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Revisiting Polymeter: "Veneno Rítmico" and Colombian *Currulao*[*]

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ABSTRACT: Several musicians and scholars have observed that the Afro-Colombian genre *currulao* frequently uses a highly syncopated rhythmic pattern, which, when presented in isolation, may cause some listeners to entrain to a stylistically unconventional meter. By contrast, expert musicians tend to entrain to the conventional meter with ease, despite there being no onsets which align with its beats. For listeners who possess some familiarity with the genre's conventions—though not to the extent of performing musicians—the pattern, often referred to as the "rhythmic venom" (*veneno rítmico*) of the genre, may induce rapid switching between conventional and unconventional metric interpretations. The potential rapid switching implies that this pattern is a multi-stable stimulus, despite its onsets aligning with beats of only one of the two interpretations.

In this article, I expand upon James Sullivan's claim (2023) that humans can rapidly switch between metric interpretations, contending that this phenomenon is closely related to Ève Poudrier's concept of a "balanced polymeter" (2008). Further, I argue that such rapid switching is, functionally, equivalent to polymetric perception. I then offer a theoretical extension to Sullivan's application of the parallel multiple-analysis processor (Jackendoff 1991, Mirka 2009), and to the theory of metrical projection as a whole (Hasty 1997), arguing that beats of potential meters need not align with onsets in the musical surface. Implicit meters—exclusively in the minds of enculturated listeners and not implied by onsets—can exist in a polymetric tension with sounding pulse streams in the music.

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Introduction

[0.1] The audio of **Example 1** features a transition to a contrasting section in "Adiós Morena" from Rio Mira's *Marimba del Pacífico* (2017). This song is a modern example of an Afro-Colombian folk genre called *currulao*. In this contrasting section, all percussion instruments in the ensemble drop out, leaving the vocalists to continue their repeated patterns alone. Although the vocalists had been

singing similar patterns before the percussionists stopped playing, in this thinner setting a listener's metric feeling might change drastically, though seamlessly.(1)

[0.2] On the one hand, in a more conservative hearing—in which a listener maintains entrainment to a meter for as long as possible through significant surface-level contradictions (shown in the top system of Example 1)—there are no onsets on any downbeats for nine measures (thirteen seconds).(2) On the other hand, a radical listener who is more easily swayed by the musical surface (the second system of Example 1) may perceive a metric change: as the percussion stops emphasizing the downbeats, the perceived beat placements shift slightly and the beat subdivision changes from compound to simple, resulting in an interpretation with very little syncopation.(3) Does the seamlessness of this perceived shift imply that the other meter was always there, hovering in the background the entire time, waiting for an opportunity to strike the listener? Can a listener continuously switch between all the potential meters (Example 1's "Polymetric Hearing")? What is the status of the alternative meters?

[0.3] There are few topics in meter analysis, particularly when concerned with African and Afro-diasporic repertoires, as contentious as that of polymeter—the presence or perception of two or more meters simultaneously. The heated debate has implicated factors as wide-ranging as human cognitive limits (London 2012), racial essentialism (Agawu 2003), and of course, musical structure (Poudrier 2008). The debate over the existence of polymeter may in part be due to the varied ways in which scholars have defined it.(4) While Ève Poudrier (2008, v) considers polymeter to be a primarily structural phenomenon, Justin London (2012) argues that if it exists, it must necessarily be perceivable (as all "meters" necessarily are). Still others, such as Kofi Agawu (2003, 79–86), maintain that if enculturated listeners of a style do not consider that style to be polymetric—but rather, perceive the music as strictly "monometric" even in the presence of metrically malleable rhythms(5)—then it is an unethical imposition to describe the genre as polymetric.

[0.4] While I cannot hope to do justice to all these strands of thought here, *currulao* serves as an interesting case study for the study of polymeter, as it allows for a dialogue between several viewpoints on the subject. While *currulao* frequently uses contrasting and non-nesting pulse streams and may be considered structurally polymetric, there is one conventional meter ($\frac{6}{8}$) which expert, performing musicians always feel. Simultaneously, however, many *currulao* musicians acknowledge the genre's several potential metric interpretations, recognizing that less-experienced listeners may feel a highly syncopated rhythm's onsets (the vocalists' rhythm in Example 1's conservative hearing) as aligning with metrically strong positions.

[0.5] In this article I suggest that listeners (and specifically for *currulao*, non-expert listeners) may very rapidly shift between two or more metric interpretations of the same music, and I take this phenomenon to be as close as one can get to "polymetric perception." This view is influenced by James Sullivan's claim (2023, [6.1–6.6]) that rapid fluctuations between metric interpretations arise from a *parallel multiple-analysis processor* (Jackendoff 1991)—a concept which will be more fully explained in Section 2. Like Sullivan, I use Danuta Mirka's "dynamic model for meter" (2009), itself partially an adaption of Christopher Hasty's theory of projection (1997), to suggest that different pulse-streams on the musical surface may allow for a rapid switching back and forth between multistable metric interpretations.

[0.6] My main theoretical argument concerns the role of onsets in projecting one or multiple meters. The theoretical bases of projection (as described by Hasty) and of the parallel multiple-analysis processor (explained by Jackendoff, Mirka, and Sullivan) depend primarily on onsets to establish the beginnings of metric projections. Onsets function in this way in the radical hearing of Example 1, in which listeners match perceived downbeats to vocal onsets. However, for listeners intimately familiar with *currulao*—who have formed mental metric templates for its rhythmic patterns—the parallel multiple-analysis processor matches the vocal pattern to a metric template (London 2012, 69). When hearing Example 1, these enculturated listeners would know to infer a downbeat not coinciding with the vocal patterns' onsets, but in the empty space slightly before the onsets instead. Therefore, I ultimately argue that projection's dependence on onsets-as-beginning is insufficient as

a model for meter finding (and, in Example 1's case, for keeping it going). Here, musical expertise outweighs any requirements for onsets to establish and align with the beats.(6)

[0.7] In addition to the two listening types mentioned above (roughly aligning with the conservative and radical listeners of Example 1),(7) there are listeners who possess some familiarity with the genre's conventions—though not to the extent of performing musicians—and for whom the pattern may induce rapid switching between conventional and unconventional metric interpretations. Consequently, polymetric perception not only occurs when listeners rapidly switch between two or more meters whose beats align with onsets, as I suggested above, but can also occur when certain listeners rapidly switch between one metric framework whose beats are established by onsets, and another, imposed meter, whose beats are not. This hearing is suggested in the repeating section of Example 1's "Polymetric Hearing," in which $\frac{2}{2}$ is implied by onsets, while a continuation of $\frac{6}{8}$ is simultaneously maintained without any onsets aligning with its beats.

[0.8] Overall, the contributions of the article are twofold. First, it introduces *currulao* to an audience of American music theorists, where existing scholarship on the genre has come from ethnomusicologists and Colombian musicologists. Second, it begins a dialogue between several strands of research on meter: the analysis of polymetric structures by Poudrier; some cognitive aspects of metric perception by Jackendoff, Mirka, and Sullivan; and theoretical perspectives on African and Afro-Diasporic rhythmic practices by Agawu, Alejandro Martínez Carvajal, and others. Overall, this article provides further evidence for how stylistic expertise can affect metric perception—I find that emphasizing such top-down cognition is vital when studying meter, and that it is generally underdiscussed. By positioning *currulao* as a case study, this article not only expands the repertoires studied in music theory, but also offers a synthesis and expansion of these various branches of meter scholarship.

[0.9] This article is organized into three sections. The first is an introduction to *currulao*, and will discuss context, instrumentation, form, and the common, highly syncopated rhythmic pattern known in some circles as *dosillo* or *veneno rítmico* ("rhythmic venom"), including how some *currulao* musicians describe this rhythm as implying a non-conventional meter. The second section is methodological, discussing theories of polymetric structure and perception, and bringing them into dialogue with scholars who study metric perception and the parallel multiple-analysis processor. At the end of this section, I argue that despite general agreement by scholars of polymeter and theorists who use projection as a methodology, onsets are insufficient as the basis for metric perception when listeners or musicians have practiced and internalized another meter, whose beats do not align with onsets. The final, third section is analytical, discussing three *currulao* recordings—"Adiós Guapi" by Grupo Naidy, "Adiós Morena" by Rio Mira, and "Mirando" by Grupo Naidy—whose polymetric structures may have differing effects on non-expert listeners.

1. Currulao

Introduction to *Currulao*

[1.1] *Currulao* is perhaps the most distinctive genre from the southern Pacific region of Colombia (departments of Valle del Cauca, Cauca, and Nariño) and from the northwest of Ecuador (the province of Esmeraldas). According to Alejandro Martínez Carvajal (2005, 58), the term *currulao* has three implications: it is not only a groove, but it is also a dance and a social event.

[1.2] To Juan Sebastián Ochoa, Leonor Convers, and Oscar Hernández, the secular social event in which *currulao* traditionally occurred was a "party in every sense of the word" (*una fiesta en todo el sentido de la palabra*), with music-making, dancing, and drinking sometimes lasting seven days and nights, following a religious musical celebration called an *arrullo* (Ochoa 2014/i, 56). While these long, rural parties were the most common setting for *currulao* performances several decades ago, the settings in which the *currulao* genre is performed—and the meaning the genre holds for Pacific-Colombian society—have changed significantly through its history, as is detailed in Michael Birenbaum Quintero's "historical ethnography," *Rites, Rights and Rhythms: A Genealogy of Musical Meaning in Colombia's Black Pacific* (2018). Nowadays, *currulao* gets the most national and global

attention during the Festival Petronio Álvarez, an annual festival that has taken place in the city of Cali, Colombia each August since 1997, that celebrates Afro-Diasporic cultural traditions from the country's Pacific Region.

