Three Works: Brick, Tapas, and Tight Sweater

A Dissertation
Presented to the Faculty of the Graduate School
of Cornell University
In Partial Fulfillment of the Requirements for the Degree of
Doctor of Musical Arts

Part I

by
Marc Andrew Mellits
May 2009
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Marc Mellits

Brick

for orchestra

2005
Marc Mellits
Brick
for orchestra
2005

Instrumentation:
2 Flutes (2nd doubling Piccolo)
2 Oboes
2 Bb Clarinets
2 Bassoons
2 Horns
2 Bb Trumpets
1 Percussion:
Timpani, Glockenspiel, Xylophone, Marimba, Vibraphone
Harp
Violin I
Violin II
Viola
Cello
Bass

Commissioned by The Cheswatyr Commission Project:
A Partnership of the Cheswatyr Foundation,
American Music Center, Orpheus Chamber Orchestra,
National Public Radio, and WNYC Radio.

special gratitude to Cece Wasserman

for the Orpheus Chamber Orchestra

to Janet Mellits Mazor

Dacia Music
www.marcmellits.com
(no more than 10 seconds between each movement)
(no more than 10 seconds between each movement)
(no more than 10 seconds between each movement)
(no more than 10 seconds between each movement)
(no more than 10 seconds between each movement)
2007
Marc Mellits

Tapas
Violin, Viola, & Cello

Dacia Music
2007
Marc Mellits

Tapas
Violin, Viola, & Cello

All tempi are approximate.

All bowings are ad lib.

Time between movements should be kept to an absolute minimum (no more than 10 seconds).

for Fabrice Bihan

Commissioned by the festival “Musique en Roue Libre,” Arras, France.

Dacia Music
www.marcmellits.com
for Fabrice Bihan

Tapas

One

Marc Mellits

\( \frac{1}{2} = \text{ca. } 180, \text{strong} \& \text{with energy} * \)

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* All tempi are approximate!

All bowings are ad lib.

Time between movements should be kept to an absolute minimum (no more than 10 seconds).
Two

Violin

Viola

Cello

\( \text{\textit{ff}} \)
Five

= ca. 120

legato & smooth (dashed slurs indicate phrasing only and NOT necessarily bowings)
(dashed slurs indicate phrasing only and NOT necessarily bowings)

Vln.

Vla.

Vc.

(dashed slurs indicate phrasing only and NOT necessarily bowings)
Six

\[ j = \text{ca. 150} \]

Violin

\( \text{pizz.} \)

Viola

\( \text{pizz.} \)

\( \text{mf. l.v. sim.} \)

Cello

\( \text{mf. l.v. sim.} \)

\( \text{sp} \)

\( \text{dim.} \)

\( \text{pp} \)

\( \text{dim.} \)

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Seven

\( \text{\textcopyright{ca. 168; attack, smooth, & with great energy} } \)

\( \text{\textcopyright{smooth}} \)

\( \text{\textcopyright{f}} \)

\( \text{\textcopyright{arco}} \)

\( \text{\textcopyright{mp}} \)

\( \text{\textcopyright{f}} \)
Eight

\( j = \text{ca. 68; calm} \)

\[ \begin{array}{c|c|c}
\text{Violin} & X & Y \\
\hline
p & & p \\
\hline
f & & \\
\hline
\text{Viola} & & \\
\hline
p & f & p \\
\hline
f & & \\
\hline
\text{Cello} & & \\
\hline
p & f & mf \\
\hline
\end{array} \]

Solo, cantabile
2005
Marc Mellits

Tight Sweater
for Cello, Marimba, & Piano

Dacia Music
2005
Marc Mellits
Tight Sweater
for Cello, Marimba, & Piano

I: Exposed Zipper
II: Trans Fatty Acid’s Rein
III: Mara’s Lullaby
IV: Pickle Trousers
V: Evil Yellow Penguin
VI: Mechanically Separated Chicken Parts

Commissioned with generous support from the Muzik3 Foundation

Special thanks to Felix Fan

Dacia Music
www.marcmellits.com
II: Trans Fatty Acid’s Rein
III: Mara’s Lullaby

\( J = \text{ca. 142} \)

Cello

Marimba

Piano

\( \text{con pedale} \)

Vc.

Mba.

Pno.

A

pro. – always l.v.
Pno.

8va

Mba.

Vc.

Meno mosso

Pno. delicate & child-like

Mba. "whispy" delicate & child-like;

Rit.

Pno. (Rit.)

Meno mosso

Pno. PP

Mba. PP

Pno. PP

Pno. mf
IV: Pickle Trousers

Pno.  
Marimba  
Piano

\( J = \text{ca. 128} \)

Vc.  
Mba.  
Pno.
Pno.  |  Mba.  |  Vc.  | 75

V: Evil Yellow Penguin

\[ J = \text{ca. 220} \]
* small notes in parenthesis are optional; these notes may be replaced with rests.
VI: Mechanically Separated Chicken Parts

\[ \text{\( \frac{1}{4} \)} \text{ ca. 214; bold & aggressive} \]

\( \text{Piano} \)

neither separate nor legato

\( \text{Marimba} \)

bow as needed

\( \text{Cello} \)

neither separate nor legato

\( \text{Vc.} \)

4X

\( \text{Mba.} \)

4X

\( \text{Pno.} \)

4X

\( \text{Vc.} \)

4X

\( \text{Mba.} \)

4X

\( \text{Pno.} \)

4X

206
* always cresc./decresc. though all repeats unless otherwise indicated.
Music for 18 Musicians, by Steve Reich:
A Complete Score with Analysis

A Dissertation
Presented to the Faculty of the Graduate School
of Cornell University
In Partial Fulfillment of the Requirements for the Degree of
Doctor of Musical Arts

Part II

by
Marc Andrew Mellits
May 2009
Music for 18 Musicians was composed by Steve Reich between the years of 1974-1976. The work has become a hallmark of the genre of minimalism and has enjoyed performances throughout the world. It is quite possibly Steve Reich’s best known work though very little compositional analysis has been published on this music. This is largely due to the fact that no full score has previously been published or even available. The piece was written with specific performers in mind, and performed by these same players until about 1986. These musicians worked closely with Reich as he composed the work, with the composer teaching the musicians much of the music by example. No full score or full set of parts was ever notated or written down. Instead, Reich kept a musical notebook where he would write down the musical processes for each player in musical shorthand. The music was eventually almost memorized, and could then be performed by these same players using only these shorthand parts. Once the original performing group, “Steve Reich and Musicians,” ended their initial performance run, the work was not performed again for more than 20 years. Without a score and parts, no other musical ensembles could perform it; there were no performance materials in any traditional sense. My first task in analyzing this work was to create such a score. Using the original 1976 ECM recording of the work (ECM New Series 1129) as my primary source, together with Steve Reich’s own excellent sketch of sections I-VI of the piece and the original
performer’s shorthand parts, I was able to fully notate the entire work as it existed on recording. Once I had notated the entire CD, I then engraved a more advanced score that fully represented the piece, along with a set of parts for performance. This entire process took me approximately two years. Once the final score and set of performance parts were complete, the work was published by Boosey & Hawkes, and performances could then occur worldwide. This music enjoys performances around the globe thanks to the creation of the score and parts.
BIOGRAPHICAL SKETCH

Marc Mellits is a freelance composer and is considered to be one of the leading composers of his generation, enjoying many performances throughout the world. His unique musical style is an eclectic combination of driving rhythms, soaring lyricism, and colorful orchestrations that combine to communicate directly with the listener. He received his Bachelor’s degree from the Eastman School of Music and his Master’s degree from the Yale School of Music, both in composition, and spent a summer as a fellow at Tanglewood. Mellits has been commissioned and performed by the Kronos Quartet, Orpheus Chamber Orchestra, Sergio and Odair Assad, Bang on a Can All-Stars, Eliot Fisk, Andrew Russo, the Canadian Brass, Nexus Percussion, Real Quiet, the Society for New Music, Syracuse Symphony Orchestra, and the Albany Symphony’s Dogs of Desire. Mellits also directs and plays keyboards in his own unique ensemble, the Mellits Consort. On CD, Mellits’s music can be found on Black Box, Endeavour Classics, Cantaloupe, CRI/Emergency Music, Santa Fe New Music, & Dacia Music. In 2004, he was awarded the prestigious Foundation for Contemporary Arts Award.
Dedicated to my wife, Cristina, and our two musical, adoring, and inspirational children, Mara and Nina.
ACKNOWLEDGMENTS

Most importantly, I would like to thank both Steven Stucky and Roberto Sierra for their guidance and the compositional wisdom they generously shared with me. Studying composition with both provided me with a well balanced line of thought, and I learned greatly from each. I would also like to thank Karel Husa for his guidance and musical wonderment, which provided me with tremendous inspiration. On a more practical level, I would also like to thank Professor Husa for the generous use of his office piano upon which I composed much music while at Cornell. I was able to take with me three very different, though each important, approaches to writing music from each of my three composition professors. The lessons I learned from each are ideas that continue to enrich my own music to this day. I often find myself remembering key comments from composition lessons, comments that have lasted through the years. To each of these fine men I am indebted.

I would also like to thank Xak Bjerken for his tremendous performances of my music. Xak has not only championed my music by commissioning it, but his interpretations are always beyond expectations and never cease to fill me with delight. His performance of my piano trio, “Fruity Pebbles,” continues to serve as a model for the more than thirty ensembles that have undertaken the work since his interpretation.

I give my most heartfelt thanks to my family, my wife Cristina, and my two children, Mara and Nina, for putting up with my seclusion as I worked on the completion of my doctorate, and my mother for her encouragement in the completion of my thesis. And to Paul Bertalan, who is family in my heart, for his tremendous encouragement and enthusiasm for both the completion of my thesis and for my own music as well.
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INTRODUCTION

The monumental work by Steve Reich, *Music for 18 Musicians*, was written between the years of 1974-6. The composer worked in what can be considered an unconventional manner, at least by modern standards. The traditional method of composing the music alone and then involving the musicians once the work was complete was abandoned. Rather, Reich chose to work closely with his own ensemble throughout the creation of the work. The music itself was never written down or notated in a traditional method; a full score and set of engraved parts were never created, thus no set of performance materials were made available. Instead, a collaboration ensued. As Reich composed and worked out parts and sections of the piece, he would hold rehearsals with his musicians in a rented loft space and prepare what he had written, often changing the music on the spot. Much of this was done verbally and never documented in a final score of the work. In lieu of a traditional score and parts, Reich would keep ideas written down in a musical notebook, then “teach” the music to the players verbally. Each performer had his or her own set of a type of musical part, that only s/he could decipher and understand.¹ These “parts” kept getting reduced, as much of the music was kept to memory; the musician only needed to see what was needed for performance. Most of the music and process of ‘what to do when’ was not notated, or at least not in any way that could be utilized by anyone other than the original performer. Boxed roman numerals marked off the sections of the work, but there were no measure numbers that were common to all the players.²

¹ Mellits, Marc, interview with the composer, July, 1997.

After two years of working this way, the musicians had the hour-long piece memorized and were able to perform it on tour throughout the world. At the same time, it was virtually impossible for anyone else to perform, being that the music was never completely written down and no set of decipherable performance materials existed. The music itself existed mostly in the minds of the musicians that were in the group “Steve Reich and Musicians,” the original performing ensemble of this work. In order for any serious study of this work to ensue, and also to allow for the possibility of performance by groups other than “Steve Reich and Musicians,” a score of the entire work had to be notated using as a primary source the only recording available (ECM New Series 1129), painstakingly written down in musical dictation. Once that had been done, then from this document a score of the work could be created that represented the work and its unique performance techniques. The first score I created of *Music for 18 Musicians* was a literal transcription of every note of the work from beginning to the end as it exists on the ECM recording. In addition to the recording, I also had at my disposal an excellent sketch of the first half of the work (from the composer) as well as the original shorthand “parts.” A certain amount of consultation with the original performers, as well as with Reich himself, was necessary to create this document. This first score, 436 pages long, is available from Boosey & Hawkes, Reich’s publisher. The problem (for me) was that this particular score was not a good representation of the work itself; it was a representation of one performance of the work that existed on recording and was more of a “realization” of the work than a performance score. I had fulfilled what I originally set out to do, but I was concerned that the music itself was not notated in a fulfilling manner. For the part of the composer, the score was done. Reich had the document he wanted, a 436-page representation of the recording. But I had a different idea: a “modular” score that would allow for flexibility yet truly and accurately represent the work. This idea was
mine alone, and I had yet to convince the composer of this new approach to his own music. In the end, it took my driving to visit Reich, armed with ten pages of my "modular" version, to convince him of my new idea. Once he agreed, I set out to create a notation that would more accurately represent the work, allow for flexibility, and be much more than just a realization of a particular recording, as magnificent as that recording remains today. The added advantage is that the new, "modular" score could incorporate ideas that were added during the recording session as well as ideas that happened after the sessions were over. The "modular" score has many unique differences from the "realized" score. The realized score has the entire work written out, measure for measure. The number of repeats for certain bars are up to the players, but the concept of using the human breath as a length of measure is not incorporated. Instead, the pulsing instruments have their repeated eighth-notes written out as they appear on the ECM recording. These lines are still asked to be played in one breath, but that length was defined in a recording session in 1976 and may not necessarily hold true for the current players executing the work. The "modular" score, however, allows the players to place their repeated eighth-notes themselves, and the length is determined by the human breath, rather than what is written exactly on the page. In order to properly notate these "floating bars," I had to invent a new repeat sign. Examples A and B compare the same passage in section II; the new floating repeat sign can be seen in the Bass Clarinets and Strings in example B.
Example A: Realized Score, Section II:
Example B: Modular Score, Section II:

Cl.

Xylo. 1

Xylo. 2

Mar. 1

Mar. 2

Mar. 3

Pno. 1

Pno. 2

Pno. 3

Pno. 4
  Player 1

Pno. 4
  Player 2

Voices 1

Voices 2

Vln.

Vc.

