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Working with Metal: The Stylistic Characteristics of the Swedish Band Meshuggah and an Original Composition Inspired by Their Work

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WORKING WITH METAL: THE STYLISTIC CHARACTERISTICS OF THE
SWEDISH BAND MESHUGGAH AND AN ORIGINAL COMPOSITION INSPIRED
BY THEIR WORK

By

ADAM J. BENEFIELD, Bachelor of Music

Presented to the Faculty of the Graduate School of

Stephen F. Austin State University

In Partial Fulfillment

Of the Requirements

For the Degree of

Master of Music

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SWEDISH BAND MESHUGGAH AND AN ORIGINAL COMPOSITION INSPIRED
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ABSTRACT

I have long been fascinated by music that is created through the amalgamation of more than one style of music. As a composer, this has led to me exploring paths that combine elements of contemporary, classical, jazz, world, film, and video game music. In this thesis I explore elements of progressive metal band Meshuggah. More specifically I examine their use of polymeter, polyrhythm, and other rhythmic devices used in six of their songs. I then demonstrate how I applied those same components to an original composition, *Armageddon*, scored for flute, Bb clarinet, C trumpet, trombone, percussion, piano, violin, viola, cello, and double bass. I used these techniques both in similar and different ways. I also explain how I employed a few techniques of my own.

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CHAPTER 1 – MESHUGGAH AND THEIR USE OF POLYMER AND OTHER RHYTHMIC DEVICES

Swedish metal band Meshuggah has garnered an international following since its inception in 1987. This fanbase is comprised of ‘metalheads’ and ‘non-metalheads’ alike. The ‘non-metalheads,’ including jazz and rock musicians,¹ are often more intrigued by the band’s intricate use of polymeter and other rhythmic devices than they are by the music genre itself.² A closer examination of each of these aspects in some of Meshuggah’s songs is helpful in understanding both their music and the original composition (*Armageddon*) contained in this thesis. It is worth mentioning that all of the examples used in this thesis are my own transcriptions.

- **Polymeter**

Arguably, the most quintessential element of Meshuggah’s music is polymeter. It can be found in most of their songs unless you go back to their early days as a thrash

¹ Bryan Beller, “Meshuggah’s ‘Future Breed Machine’: Peter Nordin’s Underground Class,” *Bass Player*, December 2006.

² Olivia R. Lucas, “‘So Complete in Beautiful Deformity’: Unexpected Beginnings and Rotated Riffs in Meshuggah’s *obZen*,” *Music Theory Online* 24, No. 3 (September 2018), <http://mtosmt.org/issues/mto.18.24.3/mto.18.24.3.lucas.html>.

metal band in the late 1980s and early 1990s. Back then their sound was more similar in style to other thrash metal bands such as Metallica, Anthrax, Slayer, and Sepultura.³ Although present in their music, the band members have stated that they do not think in terms of polymeter, or polyrhythm for that matter, when writing their songs. Other than bassist Dick Lövgren, they may not even be fully aware of what it is they are accomplishing. Although most of them can read music to varying degrees, Lövgren is the only band member with formal music training having studied jazz at the University of Gothenburg.⁴ Drummer Tomas Haake can read music, but he prefers to learn everything by ear.⁵ Rhythm guitarist Mårten Hagström claims that the music “just comes out the way it does.”⁶ He also said, “Everything we do is based around a 4/4 core. It’s just that we arrange parts differently around that center to make it seem like something else is going on.”⁷ Haake insists that all of the songs on *obZen* (2008) are in 4/4.⁸ When answering

³ Jonathan Pieslak, “Re-casting Metal: Rhythm and Meter in the Music of Meshuggah,” *Music Theory Spectrum* 29, no. 2 (2007): 219.

⁴ Lucas, “So Complete in Beautiful Deformity.”

⁵ Michael Parillo, “External Combustion: Meshuggah’s Tomas Haake,” *Modern Drummer*, May 2008: 58.

⁶ Petri Eskelinen, “Meshuggah Interview,” June 19, 2007, video, 3:11, <https://www.youtube.com/watch?v=Yd7T5rOmS3w&t=89s>.

⁷ Rod Smith, “Meshuggah,” *Decibel*, 2005, <https://web.archive.org/web/20051129013121/http://decibelmagazine.com/features/jun2005/meshuggah.aspx>.

⁸ Parillo, “External Combustion,” 56 and 64.

questions about *Chaosphere* (1998), vocalist Jens Kidman explained, “we don’t think that much. We just do stuff and record it.”⁹ Regardless of whether they think in terms of polymeter or not while composing, it is still present in much of their music.

One of Meshuggah’s primary approaches to polymeter is the use of metric superimposition, which can be found in most of their songs.¹⁰ With this method, they typically create a guitar riff in some meter, or meters, other than 4/4 that is doubled by the kick drum and bass guitar an octave lower. This riff is then superimposed against 4/4 and looped within a four-bar, eight-bar, sixteen-bar, twenty-four-bar, or thirty-two-bar section (see table 1 below for visual representations). No matter how complex the metric patterns get, the primary, underlying 4/4 framework is almost always articulated somewhere in the texture, usually in the hi-hat, cymbals, snare drum, and also sometimes in the lead guitar. The hi-hat, cymbals, and snare drum typically outline a standard backbeat or halftime backbeat in 4/4.¹¹ These form the basic foundation on which other layers are built and the snare drum is usually heard as the primary layer by audiences.¹² The steady pattern also forms a *tactus*, “the basic beat that forms the most salient periodic

⁹ FaceCulture, “Interview Meshuggah - Jens Kidman,” June 21, 2008, video, 3:51, <https://www.youtube.com/watch?v=uTeuNxSpR5s>.

¹⁰ Pieslak, “Re-casting Metal,” 219-221.

¹¹ Lucas, “So Complete in Beautiful Deformity.”

¹² Harris M. Berger, “The Practice of Perception: Multi-Functionality and Time in the Musical Experiences of a Heavy Metal Drummer,” *Ethnomusicology* 41, no. 3 (autumn 1997): 474-475.

pulse evident in a musical passage.”¹³ The multiple meters together create a frenzy of contrasting patterns that fall in and out of phase with each other. The patterns do, however, realign every so often if they are allowed to. When the end of a section is reached the riff usually continues in the remaining space, but is then abruptly cut off before it can complete another cycle. Sometimes, however, an extension is inserted instead to fill in the remaining space. Although this is their usual approach, Meshuggah does also occasionally allow complete cycles without cutting them off, but not usually. That method is more common in the music of TesseracT, another progressive metal band from England.¹⁴ Also, even though the vast majority of Meshuggah’s songs contain polymetric structures, it is not something that is used in all of their music. Certain songs are more straightforward. For example, “The Demon’s Name Is Surveillance” from the album *Koloss* (2012) is in 6/8, although it is not without its rhythmic complexities.¹⁵

¹³ David Huron, *Sweet Anticipation: Music and the Psychology of Expectation* (Cambridge: MIT Press, 2006), 176.

¹⁴ Harry Stafylakis, “Altered States: Metrical Dissonance in the Music of TesseracT” (paper presented at the annual conference of the Temple University Theory and Musicology Society [THEMUS], Philadelphia, PA, April 19, 2014): 14.

¹⁵ Meshuggah, “The Demon’s Name Is Surveillance,” track 2 on *Koloss*, Nuclear Blast NB 2388-2, 2012.

a. 7/8 Against 4/4 in an Eight-Bar Structure

$\frac{4}{4}$	$\frac{4}{4}$	$\frac{4}{4}$	$\frac{4}{4}$	$\frac{4}{4}$	$\frac{4}{4}$	$\frac{4}{4}$	$\frac{4}{4}$
$\frac{7}{8}$	$\frac{7}{8}$	$\frac{7}{8}$	$\frac{7}{8}$	$\frac{7}{8}$	$\frac{7}{8}$	$\frac{7}{8}$	$\frac{7}{8}$

b. 5/4 Against 4/4 in an Eight-Bar Structure

$\frac{4}{4}$	$\frac{4}{4}$	$\frac{4}{4}$	$\frac{4}{4}$	$\frac{4}{4}$	$\frac{4}{4}$	$\frac{4}{4}$	$\frac{4}{4}$
$\frac{5}{4}$	$\frac{5}{4}$	$\frac{5}{4}$	$\frac{5}{4}$	$\frac{5}{4}$	$\frac{5}{4}$	$\frac{5}{4}$	$\frac{5}{4}$

c. 6/4 Against 4/4 in a Sixteen-Bar Structure

$\frac{4}{4}$	$\frac{4}{4}$	$\frac{4}{4}$	$\frac{4}{4}$	$\frac{4}{4}$	$\frac{4}{4}$	$\frac{4}{4}$	$\frac{4}{4}$	$\frac{4}{4}$	$\frac{4}{4}$	$\frac{4}{4}$	$\frac{4}{4}$	$\frac{4}{4}$	$\frac{4}{4}$	$\frac{4}{4}$	$\frac{4}{4}$
$\frac{6}{4}$	$\frac{6}{4}$	$\frac{6}{4}$	$\frac{6}{4}$	$\frac{6}{4}$	$\frac{6}{4}$	$\frac{6}{4}$	$\frac{6}{4}$	$\frac{6}{4}$	$\frac{6}{4}$	$\frac{6}{4}$	$\frac{6}{4}$	$\frac{6}{4}$	$\frac{6}{4}$	$\frac{6}{4}$	$\frac{6}{4}$

d. Mixed-Meter Against 4/4 in an Eight-Bar Structure

$\frac{4}{4}$	$\frac{4}{4}$	$\frac{4}{4}$	$\frac{4}{4}$	$\frac{4}{4}$	$\frac{4}{4}$	$\frac{4}{4}$	$\frac{4}{4}$
$\frac{9}{8}$	$\frac{4}{4}$	$\frac{9}{8}$	$\frac{4}{4}$	$\frac{9}{8}$	$\frac{4}{4}$	$\frac{9}{8}$	$\frac{4}{4}$

Table 1: Different Meters Superimposed Against a 4/4 Structure

*These illustrations are of my own design, not taken from actual Meshuggah songs.

“Neurotica,” one of Meshuggah’s earlier songs from their 1998 album *Chaosphere*, contains an excellent example of polymeter where an odd time signature is superimposed against 4/4 in a short, four-bar structure rather than their more typical eight, sixteen, twenty-four, or thirty-two-bar forms. This happens right away in the introduction of the song. It opens with a guitar riff, doubled by the bass an octave lower, that is in 15/16 (Musical Example 1). Rhythmically, it is fairly interesting by itself, but it becomes much more engaging when juxtaposed with a drum groove in 4/4 time.

Musical Example 1: “Neurotica” Opening Riff

Musical Example 2 demonstrates how the “Neurotica” riff is transformed when played within a 4/4 framework. The guitar and bass are both playing in 15/16 while the drums are largely playing in 4/4 with a tom-tom groove and snare-drum backbeat. Yet, at the same time, certain parts of the drums such as the crash cymbals and bass drum occasionally break away from the 4/4 framework to accent important moments in the 15/16 riff. The riff is able to achieve three complete repetitions in the four-bar structure. However, instead of continuing the cycle with a fourth repetition, the riff is altered and

expanded to 19/16 the final time to accommodate the extra space at the end of the four-bar structure. In a short structure like this, the riff is never allowed to realign with that of 4/4 time.

The image displays a musical score for the 'Neurotica' Intro, measures 1 through 4. The score is written for three instruments: Guitar, Bass, and Drums. The time signature is 4/4. The first three measures are grouped together, with measure 1 starting at measure 15 and measure 3 ending at measure 18. The fourth measure is a 19/16 measure, starting at measure 19 and ending at measure 22. The guitar part features a complex rhythmic pattern with many sixteenth notes and rests. The bass part follows a similar pattern with eighth and sixteenth notes. The drums play a consistent pattern of eighth notes and rests. The score includes various musical notations such as slurs, accents, and dynamic markings.