[1.3] Musically, *currulao* is a polyphonic and polyrhythmic genre with clear African influences. Although it is not traditionally notated, it is conventionally perceived in a compound duple meter, and thus scholars tend to transcribe it in $\frac{6}{8}$. Further—as scholars of other African and Afro-Diasporic genres have written—observing basic dance steps can help illuminate the meter entrained to by participants (Agawu 2003, 73), and the partnered dancers of *currulao* usually step on the commonly-transcribed beats of $\frac{6}{8}$.(8) In fact, the Festival Petronio Álvarez involves a music competition, in which traditional ensembles are explicitly required to play two songs in $\frac{6}{8}$; playing a *currulao* is a standard choice for at least one of these.

Instruments

[1.4] *Currulao* is characterized by vocalists, several unpitched percussion instruments, and—most essentially—by a marimba called a *marimba de chonta*. The vocalists generally include one usually male soloist called a *glosador* (who simultaneously plays one of the percussion instruments) and a chorus of women called *cantaoras*. The unpitched instruments often include two *cununos*, two larger *bombos*, and a type of rain-stick called a *guasá*, which is played by the *cantaoras*. The simplest basic patterns played by the unpitched percussionists are heard and transcribed in **Example 2**, with some onomatopoetic devices commonly used to teach them.(9) Each performer of the same type of drum has a different role. *Cununos* are drums with deerskin heads, tightened with a wedge-and-ring tension system and played with the hands (Birenbaum Quintero 2018, 39). The *cununo macho* (male) is generally slightly larger than the *cununo hembra* (female) and generally repeats its pattern throughout the duration of a *currulao*. Meanwhile, the higher-pitched *cununo hembra* frequently improvises, functioning as the lead drummer of the ensemble. The *bombos* are bass drums. They are also made with deerskin heads, but are tuned by loosening and tightening the strings that hold the head (Birenbaum Quintero 2018, 39). These are played with two drumsticks—one for the drum head and another to strike the wooden side of the drum. Like the pair of *cununos*, there are two types of *bombos*: the *bombo golpeador* is tuned lower than the *bombo arrullador* and thus serves to ground the unpitched ensemble. Its open strike on the fifth eighth note of the measure is particularly essential to the genre's feel. While Example 2 shows the basic patterns of these unpitched instruments, during *currulao* performance all of them are in a constant dialogue with one another and with the other musicians, and thus often improvise around these and other more complex patterns.(10)

[1.5] The primary melodic and harmonic instrument in *currulao* is the *marimba de chonta*, so called because its bars are made of *chonta* palm; its resonators are built from a bamboo called *guadua*. This instrument is traditionally diatonic, although chromatic *marimbas de chonta* have recently increased in popularity.(11) While the newer, chromatic marimbas are invariably tuned to twelve-tone equal temperament, the tuning of the diatonic ones is more variable: Carlos Miñana Blasco (2010) has found that many older marimbas are tuned equi-heptatonically, meaning that the seven notes are about equally spaced apart within an octave. Another noteworthy feature of the *marimba de chonta* is its timbre: Birenbaum Quintero notes that it produces "a dense timbral tone color," whose prominent overtones often "effectively replace the fundamental" (2018, 41).

[1.6] The *marimba de chonta* can be played by two performers. One (optional) 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 each measure, such as those transcribed in staff and cyclic notation in **Example 3** and **Example 4** respectively.(12) The cyclic notation provides an alternate representation from staff transcription, while highlighting the harmonic, geometric, and cyclic aspects of the rhythmic patterns.(13) The second marimba player performs in the upper register, called *requinta*, switching back and forth between *revueltas*—improvisations (during the introduction and instrumental interludes)—and performing a repeated pattern called a *base* (during sung portions of the form).(14) Sometimes, a single performer will play

both parts at the same time. After a short section on form in *currulao*, I will discuss one particular *requinta* pattern, a pattern whose effects are the focus of this article.

Form

[1.7] *Currulao* structure tends to have three parts, shown in the form chart of **Example 5**.(15) In the "Instruments" sections of this chart, gray cells represent an instrument or group of instruments that is playing, while white cells mean that instrument is tacet. Initially, there is an introduction, which may optionally begin with unaccompanied singers who introduce the repeating "hook" of the song. If the song does not contain a vocal introduction, it will begin with unaccompanied marimba—the *requinta* first improvises before landing on a *base* at the end of the introduction. During the *requinta*'s improvisations, the unpitched percussionists begin playing (signaling for dancing to begin as well). Following their entrance, neither unpitched percussionists nor dancers stop until the song is over.

[1.8] What I call the A section begins when the vocalists enter. This section features call-and-response phrases between the *glosador* and the *cantaoras*. The calls are referred to as *glosadas*, although if they are non-lexical, they may also be called *chureos* (Martínez Carvajal 2005, 184). The response is typically the end-accented hook, landing on a sustained dyad ($\hat{1}$ and $\hat{3}$ over a tonic triad). Following one call-response pair, the *requintero* will have a short interlude with improvisatory lines (*revueltas*). This three-part A section (call, response, marimba interlude) repeats at least two times before moving onto the B section.

[1.9] The B section is the climactic and polyphonic final section, nicknamed when "the hand warms up" (*se calienta la mano*, or *se arrulla la mano*) (Martínez Carvajal 2005, 185). In it, the tempo gradually increases, the percussionists play with increased density and in a more improvisatory manner, the *cantaoras* begin repeating the hook continuously (causing the phrase rhythm to speed up), while the *glosador* improvises over the thicker texture (usually in a higher vocal register than in the previous section). Since the 1990s, it has been common for the B section to contain a *requinta* improvisation within it, used to lengthen the song (Ochoa 2014/i, 95).

Veneno Rítmico

[1.10] **Example 6** shows one rhythmic pattern that *requinta* players both frequently improvise around and often use as a *base*. Regarding this rhythmic pattern and its variations, Ochoa, Convers, and Hernández write:

> On some occasions the master Gualajo and his brother Gerano perform this figure on the marimba continuously, establishing a rhythmic ostinato of great performative complexity. When presented in this continuous manner, it produces a sensation of juxtaposition of a binary beat subdivision, slightly displaced from the downbeat. For this reason, many musicians tend to call this schema *dosillo* [duple]: a rhythmic figure that marks a binary subdivision within a compound context.(16) (Ochoa 2014/i, 93)

[1.11] As Ochoa et al. imply, it is not only scholars and musical outsiders who find *dosillo* to be a complex rhythmic pattern. In a pedagogical video on the genre, Hugo Candelario—perhaps the most celebrated *marimba de chonta* player alive—colorfully describes it as the "rhythmic venom of this genre" (*el veneno rítmico de este estilo*) (2021, 37:54). The "venom" Candelario and other musicians speak of is a description given to *dosillo*'s omnipresence and its ability to confuse listeners who, when listening to a *dosillo*-heavy passage, may alternate between perceiving a compound duple meter ($\binom{6}{8}$) with syncopation, and perceiving an unsyncopated simple duple meter, the beats of which do not align with those of the conventional $\frac{6}{8}$.(17) Candelario goes even further, stating that "if there is no percussion, easily [*currulao*] can be felt in [a simple] two," displaced from the beats of $\frac{6}{8}$ (2021, 39:38, emphasis mine).(18) As the form chart indicates (Example 5), unpitched percussionists never play during the marimba's introductory section, and therefore this is where the use of *dosillo* can be most dizzying. Indeed, Urián Sarmiento, of the ensemble *La Mojarra Eléctrica* (winners of third place in the Festival Petronio Álvarez's "Free" modality competition in

2001), reports to Oscar Hernández that the Festival Petronio Álvarez was the first time he heard *dosillo* emphasized in the musical surface during an introductory section, and that it made it challenging for him to perceive the underlying $\frac{6}{8}$ meter: "this guy started playing and God, no! I had to close my eyes, close my eyes, and focus, with all I got, with all I got" (Hernández 2010, 257).(19)

[1.12] Danuta Mirka's theory of "finding meter" (2009) is useful for understanding why *dosillo* can dramatically suggest a different meter from *currulao*'s conventional $\frac{6}{8}$. Borrowing ideas from Hasty's theory of projection (1997), she argues that two onsets separated by a given duration create a "projection" in which the mind "projects" a third, as-yet-unheard onset after the same duration has elapsed. Once—or, more accurately, if—the third onset occurs, the projection has been confirmed, and the mind will continue projecting forward in time, anticipating further onsets to occur at the anticipated points. As all the adjacent onsets in *dosillo* are a dotted eighth note apart, when hearing it as a continuous pattern, it is possible that listeners will begin attending to its equidistant onsets, projecting dotted eighth notes forward in time. **Example 7**a shows this interpretation using Danuta Mirka's (2009) adapted notation for projection, which blends Hasty's concept with Lerdahl and Jackendoff's (1983) hierarchical metric grid. Example 7b shows the possibly perceived simple duple meter, given the projections of Example 7a.

[1.13] While such an analysis explains some aspects of *dosillo*'s effects, such as Sarmiento's inability to easily entrain to $\frac{6}{8}$ when hearing it unaccompanied, it does not fully explain other reported experiences of the rhythm. Many musicians with more *currulao* experience than Sarmiento emphasize an entirely different experience in similar situations. Irlando "Maky" López, the *bombo* player and leader of the ensemble Grupo Naidy told me that with practice, entering on the downbeat after *dosillo*-heavy introductions becomes completely "unconscious" (*inconsciente*; López, personal phone communication with author, 14 February 2025). Similarly, Esteban Copete, whose composition "Adiós Morena" began this article, informed me that feeling the proper $\frac{6}{8}$ underlying the unaccompanied vocalists' *dosillo*—even when there are no onsets to support $\frac{6}{8}$—is completely "natural" (*natural*) for expert Pacific Colombian musicians in general, and that they "don't think about it" (*no lo pensamos*) (Copete, personal social media communication with author, 14 February 2025).

