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## Surfaces

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# Surfaces

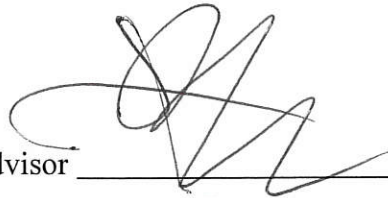
by  
Rob Funkhouser

Submitted in Partial Fulfillment of the  
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# Surfaces

Rob Funkhouser

*For Neutrals, 2017*



## Surfaces

Written for Evan Miller and Andrew Seivert for their ensemble, Neutrals.

### Instrumentation and Notation Key

Each player will need the following in their setup:

- 1 drum of the performer's choosing
- 2 small wood slats
- 2 tiles or pieces of glass
- 2 unpitched metals of short decay
- 1 bell of clear tone and long sustain, the pitch(es) to be determined by the ensemble

Player 1 will need:

- 1 Vibraphone
- 1 Kalimba (Kalimba A) tuned to G Dorian from G3 to G5

Player 2 will need:

- 1 Glockenspiel
- 1 Kalimba (Kalimba B) tuned to A Dorian from A2 to A4

Lastly, the ensemble will share an electric organ with taped-down keys between them.

### Performance notes

The key below demonstrates all unusual staves as they will appear in the score. There is only one staff line for each type of sound. Thus, at any time, each performer may choose to hit either one of their similar objects when it is called for. For example, you may use one wood slat exclusively for movement 1, then change to the other for movement 2, or change at each phrase, etc. The only practice to avoid is switching from note to note. So if two metals are called for in a row, the same one should be struck twice. There are also notes placed in the spaces on the staff, which fall between specified instruments. When this occurs, performers may choose instruments from the adjacent staff lines. In "Noumenal," the direction "Choose Wisely" serves as a reminder when these amended rules apply.

Kalimbas will be plucked as normal, and struck with felt mallets.

Movement 2 (A Series of Riddles) is comprised of several shorter episodes. These do not need to be played *attacca*, a small pause to adjust instruments is expected and welcome.

The electric organ should be connected to a remote and stationed at the back of the stage (if the stage is large) or somewhere else distant from the performers. The original organ used is a vintage chord organ that is fairly common at thrift stores, but a decent electronic sound may be used in its place, with localized amplification. Unless absolutely necessary, do not run a synthesized organ through the house PA system situated on stage. (Although running it through monitors only might also attain the desired effect.)

The musical notation consists of four staves. The first three staves are percussion parts, and the fourth is a kalimba part.

- Staff 1:** Percussion part in 3/4 time. It features three notes: a quarter note labeled "Drum", a half note labeled "Rim" with an "x" below it, and a quarter note labeled "Bell with long sustain" with an "x" below it.
- Staff 2:** Percussion part in 2/4 time. It features six notes: a quarter note labeled "Drum", a half note labeled "Rim" with an "x" below it, a quarter note labeled "Wood slat", a quarter note labeled "Tile or glass", a quarter note labeled "Metal", and a quarter note labeled "Bell with long sustain" with an "x" below it.
- Staff 3:** Percussion part in 2/4 time. It features three notes: a quarter note labeled "Drum -or- Wood slat", a quarter note labeled "Wood slat -or- Tile/Glass", and a quarter note labeled "Tile/Glass -or- Metal".
- Staff 4:** Kalimba part. It is written in treble clef for "Kalimba A" and bass clef for "Kalimba B". It features two notes: a quarter note for Kalimba A and a quarter note for Kalimba B, both with a fermata above them.

written for *Neutrals*  
**Surfaces**  
the world or a limitless

Rob Funkhouser

♩ = 90

2 3 4 5 6

*mf* top notes: with bow

Pedal Down Throughout

♩ = 90

rub naturals with mallet  
in range indicated  
throughout all rests  
until end of 33,  
out of time

*always p*

*f*

*f*

*always p*

*f*

*f*



7 8 9 10 11

*f*

*f*

*f*



Musical score for measures 12 through 27. The score is arranged in three systems, each with a piano part (top staff) and a violin/cello part (bottom staff).  
- **Measure 12:** Piano part starts with a triplet of eighth notes marked *f*.  
- **Measure 13:** Piano part continues with a triplet of eighth notes marked *f*.  
- **Measure 14:** Piano part features a triplet of eighth notes marked *f*.  
- **Measure 15:** Piano part features a triplet of eighth notes marked *f*.  
- **Measure 16:** Piano part features a triplet of eighth notes marked *f*.  
- **Measure 17:** Piano part features a triplet of eighth notes marked *f*.  
- **Measure 18:** Piano part features a triplet of eighth notes marked *f*.  
- **Measure 19:** Piano part features a triplet of eighth notes marked *ff*.  
- **Measure 20:** Piano part features a triplet of eighth notes marked *f*.  
- **Measure 21:** Piano part features a triplet of eighth notes marked *f*.  
- **Measure 22:** Piano part features a triplet of eighth notes marked *f*.  
- **Measure 23:** Piano part features a triplet of eighth notes marked *f*.  
- **Measure 24:** Piano part features a triplet of eighth notes marked *f*.  
- **Measure 25:** Piano part features a triplet of eighth notes marked *f*.  
- **Measure 26:** Piano part features a triplet of eighth notes marked *f*.  
- **Measure 27:** Piano part features a triplet of eighth notes marked *mf*.  
The violin/cello part includes various dynamics such as *mp*, *mf*, *f*, *ff*, and *p*, along with articulations like accents and slurs. The score also shows changes in time signature, including 5/4 and 3/4.

28 29 30 31 32 33

with mallets

*f* 3 *f* 5 *mp* 5 *pp* *p*

34 35 36 37

*f* *mp* *f* *p*

38 39 40 41 42 43

*ff* *f* *mp* *f* *p* *f*

*mf* *f* *f*

Musical score for measures 44-57, featuring piano and violin parts with various dynamics and articulations.

**Measures 44-48:**

- Measure 44: Piano part starts with a *p* dynamic. Violin part has a *f* dynamic.
- Measure 45: Piano part has a *p* dynamic. Violin part has a *f* dynamic.
- Measure 46: Piano part has a *f* dynamic. Violin part has a *f* dynamic.
- Measure 47: Piano part has a *p* dynamic. Violin part has a *f* dynamic.
- Measure 48: Piano part has a *f* dynamic. Violin part has a *f* dynamic.

