

## Execution of the Haitian Quintolet and Puerto Rican Elastic Tresillo Type B Rhythms, Syncopation Ratio, and Support of Cross-Rhythms with Misalignment

Evolution can occur with a single event or over a period of time. The recent addition of works from a single country has provided a plethora of compositions with different rhythmic notations that have unique benefits. New digital editions of Haitian music from the SRDMH archive in Montreal have exposed music previously unknown outside Haiti that date back to the first Haitian composers. Their website (<http://www.srdmh.com>) allows free viewing of their catalog and charges by the page. These samples of Haitian and Puerto Rican rhythms help to better understand their execution.

I visited the archive for my dissertation research that analyzed multiple piano solo compositions of the Haitian national dance, the méringue. Last September I was asked to present my dissertation findings in Montreal. My presentations for the online versions of the World Piano Conference in the last two years also discuss my research findings.

2022 – “Performance Practice of Misalignment in Stylized Compositions of the Haitian Méringue”  
<https://www.wpta.info/wpc/14th/>

2023 – “Tresillo-Based Rhythms in Art Music Compositions of the Caribbean and a Quantitative Categorization for Syncopated Rhythms”  
<https://www.wpta.info/wpc/15th/>

My main findings include the categorization of the commonly used cinquillo rhythm, the Haitian quintolet rhythm, and the Puerto Rican elastic tresillo type B rhythm as different transcriptions of the same rhythm that is the tresillo-based five-beat syncopated rhythm. This rhythm represents the subdivided tresillo rhythm. This categorization also helps to explain the execution of the nonliteral quintolet and elastic tresillo type B rhythms. Other findings include the preservation of Afro-centric cross-rhythms with the quintolet and elastic tresillo type B rhythms with misalignment to the duple meter that allow independence between tresillo-based triple and duple rhythms. To compare these and other syncopated rhythms, I also created a quantitative system for categorizing syncopated rhythms called syncopation ratio.

In this document, I will explain the execution of the Haitian quintolet and Puerto Rican elastic tresillo type B rhythms, introduce my quantitative system for categorizing syncopated rhythms that helps to compare the rhythms discussed, and show how these rhythms preserve Afro-centric cross-rhythms with misalignment to the duple meter.

### TRESILLO RHYTHM

The tresillo rhythm represents the fundamental rhythm of the five-beat syncopated rhythm. This rhythm relates as a triplet with a shortened final note and is usually transcribed with a ratio of 332, as shown in Figure 1. Not only Africa but many cultures naturally apply this rhythm to their folk music. Manuel claims this rhythm represents an ongoing cosmopolitan process of interethnic musical

syncretism or a natural evolution of music.<sup>1</sup> So this rhythm represents a more organic triple metric division than even triplets.



Figure 1. Tresillo rhythm.

## HABANERA RHYTHM

The habanera rhythm combines the midpoint of the duple meter to the tresillo rhythm to support both duple and tresillo-based triple meters with fundamental rhythms of each “side.” Figure 2 shows how the habanera rhythm can be split into two separate rhythms of different meters, which share the first note. Jelly Roll Morton, the only self-proclaimed inventor of jazz in New Orleans, said that you had to have the habanera rhythm, or Spanish tinge, to have jazz.<sup>2</sup> Calling it Spanish then also introduces a development from Spanish styles, which also had an African influence as the Spanish fandango directly transferred from the African chica.<sup>3</sup>

A diagram on a dark green background. At the top, it says '▶ Habanera Rhythm' followed by '▶ Consolidated (Common)'. Below this is a musical staff in 2/4 time showing a sequence of notes: a dotted quarter note, an eighth note, and two eighth notes. Below that, it says '▶ Separating Duple and Triple' followed by '▶ 2 Parts' and '▶ Not Practical'. At the bottom, there are two musical staves in 2/4 time. The top staff shows a dotted quarter note followed by two eighth notes. The bottom staff shows a dotted quarter note followed by two eighth notes, with a bracket under the two eighth notes.

Figure 2. Habanera rhythm shown as two separate rhythms.

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<sup>1</sup> Peter Manuel, *Creolizing Contradance in the Caribbean* (Philadelphia: Temple University Press, 2009), 33.

