435, Electric Guitar Soloist part.

Regarding electric guitar amplification, the score states that a 15 to 20-watt, Fender-style tube amplifier would be more than appropriate for a performance (see Figure 4 below). This size of amplifier may seem small when considering the kind of amplifiers commonly used by touring rock and pop guitarists, but when performing with a classical ensemble this size would be much more useful than a larger, high gain amp. This is due to a number of reasons. For example, these amplifiers feature a warm and clean sound character that allows them to interact well with effects processing, but also because tube-driven amplifiers are much louder than they appear. An amp of this size would provide appropriate volume levels for the soloist even when considering that the large ensemble of acoustic instruments is also amplified through a sound system. My own experience of playing with small and large chamber ensembles has proven this to be the case. Speaking with *Guitar Player* in 2011, Tim Brady corroborates this by stating, "I have to think of myself as an acoustic instrument, and I use the amplifier to accomplish that. I spent a minor fortune buying and selling amps to find the perfect chamber music amp, and I wound up with an early-'80s, 18-watt Fender Super Champ with a single 10" speaker. But even with a low-wattage

amp, if I am playing with 12 acoustic musicians, most of the time the conductor is still telling me to turn down."[89]

Figure 4: An 18-watt Fender Super Champ amplifier.

2.2 Large Ensemble Amplification and Effects

For the entirety of *Transference Music*, amplification, effects processing and further electric instruments are employed so that the large ensemble players may blend and balance their sound world with that of the solo electric guitar. Each acoustic instrument, except for percussion, is amplified by its own closely placed microphone and a standard stereo PA system. The amplified signal of these instruments is then processed using effects like those used by the electric guitar, such as reverb, delay, distortion (also known as saturation), modulation and filtering. These ensemble effects are always implemented during moments of the piece that

[89] Michael Ross, "Tim Brady," *Guitar Player*, Vol. 45, No. 2 (2011): 72.

complement the electric guitar's tone, and may be realized using any combination of onboard multi-channel mixer effects, insert rack effects units or digital signal processing through a computer. The logistical considerations of placing a microphone for each individual instrument is partly why the large ensemble's instrumentation resembles a chamber orchestra but with one player per part, as amplifying a larger group with individual microphones could prove too complicated. For movements II, III and VI, the contrabass player doubles on electric bass with a small effects pedal setup of only distortion and delay pedals. The keyboard to be used for the entire piece is also an electric instrument, and should be capable of producing various types of electric keyboard and modified acoustic piano sounds. The inclusion of these electric instruments furthers the work's integration of electro-acoustic sound worlds and emphasizes the overall concept of transference, which will be discussed in the following chapter. Throughout the piece, not only does amplification and electronic processing allow compositional ideas to be transferred between the amplified acoustic ensemble and the solo electric guitar, but it also allows the ensemble to provide various style and genre references that are typically associated with the electric guitar.

The act of blending an electric guitar soloist with an orchestral ensemble has been attempted in the past with mixed approaches and results. Of note once again is Tim Brady's ongoing work in the field. Brady has not only previously manipulated the orchestra so that it may combine with the guitar, but also has taken small steps as a performer to assure his instrument may coexist with mainly acoustic ensembles. His approaches to electroacoustic ensemble blend have become part of his electric guitar performance practice and are not typically notated within his scores. Speaking with *Guitar Moderne*, he describes that,

> "It's tricky for technical reasons and for what I would call socio-cultural reasons. If you listen to my recent concerto, I use a fair bit overdrive. In general, I find slightly

> overdriven or straight up distorted sounds blend better with acoustic instruments. A traditional jazz sound, like Ed Bickert's, won't cut through orchestra. It's too dark. It's not loud enough. It's all attack. There's no sustain… About 15, 20 years ago when I started to write for electric guitar, not using distortion seemed nuts because it's such a natural extension of what the instrument is. I work a lot on blending. One thing I do all the time recently is use an almost imperceptible detune chorus when I'm playing with an orchestra."[90]

Considering the two Tim Brady pieces referenced in section 1.2, we can also see how his approach has changed with the passing of time. *Symphony #1* features a chamber orchestra instrumentation and elaborate electronics layout that includes two digital signal processors and a PA system that amplifies and processes a solo trumpet, flute, violin and the piano. The effects that are showcased include delays, flangers, distortion and stereo pitch shifters. Exact parameter specifications are given by a chart found in the score's performance notes. Along with acoustic instrument amplification, the score also features a dedicated keyboard sampler part complete with a detailed 8-page sample map. All the sounds utilized by the sampler must be programmed manually for performance and the samples consisting of all electronically processed electric guitar snippets. Brady's use of a sampler that triggers dramatically manipulated recordings of electric guitar sounds is once again an effort to emphasize the piece's guitaristic tendencies.[91] By contrast, *Désir* features a paired down orchestration without brass instruments and a modified wind section,[92] along with a suggestion for the ensemble to be amplified but with no exact setting parameters given. The piece makes reference to styles that are associated with the electric guitar by involving saxophones as well as a Fender Rhodes-style electric piano. Like the electric guitar, these are instruments with genre ties that lie closer to jazz and rock than classical music.[93]

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[90] Tim Brady, "Spotlight: Tim Brady Part I," interview by Guitar Moderne, *Guitar Moderne,* October 28th, 2019, https://www.guitarmoderne.com/artists/spotlight-tim-brady-part-i#more-4584.

[91] Tim Brady, *Playing Guitar: Symphony #1* (Montréal: Centre de Musique Canadienne, 2005).

[92] Along with using single winds, Brady removes the oboe and bassoon in favour of alto and tenor saxophones.

[93] Tim Brady, *Désir: Concerto for electric guitar and large ensemble,* Unpublished Score, 2016-2017.

In the liner notes for the piece's studio recording, Brady states that he considers this work to be his most successful integration to date.[94]

3. Concept of Transference

The term referenced in the piece's title, "Transference," is defined as, "an act, process, or instance of transferring."[95] It is a concept rooted in the field of psychology, where it refers to a situation in which the experiences of one individual are transferred to a new person.[96] In contemporary music, I have found that the term can be applied to the work of the German postwar composer Helmut Lachenmann. In this sense, I refer to "transference" as the method in which the composer might guide aspects of musical form by using frequent instrumental timbral transformations over lengths of time. In an interview with David Ryan, Lachenmann describes this overall process in a vague sense by stating, "…if we take the example of the cello pizzicato… it can become a transformation of a timpani-beat"[97] This compositional approach is heavily influenced by the music and orchestration of Anton Webern. On multiple occasions, Lachenmann has referenced these kinds of structural moments in Webern's work where certain timbral qualities are quickly transferred between different instrumental voices.[98] In an interview

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[94] Tim Brady, Liner notes for *Music for Large Ensemble*, Starkland ST-230, 2019, compact disc.

[95] *Merriam-Webster Dictionary*, s.v. "transference," accessed October 12th, 2020, https://www.merriam-webster.com/dictionary/transference.

[96] Kimberly Holland, medically reviewed by Timothy J. Legg, PhD., CRNP, "What Is Transference?", *Healthline,* Healthline Media, May 28th, 2019, https://www.healthline.com/health/mental-health/transference#countertransference.

[97] David Ryan, and Helmut Lachenmann, "Composer in Interview: Helmut Lachenmann," *Tempo*, no. 210 (1999): 21, http://www.jstor.org/stable/946811.

[98] Helmut Lachenmann, "Composing in the Shadow of Darmstadt," *Contemporary Music Review* 23, no. 3-4 (2004): 44, DOI: 10.1080/0749446042000285663. Helmut Lachenmann, interview by Catherine Milliken, Interviews, Berliner Philharmoniker Digital Concert Hall, November 5, 2011, https://www.digitalconcerthall.com/en/interview/2465-3; Helmut Lachenmann, interview by Gene Coleman, *Musique Concrète Instrumentale*, Slought, April 7, 2008, https://slought.org/resources/musique_concrete_instrumentale.

with *Slought,* the composer specifically cites the fourth movement of *Five Pieces for Orchestra Op. 10* as an example where compositional procedures are guided by the transference of musical material between the snare drum, mandolin, celeste and harp.[99] Lachenmann's compositional approach is in many ways a continuation of these techniques, and as such is often labeled as *musique concrete instrumentale*.[100] When considering musical materials, style and genre, these instances provide examples of music conceptual transference.

On a deeper level, Lachenmann's compositional method of transferring the sonic qualities of acoustic instruments is rooted in the composer's internal artistic conflicts with Western classical music traditions. More specifically, he is constantly concerned with the cultural connotations of orchestral sound sources as well as their institutional associations. Though Lachenmann has written infrequently for guitar, especially the electric,[101] this concern is not unlike the socio-historical dilemmas that have been faced by the composers referenced in Chapter 1 of this document. Referencing the example of Webern's *Op. 10* once again, the composer has elaborated that through the previously mentioned timbral transformations, the instruments' acoustic sounds throughout the piece's fourth movement become abstracted from their traditions.[102] Much of Lachenmann's work elaborates on this idea, and attempts to disassociate the sounds of acoustic instruments from conservative classical music implications.[103] Rather than focusing on the traditional musical or sonic elements that are

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[99] Anton Webern, *Fünf Stücke : für Orchester, op. 10* (Wien: Universal Edition, 195); Helmut Lachenmann, interview by Gene Coleman, *Musique Concrète Instrumentale,* Slought, April 7, 2008, https://slought.org/resources/musique_concrete_instrumentale.

[100] Ibid.

[101] Helmut Lachenmann, *Schwankungen Am Rand* (Wiesbaden: Breitkopf & Härtel, 1974/75). To my knowledge, this early and rarely performed large ensemble work from the composer's catalogue is the only Lachenmann piece that includes the instrument.

[102] Ibid.

[103] Alastair Williams, *Music in Germany since 1968* (New York: Cambridge University Press, 2013), Accessed May 6, 2019, ProQuest Ebook Central, 86; David Ryan, and Helmut Lachenmann, "Composer in Interview: Helmut Lachenmann," *Tempo*, no. 210 (1999): 21, http://www.jstor.org/stable/946811; Helmut

connected to the instruments he is writing for, the composer instead presents acoustic sound material based upon its raw timbral qualities and the transference of physical energy exerted by a performer when creating it.[104] The resulting sounds are then transferred between instruments as a formal or thematic device,[105] which the composer himself elaborates on by stating,

> [sonic details] develop an immediately perceptible wealth of similarities and gradated contrasts to each other, and they emerge and project themselves from this context in an entirely new way. It is the consciously manipulated interaction of such timbral relations that produce the unique and unmistakable total character of a structural sonority."[106]

While *Transference Music* does not directly engage with the concept of transference as an interpersonal psychological term, it does draw inspiration from Lachemann's musical instances of transference. The work explores the possible conceptual transferences of the electric guitar's amplified and processed timbral possibilities, as well as its pre-existing stylistic and cultural associations. I also employ the term in the context of this piece when considering how different experiential concepts that have been transferred between composer and performer roles affected the composition. The following analysis chapter shows how the implementation of this concept has inspired the work's creation. Each subchapter briefly discusses select points of interest across the work that are centred around the fundamental musical parameters such as form, texture, pitch and rhythm. Many of these parameters themselves became subject to the concept of transference during the compositional process.

Lachenmann, "Composing in the Shadow of Darmstadt1," *Contemporary Music Review* 23, no. 3-4 (2004): 52, DOI: 10.1080/0749446042000285663.

[104] Alastair Williams, *Music in Germany since 1968* (New York: Cambridge University Press, 2013), Accessed May 6, 2019, ProQuest Ebook Central, 76; David Ryan, and Helmut Lachenmann, "Composer in Interview: Helmut Lachenmann," *Tempo*, no. 210 (1999): 21, http://www.jstor.org/stable/946811; Helmut Lachenmann, interview by Gene Coleman, *Musique Concrète Instrumentale,* Slought, April 7, 2008, https://slought.org/resources/musique_concrete_instrumentale.

[105] Ian Pace, "Positive or Negative 1," *The Musical Times* 139, no.1859 (1998): 12, DOI:10.2307/1003769.

[106] Jürg Stenzl, "Helmut Lachenmann's Pathways," Liner Notes for *Schwankungen Am Rand,* by Helmut Lachenmann, Peter Eötvös, Ensemble Modern, ECM Records ECM 1789, 2002, compact disc.

4. Analysis of Composition

4.1 Large-Scale Structures and Formal Characteristics

4.1.1 Work Overview

Transference Music is structured into six movements in total.[107] A full performance of the piece would last approximately 25 minutes. Each of the work's movements are inspired by musical concepts that are intimately tied to the electric guitar and its electronic equipment. These concepts were chosen as they have been consistently present throughout my own experiences as a composer and performer when working with the instrument. Each of these conceptual elements are then transferred to the fundamental aspects of the musical composition. For example, the pitch content and harmonic motion between guitar-specific chord voicings may be applied to the overall harmony of a given passage. Electronic amplification and effects processing, which is essential to the electric guitar's sound production, is transferred to the acoustic ensemble's use of extended timbral techniques as well as the amplification and live processing applied to the ensemble. Musical styles which are commonly performed using the electric guitar, such as hard rock, prove influential for approaches to musical form in select movements.

The following table provides an overview for each movement's transferred elements. There is no "1 to 1" correspondence between the sources and destinations listed. Depending on the section of music in question, any one of the described sources may be transferable to any number of the potential destinations. For example, the first movement's source of "Electric guitar amplifier feedback phenomenon" is transferable to the movement's orchestrated pitch content, noise-based performance techniques, and the ensemble's live electronic processing.

[107] Throughout this chapter, the terms 'form' and 'formal' are used to describe the idiosyncratic structural elements of this piece and do not reference any pre-existing classical forms.

Table 2: *Transference Music*: Movement Overview

Movement [with approx. duration]	**Transference Sources**	**Transference Destinations**
I. Feedback and Swells [6m]	Electric guitar amplifier feedback phenomenon. Pitch material stemming from the spectral analysis of feedback overtones. Dynamic volume swells. Guitar techniques which emphasize noise-based timbres and textures.	Sustained, arhythmic tones and ensemble textures. Orchestrated pitch content based on the results from the feedback's spectral analysis. Noise-based performance techniques employed by the large ensemble. Ex: noise-based techniques, multiphonics, microtones, etc. Live electronic processing using distortion and reverb.
II. The Heavy Rhythms [3m)	Notable rhythmic figures played by electric guitars in hard rock subgenres, most prominently among hardcore punk and heavy metal. The electric guitar's intuitive approach to chordal harmony. Ex: parallel motion, non-functional extended harmonies, wide intervallic voicings facilitated by open strings. Distorted and heavy timbres.	A formal structure based around repeated rhythmic figures and consistent pulsations. An orchestration of harmonic extensions, chord voicings and parallel motion voice leading similar to the electric guitar's approach to chordal harmony. Performance techniques employed by the large ensemble that emulate distorted or percussive guitar techniques. Live electronic processing using distortion and reverb.
III. Trading Licks [4m]	Quick and apparently virtuosic electric guitar "licks." Melodic contours based on the instrument's symmetrical fretboard patterns. Wide-range intervallic leaps facilitated by using the instrument's open strings with legato phrasing. Pre-existing call and response form/textures.	A formal structure and ensemble texture based around a modified call and response style. Ex: "trading off" variations of melodic phrases between the ensemble members. Large ensemble orchestration is again based on vertical sonorities, chord voicings and harmonic motion that can be described as guitaristic. Accented rhythmic pulsations derived from the electric guitar lick's phrase groupings.
IV. More Slides, Bends and Shifts (after Tim Brady) [4m]	Slow, lyrical and smooth electric guitar phrases. Frequent pitch shifting via string bending and the Digitech Whammy pedal.	Canon-style form and contrapuntal ensemble texture that gradually accumulate following the initial soloist phrases. Pitch bending techniques employed by the large ensemble that emulate the electric guitar's pitch shifting.