* entrance follows clarinet cue; xylophone 2 and piano 4 player 2 enter together
The “modular” score (and parts) have become the primary document of the work and
are used more frequently by professional performing organizations and high-level
universities. The “realized” version is used with younger players who are
inexperienced with this type of freedom in music.
CORE TECHNIQUES

*Music for 18 Musicians* uses very clear compositional techniques placed within a clear form. Most of these techniques are borrowed from previous works, while a few are entirely new. The first and foremost technique is that of harmonic sketch and fulfillment. The work opens with a series of eleven pulsing chords, each repeated twice before moving to the next chord. This entire series of chords, or the opening “pulse” section, serves as the introduction to the work. Following the opening pulse, each chord then serves as the basis of an entire mini-piece, called “sections.” Each section explores the base chord through a series of processing techniques, creating its own world within the structure of the universe of the entire work. Each chord that might have taken 15 or 20 seconds to play in the opening pulse section is then stretched out as the basic harmony for a five-minute mini-piece, very much as a single note in a cantus firmus or chant melody of a twelfth-century organum by Perotin might be stretched out for several minutes as the harmonic center for a section of the organum. The opening eleven-chord cycle is a kind of pulsing cantus for the entire piece.3

This idea of presenting chords and then fulfilling them in the work can be called harmonic sketch and fulfillment. There are eleven chords in the opening pulse, followed by eleven sections, then a closing pulse. Each section is based on one chord, with two sections for chord III, and one section for chords IX and X combined.

The technique of rhythmic construction remains one of the most important and fascinating techniques that Reich uses in this work. Also known as a “build up” amongst Reich’s own ensemble, a rhythmic construction is a method of systematically replacing rests for beats in a given melody. The first entrance of a melody will only have one note. This cell is repeated many times. Then, gradually, more notes of the

---

melody are added one by one, slowly replacing rests for beats, until the entire melody is realized. This involves a relatively slow transformation, with each cell of the rhythmic construction repeated many times. The multiple repeats gives the listener a chance to hear the gradual transformation, and experience each additive segment. This aspect of hearing the process is central to the music of Steve Reich and something built in to the system. In fact, Reich states himself, “I am interested in perceptible processes. I want to be able to hear the process happening throughout the sounding music. To facilitate closely detailed listening, a musical process should happen extremely gradually.”4 It is important to note that the first note of the entire melody is never the first note presented in the rhythmic construction. Rather, each note is presented out of order, creating shifting rhythmical nuances, that pull and sway the listener from one cell to the next. Steve Reich plays with the listener’s sense of what might be expected next, and shifting that idea. Section II presents our first rhythmic construction in Music for 18:

As in all rhythmic constructions, each measure above is repeated, allowing the listener to fully appreciate the musical process.

Alongside rhythmic construction remains augmentation as another technique important to the core of the work. It is an additive process, like rhythmic construction, getting longer with each added segment. Often, augmentation in the beginning of a section is complimented by diminution near the close of a section. For example, section I begins with a clear augmentation. A fragment of melody is presented at measure 98, accompanied by an oscillating I-V harmony in the Strings and Voice 3. Following a few repeats, this one-measure melodic fragment expands both
horizontally and vertically. The length doubles from one measure to two and the pitches themselves both rise in the Clarinets and fall lower in the Strings. The opening melodic fragment is labeled A1 in example D. Its expansion will follow logically into A2, A3, and A4, expanding both in length and/or pitch area covered.

Example D:
Section I augmentation, Clarinets only:

A1

\[
\text{mm. 98+}
\]

A2

\[
\text{mm. 102+}
\]

A3

\[
\text{mm. 108+}
\]

A4

\[
\text{mm. 120+}
\]

The *canon*, or two or more instances of musical material played simultaneously but starting on different beats, finds itself used throughout *Music for 18* and is also an important core technique. Often, a canon is formed after a rhythmic construction. As the construction builds, the listener starts to focus on certain areas of the canon, and rhythmic nuances are brought to the surface. Only after the rhythmic construction is fully completed do we hear the entire canon:

Example E:
Often during the presentation of a canon, Reich will pick out melodic notes from the various instruments involved and place that melody in a different instrument or voice, in order to bring to the surface a melody that only exists between the canonic relationship. This technique is called resultant patterns (or resultant melody); the patterns or melodies played, brought to the surface, are merely a result of the canonic correlation:

Example F:

The concept of the pulse is without doubt a significant aspect and core technique in Music for 18. A pulse is simply repeated eighth-notes on the same pitch or pitches. There are two types of pulse used in this work: background pulse and foreground pulse. The background pulse is the type we find repeated throughout an entire section. It is realized by two or more instruments hocketing the same chord back and forth, at the distance of an eighth-note, and usually repeats for the entire length of a given section. This creates the musical sound canvas backdrop upon which Reich paints his material.
A foreground pulse is one where only one instrument is used to create the pulsing eighth-notes, though it often appears in many instruments at the same time (see the opening and closing Pulse sections, mm. 1-97 and mm. 664-748 respectively). A single pitch or chord is repeated, or pulsed, rising and then falling in dynamics. The length is generally determined by the human breath. The performers take a deep breath, then play the pulsing chords until that breath has expired, ending approximately together. This is what determines the actual length of the pulse. As the musicians rise and fall from \( p \) to \( f \) then back to \( p \), they create a small miniature arch, indicative of the overall structure of the music. At many times during the course of this work, the musicians themselves must decide exactly when to start and end each foreground pulse. The general measure or time frame is indicated accurately in the score, but it is not precise or exact. Rather, Reich wants the performers themselves to place the pulses where they feel is right. The pulses should float above the music, creating flowing waves of sound. For the non-wind instruments, this ebb and flow is still maintained, however no stop of the sound is necessary, and the duration will
basically follow the guide of the Clarinets. The Clarinets often act as the “leaders” of the pulses as well as often pulsing alone.

Example H:

Often combined with the background pulse will be a repeated pattern, or ostinato, also repeated throughout a given section. Usually played by Marimba, Piano, or both, the ostinato will gather most of its pitch material, but not necessarily all, from the section chord. Not only will other pitches be added, but the pitches it does use from the section chord do not necessarily have to be in the same octave as the section chord. The ostinato will provide the background pulse with more rhythmic interest, as it always has more rhythmic activity than the pulse itself.
The concept and practice of inversion is a main building block of Music for 18. From the opening pulse section, through each augmentation, rhythmic construction, and other techniques in each section, we find inversion used generously. By simply taking the bottom or top note of a two-note chord and placing it an octave higher or lower in the following chord plus maintaining the other note, Reich creates inversion. For example, in the opening pulse, the Bass Clarinets movement from chord I to II is simply an inversion:

Throughout the work, the combination of the above techniques also comes into play. For example, a rhythmic construction might occur at the same time as a foreground pulse; or we might have an augmentation rhythmic construction (a rhythmic construction that also augments upon completion); or an augmentation versus rhythmic construction. It is the combination and interplay of these techniques that creates the massive sound architecture that is Music for 18 Musicians.

It is interesting to note that, whereas the title reflects a group of musicians numbering eighteen, in fact, it is often performed with more. To perform the music with only eighteen musicians would involve certain musicians doubling instruments that they may not be comfortable with. In the original ensemble that premiered the
work (Steve Reich and Musicians, 1976), Reich was able to keep the performers at the minimum eighteen by relying on singers to double piano, the Vibraphonist playing piano, Piano 2 playing maracas, and so on. Today, the music is generally performed by anywhere from 18 to 22 musicians.
PULSE, SECTIONS, PULSE, AND FURTHER TECHNIQUE EXPLORATION

Pulse

The entire work opens with the first pulse section, which can be thought of as a giant enter section. Though the piece is squarely in B-Dorian, the first notes we hear produce an ambiguous tonality, possible D-Major or D-Minor. Only when the Bass Clarinets enter in measure five is B-Dorian more established, and even then the tonic chord is in second inversion, further blurring the harmony. This idea of an unexpected turn, in this case harmonically, is common in Music for 18 Musicians. These types of unexpected turns are prevalent both harmonically and rhythmically throughout the work.

Example P.1:

A traditional harmonic analysis of the opening pulse section will ultimately fail. Instead, each ambiguous chord has a vague pitch center, which could be considered its own tonic region. The chords relate to each other much more on a linear level than a vertical one. Each chord in succession contains common tones from the previous chord. New pitches are sometimes added and sometimes taken away, with each chord progression always keeping a part of itself with each succession. The Bass Clarinets define the harmonic center of each chord. In the opening pulse section, they play only fourths or fifths exclusively; when a fifth, the harmonic center of the harmony is the lower note, and when they play a fourth, the harmonic center is the upper note. When each chord is later used as the basis of an entire section, these
harmonic centers are often cast aside, and new harmonic centers around a mode are formed.

Example P.2:

As example P.2 indicates, each successive chord is built from its predecessor, keeping some pitches, dropping others, and adding new. The lowest notes (played by the Bass Clarinets, Cello, and Piano 4) define the individual harmonic centers. In most cases, each chord has a shared note from the previous chord. The motion of each of these successive low note chords is generally by inversion, oblique, modified inversion (one common tone, the other note moving by an octave plus a second) or modified oblique (one voice moves by step and the other voice move by leap in the same direction). In only one case is there a full direct motion of both voices leaping in the same direction (from chord IV to chord V, the central section of the work). If each chord is reduced, but with preserving the lowest note functioning as the harmonic center, relationships between the chords can be seen (example P.2). The first two chords (I and II) reduce to the same core: a symmetrical chord comprised of two minor thirds connected by a second. Chord III transposes this harmony up a perfect fifth but drops the middle note, then IV repeats the same chord with the middle note added. Chords V-XI all relate to each other in that their core are all four, five, or six-note cluster chords, each
built the same way. The four-note chord is a minor triad with a second added; the
five-note chord is the first five notes of a scale (major or minor); the six-note chord is
the first six notes of a scale (again, major or minor). The harmonic placement of these
chords forms a symmetrical arch (example P.2). Chord V begins on D with the six-
note Major scale variant, while X and XI end on D (with the five-note major scale
variant and the four-note chord, respectively). Chords VI and IX each build the same
six-note minor scale variant based in A. The middle two chords, VII and VIII, build
their chords on F# (four-note and five-note minor scale, respectively).

The individual sections themselves, or mini-pieces, all use variants of only two
types of form: arch form and linear form. However, each section, regardless of its
form, begins and closes much the same way, with an enter and exit. The enter is the
opening material that sets up the entire section. It is generally static, introducing
pulsing instruments and setting up the new harmony. The exit exposes much the same
material once again. The instruments playing the enter music generally repeat the
same music throughout the section (see measure 97). Strategically, the role of the
Vibraphone is to create audible cues, telling the musicians when to move to the next
large section (section cue), or when to move to the next change within a section
(change cue). The Vibraphone acts as a trigger, cueing the next change to happen.
This presents the Vibraphonist as a sort of conductor, in a limited sense. The
Vibraphone only plays these two types of music: section cues and change cues. This
use of the Vibraphone, in some ways, connects Reich to his study of Balinese
gamelan, which assigns the exact same role to a performer, or even to his study of
African drumming, with the drummer audibly calling out changes of pattern. Each
exit section, thus, contains a section cue telling the musicians to move on to the next
large section. The small changes within a section have a change cue, indicating that
the musicians are to move on to the next musical change. Harmonically, the
Vibrphone material is similar regardless of whether it is indicating a small change within a section, or a large change to a new section. Rhythmically, however, it is quite different. Change cues tend to have the Vibrphone lines starting on and stressing beats other than one. These tend to start on beat six, for example, and tend to be more rhythmically moving. Section cues, the cues that happen in an exit, invariably tend to be simply dotted whole notes starting on beat one, and are much shorter. In this fashion, with such clear and distinctly audibly different cues, the performer always knows when and where to move on to. It also has the added benefit of keeping the performer constantly listening to what is happening in the music. Melodically, the Vibrphone material is always related. It is the rhythmic differences that signal which type of change is about to occur.

Example 1.0:

\[\text{Change cue: mm. 245-249}\]

\[\text{Section cue: mm. 259-261}\]

Section I

The entrance of Marimba 3 in measure 97 marks the beginning of Section I. This section, based on the first chord of the Pulse, is in a clear arch form.
In measure 97, our enter creates the B pure minor backdrop for the entire section. The score reveals G-natural in the Cello starting in measure 120, placing section I clearly in B pure minor, not D-Dorian as may be derived from the opening of the section.

Much of the music in *Music for 18 Musicians* can be divided into either *foreground* or *background* material. The background instruments will repeat chords or ostinati made up of limited pitch material throughout an individual section of music. They create the backdrop, or canvas, with which the music paints the melodic material on top of. The foreground instruments contain much more melodic material, more pitch material, and guide the listener through the section of the work. It is these instruments that define both the form and the harmonic mode. The background instruments, due to their limited pitch content, are often in an ambiguous state, never fully defining a particular harmonic mode. *Music for 18 Musicians* was composed without creating a full score; Reich worked on individual lines, individual parts, that were then later combined in rehearsals. The compositional thinking is much more linear and horizontal than vertical. Individual groups of instruments of any given section create their own harmonic field, which might have a pitch center different from the overall harmonic scheme. These small areas of tonal centers all combine in force with the entire ensemble at which one center tends to prevail. These prevailing
modal areas mostly stay within three sharps, with some sections in four sharps, and with the overall harmonic modes centering around B, C#, and F# only.