Musical Example 2: “Neurotica” Intro mm. 1-4

Sometimes the riffs used in Meshuggah’s songs do not start at the beginning.

Sometimes they begin in the middle. Music theorist Olivia R. Lucas of Louisiana State

University discusses this in her September 2018 article for *Music Theory Online*.¹⁶ A prime example of this concept is found in the coda of “Electric Red” from Meshuggah’s 2008 release *obZen*. The riff used in this example is in 9/8 time (Musical Example 3). What is also interesting about this coda is that its entrance is unexpected and seemingly cuts off the final chorus of the song. It is also completely unrelated to the rest of the song.

Musical Example 3: “Electric Red” Coda Riff

Musical Example 4 shows how the 9/8 riff looks in a sixteen-bar structure in 4/4 time. The whole section clearly begins and ends with a riff fragment, showcasing the starting-in-the-middle concept. The two contrasting meters realign in mm. 139 and 148. In this example, the crash cymbal, snare drum, and guitar 1 outline 4/4 while the kick drum, guitar 2, and bass play in 9/8. There are also a few well-placed, cymbal crashes that accent 9/8 time. Haake breaks away from playing the groove at the end of the section to insert a drum fill in m. 152. This is very common to his playing style and indicates the

¹⁶ Lucas, “So Complete in Beautiful Deformity.”

end of the section. In this case it also serves as a transition into the repeat of the whole section. The song fades out after the repeat, so a second complete section is never heard in its entirety.

Guitar 1: Treble clef, 4/4 time, eighth-note pattern.

 Guitar 2/Bass: Bass clef, 4/4 time, eighth-note pattern. Includes a 'String Bend' on a note and a 'Fragment' bracketed over a section.

 Drums: Snare drum and bass drum pattern.

G. 1: Treble clef, 4/4 time, double bar line at measure 139.

 G. 2/B: Bass clef, 4/4 time, eighth-note pattern. Includes 'Lines up here' annotation and numbered sections 2 and 3.

 Dr.: Snare drum and bass drum pattern.

Musical Example 4: “Electric Red” Coda mm. 137-140

141

G. 1

G. 2/B

Dr.

3 cont.

4

5

143

G. 1

G. 2/B

Dr.

5 cont.

6

7

145

G. 1

G. 2/B

Dr.

7 cont.

8

9

Musical Example 4 Continued: “Electric Red” Coda mm. 141-146

147

G. 1

G. 2/B

Dr.

9 cont.

10

Lines up here

149

G. 1

G. 2/B

Dr.

10 cont.

11

12

151

G. 1

G. 2/B

Dr.

12 cont.

13

Fragment

Drum fill

Musical Example 4 Continued: “Electric Red” Coda mm. 147-152

An example of a riff that is superimposed in an eight-bar section is “Bleed,” another song off Meshuggah’s 2008 album *obZen* (Musical Example 6). The meter of this riff is not immediately obvious. I have interpreted it as 6/16 against 4/4, but it could just as easily be analyzed as 3/16, 9/16, or 12/16 against 4/4. I have transcribed it as 6/16 against 4/4 for the purposes of this. The snare drum and cymbals again outline a halftime backbeat in 4/4 while the guitars, bass, and bass drum play the riff in 6/16. Another important point of interest about this introduction section is that the riff does not cut off at the end of the introduction section like it does in other examples. Haake does play a fill marking the end of the section as usual, but the riff continues its cycle all the way through to the conclusion of the first verse where it finally cuts off in m. 24. The verse is sixteen measures long. That combined with the eight-bar introduction means the riff is really stretched across twenty-four measures. The riff itself is a herta (musical example 5), a type of hybrid drum rudiment.¹⁷ Whether the band knows this or not is uncertain. Haake stated in a 2008 interview for *Modern Drummer*, “I never studied much...I wanted to bash the hell out of the drums. I didn’t want to learn the rudiments.”¹⁸ Given this statement, it is unlikely that the band knew this was a drum rudiment prior to writing the riff. Something with which they are familiar, however, is the ‘gallop’ rhythm (musical example 5). This rhythm is common in metal from the 1970s and 1980s and is relatively

¹⁷ Lewis Partridge, “Herta,” Ninja Drumist.com, 2010, <http://www.ninjadrummist.com/drum-rudiments/hybrid-rudiments/herta-21/>.

¹⁸ Parillo, “External Combustion,” 58.

similar to the herta. It has been employed by other metal bands such as Slayer, Metallica, Dio, and Iron Maiden.¹⁹ Meshuggah previously used an altered version of the ‘gallop’ rhythm on their 2004 EP *I*.²⁰ They may have done the same for “Bleed.”

a. Herta

b. Gallop Rhythm

c. Reverse Gallop Rhythm

Musical Example 5: Herta²¹ and Gallop Rhythms²²

¹⁹ Simon Revill, “Gallop Rhythms for Heavy Metal Guitar, Part 1,” *Guitar World*, April 13, 2017, <https://www.google.com/amp/s/www.guitarworld.com/amp/lessons/gallop-rhythms-heavy-metal-guitar-part-1>, and Simon Revill, “Gallop Rhythms for Heavy Metal Guitar, Part 2,” *Guitar World*, August 1, 2018, <https://www.google.com/amp/s/www.guitarworld.com/amp/lessons/gallop-rhythms-heavy-metal-guitar-part-2>.

²⁰ Eric T. Smialek, “Rethinking Metal Aesthetics: Complexity, Authenticity, and Audience in Meshuggah's *I* and *Catch Thirtythr33*” (master’s thesis, McGill University, 2008): 53.

²¹ Partridge, “Herta.”

²² Revill, “Gallop Rhythms...Part 1.”

6 16

1 2 3 4 5 6

Guitar/Bass

Drums

String Bend

6 cont. 7 8 Lines up here 9 10 11

3

G/B

Dr.

String Bend

11 cont. 12 13 14 15 16

5

G/B

Dr.

String Bend

Lines up here 17 18 19 20 21 22

7

G/B

Dr.

String Bend

Musical Example 6: "Bleed" mm. 1-8

Riff does not cutoff 22 cont. 23 24 Lines up here 25 26 27

G/B

Dr.

Vocals

Beams of fire sweep through my head,

Musical Example 6 Continued: “Bleed” mm. 9-10

An example of a riff that is superimposed in a twenty-four-bar section is “Do Not Look Down” from the 2012 album *Koloss*. Not only is this riff superimposed in a larger section, but it is also much longer than previous examples. It is itself a full eight measures long. The riff is also an example of one that uses mixed meter rather than just one meter. In this case it alternates between 4/4 and 9/8 (Musical Example 7).

Guitar/Bass

G/B

G/B


Musical Example 7: “Do Not Look Down” Opening Riff


“Do Not Look Down” begins with everyone playing in mixed meter. It is not until m. 17 that the drums come in with the usual 4/4 halftime backbeat. This is very disorienting when at first it seems like it is going to be a straight forward song that uses mixed meter. The drum fill, however, in m. 16 sets up the 4/4 groove nicely. As usual, when the 4/4 groove comes in, the crash cymbal and snare drum are playing in 4/4 time while the kick drum, guitar, and bass are playing the riff in 4/4 and 9/8 (Musical Example 8). The riff and 4/4 framework line up again in m. 18. Similar to “Bleed,” “Do Not Look Down” continues the rhythms and metric cycle into the verses without cutting it off, although the verses are at a different pitch level. The cycle does not come to an end until m. 72 at the start of the guitar solo, but even then, it spills over into m. 73 and a new pattern takes over halfway through the measure. This is analyzed by music theorist Guy Capuzzo in his 2018 article for *Music Theory Spectrum*.²³

Musical Example 8: “Do Not Look Down” mm. 1-4

²³ Guy Capuzzo, “Rhythmic Deviance in the Music of Meshuggah,” *Music Theory Spectrum* 40, no. 1 (2018): 132.

5 $\frac{4}{4}$ $\frac{9}{8}$ $\frac{4}{4}$ $\frac{9}{8}$

G/B 

Dr. 

9 $\frac{4}{4}$ $\frac{9}{8}$ $\frac{4}{4}$ $\frac{9}{8}$

G/B 

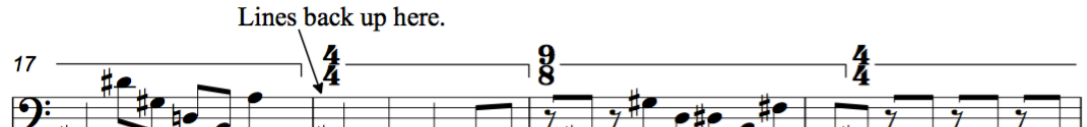
Dr. 


13 $\frac{4}{4}$ $\frac{9}{8}$ $\frac{4}{4}$ $\frac{9}{8}$

G/B 

Dr. 

17 $\frac{4}{4}$ $\frac{9}{8}$ $\frac{4}{4}$

G/B 

Dr. 

Musical Example 8 Continued: “Do Not Look Down” mm. 5-20

21 $\frac{9}{8}$ $\frac{4}{4}$ $\frac{9}{8}$ $\frac{4}{4}$ New pitch level

G/B

Dr. Fill

Vocals

Strive,

25 Cycle continues $\frac{9}{8}$ $\frac{4}{4}$ $\frac{9}{8}$ $\frac{4}{4}$

G/B

Dr.

Vocals

strive, sur-mount the ob - sta - cles be - come

Musical Example 8 Continued: “Do Not Look Down” mm. 21-28

- **Other Rhythmic Devices**

Although Meshuggah is perhaps better known for their use of polymeter, other interesting rhythmic aspects also occur in their music, including polyrhythms, rhythms that cross bar lines, rhythms that irregularly divide measures, and alternating rhythmic patterns. Three songs that feature examples of these devices are “Bleed,” from the 2008 release *obZen*, “Swarm,” from the 2012 release *Koloss*, and “Clockworks,” from the 2016 release *Violent Sleep of Reason*.

Examples of all of these rhythmic devices can be found in the song “Clockworks,” which also happens to be Meshuggah’s first Grammy nomination in the Best Metal Performance category in 2018.²⁴ The verse of this song contains a polymetric riff that is twenty-three eighth notes long (Musical Example 9). Rather than thinking of this as 23/8, it is easier to comprehend when segmented it into two measures of 9/8 and one measure of 5/8. In addition to polymeter, within the sixteen-bar verse there are five instances of a three-against-four polyrhythm. Notice that the triplets also follow a unique pattern. They alternate between one triplet, two triplets, three triplets, back to two triplets, and finally back to one triplet again as the structure repeats.²⁵ The sixteenth notes are also grouped in threes rather than fours to accompany the dotted quarter-note rhythm in the guitar part that irregularly divides the measures and sometimes crosses over bar lines. Present throughout is a steady quarter-note pulse in the hi-hat. Unlike with previous examples where the riff continues and is abruptly cut off at the end of the section, “Clockworks” inserts a two-beat extension based on the beginning of the riff to make up for the two-beat lag. This is similar to how Tomas Haake inserts drum fills at the end of

²⁴ Joe Lynch, “Grammys 2018: See the Complete List of Nominees,” *Billboard*, November 28, 2017, <https://www.billboard.com/articles/news/grammys/8047027/grammys-2018-complete-nominees-list>.

