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Isotropea

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Isotropea. [Original composition]

Strunk, Michael Joseph, M.A.

San Jose State University, 1992

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ISOTROPEA

A Thesis

Presented to

The Faculty of the Department of Music

San Jose State University

In Partial Fulfillment

of the Requirements for the Degree

Master of Arts

by

Michael Strunk

December, 1992

APPROVED FOR THE DEPARTMENT OF MUSIC

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ABSTRACT

ISOTROPEA

by

Michael Strunk

This thesis is a musical composition scored for three percussionists, piano, and string quartet. It explores, through musical means, the symmetry operations found in three-dimensional ordered solid objects that are isometric in character. These symmetry operations are expressed in the music predominantly by thematic transformation using compositional techniques such as retrograde, inversion, retrograde inversion, and mirror imaging.

Introduction

Isotropea is a set of musical episodes exploring symmetric transformations of a theme. These transformations are derived from the use of basic compositional operations such as retrograde, mirror imaging, inversion, and retrograde inversion. In *Isotropea*, specific combinations of these symmetry operations are grouped together in order to mimic combinations found in three-dimensional ordered solid objects, commonly known as crystals.

A crystal can be defined as any "homogeneous solid possessing long-range, three-dimensional internal order" (Dana, 1977). The internal order of crystals, generated by their molecular structure, can be explained by the use of geometrical patterns called *operations*. The operations found in homogeneous solids are translation, rotation, mirror plane, center of inversion, and rotational inversion. Translation is the sole linear, or one-dimensional operation; all other operations are two-dimensional. (For an excellent synopsis of symmetry operations, see Smith, 1982.) When two or more of these operations are combined, a three-dimensional imaginary structure is created. For instance, the combination of translation (linear repetition) with rotation about an axis generates a "screw" structure; translation combined with a mirror plane produces a "glide" structure commonly seen in human footprints (Dana, 1977). In crystal structures, rotation and rotational inversion operations are limited to reproducing motifs at certain intervals within a revolution about an axis. A one-fold axis of rotation reproduces a motif once each revolution; a two-fold axis reproduces a motif

every 180 degrees; a three-fold axis, every 120 degrees; a four-fold axis, every 90 degrees; and a six-fold axis, every 60 degrees. Other types of rotational axes (e.g., five-fold or seven-fold) will not produce a solid, homogeneous structure (Dana).

Each of these five rotational operations has a rotational inversion counterpart, which means the motif is inverted each time it is reproduced by a turn of the axis. When these five rotation and five rotational inversion axes are combined with the other symmetry operations mentioned above, the result is a finite number of "classes" of combinations of symmetry elements. These classes can be arranged in an order of increasing symmetrical complexity and by the number of symmetry operations each class possesses. For instance, the *pedial* class contains only one axis of one-fold rotation, exhibiting the lowest order of symmetry possible; the *hexoctahedron* class possesses the highest order of symmetry, with three axes of four-fold rotation, four axes of three-fold rotation, six axes of two-fold rotation, and nine mirror planes.

The hexoctahedron class is one of the five symmetry classes that are *isometric* in character, meaning they possess three mutually perpendicular directional axes that are equal in length (Dana). The isometric classes have the highest symmetry of all the crystal classes, possessing both three-fold and four-fold axes of rotation. *Isotropea* uses three of these classes or shapes: a hextetrahedron, possessing three axes of four-fold rotational inversion, four axes of three-fold rotation, and six mirror planes; a tetartoid, possessing three axes of two-fold rotation and four axes of three-fold rotation; and a hexoctahedron, described above. (An earlier composition by this

author, *Symmetry Suite for Solo Percussion* [1987], explores other non-isometric shapes).

One of the challenging aspects of composing this music has been the attempt at portraying a three-dimensional object using essentially a two-dimensional medium: pitch (frequency) and rhythm (time). In composing *Isotropea*, the method chosen to portray this effect is one that is analogous to a cylinder rolling across a table-top. The line where the cylinder meets the table or plane surface is the musical moment. In this case, an imaginary "musical crystal" is revolving in front of the listener; as the rotations continue, different musical patterns are presented to the listener in a similar way as light is reflected off the different faces of a rotating crystal. This rotation is not always centered about one axis; the axes change as each musical episode develops. For the hextetrahedron and tetartoid shapes, three different rotational axes are used in the music. The final shape, hexoctahedron, uses only one axis (see the analysis below). The motif for all of these musical shapes is a single melodic theme of six notes, first exposed in its original form by the cello in measures 112-113 (see example 1a). This theme is slightly lengthened to eight notes in the final octahedron section of the music, as played by the cello in mm.469-470 (example 1b).

Analysis

Isotropea is written in three movements, played continuously, with each movement corresponding to a specific isometric shape. The first movement, mm.1-

313, is a tetrahedron; the second movement, mm.314-461 is a tetartoid; and the final movement, from measure 461 to the end, is an octahedron. Each movement is further divided into three parts, resulting in a total of nine sections. In movements one and two, the separate sections are based upon changes in rotational orientation of the musical shape. In movement three, however, the separation is achieved through other compositional factors such as tempo and structure. Throughout the entire work, various symmetrical scales or pitch collections are used as melodic material in an effort to accentuate the symmetrical nature of the music. All scales are centered around the pitch 'e¹', effectively making this pitch the tonal center of symmetry for the entire composition. The first section of the first movement (mm.1-117) is written entirely in B-flat Dorian mode, produced by combining two tetrachords, b^b-c-d^b-e^b and f-g-a^b-b^b, on either side of the pitch 'e'. The middle section (mm.118-185) shifts to E Dorian, reflecting the shift from a four-fold rotational axis to a three-fold rotational inversion axis. This modal shift is accompanied by a temporal shift in the repeated phrase length. The first section cycles a four measure phrase in 6/8 meter for a total of twenty-four beats, changing to a six measure phrase in the second section, then returns to a four measure phrase cycle in the third section (mm.186-313). This third section also returns to a B-flat Dorian mode, but with a much wider ambitus than in the first section. The scale material of the second movement (mm.314-461) is based on fourths: b^b-e^b-f-b^b in the first two sections (mm.314-361 and mm.362-409) and b-e-a in the last section (mm.410-461). These scales are accompanied by meters of 7/8,

4/4, and 7/8, respectively. In the final movement, the first two sections (mm.462-471 and mm.472-511) again use two symmetrical tetrachords, b^b -c-d- e^b and f- g^b - a^b - b^b . These change in the final section to the original B-flat Dorian used at the beginning of the work. The entire final movement is written in 4/4 time with a repeating six measure phrase, representing a three-fold rotational axis.

Thematic manipulation is the predominant compositional process in this work. The main theme (example 1a) has been transformed by standard musical techniques commonly found in serial music--retrograde, inversion, and retrograde inversion. These processes provide additional melodic material, and are the result of mirror planes or inversion centers within the musical structure. Example 2a shows a horizontal mirror plane with the resulting retrograde melody; example 2b depicts a vertical mirror plane and the inverted melody; example 2c depicts the retrograde inversion that results from an inversion point occurring at the end of the theme.

Some non-traditional transformations are necessary, however, in order to accurately capture motivic changes found in the various symmetric structures. For example, at times the theme needs to be rotated upward or downward at roughly 30, 45, 60, or 90 degree angles. Example 3a shows the original theme as it appears in measure 242; 3b is the same theme at a 45° angle in mm.281-283. The relative melodic shape has changed due to the "tilting" of the melody, causing what was the second note of the original melody to occur *before* the first. Example 3c is the same theme rotated straight up at a 90° angle. Steeply tilted melodies such as this one have

also provided a great deal of the harmonic material (vertical sonorities) in this composition. Other harmonies have come from simultaneously occurring notes in different melodies.

Musical Examples

Example 1a.

Example 1b.

Example 2a.

Example 2b.

Example 2c.

Example 3a.

Example 3b.

Example 3c.

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I S OTROPEA

Michael Strunk
(1992)

Percussion.1

bells
xylophone
marimba
bongos

Percussion.2

marimba
vibes
bongo/tom

Percussion.3

snare
toms
bass
tam - tam
triangle
xylophone

Piano

Violin

Viola

Violoncello

Violoncello

$\text{♩} = 60$

bells: *f*

vibes: *f*

7

tam - tam: *p* *mf* (l.v.)

