

Arcomusical

Notation and Style Guide for Composers



Gregory Beyer

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Arcomusical

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ABOUT ARCOMUSICAL

Arcomusical is a non-profit organization that advocates the artistic advancement of the Afro-Brazilian berimbau and related musical bows. This mission is supported by the five pillars of activity:

composition
performance
publication & recording
research
community building

The *berimbau* is one member of the “bow” family of musical instruments found all over the world. Its closest relatives are found in southern Africa, specifically in the Portuguese speaking countries of Angola (e.g. *hungo* and *mbulumbumba*) and Mozambique (e.g. *xitende*).

Arcomusical has developed a vibrant culture for creative berimbau performance. Through transcription, composition, collaboration, and commission of new works, Arcomusical places the berimbau in diverse performance contexts. To date, Arcomusical has created over forty new works for the berimbau.

Having created a diverse and substantial repertoire for contemporary berimbau performance, Arcomusical has become a publishing entity offering scores ranging from solos to sextets, from concerti to mixed ensembles, and from acoustic to fixed and interactive multi-media environments.

Arcomusical began in 1999 when its Director, Gregory Beyer, fell in love with the berimbau via the music of famous Brazilian percussionist, Naná Vasconcelos (1944-2016). What began as a simple transcription of a track from Vasconcelos' 1980 ECM recording, “Saudades” gradually blossomed into a 200+ page DMA thesis. Completed in 2004, the thesis discusses the berimbau in three musical contexts: Brazilian, African, and contemporary. In 2007, Beyer traveled to Recife to conduct an interview with Naná Vasconcelos that was subsequently published in *Percussive Notes*, the research journal of the Percussive Arts Society.

Arcomusical is now a central locus for a global community interested in research and creative uses for the berimbau in capoeira and beyond. In Brazil, the United States, and around the globe, Arcomusical is creating important connections inside the world of capoeira Angola and among the expanding circle of creative musicians who use the berimbau as a primary vehicle for expression.

PREFACE

Where to begin writing a new work for Arcomusical? What *IS* a *berimbau* and why would anyone want to write music for one, let alone an ensemble of six?

While the Arcomusical website provides many examples of audio, video, and more, to begin to answer these questions, we have created the “Notation and Style Guide for Composers” to offer the interested composer a more thorough examination of the possibilities of this simple yet richly beautiful musical instrument.

The purpose of this guide is twofold. **Section 1 “NOTATION GUIDE”** begins with a basic background about the berimbau as an instrument and about Arcomusical as an organization. This section then takes a retrospective look at Arcomusical repertoire composed over the past two decades, presenting a series of musical scenarios and sonic possibilities for creative composition. In so doing, we hope to shine a light on compositional tools that have proven effective in writing for this uniquely beautiful instrument alone and in ensemble. Our intention is not to be exhaustive but rather to encourage creativity and to continue to develop a rich body of repertoire for the musical bow, one of the humankind’s oldest instruments.

When doubts and questions inevitably arise, we at Arcomusical will always be available to dialog, workshop, and collaborate as a new piece of music comes into focus. We can be contacted at:

info@arcomusical.com

Section 2 “STYLE GUIDE” details the essential aspects of style that Arcomusical has adopted for its publications and online presence. Arcomusical is committed to publishing every score that Projeto Arcomusical performs, provided that both the composer and Arcomusical agree that the music is ready for publication and that Arcomusical is the best publisher for the piece. This section is written specifically for composers who have already written works for Arcomusical and are at the publication stage of our collaboration process. Prior to signing a publication contract, the composer and Arcomusical work together to see to it that the score/parts are formatted in Arcomusical “house” style. This section defines that house standard. For composers about to embark on a new work for Arcomusical, Section 1 is more immediately relevant; however, Section 2 will still provide a template for style which can save a lot of time in the final stages of collaboration.

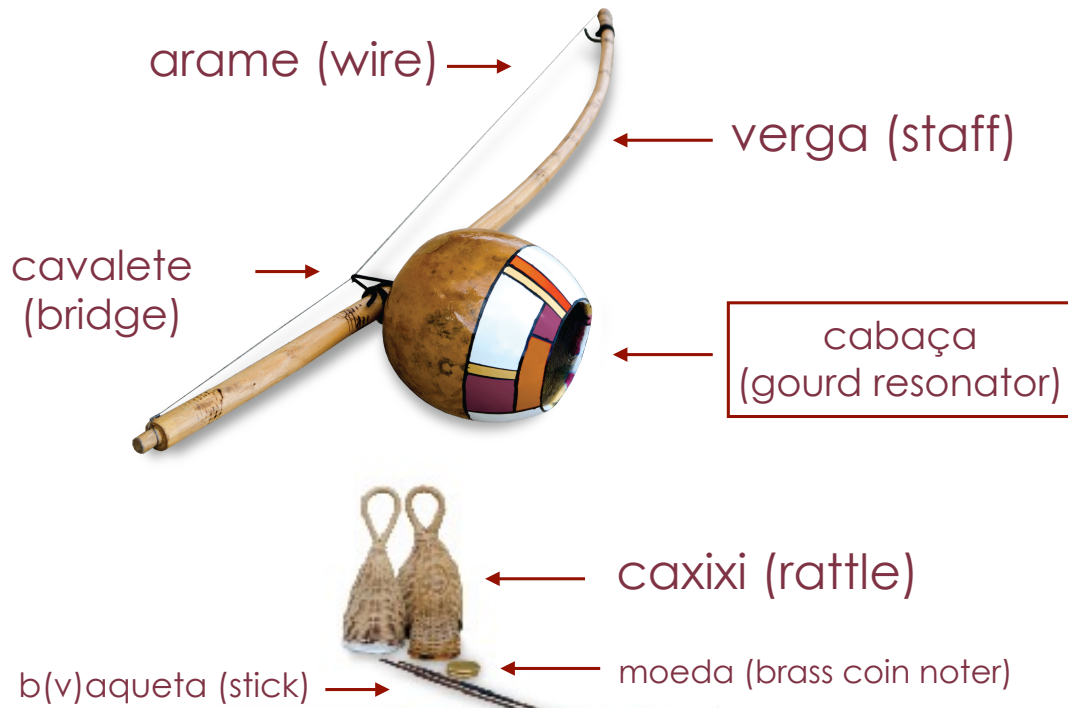
NOTATION GUIDE



1. NOTATION GUIDE

1.1. Anatomy of a Berimbau

The **berimbau** is part of the family of **musical bows**, instruments of simple construction:



