Examining Underutilized Keyboard Percussion Instruments in Contemporary Music Through Collaboration: Commissioning Three New Works for Unaccompanied and Accompanied Xylophone and Glockenspiel

By

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ABSTRACT

Noting a lack of solo repertoire for two popular keyboard percussion instruments, the glockenspiel and xylophone, I set out to bring the two instruments up to a level where both could be recognized as vehicles for solo performance. I decided to collaborate with three composers who are not percussionists: Nick Bentz (*fitful machinery* for solo glockenspiel and fixed media), Ashlee Busch (*Elements* for solo xylophone and crotales), and Hunter Long (*We've always had time on our side* for solo xylophone and percussion ensemble). By collaborating with these three young composers, I hope to elevate the stature of these underutilized percussion instruments.

This document provides information about each composer, the commissioning process, and examinations of each work. In addition, I will discuss some of the challenges of working with non-percussionist composers, issues on performance practice, and my solutions to those challenges.

ACKNOWLEDGEMENT

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Finally, I would like to thank all three composers with whom I collaborated: Nick Bentz, Ashlee Busch, and Hunter Long. Without their hard work, this project would not have been possible. I had a great time working and sharing my percussion knowledge with them.

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PREFACE

My Purpose

Collaboration occurs frequently in music, linking performer and performer, composer and composer, performer and composer, performer and educator, etc. Working with other musicians to create and perform a work of music is an essential goal of most performers, allowing musicians to explore new creative pathways and learn from other musicians. At the same time, collaboration is a way for musicians to build networks while supporting one another in creative pursuits. For this project, I decided to collaborate with young composers who are not percussionists. My primary reason is that I wanted to make percussion more familiar to contemporary composers who are not percussionists. With so many instruments and traditions, writing for percussion can be complicated. I hope to offer guidance and inspiration so that the potential of these instruments can be explored. In addition, I hope to learn from each composer's musical ideas.

Because of the relationship between collaboration and artistic development, I decided to engage with three non-percussionist composers. It is my intention to expand the repertoire of contemporary solo works for xylophone and glockenspiel, two keyboard percussion that are rarely utilized as solo instruments in contemporary music. As such, I commissioned three new works glockenspiel and xylophone from Nick Bentz, Ashlee Busch, and Hunter Long, working closely with them on technical and performance practice issues. Through this collaboration, I will argue for the efficacy of these

instruments as platforms for the solo percussionist. I also hope to inspire other composers to write more contemporary solo works for the instruments.

At the same time, I will discuss the collaborative process and give a performer's analysis of the three new works, highlighting issues of performance practice and compositional intent that will allow future performers to effectively interpret these new works.

Percussionist vs. Non-Percussionist Composer

In deciding on composers for this project, I had to choose between composers who are practicing percussionists and those who are not. Percussionists who compose have an intimate knowledge of our diverse instruments, knowing how to express their musical ideas without creating unplayable performance challenges. This skill is particularly helpful for percussionists, as percussion instruments are challenging to address in an idiomatic fashion. However, one of the problems with composers who are percussionists is that they may stay in the percussionist comfort zone. When writing, they may prioritize the idiomatic techniques over new and unusual musical ideas, thinking first about what they can do for the instrument they are going to write for instead of thinking about the musical ideas first.

Non-percussionist trained composers who have more knowledge about music writing usually have broader musical imagination, usually go the opposite way. They may have some musical ideas in their mind first, then they would experiment on the instrument they are requested to write for. This could be an advantage since it would

allow performers to get out from their comfort zone since sometimes the musical ideas requires performers to do something unusual. Opportunities will arise for performers to explore and employ extended techniques and other uncommon performance practice.

Composers who are not percussionists may not have much knowledge about percussion instruments characteristic and playing technique. Sometimes their musical ideas cannot be applied to the performance practice without them knowing it in advance. Here is where performers act as a guide to help them shape the music to be more playable both on the instrument and according to the percussion playing technique. Through performers, composer can gain more knowledge about percussion instrument and percussion performance practice than they would learn in an orchestration class.

General Challenges

Two of the composers involved in the project, Nick Bentz and Hunter Long, currently live in Los Angeles, California, requiring us to work together remotely. As a result of the COVID-19 pandemic, my work with Ashlee Busch, who lives in the Phoenix Metro Area, also took place mostly remotely after a few initial in-person sessions. I felt a big difference when I was able to show Ashlee the instrument in-person than when we just talked about it virtually as I did with Hunter and Nick. Certainly, it was more effective to learn about the instrument when they can touch, feel, and observe the instrument. Because of the distance involved, a major challenge of our collaboration was to make the remote sessions as effective as in-person workshops. We addressed these challenges in several ways. First, I recorded several high-quality videos of myself playing

the instruments, allowing the composers to learn about my own performance practice. While this process of gradually recording the composers' sketches took longer than in-person sessions, it satisfied the workshopping process. Secondly, I gave the composers several solo keyboard percussion performance videos to use as reference recordings, allowing them to become more familiar not only with the sound of the glockenspiel and xylophone but also with the significant repertoire.

Over the process, we spoke constantly about what worked and what was unplayable. I worked extensively with each composer to edit their work, keeping their original ideas intact while adjusting musical passages to be more idiomatic. Because none of these composers are performing percussionists, and because none of them have extensive experience writing for solo percussion, the most significant challenge was to find a difficulty level that would make the pieces accessible. This meant explaining what constitutes difficulty on percussion instruments.

There are two kind of difficulties: musical ideas which are impossible to play and passages which are difficult; playable although not desirable. For example, there is no easy way to play cluster chords on keyboard percussion instruments within the context of standard two or four-mallet playing. The latter difficulty is mostly tied to my own assessment of the works, although sometimes the materials were just too difficult in general. For example, playing a constant syncopation rhythm in a very fast tempo on a 6-minute piece could be really challenging and exhausting. In the case of the works on this project, we worked together to make adjustments which could preserve the original musical ideas while decreasing the difficulty level, hopefully increasing the mental space

accessible for effective interpretation. In most cases, we slowed down tempi, chose simpler rhythmic figures, and alternative chord voicings which would still fulfill the composers' vision.

Because of our remote collaboration, the three composers did not have easy access to xylophones or glockenspiels. This lack of access created an additional idiomatic hurdle, as the composers tended to write using the instruments they knew the best. For example, a composer who is a practicing violinist would find it easy to play a fast constant running sextuplets passage since they have all their fingers touching the fingerboard. However, keyboard percussion instruments are larger in size compared to a violin, making it difficult for percussionists to play the same passage at a fast tempo. More than that, the mallets that separate percussionists from the instrument make them expend extra effort to have a good connection with the instrument.

Score examination

The following chapters of this document contain score examinations and performance guides of each piece. In addition, I will present each composer's biographical information and more details on the commissioning process for each piece.

CHAPTER 1: COLLABORATION WITH NICK BENTZ

BIOGRAPHY OF NICK BENTZ

Born in 1994 in Charleston, South Carolina, Nick Bentz started off playing the violin at six. Since then, he has been playing and performing violin until today. As a violinist, Nick gained various professional experiences both as a soloist and an ensemble member. He has performed solo with the Pacific Philharmonic, Thornton EDGE, and Charleston Symphony. He also has performed with the Moscow Symphony Orchestra. Nick actively commissions and gives premiere performance of over thirty new pieces for violin.

Nick's first encounter with music theory and history was when he was in eighth grade, when he attended an after-school music program called Charleston Academy of Music that included music theory and music history in its curriculum. From there, he built an interest in writing music. His love of the violin and music writing brought him to further music education in college, where he studied and earned both Bachelor's and Master's degrees in both violin performance and music composition.

He holds Master's degrees in composition from the University of Southern California and a violin performance from the Peabody Conservatory. He earned Bachelor's degrees in violin and composition from Peabody Conservatory. His composition and violin teachers and mentors include Herbert Greenberg, Kevin Puts, Nina Young, Donald Crockett, Ted Hearne, Andrew Norman, Felipe Lara, Yiorgos

Vassilandonakis, Lina Bahn, Yuriy Bekker, Espen Lilleslatten, and Diana Cohen. Nick is currently a Ph.D. candidate in music composition at Brown University.

COMMISSIONING PROCESS

The glockenspiel is often considered an ensemble instrument instead of a solo instrument due to its frequent use in ensemble settings such as orchestra, concert band, and chamber ensemble. Composers commonly use the glockenspiel as a non-primary melodic instrument in their ensemble compositions. In other words, the glockenspiel's delicate sound is often used as the "icing on the cake" in an ensemble composition. As an underutilized instrument, the repertoire for solo glockenspiel is very small compared to the solo repertoire of its cousin instruments such as marimba and vibraphone. Through this commissioning project, I intend to give more appreciation to the glockenspiel as a solo instrument by expanding the instrument’s repertoire.

As a transposing instrument that sounds two octaves higher than written, the glockenspiel produces a very high pitch, thin, and ringing sound due to its metal bars. One of the reasons why glockenspiel is not a popular solo instrument is because of the high pitch and limited range. Listeners may find it hard to focus on the instrument’s ringing sound, and the high pitch is not particularly friendly to the ears. Moreover, the glockenspiel’s short range may lead listeners to boredom. I wanted to address these issues when collaborating with Nick to compose a new work for solo glockenspiel. We both felt

the need to find solutions to those issues to create an enjoyable solo glockenspiel work for both listeners and performers.

We began our collaborative process by discussing sonic possibilities on the glockenspiel. Sound exploration is something that contemporary composers commonly do when writing for an instrument for the first time. Nick and I believe that by creating various sounds from the glockenspiel, we will show and convince people that glockenspiel can also do something else than to produce the "typical" sound usually heard in many orchestral works. Sound exploration allows us to push the limit of the instrument's ability to make a wide variety of sounds.

Moreover, playing a solo glockenspiel work that employs extended techniques to produce multiple sounds will result in a non-monotonic performance. I experimented with different mallets and sticks to make different sounds, playing on various parts of the bars, and playing on the instrument frame. In the end, Nick included those extended techniques in the work, including playing with different part of the mallets, playing on muted bars, playing with brushes, and playing on the instrument frame.

Secondly, I proposed the use of four-mallets in the work. At first, I wanted the piece to be a two-mallets only piece for a practical reason. It is more common to play glockenspiel with only two-mallets. Percussionists rarely own a set of four glockenspiel mallets since there are very few glockenspiel solos and orchestral excerpts that require more than two-mallets. However, after discussing with Nick, we both decided to include some four-mallets materials to add additional color to the music. I am inspired by the glockenspiel orchestral excerpt from Ottorino Respighi's *Pines of Rome*, a unique

orchestral glockenspiel part that employs three-mallets. I hope this piece would be one of a few compositions that introduce four-mallets playing on the glockenspiel. As a result, Nick's work *fitful machinery* uses a mix of two-mallet and four-mallet playing. It is mostly a two-mallet piece with a section containing four-note chords.

In addition, we decided to use electronic sounds in the work. The use of electronics to accompany solo percussion works has become very popular recently. I believed that including an electronic component would help address some of the glockenspiel's limitations noted above, and increase interest among potential performers. I requested the electronic component to be a fixed-media track instead of live-processing for a practical reason. As part of the electronic creation, Nick requested that I record some passages that he composed on the glockenspiel. The audio recording would then be used to generate sound for the electronic part. The resulting electronic track is supplemented with a click track which is essential for the performer to remain synchronized with the electronics.

I asked Nick to write for a 2.5 octave glockenspiel, rather than a larger instrument. The 2.5 octave glockenspiel is more common among percussionists to own than 3.3 octave instruments, especially for those who are not in school. I wanted this new work to reach as many performers as possible in the field, and a solo for an extended range instrument would be harder for professional percussionists to perform. My long-term plan for this glockenspiel repertoire expansion project would include commissioning new solo work for wider range glockenspiel.

Finally, Nick and I worked together on deciding the difficulty level of the work. Because one of the goals of my project is to get more people playing glockenspiel, I was adamant that the work be at a playing level that would allow many percussionists to perform the piece. I wanted a work that is not too hard for freshman college students and not too easy for graduate students and professionals. I realized that any difficulty level mark could be relevant to any performer, depending on their playing skill level. One hard level of work for a performer does not mean the same for the other. Therefore, when we worked together to compose this piece, we made sure that the work fit my own playing level. Throughout the process, we had to change or adjust the materials to make the piece more playable, especially for me without totally changing the composer's original idea.

A SCORE EXAMINATION OF *fitful machinery*

fitful machinery is a solo glockenspiel with fixed media work with a duration of about 7 minutes long. The title reflects what is happening in the work: an unpredictable machinelike sound. When composing this piece, Nick imagined a playing music box that is falling to the bottom of the ocean and starts to make an unpredictable melodic line until the sound finally dies.

The piece starts with an electronic sound fading in and climaxing with a single loud attack of the low G bar. The low G attack continues sparsely until the melody starts in m.6. Similar single events occur several times throughout the piece as an interruption to the ongoing melody line. In this material, a combination of an open tone and dead

tones are employed. The dead tone note indicated by a "+" sign on top of the note needs to be produced by hitting the glockenspiel bar with a mallet while muting the bar with the thumb.

The "music box" starts playing a melody at the end of m.6. In the beginning, the melody is constructed of running 16th note sextuples with variations on some beats. As this material develops, the melody becomes busier, indicated by the addition of rhythmic 32nd notes and richer pitch selection in the melody. However, the quick-moving melody is interrupted by something similar to the beginning low G attack material at the beginning of the piece (figure 1: mm.1-4). These interruptions occur in mm.11-15, 20-21, 60-64, 84-85, and 108-110. The sudden, unpredictable interruptions give an image of a machine that is struggling to keep spinning.

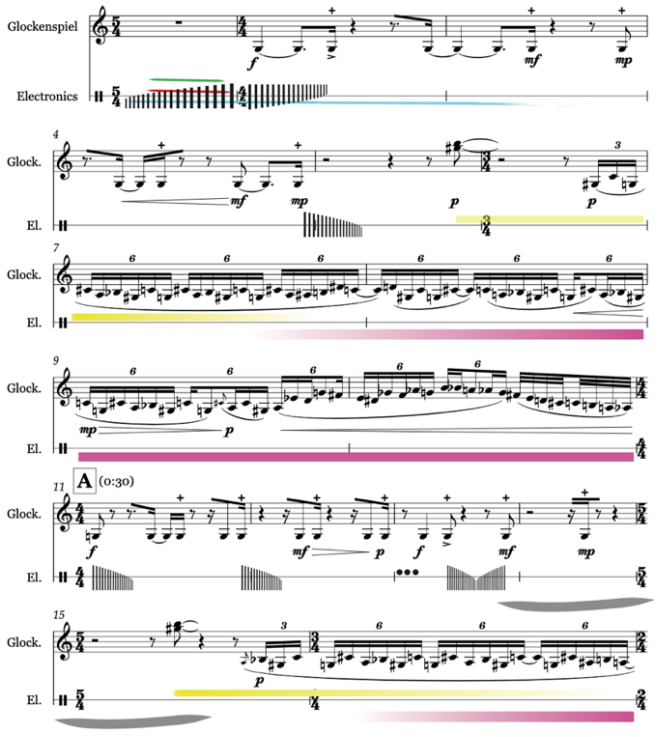

Figure 1 (mm.1-16): opening of *fitful machinery*.

After the music box struggles to keep spinning, it stops and is unable to start again. This moment is depicted in section “G,” where there is no more running melody from the glockenspiel. This is the section where the idea of a falling music box is implemented. The electronic part becomes more dominant, while the glockenspiel part has a lyrical four-mallet chord rather than a hectic melodic line. The electronics create an aquatic feel, represented by the bubbles-like graphic notation in this section. An image of the music box falling deep in the ocean is created.

The glockenspiel's mechanistic idea comes back again in section “H.” Here, the performer switches back to two mallets once more in preparation for the running melodic material. Unlike the previous sections in the piece, there is a rebellion from the electronics against the glockenspiel. The electronic becomes very busy and rhythmic, and the electronic notation in the score changes from graphic notation to traditional notation which allows for better representation of the rhythmical materials (figure 2).

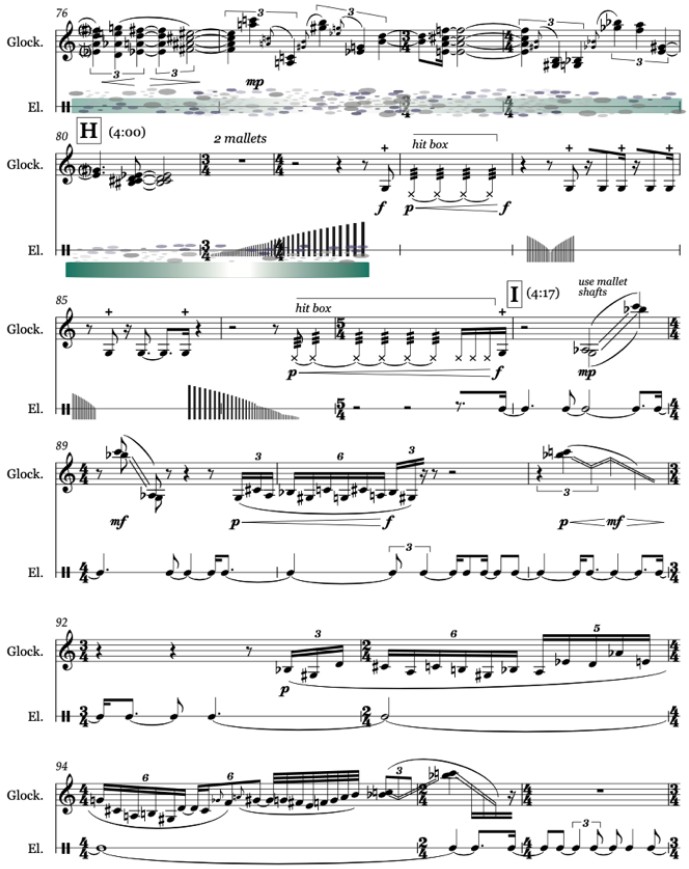

Figure 2 (mm.76-96): shift in notation of electronic line from graphic to traditional notation.

In this section, another extended technique, playing on the glockenspiel frame, is employed. This unique sound from the instrument's frame depicts the effort of the music box to start playing again. Later on, Nick writes for the performer to play with the mallet shaft in order to produce a thin sound from the glockenspiel. At the beginning of the section "I" (m.88), the performer must quickly turn the mallets to the shaft to play the glissando in time. This texture continues until m.97, where the performer returns to using the mallet head (figure 3).

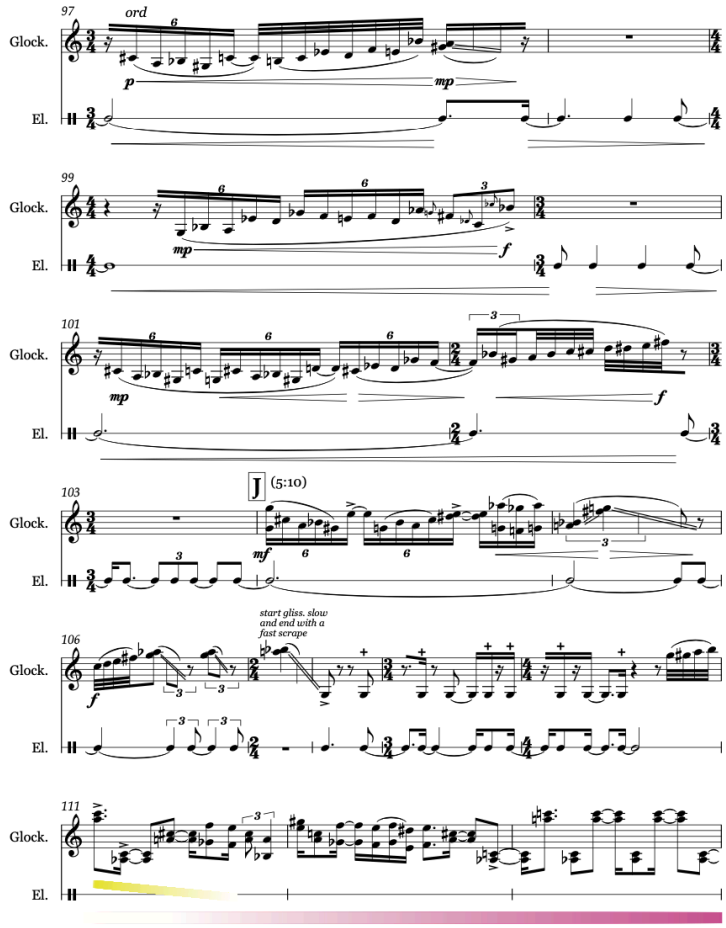

Figure 3 (mm.97-113): the electronic traditional notation changes back to graphic notation.

As the electronics increase in intensity, the rhythmic materials become sonically unpredictable while the electronic staff returns to graphic notation by (figure 4). The electronic rebellion against the glockenspiel reaches its peak in m.115, the beginning of section “K” (figure 4).

