

Short Notes on Strong Beats: Case Studies in African and Afro-Diasporic Meter

Notas curtas em tempos fortes: estudos de caso sobre a métrica africana e afro-diaspórica

Lina Tabak

The Graduate Center, CUNY

Abstract: Many scholars of Sub-Saharan repertoires often cite the ostensible metrical malleability of the music they study, without acknowledging that enculturated listeners usually only understand one metrical orientation to be correct. For instance, in several examples from *Studies in African Music*, A. M. Jones' placements of contrasting barlines appear to be entirely dependent on where long notes fall in each staff: all relatively long durations are notated as falling on strong metrical placements. In this paper, I observe that short note values in certain Sub-Saharan and Afro-Diasporic repertoires seem just as likely to lie on a beat onset as their longer counterparts. This may be a source of metrical confusion to some, as Lerdahl and Jackendoff (1983) claim that listeners tend to hear long durations as carrying metrical strength in what they term "Metrical Preference Rule 5a" (MPR5a). Through a limited corpus study and close analysis of five pieces, in this paper I study the explanatory scope of Lerdahl and Jackendoff's metrical preference rules—and of MPR5a specifically—when applied to Sub-Saharan and Afro-Diasporic vernacular music. Some listeners bring metrical "baggage" in the form of MPRs, which I argue often do not work for establishing the culturally correct metrical structures. Thus, this paper suggests that thinking critically about one's own metrical inclinations allows for a deeper understanding of the conditions under which entrainment to (perhaps unexpected) metrical structures occurs.

Keywords: Meter. Metrical Preference Rules. African Diaspora. African Music.



1. Introduction

British missionary and musicologist Arthur Morris Jones's polymetric transcription of the Nsenga Tribe's "Zani muwone" —reproduced in Ex. 1—is suggestive of Jones's metrical inclinations. It seems that although the sung portion of this Zambian tune is notated in an unchanging 4/4 meter, Jones' placement of barlines in the accompanying step part is entirely dependent on where long note values lie.¹ It is apparent that to Jones, longer quarter notes in the step part of this example must always fall on strong beats, placed directly after the barlines, while eighth notes tend to fall on weaker parts of the measure—even when this contradicts the barlines of the vocal part. If he had not changed the meter in the step part, then many shorter eighth notes would not have fallen weak beats, but rather, on strong ones, while each quarter note would have fallen on a weaker metrical position. The resulting weak metrical placement of the longer quarter-notes would have contradicted a common metrical bias: indeed, to many Western listeners who are used to long notes falling on strong beats, long note values often carry metrical strength.² Jones has been heavily criticized for his changing and polymetric interpretations of songs that are understood to be in regular, single meters by many present-day scholars of African music.³ However, it may be beneficial to ponder why a listener or scholar might be inclined to hear a piece of music in a particular metrical orientation. In doing so, we may learn to be more critical of our own—often subconscious—metrical interpretations.

Indeed, Jones is not alone in hearing metrical multiplicity in African and Afro-Diasporic vernacular genres. Many scholars of these repertoires often cite the ostensible malleability of the music they study, without acknowledging that performers and enculturated listeners usually only understand one particular metrical orientation to be correct. For instance, Martin Scherzinger (2010) claims that the "simplest" mbira tunes from Zimbabwe are "maximally ambiguous"

¹ The steps themselves presumably do not have duration, but rather, the "inter-onset intervals" (London 2012) are long here.

² Although in this paper I will be discussing Lerdahl and Jackendoff's model in particular, other leading scholarship on meter—such as Hasty (1999) and London, Himberg, and Cross (2009)—suggests that to Western listeners, long note values indicate metrical strength.

³ Agawu, Nzewi, Temperley, Locke, and Burns are among those who have criticized these transcriptions.

because Lerdahl and Jackendoff’s metrical preference rules seem to equally encourage hearing several contrasting meters. Also strategically disregarding cultural background, Justin London suggests that the West African “Standard Pattern” timeline engenders entrainment to a non-isochronous meter, rather than the isochronous 12/8 that enculturated listeners and practitioners tend to understand (London 2012, pp. 155–7). Similarly, David Locke, while using 12/8 for all his examples, nevertheless colorfully argues that the Ewe dance Agbadza thrives on “uncertainty, ambiguity, [and] unreconcilable antimony” (Locke 2019, p. 145). Many scholars have criticized these narratives of complexity, insisting that cultural insiders almost always entrain to Sub-Saharan and Afro-Diasporic vernacular music with a single, unchanging, isochronous meter, which in turn enables and facilitates social dancing (Agawu 2006; Burns 2010; Nzewi 1997).