[1.14] The two experiences—feeling the "venomous" simple duple or the conventional $\frac{6}{8}$—are not mutually exclusive. Sarmiento's quote suggests his experience of a tension—a type of coexistence—between the two hearings: as a less enculturated but still somewhat experienced listener, his default setting seems to be $\frac{2}{4}$, but with enough effort, he could at least try to flip it to $\frac{6}{8}$. This may imply that at some level of conceptualization, both meters were present for him, although one—the *dosillo*-meter shown in Example 7b—was "winning."

Currulao as Polymetric

[1.15] Before delving into a methodology for the polymetric analysis of *currulao*, I would like to address how *currulao* makes for an interesting, and perhaps unique case study for polymeter. As mentioned previously, polymetric interpretations of African and Afro-Diasporic repertoires have often been outright rejected in recent years. For instance, in perhaps the most extensive critique of African polymeter, "Polymeter, Additive Rhythm, and Other Enduring Myths," Kofi Agawu argues that insiders do not verbally recognize polymeter; that dancers' choreographies do not suggest polymeter, but rather, one meter with polyrhythmic interest; and that phenomenal accents common in African music should not be confused for metrical accents (Agawu 2003, 84).

[1.16] Yet, within the wider conversations regarding polymeter in African and Afro-Diasporic music, *currulao* finds itself in an unusual position. First, as we have seen above, some *currulao* insiders (including some musically renowned ones) *do* verbally recognize the multiple meters to which listeners might entrain when *dosillo* is emphasized. Second, while choreographies suggest a monometric interpretation of $\frac{6}{8}$, dancers do not typically dance before the unpitched percussionists enter, and thus do not dance during sections where only *dosillo* is playing. Entraining to $\frac{6}{8}$ during these moments of thinner texture requires a higher level of musical expertise—more so than the

average, even "insider," listener. Third—and not unique to *currulao*—it is generally agreed upon that regularities in phenomenal accentuation is a basis for deriving a metrical experience, especially when listeners are unfamiliar with the music at hand. In other words, patterns of phenomenal accentuation often cause metrical accentuation (Lerdahl and Jackendoff 1983, 17–18), and this bottom-up manner of extracting periodicity is the primary manner through which *unenculturated* listeners of a musical style begin to entrain to a meter (London 2012, 68).

[1.17] While describing the affinities between *currulao* and West African genres, Alejandro Martínez Carvajal writes that "although the polyrhythmic performances can sound like a complex metric structure to the Western ear, African musicians conceive them in a very different way. Each of the diverse rhythmic lines is based on metric units of equal length" (Martínez Carvajal 2005, 30).(20) It thus seems that he is grappling with the following questions: How can one conventional meter coexist with other interpretations? How might prior familiarity play a role in both metric perception and choice of analysis? Here, Martínez Carvajal seems to conclude that stylistically fluent musicians tend to entrain to one metric structure and may never pursue the various metric possibilities afforded by the musical texture, on which unenculturated listeners rely for entrainment.(21)

[1.18] Overall, I find that polymetric analyses should clarify what the conventionally appropriate meter is (should there be one) and might additionally study why listeners may perceive one or several alternative meters. In the following methodological section, I propose three ways to connect musical expertise to theories of polymeter: I flesh out some differences between naïve listeners who depend on "bottom-up" metric signals and expert listeners who primarily use "top-down" schemas to develop a metric understanding; argue that onsets need not align with beats for the expert listeners; and argue that rapid switching between multistable metric interpretations is—whether all these interpretations' beats align with onsets or not—functionally, polymeter.

2. *Theoretical Background*

Polymetric Structure

[2.1] This section first summarizes and synthesizes some scholarship on polymetric structure and perception. This research—especially Ève Poudrier's concept of balanced polymeters—resonates with research on multi-stable stimuli, as well as with Mirka's and Sullivan's studies on rapid switching between metric interpretations. After showing how Poudrier's work relates to multi-stability and to the "parallel multiple-analysis processor" and suggesting that rapid switching is equivalent to polymetric perception, I argue that all these theories' dependence on onsets-as-beginning leads scholars to underestimate the effects that prior familiarity can have on metric perception.(22)

[2.2] Ève Poudrier defines *polymetric structure* as "contrasting rhythmic strands that are built on competing pulse streams or non-isochronous beat structures and give rise to non-synchronous metrical projections" (Poudrier 2008, v). She takes the concept of "competing pulse streams" from John Roeder, who describes them as musical passages in which two or more parts individually articulate (semi-) regular timespans that do not align with or nest within one another (Roeder 1994, 233–34). Poudrier classifies polymetric structures into three idealized categories: *integrated* polymeter, "in which competing pulse streams are assimilated by a single metrical projection"; *polarized* polymeter, in which "one of the pulse streams is dominant and the other provides cross-accentuation"; and *balanced* polymeter, "in which two or more concurrent pulse streams achieve metrical significance" (2008, 105).(23) If the pulse streams are strongly differentiated among registral, timbral, or other parameters, they are less likely to be perceived as integrated, and more likely to be perceived as separate auditory streams, and thus as polarized or balanced. Additionally, both out-of-phase polyrhythms and those with no simultaneous onsets are more likely to be balanced (Poudrier 2008, 107).

[2.3] In a later article, Ève Poudrier and Bruno Repp (2013) differentiate between structural polymeters made up of "simple polyrhythms" and those made up of "complex polyrhythms."

Simple polyrhythms are built from streams of isochronous but contrasting durations, as found in the top staff of **Example 8** (a 4:3 polyrhythm). On the other hand, complex polyrhythms feature non-isochronous durations: the bottom staff of Example 8 shows a complex 4:3 polyrhythm. If beginnings of longer durations (quarter notes) are taken to represent beat placements, there are four dotted-quarter-note beats on the top line of the staff and three half-note beats on the bottom one. Thus, although the complex 4:3 polyrhythm is more rhythmically dense than the simple one, and therefore creates a more robust projective metric hierarchy, both polyrhythms in Example 8 create polymetric structures arising from dotted-quarter-note against half-note projections.(24) As can be seen from this example, projection as a methodology captures implied meters of competing streams well. In the analytical portion of this article, I will show projective hierarchies for each layer in the texture that can plausibly be perceived as a separate auditory stream.

Polymetric Perception and Multi-Stability

[2.4] Summarizing several empirical studies, Justin London suggests that even when listening to structurally polymetric music, it is not possible to entrain to two independent metric structures simultaneously. Instead, he argues that a listener will either perceive a composite pattern arising from the multiple pulse streams (somewhat like Poudrier's integrated polyrhythm) or entrain to one of the meters and hear the other stream as "noise" against it (as in her polarized polymeter) (London 2012, 66). For example, a simple 4:3 polyrhythm (Example 8a) might be perceived as a single composite pattern, in $\frac{3}{2}$ (with the "four" of the polyrhythm syncopated over the metric "three"), or in $\frac{12}{8}$ (with the "three" of the polyrhythm syncopated over the metric "four"). While he does not explicitly discuss balanced polymeter, it seems he would argue that these are perceived like a polarized polymeter as well, with one stream as "noise" against the other. The difference between a polarized and a balanced polymeter is how clearly one stream dominates: in a polarized polymeter, it is more clear which stream is dominant and which provides cross-accentuation, while in the balanced one, either of the pulse streams might reasonably be entrained to, with similar plausibility (i.e., neither is structurally dominant).

[2.5] Poudrier and Repp's empirical study on polymetric perception—to them meaning "the simultaneous perception and tracking of two independent [non-nesting] beats" (Poudrier and Repp 2013 , 371)—seemingly confirms London's claim about polymeter's (conscious) perceptual nonexistence. Their results suggest that although highly trained musicians seem to be able to track independent beats in simple, in-phase polyrhythms, this ability can be attributed to the tracking of a familiar composite pattern. In complex polyrhythms, the ability to track independent beats was imprecise and could be attributed to guessing. This study leaves the possibility of entrainment to multiple meters independently and simultaneously inconclusive, leaning toward unlikely.(25)

[2.6] Many scholars have grappled with a phenomenon related to polymetric perception for which there is a general scholarly consensus: listeners can rapidly switch between contrasting interpretations of the same stimulus, and often do so subconsciously. While enculturated listeners of African and Afro-Diasporic music may indeed always move and entrain to the same beats, as James Burns (2010) writes, many of these repertoires have also been noted to be metrically malleable, and thus as possibly felt in different meters by the same listener (without stylistic expertise) at slightly different times. For instance, regarding Afro-Cuban clave music, David Peñalosa calls dotted-quarter-note beats the "primary beat cycle," and quarter-note beats the "secondary beat cycle." He argues that the "structure of clave music is such that primary and secondary elements can *flip in one's mind*" (emphasis mine) and that "it is not uncommon for students to become confused by mistaking a secondary element for a primary one" (Peñalosa 2009, 37).

[2.7] The metric multidimensionality expressed by Peñalosa and others (see, for instance, Locke 2009, and, in a very different repertoire, Temperley 2008) seems to result from the musical surface being "multi-stable." Multi-stability is not exclusive to the metrical, or even musical, realms: some well-known visual examples of this phenomenon include the duck-rabbit, the Necker cube, or Rubin's vase. Regarding the perception of such structures, Ludwig Wittgenstein writes that the duck-rabbit "can be seen as a rabbit's head *or* as a duck's," but not as both at the same time

(Wittgenstein 1953, 194, emphasis mine).[26] Returning to musical scenarios, Derek Myler similarly suggests that polytonal compositions are multi-stable, and that these can be perceived as "dynamically toggling between controlling tonics" (Myler 2023, 59).[27] Studying the music of Charles Ives and using a fascinating tapping and fMRI study on polyrhythm and bi-stability as a springboard (Vuust et al. 2006),[28] Myler similarly concludes that listening to polymetric music can involve a toggling between meters (Myler 2023, 106–110). Thus, these writings provide a hypothesis regarding how the human mind can perceive multi-stable poly-structures: not as a conscious simultaneity, but as toggling between interpretations. Of the polymetric structures discussed by Poudrier (2008), the most multi-stable ones are the balanced polymeters, and thus these are the polymeters which are most likely to induce rapid toggling between metric interpretations.