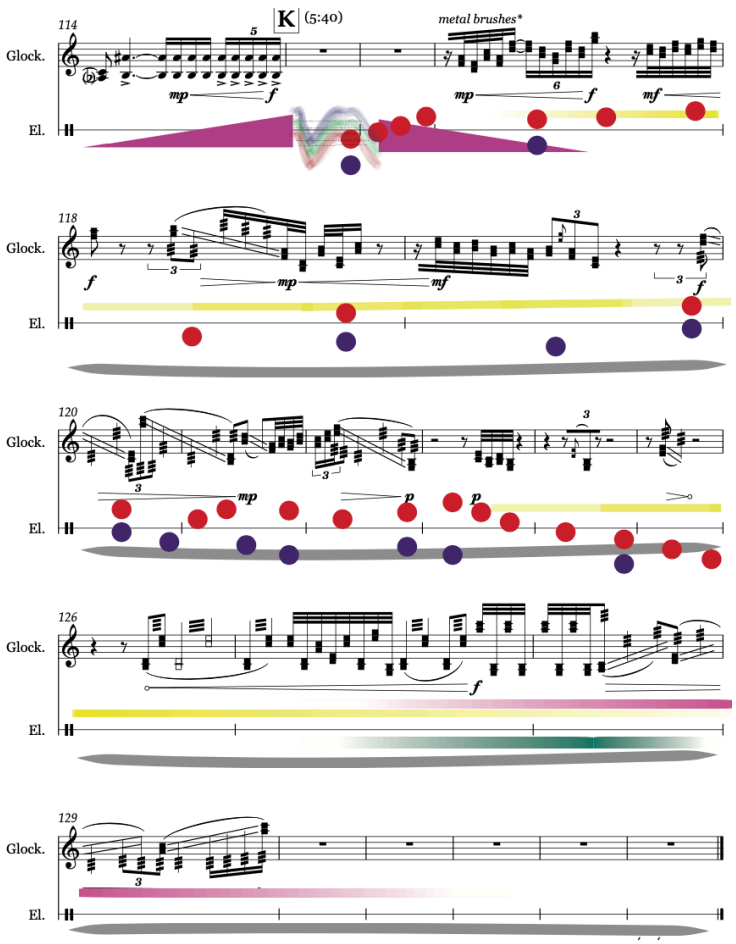

Figure 4 (mm.114-134): end of *fitful machinery*.

After the peak at letter K, the glockenspiel begins a gradual decay while the electronics become more dominant until the end of the piece. The use of metal brushes highlights the decaying process of the glockenspiel. Brushes produce a sound even thinner than the mallet shafts. Here, the glockenspiel notation changes from traditional notation head to square head notation, where the notes indicate a general register on the instrument rather than a specific pitch. For example, if the notes are placed in the staff's middle area, the performer needs to hit any notes available on the middle register of the

glockenspiel. At the same time, the double stops can be easily played by one brush due to the wide width of the brush. Finally, the piece ends with the electronic sounds fading to silence, marking the end of the battle between the glockenspiel and the electronics. The "music box" finally drowns in a deep ocean.

Non-traditional notation: graphic and color codes

In *fitful machinery*, Nick employs graphic notation in the electronic staff of the score. The graphic notation includes a few different kinds of shapes and color codes. The first shape contains a group of vertical lines with different heights, as shown in figure 5.

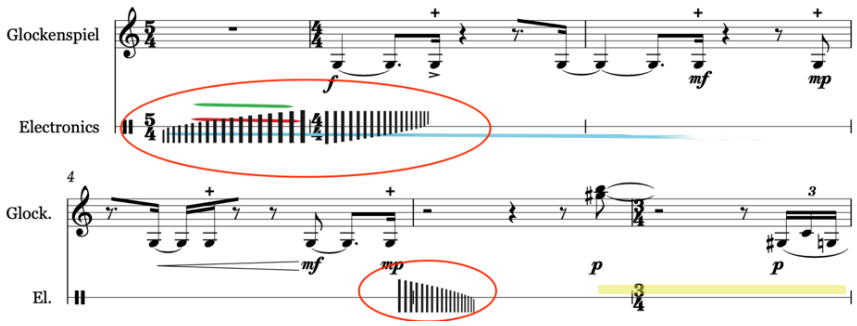

Figure 5 (mm.1-6): vertical lines in the electronic staff.

This type of notation is more effective than traditional notation because the electronic sounds are more similar to unpitched background noise than a melodic line. At the same time, this type of notation is simpler for a performer to quickly read and understand from looking at the shape of the graphic

This particular graphic represents a tremolo sound, with the vertical line height in this graphic indicating the sounds' dynamic. The taller the line, the louder the sound, and vice versa. For example, the vertical lines graphic at the beginning of m.1 show that the electronic sound will swell from soft to loud and back again. The vertical lines graphic at the end of m.4 show that the electronics start with a loud dynamic and gradually shift to a soft dynamic.

The second graphic notation is a symbol of three dots representing a "sound drop," as shown at the beginning of m.12 (figure 6). This symbol is self-explanatory: three dots mean three sound drops.

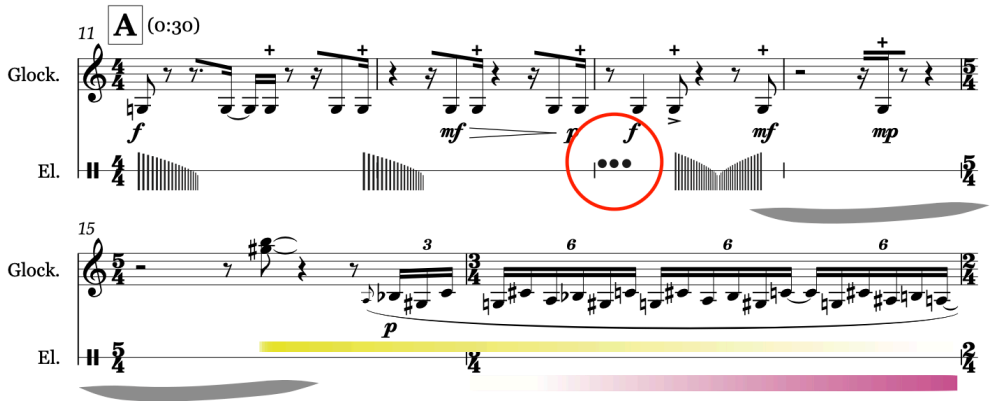

Figure 6 (mm.11-15): an example of three dots symbol.

Nick also uses six color codes to represent different timbres: yellow, blue, magenta, purple, green, gray. Although it is relatively easy to follow what is happening in the electronic through the colored graphic, the performer must listen carefully to learn the timbral differences between each color. The colored graphic comes with different shapes and directions. The shapes include straight lines, circles (or dots), triangles, and irregular shapes.

The third shape is a straight line that shows a continuous sound while the pitch stays the same. When the line starts and/or ends with faded color such as in m. 35 (figure 7), the sound is fading in and/or fading out. In some places, the line may be in a diagonal position instead of in a horizontal position, as shown in mm. 37-4 (figure 7). The slope indicates pitch shifting, with an upward slope indicating low to high, and a downward slope indicating high to low.

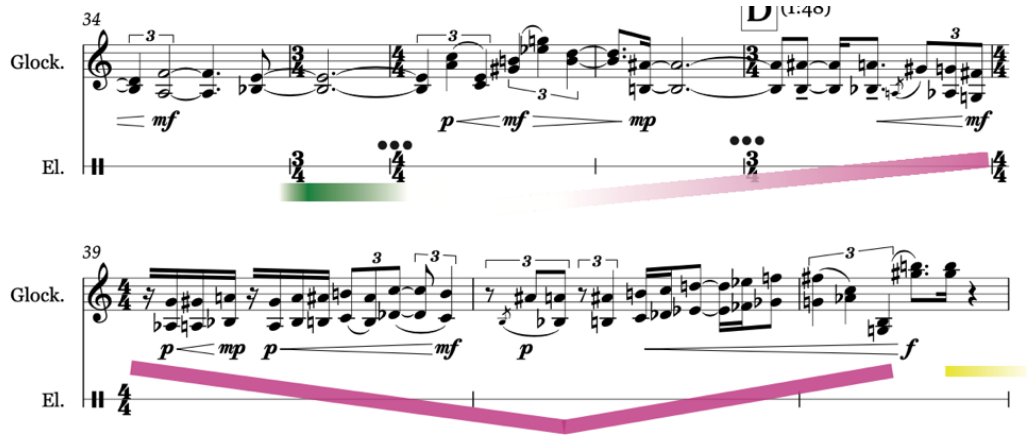

Figure 7 (mm. 34 – 41): examples of colored line graphic.

The fourth shape is a filled color circle shape representing individual attacks (see figure 8: mm. 120-125). Each circle indicates a single attack, with colors and positioning denoting timbre and pitch. The location where they are placed relative to the staff determines the pitch and timbre. Since the red circles are located above the purple circles, the red circles have a higher pitch and brighter timbre. Unlike other graphics that can be used as cues, the circles in section "K" cannot be used as cues or checkpoints because they are scattered arrhythmically throughout the section.

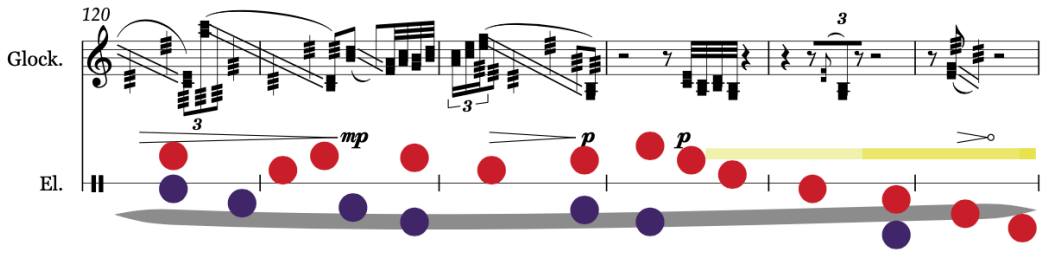

Figure 8 (mm. 120 - 125): examples of filled color circle shape.

The fifth graphic shape is the bubble-like shape located in section "G" (figure 9). The graphic is fading into the section and fading out the section goes a little bit over section "H." The fact that the graphic sits on the green line shows that something is happening on top of a continuous sound that is represented by the green line graphic. This speckling gives an aquatic image and feel to this section, indicating the musical character for the performer.

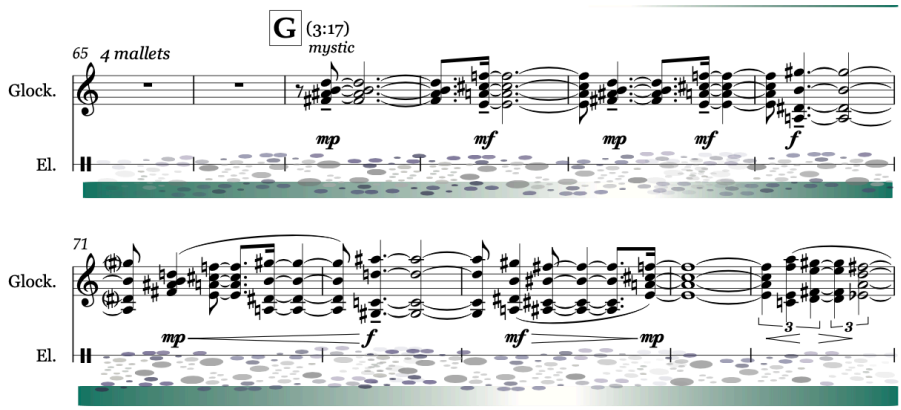

Figure 9 (mm. 65-75): an example of bubble-like graphic

The sixth graphic shape is a triangle shape found in mm. 114-117 (figure 10). In this passage two magenta triangles appear similar to crescendo and decrescendo symbols. They indicate the crescendo and decrescendo dynamic of the electronic sound. The thickness of the shape indicates the intensity of the sound.

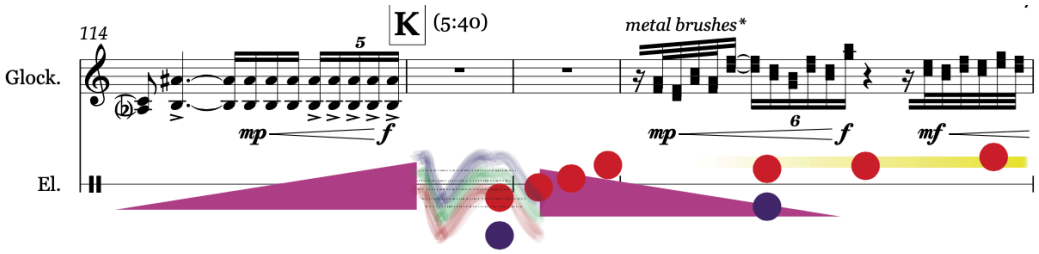

Figure 10 (mm. 114 – 117): examples of triangle and irregular graphic shapes.

The final graphic notation shape is the colorful (blue, green, and red) irregular shape that is located between the two magenta triangle shapes in mm. 115-116. The shape starts in m.115 when a messy electronic sound happens. The measure indicates the climax of the magenta triangles swell and denotes the aggressive sound in this moment.

In this piece, the graphic notation serves a unique function. The performer can perform the piece using the provided separate glockenspiel only part and listen to the in-ears click track without even looking at the electronic score. Although the graphic notation on the electronic part does not directly affect the performer's playing, it certainly gives the performer visual cues of what is happening in the electronic part. Through extensive practice, the performer may memorize all those electronic cues and may not need to look at the electronic score anymore. These notations give the performer a clear sense of their relationship to the electronic part and serve as a helpful tool. Moreover, Nick's attention to timbre in addition to rhythm and pitch helps the performer expand the coloristic possibilities on the glockenspiel.

CONCLUSION

As a very active composer, Nick has written various works ranging from solo to large ensemble works for multiple instruments, including percussion. Although he wrote some percussion works, including *Enuma Elis* for solo unpitched percussion, *fitful machinery* is his first keyboard percussion composition. Thus, our collaboration was a great opportunity for both of us to work and learn together in composing a work for an instrument that is new to him. Through this collaboration, I hoped to be an advisor to

guide and help him with the exploring the sound world and multifaceted playing techniques available to the glockenspiel. This project served as an opportunity for him to explore sound from a new instrument and for me to answer any question he may have about the instrument. About the importance of collaboration, Nick said:

> "The value in collaboration is really getting to write pieces that really fit for the performer that you are writing for.…I [am] able to pursue what the piece wants, but the performer or the collaborator who have additional perspective that they can lend can help to build this piece up and really turn it into something that is much more viable. The wonderful thing about collaboration…is that the piece gets sculpted by both of us and gets crafted for both of us…it is what really makes it such a valuable process."[1]

fitful machinery shifts the perception of the glockenspiel from an ensemble to a solo instrument. It successfully shows the beauty of the glockenspiel sound as a solo instrument. At the same time, the use of the electronics gives the piece a contemporary energy. From the performer's standpoint, I thought that this piece is very engaging. All the extended techniques and all other various musical materials meet our goal to create something exciting out of a glockenspiel. The programmatic element that comes with it about the story of a "music box" further increases the effectiveness of the work.

[1] Interview with the author.

CHAPTER 2: COLLABORATION WITH ASHLEE BUSCH

BIOGRAPHY OF ASHLEE BUSCH

Born in 1986, Ashlee Busch started learning piano at the age of 6. Her interest in music brought her to learn another instrument, the flute, at age 9. She began studying operatic performance at 25. Ashlee's music composition journey started when she was in high school taking a music theory class. Since then, she has been developing her music writing skills until today.

Ashlee is currently a doctoral candidate at Arizona State University in Music Composition where she is on schedule to graduate in May of 2021. Ashlee also serves as a Graduate Teaching Assistant teaching aural skills, theory, and sight-singing. Her other current teaching activity includes teaching music composition, theory, and music technology at Scottsdale Community College. Ashlee earned a Bachelor's degree from Grand Valley State University in music with an emphasis in composition and a Master's degree from Michigan State University in music composition. As an active composer, she has been collaborating with various musicians and artists. Some of them include collaborating with video game record label Materia Collective, publishing with mixed ensemble company Leading Tones Music, publishing with choral music company Zintzo, collaborating on commissions with groups of all ensemble sizes around the world, and residencies at some universities, such as Grand Valley University, Michigan State University, Kalamazoo College, and most recently at Austin Peay State University.

COMMISSIONING PROCESS

One of the underutilized keyboard percussion instruments that I wanted to explore more besides the glockenspiel was the xylophone. Compared to its cousin instrument, the marimba, the xylophone's solo repertoire is minimal. The xylophone's repertoire growth is very slow compared to the marimba, which is younger than the xylophone. I highly suspect the reason is similar to why glockenspiel is not very popular as a solo instrument: high pitch. As a transposed instrument that is sounding one octave higher than the concert pitch, the xylophone's sound may not be friendly to our ears when it is played too long, especially when played with standard hard plastic head xylophone mallets. Our challenge is to create variations in the sound to reduce the uncomfortable high and sharp timbre. In addition, to make this piece more accessible, I requested Ashlee to keep the piece's duration no longer than seven minutes, keep the difficulty level to "medium hard," keep this piece as a two-mallet work, and use a simple set up if she decided to add some other small instruments to accompany the xylophone.

At the beginning of the composition process, Ashlee's goal was to explore as many sounds on the xylophone as possible. That included playing on several different xylophone parts and hitting the instrument with different mallets. We prepared the xylophone by putting different objects on the instrument while striking the bars to produce some unique sounds. We explored placing keys inside the resonators, plastic pipe on the bars, tapping papers on the bars, and placing other objects made from different materials on the xylophone bars. After many experiments, Ashlee decided to use

three things placed on the xylophone bars: a plank of wood, a plank of metal, and a plank of plastic. The three elements were meant to be placed on the xylophone bars before and during the performance.

Unfortunately, after several attempts running through the piece as intended by Ashlee, I found it difficult and almost impossible to play such challenging musical material fluently while picking up the preparations. While Ashlee's preparations might be a unique idea, the additional preparations were problematic in practice. Moreover, I realized that there was no big sound difference produced by the bars with or without the elements. Therefore, I did not think it was worth continuing along that trajectory when the result was not as significant as the effort. We ended up not using any extra objects and abandoned the idea of a prepared xylophone. Our conclusions, though, do not imply that preparing a xylophone has no value. It is just the ideas did not work for this particular piece. However, some other extended techniques ideas did work well within the piece, such as playing with mallet shaft, playing on the resonators, and striking the instrument frame. In addition to extended techniques, adding another auxiliary instrument—crotales—gives another color to the piece. The long and ringy sound from the crotales contrasts with the short xylophone's frame and resonators sound.

In the following chapter, I will present a brief score examination on the resulting work—*Elements*—and further discussion about the performance challenges on the piece.

A SCORE EXAMINATION OF *ELEMENTS*

Elements is an unaccompanied solo work for xylophone and crotales. Although this piece includes a few crotales, it still falls under a category of a solo xylophone work instead of a multi-percussion work since the crotales have an auxiliary function. The work is written for the advanced player as it contains many extended techniques and complicated rhythms. The title *Elements* refers to various sound colors in the piece that primarily come from wood and metal. The piece challenges the performer to quickly play from one part of the xylophone to another and with one part of the mallet to another while executing complex rhythm materials at a fast tempo. In general, the piece's progression can be explained as loud, frenzied, and fast in the beginning moving towards a slow, quiet ending. It could be described as a fast-rolling ball that slows down occasionally before it finally stops. Between the beginning and the end, the work is divided into five larger sections that present different sound colors from the instruments, beginning with the sound of wood from the xylophone's bars to the sound of the xylophone's resonators. The performer presents a natural visual movement as he/she stands up in the beginning and kneel towards the end of the piece when playing on the resonators.

The first section (mm.1-58) of the piece is to be played with a pair of ordinary medium-hard mallets. Although the rhythm in this section is relatively simple, the music has a feeling of excitement and rush because 16^{th} notes dominate the texture. A constant running 16th note on B4 starts the piece before it is interrupted by a short melody that

also transitions to another running 16th note on a different pitch: C5 (figure 11: m.12). A similar idea of melodic interruption to m.12 occurs a few times in this opening section, as the music moves between areas of single pitches of running 16th notes.

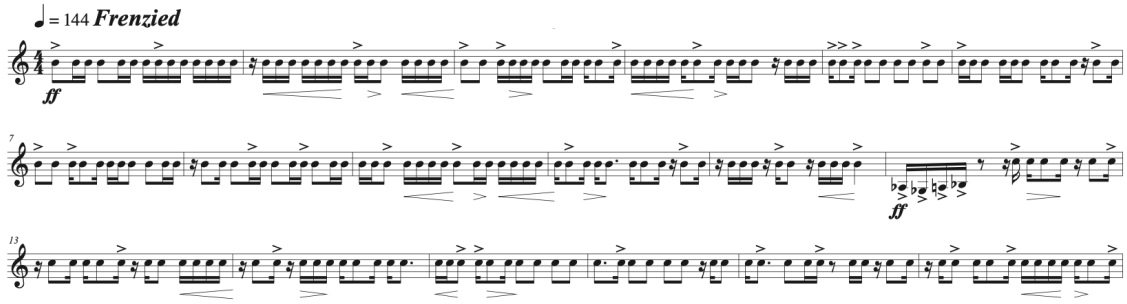

Figure 11 (mm.1-18): opening of *Elements*.

Beginning in m. 59, Ashlee presents a different material both in dynamic and sound color as a transition to *Elements'* second section (figure 12). The section starts with a sudden dynamic change from *mezzo-forte* to *piano* supported by a new timbre: playing with the mallet shafts. This idea of melodic interruption returns but is played with the mallet head in *fortissimo*. Here, the frequent turning from head to shaft that can be very challenging to the performer. The sudden contrasts between the piano material (played with the mallet shaft) and the fortissimo material (played with the mallet head) gradually begin to favor the softer "ticky" sound mallet shaft, providing a transition to the work's next section, in which the mallet shaft material is the dominant color.