V. Interlude – Echo Trails [3m]	Echo pulsations created by a digital delay effects pedal. Dramatic speed and pitch manipulations of the digital delay's echo trails.	An orchestration of digital delay-style echoing pulsations. Large ensemble techniques that emulate the delay pedal's pitch and speed shifting effects. Digital delay processing used when the ensemble performs pointillistic attacks.
VI. Depths [5m]	Textures that are common among sample-based ambient electronic music styles. Very short fragments of large ensemble material from the previous movements used like a digital audio sampling source. Pitch, time and timbral manipulations that result from audio looping and sampling techniques.	An orchestration of the sampled and manipulated fragment material. Ensemble techniques that emulate artifacts typically occurring from sample manipulation. Ex: microtones, noise-based timbres, imperfect audio artifacts. Live electronic processing using filtering, light delay and long reverb.

Beyond the information in the table above, several other formal construction choices are used for the entirety of the piece. For example, relative pitch centres across the work's six movements deliberately draw from the guitar's six open string pitches when in standard tuning, E-A-D-G-B-E. The six movements roughly progress through these six pitches as loose harmonic key areas while also sometimes interchanging the relative major or minor mode used, most notably in movements IV and V. At other points in the piece though, the music is almost entirely chromatic, polytonal or features no discernible pitch content at all, such as in movements I and III. Overall, the plan to use the open strings as pitch centres is followed like a rough guide and allowed for intuitive scoring during the work's writing process. By using the electric guitar's open strings as reference points, many of the work's unique chord voicings and melodic figures also become intimately tied to the instrument.

4.1.2 Overarching Symmetries

Another deliberate aspect of the piece's formal construction is the use of symmetrical durational proportions. The first and last movements are approximately 5-6 minutes, while the

second and fifth are 3 minutes each and the middle two movements are approximately 4 minutes each. For the listener, these length proportions allow for the first and last movements to feel like a slowly developing introduction and a definitive ending statement respectively. The length of the combined middle two movements then allows for dramatic development during common musical climax points while not overshadowing the opening and final movements. These sections contrast with the shorter second and fifth movements, which act as shorter musical acts that progress quickly at points where the music could potentially feel stagnant.

The work's texture and orchestration play a role in defining large-scale form. As the whole piece progresses, the overall musical texture shifts from dense and large sound masses towards more transparent contrapuntal interactions or linear melodicism. By the beginning of the piece's fourth movement, the texture has transformed from an initial focus on complex vertical sonorities into one that consists almost entirely of horizontal melodic lines for each individual instrument. As the work's penultimate movement progresses, there is a sense of return towards vertical blocks of sound. This recap becomes fully realized once the sixth movement begins.

When considering the development of musical texture within each individual movement, it is also observable how each movement follows similar dramatic arcs. For example, the work's first four movements begin with a soloist introduction before the ensemble joins in with the electric guitar, whether that may happen immediately or gradually. Most movements also feature a gradual build of textural intensity towards an ensemble tutti climax, while their endings are marked by a quickly dissipating texture into sonic stillness. The exceptions to these symmetries include movement V, which inverts the soloist introduction idea and features the ensemble first, and movement VI, which features none of these formal texture characteristics and instead features the entire ensemble playing almost consistently until the sudden ending of the piece.

Stylistically, *Transference Music* covers a far range of musical ground. The standard compositional concerns of time, pitch and texture are applied across a broad number of musical situations which initially seem disparate. Despite seeming like abrupt acts of polystylism, these contrasting scenarios are again all connected by the previously described instances of transference that are regularly occurring. This allows for multitudes of deeper connections to be made between the compositional materials, such as allowing pitch or rhythmic material to be influenced by aspects of timbre, texture or electronics processing. This approach to the compositional process will be explored throughout the remainder of this document's analysis chapter. In each subchapter, I will highlight the most notable sections of the piece where the transference of a particular musical element is significantly featured.

4.2 Textural Features

4.2.1 Noise and Feedback Phenomenon

Complex textures and timbres are present for the entirety of *Transference Music*, but these features are most relevant throughout the work's opening movement, subtitled *Feedback and Swells*. This movement almost exclusively involves the transference of textural or timbral concepts, namely the dynamic swelling of complex sound masses. These vertical sonorities result from either electric guitar amplifier feedback and/or noise-based electric guitar performance techniques. For the first half of the movement, the solo electric guitar part calls for the player to create slowly swelling pitches that transform into distorted amplifier feedback. This is sonically achieved by using a combination of overdrive and distortion pedals together with delay and a volume pedal, then shifting the volume pedal from the "heel down" position to the "toe down"

position.[108] As mentioned in the score's performance notes, a solid body electric guitar with humbucker pickups is also required to create the amplifier feedback that is necessary for this movement. As the instrument's volume and distortion becomes louder, complex and unstable feedback tones from the instrument's amplifier result. When considering the entire work, I chose to begin the piece with this feedback-based movement in a conscious effort to hint at the sonic reference points that are integral to the electric guitar's origins. As Steve Waksman describes in *Instruments of Desire,* employing electronic sound techniques that pushed electric guitar amplifiers past their limit and resulted in distortion and feedback was critical to how influential 1950s blues and rock guitarists defined their artistic voice and expanded the expressivity of their playing styles.[109]

An important issue to note when pursuing these feedback-based compositional ideas is the aspect of indeterminacy when considering an individual's specific playing equipment. While it is predictable that the feedback produced by these techniques may be based on pitches found within the overtone series for the fundamental pitch that is performed, predicting which overtones will be the most prominent and how prominent they might be will be dependent on the player's choice of guitar, pickups, amplifier and effects pedals, among many other considerations such as the performance space. For this reason, I have used a mix of precise and indeterminate notational styles with verbal indications for realizing these feedback effects. Large open diamond noteheads are used to show when the initial fretted pitch will transform into primarily feedback tones, as shown below.

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[108] Like the Digitech Whammy, volume pedals are expression-based and can be rocked back and forth to affect the instrument's loudness. In the heel down position, the instrument's volume signal is completely off while in the toe down position, it is at its max level.

[109] Steve Waksman, *Instruments of Desire* (Cambridge: Harvard University Press, 1999), 137-138.

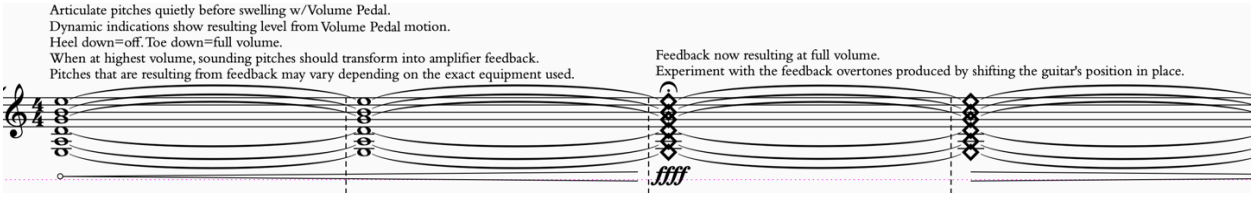

Figure 5: *Transference Music: I. Feedback and Swells* mm. 1-4, Electric Guitar Soloist part.

Directions that require the performer to experiment with the resulting feedback tones are also notated in an indeterminate style and include gestures such as shifting the instrument's physical playing position in relation to the amplifier, bending the strings and shaking the instrument's body. Like the regular use of timbral distortion, the physical energy required by these intense performance movements and the translation of energy into amplified sound is deeply tied to the electric guitar's historical development and performance practice.[110]

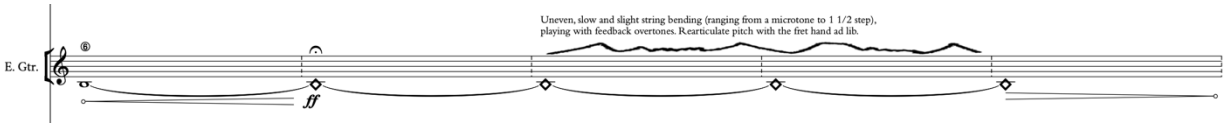

Figure 6: *Transference Music: I. Feedback and Swells* mm. 11-15, Electric Guitar Soloist part.

Once the large ensemble joins the soloist at measure 26, the sonic gesture of electric guitar amplifier feedback swells is transferred to the large ensemble's instruments. Each instrumental section employs their own combination of techniques that result in dynamically

[110] Steve Waksman, *Instruments of Desire* (Cambridge: Harvard University Press, 1999), 292-294. As previously mentioned, Waksman's discourse is highly recommended for deeper reading on this topic. His book focuses on unpacking how these aspects of the instrument's development have permeated popular culture and highlight important socio-political issues.

swelling unstable and unpredictable distorted overtones. Until rehearsal letter C, the successive large ensemble "feedback swells" all represent loose orchestrations for the sequence of swells previously performed by the soloist. In this way, the large ensemble is sequentially performing an approximate "long-form textural canon"[111] of the soloist's material. The following figures show the large ensemble's first feedback swell at measure 26, which is based on the soloist's opening swell shown in Figure 5.

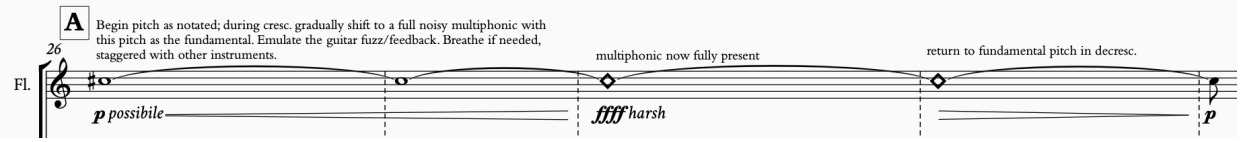

Figure 7: *Transference Music: I. Feedback and Swells* mm. 26-30, Flute. Simile for Woodwind section.

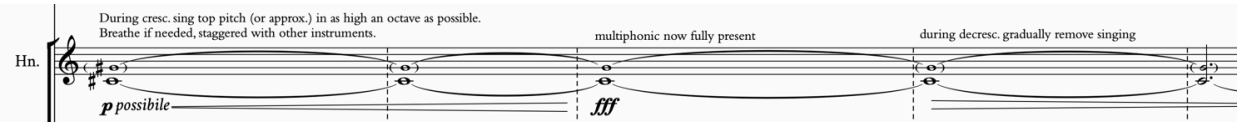

Figure 8: *Transference Music: I. Feedback and Swells* mm. 26-30, Horn in F. Simile for Brass section.

[111] Like the use of structural terms in section 4.1.1, the term "canon" here is used idiosyncratically when I refer to "long-form textural canons." I use this term to describe an extended passage initiated by the electric guitar that is imitated much later by similar orchestral textures.

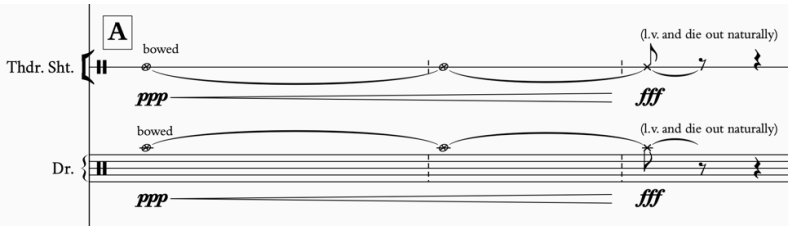

Figure 9: *Transference Music: I. Feedback and Swells* mm. 26-28, Percussion section.

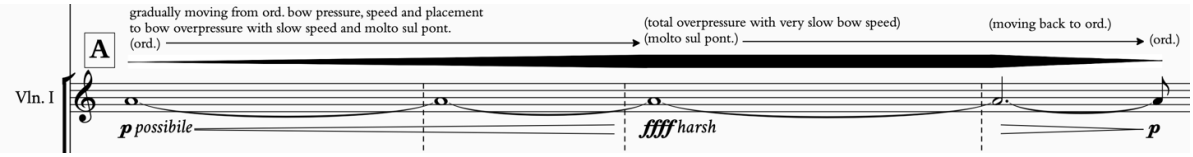

Figure 10: *Transference Music: I. Feedback and Swells* mm. 26-29, Violin I. Simile for String section.

The second half of the movement presents further elaborations of these swelling and distorted textures by sonically shifting towards sound masses that are almost purely noise based. The solo electric guitar part now implements unorthodox performance techniques combined with the use of the Digitech Whammy pedal[112] to accentuate unusual sonic artifacts. Once again, as different equipment and playing styles can yield varying results, these techniques are mostly notated with graphics and aleatoric verbal directions, as shown.

[112] Using the two octaves higher setting in this case.

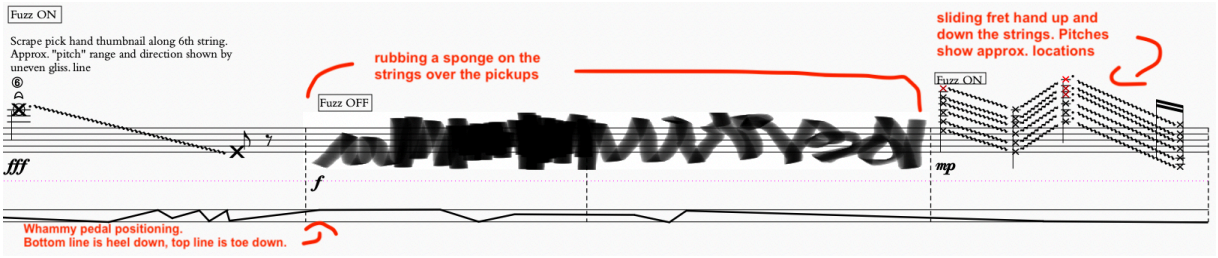

Figure 11: *Transference Music: I. Feedback and Swells* mm. 57-60, Electric Guitar Soloist part.

In response to the electric guitar's complex and abrasive timbres, the ensemble part again transfers this sound world into the context of their own respective performance techniques. Throughout this section, the ensemble mostly doubles the soloist or responds immediately afterwards like an echo, rather than performing a long-form series of canons. Select techniques are used to either support or echo the electric guitar's shrill string scraping sounds, while others provide a harmonically rich and modulating sustained texture not unlike the electric guitar's sponge and fret hand string rubbing techniques. Examples of these techniques are shown in the figures below.