3

mf *f*

mp ped. - - - - *

♩ = 108

pno

p

vln

vla

vc

pno

vln

vla

vc

mp

mp

The image shows a musical score for a piano, violin, viola, and voice ensemble. The score is divided into two systems. The first system includes staves for piano (pno), violin (vln), viola (vla), and voice (vc). The piano part features a melody in the right hand with a dynamic marking of *p* (piano) and a tempo marking of ♩ = 108. The violin, viola, and voice parts are currently silent, indicated by whole rests. The second system continues the piano part with the same melody. The violin and viola parts remain silent with whole rests. The voice part enters in the final measure of the second system with a half note, marked with a dynamic of *mp* (mezzo-piano). The key signature for all parts is three flats (B-flat, E-flat, A-flat), and the time signature is 8/8.

pno

p

[10]

vln

vla

vc

mp

mp

pno

cresc.

mp

vln

vla

vc

mp

mp

This musical score is for a piano, violin, viola, and cello ensemble. It is divided into two systems. The first system begins with a piano (pno) part in the treble clef, marked *p* (piano). The violin (vln), viola (vla), and cello (vc) parts are in the bass clef. The violin and viola parts are marked *mp* (mezzo-piano). The second system begins with a double bar line and a repeat sign. The piano part is marked *cresc.* (crescendo) and then *mp*. The violin and viola parts are marked *mp*. The cello part is marked *mp*. The score is written in a key signature of three flats (B-flat, E-flat, A-flat) and a 4/4 time signature.

pno

[18]

vln

vla

vc

pno

vln

vla

vc

(l.v.)

musical score for piano (pno), violin (vln), viola (vla), and cello (vc). The score is divided into two systems, each containing four measures. The key signature is three flats (B-flat, E-flat, A-flat).

System 1:

- pno:** Treble clef. Measures 1-2: ascending eighth-note scale (F4, G4, A4, B4, C5, D5, E5, F5). Measure 3: *mp* (mezzo-piano), descending eighth-note scale (F5, E5, D5, C5, B4, A4, G4, F4). Measure 4: continuation of the descending scale.
- vln:** Treble clef. Measures 1-2: sustained chords (F4, A4, C5). Measure 3: *mp*, sustained chords (F4, A4, C5). Measure 4: sustained chords (F4, A4, C5).
- vla:** Bass clef. Measures 1-2: sustained chords (F3, A3, C4). Measure 3: *mp*, sustained chords (F3, A3, C4). Measure 4: sustained chords (F3, A3, C4).
- vc:** Bass clef. Measures 1-2: sustained chords (F3, A3, C4). Measure 3: *mp*, sustained chords (F3, A3, C4). Measure 4: sustained chords (F3, A3, C4).

System 2:

- pno:** Treble clef. Measures 1-2: *mp*, ascending eighth-note scale (F4, G4, A4, B4, C5, D5, E5, F5). Measure 3: continuation of the ascending scale. Measure 4: continuation of the ascending scale.
- vln:** Treble clef. Measures 1-2: sustained chords (F4, A4, C5). Measure 3: sustained chords (F4, A4, C5). Measure 4: *mp*, sustained chords (F4, A4, C5).
- vla:** Bass clef. Measures 1-2: sustained chords (F3, A3, C4). Measure 3: sustained chords (F3, A3, C4). Measure 4: *mp*, sustained chords (F3, A3, C4).
- vc:** Bass clef. Measures 1-2: sustained chords (F3, A3, C4). Measure 3: *mp*, ascending eighth-note scale (F3, G3, A3, B3, C4, D4, E4, F4). Measure 4: continuation of the ascending scale.

pno

cresc. *mf*

[34]

vln

mf

vla

mf

vc

cresc. *mf*

pno

cresc. *f*

vln

f

vla

f

vc

cresc. *f* *arco:*

pno

[42]

vln

vla

vc

pno

vln

vla

vc

mp

f

dim.

f

dim.

pizz.

mf

mf

mf

mf

pno

measures 47-50

[50]

vln

mf

vla

mf

vc

measures 47-50

pno

measures 51-54

vln

mf

vla

mf

vc

pizz.

f

measures 51-54

pno

[58]

vln

vla

vc

pno

vln

vla

vc

cresc.

f

cresc.

f

ff

dim.

p

ff

dim.

p

pno

mf

[66]

vln

p

vla

p

vc

pno

mf *f*

vln

vla

vc

(arco)

mf *f* *dim.* *mp*

pno

[74]

vln

vla

vc

mf

cresc.

f

cresc.

pno

vln

vla

vc

f

dim.

p

f

dim.

p

pno

mf

mf

[82]

vln

p

vla

p

vc

p

pno

vln

p

vla

p

cresc.

mp

vc

p

pno

[90]

vln

vla

vc

p

dim. - - - - *p*

mp

mp

p *mp* *dim.* - - - - *p* *mp*

pno

vln

vla

vc

cresc. - - - - *mf*

musical score for measures 98-101 of "The Swan" by Maurice Ravel. The score is for piano (pno), violin (vln), viola (vla), and cello (vc). Measure 98 is marked with a double bar line and a repeat sign. The key signature is B-flat major (two flats). The tempo is marked "Andante". The score shows various musical notations including notes, rests, and dynamic markings (mp, mf, f).

pno

[106]

vln

vla

vc

cresc. *f*

cresc. *f*

pno

vln

vla

vc

f

f

f

pno

[114]

vln

vla

vc

ff

ff

ff

(attacca)

xyl

mba

pc3

[118]

pno

ff

vln

ff

vla

ff

vc1

ff

vc2

ff

musical score for measures 122-125, featuring woodwinds, piano, and strings.

Woodwinds:

- xyl** (xylophone): Treble clef, key of D major. Measures 122-125 show sustained notes.
- mba** (marimba): Treble clef, key of D major. Measures 122-125 show sustained notes.
- pc3** (percussion 3): Treble clef, key of D major. Measures 122-125 show sustained notes.

[122]

Piano (pno): Treble and Bass clefs, key of D major. Measures 122-125 show a melodic line in the right hand and a supporting line in the left hand. *ff* (fortissimo) is indicated in measure 124.

Strings:

- vln** (violin): Treble clef, key of D major. Measures 122-125 show a melodic line. *ff* is indicated in measure 124.
- vla** (viola): Bass clef, key of D major. Measures 122-125 show a melodic line. *ff* is indicated in measure 124.
- vc1** (violin 1): Bass clef, key of D major. Measures 122-125 show a melodic line. *ff* is indicated in measure 124.
- vc2** (violin 2): Bass clef, key of D major. Measures 122-125 show a melodic line. *ff* is indicated in measure 124.

xy1

mba

pc3

xylophone: *ff*

marimba: *ff*

snare drum: *mf*

bass drum: *mf*

[126]

pno

vln

vla

vc1

vc2

ff

ff

Detailed description: The musical score is for page 19, starting at measure 126. The first system (measures 126-128) features a piano introduction. The xylophone and marimba play a rhythmic pattern of eighth notes, while the snare and bass drums provide a steady pulse. The piano part has a melodic line in the right hand and a supporting bass line in the left hand. The second system (measures 129-132) shows the full orchestra joining in. The violin, viola, and violoncello 1 parts have melodic lines, while the violoncello 2 part provides a bass line. The dynamics are marked *ff* (fortissimo) for the full orchestral entry.

musical score for measures 129-132, featuring woodwinds, piano, and strings.

Measures 129-132:

- xyl (xylophone):** Treble clef, key of D major. Measures 129-130: eighth notes D4, E4, F#4, G4, A4, B4, C5, D5. Measure 131: whole note D5. Measure 132: whole rest.
- mba (marimba):** Treble clef, key of D major. Measures 129-130: eighth notes D4, E4, F#4, G4, A4, B4, C5, D5. Measure 131: whole note D5. Measure 132: whole rest.
- pc3 (percussion 3):** Percussion clef. Measures 129-130: eighth notes D4, E4, F#4, G4, A4, B4, C5, D5. Measure 131: whole note D5. Measure 132: whole rest.

[130]

Measures 130-132:

- pno (piano):** Treble and Bass clefs, key of D major. Measures 130-132: arpeggiated chords D4-F#4-A4, E4-G4-B4, C5-D5, and F#4-A4-C5.
- vln (violin):** Treble clef, key of D major. Measures 130-132: arpeggiated chords D4-F#4-A4, E4-G4-B4, C5-D5, and F#4-A4-C5.
- vla (viola):** Bass clef, key of D major. Measures 130-132: arpeggiated chords D4-F#4-A4, E4-G4-B4, C5-D5, and F#4-A4-C5.
- vc1 (viola 1):** Bass clef, key of D major. Measures 130-132: arpeggiated chords D4-F#4-A4, E4-G4-B4, C5-D5, and F#4-A4-C5.
- vc2 (viola 2):** Bass clef, key of D major. Measures 130-132: arpeggiated chords D4-F#4-A4, E4-G4-B4, C5-D5, and F#4-A4-C5.

musical score for measures 134-137, featuring woodwinds, piano, and strings.