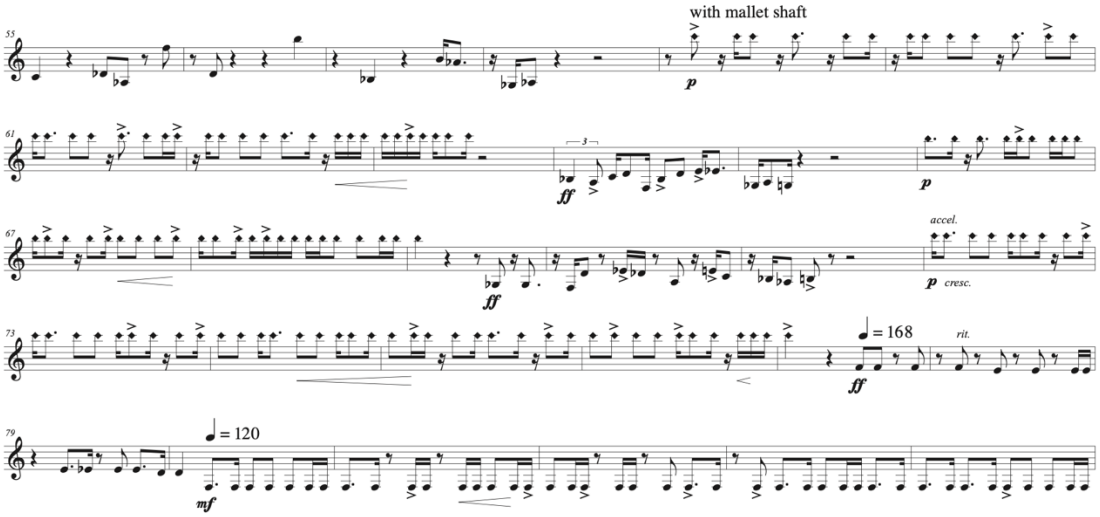

Figure 12 (mm.55-84): transition to section 2.

In the second section (mm.94-140), the sound color changes as the rhythm becomes more complicated. There is no significant playing technique challenge in this section except for a few quick mallets turn from head to shaft. Instead, the primary hurdle for the performer is the difficult syncopated rhythm that requires the performer's complete focus when playing at a fast tempo.

The third section, beginning in m.141 (figure 13), presents another sound color while also offering a contrast between short and long tones and between loud and soft dynamics, highlighting rhythmic contrast between them. Here, the contrast between the long-sustained notes on the crotales (marked *fortissimo)* and the rhythmically busy material on the xylophone (at *mezzo piano)* creates a mixed feeling of repose and frenzy. The two elements are divided by two separate staff: crotales on the top and xylophone's frame on the bottom. Towards the end of the third section, the performer plays with the mallet shaft again on the xylophone bars, giving a new color of sound.

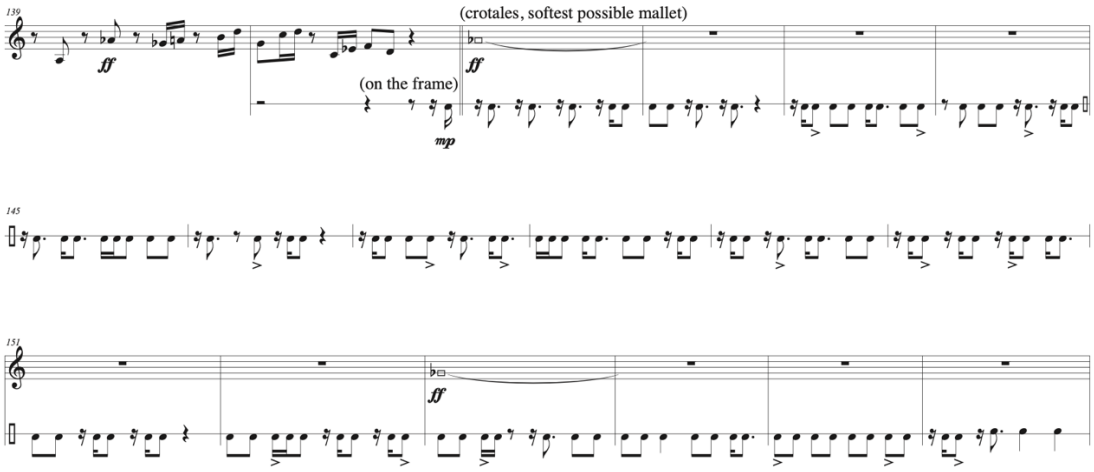

Figure 13 (mm.139-156): beginning of third section.

The fourth section (m.196) of *Elements* is a cadenza where Ashlee uses graphic notation in lieu of traditional notation (figure 14). In the work's performance instructions, Ashlee notes that "pitches must be performed in order either prime form or retrograde. Partial performance of the row, octave transposition, and repeated notes are permitted. Material should become more virtuosic and utilize greater range as the cadenza progresses. Duration is whatever the performer deems atmospherically suitable."[2] While ending the cadenza, the performer needs to be ready to kneel down to play the crotales and resonators in the following section.

[2] Score instruction.

Figure 14 (m.196): cadenza.

The fifth section (figure 15) begins with a sustained crotale note, giving more time for the performer to subsequently kneel to play on the resonators. Although the resonator part is written on different pitches on the staff, the performer can choose to play on any resonator on the xylophone. The performer must pay attention to the note shape: diamond shape for mallet shaft and standard shape for mallet head. The ending section slowly fades out into silence, contrasting the very beginning section of the piece, where the music starts very loud and excited. Thus, repeating the whole ending section is permitted, if necessary, to create a smooth fade-out.

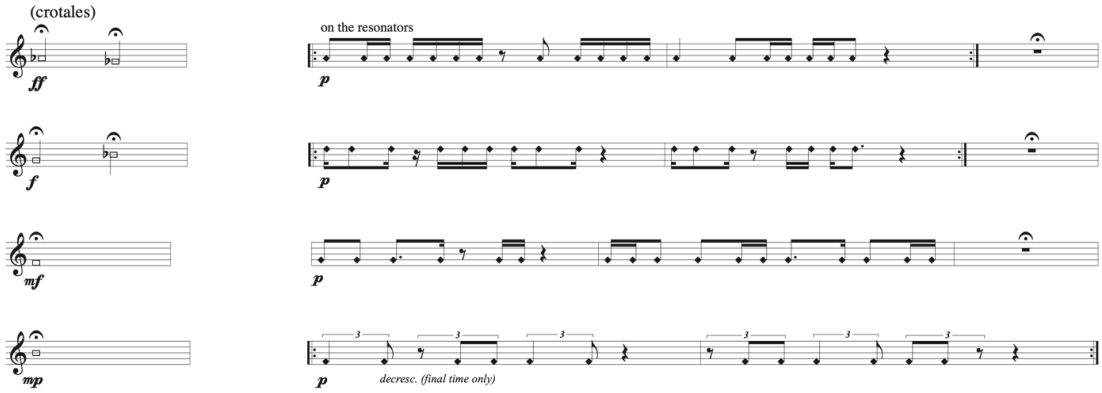

Figure 15: fifth (closing) section of *Elements*.

CONCLUSION

Elements require a deep focus from the performer as there are many challenging syncopated rhythms to play in a relatively fast tempo. An extended technique such as turning the mallet around from head to the shaft (and vice versa) quickly is vital to practice as the performer needs to perform that frequently throughout the piece. *Elements* presents a unique idea of contemporary solo xylophone performance, in which "contrast" is the general idea. To support that idea, the performer needs to make every sound color sound different. Generally, percussion performers depend on many kinds of mallets to create various sound colors. However, using multiple mallets is not necessary for this piece. A pair of medium-hard mallets is enough to produce all required sound colors from these two instruments. By limiting the mallet requirements, a "simplicity" is created that may make this piece more accessible. Because of *Elements'* accessibility and wide variety of colors, I believe the work will significantly contribute to the current solo xylophone repertoire.

CHAPTER 3: COLLABORATION WITH HUNTER LONG

BIOGRAPHY OF HUNTER LONG

Born in Branson, Missouri, Hunter Long's first instrument was the saxophone. He eventually developed an interest in jazz music, which resulted in his earning a bachelor's degree from the University of Missouri-Kansas City. Although he did not study music composition, Hunter developed an interest in contemporary music while in college, using his experiences in jazz as a way to approach writing contemporary music. Hunter continued his music study at the University of California-Irvine, where he studied improvisation and music technology. Hunter is currently a doctoral candidate at the University of South California, majoring in music composition, where he studies with Nina Young.

Hunter actively commissions new works and gives premiere performances to the works he commissioned. He believes that it is essential for composers to continually perform in various settings from solo to ensemble to gain a performer's perspective in performing other people's music. In 2008, Hunter founded Black House Collective, a laboratory for new music experiments, which promotes collaborations and performances between various kinds of musicians to compose new works.

Hunter has been a composer in residence at a number of festivals, including Signal Culture, the Luminary, Nief-Norf, and the Banff Centre. He has received grants from the Arts Council of Kansas City, The Ann and Gordon Getty Foundation, and The Robert Rauschenberg Foundation. In addition, he has attended several international music

festivals, including Musiikin aika in Finland, The Darmstadt International Courses for New Music, and Montreal Contemporary Music Lab.

COMMISSIONING PROCESS

After explaining to Hunter about my project to commission new percussion music, Hunter immediately expressed an interest in writing for percussion ensemble. I immediately thought this would be a great idea to create a solo xylophone work accompanied by a percussion ensemble. This way, I would still achieve my goal of highlighting the xylophone while satisfying Hunter's interest in writing for a percussion ensemble.

When thinking about solo with ensemble accompaniment work, I quickly thought of the Minoru Miki's remarkable *Marimba Spiritual*, a work for solo marimba and percussion ensemble. Inspired by the piece, I proposed the idea of writing for solo xylophone accompanied by three percussionists. I asked Hunter to write for a four-octave xylophone (an instrument with a larger range than the typical 3.5 octave instrument) with the thought that his piece could contribute to the development of solo four-octave xylophone repertoire.

Next, we discussed what percussion instruments should be included in the three percussion parts. At first, Hunter thought about having a few instruments that the three percussionists can share during the performance. However, because of COVID-19 performance protocols, we abandoned shared setups, as they encourage social distancing.

As a result, Hunter's percussion parts are self-similar in that each performer uses as set of dry, unpitched percussion instruments.

Hunter wanted his work to highlight both the xylophone and the xylophonist, exploring the sonic possibilities on the instrument while providing a vehicle for individual virtuosity. However, as he sent me a draft of the score, I found some materials that could be written better to make the piece more playable. For example, Hunter wrote many notes with very wide intervals between one to another to create a "jumping hands" visual effect intended to make the performer look "cool" while playing. While Hunter's exploration of the theatrical side of percussion performance was appreciated, the result was that his work featured too many passages with problematic hand-crossings and wide intervals—both techniques which are problematic on the xylophone. While no single passage was impossible, the density of challenging passages combined with a fast tempo made Hunter's work untenable for most percussionists. After some discussion about that with Hunter, he decided to change and cut some materials from the piece to make it more playable.

A SCORE EXAMINATION OF *WE'VE ALWAYS HAD TIME ON OUR SIDE*

We've Always Had Time on Our Side is scored for solo xylophone and percussion trio, and is a single-movement work with an approximate duration of six minutes.

In the work, the soloist plays only a four-octave xylophone. The three percussion parts include a variety of unpitched instruments including:

Percussion 1: two congas, five temple blocks, and five wood blocks.

Percussion 2: includes kick drum, snare drum, a pair of bongos, hi-hat, cowbell, and triangle.

Percussion 3: kick brake drum, two toms, two wood sounds, two glass bottles, and two metal instruments.

We've Always Had Time on Our Side begins with a solo xylophone introduction. In this section, the rhythmic texture moves from sparse to busy (figure 16). From letter A, the music goes aggressively non-stop until the end of the piece. The first two measures of letter A introduces the first recurring theme in the work. As an original jazz musician, Hunter used the standard jazz "head-improvisation" form in this work. The theme acts like the "head" and the materials that come after that is the "improvisation" part. Figure x shows the "head-improvisation" relationship where letter A is the theme (or the "head") and letter B is the "improvisation" to the theme. The theme comes back at letter C, followed by the "improvisation" part on the second half of section C. This pattern is repeated multiple times throughout the piece with other new themes.

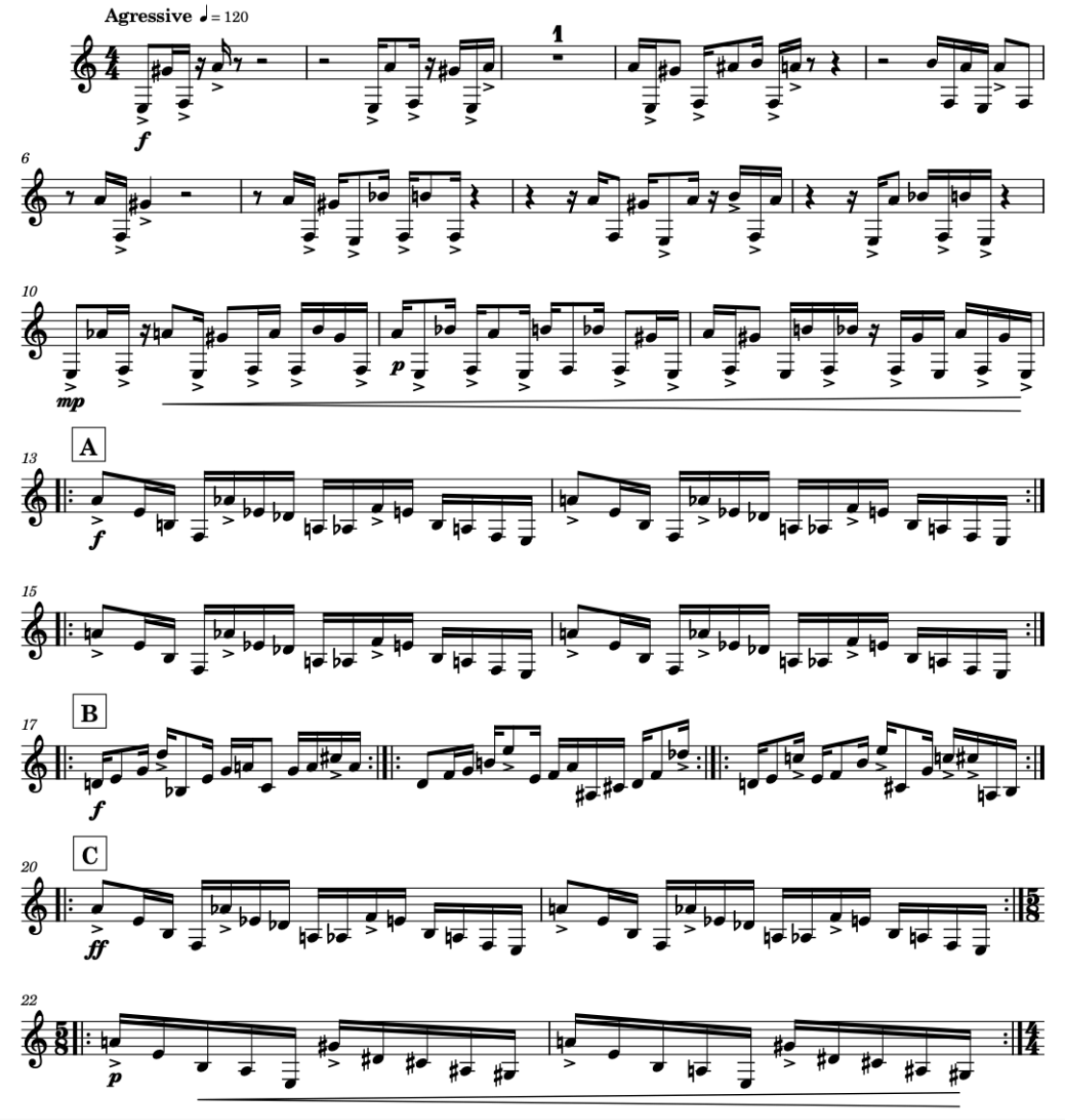

Figure 16 (mm.1-19): opening of *We've Always Had Time on Our Side* (xylophone).

A new theme is introduced towards the end of the piece in mm.114-117 (figure 17). Followed by a two bars rest, the music continues with some “improvisation” from the new theme until the end of the piece. Hunter adds more and more 16th notes to the rhythm to create a rush from this point. Simultaneously, the dynamic gets louder and louder in every section until the music suddenly ends on an accented low G in *fortississimo* dynamic.

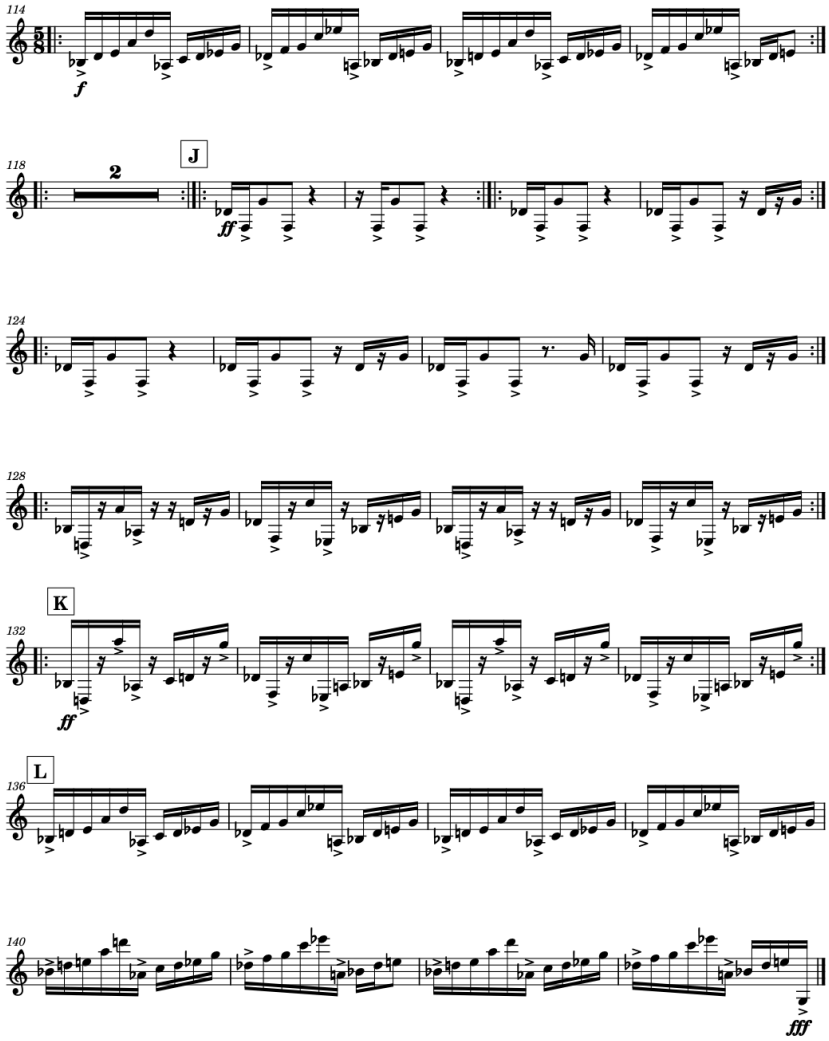

Figure 17 (mm.114-143): closing of *We’ve Always Had Time on Our Side* (xylophone).

Besides writing the "head-improvisation" pattern that frequently occurs in the piece, Hunter uses the number five as an organizing principle in the work. Notes are often grouped in fives, even when they are written in a simple meter. This grouping is first seen at letter A , where a five note downward passage is part of a constant 16th note . The five-note grouping becomes more obvious in the 5/8 meter (figure 16: m.22). Hunter used another way to use the concept of "five" to write some sections in 5/4 meter when there is no five-notes grouping material as seen in letter F (figure 18). There is no particular meaning behind the use of "five" in this piece. When asked why he used this concept of "five" a lot in the piece, he answered, "because I love five!" [3] However, a few sections are written in non-five related meter (3/4 and 7/8). Those sections give a sense of interruption to the ongoing "five" structure.

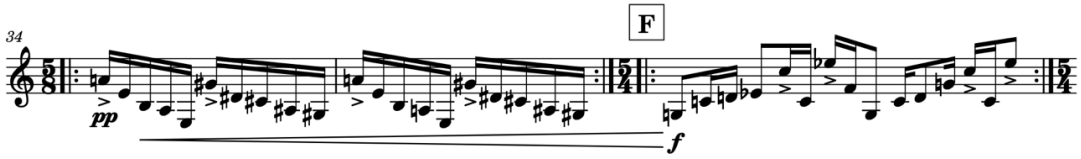

Figure 18 (mm.34-35): transition from 5/8 to 5/4.

The three percussion parts' primary role is to provide an accompanimental texture. Within the work, the percussionists are never called upon to play without the xylophone. In general, the percussion parts are much simpler and straightforward than the xylophone part, featuring simple, repetitive rhythms and idiomatic passages. There are many repetitions of simple rhythm throughout the piece. The percussionists are free to set up

[3] Interview with the author.

the instrument at their comfort level. The sticks and mallets choice are to be determined by the percussionists.

CONCLUSION

We've Always Had Time on Our Side is an energetic piece that requires the performer's complete concentration. Because the piece is organized as an alternation between thematic statements and improvisatory passages, the performer should endeavor to always make the theme clearly audible.

Although the piece does not employ any extended technique to produce any extraordinary sound from the xylophone, it can show what the xylophone can do as a solo instrument. In contrast to the repetitive materials on the percussion parts, the xylophone's part is virtuosic, extroverted and visually highlighted. Lastly, *We've Always Had Time on Our Side* offers something that did not exist before: a contemporary solo xylophone with percussion ensemble. I hope this will inspire more composers to promote the xylophone as a solo instrument in a contemporary percussion ensemble.

FINAL CONCLUSION

As I reflect on my experience working with the composers, I thought of several things that work well and some processes that could have been done better. In general, I thought working with composers was a great way to expand the repertoire. By introducing the instruments and playing techniques associated with them to composers, performers can create greater awareness of their instruments. While this project focused on the xylophone and glockenspiel, I feel it is the duty of percussionists to share knowledge of both Western and non-Western percussion instruments with composers, to both diversify our repertoire and to create greater cultural awareness about how percussion instruments are inexorably linked to cultures around the globe.

During the project, we spent much time discussing the instruments' characteristics and idiomatic techniques. Sometimes the musical ideas that the composers wrote could not be performed on the designated instrument because of some technical challenges. I learned from this experience not to be afraid to speak up and say "No, it does not work" to the composers. For the works that I commissioned, I had to say "No" a few times, not only when the written materials could not be executed but also when the works did not fit my playing skill. Frankly, it was challenging to find the level where their musical ideas could meet the possible playing technique. It was also challenging to make changes while keeping the composer's original musical ideas. Good communication between the composers and me was required in order to create works that are accessible.

