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## Microtonal Guitar Culture in Turkey

### ABSTRACT

The main objective of this article is to analyze the development and the contemporary artistic milieu of microtonal guitar culture in Turkey. With a particular focus on the adjustable microtonal guitar developed by Tolgahan Çoğulu, we examined musicians' experiences and the ways that they relate to this musical instrument. We used qualitative research methods and conducted in-depth interviews with our key informant and adviser Tolgahan Çoğulu as well as eight musicians who specialize in microtonal guitar. We utilized Bennett and Peterson's definition of 'scene' to discuss microtonal guitar culture in Turkey. After briefly presenting the development of guitar music and questioning the nature of its representation in Istanbul, we analyzed the themes that emerged in conversation with the guitar players. We determined that our interviewees, who are educated, enthusiastic and committed musicians, are all influenced by Tolgahan Çoğulu's efforts to shape the microtonal guitar world and are driven by their own artistic motivations. We found that musicians shared views on the innovative and promising qualities as well as certain live performance-related difficulties of this instrument –including the need to hammer new frets for different tuning systems on stage and the necessity of sharing microtonal guitar music recordings or videos using new media technologies. Although musical pieces in the microtonal guitar repertoire are mainly rooted in Turkish music, many consider this instrument to be an attempt towards overcoming the generally accepted distinctions between Western and Eastern music. We aim to contribute to further analysis of this flourishing music culture through our discussions on future implications of the current situation and our projections for the growing interest in microtonal music in Turkey.

### KEYWORDS

Microtonal guitar

Music scene

Turkey

Tolgahan Çoğulu

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## Introduction

While music as a way of communication and self-expression can create harmony among the members of a group or society, different instruments may also bring different perspectives based on different expressions by music makers. In this regard, the nature of musical representation cannot be put forward without questioning the nature of musical instruments. New instruments not only bring new sound opportunities, but also give an idea about different music cultures. In this article, centering the adjustable microtonal guitar developed by Tolgahan ođulu, we aim to examine the development of this recent invention and the opportunities it provides. In this collaborative research, in order to examine the emerging microtonal guitar culture in Turkey, we conducted semi-structured in-depth interviews<sup>1</sup> in January 2021 with prominent guitarists from Turkey who specialize in microtonal guitar, namely Akın Eldes, Ali Deniz Kardelen, Batuhan Karatay, Emre Ünlener, İlke Şen, Salih Korkut Peker, Süleyman Hakan Görener, Tufan Kurdođlu. Tolgahan ođulu has been our key informant throughout our research and served as the reference person in determining our interviewees. We also conducted a separate interview with ođulu to grasp the world of adjustable microtonal guitar.

After completing our literature review, followed by our in-depth interview recording<sup>2</sup> and transcription period, we realized a text-analysis in order to come up with the prominent themes and sub-themes. We structured our article as follows: In order to make sense of microtonal guitar's place in Turkey from a historical perspective, we examined how classical guitar evolved and how new inventions paved the way for adjustable microtonal guitar. Subsequently, in order to question the nature of the flourishing microtonal guitar scene, we positioned microtonal guitar music within the broader guitar culture milieu in İstanbul. The following sections describe the results and discussions that arose from the responses of our interviewees. In this context, after briefly mentioning educational background of our informants, based on the interviews, we discussed the following respectively: Pros and cons of the adjustable microtonal guitar, artistic attitudes and motivations of the musicians, the current position of adjustable microtonal guitar in

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<sup>1</sup> Before conducting interviews, we applied for and received an ethics committee approval report from the corresponding author's affiliated institution, Maltepe University, Istanbul (Turkey). All interviews were conducted in Turkish and translated into English by the authors.

<sup>2</sup> Because of the Covid-19 pandemic, our interviews were conducted via Internet, following the ethical requirements of a qualitative research and in accordance with the availability and consent of the musicians.

Turkey and what to expect in the near future, the adjustable microtonal guitar's relationship to new media, and increasing public interest in microtonal guitar.

### **A Historical Overview: The Past and The Present of Guitar Culture**

Musical innovations, technological advances and different guitar designs which push the limits have enabled guitar players going beyond conventional methods of playing. These developments also challenged assumptions about the nature of music and guitar. While “early efforts were taken to extend the instrument’s tessitura, or powers of projection” (Schneider, 2015: 58), the guitar still continues to evolve.

The instrument today known as the guitar dates back to the early 19<sup>th</sup> century. According to Harvey Turnbull, although the exact date for the transition to the six-string guitar is uncertain, “six-course guitars with an extended tuning became established in Spain at some time before 1780” (Turnbull, 1991: 62, 63). However, for him, this transition period cannot be reduced to “a single line of development” (Turnbull, 1991: 62). Nevertheless, some major cities of the 1800s evidence the increasing importance of six-course instrument: “By the beginning of the 1800s, the instruments found in Paris and Vienna, the two centers for guitar performance, boasted six single strings and tended to be wider and sturdier than its five-course predecessor” (Schneider, 2015: 3). The first half of this century is also called as ‘The Golden Age of Guitar,’ paving the way for developments in the instrument and playing techniques due to the influence of “a generation of composer guitarists including Fernando Sor (1778-1839), Mauro Giuliani (1781-1829), Ferdinando Carulli (1770-1841), Dionisio Aguado (1784-1849), and Matteo Carcassi (1792-1853)” (Çoğulu, 2011: 41). Graham Wade, on the other hand, emphasizes the pedagogic and the creative aspects of the guitar in the same time period: “Great teachers of the age developed the techniques...The leading guitarists also endeavoured to compose extended musical structures...” (Wade, 2012: 99)

Although the classical guitar’s physical form is standardized as a six-stringed instrument with twelve equally spaced semitones in each string, many have attempted to design the guitar differently.<sup>3</sup> These efforts also parallel the musical innovations and some avant-

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<sup>3</sup> One of the early contributors to the development of classical guitar, Spanish luthier Antonio de Torres lived in the 19th century, designed a specific structure to reshape guitar with a focus on “string length, fan-strutting beneath the front of the instrument, overall proportions, types of wood used, quality of tone etc” (Wade, 2001: 94).

gardist movements of the 20<sup>th</sup> century. Questioning 12-tone equal temperament to overcome sound limitations might be considered one of the heated discussions of the early 1900s. However, the start of this debate goes back centuries earlier. Different figures suggested a different division of the octave. Their main motivation was to change the gradation of the octave from finite to infinite. In other words, they sought to find different microtones, pitches less than a semitone. This effort was also related to the distinction between just intonation or Renaissance/Baroque period tunings (meantone and well temperaments) and 12 tone equal temperament.

It's possible to start the history of the microtonal guitar with the 'Enharmonic Guitar' designed by Perronet Thompson in 1829, which has hundreds of holes on its fretboard. The first efforts to produce microtonal guitar with individually movable frets date back to 1845. This early production of guitar is known as '*guitare à tempérament réglable*' and it was produced by luthier René François Lacôte and Henry Carnegie Carden (Schneider, 2015: 61; Westbrook, 2012).

Moving into the 20<sup>th</sup> century, re-fretting guitars in this period was firstly pioneered by Julian Carrillo, Augusto Novaro, Alois Hába and Harry Partch. Lou Harrison, Terry Riley, LaMonte Young, Ben Johnston and others followed them (Schneider, 2015: 60). Tom Stone made the first attempt to commercialize microtonal guitar. Designing many interchangeable fingerboards was considered to allow musicians to have different tuning possibilities:

"Like Harrison, the guitarist and luthier Tom Stone, an instructor at the San Francisco Conservatory, wanted to free the guitar of its reliance on equally tempered frets... Stone didn't want to lock the guitarist into any single tuning system. His ingenious solution was to create a system of interchangeable fingerboards, each of which could be swapped out and locked to the neck of a single guitar" (Alves et al., 2017: 343).

However, the promising company started by Stone went bankrupt in 1985 (Schneider, 2015: 60). Meanwhile, Daniel Friederich and Walter Vogt were also interested in how to overcome intonation problems of the guitar. In 1977, Friederich came up with a 'meantone guitar' with movable frets. "In 1985, Vogt invented a guitar with a fretboard he called 'the Fine-Tunable Precision Fretboard', on which all the frets are movable for

limited distances via the channels under the strings,” Çoğulu said (Turkish Musician Invents a Guitar for Music of East, 2013).

Schneider notes the problem with these two systems, writing that “the fretlets can only enter a channel from the end of the fingerboard at the soundhole: if an extra fret is required between 2nd and 3rd fret, for example, all of the frets would have to slide forward from above and subsequently retuned” (Schneider, 2015: 63).

In 2008, Tolgahan Çoğulu, a Turkish guitarist and PhD student at Istanbul Technical University at that time designed an adjustable microtonal guitar inspired by Lacôte and Vogt. Çoğulu states:

“On the adjustable microtonal guitar’s fretboard, there are channels under each string. I have 150 fretlets (little frets) that can be inserted into or removed from these channels. These fretlets can also be moved along the fretboard as you wish. I should say that the channel idea belongs to the German luthier Walter Vogt... Thanks to the financial support from Istanbul Technical University and luthier Ekrem Özkarpaz, I have a fretboard and fretlets that have all the properties I need” (Çoğulu, 2010: 80).

We can interpret Çoğulu’s statement about microtonal guitars as a search to find unconventional guitars with different tuning systems, one aimed at increasing the flexibility of the players by improving the range of intonational possibilities. Çoğulu, who founded the world’s first microtonal guitar department in 2014, has been working at Istanbul Technical University Turkish Music State Conservatory since 2003. He also received the first prize at Georgia Tech Margaret Guthman Musical Instrument Competition in 2014 (Tolgahan Çoğulu, 2021). Moreover, he started the world’s first microtonal guitar competition in 2016 and organized the world’s first microtonal guitar festival in 2019.

Çoğulu has not yet succeeded in transforming the adjustable microtonal guitar from an esoteric instrument meaningful to academics and fellow guitarists to a wider audience of popular music. However, he makes great efforts to spread this guitar throughout the world. More recently, Tolgahan Çoğulu’s new design with a collaboration with his son Atlas Çoğulu and Ruşen Can Acet, lego microtonal guitar, won the ‘People’s Choice’ award and became a finalist in the Guthman Musical Instrument Competition (2021)

## **A Contemporary Look: Can We Speak of a “Microtonal Guitar Scene” in Turkey?**

The innovations, experimentalism and change in techniques in the pursuit of novelty within the guitar culture paved the way for the emergence of the microtonal guitar. In addition to the organological analysis presented in the previous part, we can now focus on and question this guitar’s current position within the broader music milieu. This will subsequently reveal its multilayered importance ‘as’ a culture on its own, and ‘in’ the music culture of Turkey. Merriam (1964: 32) had initially proposed such a cultural-focused approach in his model, which designates conceptualizations of music and the sound of the music itself as the essential analytic levels for analyses.