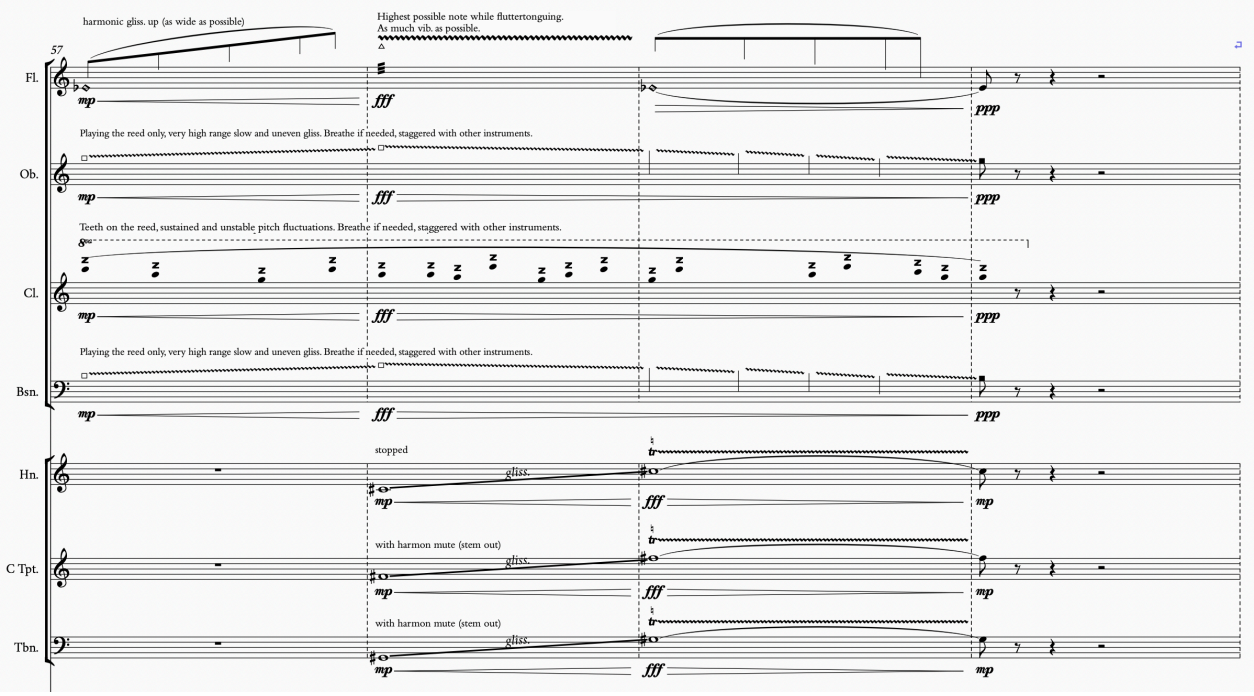

Figure 12*: Transference Music: I. Feedback and Swells* mm. 57-60, Wind and Brass sections.

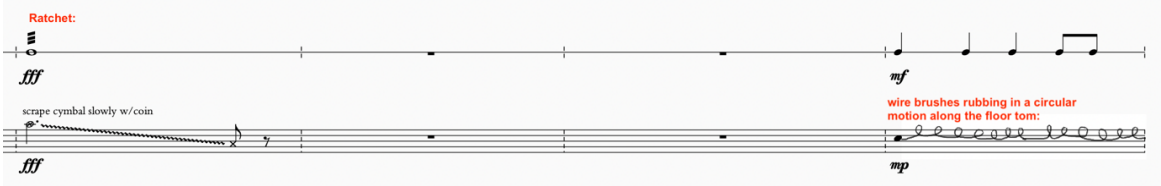

Figure 13: *Transference Music: I. Feedback and Swells* mm. 57-60, Percussion section.

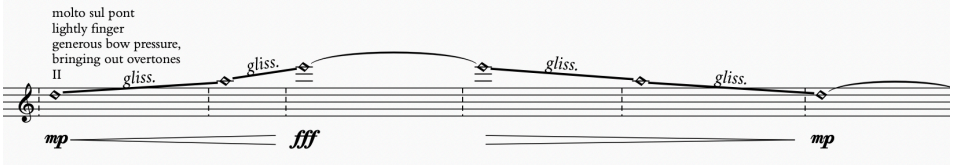

Figure 14: *Transference Music: I. Feedback and Swells* mm. 55-60, Violin I. Simile for String section.

Many of the distorted textures and timbral effects introduced by *Transference Music*'s first movement return throughout the work's later movements, especially during the piece's second and last movements. Movement II, subtitled *The Heavy Rhythms*, features a number of musical devices stemming from heavy metal and hardcore punk subgenres.[113] These devices effectively reframe the aggressively dense sound masses from the previous movement so that they now take on a pulsating rhythmic character rather than one consisting of sustained drones. Performance techniques previously explored by the large ensemble such as multiphonic swells, varying degrees of string overpressure, and flutter tonguing return throughout the movement, while any newly introduced timbral effects are once again the result of transferred electric guitar techniques. This includes a percussive strumming technique that is achieved by muting the strings with the fret hand,[114] as well as accented bursts of high-pitched natural harmonics.[115] These techniques are consistently mimicked by the string section, as the players support the soloist's techniques with behind the bridge bowing or echo them with quick swells of stacked string harmonics. In movement VI, previously heard techniques such as unorthodox string bowing and ensemble tremolos and are again recontextualized, this time in reference to the rough textures found among digital audio sampling artifacts. Like the heavy musical genre influences of movement II, these referential aspects will be discussed further in section 4.5

4.2.2 Canons and Contrapuntalism

A last textural consideration is the work's approach to more traditional large ensemble textures. The first movement's use of long-form canon devices eventually give way to a much more transparent and contrapuntal "call and response" style during the piece's third, fourth and

[113] These subgenre references will be discussed in further detail in section 4.5.
[114] Shown with "x"noteheads.
[115] Both techniques can be seen in Figure 21 on page 153.

fifth movements. *Transference Music: III. Trading Licks* is structured around a series of electric guitar phrases or "licks" that are slowly transformed and transferred across the music's melodic and rhythmic content as well as the large ensemble's orchestration. This movement marks the first time in the piece where the electric guitar part takes on the role of a much more typical soloist. The movement mostly consists of the soloist performing quick and exciting single-note lines while the large ensemble accompanies the soloist with rhythmic pulsations, soloist harmonisations, or with a brief solo response by another member of the ensemble. These solo-response variations display the most obvious example of lick "trading," as described by the movement's title. The electric guitar soloist role during these moments is also reminiscent of the classic "lead guitar" playing style, a concept that is referenced in Chapter 1 of this document.[116] The following figures show an example lick from this movement as well as the clarinet's solo response. As we can see from the examples, once the soloist's lick is traded it may be varied by contour inversions or different phrasing and articulations.

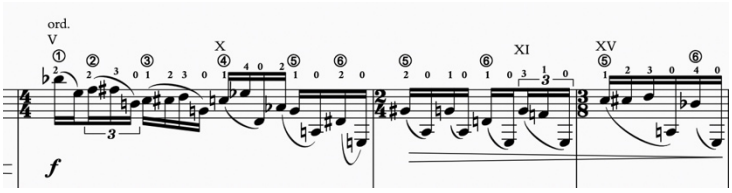

Figure 15: *Transference Music: III. Trading Licks* mm. 211-213, Electric Guitar Soloist part.

[116] This concept is first presented in the Tristan Murail work, as discussed on page 110. It is also very prominent among the Tim Brady and Steve Mackey pieces.

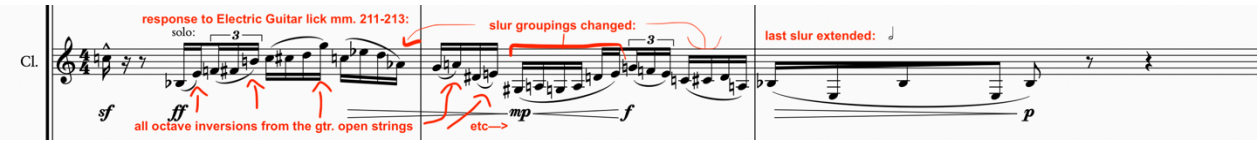

Figure 16: *Transference Music: III. Trading Licks* mm. 214-216, Clarinet part.

In *Transference Music: IV. More Slides, Bends and Shifts (After Tim Brady)*, canonic ensemble responses to previously occurring soloist lines are instead split within instrumental groups or across sections. This creates a cascading, colourful smear of overlapping pitch content. As the movement progresses and the soloist continues to perform flowing lyrical phrases, the ensemble's texture gradually builds towards a succession of climax points as each of these canonic responses overlap.

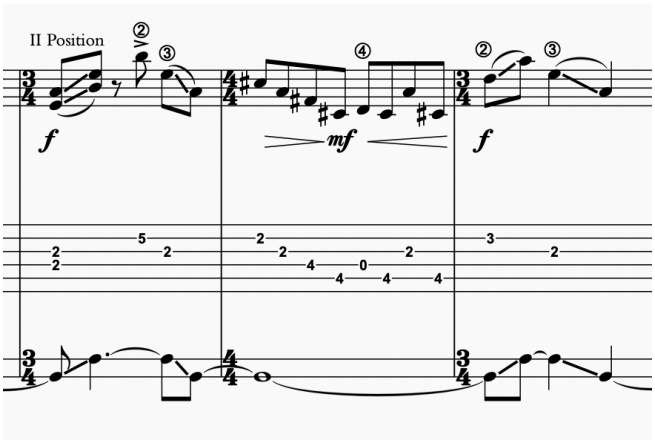

Figure 17: *Transference Music: IV. More Slides, Bends and Shifts (After Tim Brady)* mm. 339-341, Electric Guitar Soloist part.

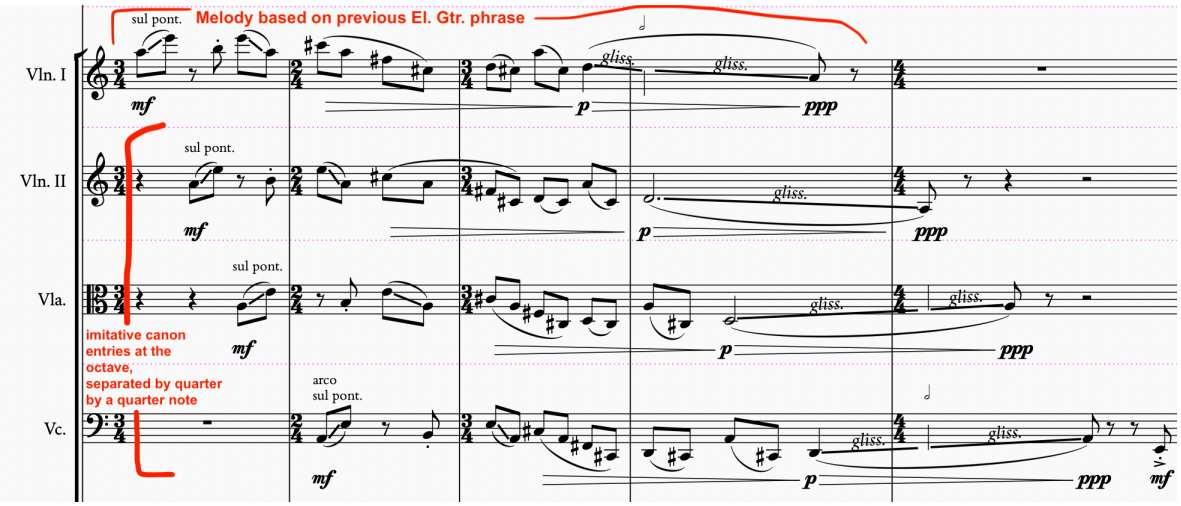

Figure 18: *Transference Music: IV. More Slides, Bends and Shifts (After Tim Brady*) mm. 341-345, String section (except Contrabass).

Finally, *Transference Music V: Interlude – Echo Trails* features a return of the single instrument textural exchanges found previously in movement III. This time however, the instruments respond to each other like a constant series of echo trail pulsations.[117] Like movement IV, this movement's overlapping pulsations create a sense of fluid and pandiatonic harmonic fields that slowly grow and dissipate as the movement progresses. A further explanation of this digital delay effect emulation with examples will also be explored in section 4.5 Referential Aspects.

4.3 Pitch Materials

4.3.1 Feedback Overtones and Spectral Analysis

Beyond the pandiatonic harmonic fields found in the work's later movements, *Transference Music*'s early movements again exhibit a guitaristic approach to pitch content that

[117] As briefly mentioned in Table 2 on page 137, these are like delayed phrase repeats that would occur from the use of a delay pedal.

similar to the textural approaches discussed in section 4.2.1. While the first movement of *Transference* Music is not entirely influenced by "spectralist" compositional approaches, the pitch content used for each of the ensemble's feedback swells was derived from a spectral analysis of the guitar's feedback. Before composing the large ensemble parts, I recorded a performance of the opening electric guitar swells and analyzed the resulting feedback overtones using the software *Spear*. The figure below displays the spectral analysis information for the electric guitar swell shown previously in Figure 6.[118]

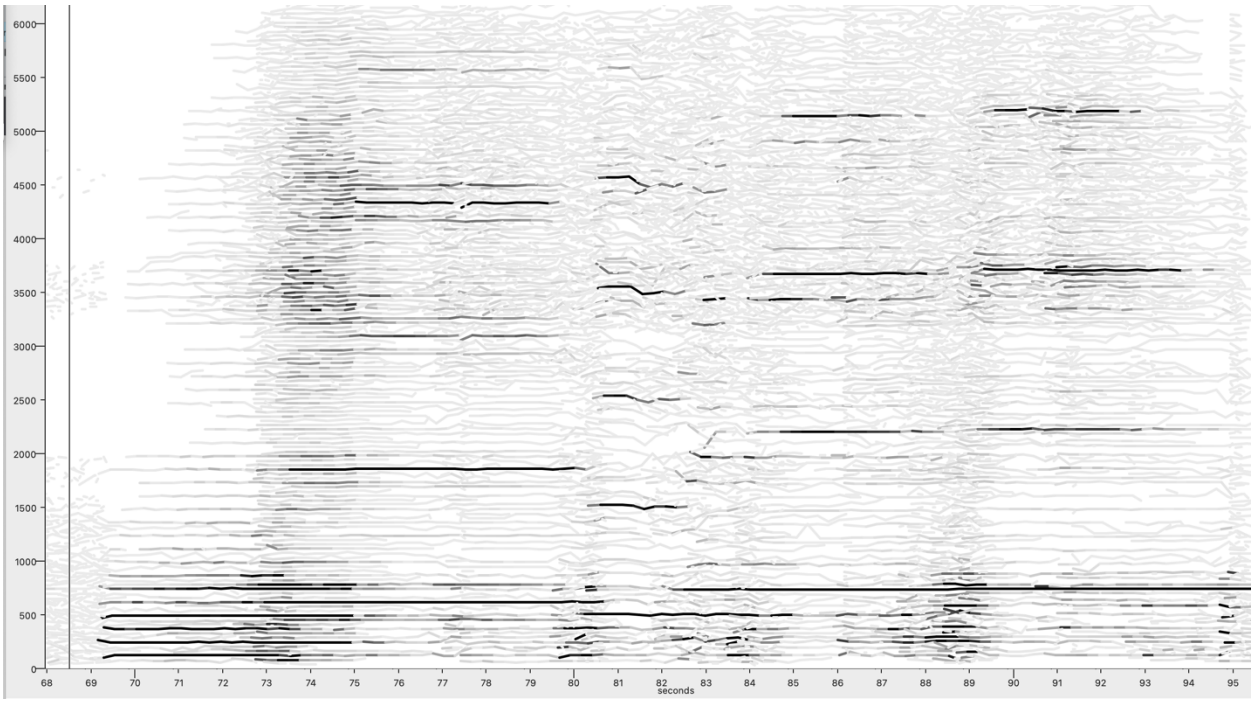

Figure 19: Spear analysis of the potential resulting feedback from the Electric Guitar Soloist part shown in Figure 6.

[118] See page 142.