1. The **verga** (staff) onto which is secured a single **arame** (wire).
2. The **cabaça** (gourd) resonator tied around both verga and arame with a cord that:
 1. forms the **cavalete** (bridge), dividing the wire into two sections (long and short).
 2. serves as the location of the performer's grip.
3. **Baqueta (or Vaqueta)** (stick) that strikes the instrument.
4. **Moeda** (coin) or **pedra** (stone) that "notes" (stops) the portion of the arame above the bridge.
5. **Caxixi** (rattle) basket that adds "noise" to each stroke.

Projeto Arcomusical uses a carefully designed and handcrafted musical bow constructed by David “Snappy” White. It is a more complex species of berimbau that we call, not surprisingly, the “**Arcomusical.**” Extending the possibilities of the traditional berimbau, its added features include:

6. three-ply laminate construction of selected hardwoods (e.g. maple, purpleheart, black walnut).
7. bass guitar tuning machine at one end for precision tuning.
8. triangular wooden bridge to keep metal from metal.
9. offset lobe on tuning machine end of staff to ensure the wire crosses bridge properly and traverses the center of the staff.



1.2. String Division

As mentioned above, the cabaça serves not only to resonate the instrument’s vibrations, but its cord forms a loop bridge that divides the wire into two sections (long and short). In *theory*, the location of the gourd can be at any point along the wire. In *practice*, some divisions are more interesting than others as they allow the instrument to resonate more fully.

In our compositions and labeled explicitly in our scores, Arcomusical employs whole number ratios and the Pythagorean tuning system that results.

In Brazil, the berimbau is nearly synonymous with the body game of capoeira. Historically, capoeira berimbaus were shorter and thinner than they are today. Mestre Waldemar, (1916-1990) who became famous for building and painting his berimbaus, cut instruments to the length of

“seven palms” and placed the cabaça at “one palm.” As long as that palm remains consistent, that thinking naturally yields a ratio of 6:1.

In current Brazilian capoeira practice, common string divisions range from approximately 9:1 to 6:1, placing the gourd toward the low end of the staff. It need be said that *capoeiristas* do not place gourds mathematically; rather, they find what “sounds good” via a combination of tradition and intuition. In 2015-2016, training capoeira Angola multiple times weekly with the group, Associação de Capoeira Angola Dobrada (ACAD), I came to observe that an 8:1 tuning seemed ideal for that group’s sound. Yet, frequently my teachers and my colleagues would place the gourd at 9:1 or 7:1 (very subtle distinctions of less than an inch in either direction). The resulting pitches, however, are quite different. (see table):

Ratio	Long Section	Short Section
6:1	G2	D5
7:1	F#2	E5
8:1	F2	F5
9:1	E2	F#5

Figure 1.3.1. Common berimbau tunings in capoeira practice.

Because the short end of the wire in capoeira is not part of any basic *toque* (pattern) and is only rarely utilized as a touch/timing stroke, its tuning is of little concern to *capoeiristas*. For Arcomusical, however, the three octave interval that 8:1 creates yields a very attractive overall instrument sound due to sympathetic resonance.

1.3. Ensemble Tuning

In Africa, musical bows such as the Mozambican *xitende* or Zulu *umakhweyane* locate the gourd toward the middle of the instrument, yielding a totally different sound. As the gourd moves toward the center of the bow, the low notes ascend and the high notes descend. The resulting shape is a sort of wedge or hairpin. Multiple instruments with different gourd placements, therefore, can play together harmonically and melodically.

This concept is the principal area of investigation that has allowed the music of Arcomusical to take shape. An ensemble of instruments playing together allow a composer to assemble a collection of pitches that can span upwards of 3 octaves. Interestingly, for the 2016 Projeto Arcomusical album, *MeiaMeia* (Innova 922), that span stays within just two octaves, as the following chart demonstrates:

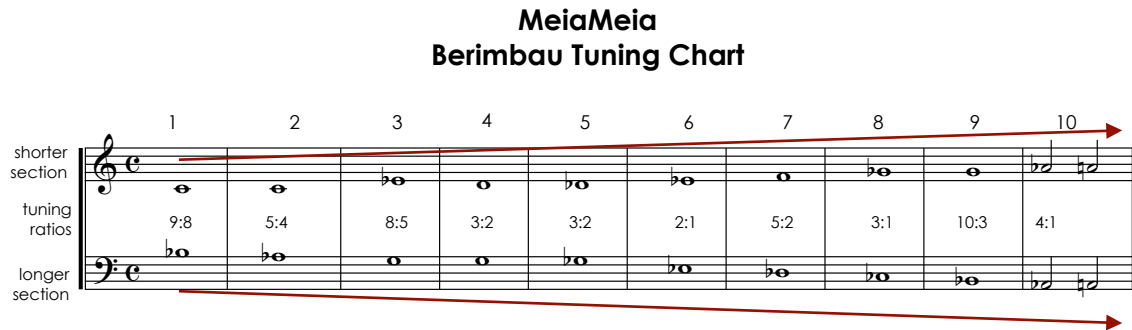


Figure 1.3.1. “Wedge tuning” in MeiaMeia tuning chart.