Fundamentally, it is possible to see the emergence of microtonal music long before its incorporation with guitar. Earlier examples of microtonal music date back to the post-Renaissance period. The Baroque Temperaments including ‘meantone temperaments’ and ‘well temperaments’ were followed later by ‘equal-tempered microtonality’ (19, 24, 31 TET etc.). Yet we could even trace its origin back in the ‘Pythagorean Tuning.’ When we analyze the history of music, Middle Eastern music (specifically Ottoman, Turkish, Kurdish, Arabic, Armenian, Persian, etc.) and Asian music (Indian Raga Music, Gamelan / Balinese Music, Thai Music, Vietnamese Music, etc.), as well as Breton music in France come to the forefront among its relatively minor usages within other genres (i.e. microtonal popular music, electronic music, spectral music, contemporary music, etc.). That is to say, microtonal guitar flourished significantly within microtonal folk/traditional music.

While trying to figure out the meaning and representations of microtonal guitar and locate its culture in a wider geographical context, the visibility and the prevalence of its usage come into prominence. The concept of “music scene”, used by many contemporary scholars such as Straw (1991: 470-78), is an explanatory concept that defines the characteristics of a particular music genre or style that is performed on a particular space in a distinct geographical region. Straw also defines “*musical community*”: a community or social group based around a particular music genre where there is a high level of interaction among its participants. Here, not only the musicians, but the audience and all of the social actors who contribute to the realization of a performance, their action before,

during and after the musical event matter<sup>4</sup>. Even though each music scene is unique and has its own cultural dynamics, Bennett and Peterson (2004: 7-8) define three general types of scene:

“‘Local scene’ corresponds most closely with the original notion of a scene as clustered around a specific geographic focus... ‘Translocal’ scene refers to widely scattered local scenes drawn into regular communication around a distinctive form of music and lifestyle... ‘Virtual scene’ is a newly emergent formation in which people scattered across great physical spaces create the sense of scene via fanzines and, increasingly through the Internet.”

In this sense, microtonal guitar music in Istanbul seems to mostly fit into the second type, the *translocal* scene as it is performed by various musicians scattered around the world. Even though these musicians are few in number and not geographically close to one another to create a practical face-to-face music scene, they manage to perform both regular<sup>5</sup> and occasional academic and non-academic meetings. In addition, their web-based networking and YouTube Channels, especially the highly followed channel of our key informant Tolgahan oğulu,<sup>6</sup> constitute a *virtual* scene within a broader geography. However, when compared to other ‘guitar music’ gigs in Istanbul, microtonal guitar performances are not scattered around many districts of Istanbul (even the cultural centers of the city, such as *Kadıköy* or *Beyoğlu*) as they do not yet regularly take place within performance halls or venues designed for a small range of audience members. It is therefore still early to observe a rooted local microtonal guitar scene in Istanbul. Instead, microtonal guitar musicians with high-level artistic talent are in the pursuit of sharing their creativity with a larger scale audience as much as possible. One can also speak of a music scene of a distinct city. The global image of Chicago blues may be an example, but it seems quite early to deem Istanbul the pioneer of microtonal guitar music scene. The emerging microtonal guitar culture thus reveals a small fraction of the larger Istanbul music culture, alongside other genres, such as western-originated genres (e.g. alternative rock, EDM or hip-hop, etc.) or many different *türkü* styles and Turkish folk songs

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<sup>4</sup> Such an approach reminds us of the description of “art worlds” (Becker, 1997) and revolves a great deal around the concept of “field” (Bourdieu, 1984).

<sup>5</sup> III. Microtonal Guitar Competition (<http://www.miam.itu.edu.tr/en/2018/12/24/iii-international-microtonal-guitar-competition/>) held at Istanbul Technical University State Conservatory’s Centre for Advanced Studies in Music exemplifies this attempt to extend the microtonal guitar culture.

<sup>6</sup> <https://www.youtube.com/tolgahancogulu>

originating from different regions of Anatolia. In this sense, it should be noted that seeking a clear-cut distinction between a music scene and a musical community does not contribute to the interpretation of the rising multifaceted existence of microtonal guitar in the intra-musical and extra-musical world of Istanbul. As a result, at the beginning of the 2020s, we have observed that the expansion of microtonal musical performances is rather at a slow (even though strong and significant) pace.

It is also useful to keep in mind that microtonal guitar music, just like other music styles and genres is a part of the cultural material through which an art milieu is constructed. As de Nora (2004: 123) explains, music scenes and cultures offer different kinds of agency, different sorts of reception and ways of being. In this sense, the following part aims to analyze the contemporary microtonal guitar music culture in Istanbul throughout its most efficient agents: the musicians.

## **Results and Discussions**

### ***Educational Backgrounds of the Informants***

Our interviewees who encountered microtonal guitar in their 20s or later have different educational backgrounds.<sup>7</sup> Some of them were educated in music schools, while others were oriented towards music in different ways. For example, while Akin Eldes predominantly improved his musical skills by himself, Emre Ünlenen graduated from the Classical Guitar Department of Bilkent University. İlke Şen completed his second undergraduate education in the composition department and then obtained his master's degree in this field. He is still pursuing his PhD in the Composition Department at İstanbul University. Batuhan Karatay, who is also an opera singer, graduated from Ankara University State Conservatory with a degree in opera-singing. Tufan Kurdoğlu, who started to learn music in his 20s, graduated from the Department of Economics. He is the first PhD student of the microtonal guitar department at the Center for Advanced Studies in Music at Istanbul Technical University. He has also been a lecturer at Istanbul Technical University, Turkish Music Conservatory since 2016. Ali Deniz Kardelen started to study guitar at a very early age and won awards in various international competitions.

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<sup>7</sup> It is also interesting to note that most of the microtonal guitar players are males. As evidence, Çoğulu stated that microtonal guitar players are mostly men (Tolgahan Çoğulu, Personal communication, January 11, 2021). There are only a few female guitarists such as Sevcan Tahtacı Çukur and Bahar Adıgüzel specialized in microtonal guitar. All of the guitarists we interviewed are also males.



Süleyman Hakan Görener, who studied in the Department of Electronics and Communications Engineering at İstanbul Technical University, bought his first guitar in 2000. He was the first Master's student of the microtonal guitar department at the Center for Advanced Studies in Music at İstanbul Technical University. Salih Korkut Peker, who started playing guitar at the age of 16, has made musical studies with many professional groups. The designer of the adjustable microtonal guitar, Tolgahan Çoğulu, who received his bachelor's degree in Business Administration from Boğaziçi University, continued his graduate studies at the Center for Advanced Studies in Music at İstanbul Technical University and gradually became a guitar professor.

### ***Pros and Cons of the Adjustable Microtonal Guitar according to Informants***

When we asked our informants about the differences between classical guitar, fretless guitar and adjustable microtonal guitar, they stated that these three different guitars have different advantages and disadvantages. Strangely enough, without realizing it, our interviewees answered this question mostly on the basis of the differences between fretless guitar and microtonal guitar. This might be related to the idea that many musicians consider the adjustable microtonal guitar as an alternative to the fretless guitar in some ways. For instance, Görener said that “adjustable microtonal guitar will play a complementary role to the fretless guitar with the techniques and facilities it provides in harmony” (Süleyman Hakan Görener, Personal communication, January 22, 2021). On the other hand, it is also possible to conclude that the adjustable microtonal guitar removes some of the shortcomings of the classical guitar. According to the interviews, one of the main findings is that the microtonal guitar offers new opportunities for different guitar playing techniques and sound rather than being superior to other guitars. Süleyman Hakan Görener's statement that “all guitars have their own sounds” (Süleyman Hakan Görener, Personal communication, January 22, 2021) exemplifies this situation. Considering fretless guitar and microtonal guitar, Şen also made a similar comment to Görener: “...the fretless guitar also has a window that it opens in its own way, and that's the beauty of it. Therefore, I am not very fond of such comparisons. Otherwise it sounds like we're comparing an apple to a pear” (İlke Şen, Personal communication, January 08, 2021).

As mentioned before, classical guitar's physical form is standardized as a six-string instrument with twelve equally spaced semitones in each string. This form is well

appreciated in classical music and also serves for standardization.<sup>8</sup> However, it seems to have some disadvantages in different systems of melodic modes built upon different scales such as maqam music. The comments of our interviewees about the classical guitar demonstrate this. For instance, Kardelen stated that “classical guitar is a more suitable instrument for tonal music,” (Ali Deniz Kardelen, Personal communication, January 24, 2021) while Eldes mentioned the inadequacy of this guitar for maqam music (Akın Eldes, Personal communication, January 18, 2021). Similar to Kardelen, Peker also points out that “the classical guitar is a very important instrument for getting to know the map of the world created by western harmony” (Salih Korkut Peker, Personal communication, January 23, 2021). Peker also claims that 12-tone equal temperament has certain limitations. He adds that such limitations mainly restrict representations of different cultures like that of Turkey.

On the other hand, fretless guitar aims to go beyond sound limitations of classical guitar. It allows musicians to explore microtonal chords and melodies. In their ethnomusicological research, Kevin Dawe and Sinan Cem Eroğlu point out the importance of Erkan Oğur, one of the most important pioneers of fretless classical guitar in 1976, and they make the following statement:

“We establish some baseline data and evidence for the role of key individuals in the establishment of Turkish guitar culture. It is clear that Erkan Oğur has been a driving force behind the establishment of this instrumental culture and that he has made a broader contribution to Turkish musical life beyond the guitar” (Dawe & Eroğlu, 2013: 69).

While fretless guitar, unlike classical guitar, provides new opportunities for playing microtones, Ünlünen (Emre Ünlünen, Personal communication, January 10, 2021), Şen (İlke Şen, Personal communication, January 08, 2021) and Karatay (Batuhan Karatay, Personal communication, January 17, 2021) stated that it sounds more like oud<sup>9</sup> than guitar. As Karatay stated, flexible microtones broadening musicians’ horizons in

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<sup>8</sup> Weber, in his rationalization theory, alleges that western music depicts rational foundations of music (Weber, 1958). Standardization of music notation and the instruments results in the same pitch, sound and timbre opportunities. Turley further states that “Weber identifies the historical and economic advances of the piano as symptomatic of the rationalization process at work in capitalist societies, because this was the goal of his design” (Turley, 2001: 639). Classical guitar also represents an example of rationalization of music.