Marimba 1 and 2 together with Piano 1 and 2 provide the background pulse that sustains the entire section. Their material is, in fact, a literal repeat of their section I chord. Marimba 3 and Piano 3 repeat their background ostinato layered with this background pulse to create the entire backdrop. The Marimba 1, 2 and Piano 1, 2 background pulse starts first, with only three notes: \( \text{\textgreek{g} \textgreek{a} \textgreek{c}} \). The Marimba 3 and Piano 3 ostinati add three more to create: \( \text{\textgreek{g} \textgreek{a} \textgreek{d} \textgreek{c}} \), a clear subset of B minor, the mode used here. The foreground instruments can be further divided into central and support groups, with the central group highlighting the melody and the support group providing harmonic reinforcement. In section I, the central melodic instruments are the Clarinets and Voices 1 and 2, whereas the support group are the Strings and Voice 3. As the central group expands its melodic material into subsequent augmentations, the support group provides long tones underneath this melody creating a combined rich and inviting texture. The pitch material remains limited: Marimbas 1, 2 contain only two pitches; Pianos 1, 2 have three; Marimba 3 and Piano 3 have five; Clarinets, Voices, and Violin have six; and only a single instrument, Cello, contains all seven pitches of B pure minor. The elusive pitch “G” only reveals itself in the exact center of the arch form, throughout the B section.
In the long repeat of measure 96 the background pulse begins. Only with the entrance of the ostinati in measure 97, does the real harmony reveal itself. The ever important beat one B in Marimba 3 combined with F-sharp and D in Piano 3 clearly state our home pitch center as B. The background pulses themselves do not contain the pitch B at all.
Example 1.3:

With the entrance of the Clarinets, Strings, and Voice 3 in measure 98, the first cell of the A section is introduced. As noted earlier, this particular augmentation expands both horizontally in the length of the melody and also vertically in the pitch area covered. As the melody gets longer the Clarinets tend to rise in pitch and the Strings generally fall. After the melody reaches four measures in length at A3, the expansion ceases to add length. It also has reached it outermost limits in pitch. Instead of a vertical or horizontal expansion, A4 presents the listener with a more dramatic harmonic expansion to fulfill the final realization of the melody. Both rhythmically and harmonically, step by step, Reich makes very clear and audible expansions progressing through each cell in the opening augmentation. The Clarinets start in unison at measure 98 (see example D). The relationship between A1 and A2 is very clear. Harmonically, A2 is the same fragment as A1 only with a perfect-fourth added above. The expansion in length is achieved by repeating A1 twice, and filling in the rests of A1 for beats in the first repeat. The rhythm created in A2 is in fact a miniature process all its own. A1’s rests become a rhythmic pattern in A2 that has been used throughout Reich’s career:
Example 1.4:
Clarinet rhythm only:

When repeated, this pattern becomes an endless process loop of subtracting and adding beats (see Example 1.5). One beat is subtracted from the first group of three to make the second group of two beats. This process is repeated, subtracting another beat, to leave only one beat remaining. Then, the process happens in reverse, adding one beat, then another, until we arrive at three beats again. In fact, Marimba 3 plays this exact rhythm throughout section I. The connection with Reich’s influence from Ghana can also be seen here:

Example 1.5:

Example 1.5 compares a commonly used source rhythm of Ghanaian music with a commonly used source rhythm of the music of Steve Reich. In supporting the Clarinets, the Strings play an expanding role structured with inversion. The opening Cello fragment of A1 is an expanding fourth to fifth (m. 99), implying a I-V harmonic sequence. A2 takes the top notes of these chords and places it an octave lower, creating an inversion of A1. The violin reacts much the same. Its opening fragment in A1 of a major-third to major-second, becomes an expanding sixth to seventh in A2. The lower voice of A1 is placed an octave higher in A2, creating this inversionsal relationship. This inversion technique continues in A3, but now expanding to the
Clarinets as well. The bottom line of the Clarinets is now placed an octave higher and the original top line remains the same creating perfect-fifths. At the same time, the Violin creates a similar inversion, utilizing the exact same technique observed in the Violin in A1 and A2. By placing the bottom note of our sixth to seventh harmony an octave higher, we now have an inversion once again, this time an octave higher. In expanding to A3, the Cello’s inversion is a little different. Instead of placing the top line an octave lower and continuing to expand in this manner, the Cello only takes every other top note an octave lower. This creates the moving fifths we see starting in m. 109. As the cells continue to expand in length, the Strings also expand in register with the Violin higher and the Cello lower. Starting back in A2, at m. 102, we also see the addition of two more female singers, Voices 1 and 2. Their role at this point is simply to double the Clarinets at the unison, further enhancing the sound the Clarinets and creating an almost electronic melodic texture. Later, when we see the Clarinets move on to different melodic material in B, these two female Voices in fact continue what the Clarinets had started by repeating their final A4 melody through the entire B section. When the Clarinets come back to A, they meet the Voices exactly where they had left off.

Rhythmically, the Strings’ expansion is quite systematic, and also implies a particular rhythm. This rhythm often occurs in instruments that are playing the supportive role. The number of beats that the Strings and Voice 3 hold their chords is directly related to the melodic line in the Clarinets and Voices, and gradually expands as the melody expands. A1 presents a rhythm containing 2 beats + 2 beats + 2 beats rest. A2 expands this to: 3 + 3 + 2 + 2 + 2. A3 has 3 + 3 + 4 + 2 + 3 + 3 + 2 + 2 + 2 and A4 is 6 + 6 + 3 + 3 + 2 + 2 + 2. Each module expands into the next, building upon the previous module. The two beats rest occurring at the end of each are more or less a continuation of the previous two beats. In fact, when this pattern is picked up
later in the piece (see sections IIIA and VI) by instruments that do not have to stop playing to breathe, the two-beat rests are filled in.

Example 1.6:

A1 (m. 90+)

Voices 3

Vln.

Vc.

A2 (m. 102+)

Voices 3

Vln.

Vc.

A3 (m. 108+)

Voices 3

Vln.

Vc.

A4 (m. 120+)

Voices 3

Vln.

Vc.

A1: 2 2 2
A2: 3 3 2 2 2
A3: 3 3 4 2 3 3 2 2 2
A4: 6 6 3 3 2 2 2
The B section of section I begins with measure 129A. All the instruments other than the Clarinets repeat the material of A4, while the Clarinets float above them pulsing sub-chords found in the Marimba and Piano pulses. The length of each chord played by the Clarinets is determined by the human breath of the Clarinetists. They take a deep breath before each chord, then rise and fall in dynamics through the pulsing of the chord. The chord ends when they run out of breath, at which point, they take a short pause, then proceed with the next chord. The \( B_1 \) of the first and third chords (B1) is a subset of the Piano 2 pulse chord \( B_1 \). The \( B_2 \) of the second and fourth chords (B2) is also a subset of the pulse chord \( B_2 \) found in both Piano and Marimba. A4 begins immediately following B, and the entire process of the first A is repeated in reverse order: A4 \((m. 131)\), A3 \((m. 138)\), A2 \((m. 154)\), and A1 \((m. 160)\). What was previously heard as augmentation now transforms into diminution. Concluding the entire section I, and therefore following the last A1, we find the exit, starting in \( m. 163 \).

Throughout section I, the Vibraphone plays the strategic role of playing audible cues to indicate to the musicians when to move on to the next section. All of the cues, or melodies, that the Vibraphone plays are somewhat similar: they all start on beat six; are all either thirteen or twenty-five beats long; all have similar intervallic relationships; all share similar rhythm; and all end on beat six, letting the last note ring. Generally, the rhythm of the Vibraphone will follow Clarinets, Voice 1, 2 and Strings. For example, the first Vibraphone section cue delineates each melodic sub-phase:
Excluding the last attack, the chords generally follow a symmetrical pattern.

The first section cue, for example, follows the pattern of the voices moving in contrary motion, by the same intervals: minor third in, major second in, major second out.

With the sole exception of one note, the top note of the section cue 1 is one octave higher than the bottom note of the section cue 2. The rhythm is also almost the same.

The third section cue takes the first section cue, moves it down one octave, and expands by augmentation. The symmetrical intervallic relationships can be seen in example 1.8 above. The fourth section cue follows the model of the third, but changes
the note values: the first half of the melody expands the note values, the second half basically contracts. The fifth section cue returns to the same melody as the third section cue, only with the last chord inverted. The sixth and final section cue returns to the same rhythm as the second but melodically rises where the second section cue falls. The score employs a unique notational technique to clearly indicate the change of music that each cue initiates. Example 1.9 is a reduced excerpt from page 10 of the modular score and contains all three elements of this notational technique. One measure is to be repeated within a certain numbers of repeats, the same measure is then written out with the cue included, and finally, the new changed measure is written at the end of the cue. These three segments are indicated with “repeat until cue,” “cue begins,” and “last repeat.” In example 1.9, measure 99 is repeated 7-11 times. When the cue enters, the musicians play the same measure twice, now written out as measures 100-101. Then, finally, on their last repeat, the new material is written into the measure to connect with the next segment.
Example 1.9:

Section II

Section II, changing to B Dorian and based on the II chord, begins in measure 166. As section I was in arch form, section II uses linear form:

Example 2.1:

Section II - FORM
The transformation from chord I to chord II is both direct and also binding. The Vibraphone clearly states its section cue beginning in measure 164. By measure 168, the background pulse and ostinato evolve into chord II. There is much sharing in this evolution: the same groups of instruments play similar roles and also share some of the same pitch material. Marimbas 1, 2 and Pianos 1, 2 once again perform the background pulse while Marimba 3 and Piano 3 once again perform the ostinato. Initially, the Clarinets, Voices, and Strings here as well focus the listener’s attention. Section II adds Xylophones to our ensemble, further expanding the timbre. The background pulse itself is merely an extension of Section I’s background pulse and the same holds true for the ostinato. By adding just one note, , to the Marimba 1 and 2 section I background pulse chord, we have the background pulse chord for section II. The Pianos also have the same chord they had in section I, with one additional . The ostinato in Marimba 3 is the same as the previous ostinato, only with the C-sharp up one octave. It is interesting to note that this same C-sharp is the only pitch not found in either section chord, but is the one pitch that moves. The ostinato in Piano 4 has the same sub-melody found in the ostinato in Piano 3 from section I. These many connections further bind section I to section II and make the transformation effortless on the ear.
The A section begins in measure 168 with the entrance of Clarinets, Voice 1 & 2, Violin, and Cello. Through measure 175, these instruments perform the first rhythmic construction in *Music for 18 Musicians* (see example C). As with all rhythmic constructions in this work, the melody is not introduced note by note starting with the first pitch. Rather, the notes of the melody are introduced out of sequence. The first note of the melody revealed in this instance is actually the fourth note of the complete melody. The second note we hear is, in this case, the third note of the
melody. Each pitch of the final melody is revealed one by one, in this fashion, until the entire melody finally appears in its complete form in measure 175. This technique allows Reich to explore the rhythmic nuances hidden within the melody, and engage these upon the repeating ostinato. A technique for indicating the order of pitches revealed can be summed up below:

Example 2.3:

In measure 176, once the first rhythmic construction is complete, the Xylophones and Piano 3 enter with their own rhythmic construction, which starts the B section. When these instruments move on to their second cell, they trigger the Clarinets and Strings to start foreground pulsing. For the first time in the piece, these two techniques (rhythmic construction and foreground pulsing) are combined and performed simultaneously. As the Xylophone and Piano rhythmic construction proceeds, the Bass Clarinets and Strings float over them with four chords pulsing in the foreground. These two groups of musicians must pay special attention and time their material well so that they can both fully realize their music within the same time span, ending approximately together.
Example 2.4:

Rhythmic Construction vs. Pulse

Four chords of pulse vs. eight cells of rhythmic construction. (Piano 4, Player 2 has identical rhythm to Xylophone 1.)

\( \boxtimes \) = foreground pulse
\( \boxtimes \) = rhythmic construction

Once the above rhythmic construction vs. foreground pulse is complete, Section C begins (m. 181). Xylophone 1 and Piano 4, player 1 repeat their final cell through section C, while the Bass Clarinets initiate another rhythmic construction vs. foreground pulse; this time the opposing group is Xylophone 2 and Piano 4, player 2.
For the first time in the work, we now see two musicians performing on the same instrument, in this case, Piano 4. This concept of “practicality” is often a driving force in the music of Steve Reich. Instead of adding a fifth Piano, he chooses to place two musicians on the same instrument. The two performers playing Piano 4 have their material far enough apart on the keyboard to make performing on one instrument unproblematic. The higher player, player 2, expands the rhythmic construction together with Xylophone 1. Section C continues much like section B, with the musicians carefully timing what they play. The Bass Clarinets and Strings have four foreground pulses to play during which the opposing group, Xylophone 2 and Piano 4, player 2, have eight cells of their rhythmic construction to expand. After the cycle of four chords is completed by the Bass Clarinets and Strings, the Bass Clarinets initiate the two chords of section D (mm. 185A and 185B). This musical space in which the Bass Clarinets play these two chords has two functions: 1) to prepare section D, in which the Bass Clarinets only play these same two chords, and 2) to allow extra time in case the Xylophone and Piano have not completed their rhythmic construction. Ideally, Xylophone 2 and Piano 4, player 2 should complete their rhythmic construction within the four chords of the Bass Clarinet and string foreground pulse, but it is entirely possible that, in performance, the timing might not be ideal. With this safeguard built into the music, section D can begin comfortable and smoothly, with the musical processes of section C having been completed. This represents another aspect of practicality built into the music. In fact, the Bass Clarinets and Strings could simply repeat their chords of 185A and 185B any number of times if Xylophone 2 and Piano 4, player 2 have not yet completed their rhythmic construction.

The four chords that the Bass Clarinets play in their foreground pulses of sections B and C are entirely related by inversion. Each chord of section C is, in fact,
the same chord of section B played in the same order, only with the top note played an octave lower, forming the inversion.

Example 2.5:

The rhythmic constructions formed by the Xylophones and Pianos in sections B and C ultimately present the exact same melody. However, not only are the melodies rhythmically constructed in a different manner, but they also end up out of phase with each other, i.e. in canon. Furthermore, Reich builds each of these rhythmic constructions starting in the same rhythmic space, and in the case of the Xylophones, with the exact same pitch. In this way, Reich explores two methods of revealing this melody and presents them both, one after another, all the time opposing the foreground pulse, and each beginning the exact same way, and with the Xylophones starting on the exact same pitch.
Example 2.6:
Comparison of Xylophone rhythmic constructions: II - sections B and C

These two rhythmic constructions present the same melody with two different overall shapes, and therefore contain different rhythmic nuances. The rhythmic construction in section B basically divides the melody into three groups, building upon
each group one by one. This allows Reich, by the sixth cell, to obtain three groups of two eighth-notes each. The seventh and eighth cells finish this three-pillar presentation by connecting the three groups. The C section rhythmic construction presents itself in a different overall shape. Its approach is to start near the center of the melody and build outwards in both directions. When the final canon is reached just before measure 185A, all twelve eighth-notes are filled.

Section D, starting in measure 186A, is a series of three sets of two foreground pulses each. Each set adds more instruments and progressively thickens the texture. D1 (mm. 186A-186B) has the Xylophones following the Bass Clarinets; D2 (mm. 187A-187B) adds Piano 3; and D3 (mm.188A-188B) adds Piano 4, Player 2. With each wave of pulses through section D, the sound gets enriched and acts as a sonorous closing for the entire section II, happening just before the final cadential exit in measures 190-191.

Section IIIA

The third chord in our pulse series is special in that two entirely different sections of music are built out of it, IIIA and IIIB. Both IIIA and IIIB are in arch form, with IIIA behaving very similar to section I.