While *MeiaMeia* represents the product of three years of research in this area, the harmonic/melodic possibilities inherent in this ensemble are still very open for further exploration.

1.4. Using the Coin

As mentioned in section 1.1, a *moeda* (coin) or *pedra* (stone) is utilized by the performer to note the wire segment that is held above the gourd/bridge. If the coin is held loosely against the wire, a buzzing sound is possible (see section 1.10). If the coin is held firmly on the wire, raised pitches above the open tone of the wire are achievable.

The standard playing position for berimbau is with the long wire segment above the gourd. However, the player is capable of flipping the instrument and coining on the short wire segment, too, yielding pitch ranges that can greatly extend the upper tessitura.

To keep your music playable please keep in mind the following guidelines:

1. The longer wire is far and away more resonant for tuning ratios larger than an octave (2:1). Below this octave breaking point, the short and long wire segments become less divergent and notes on either side of the instrument begin to blend uniformly, thereby creating the possibility to create melodic lines using both sides of the wire.

2. Tuning ratios smaller than an octave (2:1) are capable of intervals of a minor third. Only the smallest interval of 9:8 (M2) can comfortably reach a major third on the long end of the wire. Ratios an octave or larger can only achieve a major 2nd interval as the maximum raised pitch on the long section of wire.
3. The berimbau can only be coined on one side of the wire at a time. If you ask a performer to coin on the short side of the wire, take care when writing for "flipped" position instruments for two reasons:
 1. If the "flip" happens during the music, a performer needs time to physically flip the instrument.
 2. As the wire becomes progressively shorter, the decay time of any note produced becomes precipitously shorter. The shorter the wire, the more available pitches you have. The "flipped," or shorter wire, on the instrument offers yet another range of pitch possibilities when using the coin.
4. Caution! The use of the coin takes extraordinary endurance for very small muscles in the hand. Coining the instrument consistently for a long period of time can be exhausting and eventually even painful to the performers.

Below is a chart of most of the common ratios employed in Arcomusical repertoire. The chart is organized in three columns:

1. the lowest and highest available tunings of the instrument (while one can certainly tune lower still, the quality of timbre becomes quite muddy and indistinct)
2. lowest and highest achievable pitches with the coin in standard position (long side of the wire)
3. lowest and highest achievable pitches with the coin in flipped position (short side of the wire)

Individual Instrument Tuning Chart

Ratio
&
Resulting
Interval

practical
tuning range

"standard"
long wire
coin range

"flipped"
short wire
coin range

9:8
M2

6:5
m3

5:4
M3

4:3
P4

Ratio

&
Resulting
Interval

practical
tuning range

"standard"
long wire
coin range

"flipped"
short wire
coin range

3:2
P5

Musical notation for the 3:2 interval (Perfect Fifth). The treble clef shows a G4 note rising to a D5 note. The bass clef shows a G3 note rising to a D4 note. Three columns represent different tuning ranges: practical, standard long wire, and flipped short wire.

8:5
m6

Musical notation for the 8:5 interval (minor Sixth). The treble clef shows a Bb4 note rising to a Gb5 note. The bass clef shows a Bb3 note rising to a Gb4 note. Three columns represent different tuning ranges: practical, standard long wire, and flipped short wire.

5:3
M6

Musical notation for the 5:3 interval (Major Sixth). The treble clef shows a Bb4 note rising to a Gb5 note. The bass clef shows a Bb3 note rising to a Gb4 note. Three columns represent different tuning ranges: practical, standard long wire, and flipped short wire.

2:1
P8

Musical notation for the 2:1 interval (Perfect Octave). The treble clef shows a G4 note rising to a G5 note. The bass clef shows a G3 note rising to a G4 note. Three columns represent different tuning ranges: practical, standard long wire, and flipped short wire.

5:2
M10

Musical notation for the 5:2 interval (Major Tenth). The treble clef shows a G#4 note rising to a B5 note. The bass clef shows a G#3 note rising to a B4 note. Three columns represent different tuning ranges: practical, standard long wire, and flipped short wire.

3:1
P12

4:1
P15

5:1
P15+M3

6:1
P15+P5

8:1
P15+P8

* N.B. While these upper pitches are reachable, they are no longer "melodic," as the resonance on a short wire is extremely short.

1.5. Melody

Melodies can be created in a variety of ways using the berimbau. Depending on the tuning ratio, some instruments will have more available pitches than others and can therefore create a more involved melody. Both of the solos in the *MeiaMeia* repertoire are tuned to smaller ratios (9:8 and 3:2) in order to achieve a greater range of pitches utilizing both sides of the wire in a single melodic line.

In an ensemble, melodies can be created by passing a line around from instrument to instrument in a hocketed fashion. Examples of hocketed melodies in different-sized ensembles are shown below.

In “Berimbau Duo No. 5,” an ostinato pattern between both instruments acts as a skeleton for melodic development using an additive process in the third section of the work.

The image shows a musical score for two berimbaus, labeled 'Bau 1' and 'Bau 2'. The score is in 8/8 time and features a melodic line starting at measure 91. The key signature has three flats (B-flat, E-flat, A-flat). Bau 1 starts with a forte (ff) dynamic and a crescendo (cresc.) marking. Bau 2 also starts with a forte (ff) dynamic and a crescendo (cresc.) marking. The notation includes eighth and quarter notes, rests, and slurs.

Figure 1.5.1. Gregory Beyer. “Berimbau Duo No. 5, “Alexis””

In “Berimbau Sextet no. 1: “Kora,”” a single melodic line is shared between all members of the ensemble. In this manner, a berimbau sextet functions not unlike a handbell choir.