Using this software, we can see the fundamental "B" pitch notated in Figure 6 along with the initial overtones that result from the instrument's heavy distortion. The graph also shows when those pitches transform into wide-ranging and unstable feedback. The darkest horizontal lines between 69-73 seconds show the frequencies present at the onset of the notated pitch before the sound turns into variable feedback between seconds 73-95. During a performance, these feedbacking pitches can unevenly fluctuate throughout the duration of the note held depending on the instrument's volume level, length of sustained tone, one's distance from amplifier and the effects used by the performer. Throughout each of this movement's successive large ensemble swells, the tones that had previously emerged as electric guitar feedback are orchestrated as piercing, microtonal entrances by solo instruments among the group texture. Since performing microtones can prove to be a unique process for different instrument types and may be uncertain or unstable, the tunings of these tones are shown only with approximate indications, rather than the exact cents that were generated by the Spear analysis.[119] Logistically, this gives more performance flexibility to the players of the large ensemble while aesthetically, the indeterminant nature of the microtonal indications also reflects the instability of the feedback source material. Referencing Steve Waksman's book *Instruments of Desire* once again, the use of microtonal inflections during this movement is another callback to the electric guitar's origins amongst blues and rock players. As the author describes, early electric blues players such as Muddy Waters intuitively used microtonality to capture different moods and tonal colours, rather than for any reasons related to European tuning systems.[120] Like the first movement's use of timbral effects, these microtonal inflections also return during the work's final movement, *Depths*, as a

[119] Not shown in the figure, but can be shown by the software via a separate window.
[120] Steve Waksman, *Instruments of Desire* (Cambridge: Harvard University Press, 1999), 143-144.

referential and tonal colour device. The figure below shows the resulting wind section orchestration of the feedback swell gesture from Figures 6 and 19.

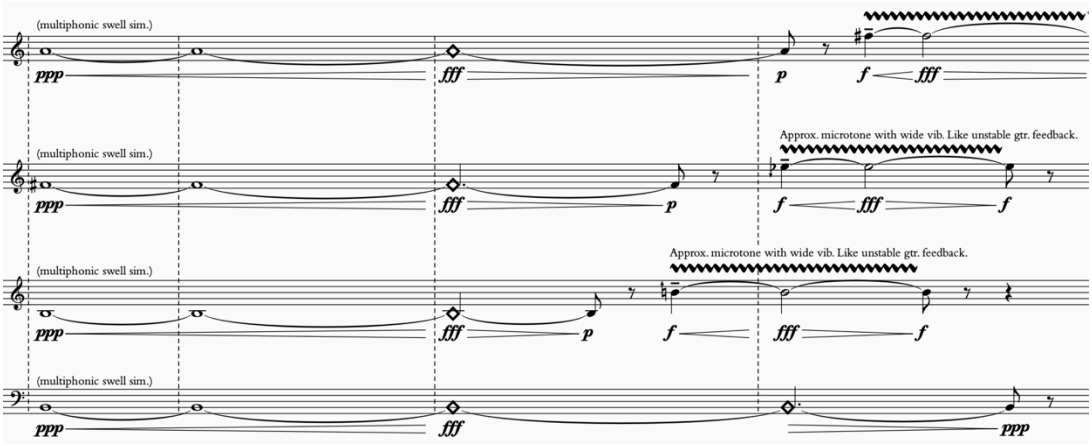

Figure 20: *Transference Music: I. Feedback and Swells* mm. 32-35, Woodwind section.

4.3.2 Extended Chordal Harmonies and Voice Leading Motions

As a further step towards the guitaristic treatment of the work's pitch material, *Transference Music*'s second and third movements showcase unique extended harmonies, chordal voicings, and voice leading principles that are derived from the scoring of the solo electric guitar part. Figure 21 shows a full chord progression passage used during the early moments of *II. The Heavy Rhythms*.

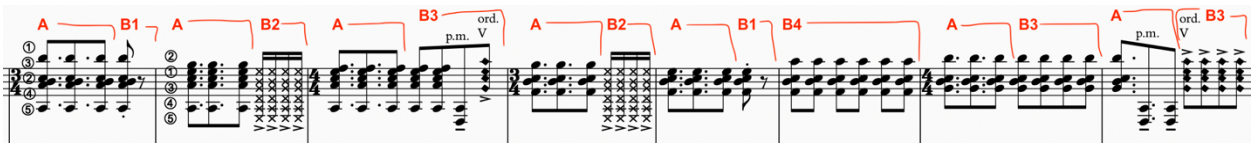

Figure 21: *Transference Music: II. The Heavy Rhythms* mm. 87-94, Electric Guitar Soloist part.[121]

[121] Motivic markers in this figure (A, B1, etc.) are in reference to the passage's rhythmic fragments to be discussed in section 4.4.2.

Using traditional analysis while ignoring the low palm muted pitches[122] and string harmonics,[123] the chords in this sequence could be labeled as Am^{add9}, Am7, Am6, Fsus2$^{\#11}$, Fmaj7$^{\#11}$(no 3rd), F$^{add\#11}$ and G^{add11}. Notably, the harmonic motion between each of the chords does not follow traditional voice leading, as these chords are performed by parallel moving fretboard shapes that are combined with static open strings. As a further visual reference, the figure below shows how these shapes would appear on standard guitar chord diagrams.

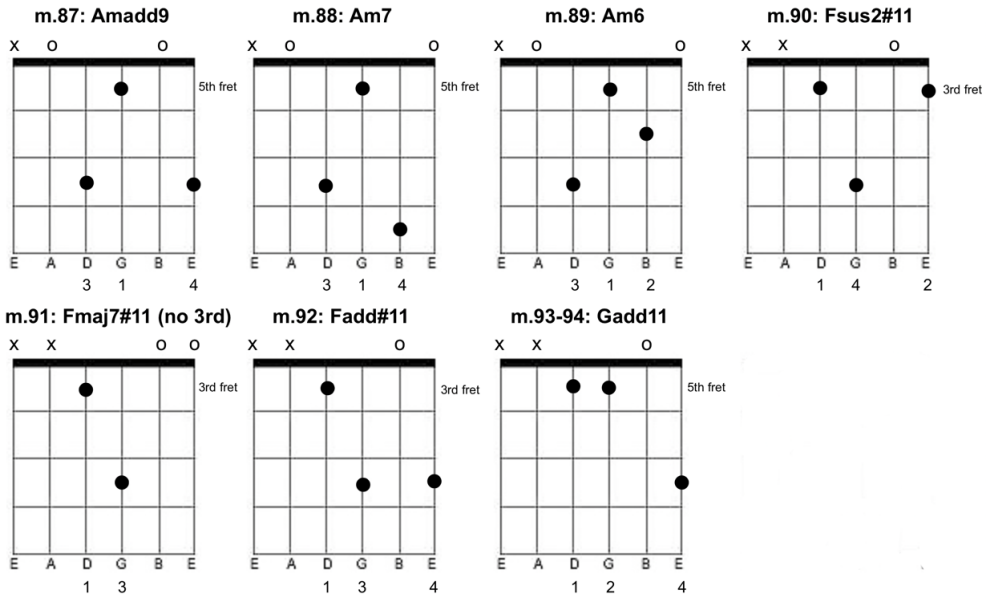

Figure 22: Diagrams for chord shapes used in Figure 17.

The entire large ensemble's harmony is then constructed by transferring these sonorities, their voicings and this guitaristic approach to voice leading. The figure below shows an example

[122] Abbreviated using "p.m."
[123] Notated using diamond noteheads.

of this harmonic approach, with the woodwind section performing a sustained pad-like figure that provides colour and supports the soloist's rhythms.

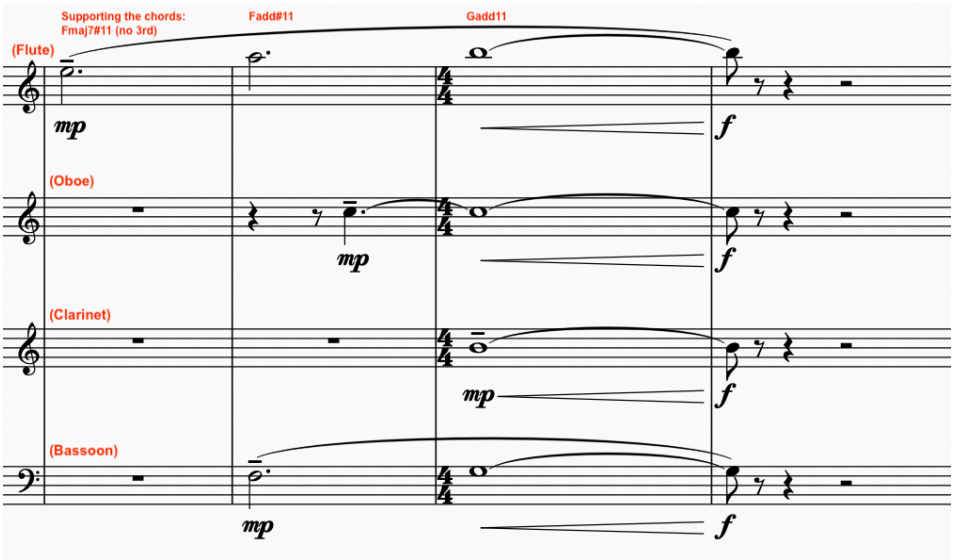

Figure 23: *Transference Music: II. The Heavy Rhythms* mm. 91-94, Woodwind section.

Movement III, *Trading Licks*, is another section of the piece where interesting approaches to pitch material are pursued. For example, consider the figure below, which displays the movement's first electric guitar lick.[124]

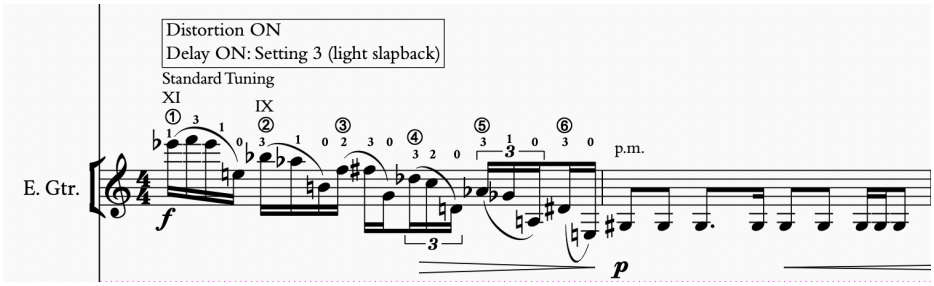

Figure 24: *Transference Music: III. Trading Licks* mm. 208-209, Electric Guitar Soloist part.

[124] Regarding the notation, fingering for the passage is shown with Arabic numerals (a "0" denotes an open string) while string numbers are shown with circled Arabic numerals. Fretboard positions are notated with Roman Numerals.

The pitch content of these phrases is mostly chromatic, and emphasizes 2nd, 7th and tritone intervals. Each lick either ascends or descends across the instrument's strings with legato articulations. Each open string pitch is used at the beginning or end of each slur, which contributes to the cluster-like pitch content while also facilitating smoother string changes. Following this series of legato flourishes, the lick arrives at a repeated pitch on the lowest or highest strings.

Once the music approaches the electric guitar cadenza at rehearsal letter K, the pitch content slowly expands from clusters and traditionally dissonant intervals to those that are more consonant, including 3rds, 6ths, and perfect 4ths and 5ths. The soloist's cadenza, beginning at measure 236, marks the only section resembling a traditional cadenza for the entire work. Here, the soloist performs a fluid series of virtuosic melodic lines that resemble previous lick fragments in their phrasing and contour yet deviate from the previously chromatic pitch content. While this section and the remainder of the movement do not settle into any specific tonality, the music does contain shifting snapshots of diatonicism. At measure 256, the source behind the movement's harmonic content is revealed through a series of chords performed by the soloist, shown in the following figure.

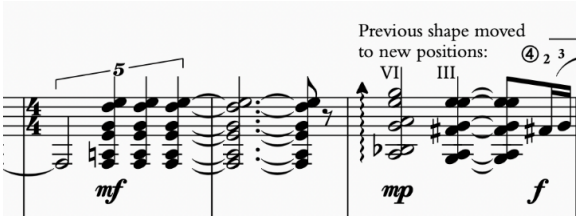

Figure 25: *Transference Music: III. Trading Licks* mm. 256-258, Electric Guitar Soloist part.

As the score note in measure 258 describes, these harmonies are derived by moving a single chord shape to different fretboard positions. Similar to the chords found in movement II, this six-string shape includes both fretted and open strings. This again means that while some pitches from the shape change depending on the fretboard position, pitches that are performed on the open strings remain constant. In contrast to movement II however, there is no implied tonality or chord progression in moments where the chords are arranged in a sequence. They are simply vertical sonorities that can be explored for moments of musical time. I have used this approach to generating pitch content in past pieces as well, and for the purpose of analysis have referred to the chords as "harmonic profiles." Individually considered, each chord provides intervallic pitch relationships that could be explored vertically or horizontally. Across a longer passage of music, these profiles act like extended harmonic areas that slowly move between one another. In the following figures, the diagram for this chord shape as well as its vertical harmonies at various positions are shown.

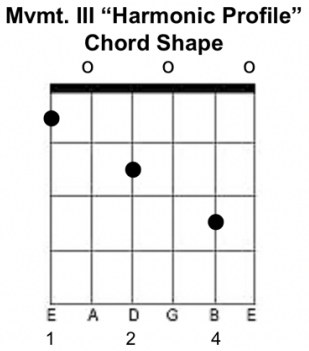

Figure 26: "Harmonic Profile" Guitar Chord Diagram.

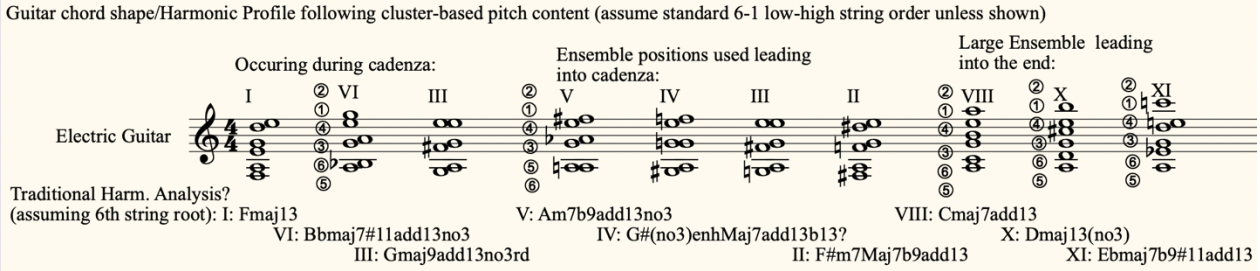

Figure 27: *Transference Music: III. Trading Licks* Harmonic Profile positions.

Like the example from the previous movement shown in Figure 20, analyzing these harmonies with traditional labels may be possible but is ultimately inconsequential and irrelevant to how they are utilized in the piece. Rather, using these profiles as a harmonic basis allows for one to create interesting combinations of intervals at different moments while still retaining relationships between each sonority via the open string pitches (A, G and E). As the figure shows, moving the shape to different fretboard positions can generate drastically different intervallic information. The chord shape in the third and fifth positions results in widely spaced 2^{nds} and unisons, while the shape in the eighth and tenth positions yields a series of stacked 3rds, 4ths and 5ths between each pitch. One position's sonic result may be very stable and open, while moving the shape just one position away could shift the sonority into tight and tense territory. The use of these profiles exclusively forms the pitch material and harmonic content of the movement beginning at rehearsal letter L. The quick motion and constant variation of this section, however, makes the chordal aspect of these harmonies less apparent. It is only at rehearsal letter M, once the music finally settles into a solid and repeated groove, that the vertical harmonic motion becomes apparent. The electric bass guitar especially propels the rhythmic feel of this section, and the following figure shows an example of this distilled groove amongst the strings.