**Measures 49-52:**

- Measure 49: Piano part has a *mp* dynamic. Violin part has a *f* dynamic.
- Measure 50: Piano part has a *f* dynamic. Violin part has a *f* dynamic.
- Measure 51: Piano part has a *f* dynamic. Violin part has a *f* dynamic.
- Measure 52: Piano part has a *ff* dynamic. Violin part has a *ff* dynamic.

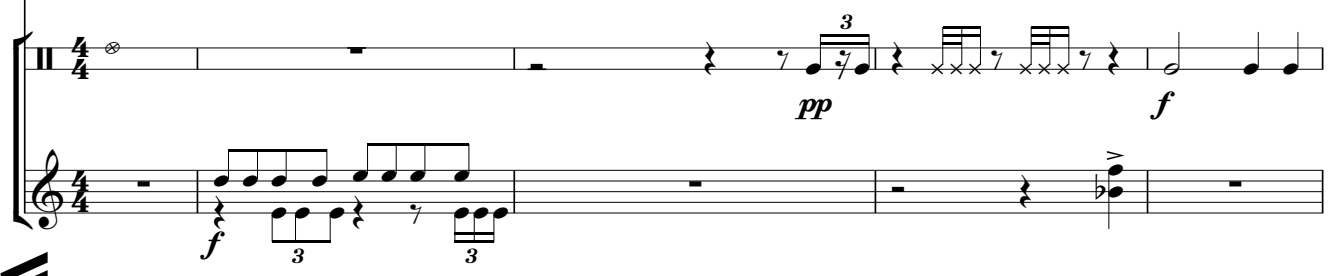
**Measures 53-57:**

- Measure 53: Piano part has a *mp* dynamic. Violin part has a *f* dynamic.
- Measure 54: Piano part has a *mp* dynamic. Violin part has a *mf* dynamic.
- Measure 55: Piano part has a *mf* dynamic. Violin part has a *f* dynamic.
- Measure 56: Piano part has a *f* dynamic. Violin part has a *mp* dynamic.
- Measure 57: Piano part has a *pp* dynamic. Violin part has a *f* dynamic.

58 59 60 5 3 61 62 3

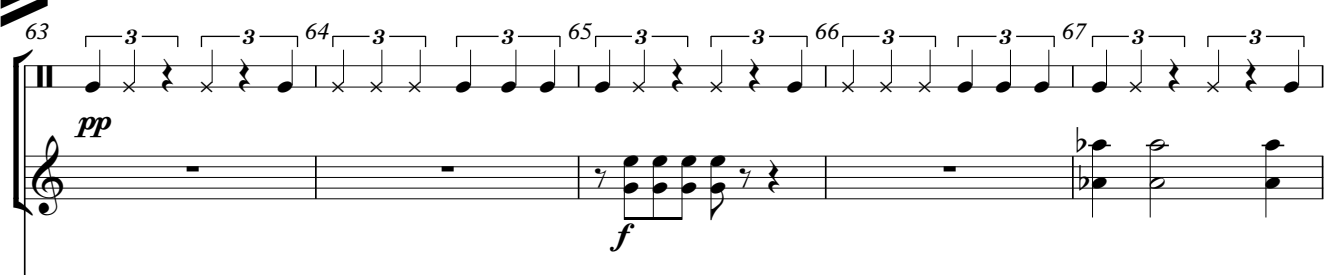


*pp* *f* *ff*




*pp* *f*

63 3 3 64 3 3 65 3 3 66 3 3 67 3 3

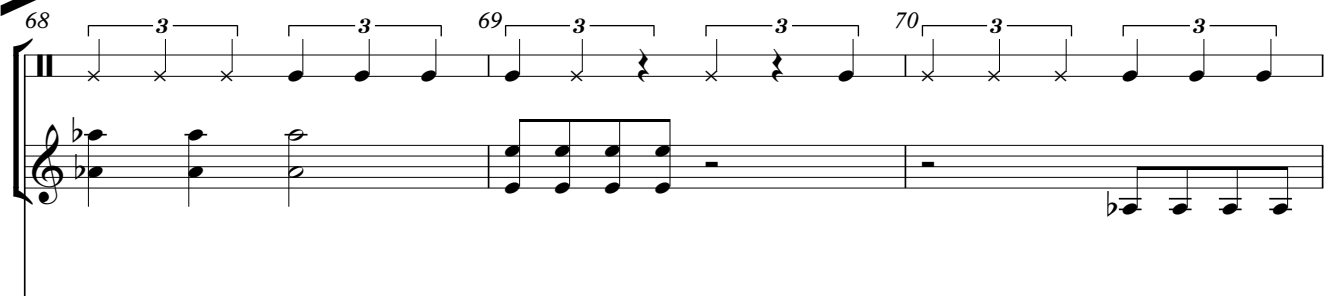


*pp* *f*

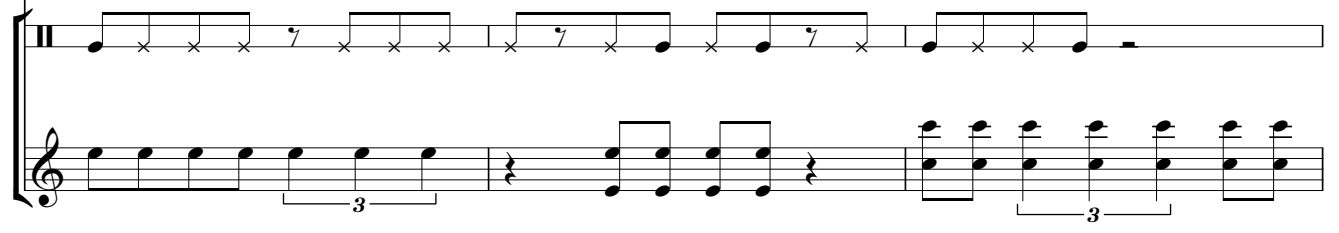


*pp* *f*

68 3 3 69 3 3 70 3 3



*pp* *f*



*pp* *f*

Musical score for measures 71-75, featuring guitar and piano parts. The score is divided into two systems, each with a guitar staff and a piano staff.

**Measure 71:** The guitar staff begins with a treble clef and a double bar line. It contains a triplet of eighth notes marked with 'x' (muted) and a dynamic marking of *f*. The piano staff contains a whole rest.

**Measure 72:** The guitar staff contains a quarter rest followed by an eighth note with a grace note. The piano staff contains a half note with a flat (Bb).

**Measure 73:** The guitar staff contains a quarter rest followed by an eighth note with a grace note. The piano staff contains a half note.

