

## Microtiming Analysis of Two Dance-Songs from the Pirin-Macedonia Region of Bulgaria

Nathan BERNACKI<sup>1</sup> 

<sup>1</sup>PhD student, University of British Columbia, Department of Ethnomusicology, Vancouver, British Columbia, Canada

**Corresponding author/**

**Sorumlu yazar :** Nathan BERNACKI

**E-mail/E-posta :** nsbernacki@gmail.com

### ABSTRACT

The non-isochronous meters of the Balkan Peninsula are traditionally described in ethnomusicological literature through notation indicating a 2:3 beat ratio underlain by a series of isochronous subdivisions. Within the Balkans, this theory of meter can be traced back to early twentieth century Bulgarian musicology and possibly even before, yet has not been revised or amended until relatively recently. However, recent microtiming studies nuance representations of meter that surpass the capacities of traditional Western notation through IOI (interonset interval) analysis. Through an IOI analysis of two dance-songs from villages in the Pirin-Macedonia region of Bulgaria, I show that the presumptive fixed proportions of the 3-beat ‘long-short-short’ meter (7/8, 3+2+2 in musicological terminology) of both songs do not align with and cannot be described by a 2:3 beat ratio. These quantitative findings are then contextualized in the metric perspectives of both conservatory-trained musicians and village musicians in order to assess possible epistemological obfuscation, and theorize potential revisions to theories of Balkan non-isochronous meters.

**Keywords:** Dance, meter, analysis

**Submitted/Başvuru :** 01.02.2023

**Accepted/Kabul :** 07.04.2023



This article is licensed under a Creative Commons Attribution-NonCommercial 4.0 International License (CC BY-NC 4.0)

## Introduction

A 2:3 beat ratio has been used to describe the metrically non-isochronous music of the Balkan Peninsula. Originally proposed by musicologist Dobri Hristov (1913) in his essay *Ritmichnite osnovi na narodnata ni muzika* (*The Rhythmical Bases of Our Folk Music*), this convention still informs much scholarship of these meters in contemporary North American and European ethnomusicology<sup>1</sup>. However, in my experience as a dancer, performer, and listener of this music, I have noticed some dance music in the transnational Macedonian region in which beats do not strictly align with this ratio. In following recent microtiming analyses that challenge the description of metric phenomena through a fastest isochronous subdivision (Kvifte, 2007; Polak, 2010; Johansson, 2017), this article analyzes two recordings of *horovodni* (dance-songs) from the Pirin-Macedonia region in a three-beat long-short-short meter as a means to nuance analytical conventions of Balkan non-isochronous meters.

My quantitative findings are then used to speculate at the possibility of political influence on timing practices. The 2:3 beat ratio and its origin in Bulgarian musicology was and is propagated by folk music institutions created during Bulgaria's socialist period (1944–1989). Almost all English-language monographs concerning Bulgarian folk music of this period have demonstrated that the ways in which performers renegotiate their positionality in relation to institutional and village contexts amongst others, are important in determining what and how music is performed (Rice, 1994; Buchanan, 2006; Silverman, 2012). This reality represents and constitutes the interpenetrating quality of the contexts in which musicians work in and around. In other words, the relationship between folk music institutions and village musical settings can be characterized as entangled and spectral. In the present analysis, timing data is situated in this web through examining the similarities and differences in how musical temporality is discussed in these environments. This verbal evidence is far from definitively proving a connection between musical context and timing practice, but could possibly serve as an insight into the influences and power dynamics between state-sponsored folk music institutions and village musical settings. To begin, I review pertinent terminology and recent literature.

## Definitions

Frequently used terms throughout this study such as folk music, village, conservatory, and Macedonia should be clarified. I use the term 'folk music' instead of traditional music or any adjacent term as it is a translation of *narodna muzika* (lit. people's music), the Bulgarian term for the type of music analyzed in this study. This term encompasses various meanings depending on political and historical contexts, but here I use the catch-all definition used by modern Bulgarians, referring to "wedding music, *obrabotki* [arranged folklore], and village music" (Kirilov, 2015, p. 9).

I often refer to a conservatory to village spectrum when contextualizing my findings. 'Village' is a musical setting in which music is an aural tradition, played by musicians who are largely non-professional at occasions characteristic of Bulgarian village life such as working bees, harvests, seasonal/religious celebrations, weddings, and others. However, throughout the twentieth century Bulgaria underwent massive socio-cultural shifts under the Socialist government beginning in 1944 until its fall in 1989. Within this period, Bulgaria became an increasingly urban society, partly due to mass migrations from villages to urban centers spurred by the socialist government's land reclamation policies. As a result of this rural depopulation, most of the occasions for village music stated above are currently few and far between and on the verge of extinction, with their associated musical practices, if alive, existing de-contextually as staged folklore performances.

However, even though pre-1944 village style music has progressively decreased over the decades, it was the original source material for many conservatories and professional folk ensembles, and can still exist to this day, albeit increasingly rarely. Government-operated *chitalishta* (Reading Rooms/Cultural Centers) have brought some form of Western-influenced music education to these villages, but its reception over the decades has been mixed and has not entirely erased pre-institutionalized musical conceptions. Due to this history, modern-day village music is an amalgam of traditional practice with influence from Bulgaria's socialist period. Accordingly, the usage of the word 'village' in this study refers to the practices and epistemologies of village musicians that preceded and endured socialist influence.

'Conservatory' refers to any of the centers of folk music education originally established by the Bulgarian socialist government that combine folk music and dance with various elements of Western musicology and music theory, as well as Soviet choreographic practice. The main institutions for such education include the secondary schools for folk music in the town of Kotel and Shiroka Lūka village, and the Academy of Music, Dance, and Fine Arts in the city of

<sup>1</sup> According to Rice (2000, p. 196), this essay first appears in a Western European language in a German translation of Vasil Stoin's *Bŭlgarska narodna muzika: Metrika i ritmika* (*Bulgarian Folk Music: Meter and Rhythm*) in 1927.