Measures 134-137:

- Woodwinds (xyl, mba, pc3):** Enter in measure 134 with a *ff* (fortissimo) dynamic. The xylophone and marimba play a rhythmic pattern of eighth notes, while the percussion 3 (pc3) plays a steady eighth-note pulse. The dynamic for pc3 is marked *mf* (mezzo-forte).
- Piano (pno):** Enters in measure 134 with a *ff* dynamic, playing a rhythmic pattern of eighth notes in the right hand and a steady eighth-note pulse in the left hand.
- Strings (vln, vla, vc1, vc2):** Enter in measure 134 with a *ff* dynamic. The violins (vln) and violas (vla) play a melodic line with a *dim.* (diminuendo) marking in measure 137. The violoncellos (vc1, vc2) play a rhythmic pattern of eighth notes with a *dim.* marking in measure 137.

The score is written for a woodwind section (xylophone, marimba, percussion 3), piano, and string section (violins, violas, violoncellos). The key signature is one sharp (F#), and the time signature is 4/4. The dynamics range from *mf* to *ff*, with a *dim.* marking indicating a decrease in volume.

xyl

mba

pc3

[138]

pno

vln

vla

vc1

vc2

f

mf

f

mf

mf

f

dim.

Detailed description of the musical score: The score is for measures 138 to 141. The xylophone (xyl), mallet bass (mba), and percussion 3 (pc3) parts are mostly silent, with the xylophone playing a short melodic phrase in measure 141 marked *mf*. The piano (pno) part has a melodic line in the right hand with accents and a bass line with a similar pattern. Dynamics range from *f* to *mf*. The violin (vln) and viola (vla) parts play sustained chords with accents. The violoncello 1 (vc1) and violoncello 2 (vc2) parts provide a harmonic foundation, with the first cello marked *f* and the second cello marked *dim.* in measure 140.

xyl
 mba
 pc3
 [142]
 pno
 vln
 vla
 vc1
 vc2

Musical score for measures 142-145. The score includes parts for woodwinds (xyl, mba, pc3), piano (pno), strings (vln, vla, vc1, vc2), and percussion (pc3). The key signature is one sharp (F#). The piano part features a melodic line with accents and dynamic markings of *mf*. The string section includes a violin part with a *dim.* marking and a viola part with a *p* marking. The woodwind parts (xyl, mba) and percussion (pc3) have rests. The percussion part (pc3) has a *mf* marking.

musical score for measures 148-151, featuring woodwinds, piano, strings, and percussion.

Measures 148-151:

- xyl:** Treble clef, key of D major. Measure 148: quarter rest, quarter rest, eighth note G4, quarter note F#4. Measure 149: quarter rest, quarter note G4, quarter note F#4, quarter rest. Measure 150: whole rest. Measure 151: whole rest.
- mba:** Treble clef, key of D major. Measure 148: whole rest. Measure 149: whole rest. Measure 150: whole rest. Measure 151: quarter note G4, quarter note F#4, quarter note E4.
- pc3:** Bass clef, key of D major. Measure 148: quarter rest, quarter rest, eighth note G3, quarter note F#3. Measure 149: quarter rest, quarter note G3, quarter note F#3, quarter rest. Measure 150: whole rest. Measure 151: quarter note G3, quarter note F#3, quarter note E3.

Measure 150:

pno: Treble and Bass clefs, key of D major. Measure 150: Treble: quarter note G4, quarter note F#4, quarter note E4, quarter note D4. Bass: quarter note G3, quarter note F#3, quarter note E3, quarter note D3. Dynamics: *mf*.

Measures 152-155:

- vln:** Treble clef, key of D major. Measure 152: whole rest. Measure 153: whole rest. Measure 154: whole rest. Measure 155: quarter note G4, quarter note F#4, quarter note E4. Dynamics: *mf*.
- vla:** Bass clef, key of D major. Measure 152: whole rest. Measure 153: whole rest. Measure 154: whole rest. Measure 155: whole rest.
- vc1:** Bass clef, key of D major. Measure 152: whole rest. Measure 153: whole rest. Measure 154: whole rest. Measure 155: quarter note G3, quarter note F#3, quarter note E3. Dynamics: *mf*.
- vc2:** Bass clef, key of D major. Measure 152: quarter note G3, quarter note F#3, quarter note E3. Measure 153: quarter note G3, quarter note F#3, quarter note E3. Measure 154: quarter note G3, quarter note F#3, quarter note E3. Measure 155: quarter note G3, quarter note F#3, quarter note E3. Dynamics: *mp*, *cresc.*

musical score for measures 154-157, featuring percussion and strings.

Measures 154-157:

- xyl:** Xylophone part, mostly rests.
- mba:** Mallet Bass part, playing a rhythmic pattern in measures 154-155.
- pc3:** Percussion 3 part, playing a rhythmic pattern in measures 154-155, with a note marked "(to toms)".
- pno:** Piano part, playing a complex rhythmic pattern in measures 154-157.
- vln:** Violin part, playing a melodic line in measures 154-157, with a *mf* dynamic marking in measure 156.
- vla:** Viola part, playing a melodic line in measures 154-157, with a *mf* dynamic marking in measure 156.
- vc1:** Violoncello 1 part, playing a melodic line in measures 154-157, with a *mf* dynamic marking in measure 156.
- vc2:** Violoncello 2 part, playing a melodic line in measures 154-157, with a *mf* dynamic marking in measure 156.

Measure 154 is marked with the rehearsal mark [154].

musical score for measures 158-161, featuring woodwinds, piano, strings, and voice.

Measures 158-161:

- xyl (xylophone):** Measures 158-160 are rests. Measure 161: *mp* (mezzo-piano), quarter notes G4, A4, B4, C5, quarter rest.
- mba (marimba):** Measures 158-160 are rests. Measure 161: *mp* (mezzo-piano), quarter notes G3, A3, B3, C4, quarter rest.
- pc3 (percussion 3):** Measures 158-160 are rests. Measure 161: quarter rest.
- [158] pno (piano):** Measure 158: Treble clef, quarter notes G4, A4, B4, C5; Bass clef, quarter notes G2, A2, B2, C3. Measure 159: Treble clef, quarter notes A4, B4, C5, D5; Bass clef, quarter notes F2, G2, A2, B2. Measure 160: Treble clef, quarter notes G4, A4, B4, C5; Bass clef, quarter notes D2, E2, F2, G2. Measure 161: Treble clef, quarter notes G4, A4, B4, C5; Bass clef, quarter notes E2, F2, G2, A2. Dynamics: *f* (forte) in measure 160.
- vln (violin):** Measure 158: quarter rest. Measure 159: quarter notes G4, A4, B4, C5. Measure 160: quarter notes G4, A4, B4, C5. Measure 161: quarter notes G4, A4, B4, C5. Dynamics: *f* (forte) in measure 160.
- vla (viola):** Measure 158: quarter notes G4, A4, B4, C5. Measure 159: quarter notes G4, A4, B4, C5. Measure 160: quarter notes G4, A4, B4, C5. Measure 161: quarter notes G4, A4, B4, C5. Dynamics: *f* (forte) in measure 160.
- vc1 (viola 1):** Measure 158: quarter notes G4, A4, B4, C5. Measure 159: quarter notes G4, A4, B4, C5. Measure 160: quarter notes G4, A4, B4, C5. Measure 161: quarter notes G4, A4, B4, C5. Dynamics: *f* (forte) in measure 160.
- vc2 (viola 2):** Measure 158: quarter notes G4, A4, B4, C5. Measure 159: quarter notes G4, A4, B4, C5. Measure 160: quarter notes G4, A4, B4, C5. Measure 161: quarter notes G4, A4, B4, C5. Dynamics: *f* (forte) in measure 160.

musical score for measures 162-165, featuring woodwinds, piano, and strings.

Measures 162-165:

- xyl (xylophone):** Measures 162-165. Measure 163 has a *mp* (mezzo-piano) dynamic marking.
- mba (marimba):** Measures 162-165. Measure 163 has a *mp* (mezzo-piano) dynamic marking.
- pc3 (percussion 3):** Measures 162-165.
- [162] pno (piano):** Measures 162-165. Measure 163 has a *f* (forte) dynamic marking.
- vln (violin):** Measures 162-165. Measure 163 has a *f* (forte) dynamic marking.
- vla (viola):** Measures 162-165. Measure 163 has a *f* (forte) dynamic marking.
- vc1 (viola 1):** Measures 162-165. Measure 163 has a *f* (forte) dynamic marking.
- vc2 (viola 2):** Measures 162-165. Measure 163 has a *f* (forte) dynamic marking.

musical score for measures 166-169, featuring woodwinds, piano, and strings.