<sup>2</sup> Claudine Michel and Patrick Bellegarde-Smith, *Vodou in Haitian Life and Culture: Invisible Powers* (New York: Palgrave Macmillan, 2006), 121; Ned Sublette, *The world that made New Orleans: from Spanish silver to Congo Square* (Chicago: Lawrence Hill Books, 2008), 252; John Roberts, *The Latin tinge: The Impact of Latin American Music on the United States* (New York: Oxford University Press, 1999), 39.

<sup>3</sup> Julian Gerstin, “Tangled Roots: Kalenda and Other Neo-African Dances in the Circum-Caribbean,” *New West Indian Guide/ Nieuwe West-Indische Gids* LXXVIII/1 (2004), 10; Austerlitz, *Merengue*, viii-ix; Dauphin, *Histoire*, 41.

### 3-2 CLAVE

While the habanera rhythm simultaneously combines the tresillo rhythm with a duple rhythm, the Caribbean 3-2 clave rhythm alternates the tresillo rhythm with a duple rhythm to also create a unit of a two-measure cell. The duple side includes the midpoint and a pickup note that leads into it. The 2-3 clave rhythm reverses the order and places the duple side first.



Figure 3. 3-2 clave rhythm.

### FIVE-BEAT SYNCOPATED RHYTHM

The five-beat syncopated rhythm is formed when the tresillo rhythm is subdivided. This rhythm adds two secondary divisions or embellishments in between each note of the tresillo rhythm, as shown in Figure 4. Transcriptions of this rhythm include the commonly used cinquillo rhythm, the Haitian quintolet rhythm, and the Puerto Rican elastic tresillo type B rhythm, as shown in Figure 5.

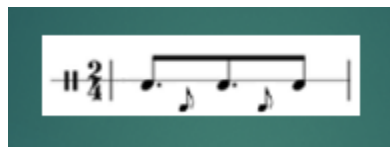





Fig. 4. Subdividing tresillo creates the five-beat syncopated rhythm.

## Notations of the Five-beat Syncopated Rhythm

- ▶ Cinquillo Rhythm
  - ▶ Sharp Syncopation
  - ▶ Commonly used
- ▶ Quintolet Rhythm
  - ▶ Relaxed Syncopation
  - ▶ From Haiti
- ▶ Elastic Tresillo Type B Rhythm
  - ▶ Relaxed Syncopation
  - ▶ From Puerto Rico

FOOTER

Figure 5. Comparing the different transcriptions of the 5BSR.

The cinquillo rhythm represents the traditionally used version of the five-beat syncopated rhythm. This rhythm was used by the first American composer Louis Moreau Gottschalk. It usually appears in an additive form, as shown in Figure 6, but composers also use the divisive form, which indicates the location of the midpoint delineated by the primary metric division.

The elastic tresillo type B rhythm is a divisive rhythm; sometimes when the fourth note is missing composers use a modified version that uses a more accurate eighth note for the final note, as shown in Figure 7. The Haitian quintolet rhythm correlates metrically with the Haitian 5/8 time signature, as shown in Figure 5.

The quintolet and elastic tresillo rhythms differ from the cinquillo rhythm. They do not have a literal execution and have only been used by Caribbean composers. The easiest way to explain their execution is that they evenly subdivide the first two notes of the tresillo rhythm (See Figure 4).



Figure 6. Cinquillo rhythm in different forms.



Figure 7. Elastic tresillo type B rhythm with fourth beat missing.

#### RELAXED VS SHARP SYNCOPATION

We can compare the secondary divisions or syncopations of the cinquillo rhythm with the quintolet and elastic tresillo type B rhythms. The cinquillo rhythm uses short sixteenth notes for its secondary divisions; the quintolet and elastic tresillo type B rhythms evenly divide the first two notes of the tresillo rhythm for longer secondary divisions. We can attribute labels of a sharp syncopation to the cinquillo rhythm and relaxed syncopation to the quintolet and elastic tresillo type B rhythms.

We can therefore compare relaxed and sharp syncopations. With relaxed syncopations the secondary divisions have longer notes that have a wider range of fluctuation with rubato treatment. Practically, the amount of fluctuation is magnified in slower tempos. With sharp syncopations the secondary divisions use short sixteenth notes with a shorter range that discourage fluctuation. We can also apply a quantitative comparison to separate relaxed and sharp syncopations with syncopated rhythms.