**Measure 74:** The guitar staff contains a quarter rest followed by an eighth note with a grace note. The piano staff contains a half note.

**Measure 75:** The guitar staff contains a quarter rest followed by an eighth note with a grace note. The piano staff contains a half note with a flat (Bb).

Measures 72, 73, and 74 are marked with a '3' above the staff, indicating a triplet of eighth notes. The time signature changes from 2/4 to 4/4 between measures 74 and 75.

### Interlude

Rob Funkhouser

$\text{♩} = 90 - 110$  Urgently

76 77 78 79

*p* 3 3

*p*



80 81 82

5 5 *mf* *p* 5

3

83 84 85 86

Musical score for measures 83-86. The top staff is a grand staff with piano and violin parts. The piano part has a treble clef and a bass clef. The violin part has a treble clef. The piano part has a melodic line with a flat in measure 83. The violin part has a rhythmic accompaniment with triplets in measures 84 and 86.

87 88 89 90 91

Musical score for measures 87-91. The top staff is a grand staff with piano and violin parts. The piano part has a treble clef and a bass clef. The violin part has a treble clef. The piano part has a melodic line with a triplet in measure 88 and a fermata in measure 91. The violin part has a rhythmic accompaniment with triplets in measures 88 and 90. The dynamics are *pp* and *ff*.

92 93 94

Musical score for measures 92-94. The top staff is a grand staff with piano and violin parts. The piano part has a treble clef and a bass clef. The violin part has a treble clef. The piano part has a rhythmic accompaniment with triplets in measures 92 and 94. The violin part has a melodic line with a triplet in measure 94. The dynamics are *f*.

95 96 97

Musical score for measures 95-97. The top staff is in treble clef with a common time signature. It features a complex rhythmic pattern of eighth and sixteenth notes. The bottom staff is in bass clef, showing a few notes with a dynamic marking of *f* and a flat sign. A double bar line is present at the end of measure 97.

98 99 100 101

Musical score for measures 98-101. The top staff is in treble clef with a common time signature. It features a complex rhythmic pattern of eighth and sixteenth notes. The bottom staff is in bass clef, showing a few notes with a dynamic marking of *f* and a flat sign. A double bar line is present at the end of measure 101. Measure 100 has a 5/4 time signature, and measure 101 has a 2/4 time signature.

102 103 104

Musical score for measures 102-104. The top staff is in treble clef with a 4/4 time signature. It features a complex rhythmic pattern of eighth and sixteenth notes. The bottom staff is in bass clef, showing a few notes with a dynamic marking of *pp*. A double bar line is present at the end of measure 104.



105 106 107

Musical notation for measures 105-107, top system. It features a guitar staff with chords and a treble clef staff with a whole rest.

Musical notation for measures 105-107, bottom system. It features a guitar staff with chords and a treble clef staff with a whole rest.

108 109 110 111

Musical notation for measures 108-111, top system. It features a guitar staff with chords and a treble clef staff with notes. Time signatures change from 4/4 to 3/4 at measure 109 and back to 4/4 at measure 110.

Musical notation for measures 108-111, bottom system. It features a guitar staff with chords and a treble clef staff with notes. Time signatures change from 4/4 to 3/4 at measure 109 and back to 4/4 at measure 110.

112 113 114

Musical notation for measures 112-114, top system. It features a guitar staff with chords and a treble clef staff with a whole rest.

Musical notation for measures 112-114, bottom system. It features a guitar staff with chords and a treble clef staff with a whole rest.

115 116 117

Musical score for measures 115-117. The top staff is in treble clef with a key signature of one flat (B-flat). It contains a complex rhythmic pattern of eighth and sixteenth notes. The bottom staff is in bass clef and contains rests for measures 115 and 116, followed by a few notes in measure 117, including a B-flat.

118 119 120 121

Musical score for measures 118-121. The top staff continues the rhythmic pattern. The bottom staff has rests for measures 118 and 119, followed by notes in measure 120 (marked *p*) and measure 121 (marked *f*).

122 123 124

Musical score for measures 122-124. The top staff features a change in time signature from 4/4 to 5/4 in measure 123, and back to 4/4 in measure 124. The bottom staff has rests for measures 122 and 123, followed by notes in measure 124.

125 126 127

*p* *f*

128 129 130

*p* *f*

131 132 133

Hold each fermata uncomfortably long

*p* *f* *p* *f*

134 135 136

Musical score for measures 134-136. The top staff contains a complex rhythmic pattern with many sixteenth notes and rests. The middle and bottom staves are empty.

137 138 139

Musical score for measures 137-139. The top staff continues the rhythmic pattern. The middle and bottom staves are empty.

140 141

Musical score for measures 140-141. The top staff has a rhythmic pattern starting with a *pp* dynamic. The middle staff is empty. The bottom staff has a long note with a slur, starting with a *pp* dynamic and ending with a *mp* dynamic.

142

143

The musical score consists of four staves. The top two staves are for the right hand, and the bottom two are for the left hand. The key signature has one flat (B-flat), and the time signature is 6/8. The score is divided into two measures, 142 and 143. In measure 142, the right hand has a whole rest, and the left hand has a rhythmic accompaniment of eighth notes with 'x' marks. In measure 143, the right hand has a melodic line starting on a whole note and ending on a half note, slurred across the measure. The left hand continues with the rhythmic accompaniment. Dynamics are marked as *pp* (pianissimo) in both measures.

A Series of Riddles

Rob Funkhouser

144 ♩ = 90

Percussion 1

Kalimba A With Mallets, *mp*

Glockenspiel

Organ

Percussion 2 Turn organ on.

Kalimba B *p*

Vibraphone



147

148

149

150 (8) 11 151 152 1011

*f* *p*



153 154 12 11 155 12 13

*f* *p*



156 157 158 159

*f*

160 161 162 163 17

*mf* 3

164 165 166

*p* *f*

167 168

*p* Turn Off Organ

169 170 171

*p* Kalimba A



172  $\text{♩} = 60$  173 174 175 176  $\text{♩} = 90$  177

Vibraphone *p* Pluck upwards forcefully so tine hits body *f*

Kalimba B  $\phi \phi$  strike body with mallet (with mallets) *p*



178 179 180 181

*f*

1 4 6



182 183 184 185

3



186 187 188 189

1 3

190 191 192 193

Musical notation for measures 190-193. Treble clef has sparse notes. Bass clef has a dense, rhythmic accompaniment of chords.



194 195 196 197

*p*

10

Musical notation for measures 194-197. Treble clef has a melodic line. Bass clef has a rhythmic accompaniment. Measure 196 has a piano (*p*) dynamic marking. Measure 197 has a fingering of 10.