9

Bau 1 *mf*

Bau 2 *mf*

Bau 3 *mf* *f*

Bau 4 *mf*

Bau 5 *mf*

Bau 6 *mf*

13

Bau 1 *f* *ff*

Bau 2 *f*

Bau 3 *f* *ff*

Bau 4 *f*

Bau 5 *f*

Bau 6 *f*

Figure 1.5.2. Gregory Beyer. "Berimbau Sextet No. 1, "Kora""

Later on in "Kora," many of the instruments "flip" to create a rapid-fire melody set over a bass ostinato of open wire pitches (also shared across multiple instruments). In figure 1.7.4 passage, three "voices" are shared between multiple instruments simultaneously.

95

Bau 1

Bau 2

Bau 3

Bau 4

Bau 5

Bau 6

97

Bau 1

Bau 2

Bau 3

Bau 4

Bau 5

Bau 6

The image displays a musical score for six bamboo instruments, labeled Bau 1 through Bau 6. The score is written in G major (one sharp) and 8/8 time. It consists of two systems of staves, numbered 95 and 97. Each staff contains musical notation including notes, rests, and dynamic markings. Bau 1 has rests in measures 95 and 97. Bau 2, 3, 4, and 5 feature complex rhythmic patterns, including triplets and slurs. Bau 6 has a long note with a slur in measure 95. A dynamic marking 'f' is present in measure 97.

Figure 1.5.3. Gregory Beyer, "Berimbau Sextet No. 1, "Kora"'"

1.6. Harmony

When multiple instruments of various tuning ratios and pitches perform together, the ensemble can take on the role of a meta-harp or -guitar. Harmony can be achieved either when the instruments strike pitches at the same time, or when chords are created via arpeggios or other patterns and the resulting resonance of the berimbaus bleed into one another.

In “Berimbau Trio No. 1” a 12-bar harmonic progression is arpeggiated between the three instruments. Figure 1.6.1 presents the first four bars:

B

Bau 1
8 *mp*

Bau 2
8 *mp*

Bau 3
8 *mp*

11

Bau 1

Bau 2

Bau 3

Figure 1.6.1. Gregory Beyer. “Berimbau Trio No. 1, “Harmonia””

In “Mudança de onda” a groove in 5/8 establishes a simple chord progression where the instruments strike their pitches in the same rhythmic pattern but with different groupings of instruments. (Figure 1.6.2)

40

Bau 1

Bau 2

Bau 3

Bau 4

Bau 5

f

The image shows a musical score for five voices, labeled Bau 1 through Bau 5. The score begins at measure 40. Bau 1 is the only voice with a treble staff; its bass staff contains a melodic line with a triplet in the final measure. Bau 2, 3, 4, and 5 each have a treble staff that is mostly empty, with their bass staves containing rhythmic accompaniment. A forte (*f*) dynamic marking is placed below the first staff.

Figure 1.6.2. Alexis C. Lamb. "Mudança de onda"

1.7. Glissandi

Pitches can be reached gradually by sliding the coin up or down the wire. In the following example, also from “Mudana de onda” (figure 1.7.1) Alexis C. Lamb creates a smearing texture by composing multiple glissandi overlapping one another between instruments.

4

The musical score consists of five systems, each for a different Bau instrument (Bau 1 to Bau 5). Each system contains two staves: a treble staff and a bass staff. The treble staff is mostly empty, with a few notes in the first measure. The bass staff contains a continuous stream of notes, with a glissandi line (a line with an arrow) indicating a slide between notes. The glissandi are labeled "gliss with coin" and "gliss.". Dynamic markings are present: Bau 1 and Bau 2 start with *f*; Bau 3 starts with *f*; Bau 4 starts with *mf* and ends with *f*; Bau 5 starts with *mf* and ends with *f*. The number "4" is written at the top left of the first system.

Figure 1.7.1. Alexis C. Lamb. “Mudana de onda”

1.8. Jeté

A *jeté* can be achieved by striking the wire while holding the stick loosely and letting it rebound off of the wire. A *jeté* is typically notated with feathered beaming to show the rebound effect.

The image shows a musical score for two staves, labeled 'Bau 1' and 'Bau 2'. The score is in 2/4 time and features a key signature of two flats (B-flat and E-flat). The piece is marked with a tempo of 52. The first staff, 'Bau 1', begins with a 'jeté' instruction. The second staff, 'Bau 2', starts with a dynamic marking of *mf*. Both staves include a *poco crescendo* marking. The notation uses feathered beaming to represent the rebound effect of the jeté technique.

Figure 1.8.1. Alexis C. Lamb. "Descobertas por pau e pedra"

1.9. Gourd resonance

In almost every *MeiaMeia* composition, the performance notes state, “All vibrato with the cabaça for this piece is left to the musical discretion of the performer. It should be used tastefully throughout.” However, sometimes composers write specific rhythms to control the speed of the cabaça vibrato.

The image displays a musical score for a piece titled "Jigsaw Zither" by David Gordon. The score is arranged in six staves, numbered 1 through 6. Each staff contains musical notation, including notes, rests, and rhythmic markings. The notation is primarily in bass clef. Staff 1 features a complex rhythmic pattern with many notes and rests. Staff 2 has a few notes and rests. Staff 3 has a rhythmic pattern with notes and rests. Staff 4 has a rhythmic pattern with notes and rests. Staff 5 has a rhythmic pattern with notes and rests. Staff 6 has a rhythmic pattern with notes and rests. The score is marked with a dynamic of *mp* (mezzo-piano) at the bottom.

Figure 1.9.1. David Gordon. “Jigsaw Zither”

Gourd resonance can also be used to emphasize dynamics. The closer the gourd is to the stomach, the more muted the sound.

Figure 1.9.2. Mateus Oliveira. "Caminhos"

1.10. The "buzz," or "chiado"

The *chiado* is another traditional sound used in *capoeira*. In the following passage of "Caminhos," Matthias Oliveira passes the *chiado* (notated with the x-heads on F in berimbau 1 and C in berimbau 2) around the ensemble to maintain a constant 16-note pulse.