FIG. 4. $\text{♩} = 150$
INTRODUCTION
Zani muwone *Mako Mataliyana. Nsenga Tribe. Dec. 1947*

The figure displays a musical score for the song 'Zani Muwone'. It consists of two systems of notation. The first system is labeled 'Step' and 'Song'. The 'Step' notation is on a five-line staff with a treble clef and a 4/4 time signature, showing a sequence of eighth and sixteenth notes. The 'Song' notation is on a five-line staff with a treble clef and a 4/4 time signature, showing a melody with lyrics underneath. The lyrics are 'Za - ni mu-wo-ne a-nya - ma - ta mchi-fi-la, Za - ni'. The second system shows a continuation of the 'Step' and 'Song' notation, with the lyrics 'Za - ni' underneath. There are some markings above the notes, including '1', '3', and '5', which likely indicate specific rhythmic or melodic features.

Example 1: Zambian song “Zani Muwone,” transcription reproduced from Jones 1959a, p. 265

Thus, rather than arguing for a malleable or ambiguous interpretation of meter in African and Afro-Diasporic repertoires, I argue that assuming a single correct meter—based on dance steps, claps, presence of a timekeeper, or schematic knowledge of the genre—is beneficial for observing perceptual conditions that must be in place for enculturated listeners to understand the meter in one uniform way. In other words, I ask, what musical elements are knowledgeable listeners and dancers entraining to, if any? Are there metrical signals that seem to be irrelevant, that unenculturated listeners may entrain to?

2. Metrical Preference Rules

A Generative Theory of Tonal Music (Lerdahl and Jackendoff 1983) is one of the most influential books which lists metrical signals that listeners of tonal music may understand to be metrically strong. Lerdahl and Jackendoff refer to these signals as “metrical preference rules,” or “MPRs” for short. A list of relevant MPRs can be found in Table 1. Significantly, MPR5a states: “prefer a metrical structure in which a relatively strong beat occurs at the inception of a relatively long pitch-event” (Lerdahl and Jackendoff 1983, p. 84). More simply put, the rule states that in tonal music, long notes tend to fall on strong beats. According to this rule, listeners of tonal music (and, according to Lerdahl and Jackendoff, listeners of all music), will tend to hear long notes as metrically strong. The question of perceptual universality aside, it might be said that since listeners of tonal music are accustomed to hearing long notes on strong beats, these listeners subconsciously understand MPR5a to be very useful for entraining to a metrical structure.

In this paper, I expand on David Temperley’s work (Temperley 2000), where he began studying the explanatory scope of Lerdahl and Jackendoff’s model when applied to Sub-Saharan and Afro-Diasporic repertoires, concluding that MPR2, colloquially referred to as “strong beat early,” was not a particularly useful rule. Specifically, I argue that when listening to Sub-Saharan and Afro-Diasporic vernacular music, MPR5a often does not work for establishing the culturally correct metrical structure. In other words, short note values in Sub-Saharan and Afro-Diasporic repertoires seem just as likely to lie on an educated listener’s perceived strong beat as their longer counterparts.⁴ While this may be a source of metrical confusion to some, it seems that for listeners entrained to the culturally correct conception of the meter, MPR5a must be *weighted* less heavily than others. Indeed, a strong “weighting” of MPR5a may have caused Jones to hear the long inter-onset intervals in “Zani muwone’s” step part as signaling metrical strength, even when that conflicted with the more metrically regular parts in the texture.

⁴ My argument is dependent on postulating listeners familiar and not familiar with the musical idioms at hand. Thus, I will often refer to “knowledgable” and “naïve” listeners. However, this binary is imperfect: no two listeners hear meter in exactly the same way.

The idea of weighting metrical preference rules is not new, as Lerdahl and Jackendoff themselves introduce some metrical preference rules as “weak” or “strong.” In assuming a most stable and culturally consistent interpretation of the meter—as Lerdahl and Jackendoff also do—some metrical preference rules will naturally contradict this correct meter at a lower level. Therefore, although to Scherzinger, the conflict of metrical preference rules automatically signals metrical ambiguity, this is not always necessarily the case, as some are weighted more heavily than others. This nuanced, weighted application of MPRs to a selection of Sub-Saharan and Afro-Diasporic music may help us understand that there is less metrical ambiguity than has previously been suggested.