²⁵ Alternating rhythmic patterns similar to this also take place in other songs such as “The Demon’s Name Is Surveillance”, track 2 on *Koloss* (2012).

sections. This is interesting considering the song was also written by Haake and bassist Dick Lövgren.²⁶

The image displays three systems of musical notation for the piece "Clockworks" (measures 34-41). Each system includes a Guitar/Bass (G/B) part and a Drums (Dr.) part. The G/B part is written in bass clef with a 4/4 time signature. It features a complex rhythmic pattern with frequent triplets and sixteenth notes. Above the staff, there are time signature changes: 9/8, 5/8, and 9/8. The Drums part is written in a standard drum notation with a 4/4 time signature. It consists of a steady eighth-note pattern on the snare and bass drums, with occasional triplet markings. A box labeled "3:4" is drawn around a specific section of the drum part in each system, indicating a 3:4 time signature change. The first system covers measures 34-38, the second system covers measures 39-43, and the third system covers measures 44-48.

Musical Example 9: “Clockworks” mm. 34-41

²⁶ Thom Jurek, “Meshuggah: *The Violent Sleep of Reason*,” AllMusic, accessed March 8, 2020, <https://www.allmusic.com/album/the-violent-sleep-of-reason-mw0002969441>.

The image displays a musical score for the piece "Clockworks" from measures 42 to 49. It is divided into three systems, each with a G/B (Guitar/Bass) staff and a Dr. (Drum) staff. The G/B staff uses a bass clef and contains a complex melodic line with numerous triplets and sixteenth-note patterns. The Dr. staff uses a snare drum clef and features a consistent dotted eighth note pattern, with occasional snare drum hits marked with an asterisk (*). Time signature changes are indicated: 9/8 at measures 42, 45, and 48; 3:4 at measures 43, 46, and 49; and 2/4 at measure 49. The section concludes with an "Extension" in 2/4 and a "Fill" in 3/4.

Musical Example 9 Continued: “Clockworks” mm. 42-49

The guitar solo section of “Clockworks” also contains a number of rhythmic complexities. The guitar 2, bass, and kick drum (except where a snare drum occurs) play a constant dotted eighth note figure throughout the entirety of the sixteen-bar section while the guitar 1 is soloing. These dotted eighth notes irregularly divide the measure and also cross over bar lines. This, coupled with the presence of a constant eighth note pattern

in the hi-hat and snare-drum backbeat, creates a number of different polyrhythms. The dotted eighth notes create a four-against-three polyrhythm with the downbeat accents in the hi-hat. Simultaneously, there are also two-against-three polyrhythms that occur between the dotted eighth notes and the steady eighth notes in the hi-hat (Musical Example 10).

The musical score for 'Clockworks' Guitar Solo Section (measures 90-92) is presented in 4/4 time. It consists of three staves: Guitar 1 (Solo), Guitar 2/Bass, and Drums. The key signature is one sharp (F#).
 - **Guitar 1 (Solo):** Plays a continuous eighth-note solo throughout the section.
 - **Guitar 2/Bass:** Plays a complex rhythmic pattern. Brackets above the staff indicate 4:3 polyrhythms (four eighth notes against three dotted eighth notes) and 2:3 polyrhythms (two eighth notes against three dotted eighth notes).
 - **Drums:** Plays a backbeat pattern with hi-hat accents (marked with '>') on the downbeats and snare accents on the backbeats.

Musical Example 10: “Clockworks” Guitar Solo Section mm. 90-92

In addition to its brisk tempo and polymetric complexities, “Bleed” also contains some examples of polyrhythm. As stated earlier, the rhythmic pattern from the introduction continues all the way through to the end of the verse one in m. 24.

Polyrhythms can be heard between the drums and the vocals. This is a result of the vocals existing in 4/4 sometimes, but also breaking away from 4/4 to join forces with the 6/16 structure in the guitar, bass, and kick drum. There are eleven instances of a two-against-three polyrhythm and two examples of four against three (Musical Example 10).

The musical score consists of five systems, each with a vocal line (Vox.) and a drum line (Dr.). The time signature is 4/4. The lyrics are: "Beams of fire sweep through my head, thrusts of pain in - creas - ing - ly en - gaged, sen - so - ry re - cep - tors suc - cumb, I'm no one now, on - ly ag - o - ny. My crim - son liq - uid's so fran - tic' - ly". Time signature changes are indicated by brackets above the vocal lines: 2:3 at mm. 10, 13, 14, 17, and 18.

System 1 (mm. 9-10): Vox. line: "Beams of fire sweep through my head,". Dr. line: [drum notation]. Time signature change to 2:3 at m. 10.

System 2 (mm. 11-12): Vox. line: "thrusts of pain in - creas - ing - ly en - gaged,". Dr. line: [drum notation].

System 3 (mm. 13-14): Vox. line: "sen - so - ry re - cep - tors suc - cumb, I'm". Dr. line: [drum notation]. Time signature changes to 2:3 at mm. 13 and 14.

System 4 (mm. 15-16): Vox. line: "no one now, on - ly ag - o - ny." Dr. line: [drum notation].

System 5 (mm. 17-18): Vox. line: "My crim - son liq - uid's so fran - tic' - ly". Dr. line: [drum notation]. Time signature changes to 4:3 at mm. 17 and 18.

Musical Example 11: "Bleed" mm. 9-18

19
Vox. spilled.
Dr.

21
Vox. The ru - by flu - id of life un - leashed.
Dr.

23
Vox.
Dr.

Musical Example 11 Continued: “Bleed” mm. 19-24

“Swarm” is another good example of polyrhythm, irregular divisions of the measure, and a rhythm that occasionally crosses bar lines. The polyrhythm is found in the drum beat itself and is constant throughout most of the song. In this case the hi-hat is stomping steady quarter notes with the left foot while the bass drum is pounding out dotted quarter-note figures with the right, which creates a four-against-three polyrhythm. Over top is a sixteenth-note tom-tom pattern and halftime backbeat in the snare drum. In

this particular passage, the guitar and bass play a riff that consists of a rhythmic pattern that irregularly divides the measures and sometimes crosses over bar lines. It also starts on beat two rather than beat one. In its second iteration, however, it begins on beat one, but concludes on beat three rather than beat four.

The musical score is divided into three systems. The first system, labeled 'Riff: Statement 1', shows the Guitar/Bass and Drums parts from measure 25 to 26. An arrow labeled 'One beat' points to the start of the riff in measure 25. The second system, labeled 'Riff: Statement 2', shows measures 27 to 28. The third system, also labeled 'Riff: Statement 2', shows measures 29 to 30. Annotations include '4:3' and 'No B.D.' (No Backbeat) under the drum parts, and measure numbers 27 and 29.

Musical Example 12: “Swarm” mm. 25-30

The image shows a musical score for two parts: G/B (Guitar/Bass) and Dr. (Drums). The G/B part is written in bass clef with a key signature of one flat (B-flat). The Dr. part is written in treble clef with a 4:3 time signature. The score covers measures 31 and 32. In measure 31, the G/B part has a series of eighth notes, and the Dr. part has a complex rhythmic pattern with 'x' marks indicating cymbal hits. In measure 32, the G/B part continues with eighth notes, and the Dr. part has a 'Fill' section with a 'One beat' annotation pointing to a specific note. The score ends with a double bar line.

Musical Example 12 Continued: “Swarm” mm. 31-32

- **Conclusion**

Aside from an early stint as a thrash metal band, Meshuggah has developed a style over the years in their thirty-three-year existence that is unique to them using elements such as polymeter, polyrhythm, and other rhythmic complexities. The music can be interpreted in such ways even if the band itself does not think in those terms.

According to author Miguel A. Roig-Francolí, analysts should not assume a composer intended to put something in their music unless they have written extensively on the subject. Analysts should only concern themselves with what they discover in the music regardless of what the composer intended.²⁷ With this in mind, I have taken these concepts that I have transcribed and applied them to my own composition, *Armageddon*.

²⁷ Miguel A. Roig-Francolí, *Understanding Post-Tonal Music* (New York: Taylor and Francis, 2020), 125.

CHAPTER 2 – *ARMAGEDDON*

Instrumentation:

Flute (Picc.)

Clarinet in Bb (B. Cl.)

Trumpet in C

Trombone

Percussion (Drum Set)

Piano

Violin

Viola

Violoncello

Double Bass

Duration:

10 minutes and 30 seconds

Armageddon

Adam J Benefield (b. 1988)

Spacey ♩=84

Flute (Picc.)

Clarinet in B \flat (B. Cl.)

Trumpet in C

Trombone

Percussion (One Player)

hauntingly eerie
Glockenspiel

hauntingly eerie
Vibraphone

Piano

Spacey ♩=84

Violin

Viola

ghostly whisper sul pont.

p mp p

Violoncello

Double Bass

6

hauntingly eerie

pitch bend

Fl.

Cl.

Tpt.

Tbn.

Perc.

Pno.

ghostly whisper
sul pont.

p mp p

Vln.

Vla.

Vc.

DB.

10

Fl. *p* *mp* *p*

Cl.

Tpt.

Tbn.

Perc. *p* *pp* *p* *pp* *p*

Pno.

Vln. *p* *mp* *p* sul pont.

Vla. *p* *mp* *p* sul pont. *p* *mp* *p* sul pont.

Vc.

DB.

Detailed description: This page of a musical score covers measures 10 through 14. The score is for a full orchestra and includes parts for Flute (Fl.), Clarinet (Cl.), Trumpet (Tpt.), Trombone (Tbn.), Percussion (Perc.), Piano (Pno.), Violin (Vln.), Viola (Vla.), Violoncello (Vc.), and Double Bass (DB.). The music is in 3/4 time and features a variety of dynamics and articulations. The Flute part begins in measure 10 with a *p* dynamic, moving to *mp* and then *p*. The Percussion part features a rhythmic pattern with dynamics ranging from *pp* to *p*. The Violin and Viola parts have *p* dynamics with *mp* accents and *p* dynamics, and both include *sul pont.* markings. The Viola part also features a triplet in measure 14. The Piano part is silent throughout these measures. The other instruments (Cl., Tpt., Tbn., Vc., DB.) are also silent.

15

Fl.

Cl.

Tpt.

Tbn.

Perc.

Pno.

Vln.

Vla.

Vc.

DB.

hauntingly eerie

p mp p mp

p mp p mp

pitch bend

pp p pp p pp p pp

20

Fl. *poco accel.*

Cl.

Tpt.

Tbn.

Perc. *p pp p*

Pno. *8va p creeping forward*

Vln. *sul pont. p < mp > p poco accel.*

Vla.

Vc.

DB.

Faster; disturbed ♩=88

25

Fl.

Cl.

Tpt.

Tbn.

Perc.

Pno.

Vln.

Vla.

Vc.

DB.

30

Fl. *mp* *mf*

Cl.

Tpt.

Tbn.

Perc. *mf* *mp* *mf*

Pno. *mf* *mp* *mf* *p* creeping forward 3 3

Vln.

Vla.

Vc.

DB.

molto accel. **Sweeping** ♩=100

35 *creeping forward*

Fl. *mp* *f*

Cl. *mp* *f*

Tpt. *mp* *f*

Tbn. *mp* *fp* *agitated*

Perc. *fp* *agitated*
 Percussion *Sus. Cym.* *Kick Drum*

Pno. *mp* *f* 6 6 6 3

molto accel. **Sweeping** ♩=100

Vln. *mp* *f*

Vla. *mp* *f*

Vc. *mp* *fp* *agitated arco*

DB. *mp* *fp* *agitated arco*

38

Fl.

Cl.

Tpt.

Tbn.

Perc.

Pno.

Vln.

Vla.

Vc.