Plovdiv, among others. Students in these institutions read ensemble arrangements of folk music, recite folk melodies in fixed-do solfège, dictate Western melodies and functional harmony, learn Western music theory, and take classes such as ‘Bulgarian Musical Folklore’. This curriculum was designed to prepare musicians to be effective ensemble performers in state-sponsored professional folklore ensembles such as Ansambul Trakia, Ansambul Pirin, and Ansambul Filip Kutev. These institutions and ensembles were a creation of the socialist government in the mid-twentieth century as a part of a political agenda to: (1) ‘elevate’ folk music to the level of Western classical music, (2) promote Bulgaria as an ethnically uniform state, (3) integrate rural and urban populations through staged performances of village-style music, and (4) cultivate national pride in folk traditions (Rice, 1994, pp. 174–183). Since the fall of Bulgaria’s socialist government in 1989, these folk conservatories and professional ensembles still remain, but are increasingly devoid of socialist party ties or ideologies.

The term ‘transnational Macedonian region’<sup>2</sup> describes the region containing the country of North Macedonia, parts of Southeastern Serbia, the province of Greek-Macedonia, and the region of Pirin-Macedonia in Bulgaria. The history of Macedonia and its boundaries is a topic of constant political dispute in the Balkans, as seen through the aforementioned quartering of territory bearing its name. However, this transnational region contains similar musical characteristics across borders such as the metric phenomena I present below, representing the blurred, porous, and fluctuating nature of boundaries throughout the Balkan Peninsula. With these terms clarified I will now define musical vocabulary concerning temporality in Bulgarian folk music.

## Meter

In the vast realm of what can be considered ‘Bulgarian folk music’, the definition of the word ‘meter’ is one that is constantly in flux, especially when traversing the village to conservatory spectrum of musical epistemologies. These two poles manifest even in the Bulgarian translation of the word ‘meter’, as musicologists generally use the term *razmer*, and village musicians have been documented using the word *takt* (pl. *taktove*). While *razmer* seems to refer to a written time signature, *takt* can refer to a wide range of temporal phenomena. For the purposes of this study, I define meter as how musicians and dancers coordinate the temporality of musical phenomena<sup>3</sup>. Investigating meter in a political context also reveals how changes in musical thought brought on by the institutionalization of folk music after 1944 influence how the music itself is perceived and performed. To illustrate these changes I discuss perspectives of musical temporality in Bulgarian village and folk conservatory contexts as well as instances in which the two intertwine.

With regard to village musicians, *takt* and tempo are the most common verbally recognized dimensions of musical time. In Mark Levy’s 1985 PhD dissertation on *gajdari* [bagpipers] from South-Central Bulgaria, he states that village musicians use *takt* to mean ‘rhythm’, ‘meter’, ‘tempo’, and ‘beat’, and is used to connect musicians and dancers (p. 236). In a village setting, the relationship to the beat level and its accompanying dance steps is an important consideration, as playing for dancers is a common context for village musicians. *Takt* therefore can be understood as a holistic organizing principle, existing between sonic and choreographic dimensions.

Emphasizing its importance within village metric epistemology, tempo is described by Rice (1980, p. 62) as “the only element of musical time discussed explicitly by Bulgarian singers. They compare performances along a scale from slow (*bavno*) to fast (*burzo*)”. For example, a three-beat long-short-short meter (described by musicologists as 7/8, 3+2+2) at a slow tempo ([Audio-Visual Example 1: \*Shirto\*](#)) is a different dance than at a faster tempo ([Audio-Visual Example 2: \*Ginka\*](#)), with this difference additionally marked through varying dance names and implicit melodic and rhythmic tendencies between the two (Angelov, 2018; Bulg Folk, 2012). Defining qualitative categories such as slow or moderate-fast is difficult, as different regions have different tempo-related standards. Generally, musicians have described to me that the regions of Dobrudzha (Northeast), Stranzha (Southeast), and Rhodope (South-central) have relatively slower dances than the regions of Thrace (Central), North Bulgaria, Shop (West), and Pirin-Macedonia (Southwest). While discussing these accounts, it is also worth recognizing the danger in overgeneralizing a monolithic ‘emic perspective’ of Bulgarian or Balkan musical time. Even between *gajdari* from the same region, Levy describes differences in the description of *taktove* of dance songs sharing the same musicological metric description (1985, pp. 237–238). However, recognizing the similarities between varying accounts of village musical temporality is productive in assessing their entanglement and differences with conservatory perspectives.

<sup>2</sup> This area is also commonly referred to as geographic Macedonia.

<sup>3</sup> I use temporality here as a catchall term that encompasses rhythm, beat, tempo, and other dimensions of musical time.

Conservatory-trained musicians recognize a layer of meter that is not present in the village conception, the subdivision level, as meters before 1944 were never described through the enumeration of subdivisions by folk musicians. This was a consequence of the institutionalization of Bulgarian folk music, and this method of describing Bulgarian meters remains to this day within musicological circles (Rice, 1994; Buchanan, 2006). Contemporary professionally trained folk musicians describe ‘short’ and ‘long’ beats as consisting of two and three subdivisions respectively. References to subdivisions can be seen on the pages of folk orchestra arrangements through time signatures, and musicians will explain how a *Kopanitsa* (11/8, 2+2+3+2+2, moderate-fast) has five main beats with eleven isochronous subdivisions. This conservatory perspective of meter also takes into consideration some of the same characteristics as on the village level, such as number of beats (in this case how subdivisions are grouped), tempo, and regional characteristics. Also, while I know no case of village musicians using the term *razmer* to describe the temporal aspect of their music, I have observed conservatory trained musicians use the word *takt* to refer to a ‘measure’ or ‘beat’, as this term was also used by Bulgarian musicologists such as Dobri Hristov, Manol Todorov, and Mikhail Bukoreshtliev in the early 20<sup>th</sup> century, along with *razmer*. The term *takt* is likely borrowed from German musicological terminology, indicating that some sort of institutional influence on village musical terminology must have been present before the establishment of state-sponsored conservatories.