Measures 166-169:

- xyl:** Treble clef, key of D major. Measures 166-167: *mp* (mezzo-piano). Measures 168-169: *mf* (mezzo-forte).
- mba:** Treble clef, key of D major. Measures 166-167: *mf* (mezzo-forte). Measures 168-169: *mf* (mezzo-forte).
- pc3:** Treble and Bass staves, key of D major. Measures 166-169: *mf* (mezzo-forte).

[166]

pno: Treble and Bass staves, key of D major. Measures 166-169: *mf* (mezzo-forte) in measure 166, *f* (forte) in measures 167-169.

vln: Treble clef, key of D major. Measures 166-169: *f* (forte).

vla: Bass clef, key of D major. Measures 166-169: *f* (forte).

vc1: Bass clef, key of D major. Measures 166-169: *f* (forte).

vc2: Bass clef, key of D major. Measures 166-169: *f* (forte).

xyl

mba

pc3

(to marimba)

(to vibes)

[174]

pno

vln

vla

vc1

vc2

fff

mba

vb

pc3

[178]

pno

f *mf*

ped

vln

ff *dim.* *f*

vla

ff *dim.* *f*

vc1

ff *dim.* *f*

vc2

ff *dim.* *f*

Detailed description: This is a page of a musical score, page 32, measures 178-181. The score is written for a chamber ensemble. The instruments are: mba (marimba), vb (vibraphone), pc3 (percussion 3), pno (piano), vln (violin), vla (viola), vc1 (viola), and vc2 (viola). The key signature is one sharp (F#). The piano part (pno) has dynamics *f* and *mf*. The string parts (vln, vla, vc1, vc2) have dynamics *ff*, *dim.*, and *f*. A pedal point is indicated in the piano part. The score is written in a standard musical notation with staves and measures.

mba

vb

pc3

[182]

pno

vln

vla

vc1

vc2

mf

mf

mp

p

pp

mf

mp

p

pp

mf

mp

p

pp

mf

mp

p

pp

*

mba

mp

vb

pc3

[186]

pno

mp

vln

pizz.

mp

vla

pizz.

mp

vc1

pizz.

mp

vc2

pizz.

mp

mba

mp

vb

pc3

[190]

pno

mp

vln

mp

vla

mp

vc1

mp

vc2

mp

mba

mp

vb

pc3

[194]

pno

mp

vln

mp

vla

mp *p*

vc1

mp

vc2

mp

Detailed description of the musical score: The score is for measures 194 through 197. The mba part (bass clef) starts with a mezzo-piano (mp) dynamic, playing a series of eighth and sixteenth notes with slurs. The vb (violin) and pc3 (piano) parts are mostly silent, indicated by rests. The pno (piano) part (treble and bass clefs) plays a rhythmic pattern of eighth and sixteenth notes, also marked mp. The vln (violin) part (treble clef) has a few notes in measure 195, marked mp. The vla (viola) part (bass clef) plays a melodic line, marked mp in measure 194 and p (piano) in measure 195. The vc1 (viola) and vc2 (violin) parts (bass clefs) provide harmonic support, with vc1 marked mp and vc2 marked mp.

mba

vb

pc3

[198]

pno

vln

vla

vc1

vc2

This musical score page contains measures 198 through 201. The instruments are arranged in two systems. The first system includes mba (bassoon), vb (violin), and pc3 (piano). The second system includes pno (piano), vln (violin), vla (viola), vc1 (violin), and vc2 (violin). The key signature is three flats (B-flat, E-flat, A-flat), and the time signature is 4/4. The mba part features a melodic line with slurs and accents. The vb and pc3 parts are mostly rests. The pno part has a rhythmic pattern in the right hand and a melodic line in the left hand. The vln, vla, vc1, and vc2 parts have various melodic and rhythmic lines.

mba

mp

vb

pc3

[202]

pno

mp

vln

p

vla

vc1

mp

vc2

mp

Detailed description: This is a musical score for page 38, measures 202-205. The score is written for eight instruments: mba, vb, pc3, pno, vln, vla, vc1, and vc2. The key signature has four flats. The mba staff has a melody starting on a half note, followed by eighth notes. The pno staff has a melody in the right hand and a bass line in the left hand. The vln staff has a melody starting on a half note, followed by eighth notes. The vc1 and vc2 staves have a melody starting on a half note, followed by eighth notes. The dynamics are marked as *mp* (mezzo-piano) for mba, pno, vc1, and vc2, and *p* (piano) for vln. The measure numbers 202, 203, 204, and 205 are indicated at the beginning of each measure.

mba

mp

vb

pc3

[206]

pno

vln

vla

vc1

vc2

The musical score for page 39, measures 206-209, is written for a chamber ensemble. The key signature is four flats (B-flat, E-flat, A-flat, D-flat). The mba part begins with a measure rest, followed by a melodic line starting on a half note G2, marked *mp*. The vb and pc3 parts have measure rests. The pno part has a rhythmic accompaniment. The vln, vla, vc1, and vc2 parts have various melodic and harmonic lines.

mba

mp

vb

pc3

[210]

pno

mp

vln

vla

vc1

mp

vc2

mp

The musical score is for measures 210-213. The key signature is four flats (B-flat, E-flat, A-flat, D-flat). The mba part has a melodic line with slurs and accents. The pno part has a rhythmic accompaniment. The vc1 and vc2 parts have a melodic line with slurs and accents. The other parts (vb, pc3, vln, vla) are mostly rests. The dynamic marking 'mp' is present in several parts.

mba

vb

pc3

[214]

pno

vln

vla

vc1

vc2

mp

p

The musical score for page 41, measures 214-217, is presented in a system of eight staves. The staves are labeled mba, vb, pc3, [214], pno, vln, vla, vc1, and vc2. The key signature is four flats. The mba part has a dynamic marking of *mp*. The vc2 part has a dynamic marking of *p*. The pno part has a dynamic marking of *mp*. The vln and vla parts have a dynamic marking of *p*. The vc1 part has a dynamic marking of *mp*. The vc2 part has a dynamic marking of *p*.

mba

p

vb

pc3

[218]

pno

p

vln

vla

vc1

mp

vc2

The musical score for measures 218-221 is written for a chamber ensemble. The key signature is three flats (B-flat, E-flat, A-flat). The mba part has a melody starting on a half note G2, followed by eighth notes. The pno part has a melody starting on a half note G2, followed by eighth notes. The vc1 part has a melody starting on a half note G2, followed by eighth notes. The vc2 part has a melody starting on a half note G2, followed by eighth notes. The vln and vla parts are silent. The vb and pc3 parts have sustained notes. The dynamics are p (piano) for mba and pno, and mp (mezzo-piano) for vc1.

mba

vb

pc3

[222]

pno

vln

vla

vc1

vc2

f

p

p

Detailed description: This is a page of a musical score, page 43, containing measures 222 through 225. The score is written for a chamber ensemble. The instruments are: mba (marimba), vb (vibraphone), pc3 (percussion 3), pno (piano), vln (violin), vla (viola), vc1 (viola), and vc2 (viola). The key signature is three flats (B-flat, E-flat, A-flat). The time signature is not explicitly shown but appears to be 4/4. The mba part has a melodic line with slurs and accents. The vb and pc3 parts have sustained notes. The pno part has a melodic line with slurs and dynamics *f* and *p*. The vln, vla, and vc2 parts have sustained notes. The vc1 part has a melodic line with slurs and dynamics *p*. The measure numbers [222], [223], [224], and [225] are indicated at the beginning of each system.

mba

p *mf* Δ

vb

pc3

[226]

pno

f *mf* *mp* *mf*

vln

vla

vc1

vc2

mba

vb

pc3

[230]

pno

vln

vla

vc1

vc2

mf

mf

mba

vb

pc3

[234]

pno

vln

vla

vc1

vc2

The musical score for page 46, measures 234-237, is written for a chamber ensemble. The key signature consists of three flats (B-flat, E-flat, A-flat). The score includes staves for mba, vb, pc3, pno, vln, vla, vc1, and vc2. The pno part begins with a mezzo-forte (mf) dynamic. The vb part features a melodic line with eighth and sixteenth notes. The other parts are mostly rests with some sustained notes.