That said, this project could have been aided by starting earlier. As I discovered, collaboration can take a long time, with busy schedules and other unforeseen circumstances adding time to the typical composition and workshopping process. At the same time, this project could have been aided by firmer deadlines to help keep everyone on track. Being flexible to the timeline is important as there are many things to consider before calling the work. Multiple reading and practice through the piece to find any errors and to make sure that the work is playable may prolong the collaboration process. While following the planned timeline is important, both performers and composers should allocate more time in order to do accommodate the unexpected changes to the process. Including all the deadlines and plans in a contract is highly recommended.

I wish to continually maintain a good relationship with each composer and look forward to another possible future collaboration. I plan to promote the works by performing them whenever I have the opportunity to do so. My other plan includes collaborating with other composers, including composers who are percussionists, and to create more solo work for other underutilized percussion instruments. It is also my goal to collaborate with composers from the under-represented population to promote diversity.

I hope that the three works I commissioned can contribute to the percussion field, especially to the expansion of the glockenspiel and xylophone solo works. It is also my wish that *fitful machinery*, *Elements*, and *We've Always Had Time on Our Side* increase performers' interest in solo repertoire for the glockenspiel and xylophone.

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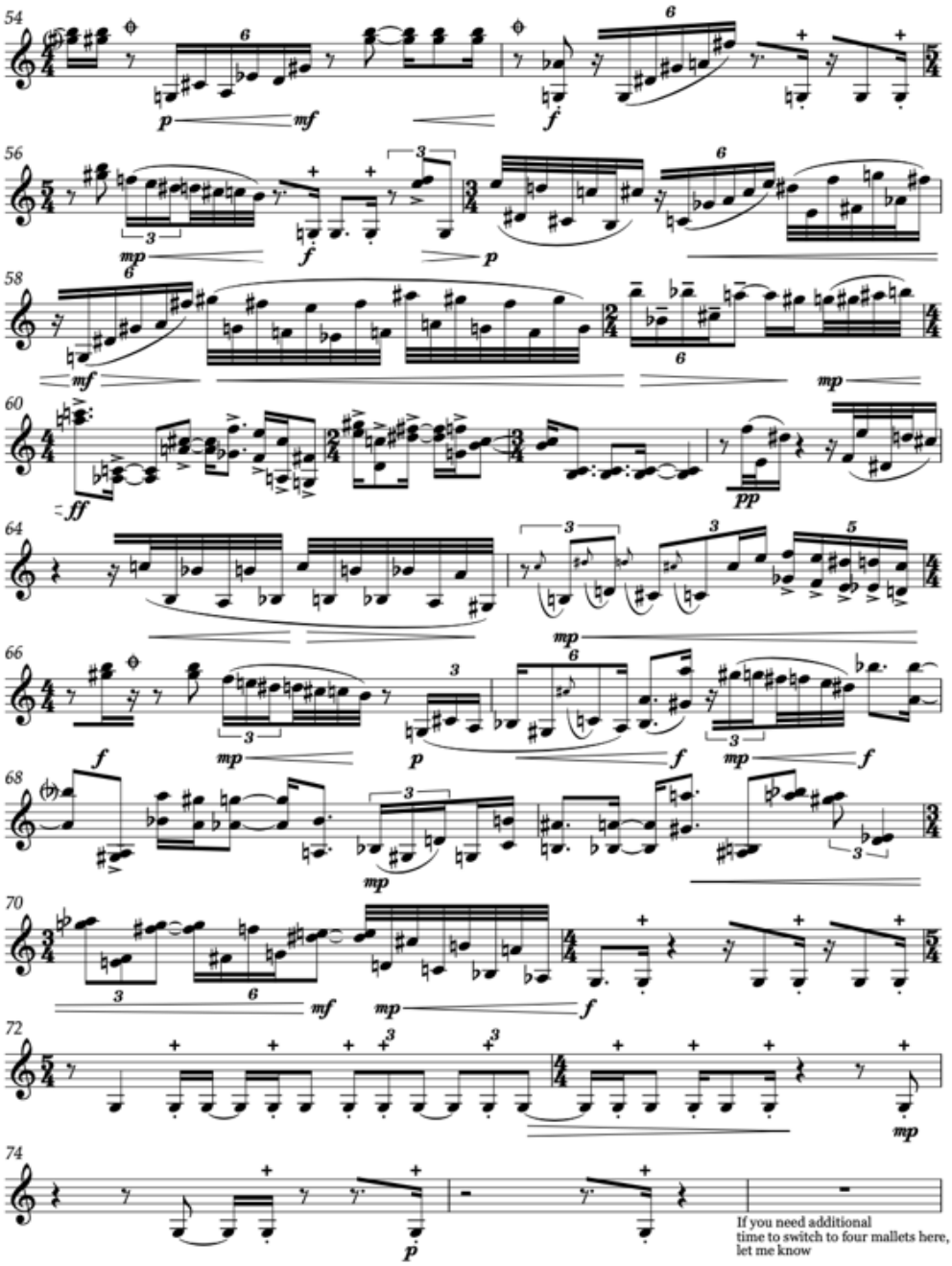
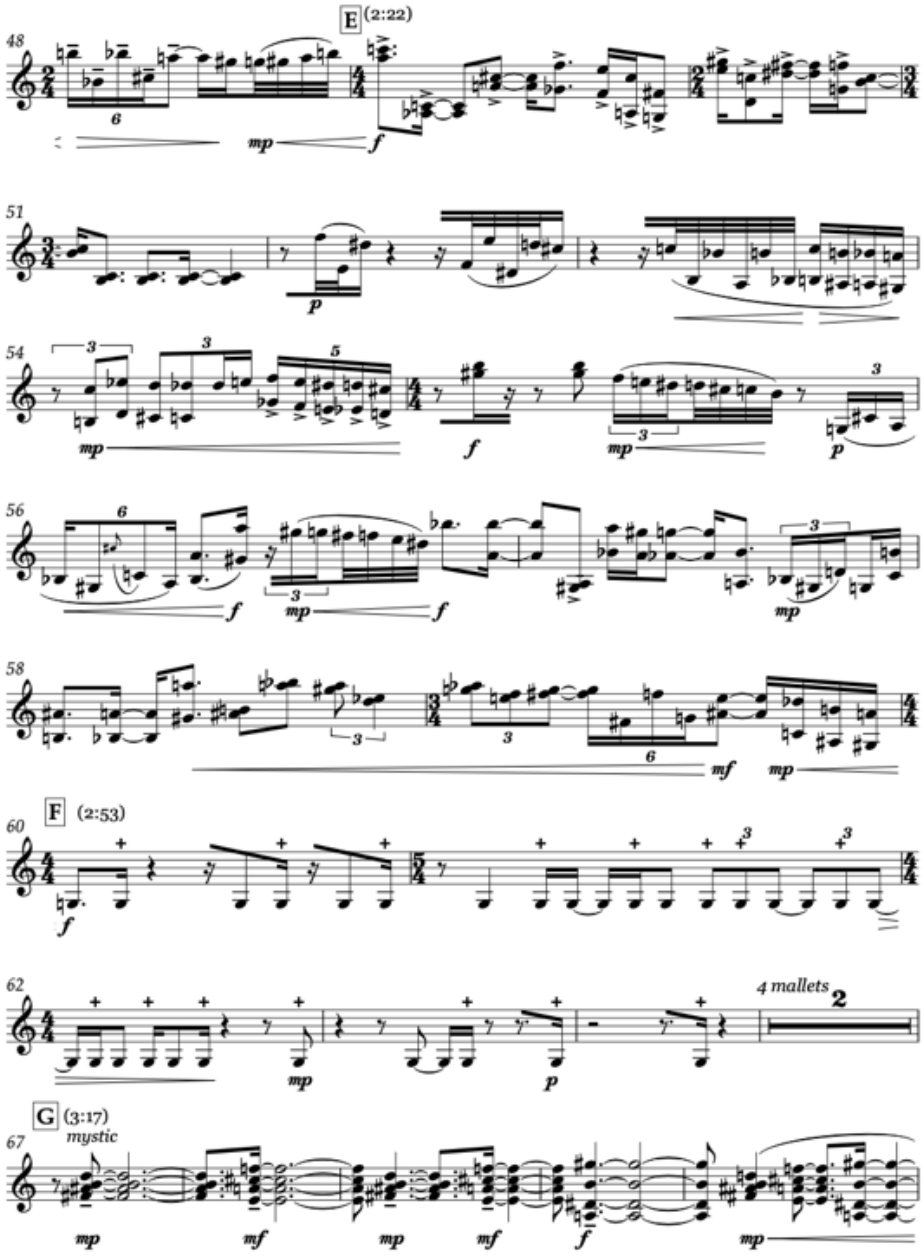
APPENDIX A

SCORE EXCERPT COMPARISON BETWEEN THE ORIGINAL AND FINAL GLOCKENSPIEL MATERIALS ON *fitful machinery* BY NICK BENTZ



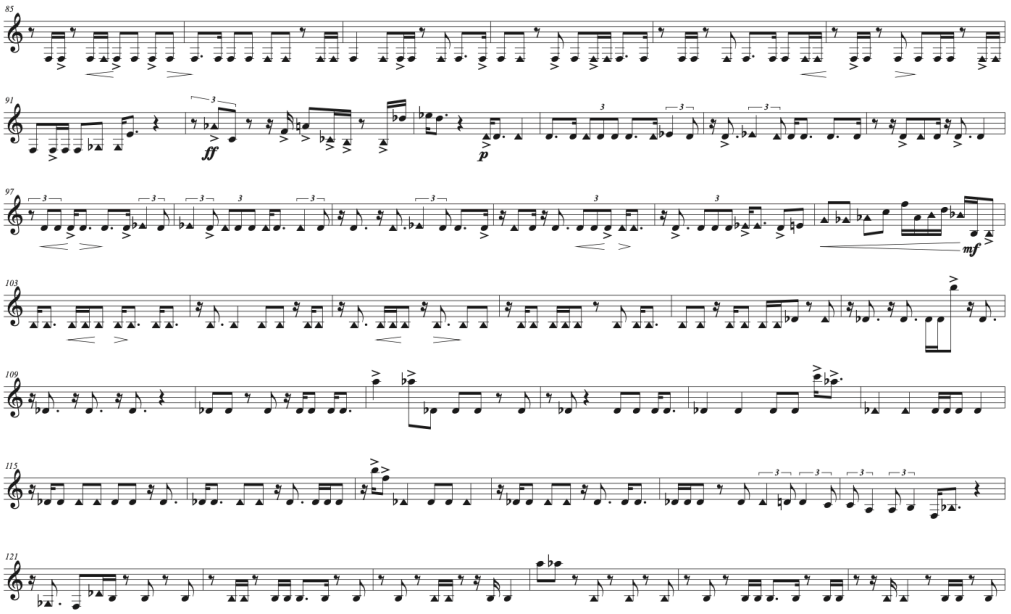
Original materials on *fitful machinery* (mm.54-76)



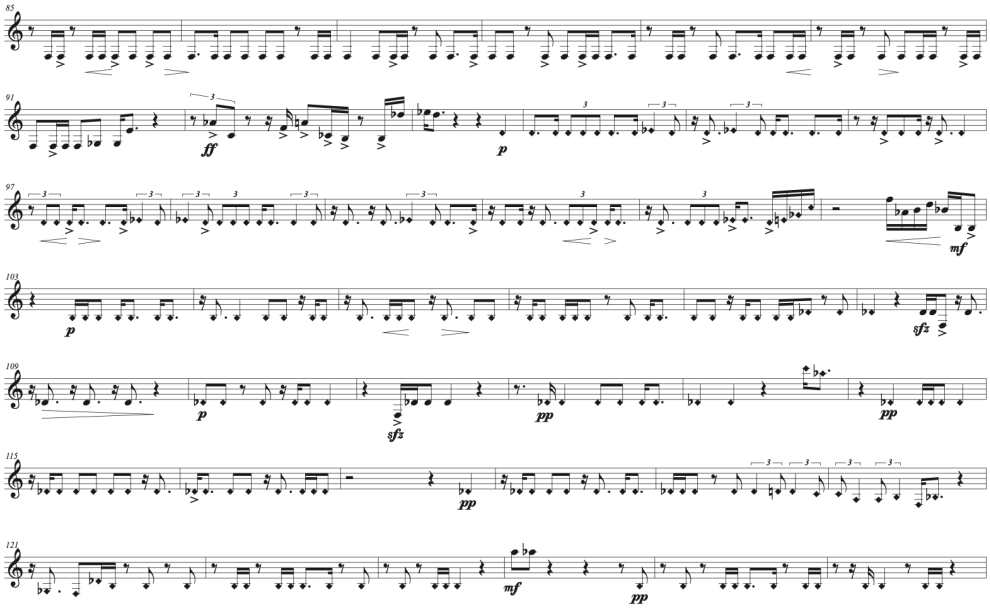
Final materials on *fitful machinery* (mm.48-71)

APPENDIX B

SCORE EXCERPT COMPARISON BETWEEN THE ORIGINAL AND FINAL MATERIALS ON *ELEMENTS* BY ASHLEE BUSCH



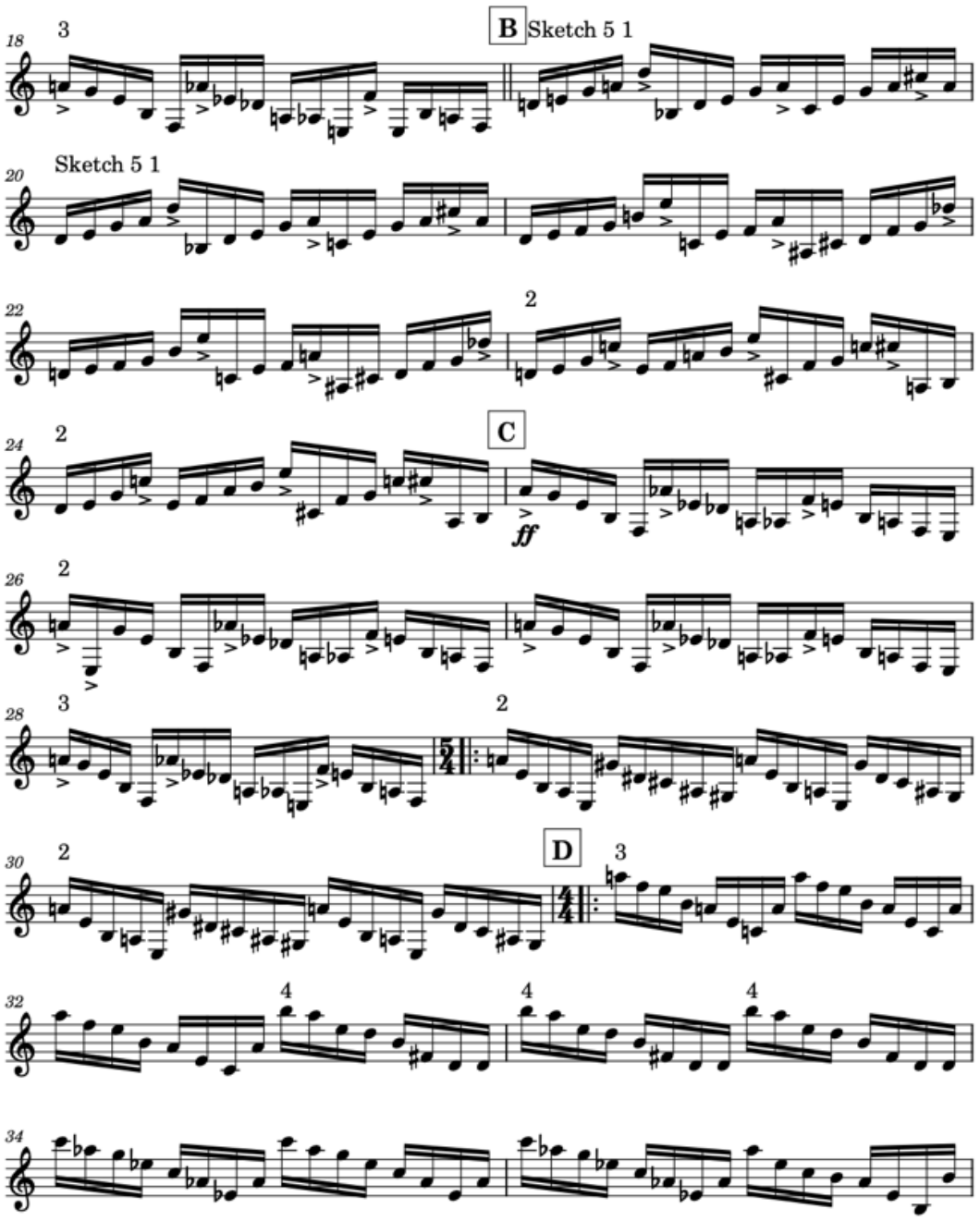
Original materials on *Elements* (mm.85-126)



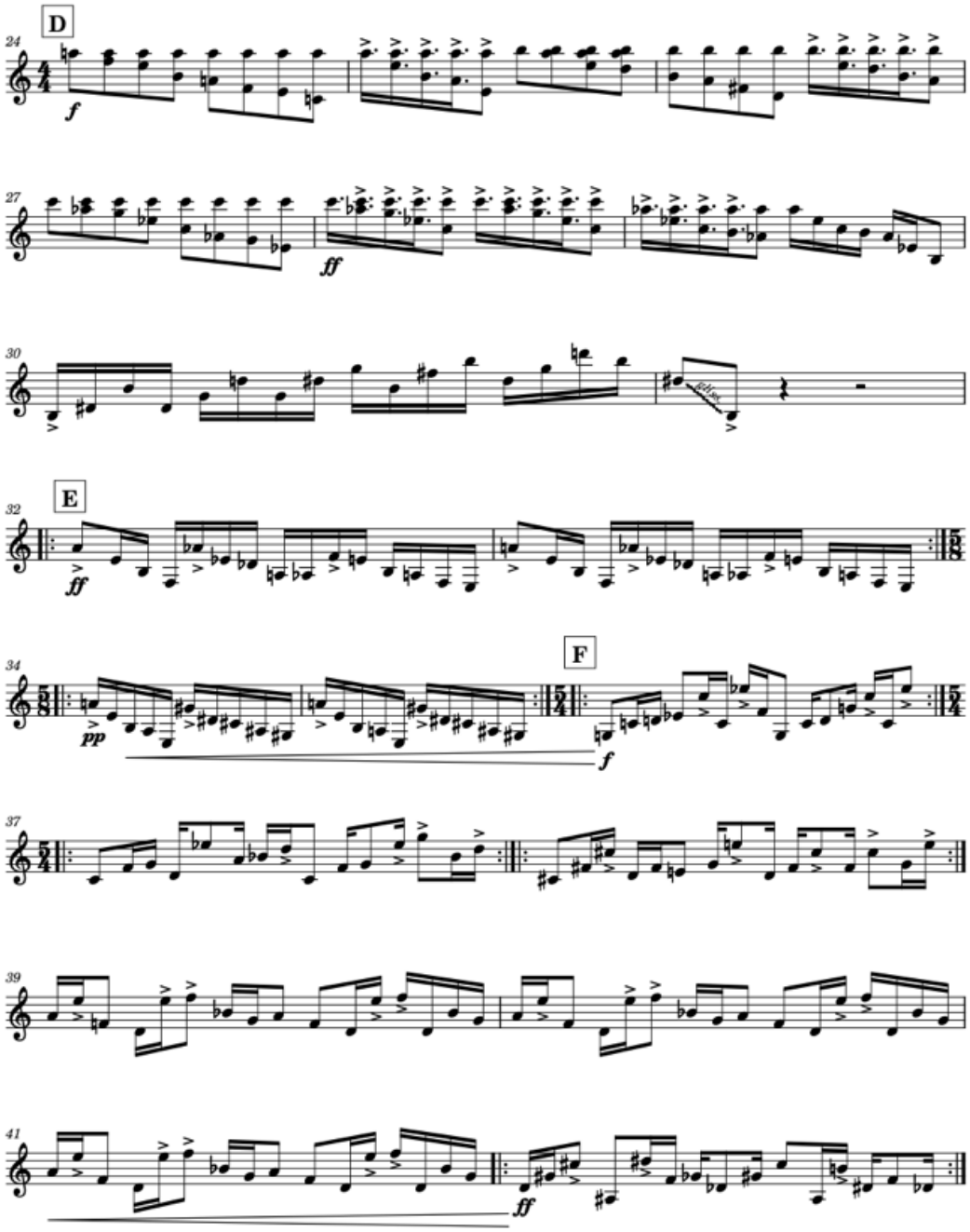
Final materials on *Elements* (mm.85-126)

APPENDIX C

SCORE EXCERPT COMPARISON BETWEEN THE ORIGINAL AND FINAL XYLOPHONE MATERIALS ON *WE'VE ALWAYS HAD TIME ON OUR SIDE* BY HUNTER LONG



Original materials on *We've Always Had Time on Our Side* (mm.18-35)



Final materials on *We've Always Had Time on Our Side* (mm.24-42)

APPENDIX D

IMAGES OF ORIGINAL AND FINAL SET UP FOR *ELEMENTS* BY ASHLEE BUSCH

Original set up for *Elements*

Final set up for *Elements*

APPENDIX E

FULL SCORE OF *fitful machinery*

BY NICK BENTZ

instrumentation

--glockenspiel (2.5 octaves)
Required Materials
-4 mallets
-2 metal wire brushes

--pre-recorded electronics (2-channel, stereo diffusion)
Required Materials
-1 Computer with multi-track Digital Audio Workstation (DAW)
-1 Audio interface with connection to Computer
(4x4 audio interface)
-2 speakers (stage left and stage right)
-2 cables (XLR) to connect audio interface to speakers
-1 earbud (for clicktrack)