<sup>9</sup> Oud is a lute-like, pear-shaped string instrument “prominent in medieval and modern Islāmic music” (Üd, 2010). It resembles fretless guitar since they both have no frets.

ascending and descending scales are the most explicit advantages of fretless guitars. For this reason, Akin Eldes views such guitars as instruments with infinite freedom (Akin Eldes, Personal communication, January 18, 2021). According to our informants, other positive outcomes or advantages of fretless guitar include its contribution to various genres of Turkish music, the expansion of the musical possibilities of the oud and the tambur<sup>10</sup> and having a plummy sound. When it comes to disadvantages, our respondents mentioned the following negative features of the fretless guitars: difficulty overcoming guitar intonation issues, the inconvenience when playing chords with a wide variety of notes, difficulty finding the exact location of the microtones, lack of classical guitar's brightness and timbre in tonality and difficulty in playing.

Our informants presented their opinions on adjustable microtonal guitar in terms of general sound and musical possibilities, playing techniques and the place of guitar in practice. First of all, most of the interviewees stated that the microtonal guitar sounds more like a guitar than a fretless guitar. According to our informants, having more possibilities in different chord systems compared to the classical guitar, clearer voices and easy detection of microtones compared to fretless guitar seem to be the most explicit advantages of adjustable microtonal guitar. The feature of not losing the guitar tone in polyphonic arrangements, providing performance opportunities for both modal and contemporary music, offering an ergonomic advantage in bringing the horizontality of modal music and the verticality of western harmony seem to be other advantages of adjustable microtonal guitar with regard to sound and musical possibilities. In addition to these, Görener claimed that adjustable microtonal guitar supports new inquiries into other instruments such as baglama<sup>11</sup> and tambur since it requires consideration of how to calculate frets using microtones (Süleyman Hakan Görener, Personal communication, January 22, 2021). However, Ünlünen made a critique against the progress of music made by adjustable microtonal guitar. He told us that "with the influence of Tolgahan Çoğulu, these guitars have always been identified with an approach based on Turkish music" (Emre Ünlünen, Personal communication, January 10, 2021). He also thinks that timbral

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<sup>10</sup> Tambur is a fretted, long-necked, popular string instrument mainly used in Turkish classical music.

<sup>11</sup> Baglama is a plucked, traditional stringed instrument having a pear-shaped body and mainly used in Turkish folk music.

features in adjustable microtonal guitar, where nails are more prominent, distinguish this instrument from fretless guitar.

Explaining the difference between Eastern and Western cultures, architect Serkan Duman draws attention to the boundaries and possibilities of expression between different guitars. Identifying the Western view with measurability and the Eastern view with immeasurability, the artist emphasizes that the microtonal guitar has enough detail for a Westerner and carries traces of Eastern culture:

“The structure of Eastern cultures cannot be grasped with a superficial look... For a Western and modern eye that is accustomed to measurability, Eastern culture is like a fretless guitar at first glance; it is featureless, incalculable and without detail ... When given a little time, when it is grasped with time and experience, it is understood how much depth the East contains. At that time, it turns out to be a more detailed and variable world, a high culture that requires great care and study to be perceived and grasped. The visualized version of this situation is the microtonal guitar for the Western eye who wants to see that detail”<sup>12</sup> (Duman, 2017: 203).

On the other hand, according to the findings we obtained from the interviews, although the theoretical foundations seem strong, the adjustable microtonal guitar has some practical issues. Half of our informants think that, since this guitar doesn't have a proper design allowing a fixed pitch system, it is very difficult to switch different tunings for different musical pieces in different maqams. Kardelen stated that “it is very troublesome to add new frets by constantly hitting with the hammer, to think of different notation for different tonalities” (Ali Deniz Kardelen, Personal communication, January 24, 2021), and Şen added that this system is a primitive one. He also told us that “the constant testing of new tuning arrangements with hammers is like a torture” (İlke Şen, Personal communication, January 08, 2021) He illustrates one of the practical problems of the adjustable microtonal guitar: the difficulty of creating a different tuning system each time when switching to different musical works. However, Şen (İlke Şen, Personal communication, January 08, 2021), Kardelen (Ali Deniz Kardelen, Personal communication, January 24, 2021) and Eldes (Akin Eldes, Personal communication, January 18, 2021) stated that making a fixed pitch system or a new design allowing

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<sup>12</sup> Translated by the corresponding author.

automatic switching to different chord systems would eliminate these drawbacks. According to our interview, Çoğulu also seems to be aware of this practical issue (Tolgahan Çoğulu, Personal communication, January 11, 2021).

### ***Artistic Attitudes and Motivations of the Musicians***

Tolgahan Çoğulu plays the leading role in implementing the microtonal guitar music in Turkey. He is the key academic figure within the guitar department of Istanbul Technical University State Conservatory and the International Microtonal Guitar Competition. He sends free frets to those interested in adjustable microtonal guitar all around the world in addition to creating instructive guitar videos on his highly followed YouTube channel. Consequently, other microtonal guitarists in Turkey are, to different extents, professionally related to him. In order to portray the microtonal guitar music culture in Turkey, it is essential to fully grasp the artistic motivations and attitudes of the major musicians who contribute to the growth of this music.

According to our interviews and observations, the essential dominant characteristics of all of our informants happen to be their enthusiasm about excelling in guitar by going beyond the limits of their instrument and their will to discover new sounds that might alter the existing sound spectrum of guitar. Artistic curiosity, intelligence, innovation and devotion emerged as the keywords to define their approach to microtonal guitar music. Another remarkable common point that these musicians share is they were all influenced, to different degrees, by the hard work of Tolgahan Çoğulu. For instance, according to Kurdoğlu, once the musician starts discovering the adjustable microtonal guitar, they get to know the limits of guitar better. His main motivation is his quest for trying new things and according to him this is how a repertoire of microtonal guitar is born. He shares one of his observations among Turkish musicians as follows:

“I’ve always seen Classical Turkish music composers who would show interest in Western polyphony, playing the piano or syncretizing these two musical traditions. Similarly, many piano or guitar players would usually like to play tambur or oud and blend these seemingly different tones and styles” (Tufan Kurdoğlu, Personal communication, January 10, 2021).

He thus thinks that microtonal guitar offers a passage between different sound systems from around the world and innumerable chances of experimentation. Many musicians including himself call this ongoingly enlarging capacity the 'black hole'. Starting back when he was playing flamenco guitar, whenever Kurdoğlu would meet a new music culture, he would ask himself how it could be expressed with guitar. He is therefore quite optimistic about the development process because he thinks that, when a musician learns to adapt his guitar to a new sound system, he definitely would leave a unique trace. That is why, he says: "Whatever a musician does with his microtonal guitar, it turns out to be something new" (Tufan Kurdoğlu, Personal communication, January 10, 2021).

Intellectual curiosity always lies beneath our informants' artistic interest in adjustable microtonal guitar. Not only they compare different guitars, such as fretless and classical guitar but they also seek to find similarities between different techniques and systems. As the head of Guitar Department of Anadolu University State Conservatory and a musician, Ünlünen's motivation is to develop microtonal guitar techniques from a comparative perspective (Emre Ünlünen, Personal communication, January 10, 2021). Concomitantly, Karatay's main motivation is associated with the capacity of playing polyphonic music with microtonal guitar. Karatay finds microtonal guitar more suitable for Turkish folk music arrangements, as it eliminates the intonation problem, when compared to fretless guitar (Batuhan Karatay, Personal communication, January 17, 2021). Similarly, Peker compares the classical guitar with fretless guitar in terms of artistic freedom, timbre and artistic techniques. He underlines that all musical instruments tend to 'imitate' nature and thus be natural and free in some ways; that is why more freedom of a satisfying adjustable microtonal guitar performance would inevitably become more and more appealing in the near future (Salih Korkut Peker, Personal communication, January 23, 2021). As the second prize winner in the composition category of the 4<sup>th</sup> International Microtonal Guitar Competition in June 2020, Şen's main motivation also lies in the capacity of adjustable microtonal guitar to present a blend of options that combine aspects of classical guitar and fretless guitar. He therefore appreciates the opportunity to produce microtones and the polyphony of guitar at the same time (İlke Şen, Personal communication, January 08, 2021).

As a mathematician and an award-winning finger style guitarist, Kardelen sees many pure mathematical systems in changing the frets and creating new sounds with adjustable

microtonal guitar. Kardelen also shared with us the inconvenience of changing the frets from one song to another while performing on stage. Still, he considers this an engineering issue (Ali Deniz Kardelen, Personal communication, January 24, 2021).

Eldes's main motivation is to play the sounds that he hears in his mind. He is mainly interested in creating certain sound patterns with his guitar. As he likes experimenting new things, he finds it fascinating when it comes to adjusting the positions of the frets with a hammer and says: "Honestly, when I first saw the microtonal guitar, I kind of found it a bit startling. It was huge, like an ocean" (Akin Eldes, Personal communication, January 18, 2021). He started playing microtonal guitar with ođulu after a musical lecture held at Bođaziçi University. Before, he used to accompany him with his well-tempered electric guitar. He still remembers how he was captivated when he first heard the sound of the microtonal guitar.

On the other hand, Grener's main artistic motivation derives from his interest in discovering what lies beneath the logic of Turkish mađam system. As one of the award winners of last year's international microtonal guitar competition with his arrangement for *Hseyini Saz Semaisi*, he finds this guitar as one of the most promising "research-development efforts" of music and as the "latest instrument within Turkish music" (Sleyman Hakan Grener, Personal communication, January 22, 2021).

### ***The General Framework of 'Microtonal Guitar Culture' in Turkey: Current Situation and What to Expect in the Near Future***

Our informants' perspectives on the near future of microtonal guitar culture in Turkey revolve around certain requirements, including the necessary increase in the microtonal guitar repertoire, the decrease in the cost of manufacturing<sup>13</sup> and the elimination of some practical problems in performance.

Concerning the current situation that will eventually shape its near future, Kurdođlu points out that one of the most distinguishing characteristics of microtonal guitar is its "reconciliatory" aspect. He says: "Many musical instruments are subjected to so-called Eastern and Western divisions, whereas microtonal guitar is only interested in innovative

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<sup>13</sup> According to ođulu, there are only six adjustable microtonal guitars manufactured worldwide until today (Tolgahan ođulu, Personal communication, January 11, 2021).

works rather than these conflictual artistic dilemmas” (Tufan Kurdoğlu, Personal communication, January 10, 2021). He even shares his own experience as follows:

“I started playing classical guitar with flamenco through Moyano, Pera and Juan Martin methods. When I played Victor Jara or Inti Illimani, people were asking why I was not playing something local, something ‘from here’, a Turkish folk song for example” (Tufan Kurdoğlu, Personal communication, January 10, 2021).