DB.

fp *fp* *f*

fp *fp* *f*

fp *fp* *f*

fp *fp* *f*

Detailed description of the musical score: The score is for measures 38, 39, and 40. The Flute and Clarinet parts play a melodic line with slurs and accents. The Trumpet and Trombone parts play a similar melodic line. The Percussion part has a rhythmic pattern with accents. The Piano part has a complex texture with sixteenth-note runs in the right hand and chords in the left hand. The Violin, Viola, Violoncello, and Double Bass parts play a melodic line with slurs and accents. Dynamics include *fp* and *f*.

40

Fl. *ff* *f* rit.

Cl. *ff* *f*

Tpt. *ff* *f*

Tbn. *ff* *f*

Perc. *ff* *f*

Pno. *ff* *f*

Vln. *ff* *f* rit.

Vla. *ff* *f*

Vc. *ff* *f*

DB. *ff* *f*

Detailed description: This page of a musical score covers measures 40 to 43. The score is for a full orchestra. Measures 40-42 are marked *ff* (fortissimo), and measure 43 is marked *f* (forte) with a *rit.* (ritardando) instruction. The woodwinds (Flute, Clarinet) and brass (Trumpet, Trombone) parts feature sustained notes with accents. The Percussion part has a rhythmic pattern of eighth notes. The Piano part has a complex texture with sixteenth-note runs and sixteenth-note chords. The strings (Violin, Viola, Violoncello, Double Bass) play sustained notes with accents. The key signature has one flat (B-flat), and the time signature is 4/4.

42 To Picc. //

Fl. *p sfz* //

Cl. *p sfz* //

Tpt. *p sfz* //

Tbn. *p sfz* //

Perc. *p sfz* Choke //

Pno. *p sfz* //

Vln. *p sfz* //

Vla. *p sfz* //

Vc. *p sfz* //

DB. *p sfz* //

45 **Driving** ♩=92

Fl.

Cl.

Tpt. *To Bucket Mute*

Tbn.

Perc.

Pno. *mechanical*
mp *fp*

Driving ♩=92

Vln.

Vla.

Vc.

DB.

49

Fl.

Cl.

Tpt.

Tbn.

Perc.

Pno.

Vln.

Vla.

Vc.

DB.

mechanical

mf

sfz

mechanical

Vibraphone

mf

Kick Drum

sfz

f

mf

pizz.

sfz

pizz.

sfz

pizz.

sfz

pizz.

sfz

53

Fl.

Cl.

Tpt.

Tbn.

Perc.

Pno.

Vln.

Vla.

Vc.

DB.

mp *f*

sfz

mp *f*

sfz

sfz

sfz

sfz

sfz

56

Fl. *mechanical Piccolo*
mf

Cl. *mp* *f* *mp* *f* *mf*

Tpt.

Tbn. *sfz* *sfz* *sfz*
To Bucket Mute

Perc. *mp* *f* *mp* *f* *mf*
sfz *sfz* *sfz*

Pno. *mp* *f* *mp* *f* *mf*

Vln. *sfz* *sfz* *sfz*

Vla. *sfz* *sfz* *sfz*

Vc. *sfz* *sfz* *f poco*
menacing arco

DB. *sfz* *sfz* *f poco*
menacing arco

59

Picc.

Cl.

Tpt.

Tbn.

Perc.

Pno.

Vln.

Vla.

Vc.

DB.

This musical score page contains measures 59 through 62. The instruments and their parts are as follows:

- Picc. (Piccolo):** Melodic line with slurs and accents.
- Cl. (Clarinet):** Melodic line with slurs and accents.
- Tpt. (Trumpet):** Rested.
- Tbn. (Trombone):** Rested.
- Perc. (Percussion):** Accompaniment consisting of chords in the right hand and rests in the left hand.
- Pno. (Piano):** Accompaniment consisting of chords in the right hand and rests in the left hand.
- Vln. (Violin):** Rested.
- Vla. (Viola):** Rested.
- Vc. (Violoncello):** Bass line with slurs and accents.
- DB. (Double Bass):** Bass line with slurs and accents.

63

Picc. *To Fl.*

Cl. *To B. Cl.*

Tpt.

Tbn. bucket mute
f poco

Perc.

Pno.

Vln. arco (sul pont.)
f poco

Vla. arco (sul pont.)
f poco

Vc.

DB.

66

Picc.

Cl.

Tpt. *bucket mute*
suspenseful
p *mp* *p*

Tbn. *suspenseful*
sub. p *mp* *p*

Perc. *Glockenspiel*
suspenseful
p *mp* *p*

Pno.

Vln. *ord.*
sub. mp

Vla. *ord.* *restless*
sub. mp *p* *mp* *p* *mp* *p*

Vc. *restless*
sub. mp *p* *mp* *p* *mp* *p*

DB. *pizz.* *restless*
sub. mp *p* *mp* *p* *mp* *p*

70

Picc. *mechanical*
Flute
mf

Cl. *menacing*
Bass Clarinet
f poco

Tpt. *f* To Open

Tbn. *f* To Open

Perc. *f* *mf*
Vibraphone

Pno. *mf* *mechanical*

Vln. *mechanical*
mf

Vla. *mechanical*
mf

Vc. *menacing*
f poco

DB. *menacing*
arco
f poco

72

Fl.

B. Cl.

Tpt.

Tbn.

Perc.

Pno.

Vln.

Vla.

Vc.

DB.

Growl No Growl

3

75

Fl.

B. Cl.

Tpt.

Tbn.

Perc.

Pno.

Vln.

Vla.

Vc.

DB.

Growl

No Growl

78

Fl. *fp* *mf* To Picc.

B. Cl. To Cl.

Tpt. *mf* *pecariously open*

Tbn.

Perc. *stubborn Snare Drum* *mf* Stick Shot

Pno. *fp* *mf* *pecariously*

Vln. *fp* *mf*

Vla. *fp* *mf*

Vc.

DB. *suspenseful pizz.* *mf*

81

Fl.

B. Cl.

Tpt.

Tbn.

Perc.

Pno.

Vln.

Vla.

Vc.

DB.

Sim.

3

84 *pecariously* Piccolo

mf

pecariously Clarinet in Bb

mf

Tpt.

suspenseful
open

Tbn.

mf

Perc.

stubborn and obnoxious

mf

Pno.

suspenseful
col legno

Vln.

f

suspenseful
col legno

Vla.

f

suspenseful
pizz.

Vc.

mf

DB.

87

Picc. *f*

Cl. *f*

Tpt. *f*

Tbn. *f*

Perc.

Pno. *f*

Vln. *ff*

Vla. *ff*

Vc. *f*

DB. *f*

Detailed description: This page of a musical score covers measures 87 to 90. The key signature is one sharp (F#) and the time signature is 4/4. The score is arranged in a system with ten staves. The Piccolo, Clarinet, Trumpet, and Piano parts feature a rhythmic pattern of eighth notes with accents and slurs, including sixteenth-note runs and triplets. The Percussion part has a similar rhythmic pattern. The Trombone part consists of quarter notes. The Violin, Viola, Violoncello, and Double Bass parts provide harmonic support with quarter notes. Dynamics include *f* (forte) and *ff* (fortissimo). Measure 87 is marked with a rehearsal sign. Measure 90 ends with a double bar line and a repeat sign.

89

Picc. **3** **6**

Cl. **3** **6**

Tpt. **3** **6**

Tbn.

Perc.

Pno. **3** **6**

Vln. arco (ord.) **f**

Vla. arco (ord.) **f**

Vc. arco

DB. *aliss.*

Detailed description: This page of a musical score, numbered 89, features eight staves. The Piccolo, Clarinet, Trumpet, and Piano parts are marked with '3' and '6', indicating triplet and sextuplet rhythms. The Percussion part shows a complex rhythmic pattern. The Violin and Viola parts are marked 'arco (ord.)' and 'f' (forte). The Violoncello part is marked 'arco'. The Double Bass part is marked 'aliss.' (allegretto). The score is in 7/8 and 3/4 time signatures.

92 *really intense*

Picc. *f* *ff*

Cl. *f* *ff*

Tpt. *f* *ff*

Tbn. *f* *ff*

Perc. *f* *ff*
Glock.

Pno. *ff* *f* *ff* *f*

Vln. *ff* *f* *ff* *f*

Vla. *ff* *f* *ff* *f*

Vc. *ff* *f* *ff* *f*

DB. *ff* *f* *ff* *f*

94

Picc. *f*

Cl. *f*

Tpt. *f*

Tbn. *f*

Perc. *f*

Pno. *ff* *f* *ff* *f*

Vln. *ff* *f* *ff* *f*

Vla. *ff* *f* *ff* *f*

Vc. *ff* *f* *ff* *f*

DB. *ff* *f* *ff* *f*

96

Picc. *ff* *f*

Cl. *ff* *f*

Tpt. *ff* *f*

Tbn. *ff* *f*

Perc. *ff* *f*

Pno. *ff* *f* *ff* *f*

Vln. *ff* *f* *ff* *f*

Vla. *ff* *f* *ff* *f*

Vc. *ff* *f* *ff* *f*

DB. *ff* *f* *ff* *f*

98

Picc. *ff* *f*

Cl. *ff* *f*

Tpt. *ff* *f*

Tbn. *ff* *f*

Perc. *ff* *f*

Pno. *ff* *f* *ff* *f*

Vln. *ff* *f* *ff* *f*

Vla. *ff* *f* *ff* *f*

Vc. *ff* *f* *ff* *f*

DB. *ff* *f* *ff* *f*

Detailed description: This page of a musical score, numbered 98, contains ten staves. The top five staves are for woodwinds and percussion: Piccolo (Picc.), Clarinet (Cl.), Trumpet (Tpt.), Trombone (Tbn.), and Percussion (Perc.). The bottom five staves are for strings and piano: Piano (Pno.), Violin (Vln.), Viola (Vla.), Violoncello (Vc.), and Double Bass (DB.). The score is divided into two systems by a bar line. The first system covers measures 1-6, and the second system covers measures 7-12. The time signature changes from 3/4 to 7/8 at measure 7 and back to 3/4 at measure 12. Dynamics are marked as *ff* (fortissimo) and *f* (forte). The woodwinds and percussion play melodic lines with slurs, while the strings and piano play a rhythmic accompaniment of eighth notes.

100

Picc. *ff*

Cl. *ff*

Tpt. *ff*

Tbn. *ff*

Perc. *ff*

Pno. *ff* *f* *ff*

Vln. *ff* *f* *ff*

Vla. *ff* *f* *ff*

Vc. *ff* *f*

DB. *ff* *f*

102 *mechanical*

Picc. *f*

Cl. *f*

Tpt.

Tbn. *menacing* *f.t.*

Vibraphone *poco mechanical*

Perc. *f*

Pno. *f mechanical*

Vln. *f mechanical*

Vla. *f*

Vc. *menacing ff poco*

DB. *menacing arco ff poco*

105

Picc.

Cl.

Tpt.

Tbn.

Perc.

Pno.

Vln.

Vla.

Vc.

DB.

3

8va

8va

3

3

Detailed description: This page of a musical score covers measures 105, 106, and 107. The score is for a full orchestra. The Piccolo (Picc.) and Clarinet (Cl.) parts feature intricate, fast-moving melodic lines with many slurs and accents. The Trombone (Tbn.) part has a more melodic line with a triplet of eighth notes in measure 105. The Percussion (Perc.) part consists of a steady rhythmic accompaniment of chords. The Piano (Pno.) part has a complex texture with chords in the right hand and a moving bass line in the left hand, including two 8va markings. The Violin (Vln.), Viola (Vla.), Violoncello (Vc.), and Double Bass (DB.) parts all play similar melodic lines with slurs and accents, mirroring the Piccolo and Clarinet parts. The Double Bass part includes triplet markings in measures 105 and 107.

108

Picc. *fp* 6

Cl. *fp* 6

Tpt. *fp* 6

Tbn. 3

Perc.