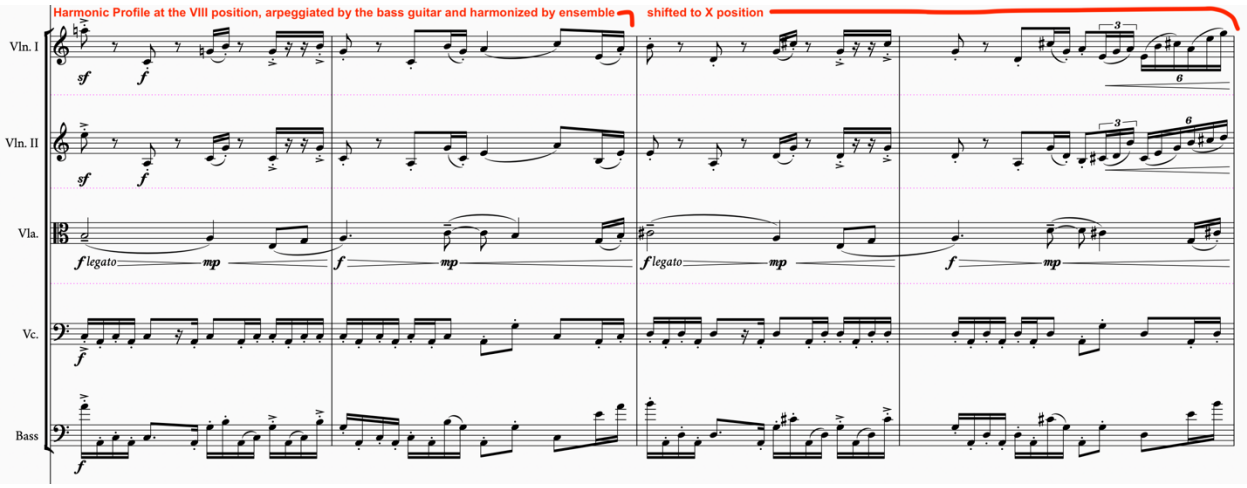

Figure 28: *Transference Music: III. Trading Licks* mm. 295-298, String section.

4.4 Rhythmic Devices

4.4.1 Pulsations Fragments and Durational Phrasings

Movements II and III of *Transference Music* also present the work's most prominent use of rhythmic devices and treatments. While movements I and VI consist of slow and static textures, and movements IV and V present steady or repeated pulsations, it is the second and third movements of the piece that feature the most varied rhythmic developments.

In *III. Trading Licks*, the soloist's opening statement[125] is followed by a pulsating rhythm played by the brass section. The durational values used for this rhythmic fragment, along with those that follow, are based on the previous lick's string and slur phrasing. The following figure illustrates this brass section response to the lick from Figure 24. We see here that both the trumpet and trombone marcato articulations mirror the soloist's pick attacks from the first lick. These attacks are also briefly supported by the electric guitar's palm muted notes.

[125] Shown previously in Figure 24 on page 155.

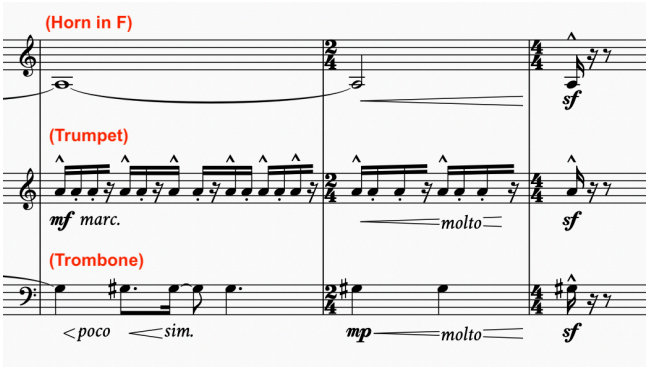

Figure 29: *Transference Music: III. Trading Licks* mm. 209-211, Brass section.

As another example, the movement's second soloist lick[126] is followed with an interlocking and repeated rhythmic pattern performed by the bassoon and cello. In these examples, the bassoon's durations are derived from the lick's open string occurrences, while the cello's durations are based off the second lick's slur groupings as in the previous brass section example. As the movement progresses, the series of pulsations within the large ensemble texture continues to grow before building into the previously mentioned tutti section at rehearsal letter L and the straight-ahead groove at rehearsal letter M. Durational values throughout these sections are derived from composite rhythms of previous pulsation fragments. The electric bass line shown in Figure 28 for example,[127] is derived as a composite rhythm of the pulsations from the previously mentioned bassoon and cello lines, as well as a simultaneously occurring oboe pulsation. The figure below shows these instances all together for comparison.

[126] First shown here as Figure 15 on page 148.
[127] First shown on page 159.

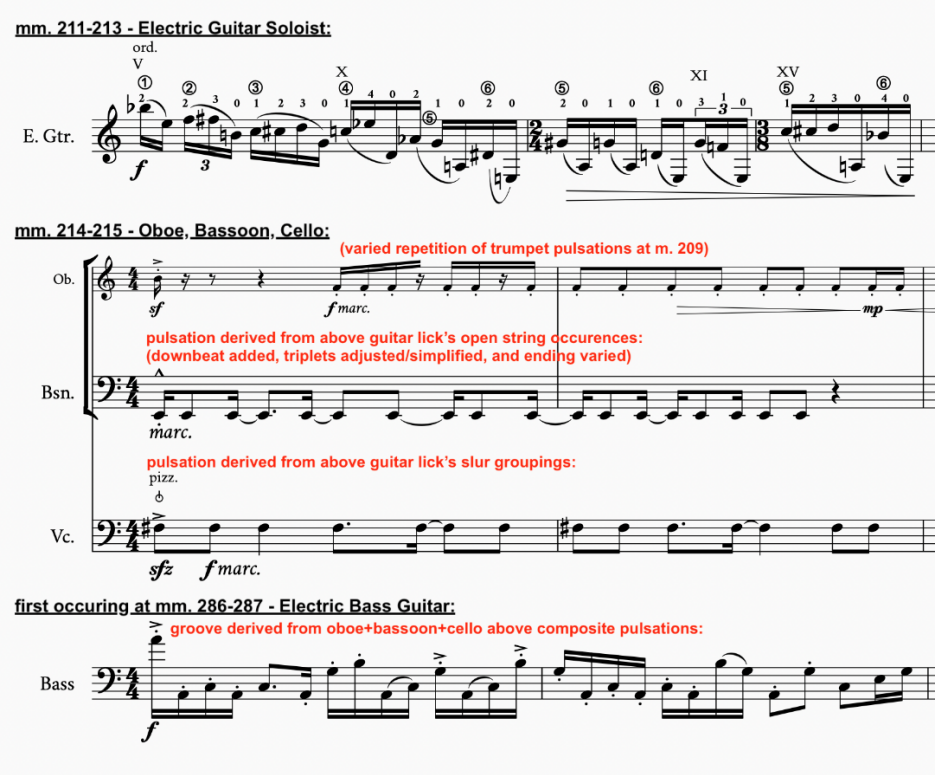

Figure 30: More interrelated pulsations in *Transference Music: III. Trading Licks*.

4.4.2 Syncopated and Repetitive Grooves

Transference Music: II. The Heavy Rhythms illustrates further instances of consistently varied grooves and intricate rhythmic devices. As mentioned in the previous subchapters, this movement's material is inspired several hardcore punk and heavy metal subgenres. This is made manifest by the movement's rhythmic content. As noted by the initial tempo marking at measure 81, the music's quick pace and aggressive rhythmic stylings are influenced by the hardcore punk genre known as "screamo." This style will be conceptually explored in further detail in the following subchapter, but rhythmically the subgenre is known for its propulsive yet syncopated

grooves that typically alternate between accented triple and duple durational values, most often dotted 8^{ths} and regular 8^{ths}.[128]

Referencing the chord progression shown in Figure 21 on page 153, we can see various examples of this rhythmic fragment alternation. The figure displays the main rhythmic fragment, denoted by the bracket A, followed by the potential response fragments B1-4. This unstable groove is at the core of what makes the screamo style energetic and propulsive. The pattern exhibits a "push and pull" pulsation dialogue that creates excitement and unpredictability for what might otherwise be a straightforward driving motion. This rhythmic idea is almost always present in some form throughout the movement until rehearsal letter I, whether it is being performed as the typical chord strumming motif by the soloist or as a synchronized attack between the first percussionist, the second percussionist's kick drum and the electric bass. It is also frequently doubled by members of the large ensemble as either an orchestral tutti, a gradually building and unfolding texture, or as a call and response between players in different instrumental families. Beginning at rehearsal letter H, the dotted 8th-note idea evolves into a device that creates a three against two polyrhythm with the soloist's steady 8th-note arpeggio. Later at measure 177, motivic fragment A from Figure 17 becomes a transitional device that pushes the music into the next section.

The final section of the movement is structured around variations of the "blast beat," an extremely fast and intense style of drumbeat used throughout hardcore punk, death metal and black metal subgenres.[129] The exact beat patterns for this rhythm tend to vary depending on

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[128] Frail Body, *A Brief Memoriam,* Deathwish, 2019, digital download; massa nera, *Los Pensamientos De una Cara Palida,* Zegema Beach Records, Dingleberry Records, 2017, digital download; Nuvolascura, *As We Suffer from Memory and Imagination,* Dog Knights Productions, Zegema Beach Records, 2020, digital download. Variations of this rhythmic pattern can easily be found among these recent records that clearly exhibit the style.

[129] Derek Roddy, *The Evolution of Blast Beats* (Pembroke Pines: World Music 4all Publications, 2007); Brad Schlueter, "11 Blastbeats To Master: Improve Your Technique With This Extreme Chops Challenge,"

which style is in question, but in each case, this beat may arguably be employed as an aggressive timbral device as well as a rhythmic one. Rather than providing a sense of groove, the blast beat instead contributes a high amount of intensity to the instrumental texture.[130] Selected examples of blast beats are shown in Figures 31-33. Tempos for these drumbeats are always very fast and depending on the metric values used, usually exceed at least 120 bpm and sometimes reach nearly 220 bpm.

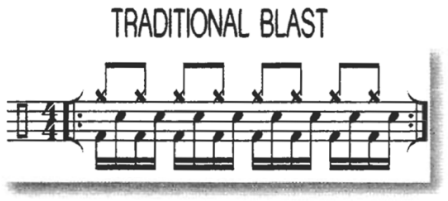

Figure 31: A Traditional Blast Beat.[131]

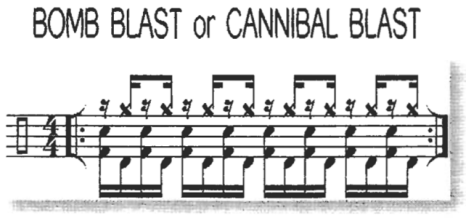

Figure 32: The "Bomb" or "Cannibal" Blast Beat.[132]

DRUM!, December 22nd, 2016, http://drummagazine.com/11-blastbeats-to-master-improve-your-technique-with-this-extreme-chops-challenge/.

[130] Whitney Strub, "Behind the Key Club: An Interview with Mark 'Barney' Greenway of Napalm Death," PopMatters, May 11th, 2006, https://web.archive.org/web/20081030075129/http://www.popmatters.com/music/interviews/napalm-death-060511.shtml/.

[131] Derek Roddy, *The Evolution of Blast Beats* (Pembroke Pines: World Music 4all Publications, 2007), 22. This beat is commonly used in hardcore punk, thrash metal and early death metal styles.

[132] Ibid, 26. This blast beat's nickname is due to its popularization by the extreme/death metal group Cannibal Corpse.

Figure 33: A "Hammer" Blast Beat.[133]

The remainder of this movement sequences a combination of these drumbeats to be performed by the second percussionist part, which handles all drumkit passages for the entire piece. The electric guitar and electric bass parts then perform a constant stream of aggressive 16-note rhythms in synchronization with the drumbeat, while the rest of the ensemble supports these intense gestures with previously featured harsh timbral techniques such as multiphonics, wide glissandi, string overpressure, tremolo, and high-range flutter tonguing. These textures become recontextualized in this section, as the previously static textural elements now contain a sense of motion when used to support the drumkit blast beats. The figures below illustrate a tutti moment from this section.

[133] Ibid, 28. This style of blast beat is often found in the later death and black metal subgenres and set at extremely fast tempos.

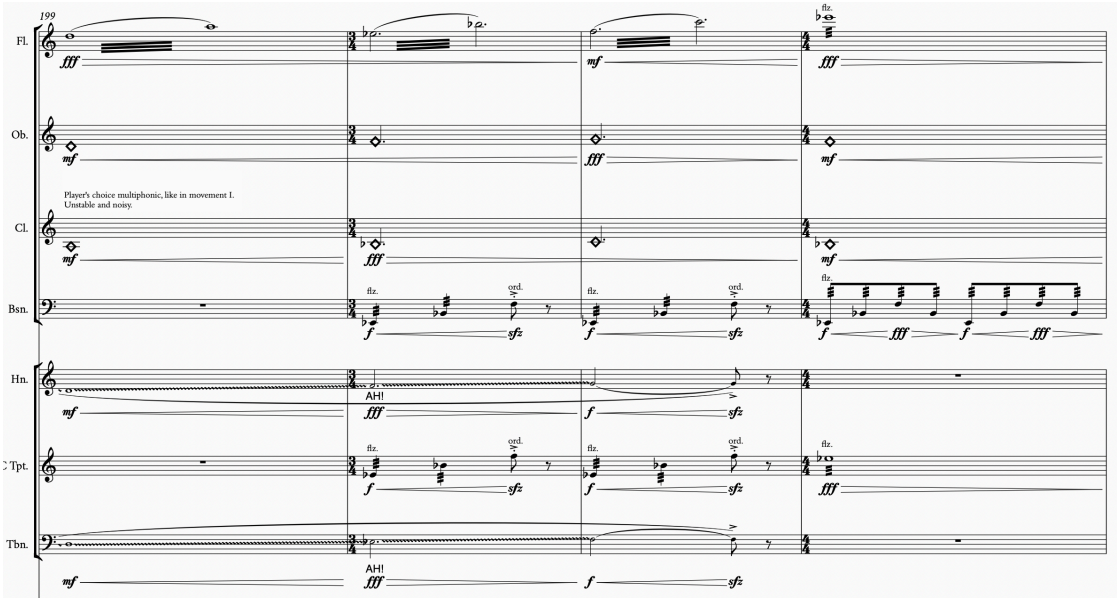

Figure 34: *Transference Music: II. The Heavy Rhythms* mm. 199-202, Woodwind and Brass sections.