Figure 1. Conservatory-Trained Musicians' View of a 7/8 Meter

Figure 1 shows how modern conservatory-trained musicians conceive of meters containing seven subdivisions<sup>4, 5</sup>. This metric conception combines musicological aspects such as the subdivision level, with certain aspects of village metric epistemology including tempo, ethnographic region, non-isochronous beat level that corresponds with dance steps. Even though *Ginka*, *Denyovo horo*, *Müzhka rüchenitsa*, and *Chetvorno horo* are from different ethnographic regions with different dances, the number of subdivisions, subdivision grouping, relative tempo, and the intracyclic possibilities of when dancers step are the same. However, at the village level there has been somewhat of a clash between these two metric conceptions, aptly summarized by Levy (1985, pp. 236–237):

The use of Western numerical time signatures (in this case, 2+2+2+3/8, or 9/8) is foreign to unschooled village *gajdari* [bagpipers]. The conception of additive meters as being composed of groups of twos and threes, adding up to five, seven, or nine, etc., is a conception imposed by schooled outsiders. Numerical metric designations, like other aspects of Western music theory, have become known to village *gajdari* in the contexts of folk music schools and ensembles. *Gajdari* often try to reconcile their native conception of the meter— in terms of the main beats or dance steps— with their usually vague understanding of Western time signatures.

Therefore, the degree to which these epistemologies of musical time have mixed differs on both the conservatory and village level. Furthermore, due to the absence of a uniform metric framework between these contexts, the question of whether or not the implications of Western notation accurately apply to village-style dance music should be scrutinized, as this analysis will demonstrate.

<sup>4</sup> The rightmost column of a 2+2+1+2 subdivision does not conform to London's metric well-formedness rules (London, 2012). For an in-depth discussion of this grouping, see Goldberg's *What's the Meter of Elenino Horo?* (2019).

<sup>5</sup> *Ruchenitsa* is gray because it is found in all ethnographic regions of Bulgaria. *Karamichko oro* has an asterisk because there is no predominant name for this meter. This title references just one dance mainly found in North Macedonia that can be classified by a slow 2+2+1+2 subdivision grouping. Nonetheless, I found it necessary to provide an example here to show that this category does exist, despite it being more popular outside of Bulgaria.

## Literature Review

The appropriateness of using a 2:3 ratio to describe non-isochronous Balkan meters first appeared in English in the mid-twentieth century. In Alice Singer's 1974 article *The Metrical Structure of Macedonian Dance*, while describing the difficulty of assigning numerical meters to particular dances, she states that "even within a single piece of music, the tempo may begin slowly, and by the end be quite fast. The difficulty is further compounded by *the fact that the absolute duration of the units often do not make a perfect 2:3 ratio*" (Singer, 1974, p. 386; emphasis added). Though this observation was made in passing towards relating metric patterns to dance movements, Singer momentarily went against decades of Balkan musicological research and transcription practice in claiming that some Balkan non-isochronous meters are not governed by a strict 2:3 beat ratio. This observation also may have supported her choice of describing these meters qualitatively; for example, instead of describing a *Rüchenitsa* with a 2+2+3 7/8 meter, she simplifies the description to QQS (quick-quick-slow).

The first to quantitatively address the accuracy of the 2:3 beat ratio was Dirk Molaents in his article *Perception and Performance of Aksak Metres* (2006), in which he uses IOI (inter-onset interval) measurements to determine beat proportions in certain recordings of Bulgarian folk music. His results suggest microstructures to non-isochronous meters that deviate from a 2:3 ratio, although these deviations are not consistent between performers, nor occasionally throughout an individual performance. From these microstructural findings, Molaents concludes that different performances of dances in the same meter "can follow a completely different timing scheme" (2006, p. 167).

IOI analysis in the context of Balkan performance is also found in Daniel Goldberg's *Timing Variations in Two Balkan Percussion Performances* (2015), which investigates two recordings of dance music in a slow 7/8 (3+2+2) meter. He finds that the duration of each beat category changes in relation to its position in the phrasal structure of a performance. In this analytical frame, each beat is isolated in order to determine the relative lengthening or shortening of beats throughout a performance, an aspect that is obscured if every beat is described in proportion to its respective cycle. Goldberg finds that there are statistically significant trends in the changes of average beat durations corresponding to the location of a measure within a larger phrase structure. He does not comment much on proportional aspects of these data, due to the focus on beat durations. Goldberg in a later article *What is the Meter of Elenino Horo?* (2019) uses IOI analysis to show how multiple performances of *Elenino horo* (Eleno's Dance) align with a 7/8 (2+2+1+2) meter, as opposed to other metric interpretations asserted by musicians and musicologists<sup>6</sup>. Here, he also comments on the applicability of a 2:3 ratio more generally, "many songs and pieces of instrumental dance music from Bulgaria feature repeating sequences composed of two categorically different durations, short and long, with a ratio of *approximately 2:3*" (2019, p. 69; emphasis added).

The scope of the present article's claims is limited to English-language literature, however, it is worth briefly mentioning *Quantitative Investigation of Temporal Microdeviations in Greek Asymmetric Meters* by Peninta, Campouropoulos, and Papadelis (2008) in which the authors carry out a similar analysis to that of this study. They measure the beat IOIs in many recordings of Greek traditional music that feature a three-beat long-short-short meter, and find that there is a consistent tendency for the third beat (the second 'short' beat) to be slightly longer than the second beat. This style of analysis to my knowledge has not taken place in the realm of Bulgarian or Macedonian musicology.