Example 3A.1:
Section IIIA - FORM

III A

\[\text{III A - FORM}\]

\[
\begin{array}{ccc}
\text{Enter} & \text{A} & 1 2 3 4 \\
\text{augmentation} & \text{B} & 1 2 1 2 \\
\text{pulse} & \text{A} & 4 3 2 1 \\
\text{diminution} & \text{Exit} & \\
\end{array}
\]

\[\text{arch}\]
Beginning in measure 192, Section IIIA starts with an ambiguous harmony; the enter music played by the Xylophones, Marimbas and Piano 2 does not strongly state our home key, but act instead, as harmonic connective tissue between sections II and IIIA. Only with the entrance of the Clarinets, Piano 1, 2 and 3, and Strings in measure 194 is the home key of F-sharp pure minor firmly stated. The Marimba 3 ostinato, repeated for the duration of IIIA, is that exact same ostinato that Marimba 3 played in section I (and the same as section II, with the C-sharp back down an octave), only this time the overlying harmony clearly states the key of F-sharp minor as opposed to B pure minor in section I.

Reich builds two completely different sections of music, in different key areas, out of the same Marimba ostinato. Along with Marimba 3, Piano 2 also has a related ostinato to what it played previously. As there was a common melody, or shared tones, between the ostinati of sections I and II, the same process happens once again between sections II and IIIA. The inner voice of the Piano 2 ostinato also appears exactly the same in section II, only with different notes attached.
Example 3A.2:

Mar. 1, 2

Marimba 1, 2 pulse chords: sections I, II, IIIA

Pno. 1, 2
Xylo. 1, 2

Piano 1, 2 pulse chords sections I, II; Xylophone 1, 2 pulse chords section IIIA

Mar. 3

Marimba 3 ostinato: section I

Marimba 3 ostinato: section II

Marimba 3 ostinato: section IIIA

Pno. 3

Piano 3 ostinato: section I

Piano 3 ostinato: section II

common melody between section I and section II

Piano 3 ostinato: section IIIA

common melody between section II and section IIIA

Piano 3 ostinato: section IIIA
For the first time, the background pulse is not sustained by Pianos, as had been previously the case. Instead, the Pianos in IIIA contain some of the most exciting hocketed material in the entire work, and serve in function as the melodic support instruments.

Example 3A.3:

As in I, the Clarinets and Strings provide the melodic material processed through augmentation. The difference in IIIA is the lack of Voices in the A sections, and the appearance of Piano 1 doubling the melody. Furthermore, the Strings do not have augmented long tones supporting the melodic voices, as they had in section I. Instead, the Strings double the Clarinets and Piano 1 at the unison. Therefore, in IIIA, the melody is more exposed, having not the previous sonoric long tone string support it received previously. This particular unison orchestration gives the appearance of a multifaceted Clarinet, with a rich, vibrant, and deep three dimensional sound. As the melody gets processed through augmentation, it also rises in pitch. Where the
relationships in the melody in section I were passed on with each progressing augmentation, here the melodic relationships skip every other presentation. In the four presentations of the augmentation melody, one and three relate by inversion, as well as two and four. The rhythm of the melody is exactly the same as it was in section I, and therefore the rhythmic expansion is also the same.

Example 3A.4:

In place of the supporting Strings and Voice 3 playing/singing sonoric long tones, in IIIA the supporting role is passed to Piano 3 and 4 playing short tones. They fit together like two pieces of a puzzle, hocketing their material in shifting rhythms underneath the rising melodic line of the Clarinets, Piano 1, and Strings. In a practical sense, the Strings and Voice make excellent sustaining instruments and therefore their supportive material in section I are long tones. Here, the supportive Pianos are more suited to percussive attacks, almost “drumming” on the keyboard, a technique frequent in Reich’s early keyboard works. Even though the Piano rhythm is constant eighth-notes, the overall harmonic rhythm matches the Strings’ harmonic rhythm in section I.

exactly. The only slight difference is that at the end of each phrase in section I the String/Voice line has a rest. This rest enables the singer to breath as well as tends to be a more idiomatic treatment for the Strings. In contrast and in keeping with practical idiomatic writing, the Pianos in IIIA play straight through, not taking small rests at the end of each phrase. Therefore, the $2 + 2$ beats rest occurring at the end of each String/Voice phrase equals the 4 beats at the end of the Piano phrase. The harmonic similarities between these two groups of instruments is also striking. Though the Pianos are in F-sharp and the Strings in B, the harmonic movement and inner structure are very similar.
Example 3A.6 compares the Violin, Cello, Piano 3, and Piano 4 in sections I and IIIA. The melodic expansion of the pitch material in both of these two sections proceeds in a similar permutation. As example 3A.6 indicates, the Violin in section I expands mainly by inversion, keeping the upper note the same while bringing the lower note up
an octave. The last expansion, which is the longest in length, keeps the upper note the same while dropping the lower note a major third. The corresponding upper half of the pattern in IIIA (Piano 3, 4, right hand) starts with the same chord change down a perfect fourth, repeats it, then moves by contrary motion, and finishes with the same pattern as the Violin down a perfect fourth. The two bottom halves of the pattern in sections I and IIIA (Cello and Piano 3, 4, left hand) follow each other more closely; the Pianos in IIIA restate the Cello in I down a perfect fourth, except for the third expansion, where Reich chooses to have octaves in the Pianos for more force and depth.

Example 3A.6:

As the augmentation continues to expand, the Pianos fall lower in register. The harmonic oscillation between the two chords of each cell is preserved in both sections: i-\(v_7\) for the first three cells and \(V_7\)-III\(^7\) for the fourth cell.

The Vibraphone cues in Section IIIA follow the same exact rhythm as Section I, only with different harmonic pitch choices. But the patterns and formatting of these pitches remains relatively similar to Section I. Section cue 1 and 2 share the same top note of each chord. Section cues 2 and 6 are identical, as are 3 with 5. Section cue 3 is formed by an augmentation of section cue 2. Section cue 4 occurs after the
foreground pulses and therefore has rhythmically longer notes to call to attention the players to start the reverse of the arch form.

Example 3A.7:

Section III B

Section III B begins in m. 261 on the same chord as IIIA. The fact that there are two distinct sections of music built from the same chord has been largely unknown due to the fact that there has been no score for research, but nevertheless exists. The entrance leaves the listener in the same ambiguous world that began IIIA without the tonicization of F-sharp Minor. The listener is left in a very “open” B Dorian backdrop. The background pulse still oscillates E and A, as in Section IIIA; however Marimba 3 funnels the harmony more towards B Dorian, building this “open” sound based primarily on fourths. The entire section is build out of only six pitches which
are all a subset of B Dorian. The one missing pitch is the important third (D), furthering the ambiguity.

Once again, Reich chooses to orchestrate his music in a very practical manner. Section IIIB provides Marimba 3 with three players on the same instrument. In order to accomplish this feat, one musician (player 2) must stand at the “back” of the instrument, fitting notes in-between players 1 and 3. Reich is very careful about the ranges, always keeping the musicians physically far enough apart to give just enough room to perform their material without getting too much in the way of their colleagues.

Example 3B.1:

![Marimba 3: Player 1 range: Player 2 range: Player 3 range: Mar. 3 Pl. 1 Pl. 2 Pl. 3]

The majority of player 2’s material is a perfect fifth higher than player 1, thus having mallet strokes generally together. This makes it more practical to play at the same time. Player 3 has the exact same rhythm as players 1 and 2, sometimes in octaves with player 2, furthering the playability of the instrument.

The overall form of IIIB is similar to IIIA as it is an arch, but different in how the arch is constructed. The opening A section of the arch is created out of a complete rhythmic construction. Once the opening rhythmic construction is complete, that entire melody is then manipulated through augmentation.
Example 3B.2:

Xylophone (and Piano) rhythmic construction transforms into augmentation:

A1 rhythmic construction
m. 264

A1 complete
m. 272

A2
m. 277

A3
m. 281

49
Example 3B.3:
Section IIIB - FORM

The rhythmic construction builds itself from the inside out (see example 3B.2). Starting on beat three near the middle of the measure, as the construction unfolds, the melody expands both in front of the starting note as well as after it, keeping close proximity. The melody itself, once fully realized, presents a new rhythm in the work: \(\downarrow\downarrow\downarrow\downarrow\gamma\gamma\gamma\gamma\). This is the same rhythm that the background texture instruments present in the enter of the section. Clarinets, Voices, and Strings add long tones emphasizing the internal rhythm of the rhythmic augmentation of this rhythm. The augmentation begins by repeating the first two large beats of the initial one bar cell (see example 3B.2). The original one bar melody (A1) is now twice as long (A2). This new melody is doubled once again (A3) by starting with the large beats two and three, then presenting the cell in its entirely twice, and finally ending with our fragment beats one and two again. Once the four-measure melody is complete, the Clarinets are free to break off and present four foreground pulses with Voices 1 and 4. These pulses are all fourths (B-E) and seem to simply glide out of the already fourth-heavy background pulses and ostinati. This then cues the entire augmentation process to happen in reverse, ending not with our original one-bar cell, but rather with the second measure of A2, providing a more “cadential” cell to end the section with.

There are only four Vibraphone calls in this section and they are all interrelated. The first call (m. 273) signals the completion of the rhythmic
construction and subsequent change to the first augmentation (A2). The second call (m. 279) signals the change to the next cell in the augmentation (A3). In the return of A the Vibraphone has the reverse role, to signal the collapse and shrinking of the diminution. Its cue in m. 295 signals A2 and its subsequent cue in m. 303 signals A1. The Vibraphone calls can be broken down into three building blocks (x, y, z). Each call manipulates these blocks, or subset thereof, in a different permutation. Block “y” consists of the open widespread dyads of G#-E and E-C#, block “z” is the cadential dyad consisting of G# and B, and block “x” is an introduction dyad of either octave dyads on C# and B or C#-E and A-C#. All four instances of Vibraphone calls have a different permutation of block “y”; block “z” is the same only for calls 1 and 3; block “x” is different in each of its two instances.

Example 3B.4:
**Section IV**

Section IV has far less activity than its predecessors and serves as a respite before the energy and full activity of Section V, the central section of the entire work. Section IV remains a more subdued section of the work, the “calm before the storm.” Section IV is in linear form that starts with an augmentation and transforms into a massive tapestry of pulses. There is no exit in this section; instead, the pulses at the end of section IV overlap and hide the entrance of the new material that begins section V. Consequentially, there is no entry for section V.

Example 4.1:

Section IV - FORM

<table>
<thead>
<tr>
<th></th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>Section V</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enter</td>
<td>1 2 3</td>
<td>1 2 1 2 1 2 1 2 1 2 1 2</td>
<td>1 2 1 2 1 2 3 4</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>augmentation</td>
<td>pulse</td>
<td>pulse (massive)</td>
<td></td>
</tr>
</tbody>
</table>

Section IV opens with a presentation of the IV chord between two Marimbas and two Pianos, exactly as in sections I, II, and IIIB. As in these other sections as well, a third Marimba and Piano provide background *ostinati* that hold for the entire section. A very ambiguous C# Phrygian mode prevails for this section. The Marimba 3 and Piano 3 ostinati are an octave higher than they have been previously. This, together with Marimbas 1, 2 and Pianos 1, 2 also playing in an upper register, provides a thinner and higher texture with which to begin the section. In contrast, the Bass Clarinets are in the lower portion of their range when they begin their pulses in the B section. This aids in the full tapestry of sound in section IV. The subset organization of the pitch material follows the basic form of sections I and IIIA.
Example 4.2:

As previously, the background pulse is a subset of the background ostinati, and the background ostinati are a subset of the foreground. Here, however, the foreground support instruments have a more limited pitch content than their counterparts formerly. Once the pulse starts to overtake the section with C, their pitch content grows. The augmentation in section IV only expands horizontally and not vertically as in previous sections; the length expands but not the register. As mentioned previously, this section serves as a respite before the intense Section V, and keeping the pitch register somewhat conservative further defines this section as calm and transitional. The Clarinets and Voice 2 function as the central foreground melodic instruments. As they increasingly double their total line length, the support foreground melodic instruments follow as a supportive shadow.
Example 4.3: Section IV melodic augmentation

The Vibraphone also follows the model of less activity, providing only two calls, which are virtual copies of each other. The B section pulses alternate between two dyads, a perfect fifth and a perfect fourth in the Bass Clarinets. After six cycles of this alternation, all four Voices and both Strings join in the pulses to create a massive “opening” and “closing” tapestry of pulsing sound. The pulses themselves are completely guided by the length of the human breath. The Bass Clarinets will extend their pulsing eighth-notes for the duration of one breath before taking a short pause to breathe in and then moving on to the next pulse. Therefore, no two performances will ever be exactly the same in terms of the length of this pulsing section. Each pulse is also further articulated by a crescendo and diminuendo on each chord. The music “sighs” with each chord, opening and closing, back and forth. The first oscillating chord has a perfect fifth in its lowest register, as seen in the Bass Clarinets: \( \text{perfect fifth} \). The Violin fills out the high end of the range, also with a perfect fifth: \( \text{perfect fifth} \) creating the “open” sound. Both of these dyads merge into the same perfect fourth, \( \text{perfect fourth} \) and \( \text{perfect fourth} \) thus providing the “close” to the oscillation. Together with the Voices also pulsing, and of course the background pulsing Marimbas and Pianos, every instrument playing, with the sole exceptions of Marimba.
3 and Piano 3, are pulsing. These immense pulses overlap and transition into section V. For the first time there is not a clearly demarcated section break; the prevailing Piano motive for section V sneaks in underneath the other pulsing instruments, starting from niente and building to the forefront.

**Section V**

Section V presents the first key change in the work, from three sharps to four. The blending and overlap from section IV into V serves to hide and smooth this harmonic transition. The newly added tone of D# is introduced in the gradual crescendo of the Piano motive stated at the opening of section V, and places the section in C# pure minor. Where, Marimba 1, 2 provided the background pulse for section IV, Xylophone 1, 2 now provide the background pulse for section V. The brighter tone and harsher attack of the Xylophone provide a more suitable background pulse behind the percussion Pianos, which dominate this section. This also frees up the Marimba to present more subtle resultant patterns reserved for later on in the section, which will eventually turn into the main motive for section VI. In order to make a smooth transition from section IV’s pulsing Marimbas to the “sharper” pulsing Xylophones, Reich drops the upper note E briefly. Example 5.1 illustrates this transition:

Example 5.1:
Once the top E starts to fade in, the Pianos begin their massive rhythmic construction.