#### SYNCOPATION RATIO

We can also quantitatively compare the different transcriptions of the five-beat syncopated rhythm by analyzing the syncopation ratio or the ratio of values of the first two notes, which respectively include a primary and a secondary division. Applying this, the cinquillo rhythm has a 2:1 syncopation ratio, and the quintolet and elastic tresillo type B rhythms have a 1:1 syncopation ratio, as shown in

Figure 8. Here, the 1:1 syncopation ratio correlates with a relaxed syncopation of the tresillo-based five-beat syncopated rhythm; the 2:1 syncopation ratio of this rhythm creates a sharp syncopation.

Generally, the 1:1 syncopation ratio indicates a relaxed syncopation and supports either even or syncopated execution with a greater range of fluctuation, especially in slower tempos. Higher syncopation ratios indicate a sharp syncopation with a shorter secondary division.

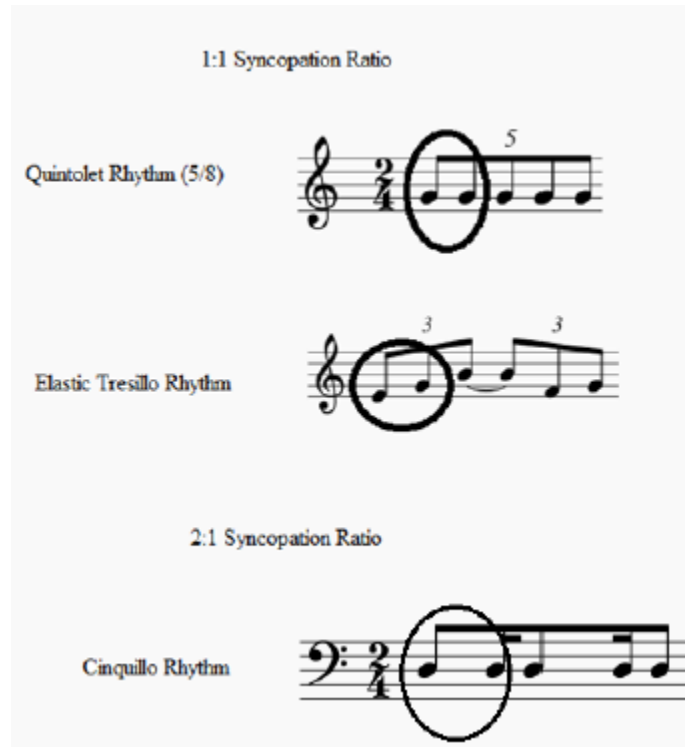


Figure 8. Syncopation ratios of the five-beat syncopated rhythms.

FIX

Caribbean rhythms stylistically fluctuate, due to a concept called “fix” from Michael Spiro, who discovered a fluctuation between 4 and 6 (fix) divisions of Caribbean and South American rhythms.<sup>4</sup> Also applying to the five-beat syncopated rhythm as a subdivided tresillo rhythm, Andrew Acquista’s thesis “Tresillo: A Rhythmic Framework Connecting Different Rhythmic Styles” specifically discussed how the subdivided tresillo rhythm in Caribbean and South American music fluctuated between four and six divisions (fix) that obscured the meter.<sup>5</sup>

Also, based on the “fix” concept, fluctuation of the irregular tresillo rhythm in Caribbean and South American music should be feasible since its subdivision is shown to fluctuate. This issue could use additional opinions. Western music exhibits even division.

<sup>4</sup> Acquista, Andrew. “Tresillo: A Rhythmic Framework Connecting Different Rhythmic Styles.” M.M. Thesis, California State University, 2009, 54, 55.

<sup>5</sup> Ibid., 54.

## WESTERN VS AFRICAN

As a contrasting example with even divisions in Western music, the hemiola of two against three represents a Western combination of evenly divided duple and triple meters. This correlates to the Afro-centric habanera rhythm that combines the irregular tresillo rhythm against two notes from the duple meter, as previously shown in Figure 2.

As a side note to teach hemiola performance practice, since the hemiola has even divisions of two against three, if one analyzes this interaction with a division of six, using the least common multiple, all notes synchronize to this division, as shown in Figure 9.