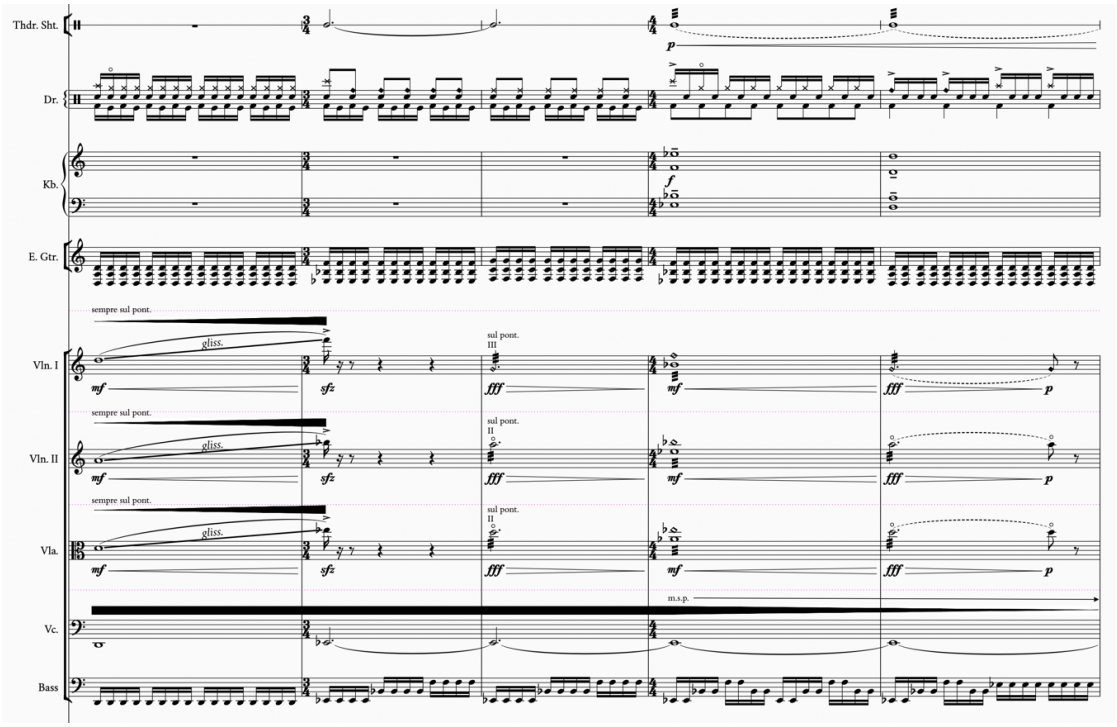

Figure 35: *Transference Music: II. The Heavy Rhythms* mm. 199-203, Percussion, Keyboard, Electric Guitar Soloist and String section.

4.5 Referential Aspects

4.5.1 Heavy Metal and Hardcore Punk Influences

As mentioned previously, select movements of *Transference Music* are inspired by genres outside of the contemporary classical music sphere. These influences are drawn from my ongoing experiences of working within those musical styles. To some degree, contrasting stylistic influences have nearly always been present within my music. *Transference Music: II. The Heavy Rhythms* and *VI. Depths* explicitly transfer those experiences into the writing process. The results are manifested across much of the previously discussed textural, pitch, and rhythmic content, and will be elaborated upon further in the paragraphs that follow.

In *Transference Music: II. The Heavy Rhythms*, stylized and sometimes cliché rhythms, gestures and textures found in heavy metal and hardcore punk subgenres are transferred to the movement's compositional materials. The most notable stylistic elements of this movement reference aspects of the hardcore punk subgenre "screamo," while the later "breakdown" sections recall the "metalcore" and "nü metal" heavy metal subgenres. Important to note however, is that the music in *Transference Music: II. The Heavy Rhythms* does not approach these styles as a quick attempt at pastiche. Performing this kind of music as a developing guitarist proved formative for my technical skills and musicality. The heavy music community is also one to which I am still deeply connected.

Much of the movement is inspired by the previously mentioned "screamo" subgenre. While the term itself is often used as a catch-all label for harsh vocals[134], screamo as a genre

[134] "Explore style: Screamo," AllMusic, October 17th, 2010, https://web.archive.org/web/20101017103638/http://www.allmusic.com/explore/style/screamo-d13459; Jim DeRogatis, "Screamo," *Guitar World*, November 2002, http://www.jimdero.com/OtherWritings/OtherScreamoGW.htm; Phillip Morgan, "Six Bands Bringing Respect Back to the 'Screamo' Vocals," *Entertainment Monthly,* October 9th, 2014,

denotes a style of hardcore punk that exhibits a dramatic range of dynamics and emotional intensity.[135] As the portmanteau name might suggest,[136] the style is often marked by wide contrasts between harsh and soft instrumental and vocal elements.[137] The figure below captures an example of this screamo's distinct approach to contrasting harsh and soft dynamics as used during *Transference Music*'s second movement. Previously discussed approaches to pitch and rhythmic material throughout the movement are also sonically reminiscent of the style.

https://web.archive.org/web/20150319080400/http://emertainmentmonthly.com/2014/10/09/six-bands-bringing-respect-back-screamo-vocals/.

[135] Dryw Keltz, "Screamo, San Diego's Baby," *San Diego Reader*, November 22nd, 2006, https://www.sandiegoreader.com/news/2006/nov/22/screamo-san-diegos-baby/; "Explore style: Screamo," AllMusic, October 17th, 2010, https://web.archive.org/web/20101017103638/http://www.allmusic.com/explore/style/screamo-d13459; Jonathan Dee, "The Summer of Screamo," *The New York Times,* June 29th, 2003, https://www.nytimes.com/2003/06/29/magazine/the-summer-of-screamo.html?sec=&spon=&pagewanted=all.

[136] A combination of the word "scream" with the genre "emo." Redundant as it may sound, the term "emo" is often used to describe deeply or intensely emotional rock music. Emo itself though, does not necessarily denote an already heavy or aggressive musical style.

[137] Dryw Keltz, "Screamo, San Diego's Baby," *San Diego Reader*, November 22nd, 2006, https://www.sandiegoreader.com/news/2006/nov/22/screamo-san-diegos-baby/; "Explore style: Screamo," AllMusic, October 17th, 2010, https://web.archive.org/web/20101017103638/http://www.allmusic.com/explore/style/screamo-d13459.

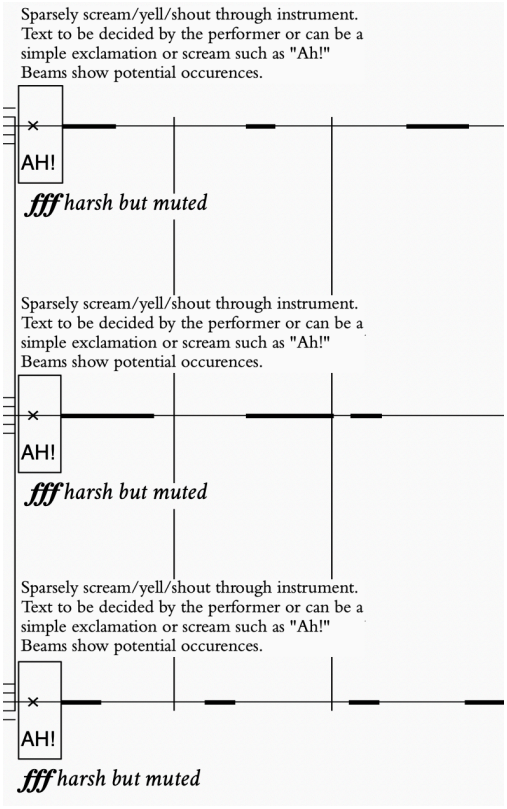

Figure 36: *Transference Music: II. The Heavy Rhythms* mm. 141-143, Brass section.

Beginning here and lasting until measure 163, the brass section is asked to indeterminately scream, yell, or shout through their instrument. This technique is in reference to what could be a vocal part in a screamo song. The timbral quality achieved by screaming through the instrument's metal tube is not unlike a filter effect that may be used in a studio recording's postproduction phase, or similar to the low fidelity recording quality that is common amongst early releases in the genre.[138] Meanwhile, the drumkit performs a relaxed drumbeat in conjunction with the electric guitar's mellow arpeggiated chord patterns. The simple and

[138] Some examples of note include Orchid, *Orchid*, Ebullition Records Ebullition 51, 2001, compact disc; Pageninetynine, *Document #7*, Happy Couples Never Last Recordings HCNL-012, 2001, compact disc; Saetia, *A Retrospective*, Level Plane Records LP-20, 2001, compact disc.

expressive electric bass guitar solo during this section provides a further layer underneath the already conflicting musical texture.

Following the dramatic rallentando between mm. 177-179, the music shifts into a "metalcore"[139]/nü metal[140] revival"-style breakdown section.[141] The term "breakdown" can be a confusing one, as the marker has been used across a wide variety of styles and contexts in addition to heavy rock. Other genres with their own versions of the "breakdown" include funk, disco, bluegrass and dance music. This metalcore-style breakdown typically includes the sudden shift into a slower tempo, employing riffs in the instrument's lower registers and half-time feel drumbeats. A breakdown in a hardcore punk song often disrupts the typical verse-chorus structural flow, and this breakdown occurs at this moment of the movement to give the music a new sense of weight and heaviness. This section is again guided by the electric guitar part, which now features single-note riffs on the instrument's lower strings rather than strumming chordal fragments. Moving away from the movement's established A-minor pitch centre, these riffs feature a new tonality of D-minor with a frequently lowered 2nd scale degree. This moves the music into a deeper, darker, and more dissonant area. The following figure shows a sequence of

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[139] Another subgenre with a portmanteau name, this time combining classic heavy metal and hardcore punk styles.

[140] "Alternative Metal," *ALLMUSIC*, https://www.allmusic.com/style/alternative-metal-ma0000012328; Karan Pradhan, "The anatomy of a scene: Charting the rise, dominance and fall of nü metal," *Firstpost*, January 11th, 2016, https://www.firstpost.com/living/the-anatomy-of-a-scene-charting-the-rise-dominance-and-fall-of-nu-metal-2578612.html. An alternative metal subgenre that was highly popular in the mid-to-late 1990s. Its sound is characterized by heavy and simple down-tuned riffs and grooves while also drawing from non-metal influences such as hip hop, funk, electronic, and industrial music.

[141] Treble Staff, "The 50 Best Hardcore Albums of the 21st Century," *Treble*, October 18th, 2022, https://www.treblezine.com/50-best-hardcore-albums-21st-century/. The term "nü metal revival" is used here as a slightly tongue-in-cheek reference, as this section of the piece is especially influenced by recent metalcore groups that draw from nü metal influences. Some examples of recent bands and records include Code Orange, *Forever*, Roadrunner Records 1686-174632, 2017, compact disc; Knocked Loose, *Laugh Tracks*, Pure Noise Records PNE 192, 2016, compact disc; Vein, *Errorzone*, Closed Casket Activities CCA059, 2018, compact disc.

electric guitar riffs, which are progressively harmonized by the large ensemble instruments in the measures that follow.

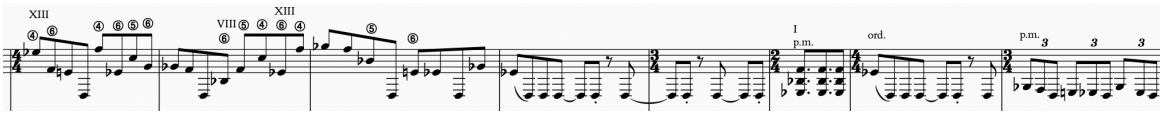

Figure 37: *Transference Music: II. The Heavy Rhythms* mm. 185-192, Electric Guitar Soloist part.

4.5.2 Ambient Electronic Music Influences

Transference Music: VI. Depths, meanwhile, stands in contrast with movement II's heavy sounds by displaying influences from ambient electronic music styles. As described by the tempo marking, the music should unfold as a "degrading drone, like a vaporwave/dreampunk landscape." Much like the work's first movement which is also notated at approximately 60 bpm, a sense of regular metric pulsation or groove should be nearly inaudible. The two genres referenced, "vaporwave" and "dreampunk," are two recent subgenres of ambient electronic music derived from the act of digital audio sampling. Sonically, these styles do bear resemblance to early ambient electronic music in that they typically feature very slow or static tempos, soft calming textures, synthesized instruments, and often the electronic manipulations of short, recorded samples of pre-existing material.[142] Overall, movement VI's mellow sound world acts as a mirrored reflection for the similarly static, yet harsh sounds of movement I.

[142] Brian Eno, *Ambient 1 (Music For Airports)*, EG AMB 001, 1979, vinyl LP; Brian Eno, *Discreet Music*, Obscure obscure no. 3, 1975, vinyl LP. Early ambient electronic music was arguably most famously popularized by Brian Eno. These two albums are early key entries into the style and creative process found in this genre.

Vaporwave music is often constructed using extremely slowed down, detuned and looped samples of nostalgic or commercial music[143] with digital signal processing effects added such as filters, delay or reverb.[144] The genre's concept has been interpreted as a criticism or deconstruction of current capitalist and consumer culture, as well as a vehicle for commentary on contemporary society's rapidly accelerating internet and technology dependency. Artists operating within the genre are typically secretive regarding their identities, and vaporwave records are usually released in free, digital-only formats on online platforms such as Bandcamp or file sharing networks. Album art visual aesthetics used by these artists also reflect these concepts.[145] In many ways, the genre may be considered a distant cousin to the John Oswald-coined concept of "plunderphonics." Much like plunderphonics, vaporwave's samples are sourced from recognizable popular music sources before being used as raw musical material. The intents of both genres are also related, as both plunderphonics and vaporwave conceptually address issues of copyright ownership, consumerism and the often-vapid elements of popular culture.[146]

Dreampunk meanwhile, is one of the many substyles to branch out of vaporwave during the latter half of the 2010s. The style retains much of its parent genre's slow and hazy electronic textures, but focuses particularly on darker and dream-like aspects. By contrast, dreampunk

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[143] For example, old elevator or telephone hold muzak and short snippets of adult contemporary hits.

[144] 猫 シ Corp, *Palm Mall*, No Problema Tapes NOP-018, 2014, cassette; Chuck Person, *Chuck Person's Eccojams Vol. 1*, The Curatorial Club TCC011, 2010, cassette; Death's Dynamic Shroud.wmv, *I'll Try Living Like This*, Dream Catalogue DREAM_98, 2015, digital download; Internet Club, *Underwater Mirage*, Self-released, 2012, digital download; Macintosh Plus, *Floral Shoppe*, Beer On The Rug BOTR009, 2011, digital download. See these examples for records that are now considered classics entries into the genre.

[145] Christian Ward, "Vaporwave: Soundtrack to Austerity," *STYLUS*, January 29th, 2014, https://stylus.com/pop-culture-media/vaporwave-soundtrack-to-austerity; Sam Goldner, "The 2010s Were the Decade That Genre Collapsed," *noisey: MUSIC BY VICE*, November 5th, 2019, https://www.vice.com/en/article/8xw3g4/2010s-were-the-decade-that-genre-collapsed.