As with section II, section V is also in linear form highlighted by rhythmic construction.

Example 5.2:
Section V - FORM

The Pianos dominate the two rhythmic constructions. Four Pianos are used to build the canons one note at a time. The usage of the same instrument for the canons provides for the ear a clear realization of the resultant patterns. “One of the most noticeable aspects of my music has been that it is written for ensembles of two or more identical instruments…this was necessary because…two or more voices moving against each other are identical in timbre, and therefore combine to form one complete resulting pattern in the ear.”⁶ As section V opens, Pianos 1 and 3 fade in the central foreground material. This one-measure cell is then processed by a rhythmic construction first in Pianos 2 and 4, then again in Pianos 1 and 2. The cell itself is a recycling of material from Violin Phase, an earlier work of Reich written in 1967.

Example 5.3:

---

A three-part canon at the quarter-note is gradually constructed among all four Pianos. Piano 1 and 3 start by playing the cell in its final form, as it appears in example 5.3. Layered over top of this is a rhythmic construction presented by Pianos 2 and 4; once complete, a second rhythmic construction is performed by Pianos 1 and 2. Once the three-part canon is fully realized, Piano 1 begins resultant patterns, doubled by Marimbas 1 and 2, as well as Voices 1 and 2. The second of two resultant patterns that are presented then transforms and becomes the driving cell for section VI. The two rhythmic constructions are built up much in the same manner, as illustrated in example 5.4:
Example 5.4:

Pianos 2 & 4, mm. 351-360

Both rhythmic constructions are processed much in the same way. The resulting canon separates the two by only one quarter note. By beginning on the same
rhythmic beat within the measure, then constructing the pattern with almost the exact same process, the listener can hear how the same cell can be built from two different rhythmic points in the canon. The pitch order reveals the similar expansion of the rhythmic construction:

Example 5.5:

RC I: 10 4 3 2 1 5 6 7 8 9
RC II: (8 9) 10 4 1 2 3 5 6 7 (8 9)

The first and third notes of each construction are reversed, the remaining expansion is identical. However, each construction implicates different rhythmic nuances, even though they are built basically in the same manner. Both constructions begin on the fourth quarter note of the bar, which is near middle of the measure. They each expand backwards, then forwards, filling out the measure is much the same way. Ultimately, the first construction will reveal itself to be exactly two quarter-notes behind the leader and the second construction will be one quarter-note behind the leader. Example 5.4 ① clearly indicates both constructions beginning on the fourth quarter-note of the measure: rhythmic construction I on D# and rhythmic construction II on C#. In between these two starting points lies the same E-B dyad. Rhythmic construction I must add this dyad before its starting pitch, where as rhythmic construction II adds the dyad after its starting pitch (② in example 5.4). Both constructions then finish the same three-note complement by adding the other’s starting pitch (③ in example 5.4). From this point forward, cells ④-⑩, the two constructions build the pattern in exactly the same fashion, ending in canon with the lead Piano 3.
Example 5.6:

Once the three-part canon is reached (example 5.6), Piano 1 can then fade out its part of the canon, and re-enter with resultant patterns completely based on the canon itself. There are two consecutive resultant patterns; both doubled with Piano 1 at the unison by Marimbas 1, 2 and Voices 1, 2.

Example 5.7:
Example 5.8:

The unison doubling combined with the fact that the resultant patterns already exist in the background instruments creates a texture with subtlety and nuance; the melody seems to almost “drift” out from the ensemble, slowly bringing to the attention of the listener a melodic fragment that has been there all along, only hidden beneath the embroidery of sound. Occurring simultaneously with the Marimba, Piano, and Voice 1, 2 resultant patterns are free-floating pulses in the Bass Clarinets, Voice 3, 4, and Strings. This combination of techniques demarks the C section (mm. 373 – 385B). The free-floating pulses themselves form a series of seventh chords.

Example 5.9:
The spatial placement of these chords is entirely at the discretion of the Bass Clarinets; they start each pulsing chord and serve as a cue for the others to either enter or change (as is in the case of the Strings.) The length of the pulse chord itself is entirely limited to the length of the human breath; that is, the Bass Clarinets and Voices 3 and 4 will first take a deep breath, then play the repeated pulses, starting niente, building to forte, then back down to niente. The Strings, not having to stop their playing to breathe, do not need to stop their playing at all during these passages, and the music is notated as so (see pages 109-114 of the score). The exit contains the only Vibraphone material in the entire section, a simple four-bar “door bell” to announced the entrance of section VI.

Section VI

With the conclusion of section V, so ends the first large half of the work. Section VI presents a more complex rhythmic texture, combining subdivisions that are different for two main groups of instruments. It is interesting to note that this is also where the Maracas enter, playing a straight pattern of constant pulsing eighth-notes. Not only do the Maracas sonically demarcate this section as the start of the large second half of the work as a whole, but they also serve a practical function in their role as metronome. The Maracas can easily keep the ensemble together during the combination of the different subdivisions of the 6/4 meter. The foreground melodic material in section VI is developed from the second resultant pattern of section V. Section VI presents a key signature change, going from four sharps back to three. The remaining resultant pattern does not have any D#'s, so the key signature change is smooth. Using this two-bar melody as a building block for the entire section, Reich recreates section IIIA, but in an entirely different light. The overall arch form of section VI is almost identical to the overall arch form of section IIIA.
Furthermore, both rely on the technique of augmentation to expand their respective material. Pianos 3 and 4 have extremely similar material and function much in the same way. In both sections, they have virtually identical material that is expanded in a similar approach. What remains the compositional mastery of this comparison of sections IIIA to VI is the fact that the foreground melodic material is not the same in both sections. Much of what happens to support the foreground melody, namely the background melody, however, is very similar. The foreground melody, as has been previously noted, is built from section V’s last resultant pattern. This results in a very different melody from section IIIA, yet it still works well over similar material. The foreground melodic material is formed by first adding fifths to a fragment of the already present resultant pattern in the Marimba and Pianos. This fragment is then processed through a series of augmentations.
Example 6.2:

The melodic material is expanded in a similar fashion that in section IIIA. The Clarinets, Voices 1, 2, and Strings begin with a one-bar fragment in unison plus a fifth higher than the Marimba 1, 2 and Piano 1, 2. The upper voices then move up a third to create seventh chords with the lower voices, plus fill in the gap to create a two-bar phrase. The Marimba/Piano line follows in suit by adding a fifth. The third expansion sees the Clarinets, Voices 1, 2, and Strings keep the same pitches but expand the phrase to four bars, while the Marimba/Piano expands higher via inversion. The fourth and final expansion pits the Clarinets, Voices, and Violin (not Cello) against the
same expansion they had in A3, while the Cello drops lower in pitch to support the background Pianos. The Marimba/Piano line continues to expand higher by another inversion. Once the central B has been reached, much as in IIIA, the Clarinets present only pulses; this time they have two groups of three, instead of two groups of two as they had in section IIIA. Following this, the entire augmentation process happens in reverse, contracting back to the opening one-bar phrase. The same type of rhythmic process that ensues in section IIIA also occurs in section VI. The main difference is where the strong beat is placed. In section IIIA, the strong beat clearly is on beat six (a west African influence on Reich), whereas when the same material recurs in section VI, the strong beat is on one. A careful analysis, while taking this into consideration, reveals the rhythmic similarities. For example, a close comparison of the Piano 3, 4 parts in both sections exposes the same rhythmic groupings as well as very similar pitch material.

Example 6.3:
As example 6.3 indicates, the Piano 3, 4 material is virtually identical. When lined up with concurring strong beats, as can be seen above, the similar material is readily apparent. The same basic pitch material is organized into exactly the same rhythmic groups: 2 4, 3 3 2 4, 3 3 4 2 3 3 2 4, 6 6 3 3 2 4. This same technique of strong beat to strong beat comparison reveals that both sets of Vibraphone cues in sections IIIA and VI have the exact same rhythm, though the note choices differ. Furthermore, they are both processed exactly the same way, with the second and sixth cues being virtually identical, the third and fifth cues being virtually identical, and the fourth cue in the middle with long tones.
Example 6.4:

III A Vibraphone cues

<table>
<thead>
<tr>
<th># of beats:</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 4 2 4 6</td>
</tr>
<tr>
<td>3 3 2 4 6</td>
</tr>
<tr>
<td>4 3 3 2 4 6</td>
</tr>
<tr>
<td>5 3 3 4 2 3</td>
</tr>
<tr>
<td>6 6 3 3 2 4</td>
</tr>
</tbody>
</table>

VI Vibraphone cues

<table>
<thead>
<tr>
<th># of beats:</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 4 2 4 6</td>
</tr>
<tr>
<td>3 3 2 4 6</td>
</tr>
<tr>
<td>4 3 3 2 4 6</td>
</tr>
<tr>
<td>5 3 3 4 2 3</td>
</tr>
<tr>
<td>6 6 3 3 2 4</td>
</tr>
</tbody>
</table>

Symbols:
- Vibrato (Vib.)
- Augmentation
- Long tones
- Shared upper note

Notes and intervals:
- 197: C4-G4
- 203: C4-G4
- 213: C4-G4
- 236: C4-G4
- 245: C4-G4
- 253: C4-G4
One of the most striking features of section VI is the subdivisions. As previously noted, the connections and similarities to section IIIA are vivid and clear. They are both rhythmic and harmonic, yet not melodic. However, this entire section is positioned over a backdrop of a different subdivision of the measure than that in section IIIA. Whereas section IIIA divides the 6/4 meter into three large beats of two quarters each, with the strongest beat occurring on the sixth quarter-note, section VI divides the same meter into four large beats of a dotted quarter each, with the strongest beat starting on the first quarter note. The undeniable sharp rhythmic pattern in the Xylophones places this unique rhythmic nuance and changes the perception of the entire section.
Example 6.5:

### IIIA

Beats: 2 (strong) 3 4 5 6 1

Pno. 1

Pno. 2

Pno. 3

Pno. 4

Vln.

Vc.

### VI

Maracas

Beats: 1 2 3 4

Xylo. 1

Xylo. 2

Mar. 1+2

Pno. 1+2
Not only are the large strong beats shifted in the measure to align to fit into the 6/4 meter, but the Xylophone groupings cast the entire section of basically previously heard rhythmic material into a new light.

Section VII

Section VII is another classic augmentation arch.

Example 7.1:

The foreground melodic instruments again being Clarinets and Voices 1, 2. Voices 3, 4 and Strings provide the background harmonic support. For the first time in the work, the background pulses have slight pitch variations from each other. Xylophone 1, 2 and Marimba 1, 2 provide the background pulses which have alternating pitches.

Xylophone 1 and Marimba 1 have a combined on the down beats while

Xylophone 2 and Marimba 2 have a combined on the upbeats. This creates a shimmering effect with a oscillation back and forth between A and G#. It is the only section in the entire work that has a pulse containing different pitches between the pulsing pairs. The subset of pitch material is also classic in form taking previous sections as a model.
Example 7.2:

Section VII varies our model slightly, giving the full complement of our home key for the section, F# minor, to the melodic support instruments (Voices 3, 4 and Strings). Our ostinati instruments are processing their material in a unique manner, not seen before in the work. The two ostinato instruments, Marimba 3 and Piano 3, process their patterns in unusual and interesting ways. For example, upon close examination, the ostinato in Marimba 3 is not a simple one-measure repeating ostinato as we have seen before. The ostinato keeps our familiar rhythmic pattern, but applies the pitches in a self reversing prime/retrograde order. The pitches in the first bar of the two-bar phrase is repeated in retrograde order in the second bar. The first and last notes overlap, thus keeping the pattern active for the duration of the section.
Example 7.3:

The effect, combined with the oscillating pitches in the background pulse, creates a
undulating sound, a feeling of movement going forwards and backwards, one side to
the other, rolling and unrolling. The Marimba ostinato here also has a partner. A
second player on the same instrument playing the ostinato in harmony, with each
augmentation rising in pitch while the first Marimba 3 keeps its pitch material static.
A subtlety picked up from transcribing the ECM recording was that the last note of the
upper Vibraphone 3 player was different only at the end of each repeated cell. Instead
of repeating the cell exactly, Marimba 3 connects the cells by moving the last note
higher before moving up to the next segment. For example, the last note C# of
measure 491.
Example 7.4:

The ostinato in Piano 3 that pairs with the Marimba 3 ostinato also introduces a unique processing pattern. The overall style of “drumming on the keyboard” is not unique; it appears in previous sections as well. But the realization of this style of playing on the piano is unique in how the pitch content is organized. Each hand contains two different dyads, and they always play dyads only. Example 7.5 indicates the relationships formed.
Example 7.5:

The right hand organizes its dyads by simple alternating between dyad A and dyad B. The left hand organizes its dyads by alternating C, then D, then D again. The interplay between these alternating dyads will form the same Marimba 3 ostinato in the middle of the Piano line; the inner notes present the Marimba 3 ostinato while the outer notes add only the pitches B and C#. The augmentation of the central melodic material (Clarinets, Voices 1, 2, and Marimba 3, player 2) forms a process very similar to the augmentation in sections IIIA and VI. The difference this time is how the prime/retrograde embeds itself into the augmentation as well, as example 7.6 indicates.
Example 7.6:

Once again, inversion plays an important role in stepping up the augmentation phrase by phrase. The central supportive instruments (Strings, Voice 3, 4) continue to highlight rhythmic nuance within the augmentation. The pitches themselves only vary in the Cello; the Violin and Voices 3, 4 maintain the exact same pitches throughout the rhythmic augmentation. The rhythmic structure of the central supportive instruments begins with the same rhythmic nuance of sections IIIA and VI. This proves to be the starting point and indeed, the first two processes continue that same overall rhythm (2+4, 3+3+2+4). But once the third augmentation enters (A3) as well as the fourth, the central supportive instruments resort to simple held dotted whole notes. This type of slower rhythmic writing is much more idiomatic for Strings and Voices and works
well for this section, whereas the more active A3 and A4 in the Pianos is more idiomatic to a percussive instrument, as the Piano is used here.