For access to electronic materials, visit: https://www.nicholasbentz.net/fitful-machinery-electronics.html and/or contact Nick Bentz (nicholasbentzmusic@hotmail.com - (843) 364-5092)

performance notes

+ - dampen the bar with one hand while striking it with the other

-accidentals last through the bar without octave displacement

-glissandi last the entire duration of the note marked

-practice tracks are included to aid the player's coordination with the electronics. Track numbers are as follows:

-1: m. 1 – A	-5: D – E	-9: H – I
-2: A – B	-6: E – F	-10: I – J
-3: B – C	-7: F – G	-11: J – K
-4: C – D	-8: G – H	-12: K – end

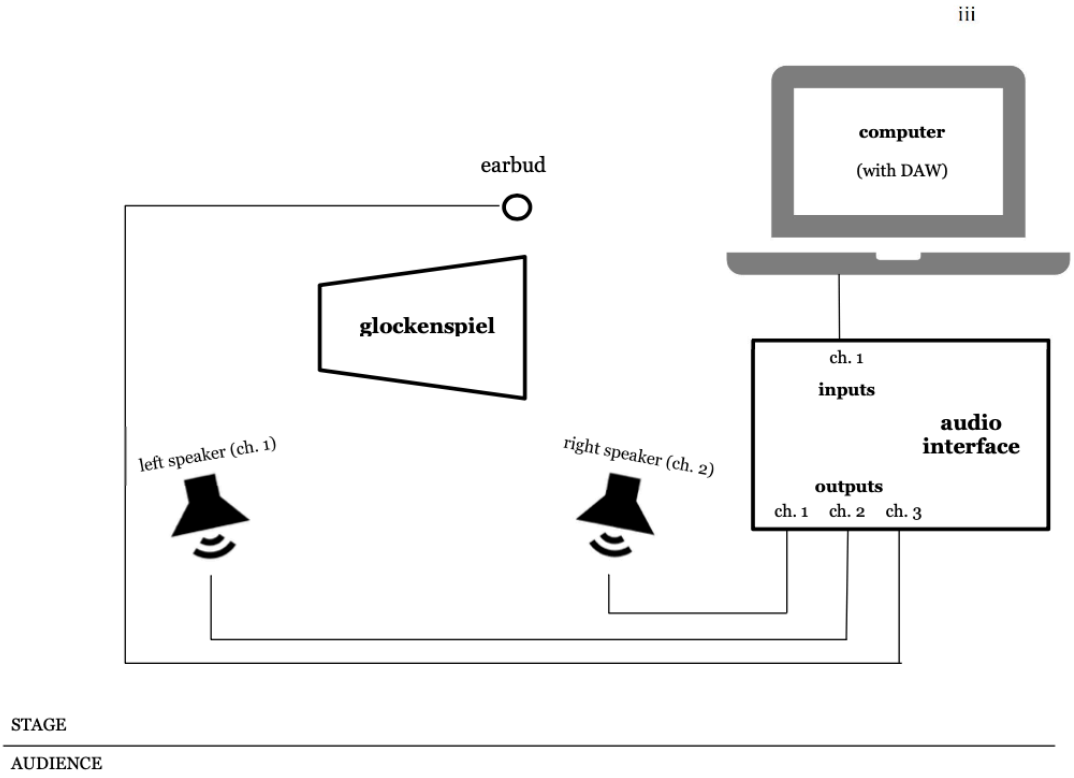
-timestamps at figure numbers correspond to the electronic track

program note

fitful machinery is a piece that is interested in spurts and stammers. Materials attempt to catch on and propel the piece forward but are constantly frustrated. Eventually, soundscapes of resonance are built up by the glockenspiel, but even this effort at construction may fall short. *fitful machinery* was written for Egha Kusuma.

DURATION: 7'

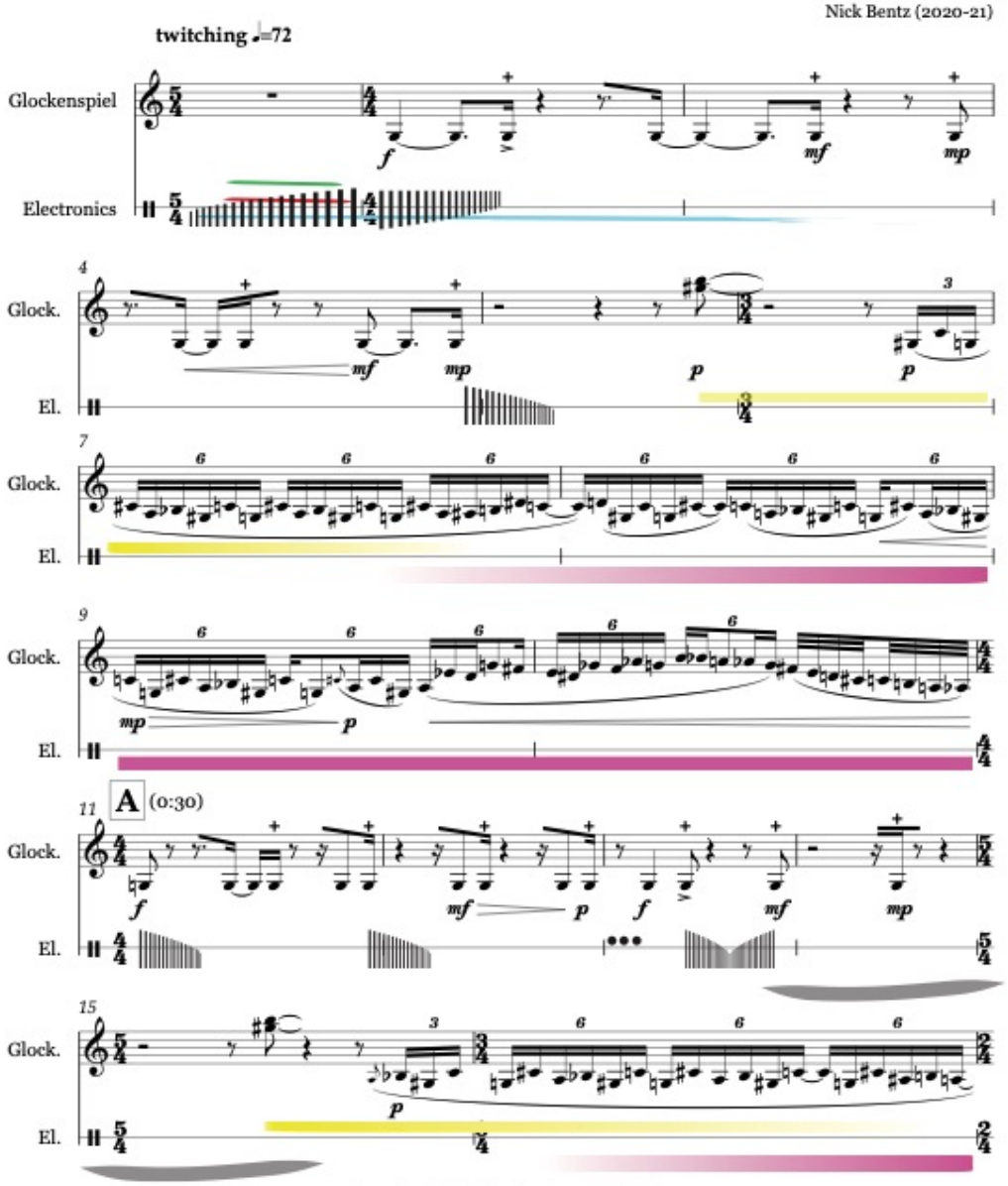
Audio Set Up Diagram

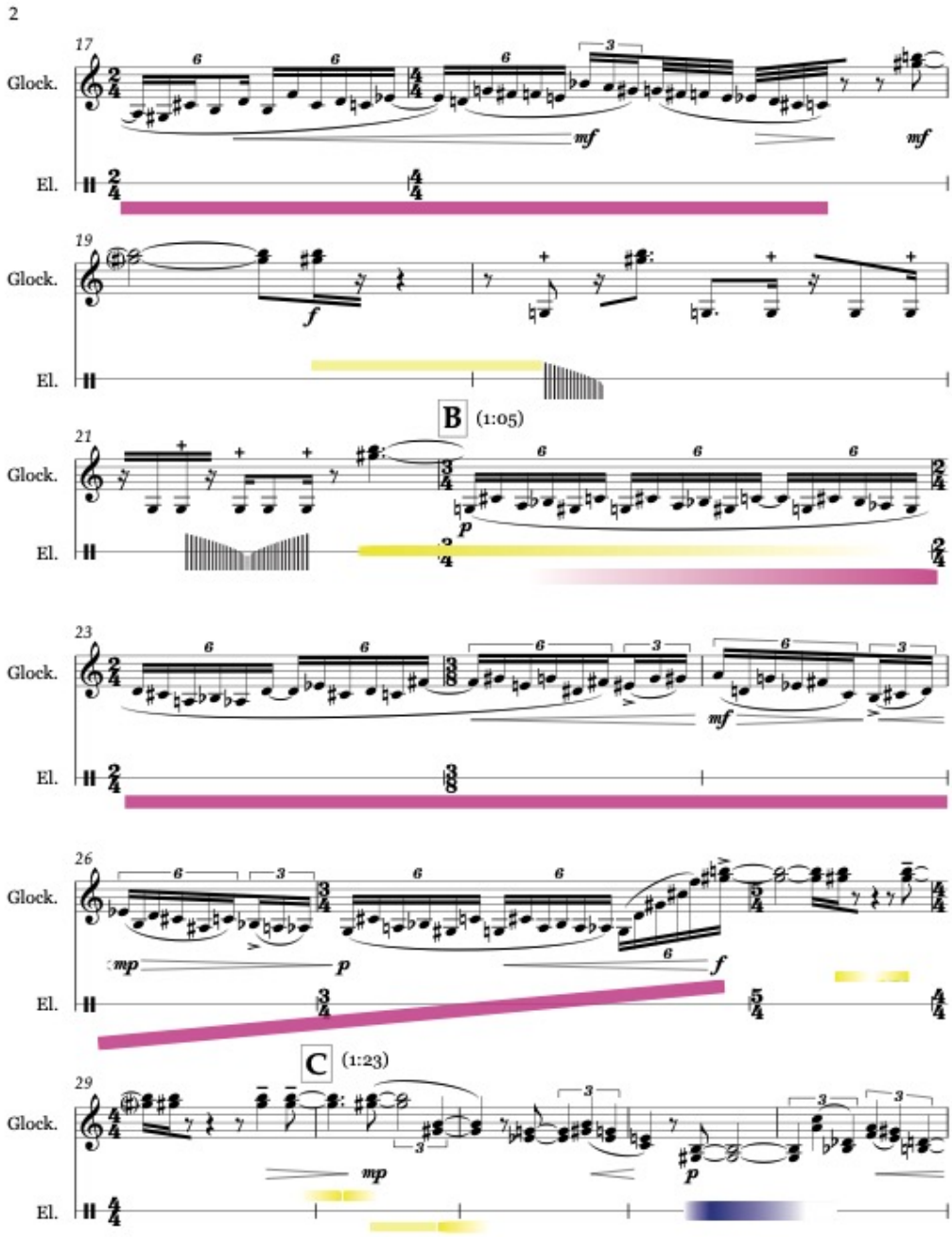


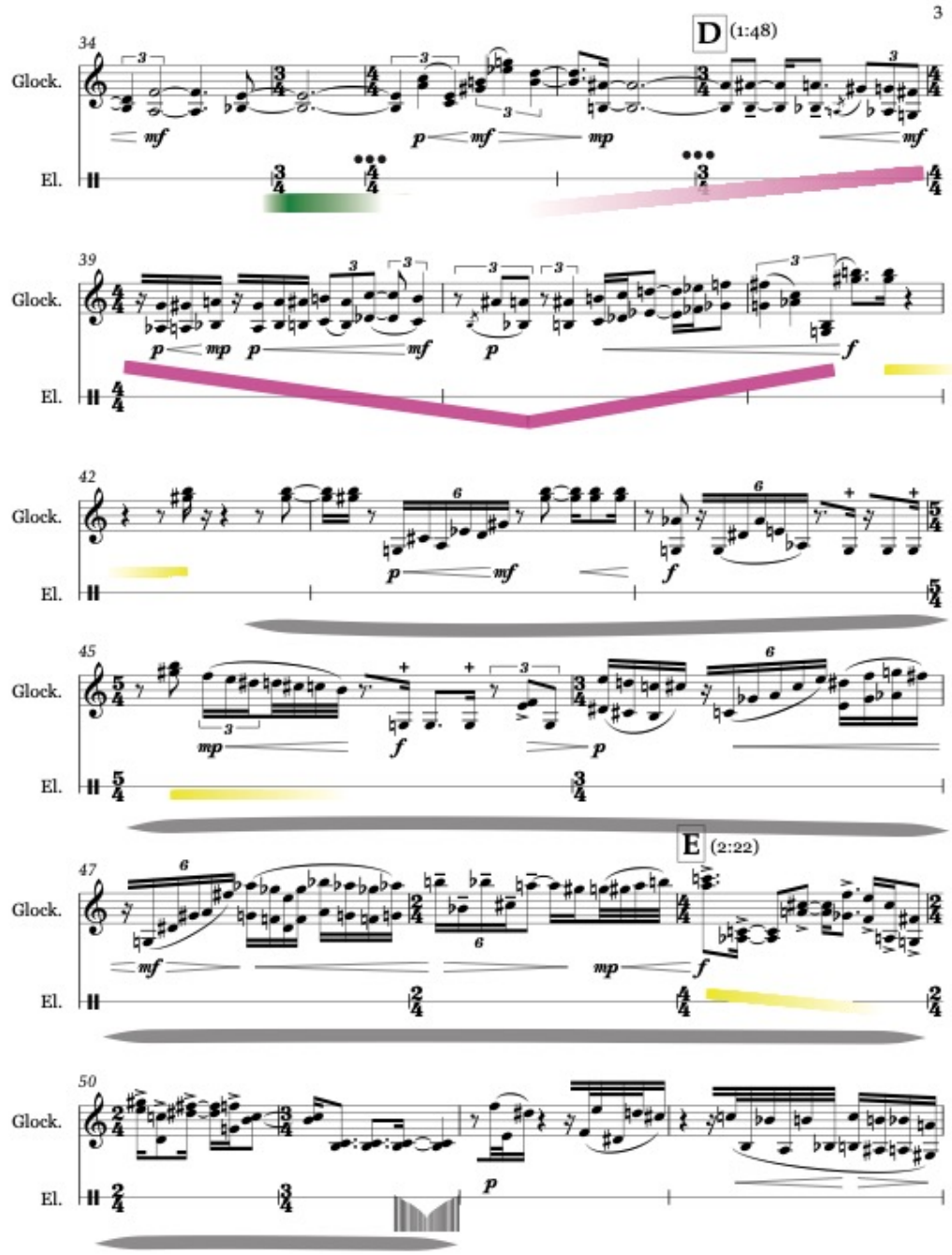
written for Egha Kusuma

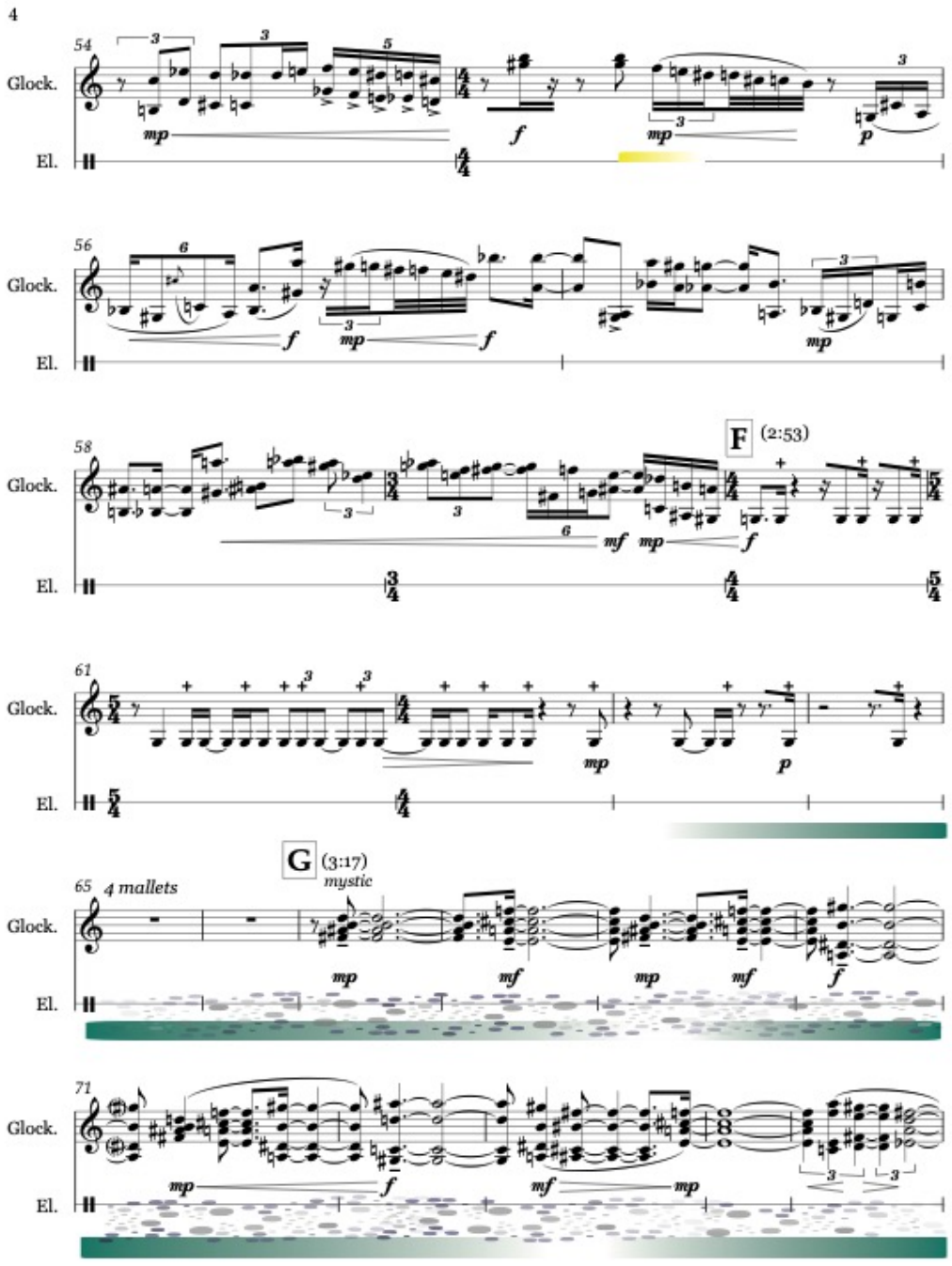
fitful machinery

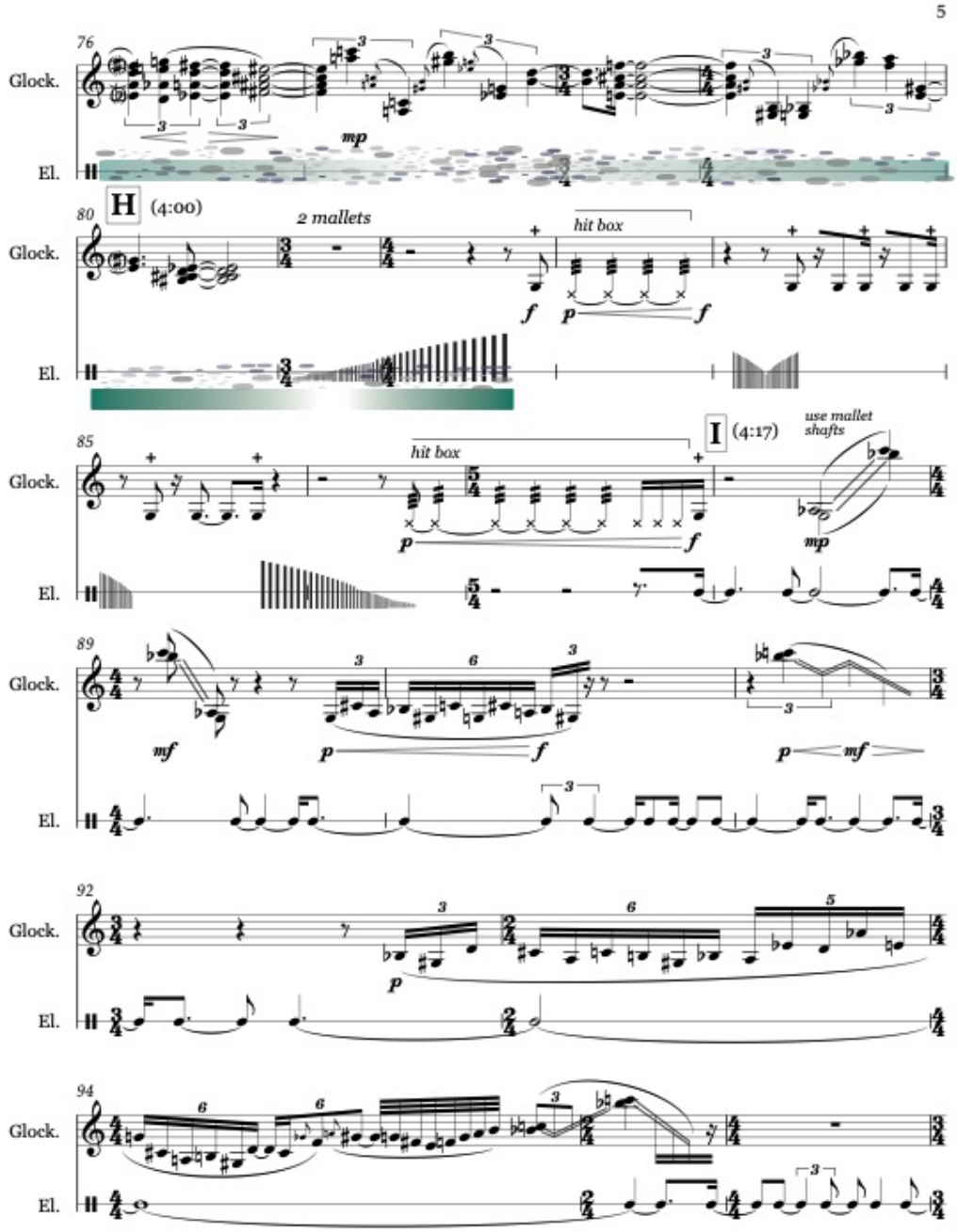
Nick Bentz (2020-21)