MPR #	(...) Prefer a metrical structure in which...
2	...the strongest beat in a group appears relatively early in the group.
3	...beats of level L_i that coincide with the inception of pitch-events are strong beats of L_i .
5a	...a relatively strong beat occurs at the inception of (...) a relatively long pitch-event.
5d	...a relatively strong beat occurs at the inception of (...) a relatively long pattern of articulation.
5e	...a relatively strong beat occurs at the inception of (...) a relatively long duration of a pitch in the relevant levels of the time-span reduction.
5f	...a relatively strong beat occurs at the inception of (...) a relatively long duration of a harmony in the relevant levels of the time-span reduction (harmonic rhythm).

Table 1: Select Metrical Preference Rules (Lerdahl and Jackendoff 1983, pp. 74–84)

A tension I would like to address is that of top-down versus bottom-up meter. Using Lerdahl and Jackendoff’s model implies a bottom-up interpretation of meter, where listeners pick out metrical signals such as long notes, harmonic changes, or bass notes from the musical surface and decipher them, in order to entrain to a metrical structure. However, this is certainly not the only way to entrain to a certain meter. Indeed, more commonly, “template matching” occurs (London 2012, pp. 67–70), in which a listener brings particular metrical expectations and applies them to the musical surface. In other words, “template matching” is when a listener is aware of the common metrical placement of a particular schema and entrains to the meter the schema implies almost immediately, even without having picked out metrical signals, or even if metrical

signals actually conflict with that interpretation.⁵ Danuta Mirka posits that these are the two primary ways to entrain to meter, and claims that top-down template-matching is far more common than bottom-up “finding meter.” However, she states that “listeners switch to projection, from template-matching, when in *unfamiliar territory*.” (2021, p. 51, emphasis mine).⁶ As in this paper, I am largely focused on metrical baggage that somewhat unknowledgeable listeners of African and Afro-Diasporic vernacular genres may bring to their listening, I often imply that meter is a bottom-up phenomenon, especially in my annotated examples that take after Lerdahl and Jackendoff’s bottom-up model. However, more familiar listeners may not need metrical signals in the form of MPRs to entrain to the culturally correct conception of the meter: more likely, they know what metrical structures specific schemas fall into from prior exposure to similar music.

In this paper, I first discuss the results of a limited corpus study, where I observe whether MPR5a applies to the repertoire. In other words, I study whether long notes fall on beats or on weaker parts of the metrical structure. Then, I analyze five case studies from disparate African and Afro-diasporic vernacular traditions, to get a detailed look at MPR applicability more generally, and in a wide variety of repertoire. In the examples, the visuals assume a bottom-up approach to meter perception, as they are based on metrical signals in the music, since those MPRs are the focus of this paper. However, in the prose, I also suggest top-down approaches to meter, and the concept of “template matching” is threaded throughout. In the bottom-up, MPR approach, I often offer alternate possibilities for entrainment that an unknowledgeable listener may entrain to, suggesting why some listeners may be tempted to hear things a certain way. However, I always use these networks of hypothetical metrical structures to understand the conditions in which the single, culturally consistent meter can be entrained to.

⁵ For instance, upon hearing clapping at a rock concert, a knowledgeable listener will likely not hear those claps as falling on beats 1 and 3, but rather, on 2 and 4. Thus, even though there are onsets (claps) on particular beats and no metrical signals (no claps) on others, the schematic knowledge that claps fall on 2 and 4 overrules the metrical signals, which would suggest the claps fall on 1 and 3.

⁶ “Projection” here refers to Hasty’s theory, introduced in *Meter and Rhythm*, 1999. However, it is analogous to Lerdahl and Jackendoff’s model in that it is a bottom-up approach to meter.

3. Corpus Study

As a first step to explore how strongly MPR5a applies to the corpus, I analyzed several transcriptions notated by other scholars to determine whether MPR5a was at play at the beat-level. I studied several xylophone pieces from Simha Arom's *African Polyphony and Polyrhythm* (1991, pp. 510–80), as well as A.M. Jones' transcriptions of Ewe fishing songs (Jones 1959b, pp. 8–10) and of "Neo-Folk" music (1959a, pp. 260–73). I chose these pieces because their thin textures simplified the analysis of MPRs. Because of their polymetric nature, some of Jones's transcriptions posed a challenge for determining what the one metrical structure was, and studying Arom's transcriptions also led to somewhat similar issues.