Example 7.7:

Once the augmentation is complete, the center of the arch has been reached. The B pulses are, once again, in the Clarinets only. Following the pulses, the entire section
folds back on itself in reverse order, ending with A1, as it began. After the final exit, Section VIII begins.

Section VIII

Section VIII is in an overall arch form, and its formation is similar to section IIIB. What seems to be a classic rhythmic construction in the first A section, then transforms into an augmentation. In other words, Reich combines these two techniques to form a unique manner of building this particular arch.

Example 8.1:

Section VIII - FORM

<table>
<thead>
<tr>
<th>Enter</th>
<th>A</th>
<th>1-R</th>
<th>2</th>
<th>3</th>
<th>rhythmic construction transforms into augmentation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>pulse</td>
</tr>
<tr>
<td></td>
<td>A</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>diminution (no rhythmic deconstruction)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Exit</td>
</tr>
</tbody>
</table>

The section opens with Marimba 1, 2 and Piano 1, 2 playing the background pulse, plus Marimba 3 and Piano 4 playing the background ostinati. Xylophone 1 and Piano 3 handle the foreground central melodic material, while the foreground support material is played by the Bass Clarinets, Voices 3, 4, and the Strings. This leaves Voices 1, 2 free to handle the middle B foreground pulses. As in section VII, Marimba 3 contains a background ostinato of a different rhythmic nature than we have seen so far. Piano 4 partners with Marimba 3 in this ostinato, creating the backdrop from which the opening rhythmic construction is assembled from. Once again, the “drumming on the keyboard” style is employed in the Piano 4 writing. The left hand always doubles in its lower note the same pitch in the left hand of the Marimba 3 ostinato. From this pitch, a perfect fourth higher is consistently built. The right-hand
pitches relate to the Marimba 3 ostinato in that they are always two perfect fourths higher than the Marimba’s right-hand pitch.

Example 8.2:

Both instruments play a two-bar phrase continually alternating the right and left hands on every other note. As the phrase is fifteen notes long, the player has a choice to perform the last note in the phrase with either hand, depending on what type of preparation is needed for the following downbeat (though most performers will choose to play the ultimate note in the phrase with the right hand.) From this ostinato the rhythmic construction in Xylophone 1 and Piano 3 is formed. The final rhythm of the one-bar construction mimics the rhythm of the second bar of the ostinato exactly. The process of construction itself is straightforward and, with the exception of the displacement in the final 1½ beats, follows the order of the final construction.
Example 8.3:

Xylophone (and Piano) rhythmic construction transforms into augmentation:

A1 rhythmic construction
m. 559

A2

A2 complete
m. 573

A3
m. 581
Once the construction is complete by m. 575, the augmentation begins immediately by adding a half bar right away. Measure 581 presents the augmentation in its final form: a four-bar phrase consisting of the seventh construction, followed by the eighth, followed by the seventh again, then finishing with the same half bar it started with.

Section VIII harmonically is one of the most ambiguous sections in the entire work. As noted previously, Reich will often use a full complement of all seven pitches within a particular mode or key. Each instrument or group of instruments contains one layer within the entire block of sound. Looking at each layer individually might reveal a different harmonic center. Only when combined is the full harmonic scheme apparent. While it is a bit more ambiguous than the other sections, to the ear Section VIII seems mostly within F# minor. If each layer is examined individually, three strong key areas are to be found:

Example 8.4:
Background pulse:

Marimba 1, 2 & Piano 1, 2: C# minor

Background ostinati:

Marimba 3: C# minor
Piano 4: F# minor

Foreground central melodic (rhythmic construction):

Xylophone 1: E major
Piano 4: C# minor
Foreground support melodic:
Clarinet, Strings, Voices 3, 4: E major
Vibraphone cues: E major

When combined, the overall harmonic field centers around F# minor, with a strong C# minor pull.

Once the Xylophone and Piano complete their rhythmic construction, the augmentation begins. The upper notes of the augmentation (Voice 3, 4, and Violin) stay the same throughout the rhythmic stretching: \( \textit{\text{inversion}} \). The lower notes of the augmentation (Bass Clarinets and Cello) drop lower, by process of \textit{inversion}, with each augmentation:

Example 8.5:

As the augmentation expands vertically in pitch, it also expands horizontally in rhythm. As before, the Vibraphone announces each augmentation expansion with the exact same pitch material, and only varying the rhythm. The chords within the augmentation itself start in A1 with two beats each, plus a two-beat rest (Z above). A2 expands this cell by adding one beat to each chord to fill a measure of 6/4, plus the
original Z (Y above). A3 expands this further by doubling the rhythmic values of the 
two chords to fill two complete 6/4 measures, plus the original Y and Z (X above). At 
the center of the section, Voices 1, 2 alone repeat the foreground pulses. Once the 
pulses are complete, the entire section once again collapse in on itself to complete the 
arch. A four-bar exit in the Vibraphone completes the section and brings in section 
IX/X.

Section IX/X

Section IX and X present a new combination of form entirely. For the 
first time in the work, two section chords are combined to create one large section. 
This single section, comprised of both the IX and X chords, balances and completes 
the eleven section equation together with two sections built on the III chord. The 
extact eleven section division remained much of a mystery prior to publishing of the 
complete score, which can verify the distinct distribution of the form.

Example 9.1:
Section IX/X-FORM

Section X does not exist on its own as a complete section within itself; rather section 
X is merely the last formal part of section IX. In this manner, a harmonic shift is 
observed when section X begins, but it remains formally tied to section IX. Section 
IX is built in C# minor, then changes to F# minor when the pulses in Section X begin. 
As there are in fact two sections built from the third section chord (IIIA and IIIB), 
Reich combines IX and X to resolve the work to eleven sections. The overall form of
section IX-X follows the model first given in section II, a form that posits *rhythmic constructions* versus *foreground pulses*.

Example 9.2:

Example 9.2 compares the first two rhythmic constructions side by side. They each construct the same basic melody, though realized differently in their respective instruments; the final construction (⑦ above) reveals the final melody. Reich arrives at this melody using two different rhythmic processes. The first construction begins towards the middle of the measure and builds out in front and behind the starting note, mushrooming out from one starting place. What happens in the fifth process of the first construction is something that had yet to be documented in the music of Steve
Reich, and very well may never have happened again. As can be seen in the fifth process of the first construction in example 9.2, the fifth added dyad does not occur in its final rhythmic position; instead it occurs in the rhythmic position of the sixth added dyad. When the next process of the construction occurs, the fifth dyad is moved to its rightful position and then the sixth can have its place as well. The question remains why this is the only rhythmic construction in the work that has this singular alteration. It could have been merely an oversight, but it was more likely a conscious decision on the part of the composer. It is entirely possible that Reich broke with the process here simply because he felt it “sounded better.” This small act is significant, as it shows a willingness to break from form in order to preserve sound. In the end, the “sound” itself it what connects us to the music and, in this example, prevails over function. The second construction has a different process. First, it begins at the end of the measure, then builds a three-note pattern with first one note before, then one note after the starting pitch (①-③ above). Then Reich picks another starting point, near the middle of the bar (④) and builds three chords in the exact same manner: one before then one after (④-⑥). Reich then completes the construction with the final, seventh, chord in the melody (⑦). This is significant as Reich sets up two gaps in the construction that are then later filled in by the third rhythmic construction as example 9.3 indicates.
Example 9.3:
Example 9.3 (Continued):

fills in gaps
As the ear tends to focus on the higher pitches within a chord, a resultant melody floating on top of the third rhythmic construction can clearly be heard, and is indicated in example 9.4. When examined alone, the resultant melody reveals a thought process behind the rhythmic construction that is consistent with Reich’s fascination with symmetry.

Example 9.4:

Section IX-X replays many battles from the work. The dominating Piano pattern from Section V (originally the main pattern in “Violin Phase,” 1967) returns to
Pianos 3 and 4. After a modification and harmonization into fifths, these two Pianos create the background ostinato that provides the backdrop for the war between the rhythmic construction melodies versus the foreground pulses. The ostinato itself is created from the background ostinato of Section V (which was created from “Violin Phase”).

Example 9.5:

Section IX takes the Section V Piano cell and moves it forward in the bar five eighth-notes. The held chord in the cell is modified to add more rhythmic activity to the section. Then, this entire line is harmonized by doubling it an octave plus a fifth lower. As in Section V, D# is present again as Section IX is clearly in C# minor. Once the subtle change to Section X occurs, the same Piano ostinato is modified yet again to fit F# minor. Even though the key signature of IX is three sharps, the D# present in the Piano helps define C# minor as the home key.

Once the enter establishes the background pulse and ostinato, the central foreground instruments (Clarinets, Voices 1, 2, and Strings) may proceed with the first rhythmic construction; all melodic instruments are doubled at the unison, creating an
almost electronic sound, cutting through the texture. Each cell of the construction is repeated 4-7 times, gradually building up the first construction melody. Once complete, the Clarinets and Strings fade out, and then change to foreground pulses. Voice 2 remains singing the construction melody. During the premiere recording sessions of the work, a second voice line (Voice 1) was added, to fade in and out in harmony with Voice 2, that was not present in the first performances.\footnote{Mellits, Marc, interview with the composer, Spring, 1997.} Once the foreground pulses begin in the Clarinets, Voice 3, 4, and Strings, the battle with the rhythmic construction is taken up with Xylophone 1 and Piano 3, Player 1. Each cell in this second rhythmic construction is now repeated only three to five times, providing a quicker execution. Simultaneously, the rhythmic construction builds up its melody and the foreground pulses proceed by carefully placing their chords. Pages 197 – 201 of the score contain the rhythmic construction versus pulse battle. A great deal of flexibility is built in to the score in order to allow the musicians the freedom to execute their lines within the constructs of the form. The Clarinets, Voice 3, 4, and Strings must \textit{pulse} four chords freely within the construct of the Xylophone 1 and Piano 3 creating their rhythmic construction. This rhythmic construction itself is also free in its repetitions of each cell. The overall length of the entire construction will vary, as will the overall length of the entire pulsing lines. The construction itself contains seven chords and therefore will take seven cells to complete the final melody. As noted previously, the cells of this construction are repeated only three to five times, instead of the original construction’s four to seven times; undoubtedly this reduced number of repeats provides a better “fit” with the four pulsing chords. A careful examination of pages 197-201 of the score will indicate the necessary math needed to fully execute this section. There will never be two performances that are exactly the
same length. The Bass Clarinets are leading the pulsing chords, defining the length of the phrase by their own breath. Each of the four chords are placed in such a way so that the rhythmic construction can proceed naturally and unhurried. The key to perfect execution does not lie in the score itself, but in the ears; the musicians must listen to each other in a way that they might not be accustomed to in Western art music, fitting in their notes within other musician’s lines, who are doing exactly the same. Once the first four chords are complete as well as the construction, the Clarinets cue a second cycle of four chords (which are inversions of the first cycle) to occur at the same time as another rhythmic construction, this one executed by Xylophone 2 and Piano 4, player 2. The pulse chords do not necessarily have to begin exactly with the next construction, though they should both start relatively near one another. The last construction contains eight chords, and therefore needs eight repeated cells to be fully realized. Each cell once again is repeated three to five times, and it is also executed over four pulsing chords. Therefore, it would behoove the musicians to start this last construction just a bit before the Clarinet cue (as the score on page 199 indicates). Once again, a rhythmic construction tries its best to win over the ensemble away from the pulsing instruments to dominate the texture. But it is the foreground pulsing that governs in the end, with most of the instruments joining. First, both Xylophones release their construction melody and join the pulses. Then it is Piano 3, player 1 to conform, and finally, Piano 4, player 2 also joins in the pulsing. By the harmonic change to section X all instruments are pulsing, with the only exceptions being the original background ostinato (Piano 3, player 2 and Piano 4, player 1) and the lonely Voice 1, 2, who trade off the last remnant of the construction melody. Everything happens at once in section IX-X, and all forces combine. It is an incredible sound, rhythmic constructions occurring at the same time as cycles of pulsing chords, all overlaid upon repeating ostinati and background pulsing chords. A struggle between
the constructions and the pulses is formed, with pulses winning in the end. The final echo of the construction in Voice 1, 2 remains as an echo of once that was. As noted, the last instrument to change over to pulses is Piano 4, player 2, and after this last player resolves to pulses, the entire ensemble can shift to the X harmonic chord. The music moves from C# minor to F# minor, and the D# disappears. Only three repetitions of this last cycle of chords is executed before the exit Vibraphone cues moves the music to section XI. The absence of the Vibraphone exit cue at the end of section IX further proves the theory that there is no real section X that exists by itself, rather it is an extension of section IX. X remains the spoils of war and the reward of the pulsing group of instruments.

The cycle of the foreground pulsing chords throughout IX-X are always lead by the Bass Clarinets, of course. They start each wave of pulses and are the cue for the others to begin. Their own pattern of chords is clear, with a decreasing amount of chords per cycle as the music progress: first four chords, then an inversion of the same four chords, then three chords, and finally two.

Example 9.6:

Bass Clarinet:

- cycle I
- cycle II is an inversion of cycle I
- cycle III is cycle II without the first chord and dropping the lowest note of the middle chord
- cycle IV borrows only its second chord

Section X ends much like Section IX began: Marimba 1, 2 and Piano 1, 2 pulsing while Piano 3, 4 present an interlocking ostinato.
The final internal section of *Music for 18 Musicians*, Section XI, returns to the opening section I key of B minor and is controlled by a straightforward linear form, thus uses the technique of *augmentation* to build itself through.