Figure 1.10.1. Mateus Oliveira. "Caminhos"

1.11. Unpitched material

The wire is not the only part of the berimbau that can be percussed. Unpitched, percussive sounds are readily available on the berimbau. As indicated in this sample notation key, they take x-noteheads and occupy three or more adjacent lines/spaces in a range that doesn't overlap/interfere with the pitch material of a given instrument.



Figure 1.11.1 Coin on staff, stick on staff, stick on gourd notation

The **coin on staff** offers a “low, resonant knocking” that activates the resonance of the entire body of the instrument. As a result, the pitch of the open wire is subtly heard in the “woodblock” tone that this technique creates.

The **stick on staff** is a woody percussive “tick” that is almost never too loud. The stick may be rubbed on the staff as well, creating a nice, smooth tremolo sound (typically indicated with notation).

The **stick on gourd** is an attention grabbing “thwack” that is the highest and loudest of the three. It can be played softly, too, but is not nearly as easy to control. The stick on staff is a better option for softer dynamics.

A **gourd tremolo** creates a rich, filtered series of harmonics when, during a rubbed tremolo, the stick is moved up and down against the side of the gourd. This tremolo was used widely by Naná Vasconcelos (1944-2016) in his unprecedented exploration of the berimbau as a virtuoso instrument.

The musical function can vary widely. Following are some notable examples from the Arcomusical repertoire:

Gregory Beyer's “Berimbau Duo no 5” presents, in its middle section, quasi-melodic writing for unpitched sounds. Here the **coin on staff** sound is accented to bring out the resonance of the staff/gourd, which is surprisingly clear when knocking a large brass coin against the inside of the staff, directly in front of the gourd.

Figure 1.11.2. Gregory Beyer. "Berimbau Duo No. 5: "Alexis""

In the quartet "Queda de quatro," (figure 1.11.3) the **stick on staff** acts as a constant eighth note pulse in counterpoint with the melodic material shared by the four players. The music effectively takes on a layered quality. Note that taken together players 1, 2, and 4 double the constant stream for player 3.

Figure 1.11.3. Alexis C. Lamb. "Queda de quatro"

Later in the same work, all four players play a “staff tremolo” and work together to set a “melodic” phrase using “coin on staff.”

Figure 1.11.4. Alexis C. Lamb. “Queda de quatro”

In “Berimbau Quintet no. 1” note how the simple, powerful unison “thwack” of **stick on gourd** sets the music off into a completely different texture and meter. Unpitched sounds can punctuate the texture of the ensemble much like an orchestral cymbal crash.

Figure 1.11.5. Gregory Beyer. “Berimbau Quintet no. 1: “Solkattu””

In the opening passage of “Repercussio,” unpitched material forms a series of cloud-like masses of sound. The **staff tremolo** is first introduced as player overlaps player in a cascade-like crescendo. Before that cloud completely subsides, a second cloud of unpitched material, this time a **tremolo between the staff and wire**, yet another technique utilized extensively by Naná Vasconcelos. The texture of the score itself serves to aid the imagination of the sound that results.

Figure 1.11.6. Alexandre Lunsqui. “Repercussio”

In Mateus Oliveira’s “Caminhos,” berimbau 1 uses a stick to scrape vertically along the staff, producing a shifting sound, similarly to a slide whistle.

Figure 1.11.7. Mateus Oliveira. “Caminhos”

Later on in “Caminhos,” players 1 and 2 strike the staff in an up/down movement to create a constant change in pitch.

The image shows a musical score for three berimbau parts, labeled Bau 1, Bau 2, and Bau 3. Each part is written in a single staff with a treble clef and a key signature of two flats (B-flat and E-flat). The time signature is 5/16. Bau 1 and Bau 2 have a 2:1 tuning (Eb3-Eb4 and Bb2-F4 respectively), while Bau 3 has a 6:1 tuning (G2-D5). The score starts at measure 76. Above the first two staves, there are arrows indicating pitch movement: an upward arrow from a circle to a plus sign, and a downward arrow from a plus sign to a circle. The first two staves have a dynamic marking of *p* and a performance instruction: "2ª vez: cresc. poco a poco". Above the third staff, there is a performance instruction: "baqueta na verga, subindo e descendo". The score ends at measure 11.

Figure 1.11.8. Mateus Oliveira. “Caminhos”

1.12. Berimbau with caxixi

In the traditional context of *capoeira*, the berimbau is never played without caxixi accompaniment. Similarly to other instruments indigenous to Africa, a rattle or buzzing sound is said to represent spirits of their ancestors.

When performing with caxixi, the rattle either reinforces notes played on the wire or performs rhythms of its own. In the following passage from “um só” (figure 1.12.1) the caxixi acts as a solo percussive instrument until the berimbau wire re-enters the texture.

The image shows a musical score for two parts: Bau and caxixi. The score is in 3/4 time and has a key signature of two flats (B-flat and E-flat). The tempo is marked as $\text{♩} = 84$. The score starts at measure 50. The caxixi part is indicated by a box labeled 'D' and consists of a series of rhythmic patterns represented by 'x' marks above the staff. The Bau part is written in a single staff with a treble clef and a dynamic marking of *ff*. The score ends at measure 54. There are triplets in the Bau part at measures 53 and 54.

Figure 1.12.1. Alexis C. Lamb. “um só”

Later in the same piece, both pitched and unpitched material blend to create multiple textural layers alongside the caxixi.

Figure 1.12.2. Alexis C. Lamb. “um só”

1.13. More than one instrument per player

Within a piece of music, as long as ample time is allotted to a performer to make a switch, multiple instruments can be assigned to each player. In “Jigsaw Zither,” David M. Gordon employed nine instruments between six players.

1.14. Berimbau performed with other instruments

In Alexandre Lunsqui's “GLAES,” a frenetic duo with piano, the berimbau functions as a slide guitar, using a small glass jar as a substitute beater to simultaneously stop and percuss the wire (see section 1.16). GLAES asks the both pianist and percussionist to play on the strings inside the piano. In this manner, the berimbau functions as an extension of this tactile approach to piano writing.