So, he observes that people now find a kind of sense of belonging or familiarity when they hear the sound of microtonal guitar. Yet, he finds what it has to offer quite unique: “To me, baglama sounds like baglama, tambur sounds like tambur and microtonal guitar surely sounds like itself!”. (Tufan Kurdoğlu, Personal communication, January 10, 2021). According to Kurdoğlu, the future of this flourishing guitar culture depends highly on an upcoming passage to “mass production” of microtonal guitars and a considerable amount of cost-cutting. But he adds: “This seems like a bit far-off wish given the current instrument market in Turkey, where even classical guitars are mostly imported from China, let alone new costly instruments!” (Tufan Kurdoğlu, Personal communication, January 10, 2021).

Peker thinks that microtonal guitar will rapidly gain recognition and respect within the academic milieu and classical music entourage rather than gaining popularity in the music industry. He sees conservative attitudes as the main reason for this situation. Yet, he thinks that evolution is the destiny of all musical traditions and innovations would eventually fall into their place in the end. Peker evaluates microtonal guitar music as an “elaborate restaurant with fine dining where everyone appreciates but rarely goes!” (Salih Korkut Peker, Personal communication, January 23, 2021).

On the other hand, Eldes hesitates about the pace of microtonal guitar’s popularity in the near future because changing frets and adjusting might seem a bit unpractical for some stage performers. Eldes attributes a ‘soloist’ position to microtonal guitar and thus hesitates about its collaboration with other instruments outside its family. He therefore is a bit unsure about its adaptation to popular music bands (Akin Eldes, Personal communication, January 18, 2021). Kardelen thinks that we need time, as we need more compositions and arrangements, in addition to an increase in the number of musicians



like himself who allocated long hours for excelling at microtonal guitar. Yet he sees a great potential in this music culture and shares his anticipations:

“I have this view in my mind; young people who are interested in music in Turkey should have a guitar and a baglama at home. They should get to know these instruments and the whole ‘world’ that they represent at an early age. So, for instance, when they start a rock music band in high school, they can discover microtonal guitar and its almost unlimited playing capacity. This music can reach to millions of people in Turkey. I really find a potential in microtonal guitar music culture in the long run” (Ali Deniz Kardelen, Personal communication, January 24, 2021).

Relatedly, Görener strongly believes that many amateur guitar players, especially in Turkey, will choose microtonal guitar over other guitar types, if high costs in its production can be overcome in the near future. He says, “microtonal guitar includes ‘in itself’ the classical guitar. The increase of its usage within experimental and academic works is remarkable” (Süleyman Hakan Görener, Personal communication, January 22, 2021). He adds more musicians will start playing microtonal guitar as the power of microtonal guitar lies in its capacity to offer different sound systems, a new timbral spectrum and new playing techniques. According to Görener, fretless guitar broadened the possible techniques offered by tambur and oud, and now it is microtonal guitar’s turn to step forth with its latest techniques and innovations specific to harmonics. He additionally observed that after the arrival of microtonal guitar, many musicians have also been questioning the current shape of guitar frets. (Süleyman Hakan Görener, Personal communication, January 22, 2021).

On the other hand, Karatay thinks that microtonal guitar repertoire should expand to a certain extent in order to capture the attention of ‘beginners’ in the near future. Yet, he has hesitations about a notable increase in its popularity in the short term because of the relatively conservative attitudes of the guitar music audience. Similarly, he observes that some guitar players tend to find the change of frets a bit too complicated and hold themselves back (Batuhan Karatay, Personal communication, January 17, 2021).

When questioning the growing interest in microtonal guitar culture in Turkey, Şen attaches importance to the fact that Turkish music is microtonal. He says: “It is of great value to bring together our musical heritage and the sound of guitar” (İlke Şen, Personal

communication, January 08, 2021). Finally, Ünlünen reminds us certain prominent musical events abroad, such as Roseburg Guitar Festival or academic studies on microtonal guitar in Austria and Germany (Emre Ünlünen, Personal communication, January 10, 2021). This growing interest in microtonal guitar in the world and in Turkey will meet at some point so that both guitar players and younger students will simultaneously examine the chord systems of Renaissance and Baroque Periods and maqam system or modal music. We should also underline that there are graduate students in the first microtonal guitar department of Istanbul Technical University State Conservatory under the leadership of Prof. Tolgahan Çoğulu. This culture will become academically more well-established once undergraduate students are admitted to this program starting this year.

### ***Attachment to 'New Media': Is It a Requirement for the Microtonal Guitar?***

We have observed that all of our informants are aware of the impact of the new media technologies on the representation and proliferation of microtonal guitar music culture. Concerning this phenomenon, Peker thinks that internet and social media are our new city, neighborhood and home. He therefore is attentive to the importance of using the new media technologies to promote the microtonal guitar culture (Salih Korkut Peker, Personal communication, January 23, 2021).

Kurdoğlu finds YouTube an important 'resource' both for microtonal guitar players and students as well as for everyone who shows interest in this music, just like the '*Music Theory*' webpage that many conservatory students use, or virtual groups like "The Xenharmonic Alliance of microtonal music aficionados." Kurdoğlu states that when he uploads a video, he always shares the score to spread this guitar culture. Even though Kurdoğlu does not like spending time on the internet, he observes that his students are more motivated when shooting the videos of their performances. He says: "YouTube is like a personal webpage for musicians these days. I think creating microtonal guitar teaching methods and making them accessible for everyone matters a lot. A person might produce high-quality works after watching your video" (Tufan Kurdoğlu, Personal communication, January 10, 2021). He also draws attention to the lack of decent concert and performance halls in Turkey when contemplating on the importance of the internet.

Kardelen sees social media as a prerequisite in today's music industry, especially if a musician aspires to become a well-known artist. He says, "I spend a considerable amount of time before I share my music on my social media account. I only share the best take of my performance, with the highest audio-visual qualities" (Ali Deniz Kardelen, Personal communication, January 24, 2021). He points out that it has been many years since he watched anything noteworthy about the guitar world on television because Youtube and Instagram are replacing the traditional mainstream media tools. Yet, he has concerns about the continuous consumption of the new media musical content and says: "If I stop posting for a few weeks, the bond with my audience would lose strength" (Ali Deniz Kardelen, Personal communication, January 24, 2021). He admits that when paying so much attention to social media starts to feel like a duty for a musician, it may instead become a burden and wear the musician out.

Karatay emphasized the importance of the new media, especially YouTube, by drawing attention to the growing success of oęulu and his redeemed efforts to introduce this innovative instrument to the world (Batuhan Karatay, Personal communication, January 17, 2021). Grener emphasizes oęulu's success in promoting microtonal guitar via the internet and sees it as a new media cultural movement (Sleyman Hakan Grener, Personal communication, January 22, 2021). His voluntary fret delivery to all around the world is an open-source cultural action. On the other hand, Karatay also shared with us that he sees many encouraging and appreciative comments that on his Instagram account after posting a video, and sometimes sees a random listener expressing their negative reaction by asking a rather ignorant question: "What kind of music is it?" (Batuhan Karatay, Personal communication, January 17, 2021). In a related context, Eldes remarks that he was surprised to see some musicians who tend to teach maęam music on their Youtube channels despite their very limited knowledge on microtonal guitar. He therefore finds the vague and large impact of the new media a bit problematic (Akın Eldes, Personal communication, January 18, 2021).

nlenen, who has contributed to oęulu's YouTube video shoots in Eskişehir many times, shares the belief that oęulu's Youtube channel is more popular abroad than in Turkey. nlenen appreciates oęulu's effort on his YouTube channel and sees him as a "plant seeder" and a "pollen dispenser" on fertile soil (Emre nlenen, Personal communication, January 10, 2021). Finally, Ően thinks that today everyone is creating their own new

television and becoming the manager of their own channel. He also thinks that people are able to find responses to their musical needs, at least within a limited virtual community among like-minded people. So, he sees the future of music cultures in the new media (İlke Şen, Personal communication, January 08, 2021).

### ***Increasing Interest in the Microtonal Guitar Culture: Some Reflections on Its Growing Audience***

Even though it is not possible yet to observe a wide range of microtonal guitar audience, musicians' efforts to introduce and promote adjustable microtonal guitar in Turkey and abroad is noteworthy. We should first emphasize Çoğulu's and Kurdoğlu's efforts to implement this culture through educational workshops starting with high school music teachers. They have founded the world's first microtonal guitar orchestra with more than 20 high school teachers.<sup>14</sup> Kurdoğlu shares with us their latest effort: "Tolgahan and I gave lectures to many high school teachers on how to change and stick frets, and had a concert for 90 people before the day pandemic hit Turkey. After that concert we quarantined ourselves" (Tufan Kurdoğlu, Personal communication, January 10, 2021). Moreover, they send out free frets and organize microtonal guitar days at fine arts high schools around Turkey. This reveals a unique artistic service that helps to implement an innovative attitude among students at a younger age. Along with guitar festivals such as Istanbul Technical University's Guitar Festival, microtonal guitar seems to be sure to grow in the years to come.

Kardelen remarks a notable growing interest in microtonal guitar in Turkey, especially among young people. He builds this interest on two major grounds: "First, guitar is the ultimate instrument of the 20<sup>th</sup> century. Especially younger generations show a great interest in innovative guitar techniques and styles" (Ali Deniz Kardelen, Personal communication, January 24, 2021). Secondly, he thinks that microtonal guitar is more capable of meeting the demands of a wider audience in search of what people would call "our music" and states:

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<sup>14</sup> Their recordings can be reached at Istanbul Technical University Turkish Music State Conservatory's YouTube Channel: <https://www.youtube.com/watch?v=Xhveqe7IsF0>

“The Turkish audience likes the sound of the microtonal guitar mainly because of the familiarity of its tune. Hearing a microtonal guitar melody that might resemble to the sound of the Prayer, the Alevi music in the djemevi or the traditional music that they heard on the radio during their childhood, somehow appeal to them. This changes the listeners’ reception” (Ali Deniz Kardelen, Personal communication, January 24, 2021).

Similarly, according to Görener’s observation, microtonal guitar proposes unfamiliar melodies within little known sound systems through familiar timbres for a Western ear. That is why he predicts an upcoming popularity for Turkish music-based new styles (Süleyman Hakan Görener, Personal communication, January 22, 2021). Likewise, as more musicians start to incorporate microtonal guitar in their bands, new genres will likely to emerge in the medium term. Yet, Karatay thinks that we still need time for the audience to internalize the microtonal guitar culture, even if they develop an instant liking when they first hear its sound (Batuhan Karatay, Personal communication, January 17, 2021).

On the other hand, Şen sees the current microtonal guitar audience rather among the academics and curious open-minded musicians. The lingering questions concerning the ‘nature of maqams,’ ‘microtones’ and ‘microtonality’ accompany this growing interest. Even if he observes that Turkish listeners both love maqam music and guitar music, he thinks that we still need time to witness the popularization of microtonal guitar music, and says, “we really need a wide repertoire in order to see people saying, we’ll play microtonal guitar and play regularly at his music hall; or, let’s go and see a microtonal guitar gig this week” (İlke Şen, Personal communication, January 08, 2021).