In summary, microtiming possibilities within Balkan traditional music have been occasionally recognized since the 1970s, but only recently have been analyzed further in order to articulate these subtleties. This recent trend may be due to developments in Digital Audio Workspace technology, and the possibility these technologies bring to detach "metric theory from notation of rhythm" (Goldberg, 2019, pp. 84–85). Outside of studies regarding Balkan folk music there has also been an uptake in microtiming analyses within North American and European ethnomusicology circles concerning Malian djembe music, Scandinavian fiddle music, and others (Kvifte, 2007; Polak, 2010; Johansson, 2017). I see the analysis presented below not only as a part of a move to nuance perceptions of Balkan non-isochronous meters beyond the 2:3 ratio, but also as a part of this rise in microtiming analyses that challenge some tenets of Western metric theory.

## Procedure

This analysis involves two recordings of village music from the Pirin-Macedonia region of Bulgaria. The first is *Malka moma vada kopa* (Little Lady Vada Digs; [Audio Example 1](#)), a song from the village of Lüzhnitsa. The song

<sup>6</sup> Goldberg (2019) argues for a subdivision grouping of 2+2+1+2 instead of 2+2+3 because four dance steps per cycle are performed, one of which occurs on the singleton fifth subdivision.



is performed by two *tambura* (eight-string double coursed lute) players and a women's choir, the Women's Folklore Group of Lŭzhnitsa Village (Bozhilova, 2017). The second is *Oi le Kale* (Oh, Kale; [Audio Example 2](#)), a song from the village of Kremen in the same region, performed by the Women's Folklore Group of Kremen Village, also with *tambura* accompaniment and a *kaval* (traditional flute) (Karapachov, 2018). These songs are both performed in the characteristic melody-drone diaphonic style of the region, defined by Kirilov as one of the oldest textures found in Bulgarian folk music (Kirilov, 2015, p. 10). Amateur village groups like these were referred to as *kolektivi* and were originally a creation of the Bulgarian socialist government in the 1950s to 'preserve' certain styles of pre-1950s rural music at the non-professional village level. These songs and their accompanying dances were traditionally performed at seasonal festivals, weddings, and other common occurrences for village music making, but now mainly persist in staged folklore performance settings. Both of these songs were recently posted to YouTube by Bulgarian accounts that post hundreds of videos of village-style folk music, but the actual date and context of these recordings is unknown. I selected these two songs in particular because their meters share the same musicological description (7/8 3+2+2), but to my ear exhibit two distinct beat proportions that both escape accurate description through a 2:3 ratio.

First, the IOIs between beats in a sampling of each song were measured. For *Malka moma vada kopa*, 54 consecutive cycles were measured totaling 162 IOIs, and for *Oi le Kale* 48 consecutive cycles were measured totaling 144 IOIs. In all samples, IOIs between *tambura* strokes were measured, whether the section was instrumental or vocal. The reasons for this choice were that: (1) the *tambura* onsets fall on each beat, (2) these onsets are present throughout both vocal and instrumental sections, and (3) the *tambura* strokes show the clearest waveform in the Reaper Digital Audio Workstation used in this measurement<sup>7</sup>. IOIs were marked first by tapping along to put the markers in roughly the right location, followed by two rounds of manual revision adjusting each marker to a point in the corresponding waveform. The IOIs for each song were then divided into the categories Beat 1, Beat 2, and Beat 3. Each cycle was then proportionally stretched by dividing each beat by its respective cycle length, and an average representative cycle was generated through averaging each of these proportionally adjusted beat categories. These singular representative cycles are then used to compare the timings of these songs with the timing of an exact 7/8 meter.

## IOI Analysis

On the left side of Figure 2 are the durations of all IOIs measured for *Malka moma vada kopa* (MMVK) grouped into three-beat cycles, and on the right are these timings proportionally adjusted. The average durations for Beats 1, 2, and 3 are 321 ms, 246 ms, and 272 ms respectively, with an average cycle duration of 839 ms<sup>8</sup>. The average beat proportion of these cycles is 38:29:33<sup>9</sup>. Figure 3 again displays durations on the left and the proportions on the right for *Oi le Kale* (OLK). The average beat durations for Beats 1, 2, and 3 are 399 ms, 229 ms, and 272 ms, with an average cycle length of 900 ms<sup>10</sup>. The average beat proportion of these cycles is 44:26:30<sup>11</sup>.

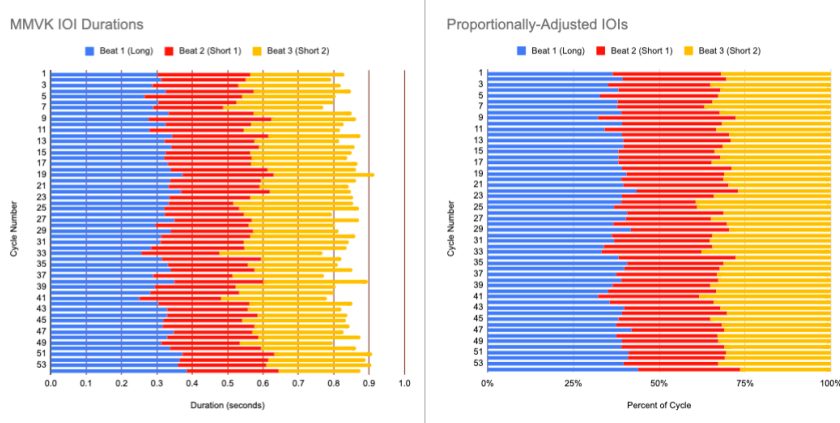


Figure 2. IOI Durations (Left) and Proportions (Right) for *Malka moma vada kopa*

<sup>7</sup> Reaper is a professional-grade Digital Audio Workstation (DAW) developed by Cockos Inc., similar to popular DAWs such as Logic and Ableton.

<sup>8</sup> The standard deviations for MMVK's durations are 29 ms (Beat 1), 24 ms (Beat 2), 24 ms (Beat 3), and 35 ms (Average Cycle Duration).