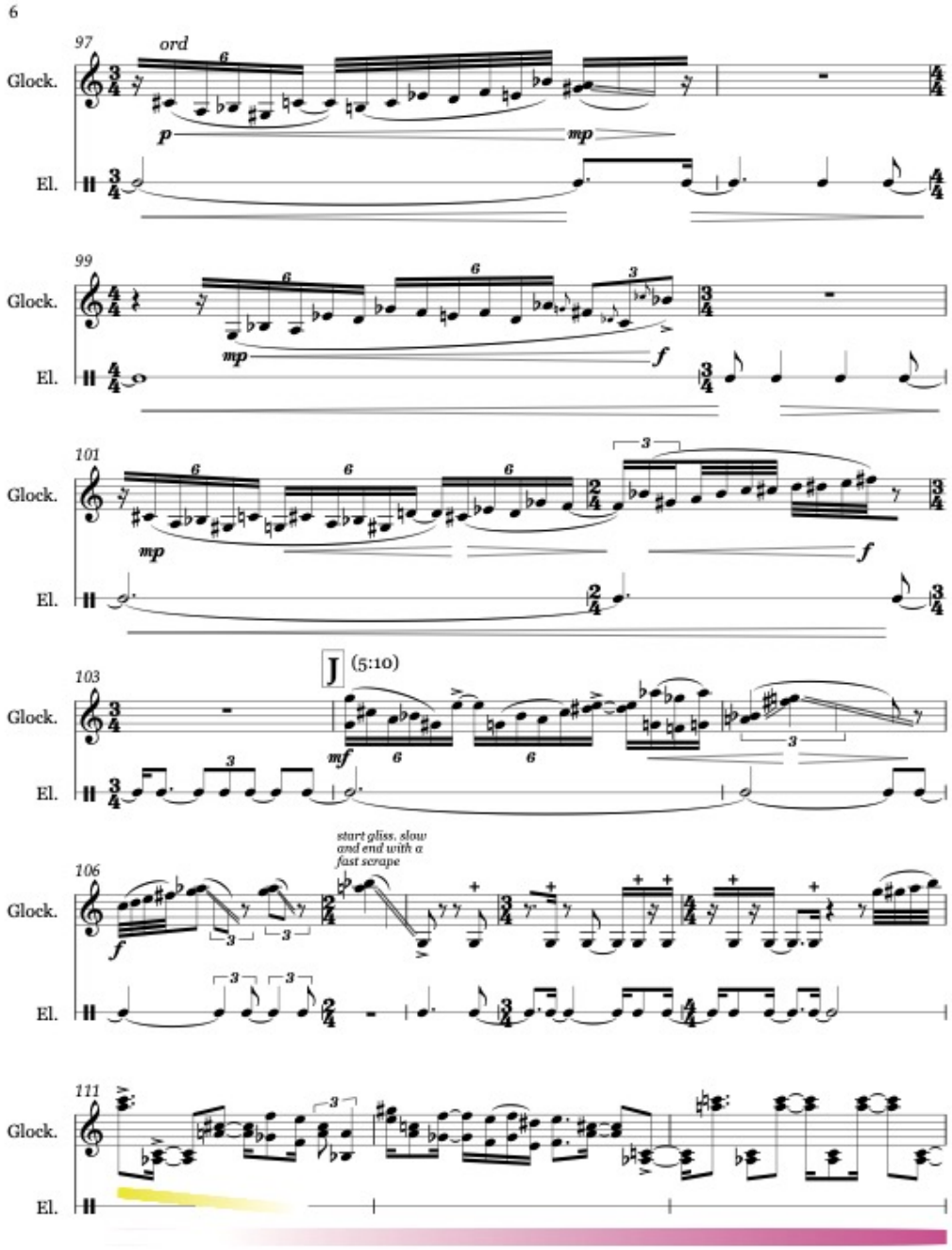


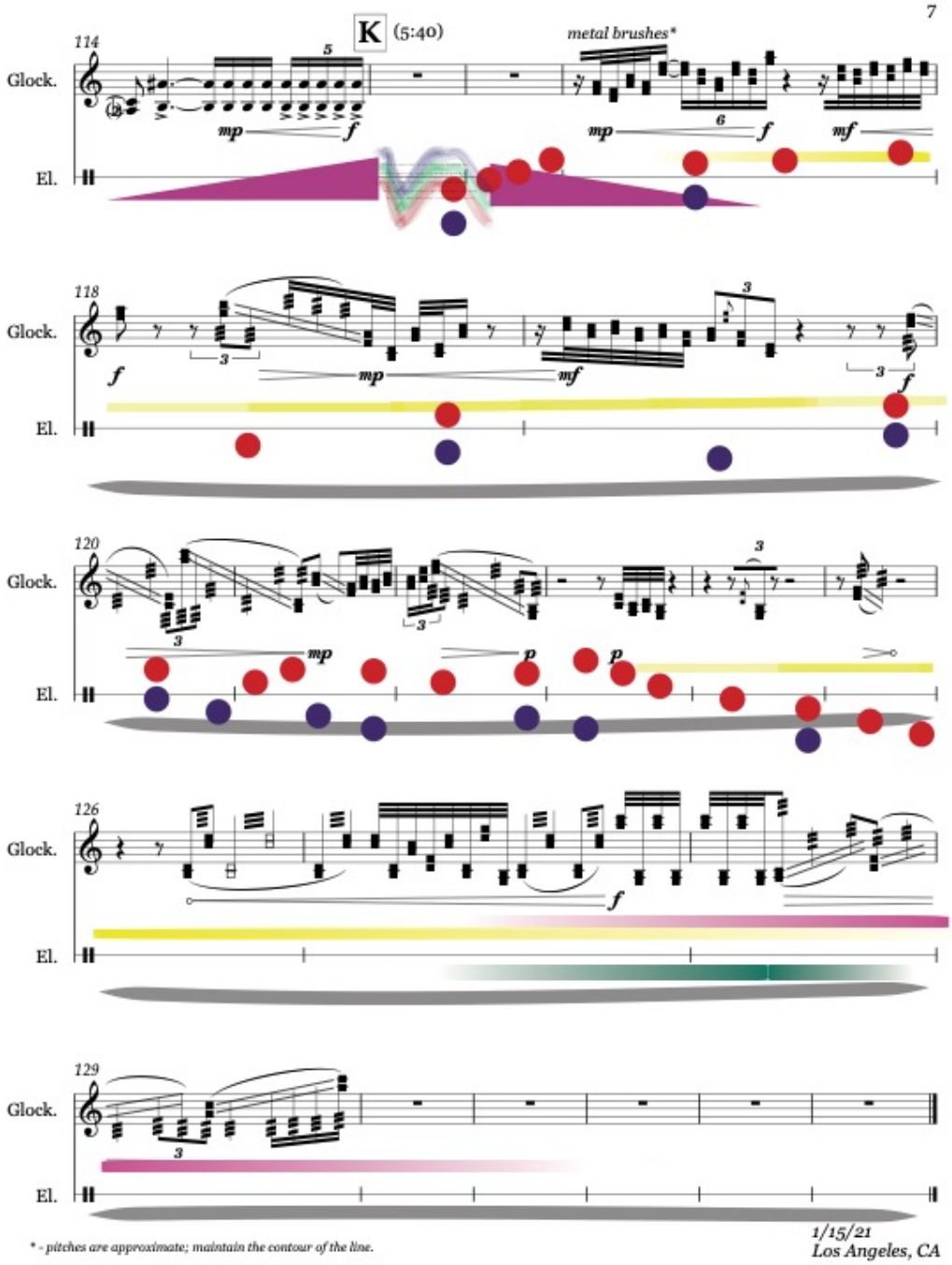

2
17
Glock.
El.
mf
mf
19
Glock.
El.
f
B (1:05)
21
Glock.
El.
p
23
Glock.
El.
mf
26
Glock.
El.
mp
p
f
C (1:23)
29
Glock.
El.
mp
p


3
D (1:48)
34
Glock.
El.
39
42
45
E (2:22)
47
50


4
54
Glock.
El.
mp
f
mp
p
56
Glock.
El.
f
mp
f
mp
58
Glock.
El.
F
(2:53)
mf
mp
f
61
Glock.
El.
mp
p
G
(3:17)
mystic
65
4 mallets
Glock.
El.
mp
mf
mp
mf
f
71
Glock.
El.
mp
f
mf
mp


76
Glock.
El.
mp
80
H
(4:00)
2 mallets
hit box
f
p
f
85
hit box
I
(4:17)
use mallet shafts
p
f
mp
89
mf
p
f
p
mf
92
p
94


6
97
ord
Glock.
El.
p
mp
99
mp
f
101
mp
f
103
J
(5:10)
mf
106
start gliss. slow and end with a fast scrape
f
111


K (5:40)
metal brushes*
114
Glock.
El.
118
120
126
129
* - pitches are approximate; maintain the contour of the line.
1/15/21
Los Angeles, CA

APPENDIX F

FULL SCORE OF *ELEMENTS*

BY ASHLEE BUSCH

This piece is dedicated with much love to my friend and colleague, Egha Kusuma.

Performance Notes:

- If the player is unable to perform the piece at the listed tempo, the speed may be reduced by up to 20bpm.

- Diamond note heads indicates to strike with the shaft of the mallet
  Ex. Measure 67

- Note heads on percussion clef staff indicate to play on the body/frame of the instrument
  Ex. Measure 169

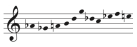
- The crotales should be set up as low to the ground as possible to allow for performing the post-cadenza

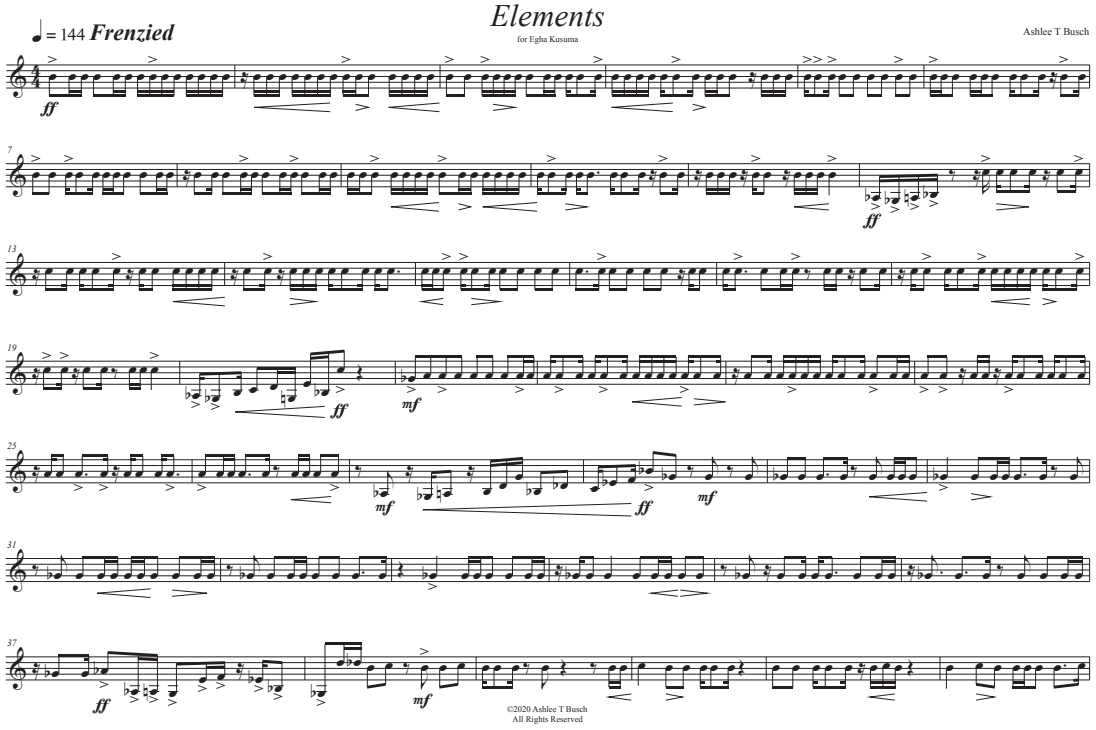
- Crotales pitches are indicated with square notation
  Ex.

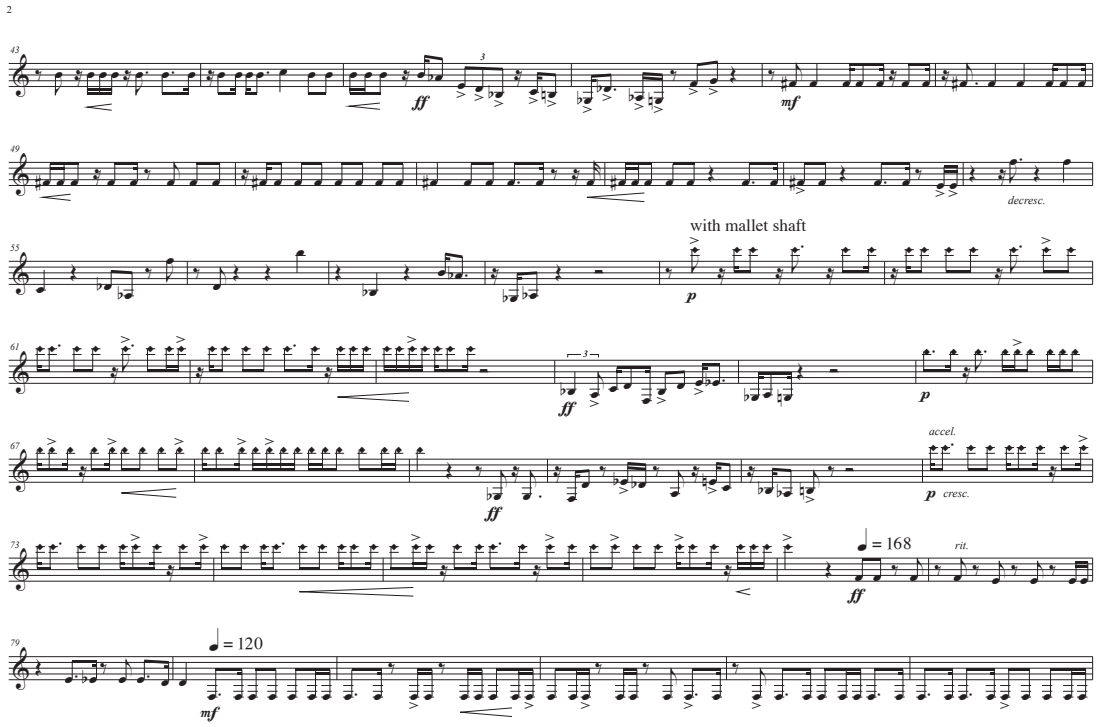
- Crotales pitches needed are: F4, Gb4, G4, Ab4, A4, Bb4, B4, D5

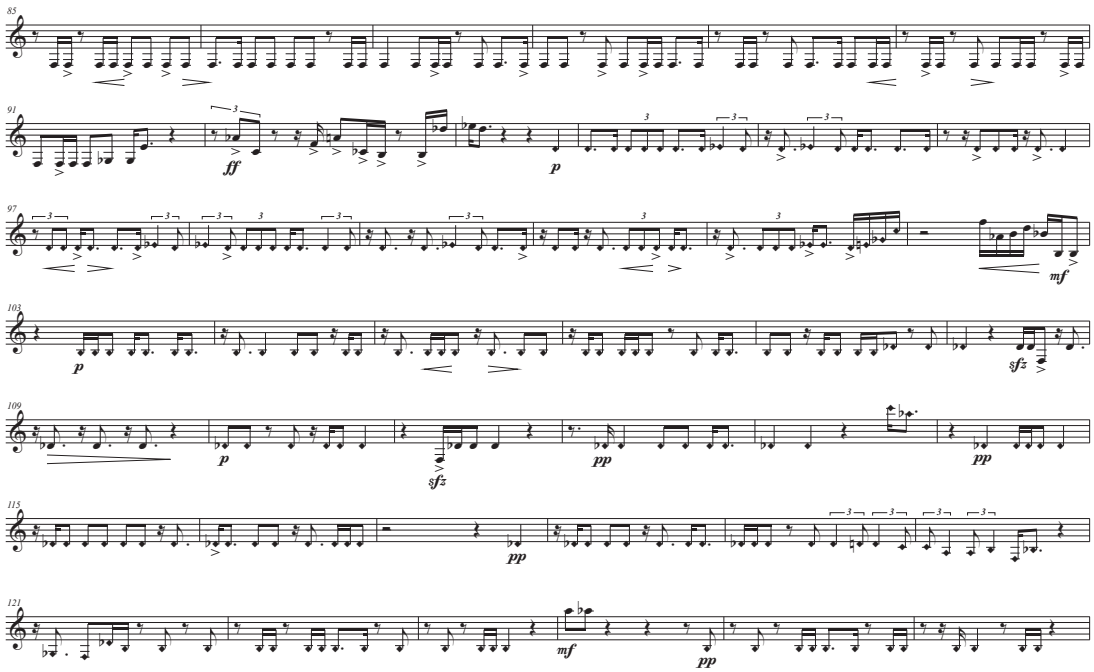
- **CADENZA** (Measure 196)
  The cadenza should be performed on any part of the instrument, with any mallet variation, pitched on non-pitched, as the performer deems fit. Pitched material must be performed in the order of the row either in prime form or retrograde. Partial performance of the row, octave transposition, and repeated notes are permitted. Material should become more virtuosic and utilize greater range as the cadenza progresses. Duration is whatever the performer deems atmospherically suitable in keeping with the graphic notation.

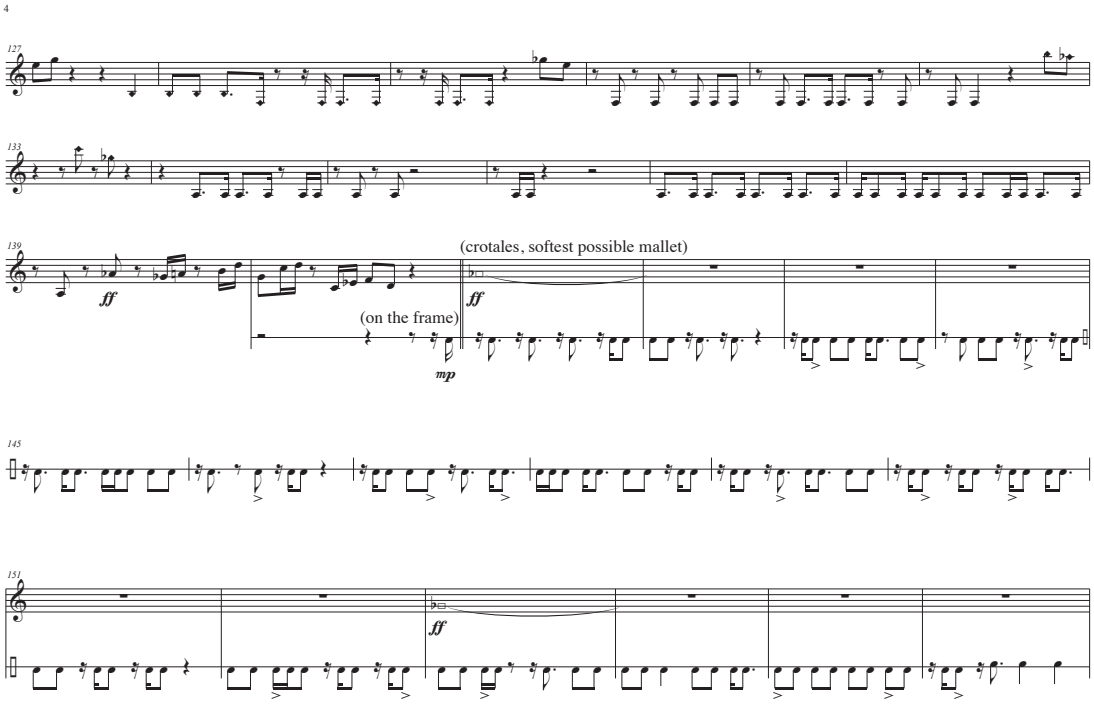
- **POST-CADENZA**
  Player should perform the crotale pitches following the cadenza with enough time to slowly sit behind the xylophone (movement should be natural, not fast) Each non-measured line should begin with a resounding strike on the crotales and the following rhythms are performed on the resonators of the xylophone. Player should repeat the indicated figures as many times as desired but complete playing once the crotales' pitches have died. This entire section may be repeated once if desired.