In the examples Jones transcribes, I took the voice parts—which are the focus of his transcriptions—as the basis for application of MPRs. Although Jones' transcriptions of the "Neo-Folk" music are largely in a single meter with all parts aligned, his transcriptions of most of the Ewe fishing songs are polymetric. For instance, the voice part in the "Sprat-Catching" song (1959b, p. 8) alternates frequently between 3/8, 2/4, and 5/8. However, Jones claims that this and the other Ewe fishing songs have a "time background," shown by the imagined standard pattern or similar recurring pattern notated above his transcriptions of the sung parts. It seems that this "time background" implies a regular metrical structure. Agawu (2006) explains that although the standard pattern might be found in different rotations and metrical orientations in different areas of Sub-Saharan Africa, the Ewe people most often use it in 12/8. Therefore, because of the reference to the standard pattern, I assumed that the vocal melodies notated in changing meter are actually in 12/8.

Simha Arom is a French ethnomusicologist who has done extensive field research in the Central African Republic. Although in his transcriptions, he does not notate bars or time signatures as he does not believe the Western notion of metrical accent is applicable to the repertoire he studies, Arom does indicate "pulsations," or beats, with strokes between the staves. As in my corpus study, I was concerned with analyzing MPR5a at the beat-level rather than any higher or lower levels of meter, the "pulsations" he provides were sufficient metrical information to gather results.

Thus, in the examples by Jones, I often took the dotted quarter note as the beat—understood implicitly from his allusion to the standard pattern—while

Arom helpfully provides the culturally correct conception of the beat in his transcriptions. For each of these pieces, after assuming a single beat value, I noted whether MPR5a is at play, sometimes at play, or not at play at those beat levels.

In total, I found that of the 15 pieces in the limited corpus, MPR5a did not work for establishing the beats in 53% of them. Meanwhile, MPR5a clearly worked for unambiguously establishing the correct beats in only two pieces, or 13% of the selected repertoire. The rule sometimes—or irregularly—worked for determining the metrical structure in the 33% remaining. Thus, the results of this corpus study show that short notes fell on strong beats in over half of the repertoire. To look more closely at MPR applicability and weighting in specific pieces, I analyze a few African and Afro-Diasporic vernacular case studies in more depth.

MPR5a:	% of pieces
At play	13%
Sometimes at play	33%
Not at play	53%

Table 2: Results of Corpus Study

4. *Yāfēmálè*

The Central African Republic's *ngbàkè* repertoire features a Sabanga xylophone, the primary functions of which are to provide support for a sung part and to accompany dancing (Arom 1991, p. 527). Arom explains that the Sabanga xylophone is played by one performer holding two mallets. Its keys are not organized from low to high like a piano, but rather, its octave-related pitches are placed directly next to each other. From left to right, the pitches on a Sabanga xylophone are C4, C5, A5, A4, G5, G4, F5, F4, D5, and D4. *Yāfēmálè*—meaning “initiated woman”—is a *ngbàkè* piece that Arom transcribes in his book (excerpted in Ex. 2). Since the xylophone's function is to provide stable support for singing and dancing, the part is cyclic, featuring a six-beat pentatonic pattern that repeats with very slight ornamentation throughout the duration of the song. In addition to showing a simplified score of a cycle from *Yāfēmálè* xylophone part,

the A_4 on beat four that is prolonged for longer than other pitches in this cycle.⁸ Thus, in *Yāfēmálè*, because MPR2 and MPR5e are at play on the downbeat and the half-measure respectively, these may be weighted strongly to knowledgeable listeners. On the other hand, MPR5a—the length MPR—is very weak, as it cannot establish even the quarter-note beat-level.

This relatively simple example shows that even though the 16th-note level has different MPR applicability on almost every pulse, a polymetric interpretation is not necessary nor called for. Just because there are technically contrasting metrical signals—as would be the case with nearly any piece in any repertoire—that does not necessarily mean there are multiple meters that are entrained to simultaneously. Thus, in my analysis, MPRs found at deeper levels with larger note values are weighted more than others in this repertoire, for the simple reason that they are at play in the deeper levels of the presupposed metrical structure that Arom implies in his transcription.