Figure 1.14.1. Alexandre Lunsqui. “Glaes”

1.15. False harmonics

False harmonics, yet another technique explored by Naná Vasconcelos, can be achieved by using thumb and finger to pluck the wire at ratio points on the wire, similarly to other stringed instruments. s

27

Bau

Mbira

rit. (to fine only)

pluck with finger

3

3

3

34

Fine

B strike with stick

mf

mf

Figure 1.15.1. Alexis C. Lamb. "Aqui no meu jardim"

1.16. Other implements

Many other implements have been used to produce sound other than the traditional striking of the wire with a stick. A few examples of these are indicated below:

Finger pluck

142 34

The musical score consists of six systems, each for a different Bau instrument:

- Bau 1:** Treble clef, mostly rests. Bass clef has a continuous eighth-note pattern. A bracket under the first three measures is labeled *pp*. The fourth measure has a note with the instruction "pluck with finger".
- Bau 2:** Treble clef, eighth-note pattern. Bass clef, eighth-note pattern.
- Bau 3:** Treble clef, mostly rests. Bass clef, mostly rests with a few notes.
- Bau 4:** Treble clef, mostly rests. Bass clef, mostly rests. A note in the first measure has the instruction "pluck with finger" and a *pp* dynamic below it.
- Bau 5:** Treble clef, mostly rests. Bass clef, mostly rests.
- Bau 6:** Treble clef, mostly rests. Bass clef, triplet eighth-note patterns.

Figure 1.16.1. Alexis C. Lamb. "Apenas seja"

Soft stick

Arcomusical uses a moleskin-wrapped stick. This effect is something akin to a hammered dulcimer stick or a timpani mallet. Placed two inches from the end of the *baqueta*, it is possible to move easily between “soft” and “normal” stick sounds.

The image shows a musical score for two berimbaus. The top part is for Berimbau 1 (3:2, Gb3:Db4) and the bottom part is for Berimbau 2 (2:1, Eb3:Eb4). Both parts are in 3/2 time and feature a melodic line with a 'soft stick' effect. The score includes a '2x' repeat sign and a 'mp' dynamic marking. The Berimbau 1 part has a '5' above the first measure, and the Berimbau 2 part has a '5' above the first measure. The Berimbau 1 part has a '2x' above the first measure and a 'soft stick' above the first measure. The Berimbau 2 part has a 'mp' below the first measure and a 'soft stick' above the first measure. The Berimbau 1 part has a '5' above the first measure and a '2x' above the first measure. The Berimbau 2 part has a '5' above the first measure and a '2x' above the first measure. The Berimbau 1 part has a '5' above the first measure and a '2x' above the first measure. The Berimbau 2 part has a '5' above the first measure and a '2x' above the first measure.

Figure 1.16.2. Gregory Beyer. “Berimbau Duo No. 5: “Alexis””

Drinking glass glissandi

Another example from “GLAES” that demonstrates the playful use of glissandi paired with another instrument. Here the pianist uses a large marble to apply pressure to piano wires while the percussionist uses a small drinking glass to do the same on the berimbau wire.

The image shows a musical score for two parts. The top part is for piano (1) and the bottom part is for berimbau (2). Both parts are in 3/2 time and feature a melodic line with a 'drinking glass glissandi' effect. The score includes a '7' above the first measure, a 'mf' dynamic marking, and a 'simile' marking. The piano part has a '7' above the first measure and a 'mf' below the first measure. The berimbau part has a '7' above the first measure and a 'mf' below the first measure. The piano part has a '7' above the first measure and a 'mf' below the first measure. The berimbau part has a '7' above the first measure and a 'mf' below the first measure.

Figure 1.16.3. Alexandre Lunsqui. “Glaes”

Threaded metal rod (scraped across arame)

This is an incredibly powerful and colorful sound on the wire. However, proceed with caution! Do not use the threaded rod to scrape the side of the gourd or staff. It will cause damage to both.

The image displays a musical score for the technique of scraping a threaded metal rod across a wire. The score is organized into five systems, each labeled "Threaded rod on WIRE".

- The first system shows a rhythmic pattern of eighth notes with a dynamic range from *p* to *f*.
- The second system features a crescendo from *p* to *f* over two measures.
- The third system shows a decrescendo from *ff* over two measures.
- The fourth system features a decrescendo from *ff* over two measures.
- The fifth system is a longer passage with a dynamic range from *pp* to *ff* and back to *pp*.

Each system includes musical notation with notes, rests, and dynamic markings (*p*, *f*, *ff*, *pp*) to indicate the intended sound and volume.

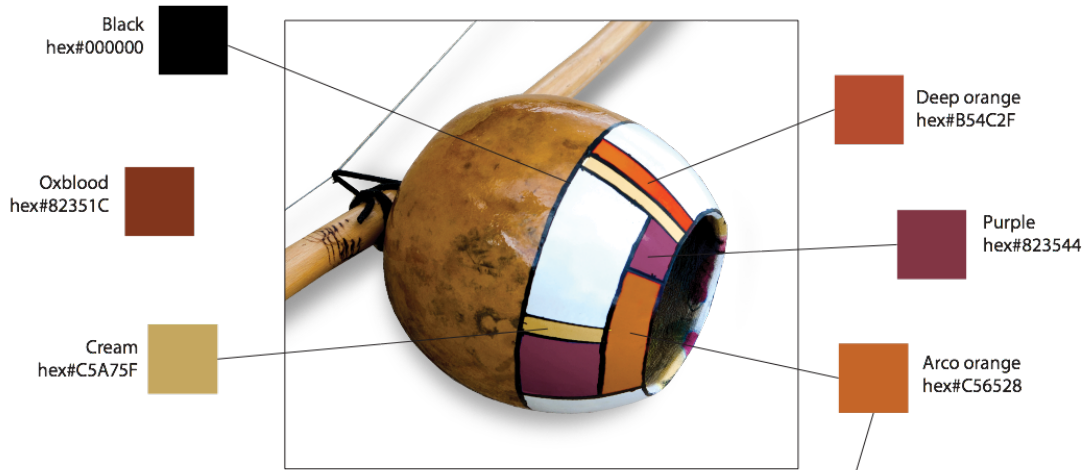
Figure 1.16.4. Alexandre Lunsqui. "Repercussio"