198 199 200 201

*f*

Musical notation for measures 198-201. Treble clef has a melodic line. Bass clef has a rhythmic accompaniment. Measure 201 has a forte (*f*) dynamic marking.



202 ♩ = 60 203 204 205 206 207 ♩ = 90 208

*pp*

Improvise:  
Pluck random tines on the back,  
hit, scrape, etc. Until 64

*ff*

1 2

Musical notation for measures 202-208. Treble clef has a melodic line with a tempo change from 60 to 90. Bass clef has a rhythmic accompaniment. Measure 202 has a pianissimo (*pp*) dynamic marking. Measure 207 has a forte (*f*) dynamic marking. Measure 208 has a fortissimo (*ff*) dynamic marking. Measure 208 has a fingering of 1 2.

20

209 210 211 212



213 214 215 216



217 218 219



220 221 222 223 = 90 224

$\text{♩} = 90$

225 Kalimba A 226 227 Turn on organ 3 3

Organ *p*<sup>1</sup> 2

Kalimba B *p*



228 3 3 3 3 229 230

Organ



231 232

Organ

233 234 235

3 4 5 6

Turn Organ off

*p*

236 237 238

4 3 2 1

4 3

239 240 241

4 1

2 1

1 2 3 4

*p*

242 243 244 Turn Organ On

3 4 5 6

7 8

*f*

245 246 247 7 8

*f*



248 249 250 9 10 11 12



251 Repeat 5 times, softer each time 11 12 252 253

Repeat 5 times, softer each time  
11 12

*ff*

Turn organ off

Kalimba A

254  $\text{♩} = 120$  255 256 257 258 259 260

Pluck

*mf*  $\text{♩} = 120$

Glockenspiel

*p* *f*

261 262 263 264 265 266

267 268 269 270 271 272 273

274 Rasp on edge of kalimba 275 276 277 278 Random tines on back

*f*

279 pluck 280 rasp 281 282 with mallet 283

# Noumenal

Rob Funkhouser

♩ = 90  
284 Switch between variations of the same sound freely. 285

286

First system of musical notation for measures 284-286. It consists of two staves: a top staff with a treble clef and a bottom staff with a bass clef. The time signature is 4/4. The top staff contains a rhythmic pattern of eighth notes with 'x' marks above some notes. The bottom staff is empty. The dynamic marking *mf* is present.

♩ = 90  
Switch between variations of the same sound freely.

Second system of musical notation for measures 284-286. It consists of two staves: a top staff with a treble clef and a bottom staff with a bass clef. The time signature is 4/4. The top staff continues the rhythmic pattern from the first system. The bottom staff is empty. The dynamic marking *mf* is present.

287

288

289

290

First system of musical notation for measures 287-290. It consists of two staves: a top staff with a treble clef and a bottom staff with a bass clef. The time signature is 4/4. The top staff contains a rhythmic pattern of eighth notes with 'x' marks above some notes. The bottom staff is empty.

Second system of musical notation for measures 287-290. It consists of two staves: a top staff with a treble clef and a bottom staff with a bass clef. The time signature is 4/4. The top staff continues the rhythmic pattern from the first system. The bottom staff is empty.

291

292

293

3

First system of musical notation for measures 291-293. It consists of two staves: a top staff with a treble clef and a bottom staff with a bass clef. The time signature is 4/4. The top staff contains a rhythmic pattern of eighth notes with 'x' marks above some notes. The bottom staff is empty. The dynamic marking *ff* is present in measure 293, and *p* is present in measure 293.

Second system of musical notation for measures 291-293. It consists of two staves: a top staff with a treble clef and a bottom staff with a bass clef. The time signature is 4/4. The top staff continues the rhythmic pattern from the first system. The bottom staff is empty.



294 295 296

Musical score for measures 294-296. Measure 294 features a piano introduction with a triplet of eighth notes and a quintuplet of eighth notes, both marked *ff*. Measure 295 has a single eighth note marked *f*. Measure 296 contains a whole note. The piano accompaniment consists of a continuous eighth-note pattern.

297 298 299

Musical score for measures 297-299. Measure 297 features a piano introduction with a triplet of eighth notes and a quintuplet of eighth notes, both marked *p*. Measure 298 has a single eighth note marked *p*. Measure 299 contains a whole note. The piano accompaniment consists of a continuous eighth-note pattern.

300 301 302 303

Musical score for measures 300-303. Measure 300 features a piano introduction with a triplet of eighth notes. Measure 301 has a single eighth note. Measure 302 has a single eighth note. Measure 303 has a single eighth note. The piano accompaniment consists of a continuous eighth-note pattern.

304 Choose Wisely

305

306

Musical notation for measures 304-306, top system. The upper staff contains a rhythmic pattern of eighth notes with accents. The lower staff is mostly empty, with a few notes at the end of measure 306. Dynamics include *mf* and *f*.

Choose Wisely

*mf*

*f*

307

308

309

Musical notation for measures 307-309, middle system. The upper staff continues the rhythmic pattern. The lower staff has a few notes. Dynamics include *f*.

310

311

312

Musical notation for measures 310-312, bottom system. The upper staff continues the rhythmic pattern. The lower staff has a triplet of notes. Dynamics include *f*.

Musical score for measures 313-315. The score consists of two systems, each with a piano accompaniment (left) and a treble clef staff (right). The piano part features a complex rhythmic pattern of eighth and sixteenth notes, with some notes marked with an 'x'. The treble clef staff contains rests for all three measures. Measure numbers 313, 314, and 315 are indicated above the piano part.

## **Introduction**

*Surfaces* is a composition for two percussionists that incorporates material ranging from free composition to direct algorithmic translations of the texts “The Dream” by Morgan Eldridge and *The Groundwork for the Metaphysics of Morals* by Immanuel Kant. *Surfaces* was premiered as part of a recital given in partial fulfillment of the requirements for the Masters in Music degree in composition at Butler University on February 26th, 2017 by the group Neutrals, for whom the work was written. The piece is divided into four movements, “the world or a limitless”, “Interlude (before it learns)”, “A Series of Riddles”, and “Noumenal.” In general, the piece is abstract rather than programmatic, and the use of text and other source materials is structural rather than narrative.