Peker, like many other informants, thinks that microtonal guitar is more celebrated abroad than in Turkey. He observes that the foreign musicians find microtonal guitar as a ‘mind opener’ because of its capacity to offer a blend of Eastern and Western musical disciplines on the same instrument. But he observes a kind of “do-we-really-need-all-this?” attitude among conservative Turkish listeners. Yet, when cultural details are put aside, he sees microtonal guitar as the ultimate instrument which offers its listeners the opportunity to hear the vivid bright tone of guitar (Salih Korkut Peker, Personal communication, January 23, 2021). Ünlünen noticed that musicians and listeners from abroad deem microtonal guitar an ‘authentic’ instrument. He thus sees this instrument as

an adequate way to promote Turkish music and adds: “Microtonal guitar is slowly creating its own world” (Emre Ünlünen, Personal communication, January 10, 2021).

## **Conclusion**

In this study, we have tried to make contributions to the further research into the microtonal guitar culture in Turkey. Our research on the microtonal guitar in Turkey mainly focusing on Tolgahan Çoğulu’s invention of the adjustable microtonal guitar in 2008 and its ongoing effects has revealed that it is too early to speak of a microtonal guitar scene in Turkey yet. However, we realized that there is a growing interest in microtonal guitar not only in Turkey, but also worldwide. But for now, microtonal guitar in Turkey seems to have attracted only a limited number of people to become microtonal guitar performers consisting of academics and some musicians.

Based on our interviews, we observed that the musicians who developed a tendency towards microtonal guitar were mostly educated, enthusiastic and devoted ones. Although they have different educational backgrounds, they are mostly musicians who are familiar with classical music or Turkish music traditions. On the other hand, they were all influenced by Tolgahan Çoğulu’s great efforts to shape microtonal guitar world. They also demonstrated the artistic motivation of sharing a new instrument practice benefiting from the distribution of the new frets for microtonal guitar by Çoğulu.

Our findings proved that although the adjustable microtonal guitar is a promising instrument in theory, it has some practical problems. In this regard, one of the fundamental problems is that it doesn’t have a proper design allowing fixed pitch system. This situation creates difficulties in performing different works, especially while taking the stage. Developing an instrument compatible with musical works in different maqams and tonalities may help to overcome this problem. Otherwise, it seems time consuming to hammer new frets for different tuning systems. Inadequacy in the microtonal guitar repertoire and high manufacturing costs are other negativities that need to be overcome.

However, in general, our informants demonstrated a positive attitude towards microtonal guitar. According to our interviews, apart from the aforementioned practical issues, adjustable microtonal guitar has offered many advantages to the world of guitar, including easy identification of microtones, new possibilities for chord systems, and the

possibility of new arrangements in guitar. Although musical pieces in the microtonal guitar repertoire are mainly rooted in Turkish music, it is possible to say that this instrument is an effort to overcome the generally accepted distinctions between Western and Eastern music. It is also noteworthy that every step taken on microtonal guitar under the leadership of Tolgahan ođulu is both new and innovative. The Lego microtonal guitar is one of the most contemporary examples of this reality.

Lastly, we think that it is too early to talk about the future of adjustable microtonal guitar yet. However, it offers a promising and rapidly growing music culture thanks to its enthusiastic and hard-working musicians, especially ođulu. ođulu's success in offering microtonal guitar performances using social media channels such as YouTube and Instagram is also increasing the visibility of the microtonal guitar. These efforts combined with educational workshops organized by ođulu and Kurdođlu enabled microtonal guitar to reach more audiences. Since microtonal guitar provides familiar sound opportunities with Turkish music, some of our informants such as Kardelen and Grener assert that Turkish audiences are more likely to appreciate this instrument. On the other hand, Ően and Karatay think that it will take time to make microtonal guitar more recognizable for audiences. Peker and nlenen especially put emphasis on the potential value of microtonal guitar abroad.

Although microtonal guitar in Turkey provides an innovative guitar culture, it is a flourishing yet quite limited scene. It seems that it will gain momentum in the near future and offer us new research dimensions.

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## New Additions to the Guitar Family: Lego and Automatic Microtonal Guitars

### ABSTRACT

One of the modern classical guitar's biggest strengths is also one of its biggest weaknesses. The instrument depends on an equal temperament fretboard system that has lent itself to brilliant repertoire and ease of production, yet this same fretboard system does not lend itself to perfectly tuned notes and tuning systems not found in Eurocentric classical music. Many guitarists and luthiers have sought a fretboard system that marries the benefits of equal temperament with the rich possibilities of just intonation and other tuning systems. This paper presents two new fretboard designs and discuss their role in the history of guitar fretboard construction. Our first design is a fully functional fretboard made from the popular toy 'Legos' and solves many of the problems that previous designs had, including ease of use and production, affordability, and versatility. Our second design is a one-string prototype for an automatic (automated) fretboard that would allow performers to switch tuning systems instantly at the press of a button.

### KEYWORDS

Musical instruments

Microtonal guitar

3d printing

Lego

Robotics

Guitar making

World music

## Introduction

Today's standard guitar is a 12TET<sup>1</sup> (12 tone equal temperament) instrument that works much like a piano. Pitches on the guitar and piano are tempered (modified from their pure form) and fixed into place (permanently in the case of standard guitars without moveable frets) (Duffin, 2007: 38). The advantage of 12TET tuning is pitches that are consistently usable in the context of any of the 24 major and minor keys of Western harmony (Field, 2008: 12). This means that the 12TET tuning system allows for key modulation, ease of collaboration with other Western instruments, and ease of manufacturing guitars since the precise measurements of their fret locations are standardized to remain in 12TET tuning. This system has some disadvantages as well, most notably the inability to play the natural tones (ratios) in just intonation, the inability to play the tuning systems of Renaissance and Baroque era such as meantone and well temperaments, and the inability to play tones found in other styles of music such as Turkish *makam* music or Balinese *Gamelan* music because of the unchangeable nature of a fixed-tone (fixed-fret) instrument (Field, 2008: 15-16). Guitarists and luthiers have made many attempts to expand the tuning system possibilities of the guitar over the years by either altering the layout of the fixed-frets, or providing ways to change the location of frets, yet there is still room for improvement. In order to help improve on this lineage of guitar fretboard development, our multi-discipline team consists of engineers and musicians in Istanbul designed and built two new fretboard designs. The first design is a Lego fretboard that uses easy-to-move Lego pieces as the basis to achieve new fret positions. The second design uses electronics to move guitar frets into new positions automatically. These designs offer new solutions and new ways of thinking to overcome the design limitations of the past.

## Brief History of the Microtonal Guitar

The first innovations in microtonal guitar were adaptations designed to play either in just intonation or to correct the intonation problems of the 12TET guitar. The first 'Enharmonic Guitar' was designed by Thomas Perronet Thompson and constructed in London in 1829 by luthier Louis Panormo. This guitar used a system of hundreds of small holes in which frets could be inserted (Button, 1984: 248). In 1845 in Paris, luthier René

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<sup>1</sup> 12TET will be used throughout to refer to a system in which an octave is divided into 12 equal tones. Also known as 12EDO (equally divided octave) and equal temperament.

Lacôte created the '*Guitare à Tempérament Réglable*' ('Adjustable Temperament Guitar'). The frets on this guitar were individually mounted onto long blocks of ebony and could be adjusted slightly (Schneider, 2015: 61). In Stuttgart in 1911, luthier Paul Kochendorfer built a guitar designed by Otto Paret. This complicated design contained a mechanism allowing for the adjustment of multiple frets simultaneously using levers fixed on the side of the guitar (Schneider, 2015: 187).

The next wave of innovation came from new divisions of the octaves on the guitar. Previously 12TET was the norm, but innovators soon began using the 24TET guitar (quartertone guitar) which became one of the more popular designs. In 1927, Augusto Navarro suggested new equally tempered guitars such as 15TET, 29TET or 31TET (Schneider, 2015: 171-172). While these designs do provide new microtonal possibilities, they also become more difficult to play as guitars with greater octave divisions leave less space in between frets for guitarists to place their fingers. These extra frets also create a lot of notes that will not be needed in any practical circumstance. Many guitarists have solved this by removing the unnecessary frets. However, this still does not allow for the subtle adjustments needed to play *makams* or just intonation. Another solution came from the American composer Harry Partch in 1940s. He repositioned all the frets on his 'Adapted Guitar #1' to match the ratios called for in his piece 'Barstow's premiere in 1941. In the 1970s, Tom Stone created the 'switchplates' guitar design allowing performers to easily remove the fretboard and replace it with various different fret configurations.<sup>2</sup> This system works well for quick changes, but it is limited by the number of fretboards that must be designed and built. At least one version of this idea is still in production today.<sup>3</sup> A popular recent solution has been to affix 'fretlets' (small frets) to 12TET fretboards with tape. These temporary frets can be taped precisely onto the fretboard fixing the intonation of certain notes. While this does provide a level of precision not achieved by permanently fixed frets, it is still not a perfect solution because the standard 12TET frets cannot be moved and will sometimes block an area of the fretboard where a fret could be added with tape. It is more precise if individual frets can

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<sup>2</sup> The patent was entitled "Fretted musical instrument with detachable fingerboard for providing multiple tonal scales" numbered US4132143A (<https://patents.google.com/patent/US4132143>).

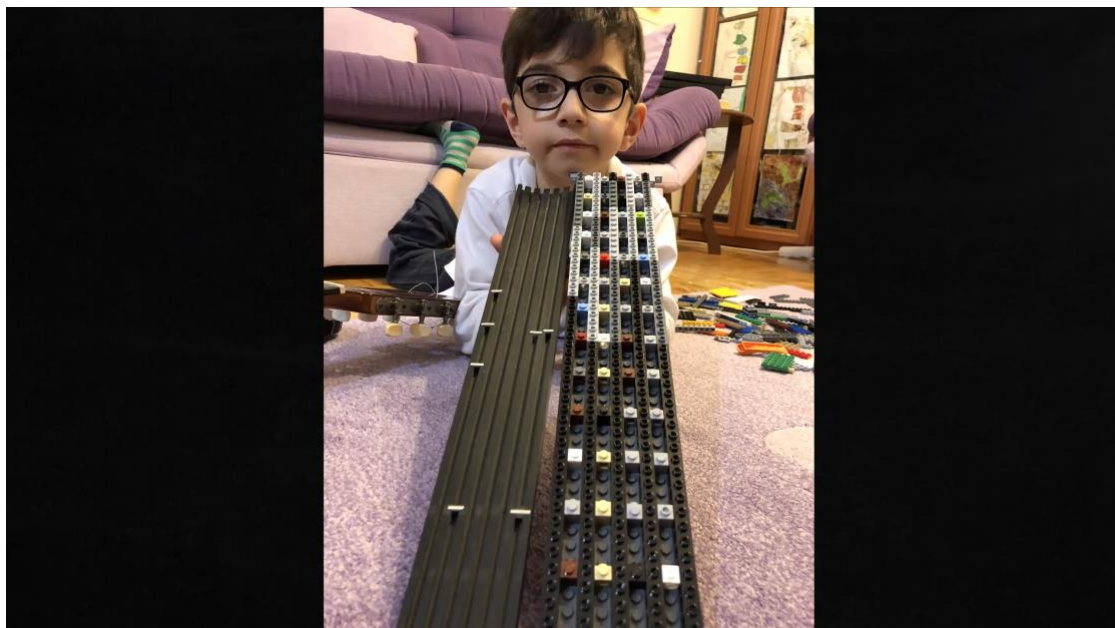
<sup>3</sup> Microtone Guitars LLC founded by Michael Kudirka can be found here <https://www.microtoneguitars.com/>

be precisely moved into position without the need to add additional frets for every microtone.