mba

vb

mf

pc3

[238]

pno

mf

vln

vla

vc1

vc2

mba

vb

pc3

[242]

pno

mf

mp

vln

vla

vc1

arco:

vc2

mf

The musical score for measures 242-245 is written for a chamber ensemble. The instruments are mba, vb, pc3, pno, vln, vla, vc1, and vc2. The key signature has three flats. The pno part has dynamics mf and mp. The vc2 part has a dynamic mf and is marked arco:.

mba

vb

pc3

[246]

pno

vln

vla

vc1

vc2

mp

mf

arco:

mf

mp

mf

arco:

mf

mba

vb

pc3

[250]

pno *mp*

vln

vla *arco: mf*

vc1 *arco: mf*

vc2

Detailed description of the musical score: The score is for measures 250 to 253. The key signature is four flats (B-flat, E-flat, A-flat, D-flat). The mba part has a melodic line in measures 250 and 251. The vb part has a melodic line in measures 250 and 251. The pc3 part has a melodic line in measures 250 and 251. The pno part starts at measure 250 with a mezzo-piano (mp) dynamic. The vln part has a melodic line in measures 250 and 251. The vla part enters at measure 252 with a mezzo-forte (mf) dynamic and an arco instruction. The vc1 part enters at measure 252 with a mezzo-forte (mf) dynamic and an arco instruction. The vc2 part has a melodic line in measures 250 and 251.

mba

vb

pc3

mp

mf

[254]

pno

mp

vln

vla

vc1

vc2

mf

mf

mba

vb

pc3

[258]

pno

vln

vla

vc1

vc2

mba

vb

pc3

[262]

pno

vln

vla

vc1

vc2

mf

mf

f

cresc. - - - - *f*

mba

vb

pc3

mf

[266]

pno

mf

vln

vla

vc1

vc2

f

dim.

f

dim.

mba

vb

pc3

[270]

pno

vln

vla

vc1

vc2

dim.

p

p

p

mba

vb

pc3

[274]

pno

vln

vla

vc1

vc2

p

pp

cresc.

dim.

dim.

dim.

dim.

Detailed description of the musical score: The score is for page 56, starting at measure 274. It features eight staves: mba (mellophone), vb (vibraphone), pc3 (percussion 3), pno (piano), vln (violin), vla (viola), vc1 (viola 1), and vc2 (viola 2). The key signature is four flats. The mba part has a melodic line with notes and rests. The vb part has a melodic line with notes and rests, including a *p* dynamic marking. The pc3 part has a melodic line with notes and rests. The pno part has a melodic line with notes and rests, including a *p* dynamic marking. The vln part has a melodic line with notes and rests, including a *pp* dynamic marking and a *cresc.* marking. The vla part has a melodic line with notes and rests, including a *p* dynamic marking and a *dim.* marking. The vc1 part has a melodic line with notes and rests, including a *p* dynamic marking and a *dim.* marking. The vc2 part has a melodic line with notes and rests, including a *dim.* marking.

mba

vb

pc3

[278]

pno

vln

vla

vc1

vc2

mp

mp

p

cresc.

mf

p

cresc.

p

cresc.

Detailed description of the musical score: The score is for measures 278-281. The instruments are mba (mellophone), vb (vibraphone), pc3 (percussion 3), pno (piano), vln (violin), vla (viola), vc1 (viola 1), and vc2 (viola 2). The key signature is four flats (B-flat major or D-flat minor). The time signature is 12/8. The mba part has a melodic line in measure 278. The vb part has a melodic line in measure 278. The pc3 part has a melodic line in measure 278. The pno part has a melodic line in measure 278. The vln part has a melodic line in measure 278. The vla part has a melodic line in measure 278. The vc1 part has a melodic line in measure 278. The vc2 part has a melodic line in measure 278. Dynamics include *mp* (mezzo-piano), *p* (piano), *cresc.* (crescendo), and *mf* (mezzo-forte). A section marker 'A' is above the final measure of the vln part.

mba

vb

pc3 (tuned tom:)

[282]

pno *mp*

vln *mf* *cresc.*

vla *cresc.* *mf*

vc1 *mp* *mf*

vc2 *mf* *f*

Detailed description of the musical score: The score is for measures 282-285. The top system contains three staves: mba (mallet bass), vb (vibraphone), and pc3 (percussion, tuned tom). The bottom system contains five staves: pno (piano), vln (violin), vla (viola), vc1 (viola), and vc2 (viola). The key signature is four flats. The time signature is 4/4. The pno part starts with a melody in the right hand and a bass line in the left hand. The vln part has a melody in the right hand. The vla part has a melody in the right hand. The vc1 part has a melody in the right hand. The vc2 part has a melody in the right hand. Dynamics include mp, mf, cresc., and f. The pc3 part is labeled '(tuned tom:)'. The vln part has a crescendo leading into measure 285. The vc2 part has a crescendo leading into measure 285.

mba

vb

tom

[286]

pno

vln

vla

vc1

vc2

mp

mf

f

dim. - - - *mp* *f*

mf *f* *dim.* - - - *mp* *f*

f

dim. - - - *mf* *f*

Detailed description of the musical score: The score is for measures 286-289. The key signature has four flats. The parts are: mba (mellophone), vb (vibraphone), tom (tom-tom), pno (piano), vln (violin), vla (viola), vc1 (viola), and vc2 (viola). The mba part has rests in measures 286-289. The vb part has a melodic line starting in measure 286, with a *mf* dynamic in measure 288. The tom part has a single note in measure 286 with a *mp* dynamic, then rests. The pno part has a melodic line starting in measure 286, with a *mf* dynamic in measure 288. The vln part has a melodic line starting in measure 286, with a *f* dynamic in measure 286, a *dim.* (diminuendo) in measure 288, and a *mp* dynamic in measure 289. The vla part has a melodic line starting in measure 286, with a *mf* dynamic in measure 286, a *f* dynamic in measure 287, a *dim.* in measure 288, and a *mp* dynamic in measure 289. The vc1 part has a melodic line starting in measure 286, with a *f* dynamic in measure 287. The vc2 part has a melodic line starting in measure 286, with a *dim.* in measure 286, a *mf* dynamic in measure 288, and a *f* dynamic in measure 289.

mba

vb

tom

mp

[290]

pno

mf

f

vln

vla

vc1

vc2

Detailed description of the musical score: The score is for measures 290-293. The key signature has four flats. The mba part has rests in all measures. The vb part has a melodic line starting on a half note in measure 290, moving to quarter notes in 291, and ending with a quarter note in 292. The tom part has a single quarter note in measure 290, then rests. The pno part has a sustained chord in measure 290, then a moving line in 291, and a sustained chord in 292. The vln part has a melodic line starting on a half note in measure 290, moving to quarter notes in 291, and ending with a quarter note in 292. The vla part has a melodic line starting on a half note in measure 290, moving to quarter notes in 291, and ending with a quarter note in 292. The vc1 part has a melodic line starting on a half note in measure 290, moving to quarter notes in 291, and ending with a quarter note in 292. The vc2 part has a melodic line starting on a half note in measure 290, moving to quarter notes in 291, and ending with a quarter note in 292.

mba

vb

tom

mp

[294]

pno

f

vln

ff

vla

ff

vc1

ff

vc2

ff

Detailed description of the musical score: The score is for measures 294 to 297. The key signature has four flats. The mba part has whole rests in all measures. The vb part has a melodic line starting in measure 294, with a crescendo leading to a forte (f) dynamic in measure 296. The tom part has a single note in measure 295 with a mezzo-piano (mp) dynamic. The pno part has a melodic line in the right hand and a bass line in the left hand, with a forte (f) dynamic in measure 295. The vln part has a melodic line with a fortissimo (ff) dynamic in measure 296. The vla part has a melodic line with a fortissimo (ff) dynamic in measure 295. The vc1 part has a melodic line with a fortissimo (ff) dynamic in measure 295. The vc2 part has a melodic line with a fortissimo (ff) dynamic in measure 296.

mba

vb

tom

mp

[298]

pno

mf

vln

vla

vc1

vc2

The musical score for measures 298-301 is written for a chamber ensemble. The key signature consists of four flats. The mba part has rests in all measures. The vb part has eighth and quarter notes. The tom part has a single note in measure 300. The pno part has a melody in the right hand and a bass line in the left hand. The vln, vla, vc1, and vc2 parts have various melodic and harmonic lines. The dynamic markings are mp for mba and mf for pno.