[146] Joe Price, "Vaporwave's Second Life," *COMPLEX*, August 29th, 2016, https://www.complex.com/pigeons-and-planes/2016/08/vaporwave-essay/; John Oswald, *Plunderphonics, or Audio Piracy as a Compositional Prerogative*, 1985, http://www.plunderphonics.com/xhtml/xplunder.html.

focuses less on the retro pop culture consumerism and instead draws influences from the atmospheres found in surreal and futuristic science fiction films.[147] Dreampunk music might evoke images of nighttime or dystopian cityscapes, facilitated by the frequent use of cold and dark synthesizer tones as well as environmental sounds like the falling of rain.[148] Dreampunk is especially notable for its lack of recognizable pop song samples and instead sonically relies on newly composed music that may resemble retro synthesizer scores. By abandoning the use of sampled material, artists operating within this style sought to distance themselves from the growing trends within vaporwave.[149]

Transference Music: VI. Depths explores these concepts by using similar compositional approaches. The movement is almost entirely constructed through an elaborate process that involves transforming MIDI-generated virtual instrument recordings of earlier sections from the piece, superimposing them in the digital audio workstation (DAW) software Ableton Live, and then analyzing the results. Within the DAW software, the time and pitch values of these audio samples were stretched to dramatic lengths before being transcribed and reorchestrated as material to be performed by the live ensemble. The only newly 'composed' material throughout this movement are occasional guitar fragments, though they have also been composed as support for the large ensemble's framework. In this way, the movement displays vaporwave influences

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[147] "Interview: Hong Kong Express – 2814," *Neonvice*, January 21st, 2015, https://neonvice.com/post/160264027580/interview-dream-catalogue-2814.

[148] 2814, ***新しい日の誕生***, Dream Catalogue DREAM_86, 2015, digital download; HKE, *HK*, Dream Catalogue DREAM_84, 2015, digital download; t e l e p a t h **テレパシー能力者**, ***アマテラス***, Self-released, 2014, digital download.

[149] "Interview: Dream Catalogue founder HKE," *MMJ*, 2016, https://marcelsmusicjournal-blog.tumblr.com/post/136124700693/interview-dream-catalogue-founder-hke; THUMP Staff, "Prepare to Get Deliriously Dreamy with Vaporwave Sensation 2814's "Shinjitsu no Koi," *noisey: MUSIC BY VICE*, September 15th, 2015, https://www.vice.com/en/article/qkann5/prepare-to-get-deliriously-dreamy-with-vaporwave-sensation-2814s-shinjitsu-no-koi. At its onset, dreampunk was the main style explored by the digital label DREAM CATALOGUE. The 2814 project, created by the label's former co-runners HKE and t e l e p a t h, was especially praised and considered a breakthrough for the artists and this genre beyond the small vaporwave community.

with its sample manipulation methods during the compositional process, though also a dreampunk-like approach as the music is performed by live instruments and the initial source material is not easily recognizable. The figures below show a moment of the piece where many manipulated and looped fragments are superimposed and interacting. The first figure provides insight into the compositional process by visually displaying manipulated source samples in Ableton Live, while the figures that follow show the resulting orchestration.[150] Live electronic processing in this movement also captures the previously discussed ambient electronic influences by employing filtering, delay and reverb effects.

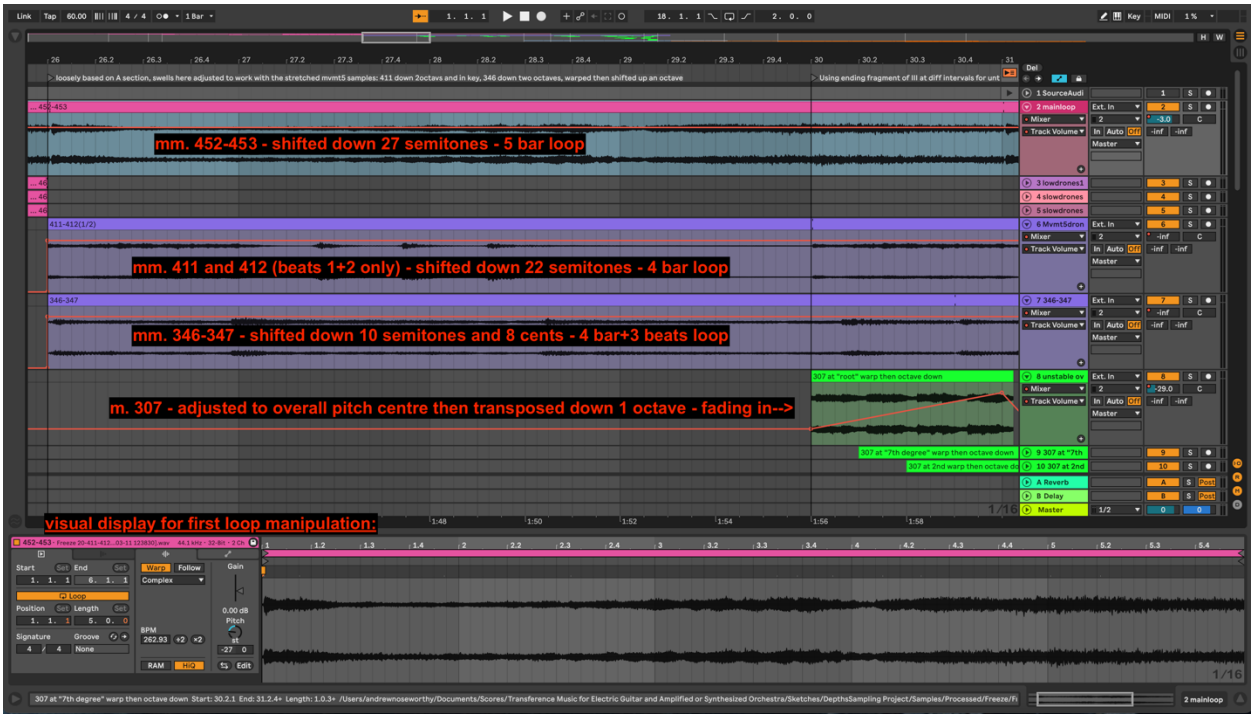

Figure 38: Ableton Live software display for pre-composition sampling/looping and superimposed manipulations, mm. 501-505 in *Transference Music* score.

[150] See PART I: Score of this document for the source measures of these samples.

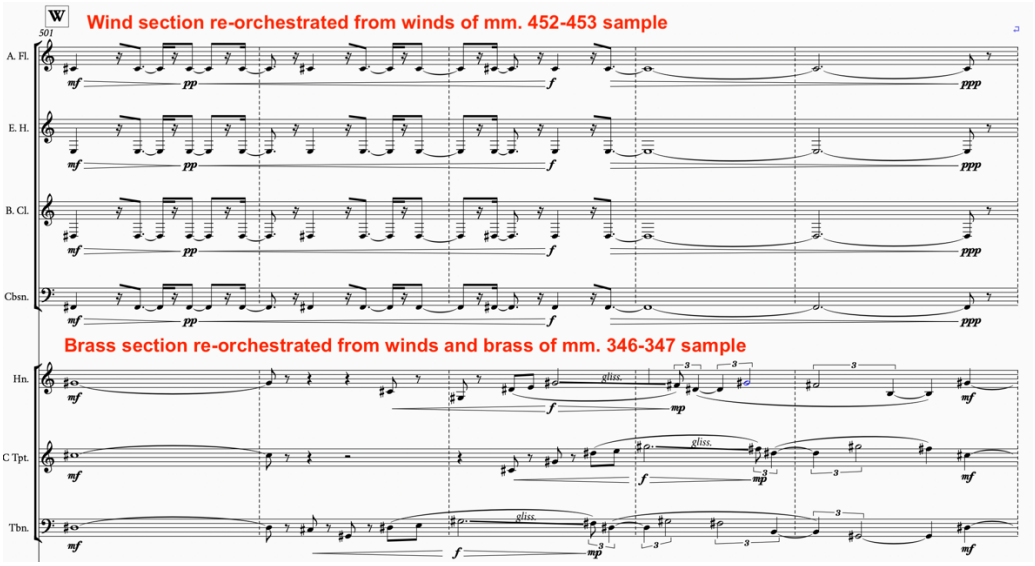

Figure 39: *Transference Music: VI. Depths* mm. 501-505, Woodwind and Brass sections.

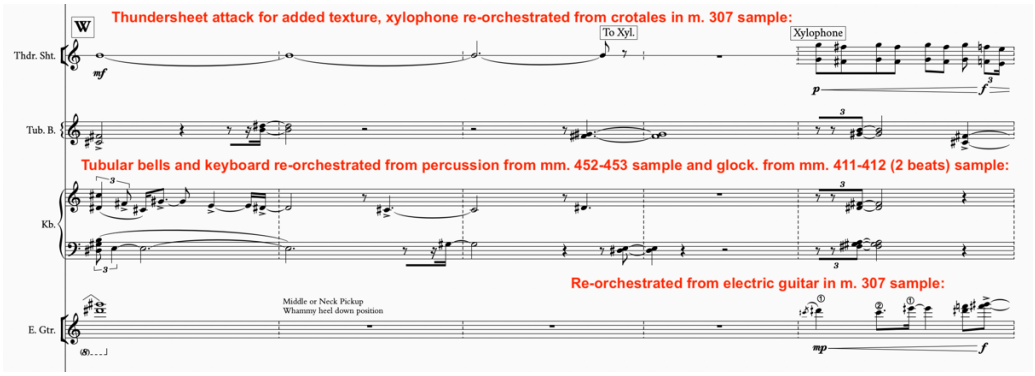

Figure 40: *Transference Music: VI. Depths* mm. 501-505, Percussion, Keyboard and Electric Guitar Soloist.

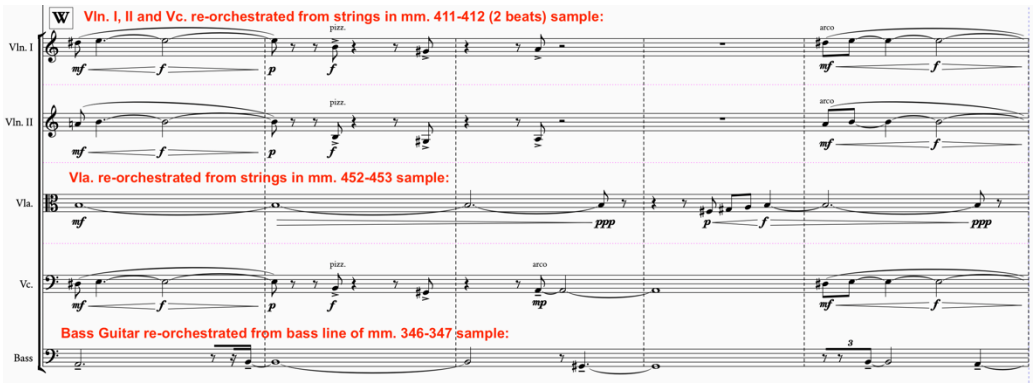

Figure 41: *Transference Music: VI. Depths* mm. 501-505, String section.

4.5.3 Electric Guitar Equipment

Of final note is how specific aspects of the electric guitar's equipment were transferred to the composed material in the piece. This is most prevalent in the work's fourth and fifth movements. As hinted by the subtitle, *Transference Music: IV. More Slides, Bends and Shifts (After Tim Brady)* draws influence from this document's previously discussed composer and electric guitarist Tim Brady. More specifically, the second movement of his work *Playing Guitar: Symphony #1* is referenced here. This movement, subtitled *Slide*, consists of a gradually unfolding canon-style texture much like those discussed in section 4.2.2 of this document. In Brady's piece, the glissando technique is a point of interest as each subsequent solo instrument begins their melodic line and the canonic texture increasingly grows. After an introduction of wind instrument solos, the electric guitar enters for the first time and performs these glissandi with a common electric guitar slide.[151] Throughout the movement, the slide gesture is interpreted differently depending on the instrument, such as brass pitch bends using the player's embouchure, string fingerboard slides, or timpani pedal glissandi.[152]

Transference Music's fourth movement expands upon Brady's sliding idea as well as his use of instrumental canons. String bend articulations are frequently used, and the slides are accomplished here by using the Digitech Whammy pedal. The soloist begins using narrower slide intervals, and eventually goes so far as to use one octave up and down pitch shifting for both single note lines and sustained chords. Beyond the narrower pitch bends realized during the contrapuntal single line textures, the large ensemble also attempts these wide and sustained pitch shifts. The string section employs simultaneous string arpeggios and fretboard glissandi as well

[151] A small cylinder object made of metal or glass. It is usually hollow so that it may be placed on a player's fretting hand finger when performing. The object sits on the strings and can be used to microtonally slide between what the usually fretted pitches. The slide is commonly used in blues, folk, country and rock guitar styles, and is sometimes nicknamed a "bottleneck" slide.

[152] Tim Brady, *Playing Guitar: Symphony #1* (Montréal: Centre de Musique Canadienne, 2005), 33-54.

as harmonic glissandi. The arpeggiated techniques especially create an amorphous sounding result even though they are notated using precise indications that are reminiscent of the Andrew Norman techniques described in section 1.5.[153] Meanwhile, wind and brass instruments are asked to pitch bend down as far as the player is able before returning to the initial note which creates an indeterminate note smearing effect across the section. See below for examples of these techniques.

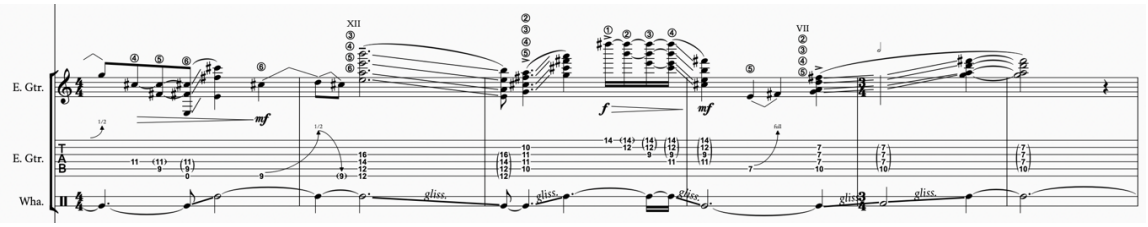

Figure 42: *Transference Music: IV. More Slides, Bends and Shifts (After Tim Brady)* mm. 396-401, Electric Guitar Soloist part.

[153] Andrew Norman, *Try* (Mainz: Schott Music Corporation, 2011), 15, 23, 57.

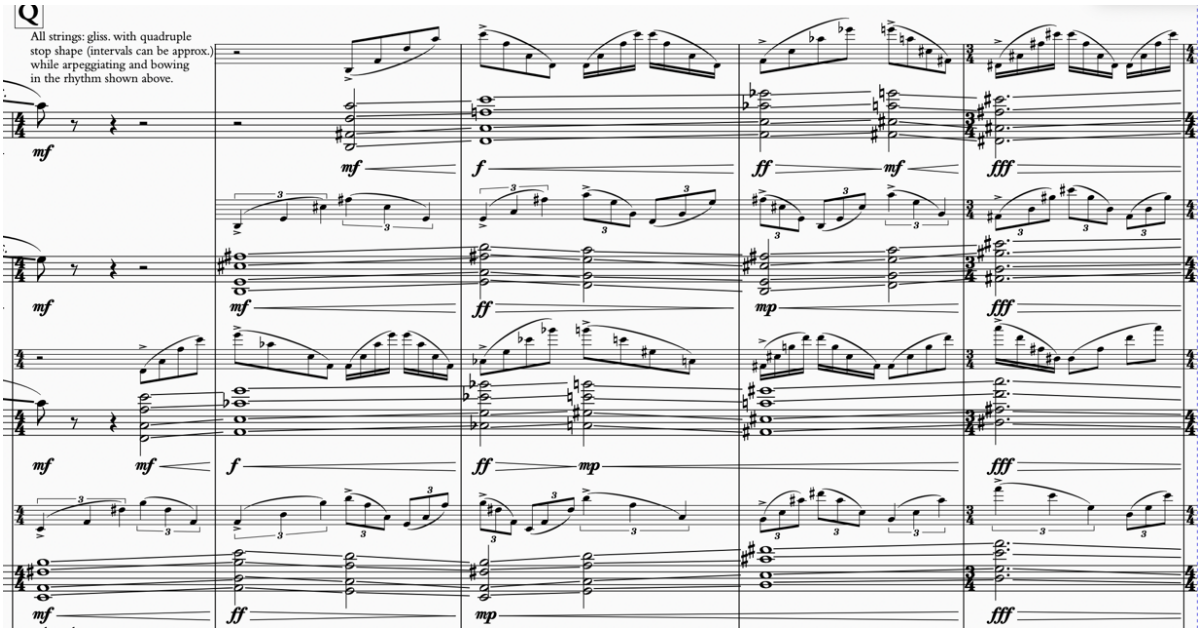

Figure 43: *Transference Music: IV. More Slides, Bends and Shifts (After Tim Brady)* mm. 391-395, String section (except Contrabass).