STYLE GUIDE



2. STYLE GUIDE

2.1. Colors



Arcomusical

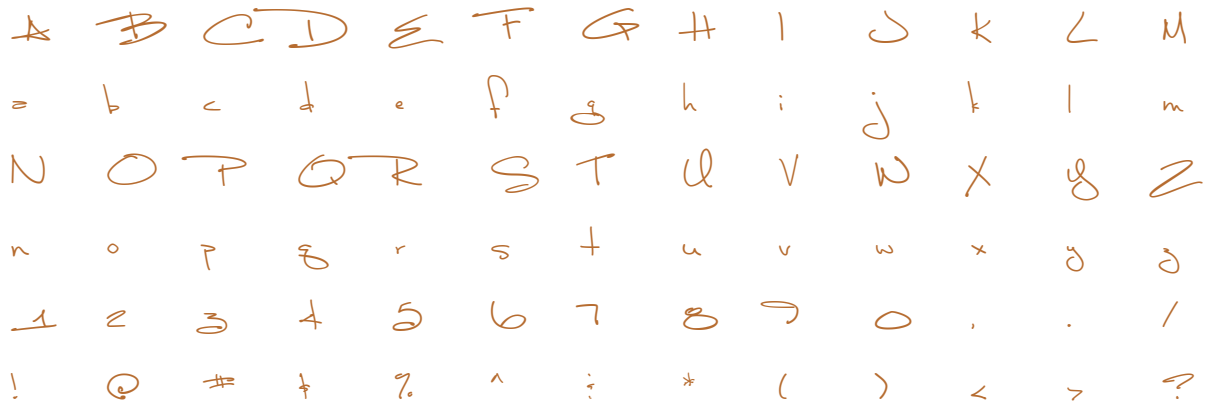
This color palette, developed by our friend Noel Childs (www.noelchilds.com), is the original set of colors that identify Arcomusical. The score covers, for example, use a different color for each size ensemble. Since the release of MeiaMeia, we have added one further color: **olive green**.

A color chart with hex information provides the complete picture:



Color	Hex Code	Uses
Black	#000000	Text
Cream	#C5A75F	Newsletter: Composition elements
Olive	#98996D	Newsletter: Performance elements
Arco Orange	#C56528	Newsletter: Publication elements
Deep Orange	#B64C2F	Newsletter: Research elements
Purple	#823545	Newsletter: Community elements

2.2. Typography: Brand and Score Titles in Print



Arcomusical has selected LUNA BAR as our font for our trademark as well as for the title for scores in print.

LUNA BAR is shareware available at dafont.com.

Arcomusical

(Trademark logo in Luna Bar font, size 60)

2.3. Typography: Print Scores

A B C D E F G H I J K L M
a b c d e f g h i j k l m
N O P Q R S T U V W X Y Z
n o p q r s t u v w x y z
1 2 3 4 5 6 7 8 9 0 , . /
! @ # \$ % ^ & * () < > ?

Arcomusical has selected CENTURY GOTHIC as the font for every other element in our scores. These elements include:

Element	Style (or alt. font if necessary*)
Composer Name (composition year)	plain
Copyright	plain
Dynamics	Maestro
Dynamic Expressions	<i>italics</i>
Measure numbers	<i>italics</i>
Page numbers	plain
Rehearsal Letters	CAPS, BOLD, SQUARE ENCLOSURE
Repeat Text	bold
Staff Names	plain
Engraved Tempo Markings	Engraver Text T*
Text Tempo Markings	plain
Tempo Alterations	<i>bold italics</i>
General Text Expressions	plain
Technique Text Expressions	bold
Score/Part Indication	plain
Title of Work	Luna Bar



2.4. Score and Parts: General Guidelines

Additional general guidelines for creating your score/part template:

Element	Suggestions and Examples
Rehearsal Letters	Where possible, endeavor to keep these over the first bar of a line, rather than in the middle of the page. This helps make the form of the work very clear for performers.
Double Bar Lines	Be conscious of the form and the length of phrase in your work. Use double bar lines copiously to demonstrate phrase construction and musical form.
Full Staff Names	Berimbau 1 5:4 (Ab3:C4)
Abbreviated Staff Names	Bau 1
Repeat numbers	3x
Notation key	Remove all measure numbers. Include full staff names. (see page 34)

2.5. Performance and Program Notes

Please supply Arcomusical with both performance and program notes for inclusion in the score.

Performance notes

Include any helpful advice concerning specific sounds, phrasing, or rehearsal techniques that that you imagine will or already have proven effective for performers as they work on an interpretation. You may wish to consult your performers for input in this category.

Program notes

Include any background you wish potential audiences to know about your piece: e.g. the inspiration(s) for its creation, the compositional method employed, interesting formal considerations or other musical parameters that characterize this particular work.

Performance and Program Notes Examples:

Performance notes:

All vibrato with the cabaça for this piece is left to the musical discretion of the performers. It should be used tastefully throughout.

Player two begins with the shorter wire on top. All others begin in “standard” position, with the longer wire on top. Indications to flip the instrument are strategic and essential. For player five, these can come very quickly and must be choreographed and practiced in time in order to play the part accurately.