mba

vb

tom

[302]

pno

vln

vla

vc1

vc2

mf

mp

f *dim.*

f *dim.*

f *dim.*

f *dim.*

Detailed description of the musical score: The score is for page 63, starting at measure 302. It features eight staves: mba (mellophone), vb (vibraphone), tom (tom-tom), pno (piano), vln (violin), vla (viola), vc1 (viola), and vc2 (viola). The key signature is four flats. The mba part has a melodic line with a *mf* dynamic. The vb part has a melodic line with a *mp* dynamic. The tom part has a melodic line with a *mf* dynamic. The pno part has a melodic line with a *mf* dynamic. The vln part has a melodic line with a *f* dynamic and a *dim.* (diminuendo) marking. The vla part has a melodic line with a *f* dynamic and a *dim.* marking. The vc1 part has a melodic line with a *f* dynamic and a *dim.* marking. The vc2 part has a melodic line with a *f* dynamic and a *dim.* marking.

mba

vb

tom

[306]

pno

vln

vla

vc1

vc2

mp

p

mf

mf

mf

mf

Detailed description: This is a page of a musical score, page 64. It contains three systems of staves. The first system includes mba, vb, and tom. The mba part has whole rests. The vb part plays a melodic line starting on a half note, followed by eighth notes, with a mezzo-piano (mp) dynamic marking. The tom part has whole rests. The second system includes a piano (pno) part. The right hand plays a series of half notes, and the left hand plays a more complex accompaniment. Dynamics include mezzo-piano (mp) and piano (p). The third system includes four string parts: vln, vla, vc1, and vc2. All four parts play a sustained melody of half notes with a mezzo-forte (mf) dynamic marking. The key signature for all parts is four flats.

mba

vb

tom

[310]

pno

vln

vla

vc1

vc2

p

pp

mf

(attacca)

p

pp

(l.v.)

p

ppp

p

ppp

p

ppp

p

ppp

pc1 = 108

pc1 tuned bongos

pc2 Bb bongo, Bb tom

pc3 tuned toms

[314] *f* (x2) * (x3)

pc1

pc2

pc3

(x3) (x2)

pc1

pc2

pc3

(x2) (x3)

* to be played twice

pc1

pc2

pc3

[320] *f* (x3) (x2)

pc1

pc2

pc3

(x2) (x3)

pc1

pc2

pc3

(x3) (x2)

pc1

pc2

pc3

(bongos)

p

[326] (play 4 x's, getting softer) *p*

pc1

pc2

pc3

pc1

pc2

pc3

pc1 *p* *p*

pc2

pc3 [332] *p*

Detailed description: This system contains three staves. Staff pc1 (treble clef) has a melody in the first measure: a quarter rest, followed by eighth notes G4, A4, Bb4, and A4, with accents (>) over the last two. The second measure has a whole rest, followed by eighth notes G4, A4, Bb4, and A4, with an accent (>) over the last. Staff pc2 (treble clef) has whole rests in both measures. Staff pc3 (bass clef) has whole rests in both measures. A dynamic of *p* is written below the first measure of pc1 and below the first measure of pc3. A [332] instruction is written below the first measure of pc3.

pc1

pc2

pc3

Detailed description: This system contains three staves. Staff pc1 (treble clef) has a whole rest in the first measure, followed by eighth notes G4, A4, Bb4, and A4, with an accent (>) over the last. The second measure has a whole rest. Staff pc2 (treble clef) has whole rests in both measures. Staff pc3 (bass clef) has whole rests in both measures.

pc1

pc2

pc3

Detailed description: This system contains three staves. Staff pc1 (treble clef) has a melody in the first measure: a quarter rest, followed by eighth notes G4, A4, Bb4, and A4, with an accent (>) over the last. The second measure has a whole rest. Staff pc2 (treble clef) has whole rests in both measures. Staff pc3 (bass clef) has whole rests in both measures.

pc1 *p* *cresc.*

pc2

pc3 *p* [338]

pc1 *mp* *mf*

pc2

pc3 *p* *p*

pc1 *f*

pc2

pc3 *p*

pc1 *ff* *dim.*

pc2

pc3 [344] *p* *cresc.*

pc1 *f* *mf*

pc2

pc3 *mp* *mf*

pc1 *mp*

pc2

pc3 *f*

pc1 *p*

pc2

pc3 [350] *ff* *dim.*

pc1 *p*

pc2

pc3 *f* *mf*

pc1 *p*

pc2

pc3 *mp* *p*

pc1 *p*

pc2 bongo:
tom: *mp*

pc3 [356] *p*

pc1

pc2

pc3

pc1 *cresc.* *mp*

pc2 *cresc.*

pc3 *cresc.* *mp*

$\text{♩} = 108$

pc1 *mf*

pc2 *mf* (to marimba)

pc3 *mf*

[362]

pno

pc1

pc2

pc3

pno

pc1 *mf*

pc2

pc3 *mf*

[366]

pno

pc1

pc2

pc3

pno

pc1 *mf*

pc2

pc3 *mf*

[370]

pno *f*

pc1: Treble clef, B-flat major key signature. Measures 369-370: B-flat, A, G, F, E, D, C, B-flat. Measure 370: B-flat, A, G, F, E, D, C, B-flat.

pc2: Treble clef, B-flat major key signature. Measures 369-370: Rest.

pc3: Bass clef, B-flat major key signature. Measures 369-370: B-flat, A, G, F, E, D, C, B-flat.

pno: Treble and Bass clefs, B-flat major key signature. Measure 369: Right hand: B-flat, A, G, F, E, D, C, B-flat. Left hand: Rest. Measure 370: Right hand: B-flat, A, G, F, E, D, C, B-flat. Left hand: Rest.

pc1

pc2 marimba:

pc3

pno

pc1: Treble clef, B-flat major key signature. Measures 371-372: B-flat, A, G, F, E, D, C, B-flat.

pc2: Treble clef, B-flat major key signature. Measures 371-372: Rest. Annotation: marimba:

pc3: Bass clef, B-flat major key signature. Measures 371-372: B-flat, A, G, F, E, D, C, B-flat.

pno: Treble and Bass clefs, B-flat major key signature. Measure 371: Right hand: B-flat, A, G, F, E, D, C, B-flat. Left hand: Rest. Measure 372: Right hand: B-flat, A, G, F, E, D, C, B-flat. Left hand: Rest.

pc1 *mf*

mba *f*

pc3 *mf*

[374]

pno *f*

pc1

mba

pc3

pno

pc1 *mf*

mba *f*

pc3 *mf*

[378]

pno *f*

pc1

mba

pc3

pno

pc1 *mf*

mba *f*

pc3 *mf*

[382]

pno *f*

pc1

mba

pc3

pno

pc1 *mf*

mba *f*

pc3 *mf*

[386]

pno *f*

pc1

mba

pc3

pno

pc1 *mf*

mba *f*

pc3 *mf*

[390]

pno *f*

pc1

mba

pc3

pno

Detailed description: This musical score page, numbered 81, contains two systems of music. The first system, labeled [390], includes parts for pc1, mba, pc3, and pno. The pc1 part is in treble clef with a key signature of two flats and a dynamic of *mf*. The mba part is also in treble clef with the same key signature and a dynamic of *f*. The pc3 part is in bass clef with the same key signature and a dynamic of *mf*. The pno part consists of a grand staff (treble and bass clefs) with a dynamic of *f*. The second system continues the same parts without a measure number. The notation includes various note values, rests, and slurs, indicating a complex rhythmic and melodic structure.

pc1 (to marimba)

mba *f*

pc3 *mf*

[394]

pno *f*

pc1 marimba:

mba

pc3

pno

mba

mba

pc3 (to xylophone)

[398]

pno

mba

mba

pc3 xylophone:

pno

mba

mba

xyl

[402]

pno

8va

8va

8va

8va

pno

This musical score block contains two systems of music, each spanning two measures (402 and 403). The first system includes three staves: mba (melodica bass), mba (melodica bass), and xyl (xylophone). The second system includes two staves: pno (piano) and pno (piano). The mba parts are in a key with two flats and feature a rhythmic pattern of eighth and sixteenth notes. The xyl part also follows a similar rhythmic pattern. The pno parts are marked with a forte (f) dynamic and feature a melodic line in the right hand, often marked with an 8va (octave up) instruction, and a bass line in the left hand. The score is written in a standard musical notation style with a common time signature.