Pno. *fp* 6

Vln. *fp* 6

Vla. *fp* 6

Vc. 3

DB. 3

Detailed description: This page of a musical score covers measures 108, 109, and 110. The score is for a full orchestra. The Piccolo and Clarinet parts feature a melodic line with slurs and accents, transitioning to a sixteenth-note pattern in measure 110. The Trumpet and Viola parts also play sixteenth-note patterns in measure 110. The Trombone and Violoncello parts play a triplet of eighth notes in measures 108 and 109. The Piano part features a complex texture with chords and moving lines in both hands. The Percussion part is silent. The Violin part plays a melodic line with slurs and accents, transitioning to a sixteenth-note pattern in measure 110. The Double Bass part plays a triplet of eighth notes in measures 108 and 109. The dynamic marking *fp* (fortissimo) is used for the Piccolo, Clarinet, Trumpet, Viola, and Violin parts in measure 110. The measure numbers 108, 109, and 110 are indicated at the top of the page.

111 *sweeping*
ff

Picc.

sweeping
ff

Cl.

sweeping
ff

Tpt.

very agitated
ff

Tbn.

Perc.

sweeping
ff
very agitated

Pno.

sweeping
ff
very agitated

Vln.

sweeping
ff

Vla.

sweeping
ff

Vc.

very agitated
ff

DB.

pizz. *very agitated*
ff

113

To Fl.

Picc. *sfz*

Cl. *sfz*

Tpt. *sfz*

Tbn. *sfz*

Perc. *heavy groove*
Drum Set *sfz mf*

Pno. *sfz mf*
heavy groove
grottesque

Vln. *sfz*
grottesque sul pont.
mf

Vla. *sfz*
grottesque sul pont.
mf

Vc. *heavy groove*
sfz mf

DB. *heavy groove*
sfz mf

Musical score for measures 118-125. The score includes parts for Piccolo (Picc.), Clarinet (Cl.), Trumpet (Tpt.), Trombone (Tbn.), Percussion (Perc.), Piano (Pno.), Violin (Vln.), Viola (Vla.), Violoncello (Vc.), and Double Bass (DB). The Percussion part features a complex rhythmic pattern with accents and a 'Splash' mark. The Piano part has a melodic line in the right hand and a bass line in the left hand. The string parts (Vln., Vla., Vc., DB) play a rhythmic accompaniment, with the Violin and Viola parts including 'ord.' and 'sul pont.' markings.

127

Picc.

Cl.

Tpt.

Tbn.

Perc.

Pno.

Vln.

Vla.

Vc.

DB.

133 $\text{♩} = \text{♩}$

Picc. *exotic*
Flute
 $mf < f > mf$ $< f > mf$ $< f > mf$

Cl. *exotic*
 $mf < f > mf$ $< f > mf$ $< f > mf$

Tpt.

Tbn. *heavy groove*
 mf

Perc.

Pno.

Vln. $\text{♩} = \text{♩}$

Vla.

Vc.

DB.

136

Fl. *f* *>* *mf*

Cl. *f* *>* *mf* To B. Cl. Bass Clarinet *f*

Tpt.

Tbn. *f*

Perc. China *f*

Pno. *f*

Vln. *f* *dizzying* ord. *poco*

Vla. *f* *dizzying* *poco*

Vc. *f*

DB. *f*

142

Fl. *dizzying*
f

B. Cl. *f*

Tpt. *dizzying*
f

Tbn. *f*

Perc. *Splash*

Pno.

Vln.

Vla.

Vc.

DB.

150

Fl. *poco*

B. Cl. *f*

Tpt. *poco*

Tbn. *f*

Perc.

Pno.

Vln. *poco*

Vla. *poco*

Vc.

DB.

Detailed description: This page of a musical score covers measures 150 through 153. The music is in 4/4 time and features a variety of instruments. The Flute (Fl.) and Violin (Vln.) parts are marked *poco* (a little) and feature melodic lines with slurs and accents. The B. Clarinet (B. Cl.), Trumpet (Tpt.), and Trombone (Tbn.) parts are marked *f* (forte) and play rhythmic patterns. The Percussion (Perc.) part provides a steady accompaniment. The Piano (Pno.) part features a complex rhythmic accompaniment. The Viola (Vla.) part is also marked *poco* and plays a melodic line. The Violoncello (Vc.) and Double Bass (DB.) parts provide a bass line. The score includes dynamic markings, articulation marks, and a repeat sign at the end of measure 153.

155 *8^{va}* relentless

Fl. *ff*

B. Cl. *ff ff_p ff ff_p ff ff_p*

Tpt. *ff* to plunger mute

Tbn. *ff ff_p ff ff_p ff ff_p*

Perc. *ff* China

Pno. *ff* relentless

Vln. *ff* relentless

Vla. *ff* relentless

Vc. *ff ff_p ff ff_p ff ff_p*

DB. *ff ff_p ff ff_p ff ff_p* arco

159 $\text{\textcircled{8}}$

Fl.

B. Cl.

Tpt.

Tbn.

Perc.

Pno.

Vln.

Vla.

Vc.

DB.

ff *ffp* *ff*

This page contains a musical score for measures 159 through 162. The score is for a full orchestra and includes parts for Flute (Fl.), Bass Clarinet (B. Cl.), Trompete (Tpt.), Trombone (Tbn.), Percussion (Perc.), Piano (Pno.), Violin (Vln.), Viola (Vla.), Violoncello (Vc.), and Double Bass (DB.). The music is in 3/4 time and features complex rhythmic patterns, including triplets and sixteenth notes. Dynamic markings such as *ff* and *ffp* are present throughout the score.

162 (8)

The musical score consists of ten staves for various instruments. The Flute (Fl.) and Violin (Vln.) parts feature a melodic line with slurs and accents. The Clarinet (B. Cl.), Trombone (Tbn.), Cello (Vc.), and Double Bass (DB.) parts play a rhythmic accompaniment of eighth notes. The Percussion (Perc.) part has a drum pattern with accents. The Piano (Pno.) part provides harmonic support with chords and arpeggios. The time signature changes from 4/4 to 3/4 at measure 164. Dynamics are marked as *ffp* and *ff*.

Fl.

B. Cl.

Tpt.

Tbn.

Perc.

Pno.

Vln.

Vla.

Vc.

DB.

165 *electrifying*

Fl.

B. Cl.

Tpt.

Tbn.

Perc.

Pno.

Vln.

Vla.

Vc.

DB.

electrifying

plunger mute

ff

ff

dizzying

dizzying

pizz.

poco

poco

171

Fl.

B. Cl.

Tpt.

Tbn.

Perc.

Pno.

Vln.

Vla.

Vc.

DB.

ff

Splash

Detailed description: This page of a musical score covers measures 171 to 175. The instruments are Flute (Fl.), Bass Clarinet (B. Cl.), Trumpet (Tpt.), Trombone (Tbn.), Percussion (Perc.), Piano (Pno.), Violin (Vln.), Viola (Vla.), Violoncello (Vc.), and Double Bass (DB.). The Flute and Trumpet parts feature melodic lines with slurs and accents, with dynamics ranging from *ff* to *mf*. The Bass Clarinet and Trombone parts provide harmonic support with *ff* dynamics. The Percussion part includes a steady eighth-note pattern and a 'Splash' effect. The Piano part features a complex accompaniment with slurs and accents. The string parts (Violin, Viola, Violoncello, and Double Bass) play a rhythmic pattern of eighth notes with slurs and accents.

176

Fl.

B. Cl.

To Cl.

ff

Tpt.

+ o + o + o + o + o

Tbn.

ff

Perc.

Pno.

Vln.

poco

Vla.

poco

Vc.

DB.

181

Fl. *exotic*
ff

B. Cl. *exotic*
ff
Clarinet in B \flat

Tpt. + o + o + o + o + o to open

Tbn. *ff*

Perc.

Pno.

Vln. *ff*

Vla.

Vc.

DB.

185

Fl. *hauntingly eerie*

Cl.

Tpt. *open* *to harmon mute (no stem)*

Tbn.

Perc.

Pno. *hauntingly eerie* *8va*

Vln.

Vla.

Vc.

DB.

The musical score consists of ten staves. The Flute and Clarinet parts feature a triplet of eighth notes in the first measure of each system, followed by a series of notes with accents. The Flute part includes the instruction 'hauntingly eerie' and dynamic markings of *fff*, *p*, and *mp*. The Clarinet part also has a triplet and *fff* marking. The Trumpet part is marked 'open' and 'to harmon mute (no stem)', with *ff* and *fff* dynamics. The Trombone part has a *fff* marking. The Percussion part has a *fff* marking and a dynamic change from *p* to *mf*. The Piano part features a *fff* marking and a 'hauntingly eerie' instruction with an *8va* marking. The Violin, Viola, and Double Bass parts all have *fff* markings. The Violoncello part has a *fff* marking. The score is divided into four measures with time signatures of 2/4, 4/4, 3/4, and 7/8.

190 *pitch bend*

Fl. *p*

Cl.

Tpt. *hauntingly eerie*
harmon mute (no stem)
mp *mf* *mp* *pitch bend*

Tbn. *interrupting*
f *f*

Perc. *interrupting*
f

Pno. *interrupting*
f *p* *mp* *f*

Vln. *interrupting*
f

Vla. *interrupting*
f

Vc. *interrupting*
f

DB. *pizz.*
f

195

Fl.

Cl. *hauntingly eerie* *p* *mp* *p* *pitch bend*

Tpt.

Tbn. *f*

Perc. *f*

Pno. *p* *mp* *f* *8va*

Vln. *f*

Vla. *f*

Vc. *f*

DB. *f*

199

Fl.

Cl.

Tpt.

Tbn.

Perc.

Pno.

Vln.

Vla.

Vc.

DB.

p *mp* *p*

p *mp* *p*

p *mp* *p*

8va

203

Fl. *To Picc.*

Cl. *p*

Tpt. *harmon mute (no stem)*
mp *mf* *mp* *mf*

Tbn.

Perc.

Pno. *mp* *p* *mp* *p* *mp*

Vln.

Vla.

Vc.

DB.

208

creeping forward
poco accel.

Piccolo

Fl. *mp* 3 3 3 3 3 3

Cl. *mp* *creeping forward*

Tpt. *To Open* *creeping forward open* *mp* 3 3 3 3 3 3

Tbn. *mp* *creeping forward*

Perc. *mp* Percussion

Pno. *p* *creeping forward* 3 3 3 3 3 3 *mp* 3 3 3 3 3 3

Vln. *mp* *creeping forward* **ord.** 3 3 3 3 3 3

Vla. *mp* *creeping forward* **ord.**

Vc. *mp* *creeping forward* pizz.

DB. *mp* *creeping forward* pizz.

Sweeping $\text{♩} = 96$

212

Picc. *f*

Cl. *f*

Tpt. *f*

Tbn. *very agitated*
f

Perc.