<sup>9</sup> The standard deviations for MMVK's beat proportions are 2.6% (Beat 1), 2.7% (Beat 2), and 2.8% (Beat 3).

<sup>10</sup> The standard deviations for OLK's durations are 35 ms (Beat 1), 28 ms (Beat 2), 29 ms (Beat 3), and 40 ms (Average Cycle Duration).

<sup>11</sup> The standard deviations for OLK's beat proportions are 2.9% (Beat 1), 3.3% (Beat 2), and 2.8% (Beat 3).

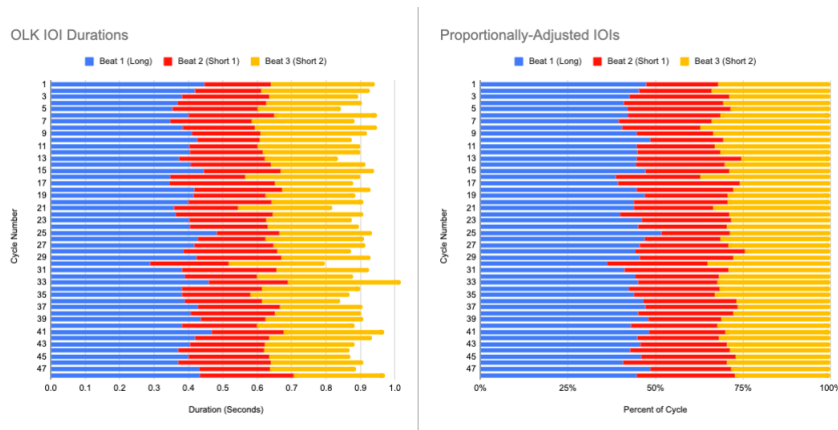


Figure 3. IOI Durations (Left) and Proportions (Right) for *Oi le Kale*

To compare these proportions with those of a 2:3 beat ratio, Figure 4 juxtaposes a grid of seven equally spaced subdivisions with the proportion data of both songs. In *Malka moma vada kopa* there is a tendency for most beats to land before those predicted by a 7/8 (3+2+2) timing, with a shorter Beat 1, and the remaining cycle length split unequally with Beat 2 often shorter than Beat 3. In the case of *Oi le Kale*, Beat 1 is close to that of a 7/8 timing, however Beats 2 and 3, much like *Malka moma vada kopa*, demonstrate a tendency for a shorter second beat in comparison with the third.

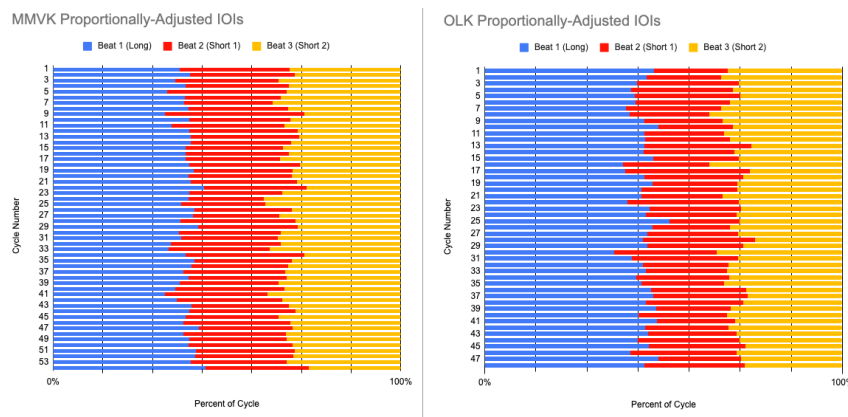


Figure 4. IOI Proportions for Both Songs underlain with 7/8 Grid

To explore the relationship between Beat 2 and Beat 3, Figure 5 shows the proportions of these two beats on their own. In *Malka moma vada kopa* 44 out of the 54 cycles (82%) have longer third beats, while in *Oi le Kale* 39 out of the 48 measured (81%) feature a longer third beat. The degree to which Beat 2 is shorter than Beat 3 differs, as *Malka moma vada kopa* has an average ratio of Beat 2 to Beat 3 of 0.91, while with *Oi le Kale* this ratio is 0.86.

When comparing the proportions of *Oi le Kale* and *Malka moma vada kopa* together, *Malka moma vada kopa*'s first beat is about 6% shorter than that of *Oi le Kale*. *Malka moma vada kopa*'s second and third beats are 4% and 2% longer respectively than *Oi le Kale*'s beat proportions (see Figure 6).

To give an example of how these proportions sound, [Audio Example 3](#) beats these three proportions eight times starting from eight repetitions of an exact 7/8 timing, followed by *Malka moma vada kopa*'s proportion, and finally the proportion of *Oi le Kale*. In both songs, Beat 1 is the longest by far, and Beat 3 is slightly longer than Beat 2. Curiously, this tendency of a slightly shorter Beat 2 in relation to Beat 3 within a three-beat long-short-short meter was also found in Peninta et al.'s (2008) and Goldberg's (2015) microtiming studies conducted on Greek and Macedonian music in the same meter.