[2.8] Returning to *currulao* briefly, **Example 9** shows two *glosadas* (calls), superimposed onto a *bordón* ostinato. The one on top uses the familiar *dosillo* rhythmic pattern, as heard in "Adiós Guapi" by Grupo Naidy. As is shown, this *dosillo* rhythm establishes projections of dotted eighths and dotted quarters, while the *bordón* establishes eighth note and dotted quarter note projections. The dotted quarter projections in the two parts, however, are displaced from one another by an eighth note. Therefore, since there are no nesting projections between these two rhythmic patterns, these are likely understood as forming a balanced polymeter, or, if it is aurally clear to the listener which is dominant, then at least as polarized. Meanwhile, if the melodic line of "Adiós Guapi" began one eighth note later, as suggested in the recomposition of the bottom system, then its dotted quarter note projections would align with those in the *bordón*. As such, is it probable that the ensemble as a whole would be perceived as using a 2-against-3 polyrhythm, nested within the shared dotted quarter note projection, thus forming a (much less disorienting) integrated polymeter.[29]

The Parallel Multiple-Analysis Processor and Onsets

[2.9] So far, I have linked balanced polymeters to multi-stability and, by extension, to the possibility for listeners to rapidly switch between different metric interpretations of a single musical surface. But, while it is well established that listeners can rapidly switch interpretations, it is less clear how the mind processes such stimuli to allow for this rapid switching. Ray Jackendoff (1991) suggests three possible perceptual mechanisms (a listener's "unconscious musical parsers")[30] that may help to account for these rapidly shifting interpretations of music, and more generally, for how listeners derive abstract musical structures, such as meter, from music as it unfolds in real time.[31] He calls the three possible mechanisms 1) *serial single choice*, 2) *serial indeterministic*, and 3) *parallel multiple-analysis processor*.

[2.10] Jackendoff concludes that both serial models pose problems for the understanding of meter as it unfolds in time, and thus suggests that a parallel multiple-analysis processor is more apt.[32] In this model, when presented with a musical surface, the processor subconsciously generates all possible, well-formed metric construals of that musical surface. At any given time, the "selection function" chooses only one of these possibilities to "rise to consciousness," causing entrainment for the listener. The chosen interpretation is generally the one that aligns most closely with the listener's metric preferences and familiar templates. Yet, *subconsciously*, all possibilities are still present. The interpretation can shift *passively*, as often occurs when the musical surface stops reinforcing the meter a listener is entrained to, or in the case of a balanced polymeter, when continuous and passive switching occurs. The interpretation can also shift *actively*, when the listener consciously decides to tune into another of the possible meters (Sullivan 2023, [3.19]).

[2.11] Several scholars praise the parallel multiple-analysis processor because, in addition to being able to describe prospective or anticipatory hearing (also accounted for by London's entrainment model and most other models of meter), it can account for retrospective hearing and reinterpretation. Echoing Jackendoff (1987), Mirka (2009) argues that a surprising musical event—surprising because it does not fit into the entrained meter—can engender "retrospective reanalysis" in which the selection function "falls back on" another potential metric structure that the surprising

event does fit. The ability to "fall back on" another meter implies that an alternate analysis was already available.(33)

[2.12] Jackendoff's parallel multiple-analysis processor has significant implications for discussions of polymeter. The most obvious of these is that the selection function may raise different structures to consciousness in different listeners, depending on their metric preferences, prior experiences, or other factors.(34) More interestingly, however, a single listener may have several well-formed meters to fall back on, allowing for a very rapid shift when a pulse stream suddenly stops being emphasized in the music. This type—a single switch with a change in accentuation—is the most common "flipping" that Mirka writes of, especially in reference to the very beginning of a piece. Additionally, however, it seems that in the case of multi-stable, balanced polymeters, it is possible for listeners to continuously flip back and forth between metric interpretations established by the parallel multiple-analysis processor (this is also suggested in Sullivan 2023, [6.1–6.6]).

[2.13] How does the parallel multiple-analysis processor decide which meters are well-formed, and thus decide which to subconsciously generate as potential options for entrainment? Sullivan argues that the primary basis for the parallel multiple-analysis processor is projection. And, as he and others point out, the projective model is primarily based on onsets:(35)

> Once confirmed, projections are maintained as long as there are attacks to sustain them. A confirmed projection can withstand some absent attacks but does not persist indefinitely without them. If the musical surface does consistently suppress such attacks, then the corresponding projection will vanish. This hypothesis explains our ability to sense a rest as metrically strong, while also observing that persistent rests of this kind undermine an established meter. (Sullivan 2023, [3.7])

[2.14] Returning to *currulao*, while projection's reliance on onsets explains a non-expert listener's interpretation of the meter, it does not account for the hearing of experts who "unconsciously" hear $\frac{6}{8}$ underlying *dosillo*. Besides López's and Copete's verbal descriptions of their experiences, in videos from performances of *dosillo*, musicians can be seen tapping their feet, and the practiced *bombo* players always seem to enter seamlessly on a downbeat after *dosillo* introductions (we will see examples of both in Section 3).

[2.15] This highlights a vital tension in meter studies—that between stimulus-driven, bottom-up metric perception, and top-down, prior familiarity. Bottom-up theories of meter still dominate in music-theoretical literature. For example, in Lerdahl and Jackendoff's model (1983), the imagined listener picks out signals from the musical surface: event onsets (MPR3), contextually long notes (MPR5a), suspensions (MPR8), and the like. These signals are constantly interpreted by the listener, who subconsciously molds their perception of meter based on the presence, absence, and relative strength of these signals. Similarly, projection is introduced by Hasty (1997) as a bottom-up model: upon hearing a mensurally determinate duration between two onsets, listeners project forward in time, expecting a third onset to occur about the same duration after the second onset.

[2.16] Increasingly, however, scholars are acknowledging that meter is largely a top-down, rather than bottom-up, phenomenon. Writing more generally about musical schemas, Mariusz Kozak writes that "[h]abits are gestures that maintain structural similarities between new situations and actions that are familiar to us from experience" (Kozak 2021, 222). This recalls London's (2012, 69) and Mirka's (2021, 51) writings regarding "template matching." To them, "template matching" occurs when a listener has heard a melody, style, or schema several times in the same metric interpretation, such that even when clarifying metric signals are no longer heard, this listener will still maintain their metric interpretation *as if* a clarification were present.

[2.17] Thus, expert musicians who have heard *dosillo* accompanied by clarifying percussion and dancers enough times are able to impose the $\frac{6}{8}$ meter onto it, even when these clarifying elements are not used. As such, to musicians with more *currulao* expertise, the internalization and practice of a meter makes the requirement for metrically strong onsets to sustain it unnecessary. Besides the complex example of *dosillo*, there are many other metric templates which have the same theoretical implications: an "oom-pah-pah" pattern with an unarticulated "oom" will usually not shift the felt

downbeat for those familiar with a waltz, and a backbeat without a downbeat kick drum may still fall unambiguously on 2 and 4 to rock music connoisseurs.

[2.18] For the parallel multiple-analysis processor, this implies that onsets need not establish both meters in a polymetric structure. Instead, a polymetric tension can exist between bottom-up metric signals and top-down, schematic knowledge. In other words, the toggling between metric interpretations can occur even if only one of those interpretations is implied by onsets. This seems to have been Sarmiento's experience: active selection of $\frac{6}{8}$, toggling from *dosillo*'s onset-implied simple duple. I suspect that this type of experience is common for those with a moderate amount of experience with *currulao*—those who are not entirely naïve, but are not experienced ensemble performers either. As we approach the analytical portion of this article, I invite readers to notice whether they ever experience a toggling between meters when listening to the different examples, while actively trying to maintain $\frac{6}{8}$.

[2.19] Thus, although it currently seems that simultaneous and conscious metric entrainment to two or more meters is beyond human cognitive capabilities, rapidly changing sensations of meter can occur and may be attributed to the parallel multiple-analysis processor. I argue that this, for all intents and purposes, is a type of polymetric perception. There are four conditions that allow for such rapidly changing sensations. In the cases where polymetric structure is created by audible pulse streams,

1. There must be at least two competing (non-nesting) pulse streams with confirmed projections, if taken individually.
2. The 2+ pulse streams must be strongly differentiated timbrally, registrally, or otherwise to encourage their perception as separate streams in a balanced polymeter.
3. The 2+ pulse streams must not share the same beat-level. The fewer metric levels and onsets shared by the pulse streams, the more likely they are to be perceived as separate streams rather than as a composite rhythm. (Therefore, although listeners can rapidly switch entrainment between meters in an integrated polyrhythm, such as $\frac{3}{4}$ and $\frac{6}{8}$, which share a metric level slower than the beat, the simultaneous use of these meters can easily cause perception of the slower, common, metric level as the beat or, alternatively, of a single, composite rhythm created by the sum of onsets in the two streams.)

Yet, although polymeter is most often based on projections supported by onsets in the music, there are instances in which onsets do not mark beats in one or more participating meters:

4. Should there *not* be competing pulse-streams established by onsets, in order to create polymeter, there must be at least one projected meter established by an audible pulse stream and another, implicit meter that is plausibly perceived by musicians who base their entrainment on familiar schemas.