My aesthetic goal with *Surfaces* is to weave several disparate threads of my creative practice together into a cohesive musical tapestry. These threads include notated composition, improvisation, percussion performance, instrument construction and collection, and an interest in poetry and philosophy. In the analysis that follows, I attempt to unravel the tapestry, so to speak, and discuss aspects of the work in relief to the aforementioned areas of interest. Finally, after discussing the elements of instrumentation, performance practice, form, and development in *Surfaces*, I discuss some of the high level aesthetic considerations about the inspirations behind the piece and the point of the piece in general.

## **Instrumentation**

*Surfaces* uses two complementary percussion setups, each of which calls for one drum, two wood slats, two pieces of plate glass or tile, two short noisy metal sounds, and

a bell of pure tone with long sustain. Player 1 also uses a vibraphone and a specially built kalimba tuned to G Dorian from G3 to G5. Player 2 uses a glockenspiel and another specially built kalimba that is tuned to A Dorian from A2 to A4. Finally, an electric organ is shared between the performers.

The instrumentation of the piece was developed in close collaboration with the members of Neutrals. For the drums, wood slats/blocks, glass/tile, and short metal sounds, I left the choices of size, pitch, and arrangement up to the ensemble knowing that both of them treat instrument selection as part of their creative voices. Likewise, for the vibraphone and glockenspiel I chose these instruments knowing Neutrals uses them in other works in their repertoire. As a whole, the upper limit for the size of the setup was what they could comfortably fit in their car and transport to a performance.

With regards to the smaller instruments mentioned above, Neutrals was motivated in their choices by discussions we had regarding overall timbre, idiomatic concerns, and the overall setup of the stage. In terms of timbre, I aimed for lightness in the short sounds, which, as an example, was borne out in the selection of remarkably small wood slats that measured approximately 3" x 1" x ¼", a piccolo woodblock with a layer of moleskin<sup>1</sup> on top, and a final, larger wood slat that was approximately 6" x 3" x ½". These choices also influenced the emergent melodic contours of certain passages of the piece, as player 1 used the two small wood slats, while player 2 had the larger slat and the piccolo woodblock, which were respectively lower and higher than the slats in player 1's setup. The rest of the smaller instruments were chosen with similar timbral concerns in mind,

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<sup>1</sup> Moleskin is a first aid material that has a smooth fuzzy surface for surrounding blisters as they heal. Percussionists tend to use it to soften the attack on a particular instrument or mallet. The difference is fairly moot at louder dynamics, especially for hard mallets and surfaces, but at soft dynamics moleskin can soften the edge of the sound.

and had parallel implications for the final sound of the piece.<sup>2</sup> Figure 1 presents a top-down view of the setup for the piece from an image taken during one of our final meetings leading up to the performance.



**Figure 1** overhead photo of the setup for *Surfaces*, Percussion 2 is on the bottom

The other instruments in the setup including the bells “of pure tone and long sustain”, the kalimbas, and the electric organ were all provided directly by me.<sup>3</sup> For the

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<sup>2</sup> In a brief correspondence with Evan Miller, one of the members of Neutrals, he explained their choices of the small instruments, to which he refers as “junk sounds” as follows: “Andrew [Sievert, the other member of Neutrals] and I decided it would be neat to switch the hierarchy of sounds for the junk sounds (I have the higher pitched instrument [glockenspiel] and the biggest other sounds, him vice versa). We had a lot of those kinds of sounds lying around from recent performances (especially Lansky, and I was really getting into the kind of short, dry, computer-y sounds his music asks for), so those sounds came together pretty naturally. Thankfully they also happened to be smaller objects that fit easily on the table. I think the biggest was my wood slat, which is the smallest one I own. The others are much larger.”

<sup>3</sup> See performance notes.

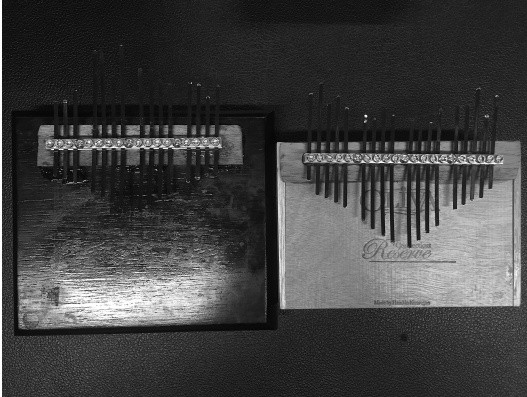
bells, the description “of pure tone and long sustain” could fit many molds, and, as noted in the performance notes, I was initially comfortable with any choice Neutrals would have made, provided the timbre of the bells was sufficiently distinct from the vibraphone and glockenspiel. After some discussion though, the best solution was found in the form of cast aluminum pot lids I had in my personal collection. The bells we selected were pitched F for player 1 and Bb for player 2. For me this aspect of the sound of the piece is very personal, since up to the point of the *Surfaces*’ premiere, I had only ever heard these bells while I was playing them.

In the same vein as the bells, I injected a large part of my own personal sound world into *Surfaces* in the form of two kalimbas.<sup>4</sup> Pictured below in Figure 2, the two kalimbas are made from a variety of materials that can be found at a local hardware store. The bodies of each instrument are made from cigar boxes, and the bridges are made from the cigar box liners and electrical grounding bars. The tines, or tongues, are made from spring steel, which was sourced from the industrial supply company McMaster-Carr. Each instrument also has a pickup made from a piezo element, otherwise known as a contact microphone. Kalimba A and Kalimba B are tuned to two parallel Dorian modes a seventh apart. Kalimba A starts on G3 and ends on G5 while Kalimba B starts on A2 and ends on A4. The choice of these modes was made so that each distinct instrument would be in a similar sound world, with a pronounced difference in range, and when heard apart might be mistaken for the same scale. However, when they are played together the

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<sup>4</sup> Kalimbas belong to a family of percussion instruments of African origin known as lamellophones, which produce sound by plucking steel tongues. The most established and intricate musical tradition for this family of instruments can be found in the mbira music of Zimbabwe. The westernized kalimba, like the ones constructed for this piece, have their origin in the mid 20<sup>th</sup> century when ethnomusicologist Hugh Tracey sought to popularize the instrument by tuning them to western pitches and selling them along with specialized songbooks. Other names for this style of instrument include thumb piano, thumb harp, and karimba.

difference in notes creates a level of entanglement that I found compelling while crafting the piece.