Pno. *f*
very agitated

Sweeping $\text{♩} = 96$

Vln. *f*

Vla. *f*

Vc. *very agitated*
arco (ord.)
f

DB. *very agitated*
f

214

Driving ♩=92
really intense

Picc. *really intense*
ff *f*

Cl. *really intense*
ff *f*

Tpt. *really intense*
ff *f*

Tbn. *really intense*
ff *f*

Perc. Glockenspiel *really intense*
ff *f*

Pno. *really intense*
ff *f* *ff*

Vln. **Driving** ♩=92
really intense
ff *f* *ff*

Vla. *really intense*
ff *f* *ff*

Vc. *really intense*
ff *f* *ff*

DB. *really intense*
ff *f* *ff*

217

Picc. *ff* *f* *ff*

Cl. *ff* *f* *ff*

Tpt. *ff* *f* *ff*

Tbn. *ff* *f* *ff*

Perc. *ff* *f* *ff*

Pno. *f* *ff* *f* *ff* *f* *ff* *f* *ff*

Vln. *f* *ff* *f* *ff* *f* *ff* *f* *ff*

Vla. *f* *ff* *f* *ff* *f* *ff* *f* *ff*

Vc. *f* *ff* *f* *ff* *f* *ff* *f* *ff*

DB. *f* *ff* *f* *ff* *f* *ff* *f* *ff*

Detailed description: This page of a musical score, numbered 217, contains ten staves for different instruments. The top five staves are for woodwinds and percussion: Piccolo (Picc.), Clarinet (Cl.), Trumpet (Tpt.), Trombone (Tbn.), and Percussion (Perc.). The bottom five staves are for strings: Piano (Pno.), Violin (Vln.), Viola (Vla.), Violoncello (Vc.), and Double Bass (DB.). The score is written in 7/8 time and consists of four measures. The woodwinds and percussion parts feature melodic lines with dynamic markings of *ff* (fortissimo) and *f* (forte). The string parts consist of rhythmic patterns, with the Piano, Violin, and Viola parts also marked with *f* and *ff*. The Double Bass part has a more melodic line with *f* and *ff* markings. The score includes various musical notations such as slurs, accents, and dynamic hairpins.

221

Picc. *f* *ff* *f*

Cl. *f* *ff* *f*

Tpt. *f* *ff* *f*

Tbn. *f* *ff* *f*

Perc. *f* *ff* *f*

Pno. *f* *ff* *f* *ff* *f* *ff* *f*

Vln. *f* *ff* *f* *ff* *f* *ff* *f*

Vla. *f* *ff* *f* *ff* *f* *ff* *f*

Vc. *f* *ff* *f* *ff* *f* *ff* *f*

DB. *f* *ff* *f* *ff* *f* *ff* *f*

Detailed description: This page of a musical score covers measures 221 to 224. It features ten staves for different instruments: Piccolo, Clarinet, Trumpet, Trombone, Percussion, Piano, Violin, Viola, Violoncello, and Double Bass. The music is written in a 7/8 time signature that changes to 3/4, 7/8, 3/4, and 4/4 throughout the measures. The dynamics are marked with *f* (forte) and *ff* (fortissimo). The Piccolo, Clarinet, Trumpet, Trombone, and Percussion parts have melodic lines with slurs and accents. The Piano, Violin, Viola, and Violoncello parts play a rhythmic accompaniment of eighth notes. The Double Bass part plays a similar rhythmic pattern. The score is arranged in a standard orchestral layout with woodwinds and brass at the top, percussion, piano, and strings at the bottom.

225

Picc. *ff* *f mechanical*

Cl. *ff* *f*

Tpt. *ff*

Tbn. *ff* *menacing poco* *f.t.*

Perc. *ff* *f mechanical*
Vibraphone

Pno. *ff* *f mechanical*

Vln. *ff* *f mechanical*

Vla. *ff* *f*

Vc. *ff* *menacing poco*

DB. *ff* *menacing arco* *ff poco*

228

Picc.

Cl.

Tpt.

Tbn.

Perc.

Pno.

Vln.

Vla.

Vc.

DB.

Detailed description of the musical score: The score is for measures 228-231. The Piccolo and Clarinet parts play a complex melodic line with many accidentals and slurs. The Trombone part features a triplet in measure 228 and another triplet in measure 230. The Piano part has a steady eighth-note accompaniment in the right hand and chords in the left hand. The Violin and Viola parts mirror the Piccolo and Clarinet lines. The Violoncello and Double Bass parts play a triplet in measure 228 and a long note in measure 230. The Percussion part is mostly silent, with a few notes in measure 230. The Trumpet part is silent throughout.

231

Picc.

Cl.

Tpt.

Tbn.

Perc.

Pno.

Vln.

Vla.

Vc.

DB.

The image shows a page of a musical score for measures 231, 232, and 233. The score is arranged in a standard orchestral layout with ten staves. The instruments are: Piccolo (Picc.), Clarinet (Cl.), Trumpet (Tpt.), Trombone (Tbn.), Percussion (Perc.), Piano (Pno.), Violin (Vln.), Viola (Vla.), Violoncello (Vc.), and Double Bass (DB.). Measures 231 and 232 feature complex melodic lines for the Piccolo and Clarinet, and a rhythmic accompaniment for the Piano. Measures 233 show a continuation of these parts, with the Trombone and Double Bass playing a triplet figure. The score includes various musical notations such as slurs, accents, and dynamic markings.

234

Picc. *ff* *f* *ff*

Cl. *ff* *f* *ff*

Tpt. *f* *ff* *f* *ff*

Tbn. *f* *ff* *f* *ff*

Perc. *f* *ff* *f* *ff*

Pno. *f* *ff* *f* *ff*

Vln. *f* *ff* *f* *ff*

Vla. *f* *ff* *f* *ff*

Vc. *f* *ff* *f* *ff*

DB. *f* *ff* *f* *ff*

The image shows a page of a musical score for measures 234-237. The score is written for a full orchestra and includes parts for Piccolo (Picc.), Clarinet (Cl.), Trumpet (Tpt.), Trombone (Tbn.), Percussion (Perc.), Piano (Pno.), Violin (Vln.), Viola (Vla.), Violoncello (Vc.), and Double Bass (DB.). The music is in 3/4 time and features a variety of rhythmic patterns and dynamic markings. The Piccolo and Clarinet parts have a melodic line with accents and slurs. The Trumpet and Trombone parts have a more rhythmic, eighth-note pattern. The Percussion part consists of chords. The Piano part has a complex texture with chords and moving lines. The Violin, Viola, Violoncello, and Double Bass parts have a similar rhythmic pattern to the Trumpet and Trombone. The score is divided into two systems, with measures 234-235 in the first system and measures 236-237 in the second system. The key signature is two flats (B-flat and E-flat), and the time signature is 3/4. The dynamic markings are *f* (forte) and *ff* (fortissimo).

236

Picc. *f* *ff* To Fl.

Cl. *f* *ff* To B. Cl.

Tpt. *f* *ff*

Tbn. *f* *ff* heavy groove *mf*

Perc. *f* *ff*

Pno. *f* *ff* heavy groove *mf*

Vln. *f* *ff*

Vla. *f* *ff*

Vc. *f* *ff* heavy groove *mf*

DB. *f* *ff* heavy groove *mf*

Musical score for measures 238-240. The score is arranged in a system with ten staves. The instruments and their parts are as follows:

- Picc.**: Piccolo, rests in all measures.
- Cl.**: Clarinet, rests in all measures.
- Tpt.**: Trumpet, rests in all measures.
- Tbn.**: Trombone, plays a rhythmic pattern of eighth notes in 4/4, 7/8, and 4/4 time signatures. Dynamics are *f*, *mf*, and *f*.
- Perc.**: Percussion, rests in all measures.
- Pno.**: Piano, plays a rhythmic pattern of eighth notes in 4/4, 7/8, and 4/4 time signatures. Dynamics are *f*, *mf*, and *f*.
- Vln.**: Violin, rests in all measures.
- Vla.**: Viola, rests in all measures.
- Vc.**: Violoncello, plays a rhythmic pattern of eighth notes in 4/4, 7/8, and 4/4 time signatures. Dynamics are *f*, *mf*, and *f*.
- DB.**: Double Bass, plays a rhythmic pattern of eighth notes in 4/4, 7/8, and 4/4 time signatures. Dynamics are *f*, *mf*, and *f*.

Picc. *heavy groove*
Bass Clarinet

Perc.

Pno.

Vc.

DB.

The musical score is arranged in a system of ten staves. The top staff is for Piccolo (Picc.), which is silent throughout. The second staff is for Bass Clarinet (B. Cl.), with dynamics *mf*, *f*, and *mf*. The third staff is for Trombone (Tbn.), with dynamics *mf*, *f*, and *mf*. The fourth staff is for Percussion (Perc.), with a *mf* dynamic. The fifth staff is for Piano (Pno.), with dynamics *mf*, *f*, and *mf*. The sixth staff is for Violin (Vln.), which is silent. The seventh staff is for Viola (Vla.), which is silent. The eighth staff is for Violoncello (Vc.), with dynamics *mf*, *f*, and *mf*. The ninth staff is for Double Bass (DB.), with dynamics *mf*, *f*, and *mf*. The score is in 7/8 time, with a key signature of one flat (B-flat). The measures are grouped into four measures per system, with a 7/8 measure followed by three 4/4 measures.

244

Picc. *epic* Flute *ff*

B. Cl. *f* *ff*

Tpt. *epic* *ff*

Tbn. *f* *ff*

Perc. *heavy groove* *f*

Pno. *f* *ff*

Vln. *epic* *ff*

Vla. *epic* *ff*

Vc. *f* *ff*

DB. *f* *pizz.* *ff*

247

Fl. *poco*

B. Cl. *f* *ff* *f*

Tpt. *poco*

Tbn. *f* *ff* *f*

Perc.

Pno. *f* *ff* *f*

Vln. *poco*

Vla. *poco*

Vc. *f* *ff* *f*

DB. *f* *ff* *f*

Detailed description: This page of a musical score covers measures 247 to 250. The score is for a full orchestra and includes parts for Flute (Fl.), B. Clarinet (B. Cl.), Trumpet (Tpt.), Trombone (Tbn.), Percussion (Perc.), Piano (Pno.), Violin (Vln.), Viola (Vla.), Violoncello (Vc.), and Double Bass (DB.). The music is in 7/8 time and features complex rhythmic patterns with frequent rests. The Flute and Violin parts are marked *poco*, while the B. Clarinet, Trombone, Piano, Viola, Violoncello, and Double Bass parts are marked with dynamic levels *f* and *ff*. The Percussion part consists of rhythmic patterns with 'x' marks indicating specific sounds. The Piano part features a complex accompaniment with dynamic markings *f* and *ff*. The overall texture is dense and rhythmic.

250

Fl.

B. Cl.

Tpt.

Tbn.

Perc.

Pno.

Vln.

Vla.

Vc.

DB.

ff *f* *ff* *f* *ff* *f* *ff* *f*

3 3 3

252

Fl.
B. Cl.
Tpt.
Tbn.
Perc.
Pno.
Vln.
Vla.
Vc.
DB.

ff *f* *ff*

ff *f* *ff*

ff *f* *ff*

ff *f* *ff*

ff *f* *ff*

ff *f* *ff*

ff *f* *ff*

ff *f* *ff*

ff *f* *ff*

ff *f* *ff*

255

Fl. *poco*

B. Cl. *f* *ff* *f*

Tpt. *poco*

Tbn. *f* *ff* *f*

Perc.

Pno. *f* *ff* *f*

Vln. *poco*

Vla. *poco*

Vc. *f* *ff* *f*

DB. *f* *ff* *f*

Detailed description: This page of a musical score covers measures 255, 256, and 257. The score is for a full orchestra and includes parts for Flute (Fl.), B. Clarinet (B. Cl.), Trumpet (Tpt.), Trombone (Tbn.), Percussion (Perc.), Piano (Pno.), Violin (Vln.), Viola (Vla.), Violoncello (Vc.), and Double Bass (DB.). The music is in 7/8 time and features a variety of dynamics and articulations. The Flute part starts with a *poco* marking and has a melodic line with slurs. The B. Clarinet part has a rhythmic pattern with *f* and *ff* dynamics. The Trumpet and Trombone parts have a similar rhythmic pattern with *f* and *ff* dynamics. The Percussion part has a steady rhythmic accompaniment. The Piano part has a complex texture with *f* and *ff* dynamics. The Violin and Viola parts have a melodic line with slurs and *poco* markings. The Violoncello and Double Bass parts have a rhythmic pattern with *f* and *ff* dynamics.