[2.20] While the first three conditions are discussed by Poudrier (2008), the inclusion of the fourth condition is a new contribution to the study of polymeter. Implicit meters—which exist exclusively in the minds of enculturated listeners and whose beats do not align with sounding pulse-streams—are capable of existing in a polymetric tension with sounding pulse-streams in the music. Indeed, much of the fun for practiced listeners may be maintaining entrainment to the implicit meter in the face of the contrasting pulse streams in the musical surface, which push and pull against it.

3. Analytical Case Studies: How Polymeter can Manifest

[3.1] The three following examples, "Adiós Guapi," "Adiós Morena," and "Mirando," use *dosillo* in different ways, such that the effects for less familiar listeners may contrast. I begin by discussing "Adiós Guapi," by Grupo Naidy, in which two pulse streams are implied by onsets simultaneously, and thus rapid switching—induced only by onsets—can occur. In the case of "Adiós Morena," composed by Esteban Copete and performed by two of his ensembles separately (Rio Mira, and Esteban Copete y su Kinteto Pacífico), the vocal use of *dosillo* is likely to trigger a one-time change in metric interpretation, such as that discussed by Mirka and Jackendoff. Consistent toggling between implied meters is one of several options for metric interpretation here, but only for highly conservative listeners, or for listeners vaguely aware of the convention of $\frac{6}{8}$. In

the opening to "Mirando," by Grupo Naidy, the conventional meter is only implicit and only expert musicians can comfortably entrain to $\frac{6}{8}$ from the beginning. Meanwhile, listeners with some experience may experience something like Sarmiento's frustrated active toggling. Lastly, listeners with little experience will only feel the "false" *dosillo* meter until the $\frac{6}{8}$ becomes explicit in the pulse streams, and then may toggle within the explicit, continuous, and balanced polymetric texture.

"Adiós Guapi"

[3.2] **Example 10** shows the opening to "Adiós Guapi" by Grupo Naidy. The *bordón* player begins with "Bordón A" in C minor,(36) establishing the projective hierarchy of $\frac{6}{8}$.(37) After one iteration of the ostinato, the *requinta* enters—performed by Antonio "Gualajo" Torres, the celebrated *requinta* player mentioned by Ochoa et al. (2014)—first with two onsets a dotted quarter note apart. This may establish a projective potential of a dotted quarter note, which is confirmed in m. 4. These continued potential projections, however, do not align with the projections of the same length in the *bordón* part. Instead, the two are out of phase: the *requinta*'s early arrival by one eighth note relative to the *bordón* initially creates a direct displacement dissonance of D3–1 (Krebs 1999).(38) At the second onset in the *requinta*, Gualajo begins to perform a *dosillo* rhythm continuously. Thus, the dotted-quarter-note span is subdivided into two dotted eighths (duples), further contrasting this pattern from the eighth note subdivision of the *bordón*'s dotted quarter note projections. In addition to the displacement dissonance, this subdivision appears to create a direct grouping dissonance as well.(39) In this example, by the end of measure four, there may be two non-nesting, contrasting, and displaced metric hierarchies established by onsets—one whose strong beats align with onsets in the *bordón*'s $\frac{6}{8}$, and another which aligns with the *dosillo* onsets of the *requinta*.

[3.3] In "Adiós Guapi," the non-nesting pulse streams in the introduction contrast significantly. In addition to being out of phase and registrally differentiated, the complex polyrhythm in mm. 4–5 of "Adiós Guapi"—a result of the interaction between Bordón A and *dosillo*—contains only one simultaneous onset between the two parts. (Example 10's *bordón* does not feature isochronous durations, so when it forms a polyrhythm with the *dosillo*, it is a complex rather than a simple one.) **Example 11** represents this complex polyrhythm in both cyclic and staff notation, with the simultaneous onset highlighted in blue. As an out-of-phase polyrhythm, this polyrhythm leans towards being balanced (Poudrier 2008, 107). Additionally, the coincidence point between the two streams—which is in a metrically weak position and not at the beginning of the polyrhythm—helps to audibly differentiate the pulse streams. Both pulse streams achieve potential metrical significance by being audibly differentiated, and thus this appears to be an example of a balanced polymeter.(40)

[3.4] In "Adios Guapi," different listeners may have different metric interpretations, depending on a myriad of elements such as their metric preferences and prior experiences. I will address three possible metric interpretations below: one radical, one conservative, and one common for highly practiced and expert *currulao* musicians.

[3.5] In a radical hearing of this song, the parallel multiple-analysis processor has subconsciously provided options for understanding the *bordón* in the first two measures, based on its onsets ($\frac{6}{8}$, $\frac{3}{4}$, or a non-isochronous 2+2+2+3+3), and a listener has likely entrained to one of these (one meter has "risen to consciousness"). A listener who shifts their attention to the *requinta* when it enters and loses track of the *bordón*'s projections can lose their bearings entirely, as the meter implied by the *requinta*'s isochronous onsets does not align with any of the options previously provided by the parallel multiple-analysis processor. This results in confusion and a total lack of metric understanding—termed "bewilderment" by Jackendoff (1987) and Mirka (2009). The listener might stay bewildered until the processor readjusts to the louder *requinta*, providing a simple duple meter that aligns with its projections as these become confirmed (as was shown in Example 7b). Then, they may switch back and forth rapidly between the pulse streams of the balanced polymeter established by the two marimba parts—actively or passively—as the music continues, less strictly in the balanced polymeter (past the transcribed portion, but heard in the audio file).

[3.6] A more conservative listener, meanwhile, may have a clearer sense of meter during the *requinta*'s entrance, as they will tend to maintain entrainment to the continuing *bordón*'s projections: the *bordón*'s unchanging nature is something to keep attending to, allowing the listener to effectively ignore the *requinta* and hear its music as noise against the *bordón*. For this conservative listener, the polyrhythm may be perceived as a polarized polymeter, as they may keep attending to the meter that was established first. By nature, conservative listeners tend to avoid switching (both avoiding one flip and several rapid switches), for as long as they can avoid it.

[3.7] Finally, some listeners may maintain entrainment to the *bordón*'s $\frac{6}{8}$ meter and, rather than ignoring the *requinta* altogether, feel its pushes and pulls as rhythmic play moving in a syncopated synchrony with the pre-established metric hierarchy. This last option is the most likely for expert *currulao* listeners and performers, who have formed a schematic template for the *dosillo* and therefore are familiar with how it fits onto the meter as a syncopated pattern. Although this seems like a conservative hearing as well, it is established and maintained primarily because of schematic knowledge, rather than because it was established first.

[3.8] There may be some other, more subtle differences in hearings between the conservative and expert listeners. For instance, since the expert is likely to use template matching when listening to *currulao*, they may assume $\frac{6}{8}$ from the start, and impose it onto the music as soon as they recognize the *bordón* and its tempo (perhaps immediately following the onset of the second note), thus feeling $\frac{6}{8}$ before the three-attack projective threshold. Meanwhile, while I have assumed in Example 10 that projections will eventually establish $\frac{6}{8}$, a conservative listener may also "raise to consciousness" a $\frac{3}{4}$ or non-isochronous meter, which they may then maintain for the remainder of the song. Yet, as the *bordón* is altered (from that shown in Example 10 to the one in Example 9) shortly into the piece, it is possible that the conservative listener will (cautiously!) reevaluate at that point, switching metric interpretations if they decide that enough evidence has been collected to contradict their original conception. Overall, therefore, the likelihood for changing interpretations for a conservative listener is low but possible; for an expert listener, however, it is impossible, so long as the style remains unchanged.

"Adiós Morena"

[3.9] My first example in this article was "Adiós Morena." As we have discussed, in most *currulaos*, the opening tends to have the thinnest texture in the song, and thus is the most common place in which metric confusion may occur for non-expert listeners. Once the unpitched percussion instruments enter after an introduction, they traditionally do not stop playing until the end (see Example 5). Although *requinteros* may use *dosillo* in improvisatory middle sections between vocal phrases, and vocalists' phrases often feature *dosillo*'s rhythm,[(41)] these are always accompanied by the stable $\frac{6}{8}$ polyrhythmic matrix of the unpitched percussion. It is for this reason that "Adiós Morena" (2017), a more recent *currulao* composed by Esteban Copete, is unusual both formally and metrically, exploiting the *dosillo*'s "venom" in a non-traditional way. **Example 12** shows a form diagram of this song. In the middle of the polyphonic climax, Copete strikingly includes a contrasting section that has less rather than more energy—all unpitched and pitched percussion drop out suddenly—before bringing back the polyphonic climax in the song's final section.[(42)] I suggest that some of the possible perceptions of this section in "Adiós Morena" provide further evidence in support of the parallel multiple-analysis processor.