5. *¿Lo Que Suena Qué Será?*

Currulao is the most popular folk genre from the southern Pacific Region of Colombia.⁹ Although originally a religious music melding African traditions with the Catholicism imposed upon black Colombians, *currulao* performance today is just as often secular, often about topics of love, the performer's homeland, or nature. Performances take place in a wide variety of cultural spaces including celebrations, funerals known as *chigualos*, and jam sessions. Since 1997,

⁸ It is difficult to say whether pitch prolongation is possible in *ngbàkè* repertoire, where the underlying pitch structure is not in the same tonal system as the Western common practice that Lerdahl and Jackendoff were theorizing. However, Lerdahl and Jackendoff do list MPR5e as one of the universal MPRs (1983, p. 345). So, for the sake of argument, I assume MPR5e applies to all repertoires. However, more research needs to be done to determine whether prolongation in the sense Lerdahl and Jackendoff mean is possible in music that does not use the common-practice tonal system. Thus far, this has been explored in relation to post-tonal repertoires (Straus 1987), but not as much research has been published regarding non-Western music. Jonathan Stock's 1993 article, "The Application of Schenkerian Analysis to Ethnomusicology: Problems and Possibilities," is concerned with similar questions, but his focus on hierarchical structures does not include an in-depth discussion regarding the question of prolongation outside of classical tonality.

⁹ My knowledge of *currulao* comes largely from personal correspondence and private lessons with my *currulao* instructor, Samir Aldana. However, for a more in-depth survey of the genre both as a musical practice and as a social phenomenon, see Birembaum Quintero (2018).

it has been performed in the yearly Festival Petronio Alvarez, a competition featuring a wide variety of Pacific Colombian genres.

The primary melodic and harmonic instrument in the genre is the *marimba de chonta*. The marimba's bars are made of *chonta* palm, with resonators built from a bamboo called *guadua*. This diatonic instrument is generally played by two performers. One performer stands on the left side of the *marimba de chonta* and plays a two-measure long, low register ostinato called a *bordón*, which alternates between tonic and dominant harmonies every measure. The other performer stands on the right side of the marimba, playing the upper register. This performer is said to be playing the *marimba requinta* part, which is the primary non-vocal melodic line. Whoever plays the *marimba requinta* part in a *currulao* ensemble is often a virtuoso and is the leader of the group. Other instruments in a *currulao* ensemble include two *cununo* drums, two *bombo* bass drums, and a type of rain-stick called a *guasá*. Normally, when there are two of the same type of drum, there is a "male" and "female" role assigned to each. The "male" or "*macho*" of whichever unpitched instrument plays a standard repeating pattern, while the respective "female" or "*hembra*" instrument improvises over that pattern. The vocalists often include one soloist and a chorus of women called *cantadoras*, who sing in a responsorial manner.

Ex. 3 shows a possible metrical interpretation for a *currulao* by Grupo Naidy, titled *¿Lo Que Suena Qué Será?* from the album *Arriba Suena Marimba!* (2006), in which the lead singer and *cantadoras* sing to a little girl, teaching her what the instruments of a *currulao* are. The focus of my analysis will be on the instrumental introduction. The opening begins with the upper register marimba, the *marimba requinta*. In the metrical interpretation shown in Ex. 3, a listener assumes the first note is a downbeat, that the grouping change between the E5 and the G5 would correspond to another beat or downbeat, and that the short notes appropriately fall on the weak second and fifth eighth notes of each 6/8 measure: MPR5a is at play for the *marimba requinta* in this interpretation.

However, when the *cununo macho* enters with his repeating pattern,¹⁰ a listener may have the sense that the meter understood at the beginning no longer works. This might be partially because the *marimba bordón's* lower part entered

¹⁰ Most percussion instruments in *currulao* are traditionally played by men. However, women *cantadoras* do often play the *guasá* while they sing.

on a weak part of the beat, because the harmonies change on offbeats, and because MPR5a informs us that the longer durations in the *cununo macho* part should be on strong beats, rather than weak ones.

The musical score consists of three staves. The top staff is labeled 'Marimba Requinta' and contains four measures of music in 6/8 time, featuring eighth-note patterns. The second staff is labeled 'Marimba Bordón' and contains four measures of rests. The bottom staff is labeled 'Cununo' and contains four measures of music, starting with a measure number '5' above the staff. It features a rhythmic pattern of eighth notes and quarter notes.