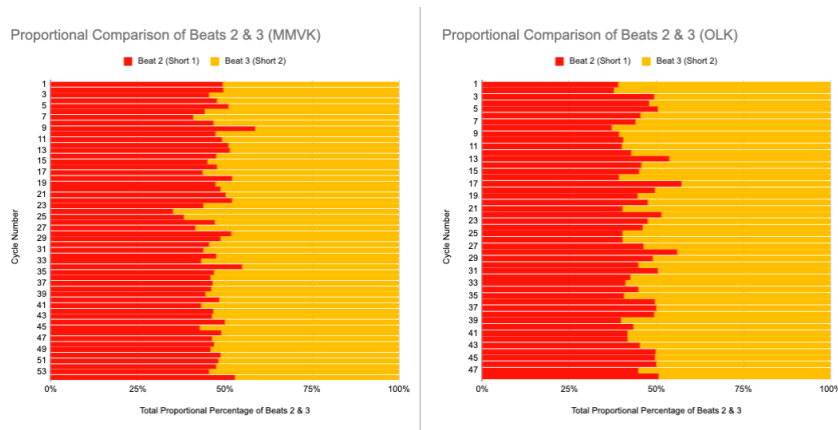


Figure 5. Proportional Comparison of Beats 2 and 3 in Both Songs

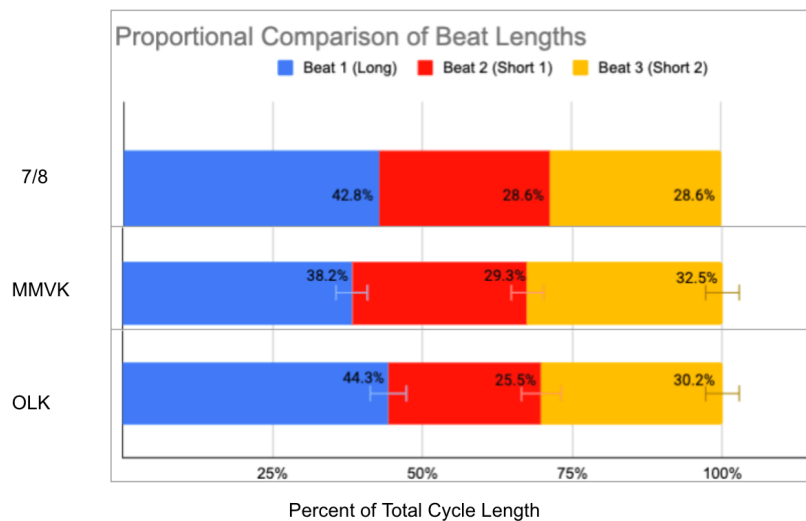


Figure 6. Proportional Comparison of Average Beat Proportions

The microstructure of this meter and the non-alignment of beat onsets with a 7/8 grid indicate that these timings cannot be characterized by a strict 2:3 ratio coordinated by an underlying series of isochronous subdivisions. Before discussing these findings from the viewpoints of conservatory-trained musicians and village musicians, I will first consider the text setting and corresponding dance.

### Lyrical and Choreographic Analytical Angles

A possible interpretive angle concerns the text setting of the songs. Speculatively, the more equal distribution of the beat durations in *Malka moma vada kopa* as compared to *Oi le Kale* could be attributed to the number of syllables per measure, as *Malka moma vada kopa* alternates between two and three syllables per measure, while a majority of the measures in *Oi le Kale* have only two syllables. One could argue that because there are more often three syllables per cycle in *Malka moma vada kopa*, these syllables could have a tendency to be more equally distributed across the measure, such that 38:29:33 could be seen as closer to 33:33:33 (3/8, equally distributed) than 42:29:29 (7/8, unequally distributed). Similarly for *Oi le Kale*, because there are more often only two syllables per measure, they could have a tendency of equal distribution: 44:26:30 could be seen as closer to 50:25:25 than 42:29:29. However, I would like to leave this explanation in the realm of speculation, as there is no reason to assume a tendency towards equal syllabic timing distribution. Many other songs from this region feature two to three syllables per line that are either not in a long-short-short meter (Audio Example 4), or if in a long-short-short meter, feature a much stricter 2:3 beat ratio (Audio Example 5) (Trio Karadzovska - Topic, 2014; Bozhilova, 2017).



Syllabic explanations for the existence of non-isochronous meters in Bulgarian folk music have been proposed by Kremenliev in his article *Types of Bulgarian Folk Songs* (1956), where he attributes the meter of 14/16 ( $9/16 + 5/16$ ) to the accentual pattern of the syllables in the song *Bekviya*. “The metre is most unusual: it consists of two groups –  $9/16$  ( $2+2+2+3$ ) +  $5/16$  ( $2+3$ ), for a total of  $14/16$ . The pattern has resulted from the stress of the words, the qualitative accent falling on syllables that are strong in speech. As is common in Bulgarian folk music the setting is verbal” (Kremenliev, 1956, p. 359)<sup>12</sup>. However, this and other syllabic connections made by Bulgarian musicologists are used mainly to describe the basis of beat non-isochrony, and do not describe or theorize about beat timings other than those of a 2:3 ratio.

Choreographically, this difference between an isochronous  $7/8$  and the data presented is of no consequence for dancers, as the possibilities for stepping in Bulgarian folk dance is limited to the onset of each beat. For example, in this three-beat long-short-short meter there are only three possible times in which dancers can step per cycle, as there are only three beats. In other words, no matter the relative durations of the meter’s long and short beats, dancers will step accordingly. This phenomenon should be distinguished from the lead dancer-musician interaction commonly found in the transnational Macedonian region, as these song’s cycle durations are too short for the musicians to time each beat in accordance with the lead dancer’s steps. For instance, compare the metric feeling of *Malka moma vada kopa* and *Oi le Kale* to this recording of *Makedonske horo* (Macedonian Dance) ([Audio Example 6](#)), performed by an ensemble from the same region. In this recording, the cycle durations of this long-short-short meter are much longer and are felt more loosely. This metric feeling of the performance’s first half may be due to the coordination of beat timings with the steps of the lead dancer.

### Contextualizing the Data

As stated above, Bulgaria’s state sponsored recontextualization of folk music as a spectacle for the stage required musically literate, conservatory trained performers to read from the scores of government-approved arrangers (Rice, 1994; Buchanan, 2006). Throughout their conservatory education, musicians learned to conceive of dance music through Western time signatures implying a 2:3 beat ratio informed by the work of Bulgarian musicologists such as Dobri Hristov, Vasil Stoin, and Stoyan Dzhudzhev. While this ratio may at times function as an approximation, the continued use of Western notation with its implication of subdivision-level isochrony cannot describe important metric nuances such as those articulated in the present study. The institutions that use these texts still exist to this day, albeit less entangled with political ideology, and produce musicians such as Stoimen Dobrev.