[3.10] In Example 1, I transcribed this unusual section in three ways: as a conservative listener may perceive it, as a radical listener might, and in a polymetric transcription. While polymeter is itself a contentious subject, perhaps the most heated debates about it involve polymetric transcriptions such as that one, in which a barline's meaning—as an instructive suggestion of where metric strength *should* be perceived—is distorted, in that different parts of a clearly coordinated ensemble texture seemingly do not share the same metric structure. As Kofi Agawu suggests, polymeter in this sense "indexes coexistence, not (necessarily) cooperation" (Agawu 2003, 79).[(43)]

[3.11] Perhaps a less contestable, and a more detailed, transcription of Section C is found in **Example 13**. The transcription and analysis of Example 13 respectively show that, while you *should*

try to perceive $\frac{6}{8}$ if you want to feel it as the musicians do, you *might* perceive another meter instead—I find it preferable to transcribe in a single, culturally conventional meter, and if alternate interpretations are likely perceived, to communicate these with annotations and prose descriptions. In the beginning of this excerpt, Copete plays a *base* in D minor with his right hand while simultaneously playing Bordón B with his left hand; the *guasá* player (here also the lead vocalist) performs his second basic pattern; all other unpitched percussionists play their standard patterns or variations on them; and the vocalists sing phrases with the rhythm of *dosillo*. As shown in the analysis, before Section C, some pulse streams align with $\frac{3}{4}$ (it seems to me that many cultural outsiders attend to the *guasá* and *bombo* when provided with no context), some with the *dosillo* (the vocalists),(44) and some with a conventional $\frac{6}{8}$ (the traditional *cununo* part, here played by congas instead). The *requinta*'s cross-emphasized pattern has onsets that largely align with those of the *dosillo* (usually registrally-accented A_4, played on the third and sixth eighth notes of each measure) and that obscure the downbeats. The stresses of the *guasá* and the unpitched percussionists likely cause most listeners to entrain to a groove in which the notated downbeats are indeed perceived as metrically strong.(45)

[3.12] As is most striking, before the repeat sign that signals the beginning of Section C, the *requinta* and unpitched percussionists play three notes continuing the dotted-eighth-note pulse stream. This sounds like a cadential figure as the *requinta* arpeggiates down a tonic triad (the same three notes complete the song about a minute later). Instead of ending there, however, the vocalists continue their *dosillo* pattern and carry its pulses through to the next section. The lack of unpitched percussion during the following section is striking, and, for non-expert listeners, all pulses that aligned with the transcribed meter seem to evaporate after the three accented notes immediately prior to Section C. Following this, there are thirteen seconds in which no onsets align with downbeats—to say it is a challenge for non-experts to maintain entrainment to the established $\frac{6}{8}$ meter when listening passively is an understatement.(46)

[3.13] I find that many non-expert listeners experience a completely seamless transition from $\frac{6}{8}$ when Section B ends and into the displaced simple duple meter as the music leads into Section C.(47) I argue that the potential seamless transition from $\frac{6}{8}$ to the displaced meter is partly a product of the parallel multiple-analysis processor. The *dosillo* pulses were already present during the previous section, and thus the processor had already postulated its meter, though it had likely not shifted the listener's entrainment. All that was necessary for that perceived change was a shift in attention.

[3.14] If the reader perceives the shift in "Adiós Morena" to be less shocking than the *requinta* entrance in "Adiós Guapi"—which features the same metric transition—this seems to suggest that they agree with the concept of a parallel multiple-analysis processor. Attending to the *requinta* in "Adiós Guapi's" opening creates a sense of Jackendoff's and Mirka's "metric bewilderment," since the projections were not previously there. On the other hand, changing attention to the *dosillo* in "Adiós Morena's" Section C means falling back on projections that were already present, postulated by the parallel multiple-analysis processor.

[3.15] The radical hearing involving a seamless metric shift, and a more conservative hearing maintaining $\frac{6}{8}$ may coexist in the minds of listeners with some amount of experience with *currulao* (or for those with a transcription—a form of top-down knowledge—who are being instructed to feel it in the notated $\frac{6}{8}$). For such listeners, although the conventional meter was indeed established by previous onsets, it is likely that the thirteen seconds are too long to maintain the downbeats from the perspective of passive listening unless one is naturally an *extremely* conservative listener. Rather, active listening must occur, and full attention given to maintaining $\frac{6}{8}$. Perhaps, in the first measure of Section C, when on beat 2 the lead vocalist lands on a quarter-note G_4 on the syllable "o," a listener actively trying to entrain to $\frac{6}{8}$ may feel anchored to it momentarily, and somewhat confidently feel that arrival as aligning with the beat. As all other note onsets in the two repeated measures do not align with the prescribed beats, however, this listener may toggle back to attending to the onset-implied *dosillo* pulse stream. The toggling may continue, back and forth within these two repeated measures, and through the following marimba solo. When the marimba

enters, itself seemingly alternating between emphasizing the *dosillo* rhythm and emphasizing one (weak) beat of $\frac{6}{8}$ every two measures, the listener's switching may continue with the changing emphases of the music, until B' begins and the stable ground returns.

[3.16] Despite the potential both for a radical hearing and for a listener with some knowledge of the genre to toggle between hearings, Copete enters on marimba on a conventional downbeat (without trouble, eight measures after the percussionists drop out), playing the same metrically interesting *revueltas* he had played alone during the song's introduction. In videos of him performing the track, such as **Video Example 1**, sometimes he and the ensemble members continue tapping their feet or moving their heads to the transcribed beats, but sometimes they do not, and they still enter with equal precision. They have internalized the meter, and may have been able to entrain to $\frac{6}{8}$ indefinitely with only *dosillo* onsets sustaining it. They, and other *currulao* musicians, are intimately familiar with the schema of *dosillo* and impose $\frac{6}{8}$ onto it even if it stands alone. Meter, with sufficient practice, does not require note onsets to align with beats.

"Mirando"

[3.17] **Example 14** shows a short transcription of the final example in this article, "Mirando" by Grupo Naidy, from their album *Vive Tus Raices* (2011). This song begins with a prolonged *requinta* introduction performed by Antonio "Gualajo" Torres. Gualajo continuously plays variations on *dosillo*, unaccompanied from mm. 2–6, and past the unpitched percussionists' entrance in m. 6. Gualajo's continuous use of *dosillo* establishes projections of a dotted-eighth note into a simple duple meter. From a perspective in which onsets establish the beginnings of projections, the conventional $\frac{6}{8}$ is not confirmed until m. 7.

[3.18] As such, a listener who is not intimately familiar with *currulao* will likely entrain to the simple duple meter implied by the *dosillo*'s onsets. Much like for "Adiós Guapi," this listener might experience "bewilderment" in m. 6—although the opposite bewilderment than that experienced in "Adiós Guapi," in which the *bordón* establishes $\frac{6}{8}$ before *dosillo* begins. In "Mirando," if they switch interpretations to $\frac{6}{8}$ shortly after the unpitched percussionists enter, then the effect is that of a "metric fake out" (London 2006), in which they retrospectively realize that their initial metric understanding was incorrect.

[3.19] Starting at m. 7, "Mirando" is another example of an onset-established balanced polymeter, now between the *requinta* and the unpitched percussion, rather than between the *requinta* and *bordón*. As can be heard and seen in **Example 15**, the balanced polymeter continues through the introduction. (In fact, the balanced polymeter continues throughout most of the track, but is most audible only when the voices are not singing.) I invite the reader to listen and see if they experience this introduction as a multi-stable stimulus, and whether they can experience a toggling between the two meters.(48)

[3.20] As I have been emphasizing, this potential experience is quite different to that of the performers, and of *currulao* musicians in general: in this recording it is Irlando "Maky" López, Grupo Naidy's leader and lead *bombo* player (to whom I spoke about *dosillo*) who enters in m. 6, on the transcribed downbeat. It is he who told me that entering in such a way was "unconscious" for him, although he also acknowledged the difficulty that musicians with less expertise have in similar situations. The tension between expert *currulao* musicians and casual participants was clear in August 2023, at the Festival Petronio Álvarez, in which one particular "traditional modality" performance began in a parallel manner to "Mirando," with unaccompanied *requinta* playing *dosillo*. A person in the audience clapped along; most other audience members within range looked at him like his clapping was absurd. But, of course, he was simply clapping along with the implied beats of $\frac{6}{8}$, before the clarifying ensemble joined.(49) Thus, while Sullivan suggests that a meter may not be plausible if it was never supported by onsets, and cannot be undermined if it was never there—as in "Mirando's" opening—it seems clear that the performers and musicians with stylistic expertise are, indeed, entrained to $\frac{6}{8}$ from the beginning.

Conclusion

[4.1] The central aims of this paper were twofold. The first aim was to introduce readers to the rich genre of *currulao*. The second aim was to explore some implications for models of polymeter—and for models of meter more broadly—to account for a range of possible experiences when listening to *dosillo*, a common "venomous rhythm" used in *currulao*'s vocal and marimba lines. One of my suggestions regarding meter is that toggling between meters is a possible experience when presented with a "balanced polymeter" or a "multistable stimulus." The more significant argument is that a stimulus could be made multistable even when its sounding notes seem to imply only one metric interpretation: if some listeners have created mental templates or schemata that impose the stimulus onto a syncopated metrical understanding, then dynamic toggling may occur between a bottom-up meter, implied by onsets, and a top-down meter, implied by schematic familiarity. Thus, polymeter—here taken to be synonymous with rapid switching between metric possibilities —can exist even when the musical structure does not seem to suggest it.

[4.2] Although the motivating repertoire for this article was *currulao*, it seems that the same theoretical ideas may translate to a far wider range of repertoires. Indeed, it is often the case that listeners in the audience and musicians performing the music have entirely contrasting interpretations of the music. Regarding this phenomenon in the Western classical (notated) tradition, Jackendoff writes that "[w]hat the listener hears, of course, is the sequence of pitches with durations; that is, the notated key signature, time signature, bar lines, and beams play no role in the musical surface" (Jackendoff 1991, 202). Throughout a performance, although the musicians may think their perception is being communicated to the audience, many listeners will only hear projections and metric signals that do not align with the notated meter, and thus may not be able to entrain to the meter that the performers have practiced hearing.

[4.3] This seems to be a particularly common occurrence in performances of certain post-tonal repertoires.(50) For instance, Joel Lester writes of his experience performing Milton Babbitt's *Composition for Four Instruments* that he learned to hear a notated metric grid underlying the very complex music as he became increasingly familiar with the score, even when the pulse streams in the music did not align with that grid. Listening to a recording of his performance several months later, he was incapable of perceiving the metric structure he had once memorized (Lester 1986, 117). At risk of overstating similarities between the vastly different repertoires of *currulao* and Babbitt's oeuvre, I do think these experiences of the two are analogous: familiarity (a score, in Babbitt; previous experience in *currulao*) allows for entrainment via a pre-existing reference. Without these prior references, entraining to the conventional meters in situations common to both repertoires would be improbable if not altogether impossible, owing to their highly syncopated natures. The promotion of such top-down concepts in studies of meter can alter assumptions about meter's very nature: note onsets need not align with beats for metric entrainment to occur.