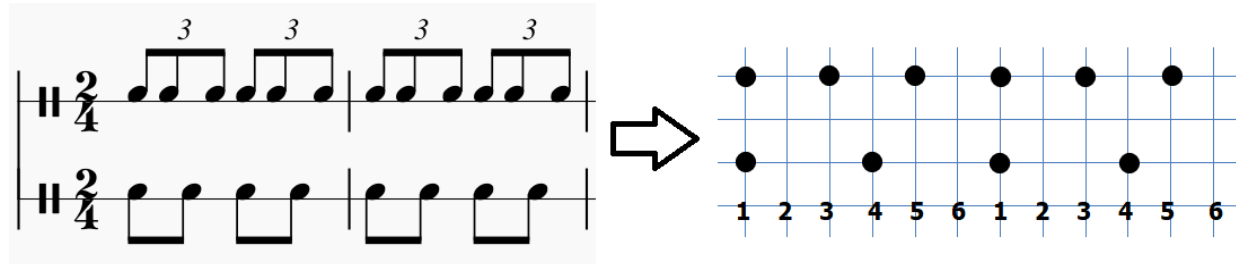


Figure 9. Hemiola synchronizes with a division of 6.

## APPLIED TO THE SWING RHYTHM

As another example of an application of syncopation ratio to a syncopated rhythm, we can compare the different transcriptions of the swing rhythm. Based on Figure 10, the different transcriptions of the swing rhythm from left to right include: 1:1, 2:1, and 3:1.



Figure 10. Different versions of the swing rhythm.

The 1:1 syncopation ratio literally notates even eighth notes that can either be executed as even eighth notes or as the swing rhythm. Jazz charts commonly use this ratio for the swing rhythm with indication of use of the swing rhythm. The 2:1 syncopation ratio indicates a middle ground with the most accurate transcription of the swing rhythm. The 3:1 syncopation ratio indicates a sharp syncopation with a short sixteenth note for the secondary division.

For comparison, with the five-beat syncopated rhythm the cinquillo rhythm also uses sixteenth notes for its secondary divisions but only has a 2:1 syncopation ratio. As seen with the swing rhythm, the 1:1 syncopation ratio delineates a relaxed syncopation with equal values between primary and secondary divisions. The 2:1 syncopation ratio causes a sharp syncopation with a short secondary division with the commonly used cinquillo rhythm. The benefit of the relaxed 1:1 syncopation ratio includes more freedom for the secondary divisions with a greater range to place the secondary divisions.

Table 1 displays the syncopation ratios of the five-beat syncopated rhythm, the swing rhythm, and the amphibrach rhythm, which relates as the habanera rhythm with an additional subdivision of the first note. The amphibrach rhythm with a 1:1 syncopation ratio is called the elastic tresillo type A rhythm.

# Syncopation Spectrum of 5BSR, Swing, and Amphibrach



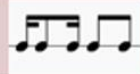

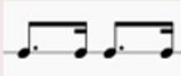


	Sharp		Relaxed
	(Ratio of first two notes)		
	3:1	2:1	1:1
Five-beat Syncopated Rhythm			
Amphibrach Rhythm			
Swing Rhythm			

Table 1. Applying syncopation ratio to different syncopated rhythms.


## PRESERVATION OF CROSS-RHYTHMS

Regarding the five-beat syncopated rhythm, another aspect of the quintolet and elastic tresillo type B rhythms is that they preserve cross-rhythms to allow tresillo-based triple rhythms to keep independence from duple rhythms. With misalignment to the duple meter, the quintolet and elastic tresillo type B rhythms avoid synchronization against duple rhythms to preserve cross-rhythms, as shown in Figure 11.

Afro-centric musical styles combine independent duple and triple divisions to create musical tension, so compositions from Afro-centric genres that use the cinquillo rhythm will lose cross-rhythms and independence between parts due to this synchronization to the duple meter. Ideally, against a duple rhythm, the tresillo-based five-beat syncopated rhythm should only synchronize the first note to reinforce the pulse of the measure.

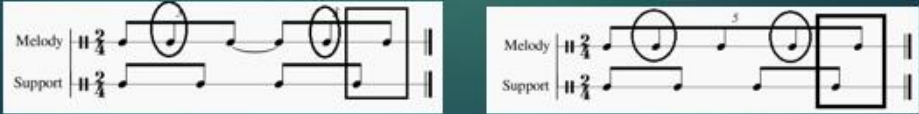
# Cross-Rhythms

- ▶ Cinquillo Rhythm
  - ▶ Typical rhythm - Synchronizes to Duple Meter



Musical notation for Cinquillo Rhythm: A staff with two parts, 'Melody' and 'Support', both in 2/4 time. The melody consists of five eighth notes, and the support consists of four eighth notes. The notes are grouped into pairs with circles, showing synchronization with the duple meter.