Stoimen is a *kaval* player and an example of a modern-day conservatory-trained working musician. He underwent conservatory training at the Academy of Music, Dance, and Fine Arts in the city of Plovdiv, later taught music theory at the secondary school for folk music in the village of Shiroka Lŭka, and is the choir director of the National Folklore Ensemble ‘Pirin’. On a personal level he was my teacher in Bulgarian folk music for two years while completing my undergraduate degree in the town of Blagoevgrad. When asked about the meter of these two songs, he said both were in  $7/8$ , but performed *neritmichno* (arrhythmically). The onset timings of these songs were near enough to be considered  $7/8$ , but in his view also different enough to be marked as not strictly  $3+2+2$ . For Stoimen, these timings are a deviation from an ideal  $7/8$ , a participatory discrepancy perhaps, a perception informed by his conservatory background.

However, this perspective does not fully take into consideration the view of the village musicians. Due to the COVID-19 pandemic, I myself did not have the opportunity to ask the musicians of these particular ensembles about their conceptions of meter (*takt*). Therefore, I return to the discussion of Bulgarian village conceptions of meter documented in the work of Mark Levy (1985) and Timothy Rice (1980, 2000).

As previously described, Levy documents village musicians’ metric understanding as one that emphasizes the beat level, and is not governed by an underlying stream of subdivisions. “*Gajdari* [bagpipe players] generally conceptualize the various dance meters in terms of the dance steps. In the *svornato* [ $9/8$   $2+2+2+3$ ], for example (Fig. 5b), each ‘measure’ has four steps, or four main beats, with the fourth beat longer than the rest” (Levy, 1985, p. 236). This beat-level choreographic connection is made explicitly clear by one musician who described to Levy that the *takt* originates in the dancers’ feet, and its purpose is to link the musician and the dancer (Levy, 1985, p. 236). Rice (1980, p. 63) describes a similar sentiment among singers in the Shop region in Western Bulgaria, finding that “[the] number of pulses (5, 7, 9, 11) is not an emic feature of Bulgarian meters, whereas metrical groups, accentuation, (and perhaps others) probably are”. And later generalizing this observation to all Bulgarian village musicians, Rice (2000, p.203) states, “If you ask them [Bulgarian village musicians] to count out the meter, which they don’t, they either can’t do it at

<sup>12</sup> Other Bulgarian musicologists such as Stoyan Dzhudzhev (1970) have taken to ancient Greek poetic forms to theorize how these meters came about.

all or, if they tried, would count the recurring unequal beats rather than the equal pulses, so they would count 5 (2+3) as 2, 7 (2+2+3) as 3, 9 (2+2+2+3) as 4, and 11 (2+2+3+2+2) as 5". In theorizing the broader implications of this metric conception, Rice (1980, p. 64) draws comparisons between the musical epistemology of the Debarčani of Macedonia and that of Bulgarian village musicians through the work of Christopher Marshall:

He argues (p. 17 of ms) that "each [musical] piece is seen as a concept, a single entity apprehended by the *akil* [mind] as a total Gestalt. The concept of structure is foreign to this epistemology..." This approach to a song as a totality helps to explain why sub-strophic form, the size of intervals, the precise character of ornaments, and the number of beats per measure are not analyzed; they cannot be analyzed by a 'mind' that 'grasps' the song as a whole, unbreakable concept.

I would add that the *takt*'s choreographic correspondence also supports Marshall and Rice's claims of a holistic approach to village musical epistemology, as through this perspective music and dance are seen as inextricable from one another.

Since the recordings analyzed in this study are from village ensembles most likely consisting of musicians with little to no conservatory training, these beat proportions are likely representative of the beat-level metric understanding described by village musicians in Rice's and Levy's accounts. Combining this perspective with the data of this analysis suggests that the beat categories of 'short' and 'long' take on a more qualitative than quantitative meaning, and could refer to a range of timings that are not limited to that of a 2:3 ratio. Also, given the connection of these meters with dance, this range of ratios does not hinder dancers' ability to coordinate their steps, as almost all Bulgarian folk dances step to the beat level, not the subdivision level.

## Conclusion

The two main findings of this analysis are: (1) a possible microstructure of village music from the Pirin-Macedonia region that features a three-beat long-short-short meter, wherein the first beat is the longest and the third beat is slightly longer than the second; and (2) the beat onsets of these songs are not governed by an exact 2:3 ratio coordinated by a series of isochronous subdivisions. I take the stance that describing the meter of these songs with a 7/8 3+2+2 time signature, the convention in Bulgarian musicology, obscures both of these findings. However, despite my position, perhaps the most intriguing aspect of these songs is the multitude of perspectives and theoretical approaches concerning their meter. For institutionalized folk music settings they are a deviation from an ideal ratio, at the village level they are representative of a local metric epistemology, and for the analytical ethnomusicologist they are another example of how musicians metrically coordinate without reference to a common fastest subdivision.

This copresence of viewpoints also invites an opportunity for them to inform each other, particularly due to the perspectival obfuscation caused by the musicological conception of these meters. In place of a 7/8 3+2+2 description of these songs, a beat level description such as 'a three-beat long-short-short meter' combined with the observed microtiming trend could bring specificity and nuance while retaining comprehensibility. Nevertheless, I advocate for close attention when analyzing and engaging with the meters of the transnational Macedonian region, for space in between the stimulus of this music's non-isochronous meters and the response of assigning them a 2:3 ratio.

---

**Peer-review:** Externally peer-reviewed.

**Conflict of Interest:** The author has no conflict of interest to declare.

**Grant Support:** Some of the research for this article was developed in a research group funded by a Social Sciences and Humanities Research Council (SSHRC) Grant.