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Footnotes

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1. Perceiving a change is dependent on hearing the shaker's—*guasá's*—quarter note right before the syllable "A" of "Adiós" as a downbeat.
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2. The terms "radical" listener and "conservative" listener were coined by Andrew Imbrie (1973) to describe listening habits or strategies for hypermeter in the music of Beethoven. He writes that conservative listeners tend to maintain entrainment to a meter for as long as possible through significant surface-level contradictions, while radical listeners are more easily and rapidly swayed by the musical surface.
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3. Some radical listeners might feel that the repeating chorus's long note on "A-diós" is metrically stronger than the long notes of the lead vocalist, therefore shifting the chorus's long notes onto downbeats. While this hearing is understandable, it cuts against the harmonic changes between A^7 and Dm.
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4. The variations in ideas about polymeter also relate to how scholars define meter itself. If meter is merely reflective of a score or musical structure, then of course polymeter may exist. If, rather, it is based on whether a performer can play two contrasting strands simultaneously, then, also, of course polymeter can exist. If meter is based on attention and neuronal synchronization, however, then the possibility for polymeter's existence is less clear.
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5. Justin London (2012) explains that a passage is "metrically malleable," or metrically neutral, when it may be plausibly perceived in several metric interpretations.
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6. In a sense, my argument about the role of onsets is similar to Lerdahl and Jackendoff's idea that onsets aligning with (strong) beats is merely a preference rule (MPR3), rather than the primary requirement for metric perception (1983, 76). In practice, however, to Lerdahl and Jackendoff this preference rule is very strong, since no other preference rule (save "Binary Regularity," MPR10) can occur without a concurrent onset. As such, the only exception to onsets aligning with metrically strong positions in their theory is when MPR3 cannot be fully satisfied under one metric interpretation, in that any one metric interpretation allows some, but not all, rests to be metrically weak (Lerdahl and Jackendoff 1983, 76–77).
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7. In Section 3 of this article I address differences between a conservative listener and an enculturated one, with reference to several examples. In summary, in Example 1 the conservative listener happens to align with a stylistically competent one merely because the conventional meter was established first in the music. Yet, even if the conventional meter had not been established first by onsets, a stylistically competent listener would still provide that meter through template matching (London 2012, 69).
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8. *Currulao*'s dance is an example of a *zapateo* genre, meaning that footsteps are audible. The dance is partnered between a man and a woman, in which the man does increasingly complex steps to impress the woman, who plays "hard to get." For more information about Colombian folk dances in general, see Zapata Olivella 1967.
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9. Alternative onomatopoetic devices are transcribed by Ochoa et al. (2014/ii, 55).
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10. More complex patterns performed and improvised around by the basic *currulao* instrumentalists are transcribed in various theses: Guevara Calderón and Godoy Acosta 2015, Londoño 2006, Otero Estrada 2009, Sabogal Palomino 2010, and Martínez Carvajal 2005. In addition to these, one method book has been written for aspiring *currulao* performers (Ochoa 2014); this provides several transcriptions and additional schemas for the primary *currulao* instruments.
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11. The increasing numbers of chromatic *marimbas de chonta* featured in the Festival Petronio Álvarez seems to have angered some followers of *currulao*, who commented on the festival's social media announcements of the 2023 participating ensembles that they should only allow traditional instruments in the traditional genres competition.
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12. The uses and limitations of Western transcription have been discussed widely (and sometimes heatedly) in ethnomusicological, theoretical, and popular music literature (List 1974, Winkler 1997, Marian-Bălaşa 2005, Agawu 2023). Although the transcriptions in this article are not meant to replace the sounds of the music, nor the contexts in which they are typically performed, they do clarify elements and subtleties of the musical sound in a language that likely audiences—Anglo-American music theorists and Colombian musicologists—are generally able to comprehend.
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13. The cyclic notation roughly takes after Toussaint (2013), London (2012), and Peñalosa (2009). Each number on the clockface represents an eighth note in the 12-cycle; moving clockwise represents moving forward in time. I borrow from David Peñalosa in highlighting both primary and secondary beat cycles in this example (dotted quarter notes of $\frac{6}{8}$, and quarter notes of $\frac{3}{4}$). The solid line from 1 to 7 connect the two downbeats in the 12-cycle, common to both beat-interpretations; the thick dotted line connects the two weak beats of the primary beat cycle (pulses 4 and 10); and the thinner dotted lines connect the weak beats of the secondary beat cycle (pulses 3, 5, 9, and 11).
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14. Juan Sebastian Ochoa et al. (2014) transcribe several schemas which serve as a *base*. All the patterns omit onsets on downbeats; they usually orient themselves toward the second half of the measure, with longer note values falling on the second dotted-quarter-note beat. The omission of the strongest beat and articulation on the second, weaker beat of the measure is similar to 2-3 clave son (Stover 2023).
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15. Others parse the formal structure of *currulao* slightly differently from myself. For example, Martínez Carvajal considers it to be a four-part form, in which the marimba solo is its own formal section (Martínez Carvajal 2005, 183–186).
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16. "En algunas ocasiones el maestro Gualajo y su hermano Gerano interpretan esta figura en la marimba de forma continua, estableciendo un ostinato rítmico de una gran complejidad interpretativa. Al presentarse de manera continua, produce la sensación de una yuxtaposición de subdivisión binaria del pulso, ligeramente desplazada del primer tiempo. Por esta razón, muchos músicos suelen llamar "dosillo" a este patrón: una figura rítmica que marca una subdivisión binaria dentro de un contexto de subdivisión ternaria."
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17. I do not know whether Candelario was the first to use the phrase "rhythmic venom" to refer to *dosillo*, but it seems that among some circles of *currulao* musicians, this rhythm has become commonly referred to not only as *dosillo*, but as *dosillo venenoso* ("venomous duple"). That said, one of celebrated marimba player's Antonio "Gualajo" Torres's sons, Jayer Torres, has never heard the

term, and thinks that even the term "*dosillo*" is not used by the more traditional *currulao* musicians, but rather is only used by musicians such as Hugo Candelario, who are coming from a more urban background (Torres, in-person communication with author, December 21, 2024).
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18. "Si no hay percussion tranquilamente se puede sentir a dos."
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19. "Porque este man empezaba a tocar y uy no! a mí me tocaba cerrar los ojos, cerrar los ojos, concentrarme, a todos, a todos."
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20. "Aunque las interpretaciones polirrítmicas pueden sonar para el oído occidental como una estructura compleja bajo un molde métrico, los músicos africanos las conciben de un modo muy diferente. Cada una de las diversas líneas rítmicas consta de unidades métricas de igual longitud."
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21. Martínez Carvajal's idea about enculturated and unenculturated listening strategies has strong resonances with Justin London's ideas about period extraction and template matching (2012, 68–69), the latter of which will be summarized in Section 2.
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22. Although the focus of his article is on bottom-up approaches to metric perception, based on projection, Sullivan (2023) does list several caveats for why a listener may entrain to a meter before the "necessary" number of onsets. Many of these caveats are related to pre-existing mental categories and top-down approaches to metric entrainment ([4.9]). For instance, he writes that stock patterns "can facilitate meter in a similar way as melodic parallelism" ([4.8]), though—unlike Lerdahl and Jackendoff's MPR 1—schemas are frequently intra-opus rather than inter-opus. Similarly, he writes that in repeated listenings, "a listener might consciously or subconsciously impose [a] meter onto the passage" before the projections are confirmed ([4.9]). The use of schemas, therefore, allow for metric imposition, rather than metric deciphering, "overriding" bottom-up information presented on the musical surface.
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23. In her discussion of polymetric types, Poudrier presents musical structure and perception as more tightly intertwined than most other meter scholars. For instance, pushing back against Justin London's ideas about metric entrainment, she writes that "it is obvious that meter must be situated in the music (as a hybrid product of a score and its performance) as well as in the mind" (Poudrier 2008, 31), and thus not exclusively in the mind. As may be apparent by my argument about the role of onsets in metric perception, I do not agree that musical structure necessarily has such a close relationship with metric perception.
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24. Although Poudrier and Repp write that both simple and complex polyrhythms may give rise to polymetric interpretations, they suggest that "simple polyrhythms are rarely so perceived because simple pulse trains are generally insufficient to give rise to independent metric hierarchies" (Poudrier and Repp 2013, 370). Thus, the more robust projective hierarchies created by complex polyrhythms are more likely to give rise to polymetric interpretations.
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25. Chris Stover emphasizes a suggestion by Poudrier and Repp themselves, namely, that the inconclusive nature of their results may have been largely due to their experiment participants being "all musicians trained in the Western 'classical' tradition" (Stover 2022, 3) and not experts of any African or Afro-Diasporic musical traditions (Poudrier and Repp 2013, 379). On the one hand, Stover is right to highlight that empirical studies' disproportionate inclusion of Western, university-affiliated participants biases their results and that all participants of Poudrier and Repp's study matched this category (see Jacoby et al. 2020 and Heinrich et al. 2010 for more thorough discussion of such disproportions). On the other hand, it is not so clear to me that this