258

Fl.

B. Cl.

Tpt.

Tbn.

Perc.

Pno.

Vln.

Vla.

Vc.

DB.

The musical score consists of ten staves for various instruments. The Flute (Fl.) part has a melodic line with triplets and slurs. The B. Clarinet (B. Cl.) part has a rhythmic pattern with dynamic markings *ff* and *f*. The Trumpet (Tpt.) part has a melodic line with triplets. The Trombone (Tbn.) part has a rhythmic pattern with dynamic markings *ff* and *f*. The Percussion (Perc.) part has a rhythmic pattern with accents. The Piano (Pno.) part has a complex rhythmic pattern with dynamic markings *ff* and *f*. The Violin (Vln.) part has a melodic line with triplets. The Viola (Vla.) part has a melodic line with triplets. The Violoncello (Vc.) part has a rhythmic pattern with dynamic markings *ff* and *f*. The Double Bass (DB.) part has a rhythmic pattern with dynamic markings *ff* and *f*. The score is in 4/4 time and features a key signature of one sharp (F#).

261

Fl.

ff

bombastic

B. Cl.

ff

Tpt.

ff

bombastic

Tbn.

Perc.

ff

bombastic

Pno.

ff

bombastic

Vln.

ff

Vla.

ff

bombastic

Vc.

ff

bombastic

DB.

bombastic

264

Fl.

B. Cl.

Tpt.

Tbn.

Perc.

Pno.

Vln.

Vla.

Vc.

DB.

Detailed description: This page of a musical score covers measures 264, 265, and 266. The score is for a full orchestra and includes parts for Flute (Fl.), B. Clarinet (B. Cl.), Trumpet (Tpt.), Trombone (Tbn.), Percussion (Perc.), Piano (Pno.), Violin (Vln.), Viola (Vla.), Violoncello (Vc.), and Double Bass (DB.). The Flute, Trumpet, and Viola parts feature prominent triplet patterns in measures 264 and 266. The Percussion part includes a complex rhythmic pattern with various symbols like 'o+', 'x', and 'v'. The Piano part has a steady accompaniment. The Violoncello and Double Bass parts provide a harmonic foundation with eighth-note patterns. The score is written in a key with one flat and a 3/4 time signature.

267

Fl.

B. Cl.

Tpt.

Tbn.

Perc.

Pno.

Vln.

Vla.

Vc.

DB.

Detailed description: This page of a musical score covers measures 267 to 270. The score is for a full orchestra and includes parts for Flute (Fl.), Bass Clarinet (B. Cl.), Trumpet (Tpt.), Trombone (Tbn.), Percussion (Perc.), Piano (Pno.), Violin (Vln.), Viola (Vla.), Violoncello (Vc.), and Double Bass (DB.). The music is in 7/8 time. Measures 267 and 269 feature prominent triplet patterns in the Flute, Trumpet, and Viola parts. The Percussion part includes a complex rhythmic pattern with accents and slurs. The Piano part provides harmonic support with chords and moving lines. The strings (Violin, Viola, Violoncello, and Double Bass) play a steady, rhythmic accompaniment.

269

Fl. *fff* *ff* *epic*

B. Cl. *fff* *f* *heavy groove*

Tpt. *fff* *ff* *epic*

Tbn. *fff* *f* *heavy groove*

Perc. *fff* *f* *heavy groove*

Pno. *fff* *f* *heavy groove*

Vln. *fff* *ff* *epic*

Vla. *fff* *ff* *epic*

Vc. *fff* *f* *heavy groove*

DB. *fff* *f* *heavy groove*

271

Fl. *poco*

B. Cl. *ff* *f* *ff*

Tpt. *poco*

Tbn. *ff* *f* *ff*

Perc.

Pno. *ff* *f* *ff*

Vln. *poco*

Vla. *poco*

Vc. *ff* *f* *ff*

DB. *ff* *f* *ff*

Detailed description: This page of a musical score covers measures 271, 272, and 273. The music is in 4/4 time and features a variety of instruments. The Flute (Fl.) part begins with a melodic line in measure 271, which continues through measure 273 with a *poco* dynamic marking. The B. Clarinet (B. Cl.) part has a rhythmic, eighth-note pattern, alternating between *ff* and *f* dynamics. The Trumpet (Tpt.) part has a similar melodic line to the Flute, also marked *poco*. The Trombone (Tbn.) part has a rhythmic pattern similar to the B. Cl., with *ff* and *f* dynamics. The Percussion (Perc.) part has a consistent eighth-note pattern. The Piano (Pno.) part has a complex, rhythmic accompaniment with *ff* and *f* dynamics. The Violin (Vln.) part has a melodic line similar to the Flute, marked *poco*. The Viola (Vla.) part has a similar melodic line, also marked *poco*. The Violoncello (Vc.) part has a rhythmic pattern similar to the B. Cl., with *ff* and *f* dynamics. The Double Bass (DB.) part has a rhythmic pattern similar to the B. Cl., with *ff* and *f* dynamics.

Musical score for page 110, measures 274-276. The score is in 7/8 time and consists of ten staves: Flute (Fl.), Bass Clarinet (B. Cl.), Trumpet (Tpt.), Trombone (Tbn.), Percussion (Perc.), Piano (Pno.), Violin (Vln.), Viola (Vla.), Violoncello (Vc.), and Double Bass (DB.).

Measure 274: Flute (Fl.) has a melodic line starting with a quarter note G4, followed by a dotted quarter note A4, and a half note B4. Bass Clarinet (B. Cl.) has a rhythmic pattern of eighth notes: G3, A3, B3, C4, D4, E4, F4, G4. Trumpet (Tpt.) has a melodic line starting with a quarter note G4, followed by a dotted quarter note A4, and a half note B4. Trombone (Tbn.) has a rhythmic pattern of eighth notes: G3, A3, B3, C4, D4, E4, F4, G4. Percussion (Perc.) has a rhythmic pattern of eighth notes: G3, A3, B3, C4, D4, E4, F4, G4. Piano (Pno.) has a rhythmic pattern of eighth notes: G3, A3, B3, C4, D4, E4, F4, G4. Violin (Vln.) has a melodic line starting with a quarter note G4, followed by a dotted quarter note A4, and a half note B4. Viola (Vla.) has a melodic line starting with a quarter note G4, followed by a dotted quarter note A4, and a half note B4. Violoncello (Vc.) has a rhythmic pattern of eighth notes: G3, A3, B3, C4, D4, E4, F4, G4. Double Bass (DB.) has a rhythmic pattern of eighth notes: G3, A3, B3, C4, D4, E4, F4, G4.

Measure 275: Flute (Fl.) has a melodic line starting with a quarter note G4, followed by a dotted quarter note A4, and a half note B4. Bass Clarinet (B. Cl.) has a rhythmic pattern of eighth notes: G3, A3, B3, C4, D4, E4, F4, G4. Trumpet (Tpt.) has a melodic line starting with a quarter note G4, followed by a dotted quarter note A4, and a half note B4. Trombone (Tbn.) has a rhythmic pattern of eighth notes: G3, A3, B3, C4, D4, E4, F4, G4. Percussion (Perc.) has a rhythmic pattern of eighth notes: G3, A3, B3, C4, D4, E4, F4, G4. Piano (Pno.) has a rhythmic pattern of eighth notes: G3, A3, B3, C4, D4, E4, F4, G4. Violin (Vln.) has a melodic line starting with a quarter note G4, followed by a dotted quarter note A4, and a half note B4. Viola (Vla.) has a melodic line starting with a quarter note G4, followed by a dotted quarter note A4, and a half note B4. Violoncello (Vc.) has a rhythmic pattern of eighth notes: G3, A3, B3, C4, D4, E4, F4, G4. Double Bass (DB.) has a rhythmic pattern of eighth notes: G3, A3, B3, C4, D4, E4, F4, G4.

Measure 276: Flute (Fl.) has a melodic line starting with a quarter note G4, followed by a dotted quarter note A4, and a half note B4. Bass Clarinet (B. Cl.) has a rhythmic pattern of eighth notes: G3, A3, B3, C4, D4, E4, F4, G4. Trumpet (Tpt.) has a melodic line starting with a quarter note G4, followed by a dotted quarter note A4, and a half note B4. Trombone (Tbn.) has a rhythmic pattern of eighth notes: G3, A3, B3, C4, D4, E4, F4, G4. Percussion (Perc.) has a rhythmic pattern of eighth notes: G3, A3, B3, C4, D4, E4, F4, G4. Piano (Pno.) has a rhythmic pattern of eighth notes: G3, A3, B3, C4, D4, E4, F4, G4. Violin (Vln.) has a melodic line starting with a quarter note G4, followed by a dotted quarter note A4, and a half note B4. Viola (Vla.) has a melodic line starting with a quarter note G4, followed by a dotted quarter note A4, and a half note B4. Violoncello (Vc.) has a rhythmic pattern of eighth notes: G3, A3, B3, C4, D4, E4, F4, G4. Double Bass (DB.) has a rhythmic pattern of eighth notes: G3, A3, B3, C4, D4, E4, F4, G4.

277

Fl.
B. Cl.
Tpt.
Tbn.
Perc.
Pno.
Vln.
Vla.
Vc.
DB.

bomastic
ff

bomastic
ff

bomastic
ff

bomastic
ff

bomastic
ff

bomastic
ff

bomastic
ff

bomastic
ff

bomastic
ff

bomastic
ff

280

Fl.

B. Cl.

Tpt.

Tbn.

Perc.

Pno.

Vln.

Vla.

Vc.

DB.

Detailed description: This page of a musical score covers measures 280, 281, and 282. The score is for a full orchestra and includes parts for Flute (Fl.), B. Clarinet (B. Cl.), Trumpet (Tpt.), Trombone (Tbn.), Percussion (Perc.), Piano (Pno.), Violin (Vln.), Viola (Vla.), Violoncello (Vc.), and Double Bass (DB.). The Flute, Trumpet, and Viola parts feature prominent triplet patterns in measures 280 and 281. The Percussion part has a complex rhythmic pattern with accents and slurs. The Piano part provides harmonic support with chords and moving lines. The Violoncello and Double Bass parts have a steady, rhythmic accompaniment. The score is written in a key with one flat and a 3/4 time signature.

283

Fl.

B. Cl.

Tpt.

Tbn.

Perc.

Pno.

Vln.

Vla.

Vc.

DB.

286

Fl. *ffp* *mp* *mf* *f* *ff* *fff*

B. Cl. *ffp* *mp* *mf* *f* *ff* *fff*

Tpt. *mf* *f* *ff* *fff*

Tbn. *mp* *mf* *f* *ff* *fff*

Perc. *ffp* *mp* *mf* *f* *ff* *fff*

Pno. *ffp* *mp* *mf* *f* *ff* *fff*

Vln. *f* *ff* *fff*

Vla. *mf* *f* *ff* *fff*

Vc. *mp* *mf* *f* *ff* *fff*

DB. *arco* *ffp* *mp* *mf* *f* *ff* *fff*

CHAPTER 3 – CONCEPTS USED IN *ARMAGEDDON*

- **Polymer**

It would be impossible to compose a piece inspired by Meshuggah's music without incorporating the use of polymer in some way. Therefore, *Armageddon* contains quite a number of instances of polymer. The very first example can be seen in mm. 51-54 (musical example 13). The 7/8 riff-like material that previously began in mm. 45-48 is now superimposed against a steady 4/4 pulse. This creates a unique interplay between the two juxtaposed parts as they gradually fall further and further out of sync with each other. By m. 54, they are separated by two entire beats. Rather than continue to its mathematical conclusion (seven measures in this case) a brief phrase extension is inserted to fill the void. This extension exemplifies Haake's technique of adding drum fills at the ends of a sections and the extension used in "Clockworks." The idea is expanded upon in mm. 58-65 (musical example 14) as another layer is added. This additional layer further asserts 4/4's dominance over 7/8 with the inclusion of a menacing melody played by the cello and double bass that stretches across an eight-measure section. Halfway through the section, the 7/8 material repeats a half step higher just as the melody continues a half step higher. This same section occurs again in mm 71-78, 102-109, and 226-233, albeit slightly varied and at a different pitch level.