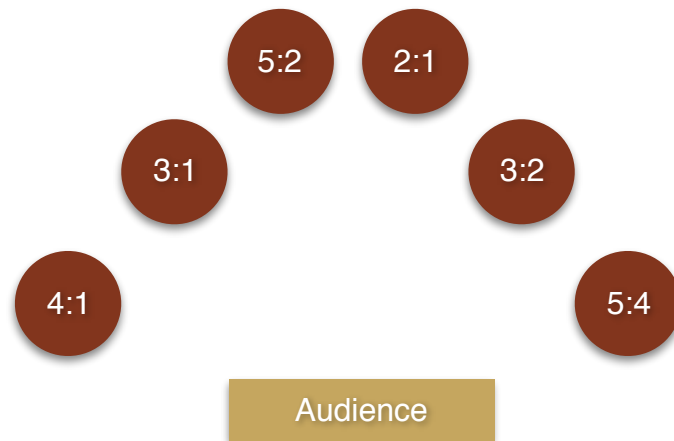
The ideas throughout this piece are inspired by Malian kora playing, specifically that of Toumani Diabate. It is highly recommended that performers become familiar with that sound world in order to best understand and realize the intentions of this sextet. Melodic material is hocketed between nearly all players throughout. The best results come from rehearsing the melodic motives separately at first, then adding the secondary accompaniment layer which is deliberately repetitive.

Program notes:

Some ten years ago an old friend presented me with *New Ancient Strings*, a recording by the master Malian musicians Toumani Diabate and Ballake Sissoko. This recording is an exemplar of music for kora (a harp-like instrument from Mali). When I first heard the music, I became completely entranced and imagined that someday I would be able to provide the berimbau with such music. The experience was similar to the sensation I had when I first heard Pat Metheny playing Steve Reich’s *Electric Counterpoint*. I could literally hear the berimbau inside of that sound world. The central ideas throughout *Berimbau Sextet no. 1* are undeniably inspired by the sound of *New Ancient Strings*, which has been my constant musical companion for the past several months. In a manner of summing up my writing for this cycle that we now call *MeiaMeia*, toward the end of the work I make reference to *Electric Counterpoint*.

Other considerations related to performance notes:

Projeto Arcomusical typically stands in a semi-circle based on the order of tuning ratios from longest to shortest wire. An example is below:



As the ensemble plays trios, quartets, etc., the ensemble makes the semicircle smaller. Duos are played with members performing across from each other. If you would like your composition performed in a different presentation for musical reasons, please explain in the performance notes.

2.6. Notation Key

Due to the common use of both pitched and unpitched sounds, Arcomusical notation keys separate the two elements to clearly demarcate the uniform unpitched notation for every instrument from the specific pitches available on each instrument. This specific pitch information is useful for players because any stopped or coined note has to be tuned and marked on the wire to aid consistency of intonation. If there is a sound you want to achieve on the berimbau and are uncertain how to notate, consult the notation guide and/or contact Arcomusical directly.

Notation Key

The notation key is divided into two main sections. The first section, 'Unpitched Sounds', shows three examples on a single staff: 'coin on staff' (a note with an 'x' on the stem), 'Stick on staff' (a note with an 'x' on the stem), and 'Stick on gourd' (a note with an 'x' on the stem). The second section shows five staves for different berimbau types, each with a label and a ratio: Berimbau 1 (5:4, Ab3:C4), Berimbau 2 (3:2, Gb3:Db4), Berimbau 3 (2:1, Eb3:Eb4), Berimbau 4 (5:2, Db3:F4), and Berimbau 5 (3:1, Cb:Gb). The notes are divided into 'Notes on Longer Wire' and 'Notes on Shorter Wire'.

Unpitched Sounds

coin on staff Stick on staff Stick on gourd

Notes on Longer Wire **Notes on Shorter Wire**

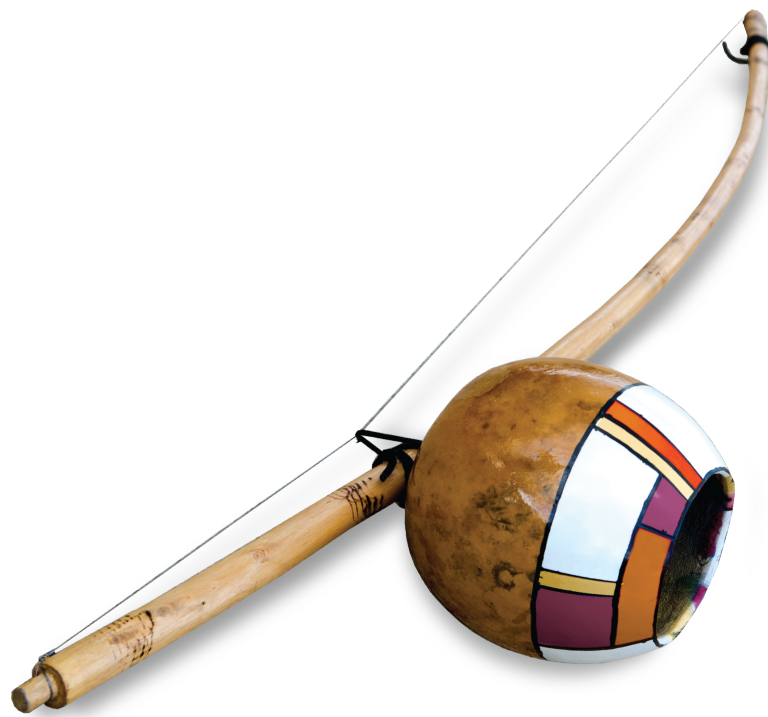
Berimbau 1
5:4 (Ab3:C4)

Berimbau 2
3:2 (Gb3:Db4)

Berimbau 3
2:1 (Eb3:Eb4)

Berimbau 4
5:2 (Db3:F4)

Berimbau 5
3:1 (Cb:Gb)



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