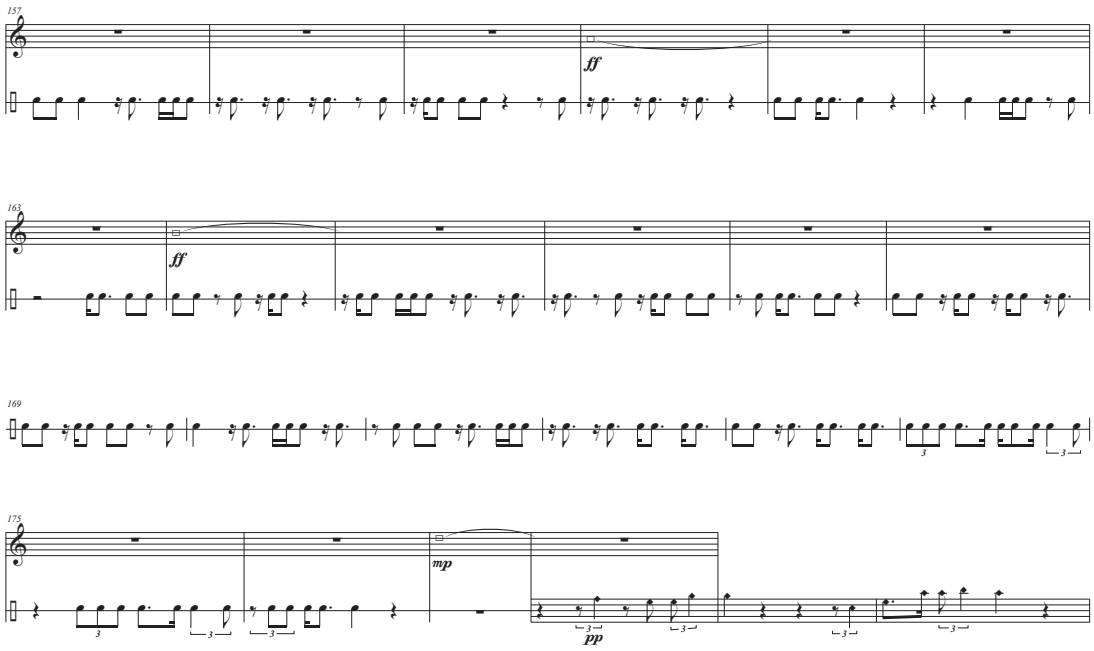
ROW: 

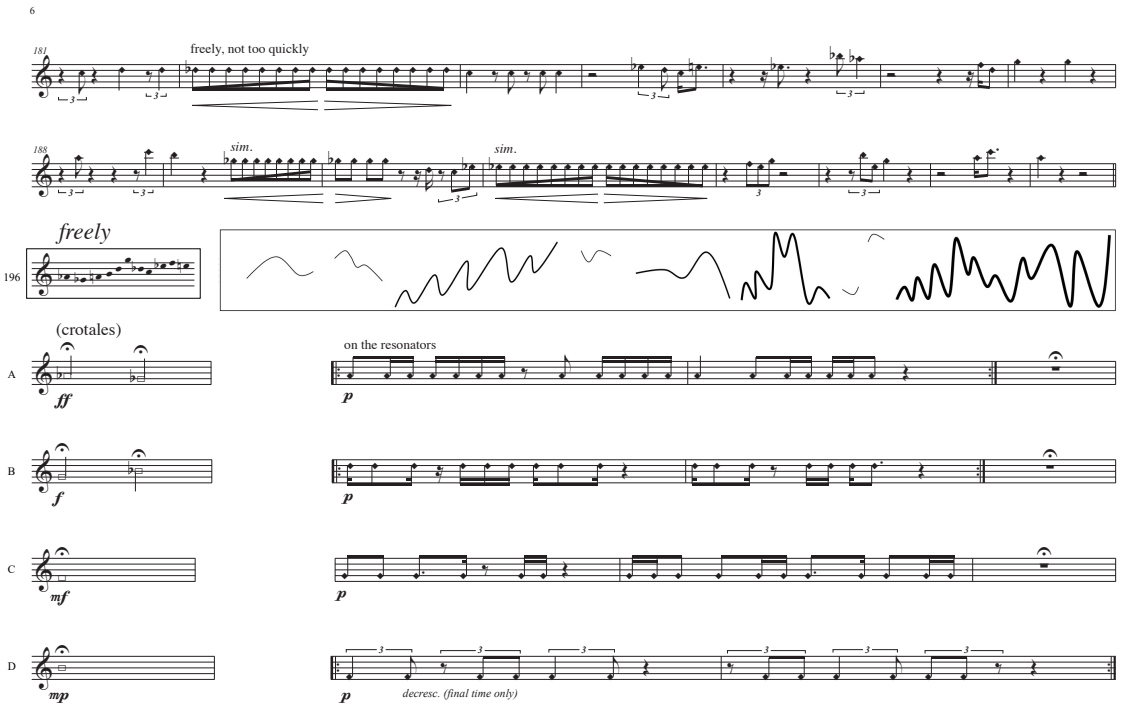

Elements
for Egha Kusuma
Ashlee T Busch
♩ = 144 Frenzied
ff
mf
©2020 Ashlee T Busch
All Rights Reserved


2
43
ff
mf
49
decresc.
55
with mallet shaft
p
61
ff
p
67
accel.
ff
p cresc.
73
= 168
rit.
ff
79
= 120
mf


85
91
ff
p
97
mf
103
p
sfz
109
p
sfz
pp
pp
115
pp
121
mf
pp


4
127
133
139
ff
(on the frame)
mp
(crotales, softest possible mallet)
ff
145
151
ff


157
ff
163
ff
169
175
mp
pp


6
181
freely, not too quickly
188
sim.
sim.
freely
196
(crotales)
ff
on the resonators
p
A
f
p
B
mf
p
C
mp
p
decresc. (final time only)
D

APPENDIX G

FULL SCORE OF *WE'VE ALWAYS HAD TIME ON OUR SIDE*

BY HUNTER LONG

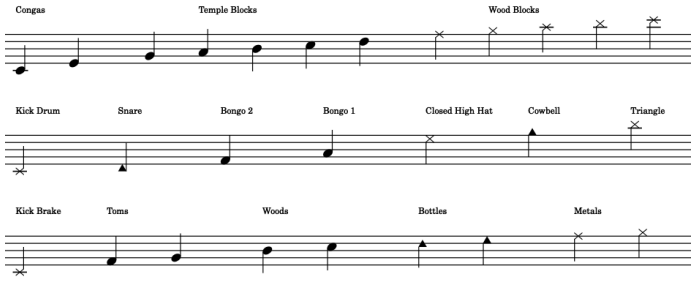
Instrumentation

Player 1
Xylophone

Player 2
Congas(2)
Temple Blocks(5)
Wood Blocks(5)

Player 3
Kick Drum
Snare
Bongos(2)
Hi-hat (closed)
Cowbell
Triangle

Player 4
Kick Brake Drum
Toms(2)
Woods(2)
Bottles(2)
Metals(2)



Performance Notes

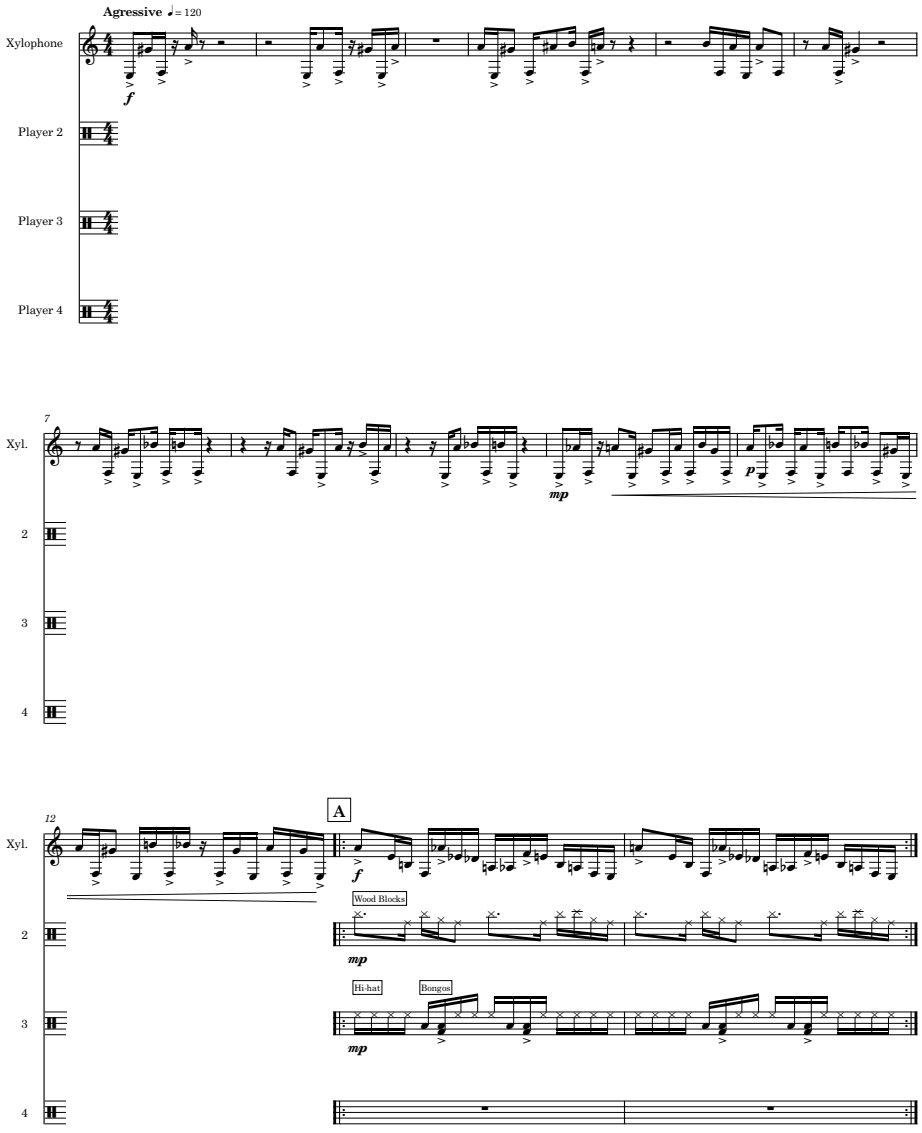
The instruments referenced as "Woods", "Bottles," and "Metals" are at the players discretion. Woods should be the lowest of the set. Wine bottles would work well and the metals should not be resonant.

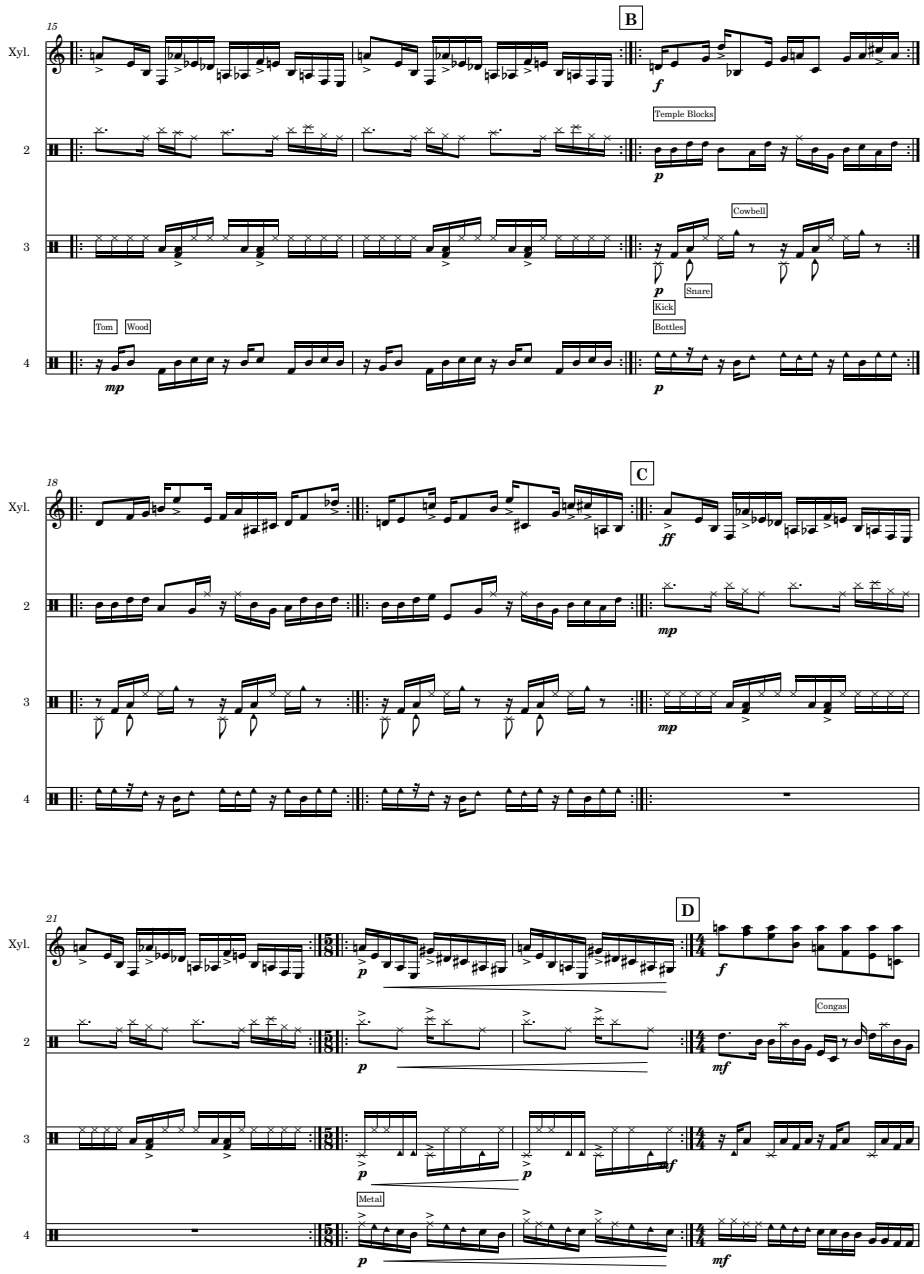
Duration 6'00"