Example 3: A possible metrical interpretation of Colombian *currulao*, *¿Lo que suena qué será?* by Grupo Naidy (transcription by the author)

A listener may decide in measure 5 to shift their placement forward by an eighth note from the orientation shown in Ex. 3. This listener would be correct—at least from measure 5 onwards—according to a schematically correct interpretation of this genre. A culturally correct conception of the introduction is shown in Ex. 4. Here, the short sixteenth notes of the opening *marimba requinta* fall on strong beats. Because of their metrical placement, listeners less familiar with *currulao* will have to consciously weight MPR5a less if they want to hear it the same way as musically competent Colombians tend to. Meanwhile, other MPRs may seem to be weighted more in this repertoire: looking at slower rhythmic values in the analysis and the MPRs at play there, it seems that the useful MPRs for this example are MPR5e, where metrical strength is signaled by beginnings of pitch prolongations, and MPR5f, where harmonic changes are metricaly strong.

To note, the rhythmic pattern from measure 2 to the downbeat of measure 4 is one of the most common improvisatory rhythms for the *marimba requinta* in *currulao*. Indeed, Ochoa, Convers, and Hernández's comprehensive book on *currulao* (2014) shows common patterns for every instrument in the genre, with the intention of teaching musicians familiar with Western notation how to play

MPRs which are at play at very fast levels in *Wigue*, but not at slower ones, are only weakly weighted. The analysis shows that MPR5a is not at play on the notated downbeats. Were MPR5a weighted strongly, the sixteenth note “wi” syllable would be interpreted as metrically weaker than the following eighth-note “gue” syllable. Therefore, another MPR might be at play on the downbeats and weighted more heavily than MPR5a. Indeed, the pitch C#4 begins on the first downbeat and is prolonged for five sixteenth notes, so MPR5e is at play at the dotted-quarter beat-level, like in *Yāfēmálè*. Later in the song, singers harmonize with a melody parallel to the one in the introduction. They change their harmonies on my notated downbeats, so MPR5f is weighted heavily at those parallel moments as well.

Se se we we wi-guele i e-i e-i we we wi-guele e se se we we wi-gue le i e-i e

♪ level

♪ level

♪ level

♪ level

Example 5: MPR applicability in introduction to Afro-pop song, *Wigue*, by Dobet Gnahoré (transcription by the author)¹¹

7. *Toro Mata*

Landó is an Afro-Peruvian couples dance potentially derived from the Angolan *Lundú*. Although *landó* was no longer popular by the 20th century, in recent decades it has been elevated by Afro-Peruvian musicians to the point of being considered the source of all other Afro-Peruvian genres (Feldman 2006).

¹¹ This transcription was done by ear without familiarity with the language of the song. Although Dobet Gnahoré often sings in several different languages, the album notes state that this song is onomatopoeic, and does not clarify the underlying language. Thus, all errors in spelling are entirely my own.

While various scholars I have cited argue that meter is usually “mono-metric” in African vernacular genres, the question of metrical malleability and polymeter is slightly different in the African diaspora. As has been argued regarding Afro-Bahian jazz (Díaz 2021), the trope of African rhythmic and metric complexity has been embraced by performers in parts of the African diaspora, where metric complexity is often celebrated as a means for connecting with their heritage.

Similarly, scholars and performers of *landó* often embrace the various options for beat placement inherent in the 12-eighth-note cycles common for the genre. 12/8, 3/2, and 6/4 are all valid options for metrical structure in different *landós*, corresponding to different beat interpretations. In *Black Rhythms of Peru*, whenever Heidi Feldman provides transcriptions of *landós*, she provides multiple possible time signatures. The music itself may indeed be malleable, and Peruvian musicians may agree that it is possible to hear *landós* in different meters. Does this complicate my mono-metric interpretation of music so far? I do not believe it does. Music psychologists argue that at any given time, an individual listener can only entrain to one metrical structure, even if several are possible (London 2012, p. 67). This raises the question, is there one metrical structure that is more correct for a particular song and a particular ensemble?