mba *cresc.*

mba *cresc.*

xyl *cresc.*

[406] pno *cresc.* *8va*

mba *ff*

mba *ff*

xyl *ff*

pno *ff* *8va*

Detailed description: This musical score block contains two systems of staves. The first system, starting at measure 406, includes parts for mba (melodica), xyl (xylophone), and pno (piano). The mba and xyl parts are marked with a crescendo (*cresc.*). The pno part features a melody in the right hand, marked *cresc.* and *8va* (octave), and a bass line in the left hand. The second system, starting at measure 407, continues the same parts. The mba and xyl parts are marked *ff* (fortissimo). The pno part continues with the *ff* marking and *8va* indication. The key signature is B-flat major (two flats), and the time signature is 4/8. The score concludes with a double bar line at the end of measure 407.

mba

mba

xyl

[410]

pno

f

ff *dim.* *pp*

ff

mba

mba

pc3

pno

snare dr.

tom

bass dr.

mf

ff

8va

mba

continue pattern *f*

mba

continue pattern *f*

pc3

mf

[414]

pno

ff

mba

mba

pc3

pno

Measure 414: mba (continue pattern *f*), pc3 (*mf*), pno (*ff*). Measure 415: mba (*f*), pc3 (*mf*), pno (*ff*).

mba *f*

mba *f*

pc3 *mf*

[418]

pno

mba

mba

pc3 *f*

pno *fff*

mba *f*

mba *f*

pc3 *mf*

[422]

pno *fff*

mba

mba

pc3

pno *ff*

musical score for measures 426-427, featuring three staves: mba (melodica), pc3 (piano), and pno (piano).

Measure 426:

- mba:** Two staves, both marked *f* (forte). The notes are whole notes, ending with a double bar line and repeat sign.
- pc3:** Marked *mp* (mezzo-piano). The melody consists of eighth notes: G4, A4, B4, C5, D5, E5, F5, G5, A5, B5, C6, D6, E6, F6, G6, A6, B6, C7.
- pno:** Treble and bass staves. Treble: G4, A4, B4, C5, D5, E5, F5, G5, A5, B5, C6, D6, E6, F6, G6, A6, B6, C7. Bass: G2, A2, B2, C3, D3, E3, F3, G3, A3, B3, C4, D4, E4, F4, G4, A4, B4, C5.

Measure 427:

- mba:** Two staves, both marked *f* (forte). The notes are whole notes, ending with a double bar line and repeat sign.
- pc3:** Marked *mp* (mezzo-piano). The melody consists of eighth notes: G4, A4, B4, C5, D5, E5, F5, G5, A5, B5, C6, D6, E6, F6, G6, A6, B6, C7.
- pno:** Treble and bass staves. Treble: G4, A4, B4, C5, D5, E5, F5, G5, A5, B5, C6, D6, E6, F6, G6, A6, B6, C7. Bass: G2, A2, B2, C3, D3, E3, F3, G3, A3, B3, C4, D4, E4, F4, G4, A4, B4, C5.

The score is marked with a double bar line and repeat sign at the end of measure 427.

[430]

mba *f*

mba *f*

pc3 *mf* *mp*

pno

mba

mba

pc3 *mp*

pno *ff*

mba *f*

mba *f*

pc3 *mf* *mp*

[434]

pno

Detailed description: This system contains measures 434 and 435. The mba parts are in treble clef. The pc3 part is in a non-staff notation (piano code). The pno part consists of two staves (treble and bass). Measure 434 starts with a piano code 'mf' and a dynamic 'f' for the mba parts. Measure 435 starts with a dynamic 'mp' for the pc3 part. The pno part has rests in both staves for both measures.

mba

mba

pc3

pno

Detailed description: This system contains measures 436 and 437. The mba parts are in treble clef. The pc3 part is in a non-staff notation. The pno part consists of two staves. Measure 436 starts with a piano code 'mf' and a dynamic 'f' for the mba parts. Measure 437 starts with a dynamic 'mp' for the pc3 part. The pno part has rests in both staves for both measures.

mba *f*

mba *f*

pc3 *mf*

[438]

pno *ff*

mba

mba

pc3

pno

musical score for measures 442-443, featuring mba, pc3, and pno staves.

Measure 442:

- mba (top):** Treble clef, *f* dynamic. Rest.
- mba (middle):** Treble clef, *f* dynamic. Rest.
- pc3:** Bass clef, *mf* dynamic. Rhythmic pattern of eighth notes.
- pno:** Treble and Bass clefs, *ff* dynamic. Rhythmic pattern of eighth notes.

Measure 443:

- mba (top):** Treble clef, *f* dynamic. Rhythmic pattern of eighth notes.
- mba (middle):** Treble clef, *ff* dynamic. Rhythmic pattern of eighth notes.
- pc3:** Bass clef, *f* dynamic. Rhythmic pattern of eighth notes.
- pno:** Treble and Bass clefs, *ff* dynamic. Rhythmic pattern of eighth notes.

mba

mba

pc3

[446]

pno

mba

mba

pc3

pno

This musical score page contains two systems of music, each spanning measures 446 and 447. The first system includes parts for mba (melodica), pc3 (percussion), and pno (piano). The mba parts are in treble clef, and the pc3 part is in a simplified notation. The pno part is in grand staff (treble and bass clefs). The second system repeats the same instrumentation. Dynamics include *ff* (fortissimo), *f* (forte), and *mf* (mezzo-forte). The score features various musical notations such as eighth notes, sixteenth notes, and slurs. A double bar line with repeat dots is present at the end of the first system.

musical score for measures 449 and 450, featuring three staves: mba (melody), pc3 (piano), and pno (piano).

The score is divided into two systems, each containing two staves. The first system is labeled [450] on the left. The second system is unlabeled but continues the musical material.

Staff 1 (mba): Melody line, marked *fff* (fortissimo). The melody consists of eighth and sixteenth notes, often beamed together, with frequent slurs and accents.

Staff 2 (mba): Melody line, marked *fff* (fortissimo). The melody consists of eighth and sixteenth notes, often beamed together, with frequent slurs and accents.

Staff 3 (pc3): Piano line, marked *ff* (fortissimo). The piano line consists of eighth and sixteenth notes, often beamed together, with frequent slurs and accents.

Staff 4 (pno): Piano line, marked *fff* (fortissimo). The piano line consists of eighth and sixteenth notes, often beamed together, with frequent slurs and accents.

The notation includes various musical symbols such as slurs, accents, and dynamic markings (*fff*, *ff*).

mba *fff*

mba *fff*

pc3 *ff*

[454]

pno *fff*

mba (to bells)

mba (to vibes)

pc3

pno

Detailed description: This musical score is for a percussion ensemble. It features four staves: two mba (marching bass drum) staves, one pc3 (percussion controller 3) staff, and one pno (piano) staff. The first system shows a rhythmic pattern with accents and a forte (*fff*) dynamic. The second system, marked [454], continues the pattern. The third system includes vocal-like lyrics '(to bells)' and '(to vibes)' above the mba staves. The pno part provides a harmonic accompaniment. The score is written in a standard musical notation with treble and bass clefs, and various musical symbols like accents and dynamics.

bls

bells:
vibes:

tam - tam:

[458]

pno

ff

ff

f

bls

vb

pc3

pno

f

f

mf

$\text{♩} = 44$

bls *mp*

vb *mp*

pc3 tam - tam *p*

[462]

pno *mp*

vln *mp*

vla *p*

vc1 *p*

vc2

bls

vb

pc3 triangle *p*

[464]

pno

p

vln

dim.

vla

vc1

vc2

bls

vb

pc3

[466]

pno

vln

vla

vc1

vc2

mp

mf

dim.

p

mp

Detailed description of the musical score: The score is for page 101, starting at measure 466. The key signature changes from three flats (B-flat, E-flat, A-flat) to two flats (B-flat, E-flat). The instruments and their parts are:
 - **bls** (brass): In measure 466, they play a half note chord. In measure 467, they play a half note chord with an accent and a *mp* dynamic.
 - **vb** (woodwind): In measure 466, they play a half note chord. In measure 467, they play a half note chord with an accent and a *mp* dynamic.
 - **pc3** (percussion): In measure 466, they play a half note chord. In measure 467, they play a half note chord with an accent and a *mf* dynamic.
 - **pno** (piano): In measure 466, they play a half note chord. In measure 467, they play a half note chord with an accent and a *mp* dynamic.
 - **vln** (violin): In measure 466, they play a half note chord. In measure 467, they play a half note chord with an accent and a *p* dynamic.
 - **vla** (viola): In measure 466, they play a half note chord with a *dim.* dynamic. In measure 467, they play a half note chord with an accent and a *p* dynamic.
 - **vc1** (violoncello 1): In measure 466, they play a half note chord with a *dim.* dynamic. In measure 467, they play a half note chord with an accent and a *p* dynamic.
 - **vc2** (violoncello 2): In measure 466, they play a half note chord. In measure 467, they play a half note chord with an accent and a *mp* dynamic.

bls

vb

pc3

[468]

pno

vln

vla

vc1

vc2

pp

p

8

8

8

Detailed description of the musical score: The score is for measures 468 and 469. The woodwinds (bls, vb) and percussion (pc3) are mostly silent. The piano (pno) plays a sustained chord in measure 468, marked *pp*, and a single note in measure 469, marked *p*. The strings (vln, vla, vc1) play a sustained chord in measure 468, marked with a tilde and the number 8, and a single note in measure 469, marked with the number 8. The double bass (vc2) plays a rhythmic pattern of eighth notes in measure 468 and a single note in measure 469.

bls

vb

pc3

[470]

pno

vln

vla

vc1

vc2

dim.

dim.

dim.