**Figure 2** The two kalimbas, A and B, built for *Surfaces* from left to right.

The final instrument used in *Surfaces* is a vintage electric chord organ. This type of organ is in the family of reed organs and uses an electric motor to blow over reeds as keys are depressed. In the context of this piece, the organ is situated as close to the back of the stage as possible, and is connected to the setup by a remote of some sort. In the case of the premier performance, we ran a power strip to the setup, and then connected the organ to it via an extension chord. In advance of the piece, the power switch on the organ is turned on and pitches G4, A4, and F5 are taped down so that as soon as the organ receives power, it will begin playing those three pitches. During performance the organ is operated by both players via the switch on the power strip.<sup>5</sup>

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<sup>5</sup> The method of remote activation above was a product of the means we had available, however with the availability of wireless surge protectors and the like, a more sophisticated way of achieving the same goal is possible.



## Technique and Performance Practice

Throughout *Surfaces*, extended techniques and performance practices are used that have their roots in a marriage between techniques invented specifically for the piece and those I observed in previous performances by Neutrals. In the case of the latter, the first measure of the piece asks for “rubbing the naturals” on the glockenspiel which is a technique that I learned from Evan, who played the second part on the piece. Example 1 below demonstrates the notation I used for this technique. Essentially, all the performer is doing is creating a continual glissando by running a mallet softly along the surface of the glockenspiel bars in order to create a shimmer of the notes included. This differs from a traditional glissando in the sense that it is intended to create a static field of pitches rather than draw attention to some sort of pronounced upward or downward motion. A second technique derived from knowledge of Neutrals’ performance practice also presents itself in m. 8 of the piece, namely the use of bow and mallets at the same time on the vibraphone. This technique is not novel or unique, but asking for it without previous knowledge of a performer’s skillset can greatly increase the amount of time necessary to prepare the part.

rub naturals with mallet  
in range indicated  
throughout all rests  
until end of 33,  
out of time

Glockenspiel

*always p*

**Example 1** Recreation of mm. 1 – 2 from the glockenspiel staff in percussion 2.

Extended techniques invented for the piece center around the use of the two kalimbas in the third movement of *Surfaces*, “A Series of Riddles.” The main method of

sound production on kalimbas, and lamellophones generally, is to pluck the tines in order to produce a pitch using a downward motion from a thumb or, in some cases, an upward pluck from an index finger. In the case of the third movement, the piece calls for plucking indeterminately pitched tines protruding from the back of the bridge, playing on the tines and the body of the instrument with mallets, and Bartok pizz.-type snap-plucks.<sup>6</sup>

When mallets are called for on the kalimbas, the performers use mallets I built specifically for them. These mallets were constructed from chopsticks, ¼” thick felt, and moleskin. The heads of the mallets are wide enough so that when playing, they are consistently hitting two adjacent tines. Due to the tuning of the instrument with the low notes starting in the middle and alternating pitches side to side, striking any two adjacent tines, with the exception of the center pair, produces the interval of a third. As a result, playing fast progressions of ascending and descending thirds is a matter of moving the hand positions away from center and toward center, respectively. This allows for easy execution of otherwise difficult patterns of notes, as shown in Example 2. To further aid in reading the music for these instruments, I created a shorthand notation in the form of numbers that refers to the lowest tine in a third counting outward from center. On both instruments, all odd numbers refer to right-handed tines and all even numbers refer to left-handed tines.

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<sup>6</sup> As can be seen in Figure 2 above, there are tines protruding from both sides of the bridge. Typically, the tines only extend over the body and are cut off at the bridge. Leaving un-tuned tines on the back gives access to an alternative set of pitches that is often unrelated to the intended tuning of the instrument, although both sides could be tuned if so desired.

The image shows two staves of musical notation. The top staff is labeled 'Kalimba A' and uses a treble clef. It contains six measures of music, with the first measure starting on a G4 and ascending by a third in each subsequent measure. The notes are grouped in pairs, representing a 'third figure'. The bottom staff is labeled 'Kalimba B' and uses a bass clef. It contains six measures of music, with the first measure starting on a G3 and descending by a third in each subsequent measure. The notes are also grouped in pairs, representing a 'third figure'. The time signature for both is 4/4.

**Example 2** Recreation of m. 345 demonstrating ascending third figures and shorthand notation.

Performance practices laid out in the notes at the beginning of *Surfaces* are another result of direct knowledge of the ensemble and their strengths. Throughout the piece, limited improvisation, with which the ensemble is familiar and comfortable, plays a large part in how each performance proceeds. As noted above, the instrumentation calls for each performer to have two wood sounds, two glass or tile sounds, and two short metal sounds, however, in the key there is only one staff line for each type of sound, as shown on the second line of Example 3. This notation is further clarified in the notes above the key and explains that either variant of a given sound called for may be chosen at will, except in the case of directly repeated notes. Thus the performer may choose between these sounds at the phrase level or any larger organizational level. Example 4 shows two measures from “Interlude” with annotations to demonstrate the constraints on improvisation for this notation.

Example 3 consists of four musical staves. The first staff is a single-line percussion staff in 3/4 time, with notes labeled 'Drum', 'Rim', and 'Bell with long sustain'. The second staff is a four-line percussion staff with notes labeled 'Drum', 'Rim', 'Wood slat', 'Tile or glass', 'Metal', and 'Bell with long sustain'. The third staff is another four-line percussion staff with notes labeled 'Drum -or- Wood slat', 'Wood slat -or- Tile/Glass', and 'Tile/Glass -or- Metal'. The fourth staff shows two kalimba parts, 'Kalimba A' and 'Kalimba B', on a five-line staff.

**Example 3** Notation Key from Performance Notes

Example 4 shows a percussion part in 4/4 time starting at measure 93. It features a complex rhythmic pattern of eighth notes. Annotations above the staff indicate that measures 93-94 must be played with the same sound, while measures 94-95 can be played with different sounds.

**Example 4** Reproduction of Percussion 1 at mm 93-94, illustrating intent with improvisation using variants of the same sound, in this case the tile/glass line.

The third line of Example 3 establishes the notation for a second type of limited improvisation found only in movement 4, “Noumenal.” Any time a notehead is placed in one of the spaces of the four line percussion staff in either part, the player may play either adjacent sound on the staff. The rules for choices here are freer than the first form of improvisation in that choices may be made per note.<sup>7</sup> This section also features one of the more peculiar performance directions in the piece, “Choose Wisely,” shown in Example 5 below. This direction in the score was borne out of a joke between the ensemble and me, but we agreed to leave it in due to it being puzzling enough to alert the performers to the change in rules.

<sup>7</sup> During the first performance, Neutrals still made high level decisions for this sections, bringing in one sound, the glass bottles pictured in Figure 1, that had not been used up to that point.