Toro Mata is a standard Afro-Peruvian *landó* recorded by many performers over the years. The particular recording that I transcribe in Ex. 7 is from the album *Sangre de un Don* (2000), by Perú Negro. A choreography to this song accompanied by Perú Negro shows the dancers stepping to every dotted quarter note, or to the beats of 12/8.¹² Phillips-Silver and Trainor (2008) have run several perceptual studies which concluded that moving to a certain beat will bias a person to entrain to that beat. Other psychologists such as Knoblich and Sebanz (2008) have also noted that seeing someone dance or just tap their foot will affect the watcher’s own entrainment. Because of this, Perú Negro’s dancers and people watching them—including the musicians who work together with those dancers—were probably entrained to the four beats of 12/8. Therefore, even though the music itself may be metrically malleable, I analyzed this particular

¹² At the time of publication, a video of this performance was available at the following link: https://www.youtube.com/watch?v=ctLolNKMJmU&ab_channel=LimaPeru.TV. The dancing begins at 1:28.

before the guitar changes its pattern in measure 6. In other words, one specific way of hearing the introductory guitar riff, aided by the fact that listeners may have also seen dancers move to that meter, becomes the reference meter that a listener and dancer must maintain entrainment to, even when that reference drops out and other metrical signals begin to contrast with it more strongly.

The musical score for Example 7 consists of three staves: Guitar, Cajón, and Voice. The tempo is marked as quarter note = 84. The music is in 12/8 time. The guitar part features a rhythmic riff that changes in measure 6. The cajón part provides a percussive accompaniment. The voice part sings the lyrics 'To-ro ma-ta y to-ro ma - ta to-ro'.

Example 7: The first 8 measures of Peru Negro's *Toro Mata* cover (transcription by the author)

8. *Kuraya-Kuraya*

Ex. 8 shows the beginning of *Kuraya-Kuraya*, a Dagomba children's song from northern Ghana. For this song, I dig deeper into the interpretive possibilities for a listener unfamiliar with the musical idiom, and then contrast this with the singular meter that a more knowledgeable listener might entrain to. So, although in Ex. 8 I provide more than one metrical possibility for the beat-level, my time signature shows that there is one that seems more culturally consistent.

Short Notes on Strong Beats:
Case Studies with African and Afro-Diasporic Meter

♩ = 137 A

Call: Sar-ma-ra-ba Sar-ma-ra-ba Sar-ma-ra-ba Sar-ma-ra-ba Sar-ma-ra-ba Sar-ma-ra-ba Sar-ma-ra-ba Sar

Response: Wei-ah Wei-ah Wei-ah Wei-ah Wei-ah Wei-ah Wei-ah

Timekeeper: 6/8

	♩ level	• • • • • • • • • • etc.
		2 2 2
		3 3 3 3 3 3 3 3
		5a 5a 5a 5a 5a 5a 5a
		5e
Both plausible	♩ level	• • • • • • • • etc.
		2 2 2
		3 3 3 3 3 3
	5a 5a 5a 5a	
	♩ level	• • • • • etc.
		3 3 2 3
		5a 3
	♩ level	• • • etc.
		3 2 3
		3 5a

Example 8: First 19 measures of the Dagomba song, *Kuraya-Kuraya*, with various interpretive possibilities for the beat-level (transcription by the author)¹³

¹³ As in my transcription of *Wigue*, all spelling errors in the transcriptions of *Kuraya-Kuraya* are entirely my own.

The fastest pulse stream, which I transcribe as an eighth-note level, groups into cycles of twelve from the beginning. This is evidenced by parallelism, following either the lead singer's call or the chorus's recurring response. However, from purely observing MPR applicability, no hierarchical levels between the eighth note and the twelve eighth-note cycle are clear in the first twelve measures. In measure 12, the timekeeper becomes audible and establishes a six eighth-note cycle, marking my notated downbeats and clarifying that the hierarchical level faster than the cycle is the dotted half note. These downbeat onsets also clarify that the short eighth notes on odd-numbered measures are indeed metrically strong. Therefore, MPR5a is strongly not at play, as the absolute shortest eighth notes, sung by the lead singer, fall on every odd-numbered downbeat.

Although the hierarchical level below the dotted whole note has been clarified as a dotted half note, the metrical level between the eighth note and the dotted half note might still feel ambiguous to an unfamiliar listener—there could either be three quarter notes or two dotted quarter notes per measure. There is some evidence for both interpretations, though neither seems particularly strong at this point. A first-time listener may entrain to one or the other, but any strong new metrical signal will likely spin entrainment in one direction or another.