The musical score for measures 470 and 471 is as follows:

- bls (Bassoon):** Treble clef, key signature of three flats. Measure 470: quarter note G4, quarter note F4, quarter note E4, quarter note D4. Measure 471: whole rest.
- vb (Violoncello):** Treble clef, key signature of three flats. Measure 470: quarter note G4, quarter note F4, quarter note E4, quarter note D4. Measure 471: whole rest.
- pc3 (Percussion 3):** Two-line staff. Measure 470: whole rest. Measure 471: whole rest.
- [470]**
- pno (Piano):** Treble and bass clefs, key signature of three flats. Measure 470: Treble: quarter note G4, quarter note F4, quarter note E4, quarter note D4; Bass: quarter note G3, quarter note F3, quarter note E3, quarter note D3. Measure 471: Treble: whole rest; Bass: whole rest.
- vln (Violin):** Treble clef, key signature of three flats. Measure 470: quarter note G4, quarter note F4, quarter note E4, quarter note D4. Measure 471: whole rest.
- vla (Viola):** Alto clef, key signature of three flats. Measure 470: quarter note G4, quarter note F4, quarter note E4, quarter note D4. Measure 471: quarter note G4, quarter note F4, quarter note E4, quarter note D4, then a fermata.
- vc1 (Violoncello 1):** Bass clef, key signature of three flats. Measure 470: quarter note G3, quarter note F3, quarter note E3, quarter note D3. Measure 471: quarter note G3, quarter note F3, quarter note E3, quarter note D3, then a fermata.
- vc2 (Violoncello 2):** Bass clef, key signature of three flats. Measure 470: quarter note G3, quarter note F3, quarter note E3, quarter note D3. Measure 471: quarter note G3, quarter note F3, quarter note E3, quarter note D3, then a fermata.

Dynamic markings: *dim.* (diminuendo) is written below the strings (vln, vla, vc1) and the vocal part (vc2) in measure 471.

$\text{♩} = 66$

bls *mf* (to marimba)

vb *mf* (to marimba)

pc3 *mf*

[472]

pno *mf*

vln

vla *mf* (with more intensity)

vc1

vc2

mba

mba

pc3

[474]

pno

vln

vla

vc1

vc2

p

p

mf

mba

mba

pc3

476]

pno

p

vln

vla

vc1

vc2

mf

mba

mba

pc3

[478]

pno

vln

vla

vc1

vc2

mba

mba

pc3

[478]

pno

vln

vla

vc1

vc2

mba

mba

pc3

[480]

pno

8va

mp

mp

vln

mf

vla

mf

vc1

mf

vc2

mf

mba

mba

pc3

[482]

pno

mp

vln

vla

vc1

vc2

mf

mf

mba

mba

pc3

[484]

pno

8va

mp

vln

mf

vla

mf

vc1

vc2

The musical score for measures 484-485 is written for a chamber ensemble. The key signature is three flats (B-flat, E-flat, A-flat). The percussion parts (mba and pc3) are silent. The piano (pno) part features a melody in the right hand starting on a whole note, marked '8va' and 'mp', and a bass line in the left hand starting on a whole note, marked '8va'. The string parts (vln, vla, vc1, vc2) play a rhythmic pattern of eighth notes and quarter notes, marked 'mf'.

mba

mba

pc3

[486]

pno

8va

mp

vln

vla

vc1

vc2

mf

f

mf

f

mba

mba

pc3

[488]

pno

mf

vln

vla

vc1

mf

vc2

mf

mba

mba

pc3

[488]

pno

mf

vln

vla

vc1

mf

vc2

mf

mba

marimba: *mf*

mba

pc3

[490]

pno

8va

mf

vln

mf

vla

mf

vc1

vc2

mba

mba

pc3

triangle:

f

[492]

pno

mf

f

vln

mf

vla

f

vc1

mf

vc2

mf

mba

mba

pc3

tam - tam:

mf

[494]

pno

f

vln

mf

vla

f

vc1

f

vc2

f

mba

mba

pc3

[496]

pno

vln

vla

vc1

vc2

mba

mba

pc3

[496]

pno

vln

vla

vc1

vc2

mba

mba

pc3

[498]

pno

vln

vla

vc1

vc2

mf *f*

f *f*

f *f* *f* *f*

mba

mba

pc3

[500]

pno

vln

vla

vc1

vc2

mf

f

f

f

f

mba

mba

pc3

[502]

pno

vln

vla

vc1

vc2

f

f

f

f

mba

mba

pc3

[504]

pno

vln

vla

vc1

vc2

This musical score page contains measures 504 and 505. The staves are arranged as follows: mba (two staves), pc3 (one staff), pno (two staves), vln (one staff), vla (one staff), vc1 (one staff), and vc2 (one staff). The key signature has four flats (B-flat, E-flat, A-flat, D-flat). Measure 504 begins with a rehearsal mark [504]. The mba parts are mostly rests, with a melodic line in the upper mba staff starting in measure 505 marked with a forte (f) dynamic. The pc3 part has a half note in measure 504 marked mezzo-forte (mf) and a half note in measure 505 marked forte (f). The pno part features sustained chords in both measures, with a forte (f) dynamic in measure 505. The string section (vln, vla, vc1, vc2) plays a rhythmic pattern of eighth and sixteenth notes throughout both measures, with a forte (f) dynamic indicated in measure 505.

mba

mba

pc3

[506]

pno

vln

vla

vc1

vc2

f

f

mf

f

f

f

f

f

mba

mba

pc3

[508]

pno

vln

vla

vc1

vc2

This musical score page contains measures 508 and 509. The instruments and their parts are as follows:

- mba (Meibohm Bassoon):** Two staves. The top staff has a melodic line with eighth and sixteenth notes. The bottom staff has a bass line with a forte (*f*) dynamic.
- pc3 (Percussion 3):** A single staff with a melodic line and a forte (*f*) dynamic.
- [508]:** A section marker indicating the start of measure 508.
- pno (Piano):** Two staves. The top staff has a melodic line with a forte (*f*) dynamic. The bottom staff has a bass line with a forte (*f*) dynamic.
- vln (Violin):** A single staff with a melodic line and a forte (*f*) dynamic.
- vla (Viola):** A single staff with a melodic line and a forte (*f*) dynamic.
- vc1 (Violoncello 1):** A single staff with a melodic line and a forte (*f*) dynamic.
- vc2 (Violoncello 2):** A single staff with a melodic line and a forte (*f*) dynamic.

mba

mba

pc3

[510]

pno

vln

vla

vc1

vc2

mf

f

f

f

mba *ff* *ff*

pc3 *f* *>*

[512]

pno *ff* *ff*

vln *ff*

vla *ff*

vc1 *ff*

vc2 *ff* *>*

musical score for measures 512-513. The score includes parts for mba (melodica), pc3 (percussion), pno (piano), vln (violin), vla (viola), vc1 (violin), and vc2 (violin). The key signature is three flats (B-flat, E-flat, A-flat). The tempo is marked as quarter note = 48. The mba and pno parts have a forte (ff) dynamic. The pc3 part has a forte (f) dynamic. The vln, vla, and vc1 parts have a forte (ff) dynamic. The vc2 part has a forte (ff) dynamic. The score is divided into two measures, 512 and 513. Measure 512 contains the main musical material, while measure 513 contains sustained notes and accents.

[illegible]

mba $\text{♩} = 30$

mba

pc3 *toms:* *ff* *bass dr.* *cresc.* *ff*

[516]

pno *8va* *fff*

vln *fff* *pizz.* *fff*

vla *fff* *pizz.* *fff*

vc1 *fff* *pizz.* *fff*

vc2 *fff* *pizz.* *fff*