**Example 5** Reproduction of mm 304 – 306

### **Form and Musical Development**

*Surfaces* contains four movements, “the world or a limitless,” “Interlude (before it learns),” “A Series of Riddles,” and “Noumenal.” The overall form of the piece consists of three major movements followed by a coda. Thematically, all four movements are tied together by the concept of interruption as a defining characteristic. In the following paragraphs I unpack the concept of interruption as it applies to each movement, and explore how it plays out.

“The world or a limitless” takes its name from a fragment of the poem “The Dream” by Morgan Eldridge, and serves as an introduction to the foundational elements of the sound world of the piece as a whole, using only vibraphone, with the damper off throughout, and glockenspiel as well as each player’s bell and drum. I view this movement as being driven by interrupted timbre. In the first half of the movement, up to the end of the bowed vibraphone at m. 33, the timbre is dominated by static gestures in the glockenspiel and vibraphone punctuated by a growing tangle of melodic fragments played with mallets on each instrument. Beginning at m. 18, short drum figures begin to interrupt the keyboard instruments and disturb the otherwise pure timbre. At m. 35, the

first measure where both players are playing on the drums, a shift begins to occur that inverts the roles of timbral foundation and interrupter. The most contrapuntally intricate passage occurs from m. 40 to 56, during which both players are using every instrument in each measure and the dominance of either timbre becomes ambiguous. This passage also features a replacement of the bowed notes in the vibraphone with a shifting pulse that adds to the activity. At m. 57, another interruption occurs via a measure of rest followed by a single note on the bells at m. 58. Mm. 59 to the end of the movement present an inverted interruption scheme from the beginning, with a continuous groove on the drums being interrupted by melodic fragments on the keyboard instruments.

**Example 6** Recreation of mm. 51 – 54, demonstrating the densest section of the movement.

“Interlude (before they learn)” takes its name from another fragment of the same poem, “The Dream.” This movement is defined by interruptions of texture, pulling between monophonic passages and rhythmic canons from m. 76 - 124, and concluding

with a free section beginning at m. 125 through the end. The core rhythmic line of the movement is played on the wood slats and tile/glass pieces, or on the drums and rims, while additional free layers are inserted into the pattern via the noisy metals, bells, or keyboard instruments. Furthermore, the main line was derived algorithmically from the text of the poem itself. The following examples demonstrate samples of the translation process for the core line, insertion of free material, and an example of how quasi-canons emerge as results of interruptions in larger processes.

1st line of "The Dream": "The oceanic feeling, described as a oneness with the world or a limitlessness"

76 77

R R L L R L L R L L R L R R R L R R R L R L R L R  
 The oceanic feeling described as

78 79 (or) 80

L L R L R L R R R L R R R R L R L R L R R R L R R  
 a oneness with the world a limitlessness

**Example 7** Reproduction of mm. 76 – 80 demonstrating the translation process from text to rhythm.

Example 7 illustrates a process of algorithmic translation that is central to the generation of material found throughout “Interlude” and “Noumenal.” The measures recreated in this example demonstrate the application of this process in its purest form in the piece. The bottom line shows the first line of “The Dream,” and the stages in its translation from text to playable material. The first step was to assign the right hand, represented by “R,” to consonants and the left hand, represented by “L,” to vowels. From this, a long string of sticking patterns can be derived. Second, a sixteenth note rest is inserted each time a word ends. Lastly, rhythms are freely edited to add variety and shape

phrasing. It is in this last stage of editing where raw data starts to form into a musical idea.

**Example 8** reproduction of mm. 92 – 94, demonstrating interruption methods used in “Interlude”

Example 8 demonstrates further techniques used in the development of this movement. At the top of the diagram, three occurrences of the noisy metal sound are pointed out as being “freely inserted to create a third rhythmic layer.” The method used here was such that a given a noisy metal could replace a tile or glass note in the original translation. In crafting this layer, I kept the substitutions sparse in the beginning as to avoid them being absorbed into the activity of the main line too quickly. As the piece continues, more substitutions are made until the metal is incorporated fully into the fray. A similar process occurs with the bells beginning on 124, but substitutions remain sparse through the end of the movement, with the exception of one phrase from m. 121 - 124. Next, in the percussion 2 part of m. 93, a box is drawn around an example of an interruption of the translated material being used to initiate a rhythmic canon. In this case the last four notes of m. 93 are repeated verbatim in the first beat of 94, after which the translated material continues normally. Similar devices are used at mm. 88, briefly from



96 – 97, 101, and 110. The final device illustrated in this example is free interruption in the form of insertion of notes from the melodic instruments. These notes function differently than previous types of interruption in that they replace the original material rather than prolong it or repeat it. In this case, the second percussion part is one beat behind the first part and should play the notes for the word “and”, but instead a triplet on the vibraphone replaces it, and the notes for “and” are removed from the part entirely.

132  
Hold each fermata uncomfortably long

Hold each fermata uncomfortably long

**Example 9** Recreation of measure 132, demonstrating blunt interruption in “Interlude.”

Example 9 shows one final type of blunt interruption that appears for the first time at measure 132, before recurring in “A Series of Riddles.” Like the direction “Choose Wisely” mentioned previously, “Hold each fermata uncomfortably long” was born out of a shared sense of humor with *Neutrals*, but in this case it is tied to a specific interpretive intent. In most cases with mid-movement fermatas, a note will be held until near silence before the performers move on. Pragmatically, this prevents the audience from mistakenly thinking the piece is over. However, in this case, I wanted to inject a bit of pronounced silence in order to reinforce the break between the preceding algorithmic material and the free section from measure 133 to the end of the movement. During the

first rehearsal of this movement, Neutrals intuitively interpreted the direction correctly without me having to explain it beforehand.

The third movement of *Surfaces*, “A Series of Riddles,” serves to vary the sound world of the two previous movements and acts as a vehicle to explore the two kalimbas built for the piece. The title of the movement came early in the compositional process, when I was using English translations of traditional Buddhist koans as source material for the movement. Ultimately, only the title remained from that phase of work, as I threw out the entirety the music in the first draft of the movement. Unlike the previous movements, “A Series of Riddles” is comprised of four distinct subsections in mm. 144 – 171, 172 – 224, 225 – 253, and 254 – 283. The four sections are roughly equal in length in terms of time, although the use of 12/16 in the second section led to an inflated measure count. Each section change coincides with an instrument change for each of the performers, with at least one of them using their respective kalimba. The internal structure of this movement also mirrors the larger structure of the piece in that the first three subsections are developmentally motivated, while the fourth functions as a coda.