It is not until the "B" section that the musical surface clarifies the beat-level to an unenculturated listener. Shown in Ex. 9, lyric parallelism in the words of the title, *Kuraya-Kuraya* encourages an interpretation of the dotted quarter note as the beat, rather than the quarter note. The syllable "ya" falls on what is already known to be a downbeat, so when the syllable is restated three eighth notes later, parallelism tells us that *that* onset should also be metrically strong. Now, the response measures seem more like a hemiola against the newly clarified metrical structure.

Thus, although the smallest and the largest metrical levels are clearly established in the introduction to this song, the measure-level is only established when the timekeeper enters, and the entire metrical grid is clarified only once this B section begins. Perhaps knowledgeable listeners were already cognizant of the entire metrical grid from the very beginning, which would allow listeners to dance along without disruption or confusion. These listeners may weight certain metrical preference rules differently from the very beginning in order to entrain to the correct meter, or, more likely, would just know the song or a similar song

and initially entrain to its correct metrical structure through template matching. Thus, in *Kuraya-Kuraya*, the lack of clarity at the beginning, for an unknowledgeable listener, does not imply that there is no correct metrical structure—all it means is that a listener unfamiliar with the musical idiom does not know how to weight the contrasting metrical signals, until the musical surface helps clarify the correct metrical grid.

The image shows a musical score for the 'B' section of *Kuraya-Kuraya*. It consists of three staves. The top staff is the vocal line in treble clef, with lyrics: 'ma-ra-ba Sar-ma-ra-ba Kur-a-ya ku-ra-ya kur-a-ya ku-ra-ya ku-ra'. The middle staff is the piano accompaniment in treble clef, with lyrics: 'Wei-ah Wei-ah ku-ra den-de ku-ra den-de'. The bottom staff shows a rhythmic notation labeled 'Disambiguated' and 'Both plausible', illustrating two different ways to interpret the rhythm of the piano accompaniment.

Example 9: “B” section of *Kuraya-Kuraya* clarifies the beat-level for unknowledgeable listeners (transcription by the author)

9. Conclusion

In the five examples I have analyzed, short notes fell on strong beats. Therefore, MPR5a does not work for establishing the beats and must be a weakly-weighted metrical signal in the pieces. I have also posited, taking after London and Mirka, that enculturated listeners may template-match in a top-down approach to entrainment, while the bottom-up approach of using metrical signals might not be necessary for listeners who are familiar with stylistic conventions of the genres at hand. That said, are there any metrical signals that do seem to work for providing the culturally correct conception of the meter in many or all of the examples?

In the tonal examples I studied — *¿Lo Que Suena Qué Será?*, *Wigue*, and *Toro Mata*—applicability of MPRs 5e and 5f consistently aligned with the correct metrical structures. This suggests several things. First, that Lerdahl and Jackendoff may have been correct to claim that MPR5f, the harmonic rhythm rule, is the strongest preference rule of the MPR5s (Lerdahl and Jackendoff 1983, p. 84). Second, it suggests that tonality and the metrical strength associated with it has indeed “colonized” a large part of the world’s music, dominating how meter is perceived far outside of Europe (Agawu 2020). *Yāfēmálè* was not tonal in

the same sense, as it did not use functional harmony, though I claim that MPR5e applied to its fourth beat. Further research must be done to study whether pitch prolongation and modal shifts (as opposed to traditionally tonal harmonic shifts) can trigger application of MPR5e and 5f in repertoires that are not functionally tonal.

To close, many listeners, when presented with unfamiliar music, will latch onto any metrical signals they can, which sometimes may or may not work for establishing the correct meter. In the latter case, where it does not work, the listener may find that the meter is dizzying, ambiguous, or changing. I hope to have shown several things in this paper: first, that in the particular Sub-Saharan and Latin American examples I studied, listeners who bring the baggage of MPR5a will likely not entrain easily to the culturally correct conception of the meter, since short notes so often fall on strong beats. Second, I have argued that just because contrasting metrical signals are at play at lower levels of meter, that does not automatically make a piece of music maximally ambiguous. In listening and in entrainment, some metrical signals carry more weight than others depending on the stylistic conventions of the genre at hand. Sometimes, no MPRs may help at all, and only prior familiarity and “template matching” inform a listener’s entrainment. In analyzing meter in pieces of music, assuming a culturally correct conception of the meter allows us to study the conditions under which entrainment occurs and encourages us to be critical of our own metrical inclinations.

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