- ▶ Quintolet and Elastic Tresillo Rhythms
  - ▶ Supports with MISALIGNMENT TO THE DUPLER METER
  - ▶ Final Note – Seems to favor synchronization



Musical notation for Quintolet and Elastic Tresillo Rhythms: Two examples of musical notation in 2/4 time. The first example shows a melody with a quintolet (five eighth notes) and a support with four eighth notes. The second example shows a melody with a quintolet and a support with four eighth notes, with a final note marked with a '5' indicating synchronization.

Figure 11. Misalignment supports Afro-centric cross-rhythms.

## 332 TRESILLO VS. 221 TRESILLO

As a more fundamental aspect regarding cross-rhythms, compositions that use the fundamental tresillo rhythm commonly use the 332 version, as shown initially with Figure 1, that does not preserve cross-rhythms. Both the habanera and cinquillo rhythms apply this form of the tresillo rhythm. The problem with this commonly used rhythm is that this fundamental rhythm of the tresillo-based meter is defined by sixteenth notes of the duple meter (3 16th's + 3 16th's + 2 16th's) to cause synchronization against the duple meter.

On the other hand, the 221 tresillo rhythm, which is derived from the quintolet rhythm, preserves cross-rhythms with misalignment against the duple meter. Figure 12 shows an excerpt from Occide Jeanty, who invented the quintolet rhythm, where the 221 tresillo rhythm is placed against a duple rhythm to allow the second and third notes of the tresillo rhythm to misalign. Figure 12 also shows a conversion to the 332 tresillo rhythm to show how the 332 tresillo rhythm used in the cinquillo rhythm loses cross-rhythms. In my opinion the second note of the tresillo rhythm should favor to misalign; the third note should favor to synchronize to reinforce the pickup into the next measure.



# Misaligning 221 Tresillo

*Jeanty Les Masques* (1897), m. 28, 29

- ▶ Co-Inventor of Haitian Quintolet Rhythm
- ▶ 221 Tresillo – preserves Cross-Rhythms
- ▶ 332 Tresillo – synchronizes to Duple Meter
- ▶ Only pulse or 1<sup>st</sup> beat is Synchronized



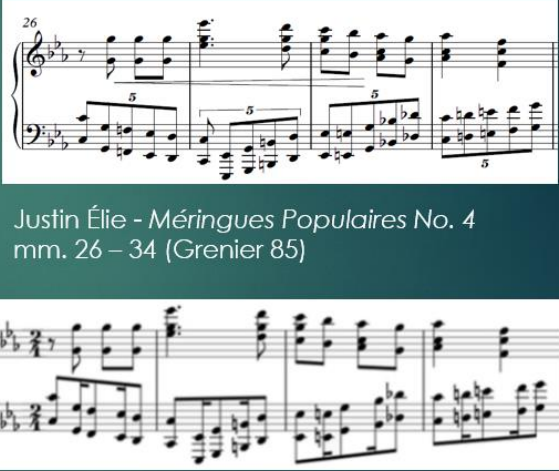
The image shows two musical staves. The top staff, labeled 'Original', shows a piano accompaniment in 2/4 time. The right hand plays a quintolet rhythm (a group of five eighth notes) starting on the first beat. The left hand plays a 221 tresillo rhythm (two eighth notes, a quarter note, eighth note, eighth note, quarter note). The bottom staff, labeled 'Converted to 332 tresillo', shows the same music converted to a 332 tresillo rhythm. In this version, the quintolet rhythm is converted to a duple meter (two groups of two eighth notes followed by a quarter note), which is synchronized with the duple meter of the piano accompaniment.

Figure 12. 221 Tresillo derived from quintolet rhythm misaligns to the duple meter to preserve cross-rhythms.

Similarly, examples from Haitian composer Justin Élie in Figures 13 and 14 display a preservation of cross-rhythms with the quintolet rhythm. Figure 13 shows use of the quintolet rhythm against a duple rhythm with a cinquillo conversion to show how cross-rhythms would be lost. Figure 14 also displays the quintolet rhythm against a duple rhythm. Also in this example Élie uses a combined time signature of 2/4 5/8 to support both sides. Technically, the Haitian 5/8 meter (metric equivalent of the quintolet rhythm) does not support duple rhythms.