To this end, there have been many movable-fretted microtonal guitar designs, such as those by René Lacote, Daniel Friederich, and Walter Vogt. Tolgahan Çoğulu designed a moveable fret guitar entitled 'Adjustable Microtonal Guitar' in 2008, which was built by luthier Ekrem Özkarpat. The distinguishing feature of the 'adjustable microtonal guitar' is that the frets can be added or removed from the fretboard individually without effecting the other frets. The previous designs by Lacote, Friederich, and Vogt require all the frets to be moved in order to add additional frets from the side of the fretboard. Çoğulu's design won first prize in the 2014 Guthman Musical Instrument Competition at Georgia Tech University USA.

### **Lego Microtonal Guitar**

The team who designed and built the Lego microtonal guitar consists of Tolgahan Çoğulu, Atlas Çoğulu, and Ruşen Can Acet. During the project Selçuk Keser provided sponsorship and assistance with 3d printing. While playing with Legos in 2017, Tolgahan Çoğulu's 7-year-old son Atlas Çoğulu came up with the idea of building his father's adjustable microtonal guitar fretboard. In this prototype, he put Legos into the fret positions accordingly.

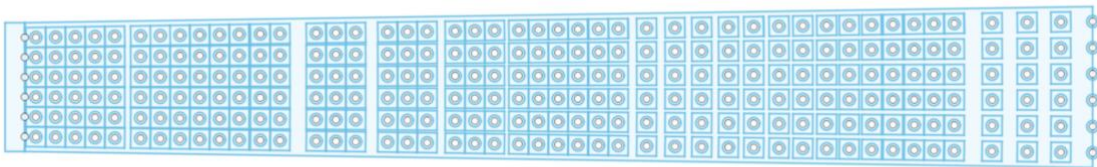


**Figure 1.** First Lego fretboard, created by Atlas Çoğulu (Tolgahan Çoğulu, Personal Archive)

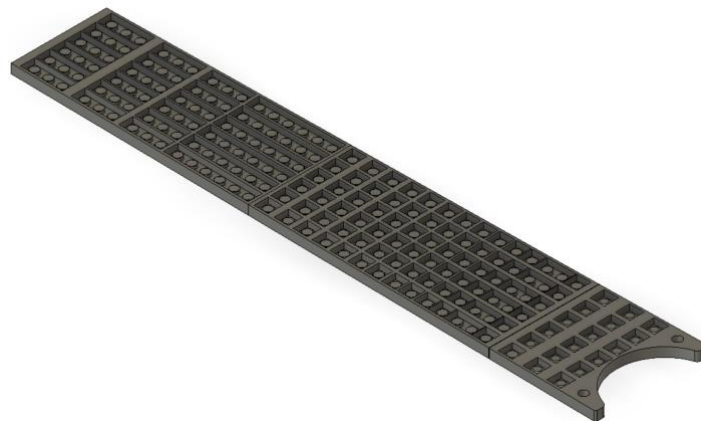
This prototype led to the idea of using Lego pieces for both the frets and the fretboard, allowing the microtonal fretboard problem to be solved from a new angle. This idea bears a resemblance to the mechanism behind the first microtonal guitar design the 'Enharmonic Guitar'. After examining all known Lego guitars in 2018, none could be found that included a fretboard constructed out of Lego; in addition, all previous Lego guitars used standard 12TET fretboards, which limited them to one tuning system by default.

### Baseplate

There were two main design and manufacturing problems present at the beginning of the project. First, original Lego pieces had to be attached to the fretboard, and second, Lego frets had to be designed that could function like standard guitar frets while also being placed and removed easily by the performer. Ruşen's engineering goals for the Lego microtonal guitar project were to design a system that was easy to replicate, easy to construct, easy to use, and minimalist in design.

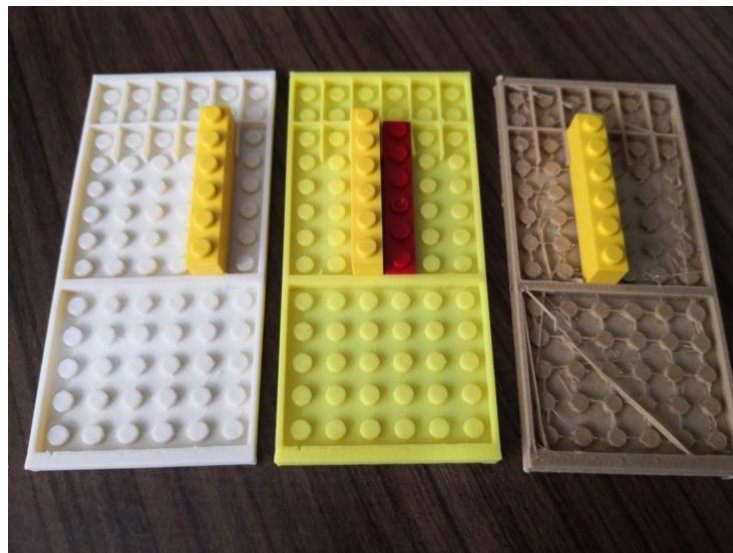


**Figure 2.** 2D view of Lego fret system (Tolgahan Çoğulu, Personal Archive)



**Figure 3.** 3D model of the baseplate (Tolgahan Çoğulu, Personal Archive)

The fretboard and fret system were designed to fit a standard size classical guitar and 2D modeled. Lego studs were located between 12TET fret locations. Each Lego line was aligned with the string angle determined by the nut. The top priority was to implement the correct 12TET studs into the 3D model. After the 12TET studs were positioned correctly, 24TET studs and further divisions were added wherever possible. More studs were able to fit in-between the 12TET studs in the lower register of the guitar due to the wider 12TET fret spacing in this register. After all fret positions were defined, a 3D printable baseplate was designed such that original Lego pieces could be inserted precisely. The baseplate was divided into four parts in order to make 3D printing easier. PLA and PET-G materials were used for 3D Printing.



**Figure 4.** Some 3D printed trials (Tolgahan ođulu, Personal Archive)

## **Frets**

The first fret design idea was to insert metal fret rods into original single 1x1 Lego blocks and use them as microtonal frets. Building these frets was time-consuming, and the result was unstable because they were made by hand and not done precisely. Therefore, 3D printing technology had to be used for these parts as well. The process of modeling different fret shapes was relatively straightforward, and the first frets were prepared in only a couple of hours. Engineer and maker Seluk Keser contributed to the project by printing these frets and calibrating the sizes to fit tightly on Legos.





**Figure 5.** Fret designs (Tolgahan ođulu, Personal Archive)

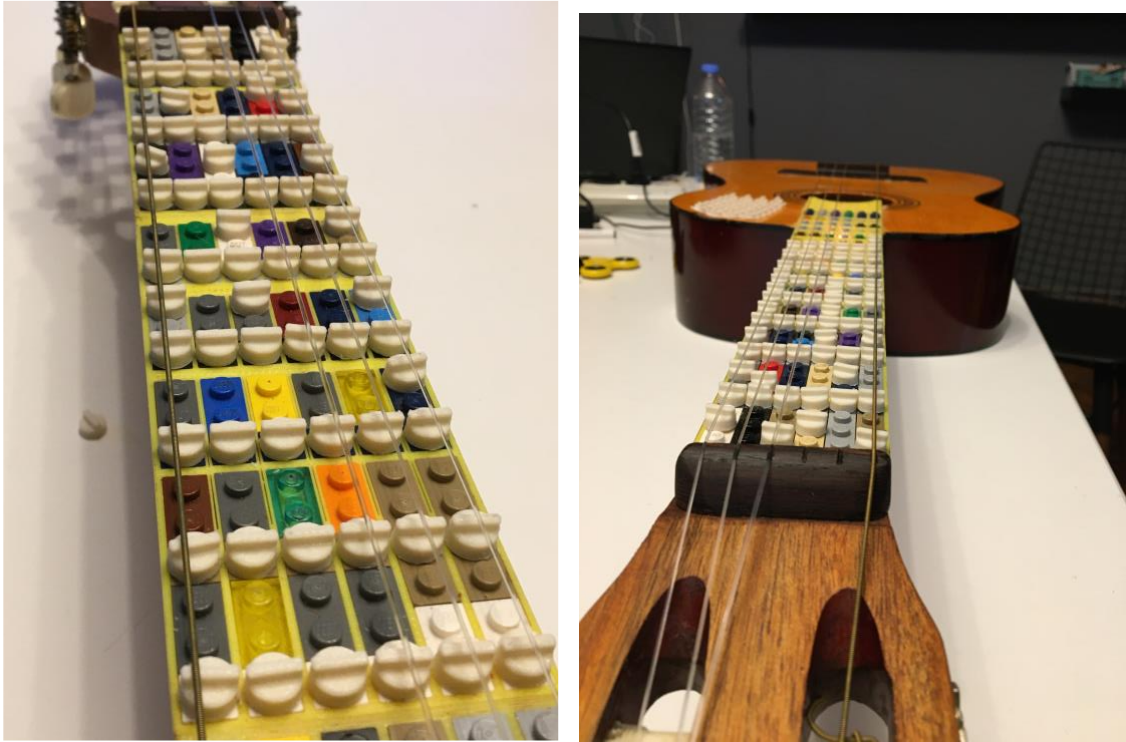
### **Manufacturing**

The previously inserted Legos and fretboard were removed in the workshop. The guitar's neck was reconstructed and get ready for 3D printed baseplate. Then, the baseplate was glued on the guitar's neck. The guitar's bridge and nut were re-built and adjusted accordingly.