Mm. 45-48

Riff

Mm. 51-54

Riff

Steady $\frac{4}{4}$ pulse

53

3 cont.

4

Extension

Musical Example 13: *Armageddon* Riff and mm. 51-54

Another example of polymeter occurs in mm. 66-70. This time it might not be at first apparent. Closer examination, however, reveals that it is indeed polymetric, but it is written in mixed meter to allow for easier readability. The melody is in the trumpet and glockenspiel accompanied by a harmony part in the trombone that is a major sixth lower (musical example 15). These parts are in 4/4, although at a glance it might not appear so, and placed on top of an ostinato in the lower strings that oscillates between 3/4 and 7/8. Just like with the previous section, the ostinato and melody gradually fall out of sync with each other. There is a three-beat gap by the end of the section that is again filled with a

phrase extension. This same idea is expanded upon in mm. 92-101 and 216-225 (musical example 16). This time, however, it is stretched across ten measures instead of five.

Mm. 58-65

Riff

Melody

4 cont. Extension 1 2 3

Riff repeats up a half step

Melody repeats up a half step

3 cont. 4 Extension

Riff continues back at its original pitch level

Melody continues back at its original pitch level

Musical Example 14: *Armageddon* mm. 58-65

Unlike *Meshuggah*, *Armageddon* contains an example of polymeter where 4/4 is not heard as the dominant meter in m. 80. At the forefront is a trumpet and piano part that oscillates between 4/4–7/8 and 7/8–4/4 (see example 17). Underneath it, however, the bass and percussion are outlining a steady 4/4 pulse. But, only three full measures of 4/4 are able to fit in the 4/4–7/8 and 7/8–4/4 framework. The fourth measure is shortened to 3/4 because a fourth beat could not be accommodated. This same idea is continued across the next eight measures with full tutti instrumentation.

Mm. 66-70

Musical Example 15: *Armageddon* mm. 66-70

Mm. 92-101

Melody + Harmony

Ostinato

1 2 3 4

96 4 cont. 1 2

Melody Repeats

Minor 3rd lower

3 4

99 2 cont. 3 4

4 cont. Extension

Musical Example 16: *Armageddon* mm. 92-101

Mm. 80-83

Trumpet and piano

Bass pizz.

Snare Drum

Musical Example 17: *Armageddon* mm. 80-83

- **Polyrhythm**

In addition to polymeter, a number of examples of polyrhythm also take place throughout the piece. These polyrhythms are used at a much smaller scale than polymeter, but add even more drama when coupled with polymeter. They also demonstrate vocalist Jens Kidman’s and drummer Tomas Haake’s use of polyrhythms in Meshuggah’s vocal lines and drum parts in songs such as “Bleed,” “Swarm,” and “Clockworks.” The difference, however, is that these rhythms are purely polyrhythmic in nature and not byproducts of polymeter. They also only occur on one or two beats rather than across whole sections. Musical example 18 showcases early uses of two-against-three polyrhythms in mm. 35-36, which foreshadow what is later to come. The same thing takes place again in mm. 210-211 (musical example 19), but in an even more dramatic manner. This time the intensity is heightened as the polyrhythms are faster at the end of the measure. The meter is also altered from 4/4 to 7/8 to add more intensity.

Mm. 37-39 demonstrates another use of polyrhythm that later occurs in mm. 111-113 and 212-214 (musical example 20).

Mm. 35-36

Musical Example 18: Polyrhythms in mm. 35-36

Mm. 210-211

Musical Example 19: Polyrhythms in mm. 210-211

Mm. 226-233 (musical example 21) truly realizes Kidman's technique of adding polyrhythms on top of a polymetric frenzy, similar to "Bleed." The riff and melody have previously been heard on multiple occasions, but each time it is heard, the melody incorporates another polyrhythm. This particular section showcases both two-against-three and three-against-four polyrhythms towards the end of the composition.

Mm. 37-39

The image displays two systems of musical notation for measures 37-39. Each system consists of three staves: a treble clef staff (top), a treble clef staff (middle), and a bass clef staff (bottom). The top staff contains a melodic line with eighth notes, featuring sixteenth-note triplets and a triplet of eighth notes. The middle staff contains a harmonic accompaniment with chords and some eighth-note patterns. The bottom staff contains a bass line with eighth notes and rests. The first system is labeled 'Mm. 37-39' and includes a circled triplet of eighth notes in the final measure. The second system is labeled '38 (8)' and includes a circled triplet of eighth notes in the final measure. The circled triplets in both systems are highlighted with a black box.

Musical Example 20: Polyrhythms in mm. 37-39

Mm. 226-233

Riff

Melody

228

230

232

Detailed description: The image shows a musical score for measures 226-233. It consists of four systems of music. Each system has three staves: a grand staff (treble and bass clefs) and a separate bass line. The first system (measures 226-227) is labeled 'Mm. 226-233'. The piano part has a 'Riff' in the right hand and a 'Melody' in the left hand. The bass line is a simple accompaniment. The second system (measures 228-229) shows a key signature change to one sharp (F#) and contains two circled triplets in the piano right hand and bass line. The third system (measures 230-231) shows a key signature change to two sharps (F# and C#). The fourth system (measures 232-233) shows a key signature change to three sharps (F#, C#, and G#) and contains one circled triplet in the piano right hand and bass line.

Musical Example 21: Polyrhythms and Polymeter in mm. 226-233

- **Rhythms that Irregularly Divide Measures and Cross Bar Lines**

Armageddon also contains a number of rhythms that irregularly divide measures and crossover bar lines in a similar manner to “Clockworks” and “Swarm.” This can be found in mm. 137-154 (musical example 22) and again in mm. 165-182. The cello and double bass are playing in 7/16. The violin and viola, however, come in with a constant dotted quarter-note pattern. The drum set, although largely playing in 7/16, contains a mostly steady quarter-note pattern in the hi-hat. Since the upper strings play constant dotted quarter notes while the hi-hat mostly plays constant quarter notes, eight instances of a four-against-three polyrhythm occur in the passage.

The musical score for Musical Example 22: *Armageddon* mm. 137-147 is presented in two systems. The first system covers measures 137-141, and the second system covers measures 142-147. The time signature is 7/16. The Violin/Viola part (top staff) plays a continuous dotted quarter-note pattern. The Drum set part (middle staff) features a steady quarter-note pattern in the hi-hat. The Cello/Bass part (bottom staff) plays a dotted quarter-note pattern. The 4:3 polyrhythm is indicated by '4:3' above the measures.

Musical Example 22: *Armageddon* mm. 137-147

Musical Example 22 Continued: *Armageddon* mm. 148-154

- **Musical Cryptogram**

Although not a Meshuggah technique, a musical cryptogram was used to generate melodic material in *Armageddon*'s B section. It is a fun compositional technique to employ that still keeps with the Meshuggah theme. The cryptogram can be heard in the violin and viola parts in mm. 137-154 illustrated in musical example 22 above. This particular musical cryptogram spells out the band's name. To get the results, all letters that are musical pitches are laid out in a row with all non-musical letters placed in columns underneath them. All non-musical letters in a particular word are counted as the musical pitch at the top of the column (**in bold**). The results for M-E-S-H-U-G-G-A-H

are F-E-E-A-G-G-G-A-A. That result, however, does not suit the harmony already in use, but when altered to F-Eb-E-A-G-Gb-G-A-Ab, a well-suited, very interesting line (similar to one of Fredrik Thordendal's hypnotic lead guitar loops) is produced (musical example 23). The line does undergo some alterations here and there throughout the passage, but it can be heard in full many times between mm. 137-154 and again in mm. 165-182.

A	B	C	D	E	F	G
H	I	J	K	L	M	N
O	P	Q	R	S	T	U
V	W	X	Y	Z		

Table 2: Musical Cryptogram Chart



Musical Example 23: Musical Cryptogram Resultant Melody

- **Coda**

Similar to “Electric Red,” *Armageddon* contains a coda. Unlike the coda in “Electric Red,” *Armageddon*’s coda is only partially made up of new material. The piano, bass clarinet, trombone, cello, and double bass introduce new material starting in m. 237. This is then juxtaposed in m. 245 (musical example 24) with a melody and harmony combination heard in the flute, trumpet, violin, and viola that is a reinterpretation of a melody previously used in mm. 58-65, 71-78, 102-109, and 226-233.

Musical Example 24: *Armageddon* Coda mm. 245-248

249

251

3

3

Musical Example 24 Continued: *Armageddon* Coda mm. 249-252

CHAPTER 4 – REFLECTION

I have been a fan of metal since middle school and Meshuggah since late high school. Writing *Armageddon* and this thesis is a culmination resulting from years of fandom. Although I have been a composer for just as long, this is the first time that I consciously composed something influenced by metal. There are primarily four things that I learned while composing *Armageddon* and writing this thesis.

One important discovery I made about myself is that I think like a drummer, not only when performing, but also when composing. When I was creating polymetric cycles for my piece, I noticed that I tend to think of them like phrases with a fill at the end, much like Tomas Haake does. He often breaks away from playing the groove at the ends of sections and phrases to play a drum fill, which is a relatively standard practice for most styles of music that involve the drum set. I allowed my riffs to repeat as many times as possible within a section, but at the ends of each section I inserted an extension that served as transitional, or fill-like material, into the next section. This is different from the guitars and bass, which usually continue the riff in the remaining space and then abruptly chop it off when the end of the section is reached. This is also similar to Haake's compositional method used in m. 49 of "Clockworks" (musical example 9).

In addition to being a drummer, I am also a pianist. While writing much of *Armageddon*, I used both the drum set and the piano as compositional tools. I usually do use the piano while composing, but using the drum set as a compositional tool was a new

experience for me. I also did something totally new by using the guitar and ukulele to compose most of the B section beginning in m. 115. Although I do play the ukulele, I do not play the guitar, and I have certainly never used either instrument as a compositional tool. This helped me think differently than I normally do and conceive ideas I might not otherwise have come up with. Likewise, other than Haake, most of the members of Meshuggah use the guitar or bass to write their songs. I sought to do something similar.

For the most part in Meshuggah's songs, the guitars and bass play riffs in different meters while the drums are playing in 4/4. Sometimes the lead guitar and vocals are also in 4/4. Although the lead guitar does involve pitch, the drums and vocals do not (Kidman uses death growls rather than pitches in the vocals). Because of this, the pitches used in the riffs do not usually clash with the 4/4 framework when they fall in and out of sync with each other. I, however, had to take great care in making sure the differing meters in *Armageddon* did not clash with each other when the cycles were taking place because most of the instruments utilized involve pitch. To solve this problem, sometimes it was necessary to alter the pitches of the riffs or the pitches of the 4/4 framework, so that they would not clash with each other.

I also learned, at Mr. Stafylakis' suggestion, that it is often necessary to put more instruments on a part than I normally would when writing low-register, metal-style riffs in order for it to translate. This is because the instruments used in metal are heavily amplified, electrified, and often distorted, which gives them a lot of energy and power.

The instruments in an acoustic ensemble, however, are not amplified, so more instruments on a single line are often crucial to capture the right essence of the music.

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VITA

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