# Comparison with Repertoire

- ▶ Quintolet
  - ▶ Allows Cross-Rhythms against Duple Meter
- ▶ Conversion to Cinquillo Rhythm
  - ▶ Synchronizes to the duple meter
  - ▶ Removes cross-rhythms



Justin Élie - *Méringues Populaires No. 4*  
mm. 26 – 34 (Grenier 85)

Cinquillo Conversion

Figure 13. Example of preserved cross-rhythms vs. lost cross-rhythms with the cinquillo rhythm.

80

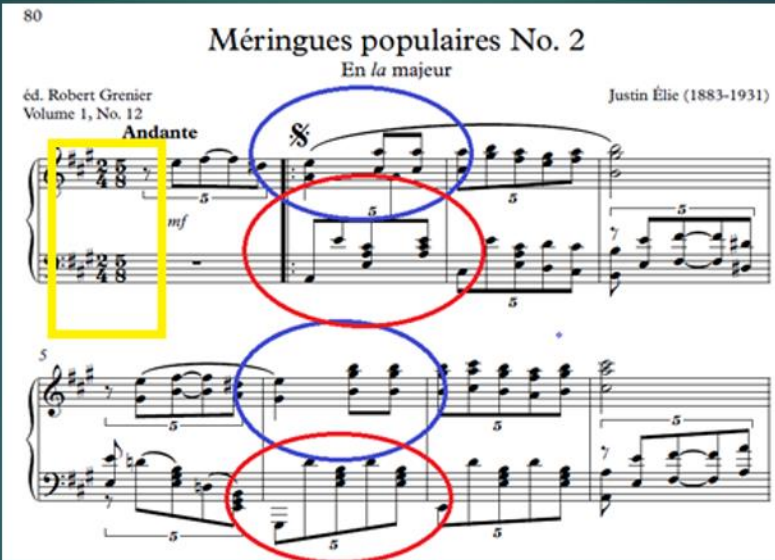
## Méringues populaires No. 2

En la majeur

éd. Robert Grenier  
Volume 1, No. 12

Justin Élie (1883-1931)

**Andante**



*mf*

5

Figure 14. Preserved cross-rhythms with quintolet rhythm and combined 2/4 5/8 time signature.

## DEBATE – SYNC FINAL

It is debatable whether the final note of the tresillo rhythm should favor to synchronize against the duple meter. As mentioned with Figure 12, it seems that tresillo notes two and three, which equate to five-beat syncopated rhythm notes three and five, display different tendencies. In my opinion, the second note of the tresillo rhythm should favor to misalign against the duple meter to preserve cross-rhythms but also have the option to synchronize; the final note of the tresillo rhythm should favor to align against the duple meter to reinforce the pickup note into the next measure but also have the option to misalign. Figures 12, 13, and 14 provide examples of the 221 tresillo rhythm against a duple rhythm though only Figure 12 shows an interaction with the second note of the tresillo rhythm.

A concept from Kofi Agawu about body and speech rhythms helps to distinguish the effect of misaligning to synchronizing.<sup>6</sup> Body rhythms are steady and reinforce bodily movement; speech rhythms have freedom to express like the human voice. So synchronizing reinforces the body rhythm to strengthen the harmony and supporting rhythms; misaligning allows emphasis of the melody and allows the speech rhythm to be more free. Misaligning rhythms support both synchronizing and misalignment of parts.

## CONCLUSION

The music theory behind these Caribbean rhythms only has minimal writings. The addition of Haitian compositions by the SRDMH archive that were previously unknown outside Haiti has provided many samples of the quintolet rhythm and the elastic tresillo rhythm to provide knowledge about their unique benefits. With misalignment to the duple meter these rhythms preserve cross-rhythms to allow parts to have independence to create an interaction not seen before with Western notation that traditionally used the cinquillo rhythm for the five-beat syncopated rhythm. Perhaps this may lead to new compositions that can preserve cross-rhythms to keep duple and triple parts truly independent.

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<sup>6</sup> Kofi Agawu, *The African Imagination in Music* (New York: Oxford University Press, 2016), 162.