Example 11.1:

Section XI - FORM

Section XI follows the same basic game plan that the other linear/augmentation sections took. The melodic material is similar, as well as its expansion. The background *pulse* here is handled by Marimba 1, 2 and Piano 1, 2. The background *ostinati* are handled by Xylophone 1 and Piano 3. From sections VIII – IX/X, *Music for 18* migrates further away from the basic linear form, instead developing and combining techniques to create a massive sound world. For the last mini-piece, we return to a simpler sound world with a clear form that does not transform previous techniques. The melodic material is presented in clear-cut form, presenting similar material experienced previously. The Clarinets and Voice 1, 2 contain the central melodic material, and the Strings and Voice 3, 4 contain the melodic support material. Vibraphone acts once again as the cue instrument, notifying the ensemble of when to move forward in the form. The melodic augmentation is summarized in example 11.2. It expands only by rhythmic augmentation and does not rise in pitch as well, expanding in very similar behavior to Section IV.
Example 11.2:

Section XI melodic augmentation

The melodic support instruments (Voice 3, 4, and Strings) also expand only by rhythmic values and do not expand in pitch register. The rhythmic values in the expansion are the same types of values used before in the same role. The final rhythmic expansion can be seen to compare quite well to the rhythmic expansion seen before in the Pianos (for example in sections IIIA and VI.) If the last two units of two beats (half note plus 2 beats rest) are grouped together, the familiar formula is revealed.
Example 11.3:

This rhythmic division of six beats is another example of Reich’s fascination of symmetry. Each subunit can be thought of as adding up to six beats. The strong beat of each begins on beat six of the measure. The final version of the fully expanded augmentation (3+3+4+2+3+2+4) is four groups of six beats each, divided in a systematic and symmetrical way: 3+3, 4+2, 3+3, 2+4. The first group is divided right down the middle into two equal units of three beats each; the second group has one extra beat in the beginning of the unit; the third group is exactly the same as the first; and the final group places the extra beat now on the last unit in the group, thus completing the symmetry.

There are only two Vibraphone cues in the entire section, and they represent a very simple manipulation. Since the form of Section XI does not allow for a balancing diminution to the augmentation section, there are no Vibraphone cues.
following the foreground pulses; instead the music moves directly into the final pulse section to end the work. The first Vibraphone cue moves the music into the first augmentation, and the second and final cue moves the music into the third and final augmentation. The second Vibraphone cue is a simple manipulation of the first: the first note is increased in length by one quarter-note, the second note is decreased by one quarter-note; the last three remain intact.

Example 11.4:

The connection from Section XI to the final pulse is made as effortlessly as possible. The C section of XI places half the ensemble with foreground pulses, which adds to the four instruments (Marimba 1, 2 and Piano 1, 2) already with background pulses. By the end of XI, only two instruments (Xylophone 1 and Piano 3) remain with something other than pulses, and they will eventually fade out their ostinati and allow the rest of the ensemble to continue to the final pulse section alone.
TOTAL COMPARISON

One of the most fascinating aspects of Music for 18 Musicians, and the driving kernel for the entire work, is the fact that approximately one hour’s worth of music is created from a rather limited amount of musical material. Each section is constructed as a “mini-piece” within the entire hierarchy, and all based on similar material. The types of form/technique used throughout the work in each section can be reduced to either arch, relying heavily on the technique of augmentation; linear, relying heavily on the technique of rhythmic construction; or two types of hybrids: hybrid I, which is arch in form but contains a rhythmic construction that morphs into an augmentation, and hybrid II, which is linear in form, but relies on augmentation. Hybrid II could also be thought of as a classic arch/augmentation that does not return to the original A, instead continuing with the B pulses.
Example 12.1:

Purely for theoretical purposes, an even more advanced hierarchy can be seen cradling the work into seven large-scale sections, plus the opening and closing pulse sections:

Example 12.2:

Section V, the exact central section, serves as the midpoint and in many ways the highlight of the entire work. It is here that the massive Piano rhythmic construction explodes, setting this section on a different plane from what happens both previously and after as well. Large-scale sections A-C as well as E-G both have five internal sections each, a further display of symmetry. Harmonically, each large-scale section
is loosely grouped together. Large-scale A centers around two minor modes of B: B minor and B dorian. Large-scale B centers around F# minor, and large-scale C is in C# phrygian. The central section, large-scale D, is in C# minor. Sections VI, VII, and VIII all have Maracas, are in F# minor, and form large-scale E. Once the Maracas fade out, large-scale F starts in C# minor and then modulates to F# minor with the pulses of X. The final large-scale G comes back to F# minor.

The formula for the individual sections remains much the same throughout the work and can be easily reduced to the two main types listed above: arch/augmentation and linear/rhythmic construction, plus their two hybrids: arch/rhythmic construction-augmentation and linear/augmentation. Each maintains a crystal clear form and process of technique. The four arch/augmentation sections (I, IIIA, VI, and VII) each follow an almost identical path. The structure of each is in the same type of arch: ABA. The first A segment in each follows a clear expansion of augmentation comprising four separate parts, all processing in a similar way. Each B segment contains two repeats of a small progression of dyads. Each C segment contains a reversal of the opening A segment, with similar processing of a diminution of the A material, also organized into four separate parts.

Example 12.3:
Arch/Augmentation Form

Three out of the four arch/augmentation sections have the same exact rhythmic augmentation, and all four expand in length as well as in pitch; as the process of augmentation expands, the pitch content also rises in the melodic instruments and falls in the support instruments. This creates a giant “crescendo” into the central B
segment. Even though there are no overall dynamic markings throughout these segments other than hairpins associated with fading in or out, a general crescendo is built into the system. More notes are added and rhythmic activity increases as the segment moves forward. The exact reverse occurs in the mirror A segment.

Example 12.4:

Example 12.4 clearly compares the four arch/augmentation sections in the work.

From this example, the similarities are unmistakable. Each section is in the same ABA form and each employ the use of augmentation as the single main processing technique. The rhythm of sections I, IIIA, and VII are exactly the same, with only section VI having a varied rhythmic content from the others. Section VI also has the two groups of the dyads in the B segment while the other three sections each have two groups of two dyads; however, all four sections have their sequence repeated twice.
All four sections also have the same type of augmentation occurring. Cells 1-3 each expand by doubling its previous length: first one measure, then two, then four. The last cell keeps the rhythm of the previous cell intact. The pitch areas covered in each cell by the melodic instruments rises progressively with each expansion; the fourth cell reaching the highest point in the augmentation. Once this point is reached, the B segment begins with the two pulsing groups of dyads. Then the entire process happens in reverse, ending finally with the opening first segment. The overall symmetrical arch is the hallmark of these sections and provides the basic framework that the melodic and harmonic material is placed upon. As examined earlier, the rhythm, which has remained a staple throughout Reich’s career, forms the basis of many of the germinating cells of *Music for 18 Musicians*. Example 12.4 indicates the usage of this rhythm in three out of the four augmentations. But its use is certainly not limited to the arch sections, as the rhythm also appears in the other sections as well. The linear/rhythmic construction sections certainly employ the usage of this rhythm (for example, the opening rhythmic construction in section II). These sections, too, have a consistent formal plan, though not as literal as the arch/augmentation sections.

**Example 12.5:**

Linear/Rhythmic Construction Form

```
| (Enter) | A rhythmic construction | B rhythmic construction (vs. pulse) | C rhythmic construction or resultant patterns vs. pulse | (D/E) pulse | (Exit) |
```

The three linear/rhythmic construction sections are II, V, and IX/X. All three follow a similar plan, with only section V deviating just a bit from the other two. Each employs a sense of struggle: sections II and IX/X pit the rhythmic construction versus
the pulse, while section V pits the resultant melodies (derived from the rhythmic constructions) versus the pulse.

Example 12.6:

**LINEAR/RHYTHMIC CONSTRUCTION**

In all three cases, it is the pulse than wins in the end. The combination of techniques within a clear formal direction provides the players with a map on which to navigate
their own process. All musicians are forced to listen closely to each other in order to maintain the course of the form.

Four sections fall into hybrid combinations of the two main structures. Hybrid I has the overall form of an arch, but contains a rhythmic construction whose process morphs into an augmentation. Therefore, augmentation is still present as in all arch/augmentation sections, the difference here being that its initial formation is created by a rhythmic construction.

Example 12.7:

**HYBRID I: ARCH/RHYTHMIC CONSTRUCTION-AUGMENTATION**

Sections IIIB and VIII both fall into the hybrid I category, and the form and process for both remains the same, as example 12.7 indicates. These sections begin with a rhythmic construction, setting out on the same path as the linear/rhythmic construction sections. However, once the initial rhythmic construction is complete, the path changes, and our completed construction then processes as an augmentation, instead of combining further constructions in canon with foreground pulses, as might be expected. Two modifications are made to the augmentations: there are no pitch level changes and the augmentation has only three segments instead of four. A comparison of examples 12.4 and 12.7 shows these two distinct differences. Given that the initial rhythmic construction occupies many more measures than the first segment of an
augmentation, reducing the augmentation process down to three segments instead of four makes practical sense, and keeps these sections from being too long in comparison with the others. Additionally, setting them off by not raising the pitch structure of the melodic instruments further gives these hybrid sections their own identity different from their parent sections. Much like the archetypical pattern, the B contains foreground pulses very similar to those heard in the arch/augmentation sections; two sets of two chords are repeated. The reverse A operates also in a similar manner, with the process of augmentation happening in reverse (diminution), each segment growing smaller until we arrive at the original one-measure melody. There is no rhythmic deconstruction in these sections, or in the entire piece as a whole. Instead, once the first segment is reached again, the music moves into the exit and the next section proceeds.

Two sections, IV and XI, fall into the second hybrid category of linear/augmentation. On the surface, these sections seem to be merely a truncated arch/augmentation, and in some ways this is true. An arch form is set up, but instead of the B containing two sets of foreground pulses and then the section returning to the initial A, large scale pulses take over B and last much longer than might be expected.
Example 12.8:

HYBRID II: LINEAR/AUGMENTATION

A

B

(no A)

These sections begin by masquerading as a classic arch/augmentation. However—as in hybrid I—the augmentation process does not change the pitch level of the melodic instruments. Also in keeping with hybrid I, the augmentation itself only increases with three segments total, not four as in the classic arch/augmentation model. The pitch structure of the central melodic instruments in Hybrid II mirrors the pitch structure of the foreground pulses in hybrid I. A comparison of example 12.7 and 12.8 will clearly indicate this parallel. The first hybrid I B (section IIIIB) contains two perfect fourths, while the first hybrid II A is also built on perfect fourths. The second hybrid I B (section VIII) contains two sixths, while the second hybrid II A is built on sixths as well. There are clear formal reasons behind hybrid II. Instead of returning to A, the B lets the foreground pulses take over, and completely dominate the ensemble. In both cases of hybrid II, there is dovetailing or an elision into the next section. There are no exits coming out of hybrid II; the music instead overlaps into the next section, providing a meshed and subtle section change.

In the entire work, there are a total of ten rhythmic constructions. It is interesting to note that of these ten, fully half of them begin on the third beat.
Example 12.9:

- **II**
  - Starts on beat 3

- **V**
  - Starts on beat 4

- **VIII**
  - Starts on beat 1

- **IX/X**
  - Starts on beat 3

- **IIIib**
  - Starts on beat 3

- **V**
  - Starts on beat 4

- **IX/X**
  - Starts on beat 6

- **IX/X**
  - Starts on beat 2

- **IX/X**
  - Starts on beat 2

- **IX/X**
  - Same or similar rhythm
The sense of symmetry is apparent when all ten rhythmic constructions are compared together (example 12.9). The second and second-to-last sections each have three rhythmic constructions. The fourth and third-to-last sections each have one rhythmic construction. And the central section, the exact formal middle of the work, has two rhythmic constructions. When examined together with the sections that contain augmentations, an interesting skewed symmetry becomes apparent.

Example 12.10:

As example 12.10 exposes, the entire work reveals an overall symmetry when viewed purely in terms of the technique of augmentation. When overlaid with the pattern of rhythmic constructions, a certain sense of balance can be seen. The central section V contains two rhythmic constructions, but no augmentations. As noted previously, this is the innermost, fundamental block at the center of the entire work. One either side of section V, both previous and after, there are the exact same number of sections representing the same formal techniques. The first half of the work contains one linear/rhythmic construction (II), one hybrid I: arch/rhythmic construction-augmentation (IIIB), one hybrid II: linear/augmentation (IV), and two arch/augmentation (I and IIIA) sections; the second half of the work contains the same one linear/rhythmic construction (IX/X), one hybrid I: arch/rhythmic construction-augmentation (VIII), one hybrid II: linear/augmentation (XI), and two arch/augmentation (VI and VII) sections. Furthermore, both linear/rhythmic construction sections (II and IX/X) contain exactly three rhythmic constructions; both hybrid I sections contain one rhythmic construction that transforms into three augmentation segments; both hybrid II sections contain three augmentation segments.
only; and finally, all four arch/augmentation sections each have four segment augmentations.

First half (I-IV):
2 4-segment arch/augmentation
1 linear/rhythmic construction
1 hybrid I
1 hybrid II

Central section V (Linear/Rhythmic Construction)

Second half (VI-XI):
2 4-segment arch/augmentation
1 linear/rhythmic construction
1 hybrid I
1 hybrid II

Examples 12.1 – 12.8 hold the formal keys to the entire work. These eight simple reductions contain all of the overall structural elements of the piece, without getting into the detail of the performance materials themselves. These examples exemplify one of the splendid aspects of this work as a whole: an hour-long masterpiece with its roots in absolutely clear technique, within a comprehensible and rigid form. Each section presents musical processing techniques within one of four formal constraints, never repeating the same music twice. Both the processes themselves and the forms used are audible and understandable. *Music for 18 Musicians* represents a return of music to the people, the average concert-goer, who can understand and “hear” the musical processes unfolding. At a time when Western art music seemed splintered into styles foreign and difficult to comprehend, at a time
when Western popular music was gaining audience shares, Steve Reich bridged the
gap and returned concert music to its rightful owner, the audience. In many ways, this
music could be seen as a direct reaction to the serialism and rhythmically complex
atonal music popularized by such as composers Elliott Carter, Luciano Berio, Brian
Ferneyhough, and Karlheinz Stockhausen. *Music for 18 Musicians* is quite possibly
the hallmark work of Reich, and fully represents this return. The premiere recording
on ECM sold more than 100,000 copies in its first two years and was named one of the
best pop albums of 1978, even though it is clearly not pop music. This further
represents the bridge that Reich built, and *Music for 18* is the keystone of that bridge.