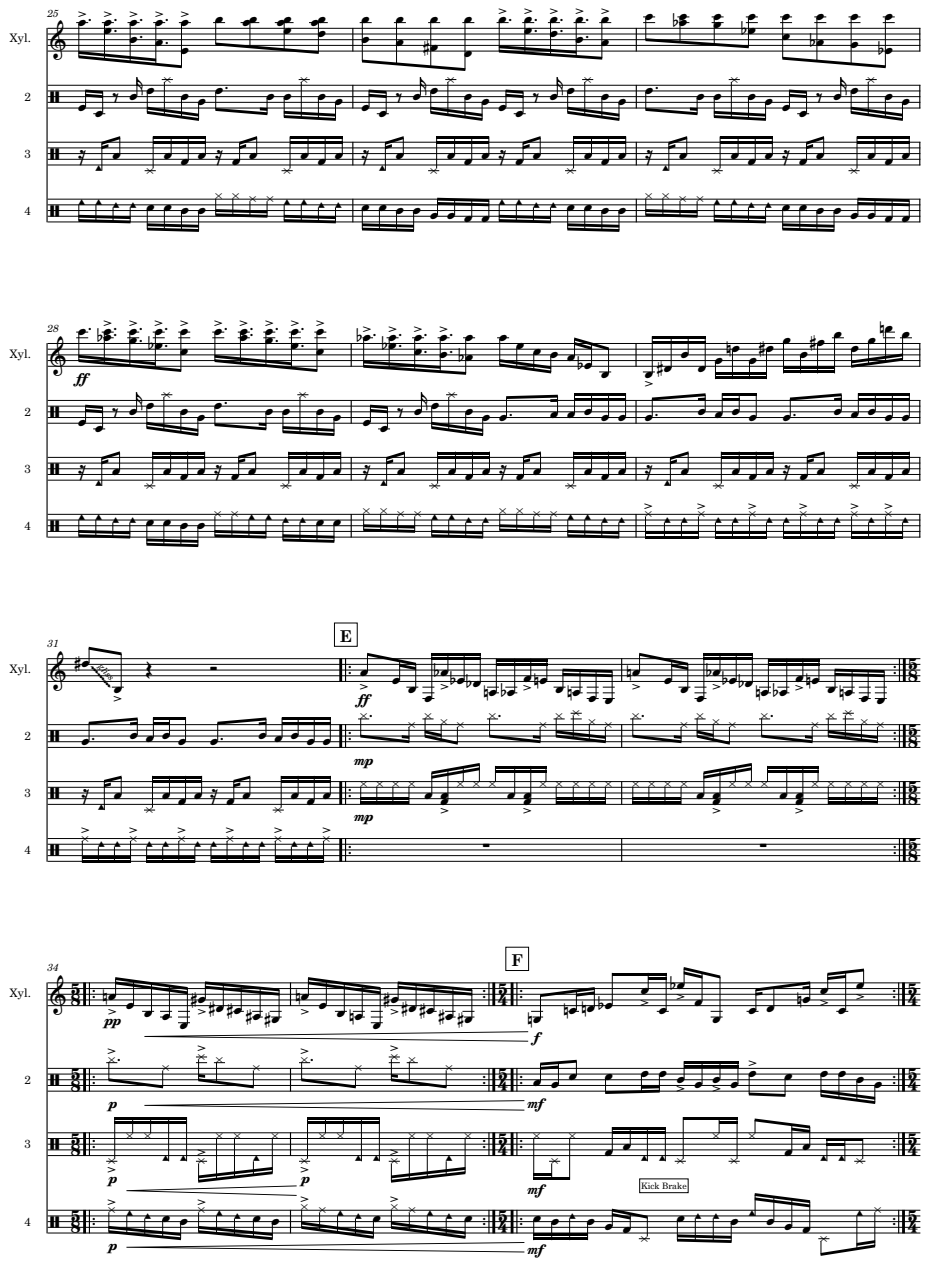
We've always had time on our side

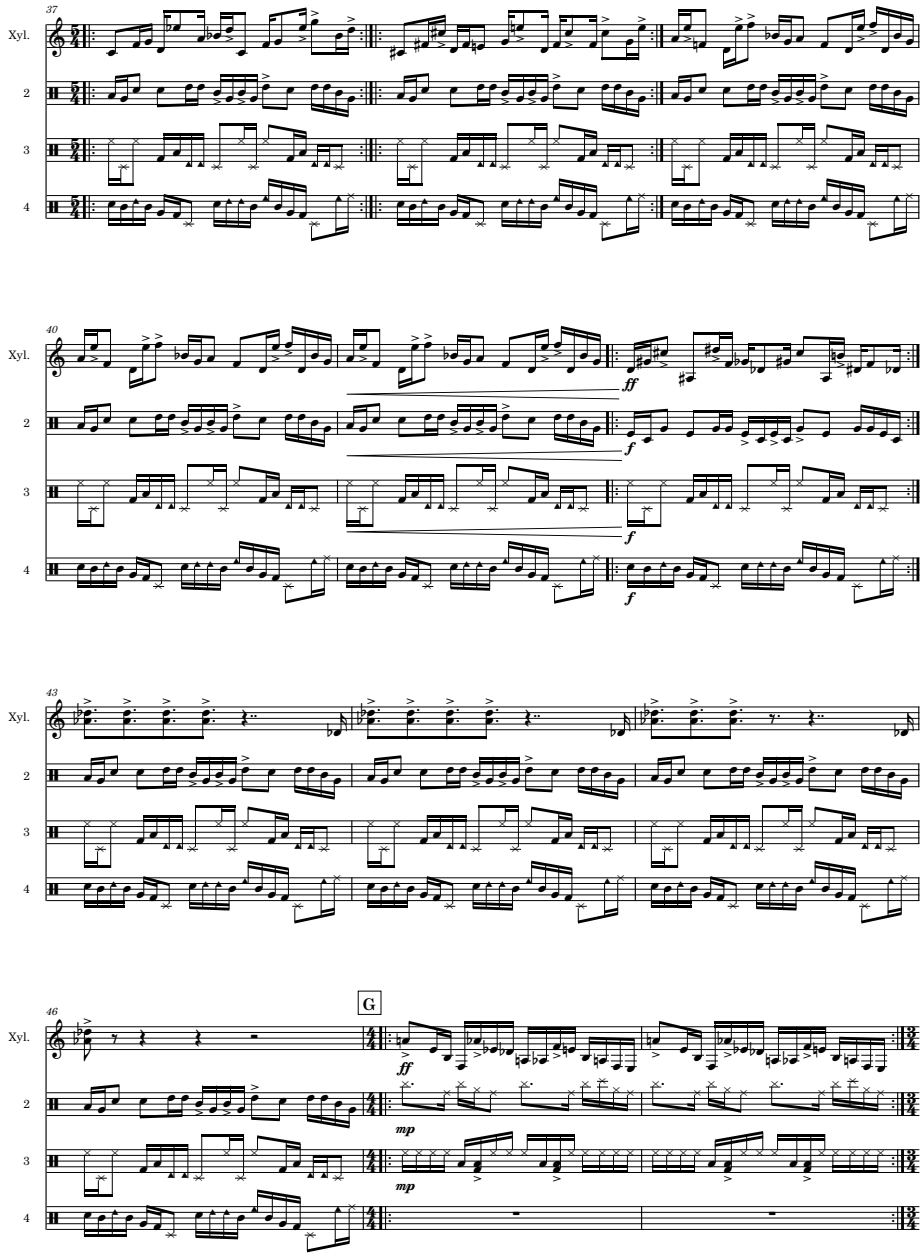
For Egha Kusuma

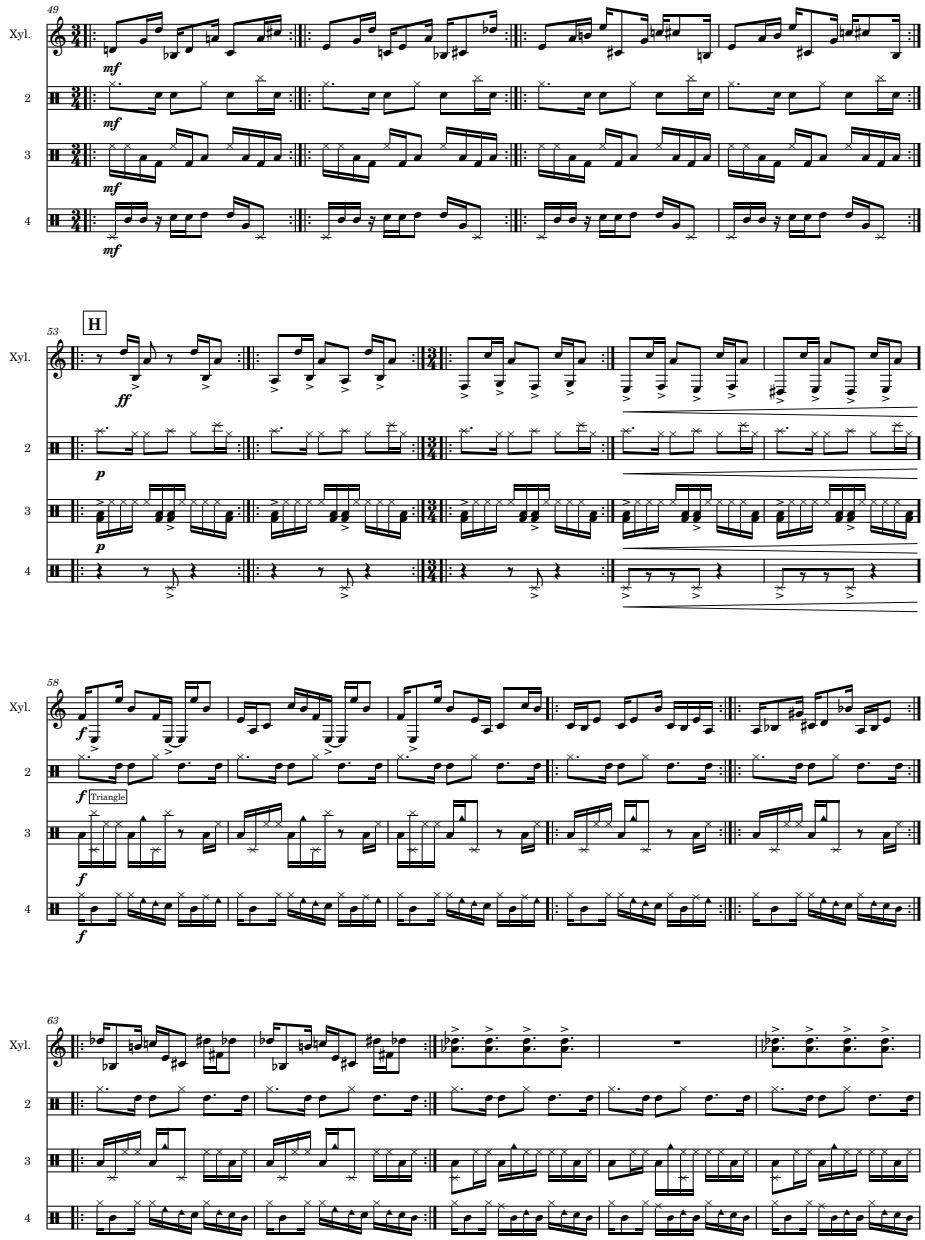
Hunter S. Long

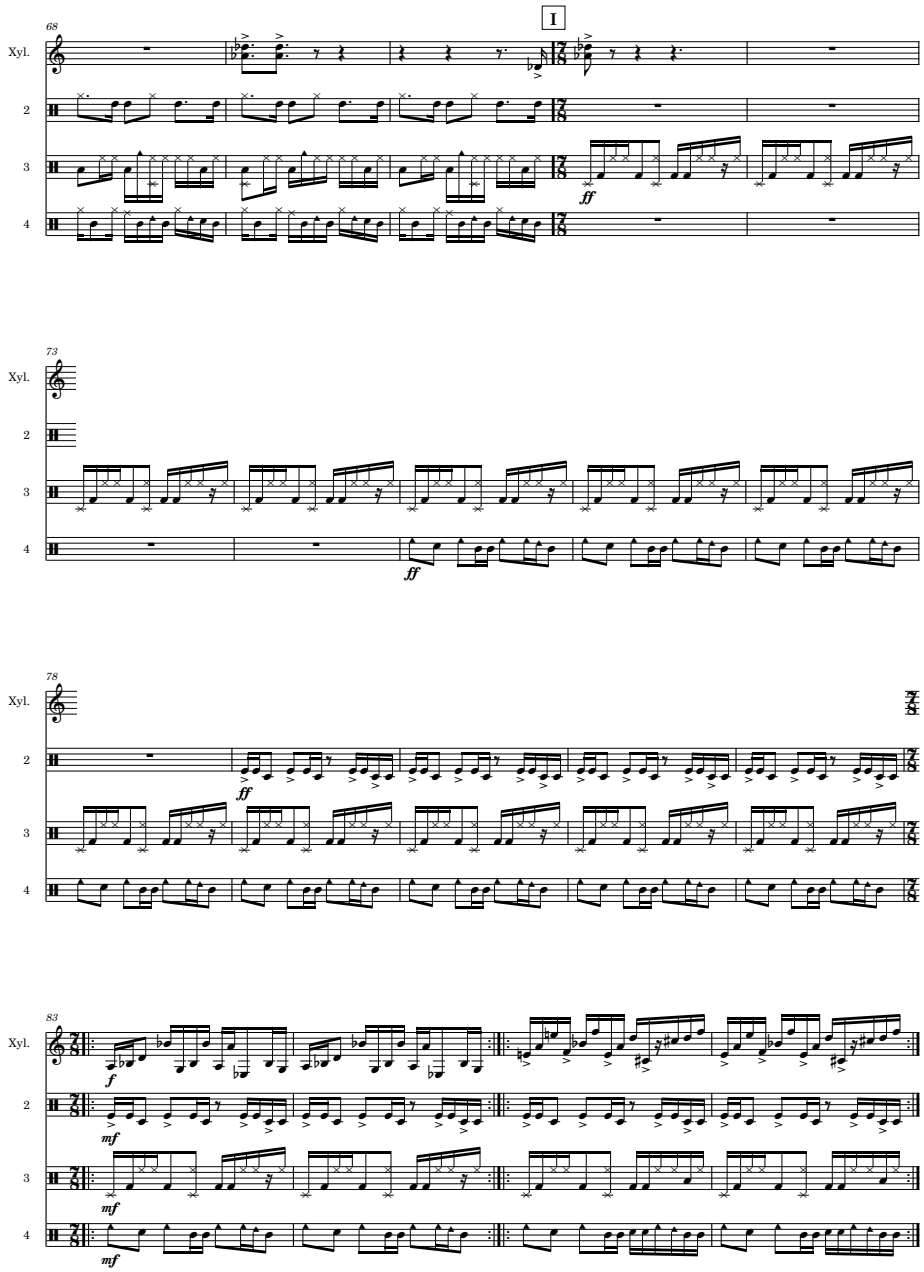


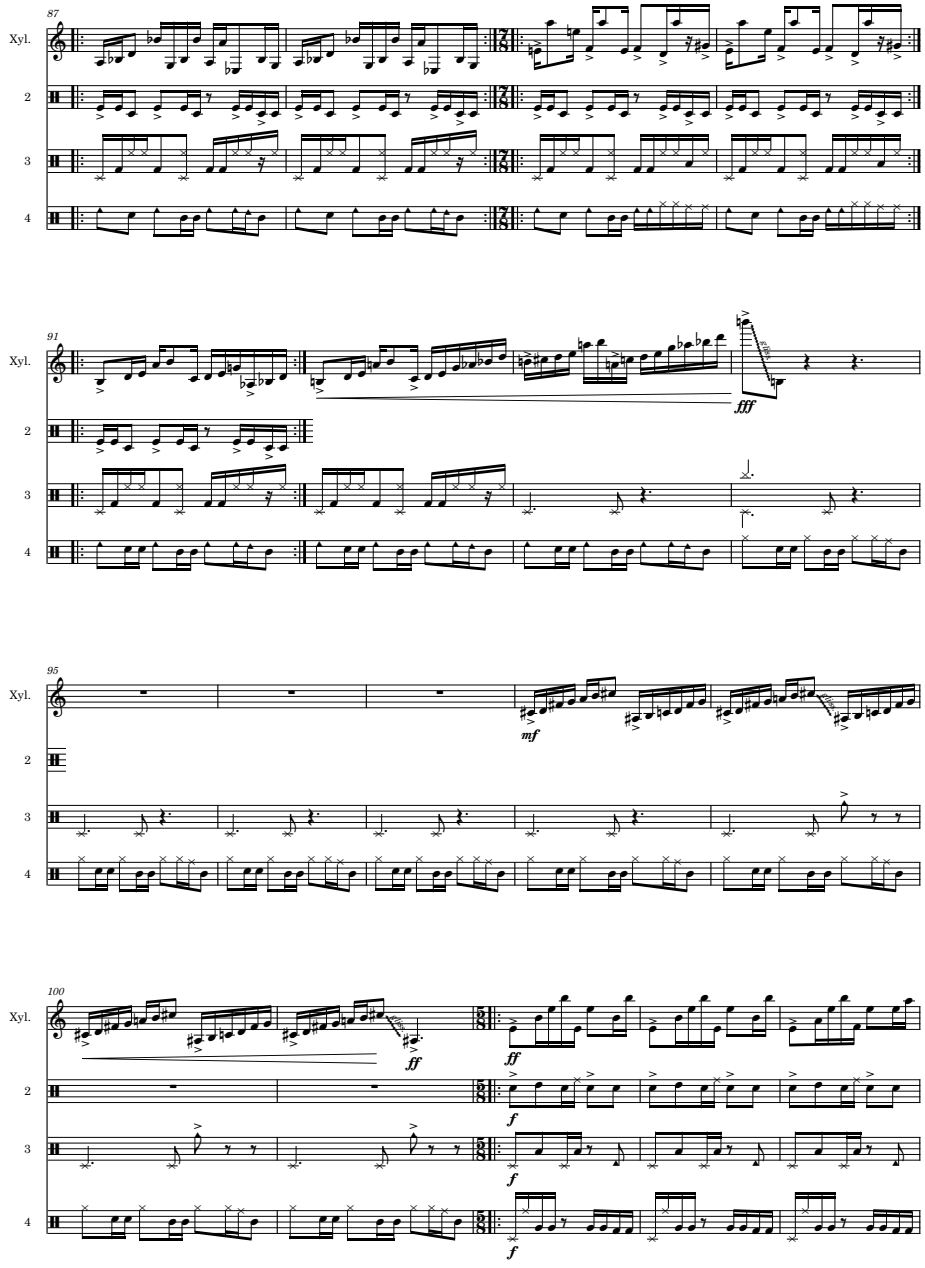

15
B
Xyl.
2
Temple Blocks
3
Cowbell
Snare
Kick
4
Tom
Wood
Bottles
18
C
Xyl.
2
3
4
21
D
Xyl.
2
Congas
3
Metal
4

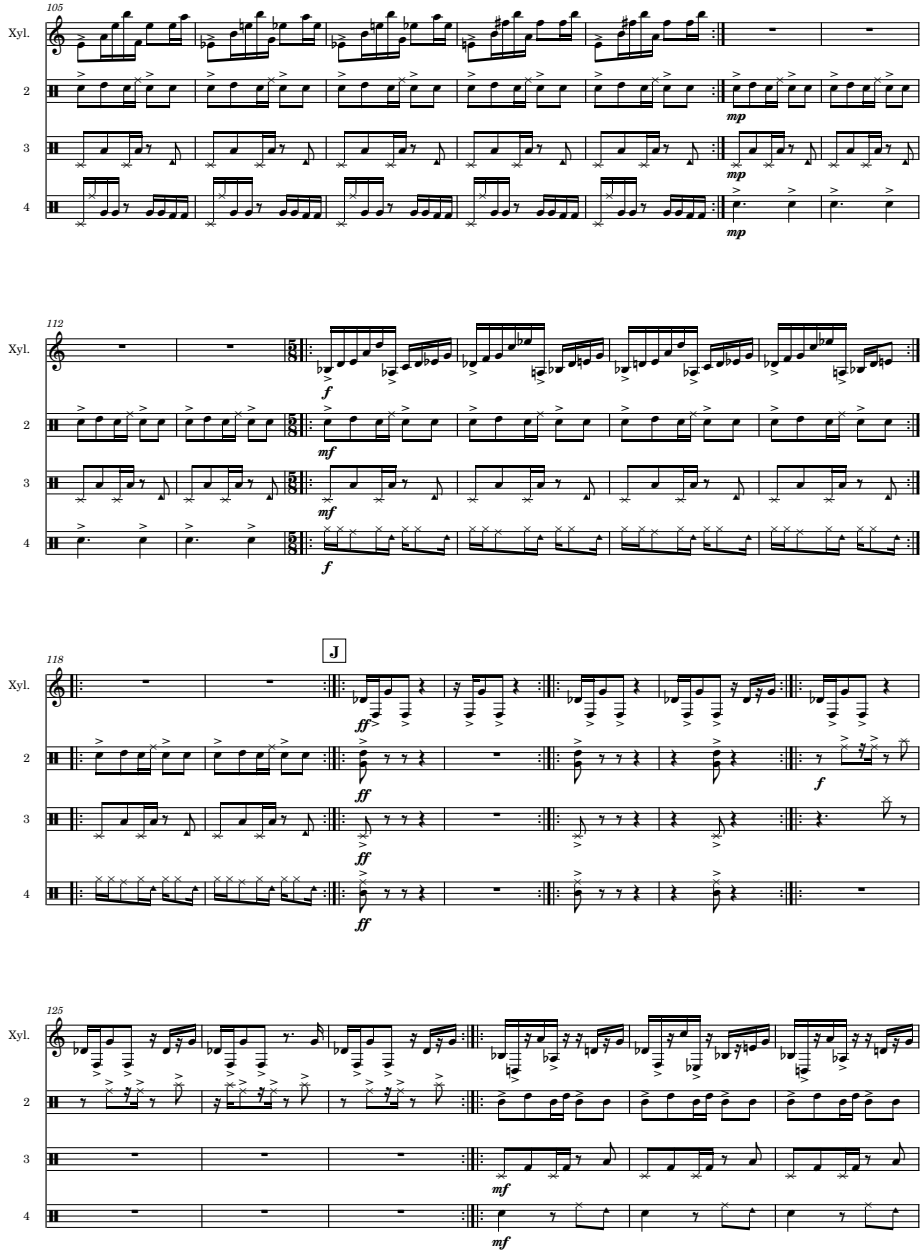

25
Xyl.
2
3
4
28
ff
31
E
mp
34
F
pp
f
mf
Kick Brake

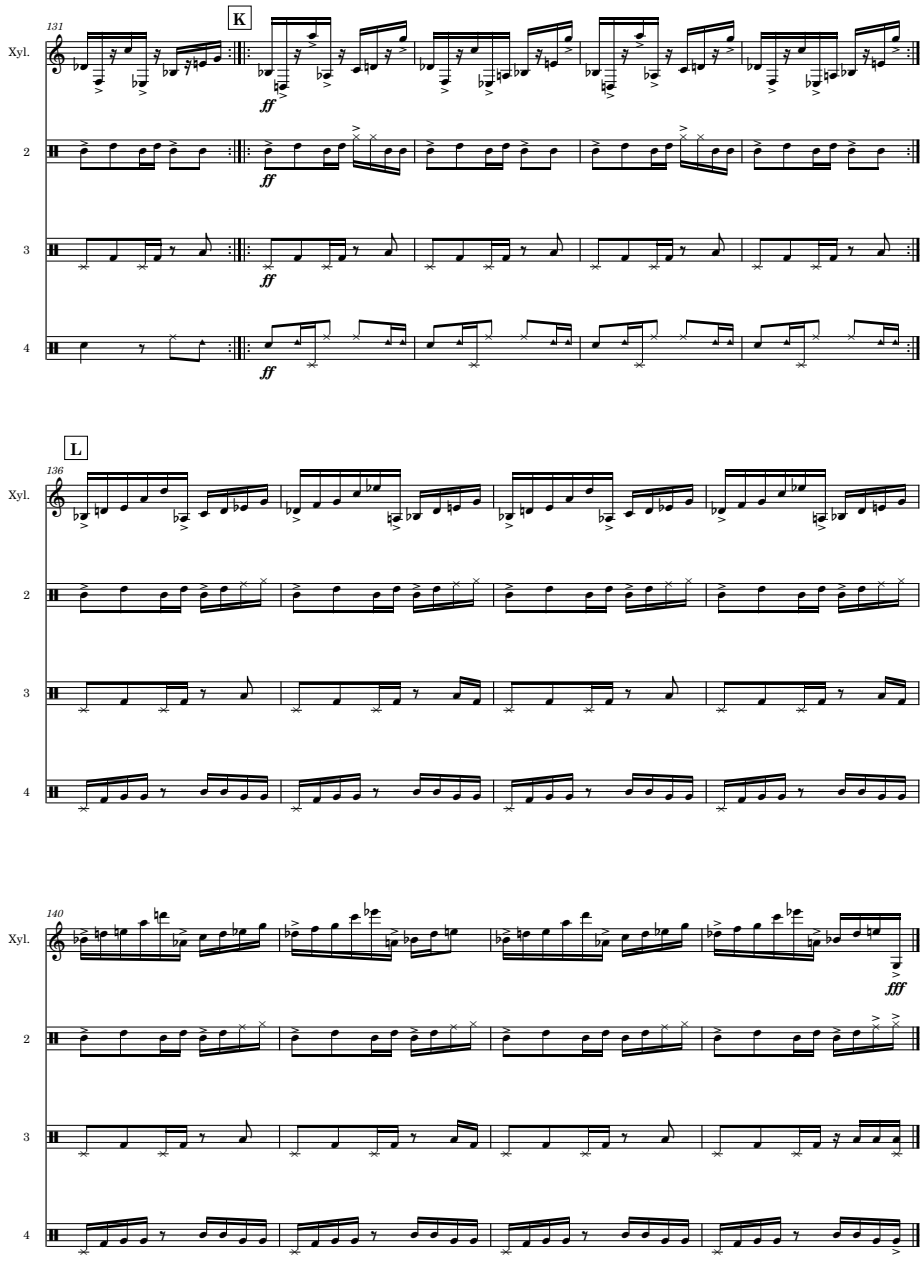

37
Xyl.
2
3
4
40
Xyl.
2
3
4
ff
f
f
f
43
Xyl.
2
3
4
46
G
Xyl.
2
3
4
ff
mp
mp


49
Xyl.
2
3
4
mf
53
H
ff
p
58
f
Triangle
63


68
I
Xyl.
2
3
4
ff
73
Xyl.
2
3
4
ff
78
Xyl.
2
3
4
ff
83
Xyl.
2
3
4
f
mf
mf
mf


87
Xyl.
2
3
4
91
Xyl.
fff
2
3
4
95
Xyl.
mf
2
3
4
100
Xyl.
ff
f
2
f
3
f
4


105
Xyl.
2
3
4
mp
112
f
mf
118
J
ff
125


131
K
Xyl.
2
3
4
ff
136
L
Xyl.
2
3
4
140
Xyl.
2
3
4
fff

APPENDIX H

PERMISSION FROM COMPOSERS TO USE EXCERPTS AND FULL SCORE

April 19, 2021

Dear Nick Bentz,

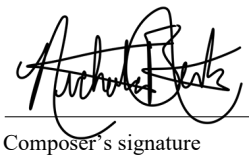
I'm writing to seek permission from you to reprint excerpts and full score of *fitful machinery* in my research paper titled "Examining Underutilized Keyboard Percussion Instruments in Contemporary Music Through Collaboration: Commissioning Three New Works for Unaccompanied and Accompanied Xylophone and Glockenspiel" that is being published on UMI/ProQuest.

If you give permission, please sign below. Thank you.

Sincerely,

Egha Kusuma

Permission to use excerpts and full score granted:
I grant you permission to use excerpts and full score my composition *fitful machinery* in this research paper.



Composer's signature

Nicholas Bentz

Composer's printed name

4 / 20 / 21

Date

April 19, 2021

Dear Ashlee Busch,

I'm writing to seek permission from you to reprint excerpts and full score of *Elements* in my research paper titled "Examining Underutilized Keyboard Percussion Instruments in Contemporary Music Through Collaboration: Commissioning Three New Works for Unaccompanied and Accompanied Xylophone and Glockenspiel" that is being published on UMI/ProQuest.

If you give permission, please sign below. Thank you.

Sincerely,

Egha Kusuma

Permission to use excerpts and full score granted:
I grant you permission to use excerpts and full score my composition *Elements* in this research paper.

Composer's signature

Ashlee T Busch

Composer's printed name

April 20, 2021

Date

April 19, 2021

Dear Hunter Long,

I'm writing to seek permission from you to reprint excerpts and full score of *We've Always Had Time on Our Side* in my research paper titled "Examining Underutilized Keyboard Percussion Instruments in Contemporary Music Through Collaboration: Commissioning Three New Works for Unaccompanied and Accompanied Xylophone and Glockenspiel" that is being published on UMI/ProQuest.

If you give permission, please sign below. Thank you.

Sincerely,

Egha Kusuma

Permission to use excerpts and full score granted:
I grant you permission to use excerpts and full score my composition *We've Always Had Time on Our Side* in this research paper.

Composer's signature

Hunter Long

Composer's printed name

4/20/21

Date

APPENDIX I

ARIZONA STATE UNIVERSITY IRB DETERMINATION LETTER

EXEMPTION GRANTED

Michael Compitello
MDT: Music
480/965-3549
compitello@asu.edu

Dear Michael Compitello:

On 3/15/2021 the ASU IRB reviewed the following protocol:

Type of Review:	Initial Study
Title:	Reexamining Underutilized Keyboard Percussion Instruments in Contemporary Music: Commissioning Three New Works for Xylophone and Glockenspiel
Investigator:	Michael Compitello
IRB ID:	STUDY00013523
Funding:	None
Grant Title:	None
Grant ID:	None
Documents Reviewed:	• Interview Questions, Category: Measures (Survey questions/Interview questions /interview guides/focus group questions); • Kusuma Consent Template, Category: Consent Form; • Kusuma IRB Revised, Category: IRB Protocol;

The IRB determined that the protocol is considered exempt pursuant to Federal Regulations 45CFR46 (2) Tests, surveys, interviews, or observation on 3/11/2021.

In conducting this protocol you are required to follow the requirements listed in the INVESTIGATOR MANUAL (HRP-103).

If any changes are made to the study, the IRB must be notified at research.integrity@asu.edu to determine if additional reviews/approvals are required. Changes may include but not limited to revisions to data collection, survey and/or interview questions, and vulnerable populations, etc.

Sincerely,

IRB Administrator

cc:
Egha Kusuma