**Figure 6.** Neck reconstruction, and application of baseplates (Tolgahan ođulu, Personal Archive)





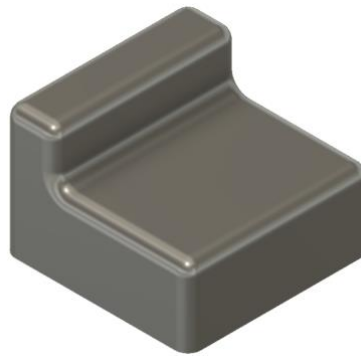
**Figure 7.** First Lego microtonal guitar (Tolgahan Çoğulu, Personal Archive)



**Figure 8.** The final version of Lego microtonal guitar (Tolgahan Çoğulu, Personal Archive)

## Developments After Creating The First Fully Functional Prototype

During an interview with *bağlama* player Sinan Ayyıldız, he suggested designing new frets raised at the sides or other points rather than in the center, which increased the number of achievable microtones (Sinan Ayyıldız, personal communication, February 12, 2021). Since many tuning systems including *makam* tunings need many microtones to be performed correctly, it is important to have as many options for fret placement as possible within the design limits; now, all tuning systems are possible with the right fret shapes. Having several fret design shapes allows for full control of fret placement while maintaining the ease-of-use set as an engineering goal for the project.



**Figure 9.** Fret idea suggested by Sinan Ayyıldız (Tolgahan Çoğulu, Personal Archive)

The next unexpected development came from a YouTuber and instrument builder who uses the name Simon the Magpie,<sup>4</sup> who was inspired by our design. He built his own Lego bass neck utilizing our ideas and innovated on the original design by using smooth-top original Lego bricks to create fretless zones on his bass guitar. Upon seeing this further innovation, Tolgahan used the smooth Lego bricks for some frets and played a *Rast Taksim* in the video entitled *Some Frets are Fretless Guitar*.<sup>5</sup> This is the first known instance involving a hybrid fretted/fretless guitar. Previous hybrid designs, such as the design below by Ibanez, have involved a split fretboard that renders some strings fretless and others fretted.

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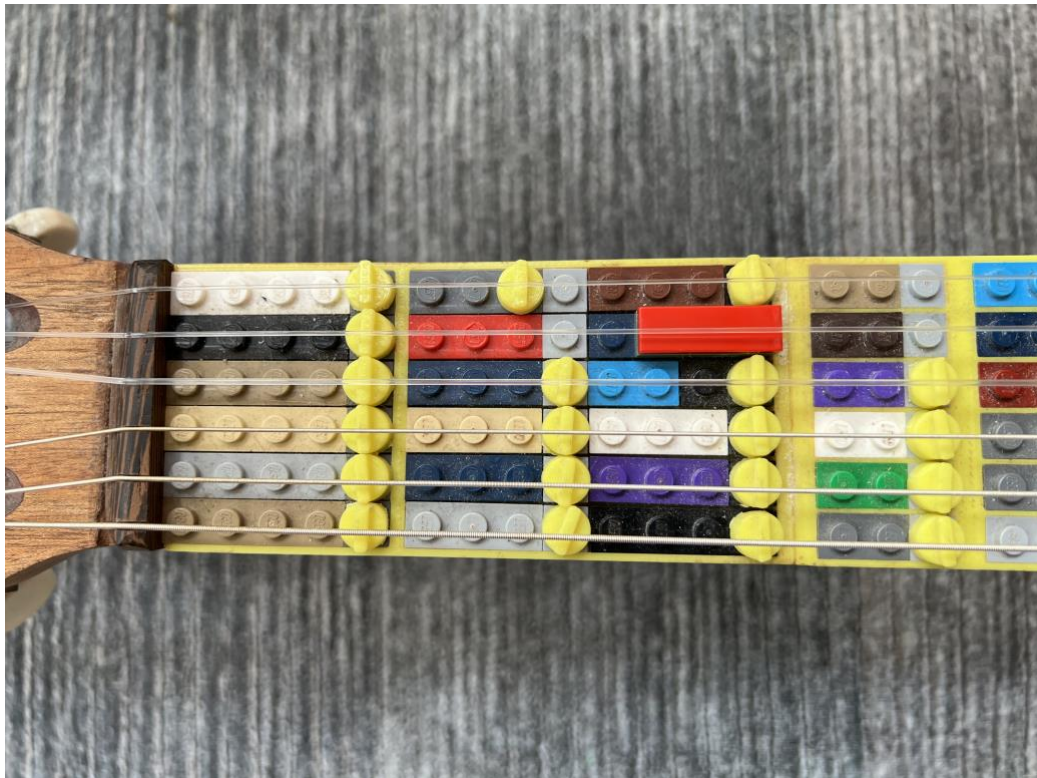
<sup>4</sup> The video can be found at the following link: <https://youtu.be/yWWYRfVhytw>

<sup>5</sup> The video can be found at the following link: [https://youtu.be/ktBHjDu\\_4To](https://youtu.be/ktBHjDu_4To)



**Figure 10.** Ibanez SR AS7 bass guitar with split fretboard, showing 3 fretless strings and 4 fretted strings (Hermann, 2017)

The Lego guitar's hybrid design is completely different, targeting only specific frets on specific strings for fretless notes.



**Figure 11.** Example of a smooth Lego brick being used on only one string and one fret (Tolgahan Çoğulu, Personal Archive)



## **Post-Creation Period**

After the creation of the Lego Microtonal Guitar, Tolgahan discovered that the easily added frets can be positioned in ways to teach music theory on the guitar. By adding only the frets needed for specific scales, it is easy for students to learn different scale patterns. The first test of this pedagogy idea can be seen in the video<sup>6</sup> where a middle-school conservatory student in Istanbul had learned 18 different scales (four of which are microtonal) in two guitar lessons. Tolgahan plans to do further experiments with Lego colors and placement in relation to pedagogy.

The Lego microtonal guitar received a lot of attention via media coverage and Youtube views. Currently the video *Lego Microtonal Guitar* has over 1 million views on Youtube, and there is a video that includes footage of renowned American guitarist Kaki King playing the guitar.<sup>7</sup> The design received the People's Choice Award at the 2021 Guthman Musical Instrument Competition hosted at Georgia Tech University USA (the same award won by Tolgahan in 2014). After receiving this award, Atlas and Tolgahan were featured in Turkish news in both print and in TV segments for CNN Turkey and NTV. The Lego guitar also received international press in the *New York Times* and in the French publication *Les Explorateurs*.

A distinguishing feature of using Legos on the guitar is that anyone in the world can potentially participate in the design process because of Lego's standard sizes, ease of use, and availability. For example, players can use any colors they want for any frets and even cover the soundboard with Lego bricks and change their guitar's color. Working in conjunction with 3D print technology, both the guitar construction process and the fretboard modification processes can be done from anywhere in the world.

## **Automatic Microtonal Guitar**

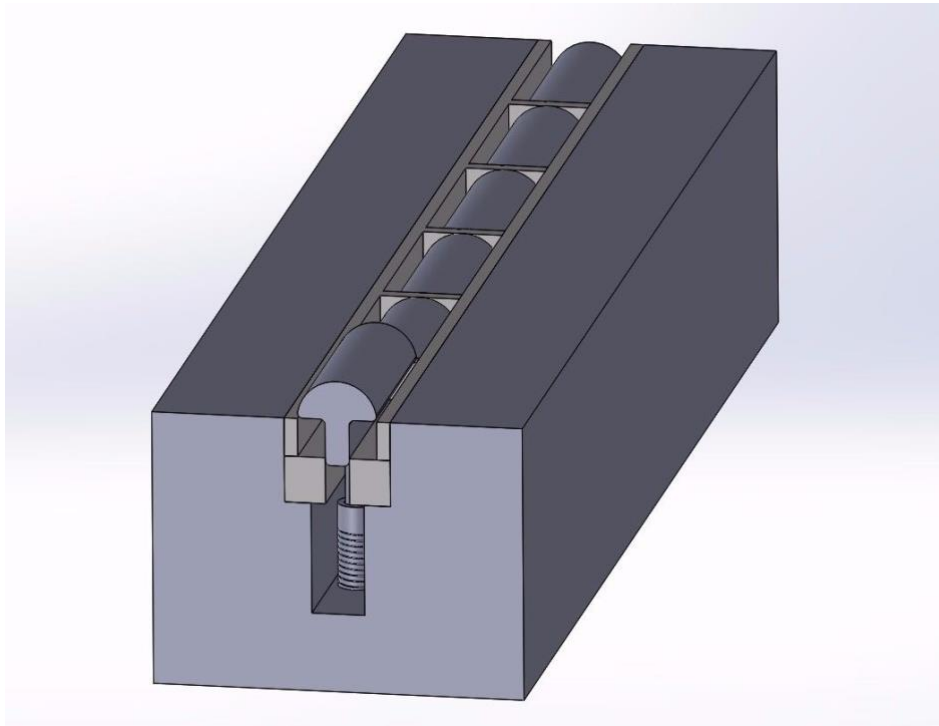
The team who designed and constructed the first Automatic Microtonal guitar consisted of Tolgahan oęulu, Seluk Keser and Batuhan Bařar. In 2014, Tolgahan began to think about automizing his manually working adjustable microtonal guitar. His dream was for all the frets to move to the desired locations of any tuning systems in any key at the press of a button. He started collaborating with Dr. Zeki Yaęız Bayraktaroęlu and Dr. Blent

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<sup>6</sup> The video can be found at the following link: <https://youtu.be/4LqfqW4gL5E>

<sup>7</sup> The video can be found at the following link: <https://youtu.be/rPCEImSfCwc>

Bölat from Istanbul Technical University's mechanical engineering department. After a few trials with horizontal moving frets, they changed plans and began experimenting with vertical moving frets because they were unable to find an ideal activation mechanism. They 3D-printed modules which had 6 frets and planned for 100 modules to play as many tuning systems as possible; however, after a few years, the project came to a halt due to lack of funding.