Many composers have since used this bridge to cross over many musical waters.
Reich’s influence has been felt far and wide. Even the great master and Reich’s
senior, György Ligeti, has noted this influence. The second movement of Ligeti’s
*Three Pieces for Two Pianos* (1976) bears the subtitle “Selbstportrait mit Reich und
Riley (und Chopin ist auch dabei)” [“Self-portrait with Reich and Riley (and Chopin
in the background)”]. Terry Riley, one of the original four masters of minimalism
along with Reich, Philip Glass, and Le Monte Young, also has a deep connection with
Reich’s music. One of Riley’s early masterpieces and most successful works, *In C*
(1964) has a special link with Reich. These two composers knew each other in the
early chapters of their careers. In fact, Steve Reich played in the premiere
performance of *In C*. One of the most striking aspects of *In C* and partly why the
work has its name has to do with the constant repeated eighth-notes on the two high
C’s of the piano. This steady pulse remains constant throughout the entire work and is
type of musical metronome for the musicians. Placing these high C’s in the work was
not the idea of Terry Riley. It was Steve Reich’s suggestion to add this to the work
during the rehearsal period. His idea was that it would serve a practical purpose of helping the musicians stay together while they rehearsed. It was such a striking idea that Riley decided to leave it in the work and it remains to this day. Reich’s imprint on In C served to be a powerful and long lasting influence. The idea itself of having the high C metronomic pulse throughout the work fits well into Reich’s work and is clearly more of an idea that would stem from Reich than Riley. Reich used the concept of the pulse throughout his career and has been noted earlier in Music for 18 Musicians. The concept of practicality has also been noted previously and is typical of the music of Steve Reich.

Many younger composers have also followed the path that Reich forged and have capitalized on the newly gained audience. Michael Gordon, David Lang, and Julia Wolfe, all born in the mid 1950’s, started an organization called “Bang On a Can” that continues to find and encourage young composers who have found themselves caught on the musical bridge that Reich helped erect. Their own music, along with sounds created by composers such as Evan Ziporyn, John Adams, Michael Nyman, Randall Wolf, Nick Didkovsky, Steve Martland, Patrick Grant, and Dominic Frasca all share a common path of repetitive music informed by popular music. Steve Reich and Philip Glass were two of the original composers who popularized this infrastructure and embraced popular music influences channeled into a repetitive language, building the “musical room” in which many composers live today. It also literally helped to fill concert halls with a newly appreciative audience for contemporary classical music. Music for 18 Musicians was one of the original keys to this “musical room’s” door. Its influence has been felt globally and profoundly, affecting composers, musicians, and audiences around the world. With score and parts

8 Mellits, Marc, interview with the composer, July, 1997.
finally available, this music is returning to the stage and beginning to affect a whole new generation of music makers. This composition has shaped an important corner of the musical universe that we call home and holds considerable promise for future generations, who will undoubtedly continue to benefit from *Music for 18 Musicians.*
Music for 18 Musicians

Modular Score
Bass Clarinet 1 lifts instrument to cue each new chord. Pianos, marimbas, voices, and strings follow a few beats later. Exact entrances ad lib.

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* Bass Clarinet 1 lifts instrument to cue each new chord. Pianos, marimbas, voices, and strings follow a few beats later. Exact entrances ad lib.
CL.

VIB.

MAR. 1

MAR. 2

MAR. 3

PNO. 1

PNO. 2

PNO. 3

VOICES 1

VOICES 2

VOICES 3

VII.

vc.

violin.

122

Voices 3

doo

Pno. 3

Pno. 2

Pno. 1

Mar. 3

Mar. 2

Mar. 1

Vib.

CL.

109

(7-11x)
* fade out gradually through repeats
* in one breath; breathe when comfortable; fade in/out through repeats ad lib
Vc. with voices 1 and 2; fade in gradually

Voices 1

Voices 2

Pno. 1

Pno. 2

Pno. 3

Mar. 1

Mar. 2

Mar. 3

Cl.

(5-10x)

(5-10x)

(5-10x)

(5-10x)

(5-10x)

* with voices 1 and 2; fade in gradually
fade out gradually through repeats

Vc.

Vln.

Voices 3

Voices 2

Pno. 3

Pno. 2

Pno. 1

Mar. 3

Mar. 2

Mar. 1

Vib.

Ped.

Cl. 2

158 159 160 161

(4-8x)

* fade out gradually through repeats
From bars 168-175, clarinets initiate changes to next bar. When they move to next bar, voices, violin and cello follow immediately afterwards.
* fade out gradually through repeats
fade in just after clarinets entrance; cresc. and dim. follows just after clarinets fade in/out; freely alternate one-bar pattern until 188B in one breath; breathe when comfortable; fade in/out through repeats ad lib.

Vc. (7-12x) (7-12x) (7-12x)

Voices 4
Vln. (7-12x) (7-12x) (7-12x)
Vc. (7-12x) (7-12x) (7-12x)

* in one breath; breathe when comfortable; fade in/out through repeats ad lib
** fade in/out; freely alternate one-bar pattern until 188B
*** fade in just after clarinets entrance; cresc. and dim. follows just after clarinets
Vc.

*entrance follows clarinet cue; xylophone 2 and piano 4/player 2 enter together

Vln.

Voices 4

Voices 2

Player 2

Pno. 4

Pno. 3

Pno. 2

Pno. 1

Mar. 3

Mar. 2

Mar. 1

Xylo. 2

Xylo. 1

Cl.

*entrance follows clarinet cue; xylophone 2 and piano 4/player 2 enter together

Player 1

Pno. 4

Pno. 3

Pno. 2

Pno. 1

Voices 1

Vi.
Vc.

xylophone

1/2 begin pulsing following clarinet cue

Vln.

Voices 4

3

Voices 2

1

Player 2

Pno. 4

Player 1

Pno. 3

Pno. 2

Pno. 1

Mar. 3

Mar. 2

Mar. 1

Xylo. 2

* (7-12x) (7-12x) (7-12x)

Xylo. 1

* (7-12x) (7-12x) (7-12x)

Cl. 2

1

185B

(5-10x) (5-10x) (5-10x)

186A

(5-10x) (5-10x) (5-10x)

* xylophone 1/2 begin pulsing following clarinet cue
* piano 3 begins pulsing following clarinet cue
* piano 4 begins pulsing following clarinet cue
Vc.

repeat until cue

cue begins

Vln.

repeat until cue

cue begins

Pno. 4

repeat until cue

cue begins

Pno. 3

Pno. 2

Pno. 1

Mar. 3

Mar. 2

Mar. 1

Vib.

Cl.

Cl.

Xylo. 2

Xylo. 1

Cl. 2

200

(2-4x)

201

repeat until cue

cue begins

202

Vln.

repeat until cue

cue begins

Vc.

Repeat until cue

cue begins

200

(2-4x)

201

repeat until cue

cue begins

202

43
Vc.

in one breath; breathe when comfortable; fade in/out through repeats ad lib; clarinets follow voices

Vln. Voices 2

doo (5-10x) doo doo (5-10x) doo

Pno. 1 Pno. 2 Pno. 3 Pno. 4

Mar. 1 Mar. 2 Mar. 3

Xylo. 1 Xylo. 2

Cl. 2

* in one breath; breathe when comfortable; fade in/out through repeats ad lib; clarinets follow voices
Vc. with piano 1; fade in gradually

Voices 2
doo
doo
doo
doo

Vln.

Pno. 4

Pno. 3

Pno. 2

Pno. 1

Cl. 1

Cl. 2

Xylo. 1

Xylo. 2

Mar. 3

Mar. 2

Mar. 1

Mar. 4

Xylo. 2

Xylo. 1

Cl. 2

227B

228

53

* with piano 1; fade in gradually
* crescendo gradually through repeats
* fade out gradually through repeats
Vc.

in one breath; breathe when comfortable; fade in/out through repeats ad lib; clarinets follow voices

Vln.

Voice 3

Voices 4

simile (one breath)

doo

doo

doo

(5-10x)

(5-10x)

(5-10x)

(5-10x)

(5-10x)

(5-10x)

(5-10x)

(5-10x)

Player 1

Player 2

Player 3

Pho. 1

Pho. 2

Pho. 3

Pho. 4

Voices 1

Voice 1

Vln.

Vc.

* in one breath; breathe when comfortable; fade in/out through repeats ad lib; clarinets follow voices
fade out gradually through repeats

* last repeat

* Vc.

* Vln.

* Voice 3

* Vln.

* Vc.

* fade out gradually through repeats
* fade out gradually through repeats
** crescendo gradually through repeats; enter with clarinet cue

* crescendo gradually through repeats

** crescendo gradually through repeats; enter with clarinet cue
* fade out gradually through repeats
Vc.
in one breath; breathe when comfortable; fade in/out through repeats ad lib

Vln.

Voices 4

Voice 2

Voice 1

Pno. 3

Pno. 2

Pno. 1

Mar. 3

Mar. 2

Mar. 1

Bass Clarinet

* in one breath; breathe when comfortable; fade in/out through repeats ad lib
* begin fade out following bass clarinet cue
begin fade out following bass clarinet cue

* last time only
* last time tacet
* begin fade out following bass clarinet cue

* (5-10x)
* begin fade out following bass clarinet cue
** fade in/out through repeats ad lib
enter right after string cue; in one breath; breathe when comfortable; fade in/out through repeats ad lib

** cue

simile

(7-12x)

(7-12x)

(7-12x)

Voice 1

Voice 2

Voice 3

Vln.

Vc.

* enter right after string cue; in one breath, breathe when comfortable; fade in/out through repeats ad lib
** fade in/out through repeats ad lib
* piano 2 or 4 begins, other piano following immediately next bar; similarly through 360
* fade out gradually through repeats
* fade out gradually through repeats
* piano 1 or 2 begins, other piano following immediately next bar; similarly through 371
* fade out gradually through repeats
* fade in gradually through repeats

* fade in gradually through repeats
* fade in gradually through repeats
Vc.

until the bass clarinet cue at 382 where they gradually fade in with no bars of silence in between marimba 1/2, piano 1, and voices 1/2 gradually fade out starting at the bass clarinet cue at 381 and continue their gradual fade out (7-12x)

Vln.

Voices 4

(5-10x)

Voices 3

Vln.

Vc.

* marimba 1/2, piano 1, and voices 1/2 gradually fade out starting at the bass clarinet cue at 381 and continue their gradual fade out until the bass clarinet cue at 382A where they gradually fade in with no bars of silence in between
Vc.
fade out gradually following bass clarinet cue

226

Voices 4
3

Voices 2
1

Pno. 4
Pno. 3
Pno. 2
Pno. 1

Mar. 2
Mar. 1

Xylo. 2

Xylo. 1

Bn. Cl.

* fade out gradually following bass clarinet cue
* fade in gradually through repeats
fade out gradually through repeats
* in one breath; breathe when comfortable; fade in/out through repeats ad lib; voice 1/2 enter with clarinets and fade in/out with clarinets
* fade in gradually
* fade out gradually through repeats
* fade out gradually through repeats
** fade in gradually through repeats
* fade in gradually through repeats
** enter with clarinets at cue; fade in gradually through repeats
* fade in gradually through repeats

(repeat until cue)
Voices 4

Voices 2

Pno.

Player 2

Player 1

Vib.

Marac.

Cl.

Xylo.

(1-2x)
Vc.

in one breath; breathe when comfortable; fade in/out through repeats ad lib

Mar. 2

Voices 4

Voices 2

Pno. 3

Player 2

Cl.

Cl.

Mar. 1

Mar. 2

512A

(5-10x)

(5-10x)

(5-10x)

512B

(5-10x)

(5-10x)

(5-10x)

* in one breath; breathe when comfortable; fade in/out through repeats ad lib

272
Vc. (with voices 1 and 2; fade in gradually)

Viola

Voices

Pno.

Maracas

Xylophones

Cl. 1

* with voices 1 and 2; fade in gradually
* fade out gradually through repeats
* fade in gradually through repeats
** fade out gradually through repeats
* fade in gradually through repeats
** enter with clarinets at cue and fade in gradually through repeats

Vc.*

Vln.*

Voices 4

3

Voices 2

1

Pno. 4

Pno. 3

Pno. 2

Pno. 1

Mar. 3

Mar. 2

Mar. 1

Marac. 2

Marac. 1

Bass Clarinet

Xylo. 1

Vib.
* in one breath; breathe when comfortable; fade in/out through repeats ad lib
* fade out gradually through repeats
* fade out gradually through repeats
* fade out gradually through repeats
* enter with clarinets at cue; when clarinets move to next bar, follow immediately; similarly through 637
* fade out gradually through repeats
** decrescendo gradually through repeats
in one breath; breathe when comfortable; fade in/out through repeats ad lib

* in one breath; breathe when comfortable; fade in/out through repeats ad lib
** fade in/out through repeats ad lib
*** cresc./decresc. through repeats ad lib
**** begin fade in after bass clarinet cue; fade in/out through repeats ad lib
* xylophone 2 and piano 4: player 2 enter immediately after bass clarinet cue
* Begin pulsing after bass clarinet cue
* begin pulsing after bass clarinet cue
Bass clarinet cue: * begin pulsing after bass clarinet cue

Voices 4: (5-10x)

Voice 2: (7-12x)

Piano 1: (5-10x)

Piano 2: (5-10x)

Piano 3

Player 1: (5-10x)

Player 2: (5-10x)

Piano 4

Player 1: (5-10x)

Player 2: (5-10x)

Voice 1: (7-12x)

* begin pulsing after bass clarinet cue
* entire ensemble follows bass clarinet cue for beginning of section X
1. and 2. trade quietly
* fade in gradually through repeats
Vc.
cue begins

Vln.
cue begins

Voice 4
cue begins

Voice 3
cue begins

Voices 2

cue begins

Pno. 3

Pno. 2

Pno. 1

cue begins

Mar. 2

Mar. 1

Vib.

Xylo. 1

Cl. 2

647
cue begins

648

649
last repeat

Ped.
* repeat 1-2x through before clarinets enter with 658A
in one breath; breathe when comfortable; fade in/out through repeats ad lib.

* in one breath; breathe when comfortable; fade in/out through repeats ad lib.
Vc. fade out gradually last time only following bass clarinet cue

Voice 4

Voice 3

Voice 2

Voice 1

Pno. 3

Pno. 2

Pno. 1

Xylo. 1

Mar. 2

Mar. 1

Bs. Cl. 1

Vln.

Vc.

* fade out gradually last time only following bass clarinet cue
* fade out gradually last time only following bass clarinet cue
* strings, voices, and xylophone 1 change follow bass clarinet cue
* fade out gradually through repeats after Bass Clarinet cue
** change after Bass Clarinet cue
Bass Clarinet 1 lifts instrument to cue new each chord. Pianos, marimbas, voices, and strings follow a few beats later. Exact entrances ad lib.

* Bass Clarinet 1 lifts instrument to cue new each chord. Pianos, marimbas, voices, and strings follow a few beats later. Exact entrances ad lib.
BIBLIOGRAPHY