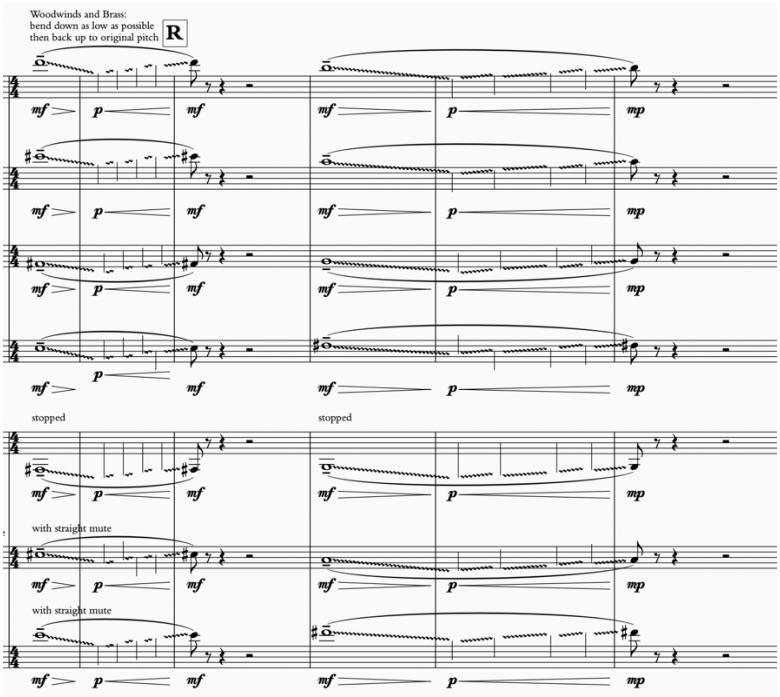

Figure 44: *Transference Music: IV. More Slides, Bends and Shifts (After Tim Brady)* mm. 404-409, Woodwind and Brass sections.

The piece's following movement, *V. Interlude – Echo Trails*, provides a final example of how musical material may be structured according to a commonly used piece of electric guitar equipment. The equipment in question here is the analog delay effect pedal.[154] Primarily, delay pedals are used to add an echoing effect to the instrument's sound. This echo's addition to the guitar's tone may provide a long spatialization effect, an extra rhythmic layer, or a fast "slapback" of sound. This movement focuses on the behaviour of the delay pedal's echoing pulsations, but also the pitch change phenomenon that occurs when the pedal's time or speed parameter is altered in real time. While analog hardware may differ from pedal to pedal, changing the pedal's time parameter while a trail is still being heard results in not only the delay's speed shifting but also the pitch. This is due to the pedal recalibrating the new delay time while information is still contained in its audio buffer.[155] Speed and pitch values are also usually relative to each other, as a doubled speed value would result in the pitch shifting an octave higher, for example. Movement V opens with an approximate orchestration of this effect before it is heard later in the electric guitar part. Here, the violin I performs a staccato pulsating dyad that quickly decrescendos between accented attacks. These articulations mimic the behaviour of a delay trail, which would fade out according to the pedal's specified repetition parameters. The violin then emulates the time-shifting effect by unevenly and irregularly sliding down an octave and slowing its pulsation to approximately half the original speed. The orchestrated delay trail is roughly picked up and carried on by other instruments in the ensemble during and following its speed and pitch shifting. Percussive instruments and timbres provide accented articulations that

[154] It is also worth noting that many models of digital delay pedals will emulate the analog phenomena described in this section. For example, the very popular line of Boss Digital Delay pedals provides this option.

[155] Arthur Fox, "What Are Delay Pedals (Guitar Effects) & How Do They Work?" *mynewmicrophone.com*, https://mynewmicrophone.com/what-are-delay-pedals-guitar-effects-how-do-they-work/#Analog-Delay.

further emulate an acoustically performed sound that is then followed by an electronically produced echo. See the annotated figures below as an illustration of this effect.

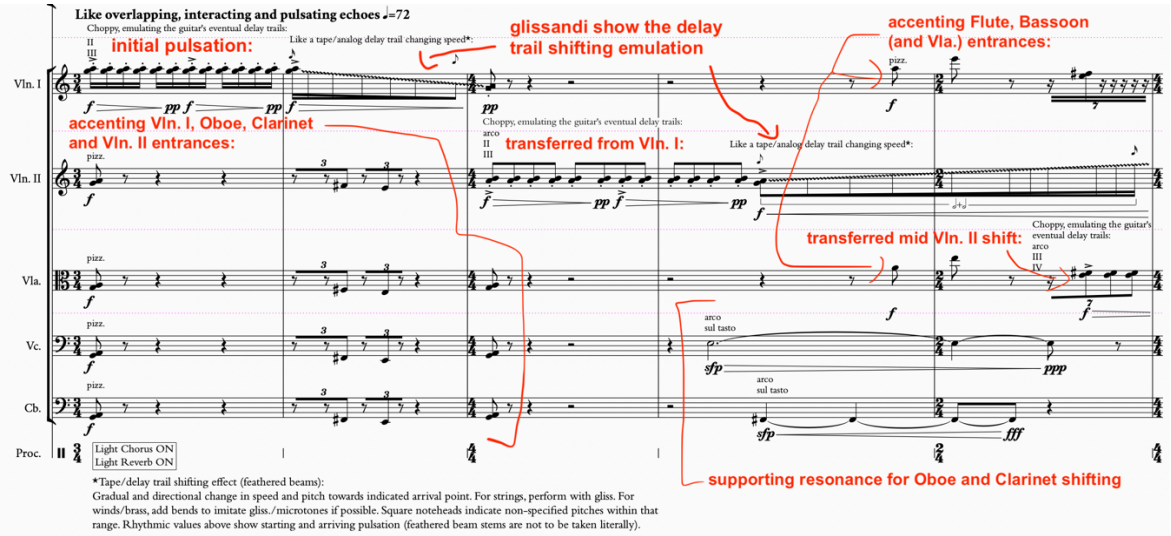

Figure 45: *Transference Music: V. Interlude – Echo Trails* mm. 423-427, String section and Live Electronic Processing.

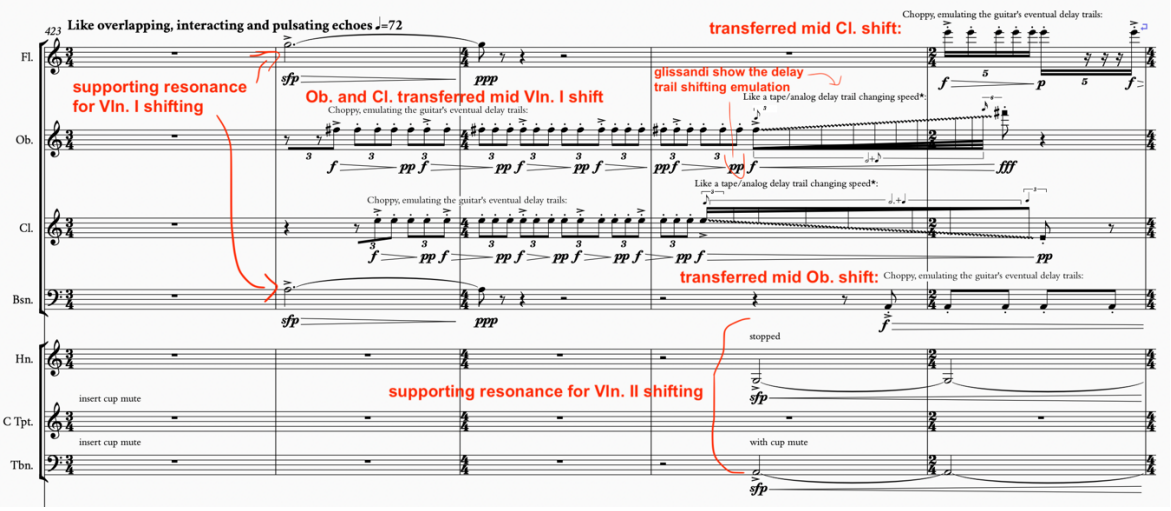

Figure 46: *Transference Music: V. Interlude – Echo Trails* mm. 423-427, Woodwind and Brass sections.

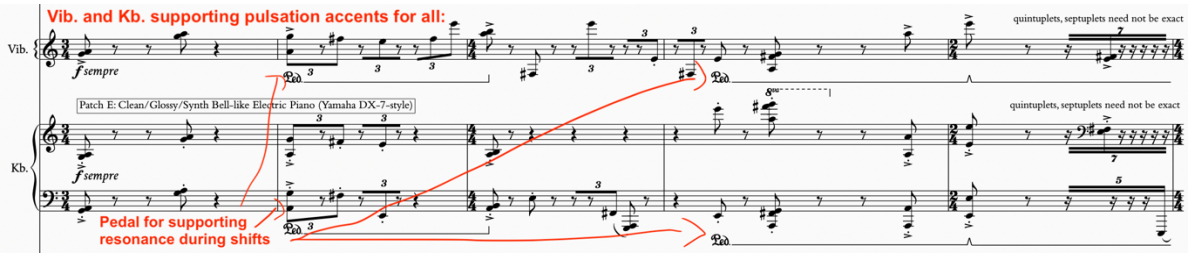

Figure 47: *Transference Music: V. Interlude – Echo Trails* mm. 423-427, Vibraphone and Keyboard parts.

The movement then progresses through building and dissipating pulsations as well as a series of different ensemble orientations for this echo trail effect. At rehearsal letter S, pulsations are performed and exchanged between instrumental families like a chordal unit of material while at rehearsal letter T, this instrumental grouping splits off into pairings based on instrumental pitch ranges. By the next rehearsal letter, all the instruments have converged into a tutti echo trail that is both pulsating and time-shifting frequently, which is then followed by a total dissipation of the ensemble texture into sparsely performed articulations. These pointillistic entrances are augmented by the addition of a real delay effect to the acoustic instruments' digital signal processing, which electronically realizes the intent that was acoustically pursued at the beginning of the movement.

Conclusion

Transference Music: for Electric Guitar Soloist and Amplified Orchestra synthesizes my diverse creative work in ambitious and exciting ways. The piece coalesces a broad spectrum of experiences as a composer, performer, producer, and academic into a significant new work. My longstanding relationships to the electric guitar as an instrument along with my post-genre

musical aspirations and collaborative endeavours inform the music's vast sound worlds. These seemingly disparate ideas are cohesively connected through the concept of experiential transference. The work also makes a contribution to the very niche repertoire of contemporary classical music for the electric guitar, both overall and as a concerto soloist.

In addition to the composed piece, this discussion document provides a rich resource for composers, guitarists and researchers seeking more information regarding the instrument's developments in new music. For example, technical details regarding the instrument's implementation of electronic equipment, notational scoring, and overall orchestration may be a useful source for composers learning to write for the instrument or educators who are mentoring students on the performance of works that involve the electric guitar. This document's repertoire study, electronic sound production discussion, and analysis of *Transference Music* illustrate relevant examples for those wishing to further integrate the electric guitar into the world of contemporary classical music.

Appendix: Further Reading (all lists non-exhaustive)

More Works by Composers Cited

- *De Staat* and other works by Louis Andriessen
- Many more works by Tim Brady/*Bradyworks*
- Many more works by Gavin Bryars
- *Tuck and Roll* and more works by Steve Mackey
- *Contes Cruel* and *Les Nuages de Magellan* by Tristan Murail
- *Professor Bad Trip* and *An Index of Metals* by Fausto Romitelli

Composers Working with the Electric Guitar

- Amy Brandon
- Raven Chacon
- Sivan Cohen Elias (*.onion* and *HACK*)
- Michael Gordon (*Bang on a Can*, works for *Icebreaker* such as *Trance*)
- Ted Hearne (*The Source* and *Sound from the Bench*)
- David Lang (*Bang on a Can*, many works, such as *Death Speaks*)
- John Zorn (*The Book of Heads*)
- Shelley Washington (*The Workers Dreadnought*)
- Julia Wolfe (*Bang on a Can,* many works, such as *Believing* and *Reeling*)
- Igor Stravinsky (*Ebony Concerto*)[156]

Ensembles Prominently Featuring the Electric Guitar

- *Les 4 Guitaristes de L'Apocalypso-bar*[157]
- *Bang on a Can All-Stars*[158]
- Tim Brady's *Instruments of Happiness* projects
- *Crash Ensemble*
- *Dither Quartet*
- *Fred Frith Quartet*
- *Glenn Branca Ensemble*
- *Hypercube*
- *Icebreaker*

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[156] Leonard Feather, Program notes for Woody Herman Orchestra, *WOODY HERMAN AND HIS ORCHESTRA*, Monday, March 25th, 1946, Carnegie Hall, New York, NY; Sergio Sorrentino, *La chitarra elettrica nella musica da concerto: La storia, gli autori, i capolavori* (Rome: Arcana, 2019), 46. Sergio Sorrentino considers this piece to potentially be the first classical music work scored with electric guitar.

[157] Potentially the first ever electric guitar quartet. The group included future *Bang on a Can All* Star Mark Stewart along with inspiring and sharing members with Fred Frith's subsequent quartet.

[158] "In-house" chamber ensemble for the *Bang on a Can* composers collective. Among the earliest, if not the first, chamber music groups to feature a permanent electric guitarist position.

- *Nikel*
- *NOW Ensemble*
- *Real Loud*

More Electric Guitarists of Note

- Jessica Ackerley
- Erich Bargainer
- Tim Beattie
- Rhys Chatham (contemporary of Glenn Branca)
- Nate Chivers
- Steve Cowan
- Nicholas Deyoe
- Nick Didkovsky (*Fred Frith Quartet*)
- Fred Frith
- JIJI
- Emmanuel Lacopo
- Taylor Levine (*Dither Quartet*)
- Dan Lippel (*International Contemporary Ensemble*)
- Joshua Lopes (*Dither Quartet*)
- Rene Lussier (*Les 4 Guitaristes de L'Apocalypso-bar*, *Fred Frith Quartet*)
- James Moore (*Dither Quartet*, *Real Loud*)
- Barry O'Halpin (*Crash Ensemble*)
- Patrick O'Reilley
- Gyan Riley (*Dither Quartet*)
- Francesco Palmieri
- Claude Pavy
- Brendan Randell-Myers (*Glenn Branca Ensemble*, *Real* Loud, many other ensembles)
- Marc Ribot
- Nicholas Ryan
- Jay Sorce (*Hypercube*)
- Sergio Sorrentino
- Mark Stewart (*Bang on a Can All*-Stars, *Fred Frith Quartet*)
- Elliot Sharp
- Van Stieffel

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