Subsection 1 consists of mm. 144 – 171 and makes use of Kalimba A, Percussion 2’s auxiliary instruments, and features the first use of the chord organ. As mentioned before, the chord organ is turned on remotely and is used to add a spatial element to the introduction of amplification that happens with the first kalimba entrance. In the stage setup used for the premier, the speakers amplifying the kalimbas were the closest objects to the front of the stage while the organ was as far back as possible. This creates a three-tiered layering of space in the piece with near sounds coming from the kalimbas, middle sounds coming from the other percussion instruments, and far sounds coming from the organ. Musically, the language for the movement is set up in this subsection with moving

third figures in the kalimba and the drone of the organ. Example 10 shows a recreation of the opening of this section.

15

144 ♩ = 90

Percussion 1

Kalimba A With Mallets, *mp*

Glockenspiel

Organ

Percussion 2 Turn organ on.

Kalimba B

Vibraphone

145

**Example 10** Recreation of the opening two measures of “A Series of Riddles.”

Subsection 2 of the movement, mm. 172 – 224, features Kalimba B and vibraphone. This section plays with an ambiguous time signature, with the vibraphone reading in 6/8 and the kalimba reading 12/16. Throughout it, the kalimba creates an aura beneath the more directly melodic vibraphone material, echoing the drone from the organ in subsection 1. The vibraphone also serves to loosely foreshadow the melodic material in subsection 4. This second section also contains the recurrence of pronounced silence found in “Interlude” at mm. 222 – 224 where two measures of rest interrupt the previous activity. Subsection 3 contains the end of the timbral development of the movement with both players performing quick repeating figures on the kalimbas over the drone of the organ. Due to the nature of the instruments, and the mallets I built for them, notes on the

kalimbas are not clearly articulated or heard individually. Rather, the three instruments are intended to create a large sound mass that varies as the performers change notes.

The closing passage of “A Series of Riddles” in mm. 254 – 283 makes use of the simple canon. Example 11 below shows the figure in its most developed state. With this section, I tried to create a sort of stasis through literal repetitions of the same melodic fragment in the hopes that the listener would refocus on timbre as the driving musical force after being briefly pulled in by the melody.

The image shows two staves of musical notation. The top staff is labeled 'Kalimba' and the bottom staff is labeled 'Glockenspiel'. Both staves are in 6/8 time. The Kalimba part consists of four measures of music, each starting with a quarter rest followed by a series of eighth notes. The Glockenspiel part also consists of four measures, with the first measure starting with a quarter rest followed by eighth notes, and the subsequent measures continuing the melodic line with eighth notes.

**Example 11** Recreation of brief canon at mm. 268 – 271.

The final movement of the work, “Noumenal,” is the shortest and serves as a recapitulation of the sounds and material presented in the first two movements. The foundation of the movement was created by applying the algorithmic text translation method from “Interlude” to the three forms of Immanuel Kant’s categorical imperative, taken from the book *The Groundwork for the Metaphysics of Morals*. The three forms of the categorical imperative are the basis for the three primary phrases of the movement and can be found in mm. 284 – 292, 292 – 303, and 304 – 315 respectively. The development of the movement up to m. 303 is driven by insertion of bell notes into the existing percussion line and punctuations on the drums and keyboard instruments. Examples 12 - 13 show a breakdown of all of the devices at play in this part of the movement.

Free insertion of bell to create independent layer

287 288 289 290

Percussion

Vibraphone

Percussion

Glockenspiel

**Example 12** Recreation of mm. 287 – 290 demonstrating insertion of bells into algorithmic passage.

Punctuations from drum and keyboard instruments

294 295

Percussion

Vibraphone

Algorithmic layer

Percussion

Glockenspiel

Quarter note triplet figure from Movement 1

**Example 13** Recreation of mm. 294 – 295 demonstrating punctuations in the drums and keyboards.

The last phrase of the piece from m. 304 to the end is structurally derivative of everything before it, but remains the least predictable passage of the entire piece. As shown below in Example 14, quarter note triplets and other figures in the keyboards from “the world or a limitless” recur, and there is a continuation of bell insertion first seen in “Interlude” and further developed in the first section of “Noumenal.” However, in this final passage, the algorithmic layer is shifted to the spaces between the staff lines in the percussion parts. As described above, this notation allows for free choice of the instruments above or below a given notehead.

The image shows a musical score for three instruments: Percussion, Vibraphone, and Glockenspiel, covering measures 311 and 312. The score is in 4/4 time. Annotations include:
 

- 'Noteheads in spaces, allowing for free instrument choice' pointing to noteheads in the Percussion and Glockenspiel staves.
- 'Continuation of bell layer' pointing to a triplet figure in the Vibraphone staff.
- 'Quarter note triplet figures from Movement 1' pointing to a triplet figure in the Glockenspiel staff.

**Example 14** Recreation of mm. 311 – 312, demonstrating compositional devices in the closing of Noumenal.

The final interruption of the piece comes in the form of the ending itself. Structurally, the text being translated is finished, but I avoided reinforcement of the ending in order to leave the possibility of more music in the minds of the audience. It also has the effect of delaying any applause from the audience as they are not sure of the piece is actually over. This ending was developed with Neutrals, being the last result of our shared humor. Pragmatically, we have discussed the possibility of adding more movements in the future, which would serve to mitigate the awkwardness of the ending as written.

### Concluding Remarks

*Surfaces* functions as the most complete statement of my attitude toward musical meaning and practice to date. I believe that a piece of music should leave room for the performers, the audience, and the physical performance space to have an active influence in its life each and every time it is performed. I tried to demonstrate this through the use of improvisation, the avoidance of traditional harmonic progression, and the spatialization of sound sources, respectively. In my opinion, if any of these three factors are constricted too much, music ceases to have any sort of significant life as social art,

and renders it essentially meaningless.<sup>8</sup> It was with this in mind that I chose the title *Surfaces*. It was my attempt to sort through information and sounds that have deep personal meaning including the passages from Kant (which I studied during my undergraduate studies), the hand built instruments, and the poetry and abstract them away from my own world enough to meet the performers and audience halfway.

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<sup>8</sup> Obviously a thorough argument outlining the social role music needs or should have is outside the scope of this paper. That being said, knowing that music began in part as a tool for communication in early society and witnessing the fallout of the denial of any social role for new music in the form of waning interest and financial support, I think it is important to keep social implications in mind, regardless of genre or methods. (The aforementioned attitude of denial was epitomized by Milton Babbitt's famous article "Who Cares if You Listen?" in High Fidelity Magazine in the February, 1958 issue.)