**Hakem Değerlendirmesi:** Dış bağımsız.

**Çıkar Çatışması:** Yazar çıkar çatışması bildirmemiştir.

**Finansal Destek:** Bu çalışmadaki araştırmaların bir kısmı Social Sciences and Humanities Research Council (SSHRC) tarafından finanse edilmiş bir araştırma grubuyla geliştirilmiştir.

---

**ORCID ID of the author**

Nathan BERNACKI 0000-0002-3653-0965

**REFERENCES**

- Angelov, D. (2018, June 9). “Ginka” Horo Dance [Video]. YouTube. <https://www.youtube.com/watch?v=zALN6LcVQII>.
- Bozhilova, V. (2017, March 2). *Малка мома вада копа - женска гр. от Лъжница* [Malka toma vada kopa - ženska gr. ot Lžnica] [Video]. YouTube. [https://www.youtube.com/watch?v=99Ho\\_GMs\\_f0](https://www.youtube.com/watch?v=99Ho_GMs_f0).
- Bozhilova, V. (2017, September 30). *У Радине госте дойде - мъжка група Десилица* [U Radine goste doide – mužka grupa Desilica] [Video]. YouTube. <https://www.youtube.com/watch?v=gI-NWbL0w5s>.
- Buchanan, D. (2006). *Performing Democracy: Bulgarian Music and Musicians in Transition*. Chicago: University of Chicago Press.
- Bulg Folk. (2012, June 26). *ШИРТО - SOUTHWEST BULGARIA* [Širto - Southwest Bulgaria] [Video]. YouTube. <https://www.youtube.com/watch?v=JT0ss1tYt5s>.
- Chasnikov, A., & Dzhambazov M. (1959). Makedonske Horo (Dance). On *World Library of Folk and Primitive Music – Volume XVII* [Vinyl]. New York City: Columbia Masterworks.
- Dzhudzhev, S. (1970). *Bŭlgarska narodna muzika: Uchebnik za bŭlgarskata dŭrzhavna konservatoriya* [Bulgarian Folk Music: Textbook for The Bulgarian State Conservatory]. Vol. 1. Sofia: Dŭrzhavno Izdatelstvo “Muzika” /in Cyrillic/.
- Goldberg, D. (2015). Timing Variations in Two Balkan Percussion Performances. *Empirical Musicology Review*, 10(4), 305–328.
- Goldberg, D. (2019). What’s the Meter of Elenino Horo? Rhythm and Timing in Drumming for a Bulgarian Folk Dance. *Analytical Approaches to World Music*, 7(2), 69–107.
- Hristov, D. (1913). Ritmichnite osnovi na narodnata ni muzika [The Rhythmical Bases of Our Folk Music]. In *Sbornik za narodni umotvorenie i narodnospis 27*. Sofia: Bulgarian Academy of Sciences /in Cyrillic/.
- Johansson, M. (2017). Non-Isochronous Musical Meters: Towards a Multidimensional Model. *Ethnomusicology*, 61(1), 31–51.
- Karapachov, M. (2018, February 14). *Ой ле, Кале* [Oi le Kale] [Video]. YouTube. <https://www.youtube.com/watch?v=-JcJ2HU1TaA>.
- Kirilov, K. (2015). *Bulgarian Harmony in Village, Wedding, and Choral Music of the Last Century*. Farnham, UK: Ashgate.
- Kremenliev, B. (1956). Types of Bulgarian Folk Songs. *The Slavonic and East European Review*, 34(83), 355–376.
- Kvifte, T. (2007). Categories and Timing: On the Perception of Meter. *Ethnomusicology*, 51(1), 64–84.
- Levy, M. (1985). *The Bagpipe in the Rhodope Mountains of Bulgaria* (Doctoral dissertation, University of California, Los Angeles).
- London, J. (2012). *Hearing in Time: Psychological Aspects of Musical Meter*. Oxford: Oxford University Press.
- Moelants, D. (2006). Perception and Performance of Aksak Metres. *Musicae Scientiae*, 10(2), 147–172.
- Peninta, K., Campouropoulos, A., & Papadelis, G. (2008, October). Quantitative Investigation of Temporal Microdeviations in Greek Asymmetric Meters. *Paper presented at the Fourth Conference of the Hellenic Institute of Acoustics*. Xanthi. Retrieved from <http://users.auth.gr/emilios/papers/elina2008.pdf>.
- Polak, R. (2010). Rhythmic Feel as Meter: Non-Isochronous Beat Subdivision in Jembe Music from Mali. *Music Theory Online*, 16(4). Retrieved from <http://www.mtosmt.org/issues/mto.10.16.4/mto.10.16.4.polak.html>.
- Rice, T. (1980). Aspects of Bulgarian Musical Thought. *Yearbook of the International Folk Music Council*, 12, 43–66.
- Rice, T. (1994). *May It Fill Your Soul: Experiencing Bulgarian Music*. Chicago: University of Chicago Press.
- Rice, T. (2000). Bela Bartok and Bulgarian Rhythm. In Elliott A., Victoria F., & Benjamin S. (Eds.), *Bartok Perspectives: Man, Composer, and Ethnomusicologist* (pp. 196–210). Oxford: Oxford University Press.
- Silverman, C. (2012). *Romani Routes: Cultural Politics and Balkan Music in Diaspora*. Oxford: Oxford University Press.
- Singer, A. (1974). The Metrical Structure of Macedonian Dance. *Ethnomusicology*, 18(3), 379–404.
- Trio Karadzovska - Topic. (2014, March 6). *Kostadine Sine* [Video]. YouTube. <https://www.youtube.com/watch?v=b9xnlV8Njhw>.

**How cite this article**

Bernacki, N. (2023). Microtiming Analysis of Two Dance-Songs from the Pirin-Macedonia Region of Bulgaria. *Konservatoryum – Conservatorium*, 10(Suppl.1), S76–S86. <https://doi.org/10.26650/CONS2023-1245746>