assumption of difference is warranted: James Burns's experience with Southern Ewe repertoires leads him to state that "having attended so many African music events over the years, I find it difficult to believe that everyone is not moving to the same beats" (Burns 2010, [16]). Similarly, Meki Nzewi writes of Igbo music that "[i]f we miss the fundamental principle of pulse in the deep structural layering of African ensemble music, we drift into the mirage of polymetric speculations" (Nzewi 1997, 42). If anything—in *currulao* as least—it is the less-experienced listeners, rather than the more-experienced ones, who upon hearing *dosillo* will be confused about what the (single) conventional meter is.
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26. A trio of articles by Joseph Dubiel, Marion A. Guck, and Bryan Parkhurst focus on exploring Wittgenstein's concept of "seeing as," translating it to the musical experiences of "hearing as" (Dubiel, Guck, and Parkhurst 2017).
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27. The opening polychord of Stravinsky's "Augurs of Spring" is an example of a slightly different musical polystructure, whose $E\flat^7$ over an $F\flat$ triad's effect is that of a single percussive, dissonant chord (a composite pattern). In this case, as the two structures are not audibly differentiated, no toggling can occur between them.
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28. This study by Vuust et al. (2006) specifically argues that polymetric scenarios are also examples of bistable states, "in which the determination of foreground-background relationship is ambiguous" (Vuust et al. 2006, 832). Results of their study suggest that when tapping along with a polyrhythmic song, the part of the brain which deals with bistable stimuli (Broadmann area 40) is indeed activated.
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29. Rhythmic patterns like those found in the recomposition are pervasive in other traditional African and Afro-diasporic repertoires and have been noted in scholarship. Willie Anku (2000) refers to such 3:2 polyrhythms as a "cross-set," James Burns (2010) titles it "Medium Interweave" or "Rhythmic Archetype 2," while David Locke (2011) calls it an "eight-feel" in ternary quadruple time. It is the added displacement relative to the recomposition which makes *dosillo* more complex, and more likely perceived as a balanced polymeter.
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30. The term "parser" became "processor" by the 1992 version of Jackendoff's work. The latter is more commonly used in music cognition.
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31. Jackendoff's focus on music perception as it unfolds in time is a move away from final-state analysis, as represented by his and Fred Lerdahl's work, *A Generative Theory of Tonal Music* (1983).
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32. Some authors do not dismiss both serial models. For instance, while Jackendoff rejects the serial single choice model because it assumes substantial backtracking, David Temperley argues that "it is possible, for example, that the system is backtracking, but is just doing it so quickly and effortlessly that we do not notice" (Temperley 2001, 209). In this article, however, I adopt the parallel multiple-analysis processor.
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33. Although he does not discuss it explicitly, David Temperley (2008) seems to rely on a parallel multiple-analysis processor to discuss hypermeter in music (primarily) of the Western common practice, arguing that perception of metric strength is not determined from a single point in time. Instead, he suggests that at a particular measure (m), a listener will have a certain understanding of its metric strength. As more measures are heard, however, listeners may alter their perception of the measure that has passed. He writes that, therefore, "each measure in the piece is experienced from the vantage points of all subsequent measures. [. . .] At each measure m, we have an

understanding of the hypermeter of all previous measures" (Temperley 2008, 312). Studying the metrically ambiguous hypermetrical transition in the first 23 measures of Beethoven's Op. 10, No. 1/i, he argues that the same measure can have multiple meanings and contrasting metric strengths, depending on at what point that meaning is ascribed. (It is possible that rather than arising from a parallel multiple-analysis processor, that this type of interpretation could arise from a backtracking serial single choice model.) Importantly, however, Temperley does still believe that the selection function only brings one meter to consciousness at a time, and that an essential aspect of metric perception is its "all-or-nothing" character (Temperley 2009, 313).
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34. Calder Hannan (2026) coins the term "temporal parallax" to refer to the varying meters that different listeners may feel.
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35. Danuta Mirka writes that the parallel multiple-analysis processor, without the requirement for onsets, would need to "elaborate an extremely high number of analyses including quite improbable ones; for instance thoroughly syncopated analyses of a given passage. Note that [Lerdahl and Jackendoff's Metrical Well-Formedness Rule 1. . .] does not exclude such analyses" (Mirka 2009, 26). Simultaneously, however, she writes that while projections based on onsets are the mechanism used for "finding meter" at the beginning of a piece, once projections have been established, a metric grid develops in the mind of the listener and onsets are no longer strictly required to maintain the meter.
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36. In 12-tone equal temperament where A=440, the tonic in "Adiós Guapi" lies somewhere between B and C. For this reason, Martínez Carvajal's transcription of "Adiós Guapi" is in B minor rather than C minor (Martínez Carvajal 2005, 185).
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37. One could argue that the *bordón* establishes $\frac{3}{4}$ instead of (or in addition to) $\frac{6}{8}$. In fact, many authors writing about *currulao* have noted its use of both meters. For instance, Ochoa et al. write that "although the score is more easily understood notated in $\frac{6}{8}$, it is worth clarifying that this music engenders a dual metricality with $\frac{3}{4}$, and that this forms a substantial part of its rhythmic richness" (Ochoa 2014, 92, translation my own). I should emphasize, however, that my choice of $\frac{6}{8}$ (and—I suspect—Ochoa et al.'s,) is not merely due to notational clarity, but is due to conventions of foot-tapping, participatory clapping, and dance steps in *currulao*. In addition, the $\frac{6}{8}$ interpretation contains no syncopation, while in $\frac{3}{4}$, the second measure of the *bordón* would have a beat where there is no note onset. The $\frac{6}{8}$ interpretation also features parallelism between the short-long motives on each beat of the *bordón*, besides the first, which emphasizes a compound melody in the upper register (C, C, B♭, D, C. . .).
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38. The *requinta*'s entrance feels anticipatory to the beats of $\frac{6}{8}$ rather than delayed from them, which is why I choose to label the displacement dissonance D3−1 rather than D3+2. In measure 5, however, the phase of the dotted quarter note gets shifted due to the harmonic change in the *dosillo*, resulting in a displacement dissonance in which the *requinta* is delayed by one sixteenth note, rather than early by one eighth.
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39. In Tabak 2020, I argue that in this excerpt the structural grouping dissonance is not felt as such, because the sixteenth notes are at such a rapid tempo that they cannot be tracked as a pulse layer that can be grouped. Rather, I coin the term "pulse dissonance" and argue that there are two simultaneous fast layers—an eighth note and a dotted-eighth note pulse layer.
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40. In their reasons for being likely perceived as balanced, Examples 10 and 11 are quite similar to Example 9, which is from the same track. Yet, the *bordón* is slightly different in the opening than in the *glosada* shown in Example 9. In the opening, there are less simultaneous onsets between *bordón*

and *dosillo* than in Example 9, so the strands are further differentiated from this perspective.
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41. For an additional example of vocal parts in *dosillo* rhythm, listen to "Quítate de mi Escalera" by Grupo Socavón de Timbiquí.
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42. Section C in "Adiós Morena" is much like a formal blend found in popular music that David S. Carter terms a "breakdown and rebuild" section (Carter 2025). These sections involve an abrupt reduction in texture in which music found in a previous section is recycled. Despite the borrowing of prior formal material, the abrupt reduction in texture and position about three quarters of the way through the song give it a bridge-like quality.
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43. The most infamous polymetric transcriptions are by Arthur Morris Jones (1959), hailed by Fabrice Marandola as the "apostle of African polymeter" (1997, 139). Many scholars have critiqued the barring of Jones's transcriptions, attributing his out-of-phase barlines to a misunderstanding of phenomenal accents (Arom 1991), a confusion between grouping and meter (Temperley 2000), a conservative notion of how much syncopation is possible (Burns 2010), and an often-incorrect association of note length with strong metric position (Tabak 2022).
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44. I have notated the *dosillo* rhythm slightly differently from the previous examples for ease of legibility with the vocal part. The reader should understand that the rhythm is identical to all other instances of *dosillo*, with streams of a dotted eighth note, displaced by a sixteenth note from the downbeats.
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45. For readers having a difficult time entraining to $\frac{6}{8}$ or $\frac{3}{4}$ at all, and who may wish to hear longer excerpts, the full track by Rio Mira should be easily available on streaming platforms.
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46. In August 2023, I attended a gig at La Topa Tolondra, a renowned salsa bar in Cali, during the week of the Petronio Álvarez festival. Esteban Copete and another ensemble of his, *Kinteto Pacífico*, performed "Adiós Morena." Nobody danced during the marimba introduction; they just enjoyed watching Copete play his opening *revueltas*. As soon as the unpitched percussion entered with their "beat drop," everybody began dancing comfortably. (Most people stepped bipedally to $\frac{6}{8}$, borrowing steps from salsa which are quite similar to *currulao* dance.) When the band hit the three notes before section C, people immediately stopped their improvised choreographies: because the gesture feels cadential, they thought the song was over. When they realized the song had continued, they did not start dancing again, and instead swayed somewhat ametrically while using this thinner texture as an opportunity to talk to people nearby. They only resumed dancing properly once the unpitched percussionists entered again at the return of the B section. Thus, even keeping in mind dancing bodies in the usual audience of this song, this formal section is marked and metrically complex.
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47. While I lack formal evidence for this, this is my general sense based on discussions with students and colleagues, who, although prompted to feel $\frac{6}{8}$ in earlier sections, often shifted metric interpretations in Section C without noticing that they were doing so.
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48. In "Mirando," it is also possible that a listener will hear the *dosillo* as essentially in $\frac{6}{8}$, but with a slightly "behind the beat" first onset. It may be that some performers play *dosillo* with a particular expressive timing that renders the pattern not quite isochronous, and that this microtiming helps disambiguate the meter in the absence of the clarifying percussion (London 2012, 182–89). An in-depth exploration of this phenomenon is beyond the scope of the current project, but is certainly

worth exploring.
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49. I observed this in person, during one of the traditional ensemble competition blocks in the 2023 Festival Petronio Álvarez. Unfortunately, I do not recall the name of the ensemble or the *requintero* that was playing at the time.
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50. James Sullivan's article on "Performing Meter" discusses many post-tonal examples in which notated and perceived meter are at odds with one another (Sullivan 2024). He argues that, in such cases, the performers should even encourage hearing the "wrong," non-notated meter by emphasizing motivic parallelisms that may misalign with notated meter.
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