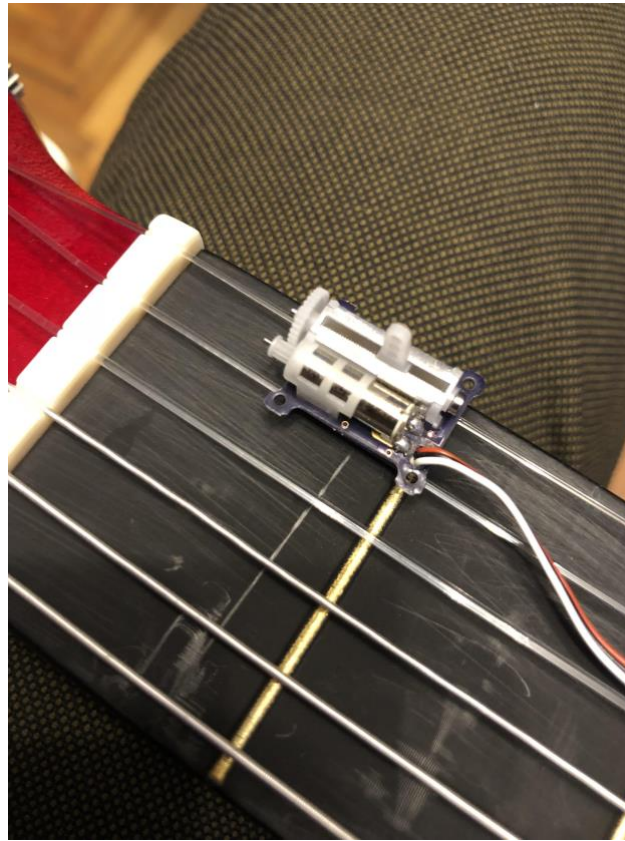
**Figure 12.** Previous design for vertically-moving frets (Tolgahan ođulu, Personal Archive)

In 2019, Tolgahan received research funding from Istanbul Technical University for a project entitled *The Design and Production of the Automatic Microtonal Guitar*. In 2020, engineer and maker Seluk Keser, came up with an idea for horizontally moving frets. In 2021, they completed a one-string prototype on which 12 frets on the first string can be moved automatically to 10 different tunings (12TET, *Rast*, *Hüseyini*, *Uşşak*, *Sabâ*, *Segâh*, *Karcıđar*, *Hüzzam*, KGLW and Pelog Selisir).

### **The Design**

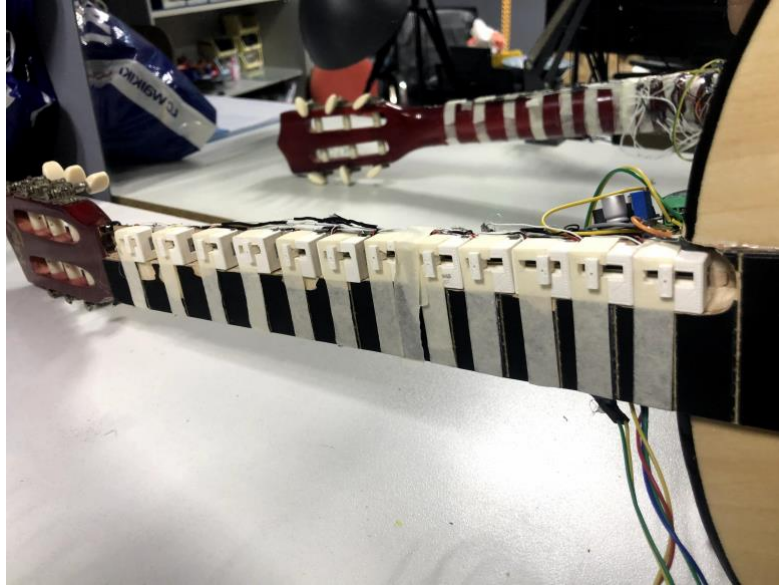
The system consists of a microcontroller, motor driver, linear servo motor, OLED display, rotary encoder and a power adapter. The system was prototyped for 12 frets on one

string. In the system one micro linear servo-type motor was used for each fret that needed to be moved horizontally.



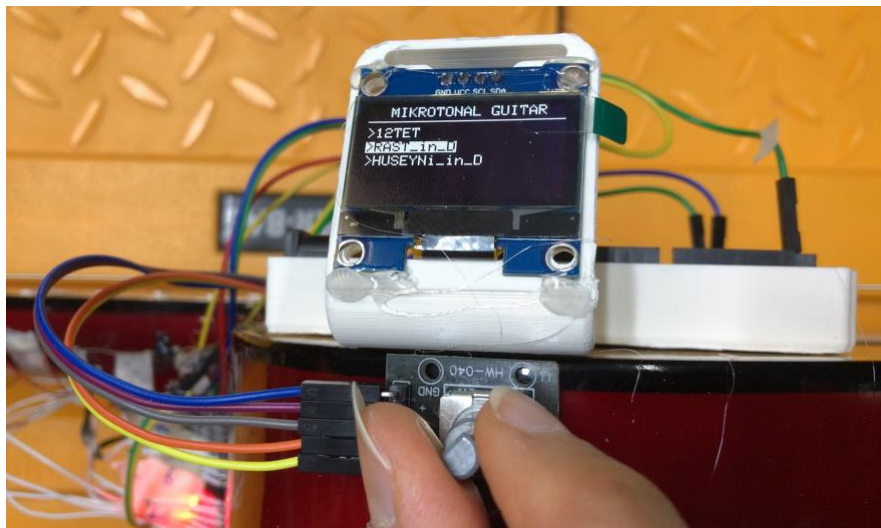
**Figure 13.** Linear servo-type motor on the standard classical guitar fretboard (Tolgahan Çoğulu, Personal Archive)

Modules were 3D printed on the motor shaft to imitate the frets. When the player selects a preset position setting, a signal sent to the motor moves each fret along the shaft in accordance with the correct microtones. The minimum and maximum positions that each shaft can move is expressed between the numbers 0 - 100. The point where the fret position should be according to the *makams* was determined numerically in advance. The stored information containing the fret positions is defined by the Arduino Mega 2560 and sent to the PCA9685 servo motor driver, which can drive twelve different motors separately at the same time. The task of the motor driver is to transfer the electrical power from the power adapter to the servo motors according to the signal from the Arduino.



**Figure 14.** Modules installed into the fretboard (Tolgahan Çoğulu, Personal Archive)

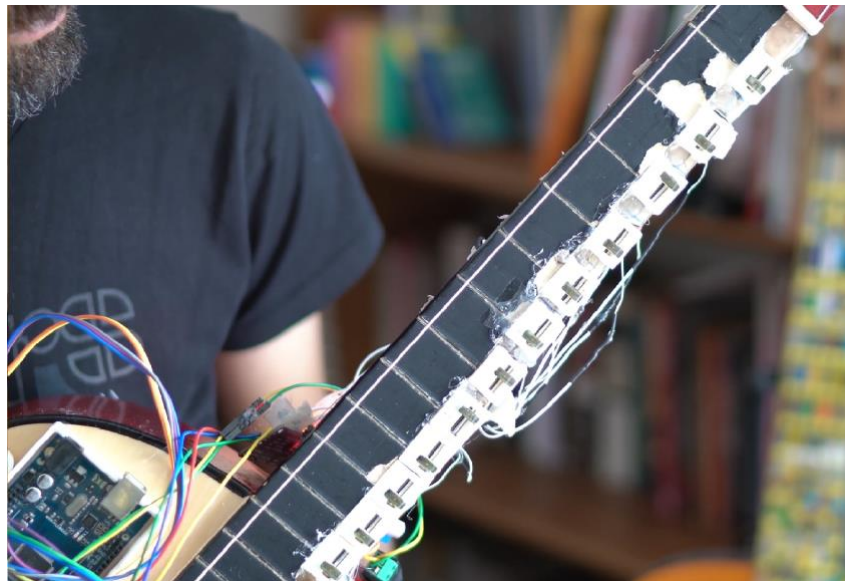
Apart from motion control, there is an OLED screen and a rotary encoder that creates the user interface in the system. The *makams* defined on the Arduino are displayed on the OLED screen and the encoder is rotated clockwise or counterclockwise to choose between the *makams*.



**Figure 15.** OLED screen and the rotary encoder (Tolgahan Çoğulu, Personal Archive)

In order to apply the preference, the player presses an encoder which directs the motors to set the frets in the correct position. Each *makam* name displayed on the screen represents data sets that hold motor positions. When a player makes a selection from the interface, the position information of that *makam* is sent to the motors and the motors

maintain their positions and ensure that the frets are in the correct location to produce the desired tone.



**Figure 16.** One-string prototype of the automatic microtonal guitar (Tolgahan Çoğulu, Personal Archive)

The project resulted in a working prototype and a YouTube video which was used to ask for additional funding and new designs from around the world.<sup>8</sup> This prototype changes tunings faster than any other fretboard design in history, however at the conclusion of the project no further potential to expand beyond one string exists. Therefore, the team hopes this idea will be a catalyst to continue designs in this area, now that they have proved it is possible. At the time this paper was written no serious funding or design offers have been submitted. Tolgahan has reached out to several friends in hopes of collaborating on a new vertical design. Although Tolgahan is happy with the results of this first trial guitar, ultimately he believes that the vertical design holds more potential for future projects.

## Conclusion

Two teams of innovative guitar players and engineers have developed two unique guitar fretboard designs that fit neatly into the lineage of luthier innovation that came before them. The 'Automatic Microtonal Guitar' is the first ever guitar of its type, a system that uses electronics to move frets into various configurations quickly. The prototype

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<sup>8</sup> Video can be found here <https://youtu.be/zbbyikFthEc>



demonstrates the potential of using new ideas and technology to overcome the problems and limitations of the guitar fretboard. While this idea continues to incubate in the prototype phase, the 'Lego Microtonal Guitar' is already finding its home within the history guitar fretboard construction. With the creation of the Lego microtonal guitar, the modern microtonal guitar journey has returned to its roots in 1829 with an independent design resembling the first known iteration of microtonal guitar. By using two types of easily configurable (custom designed) Lego pieces as frets, any reasonable configuration of microtones can be achieved by placing these frets on the studs as they are spaced on the fretboard baseplates. 3D-print technology enables the existence of such a guitar as well as its accessibility by people around the world without the time-consuming manufacturing processes that previous designs required. The world's most popular instrument has joined forces with the world's most popular toy, the potential for transforming guitar education and increasing engagement with world music communities are some of the most exciting things on the horizon for the microtonal guitar future.

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# A Comparative Study of Ogu Mase Music of Akarakumo and Lagon-Thogli in Badagry

## ABSTRACT

This is a comparative study of *Mase* music in two Ogu communities; *Akarakumo* and *Lagon-Thogli* in Badagry, Lagos State, Nigeria. Issues relating to the origin, relevance, structure, form, and development of *Mase* music in both communities were investigated for documentation and archival purposes. Data is drawn from oral interviews, participant observation and available literature. Respondents were selected among leaders and members of the visited *Mase* groups. Selected samples of *Mase* songs were transcribed into staff notation and analysed for documentation. The study revealed that *Mase* music and its variants were created by Yedenou Adjahoui from the Republic of Benin. The instrumental ensemble of *Mase* music includes *Apotin*, *Aze*, *Alekle-daho*, *Alekle-pevi*, *Apesin-daho*, *Apesin-pevi*, *Ogan*, *Aya* and hand clapping.

## KEYWORDS

Badagry

*Mase*

Ogu social music

*Alekle*

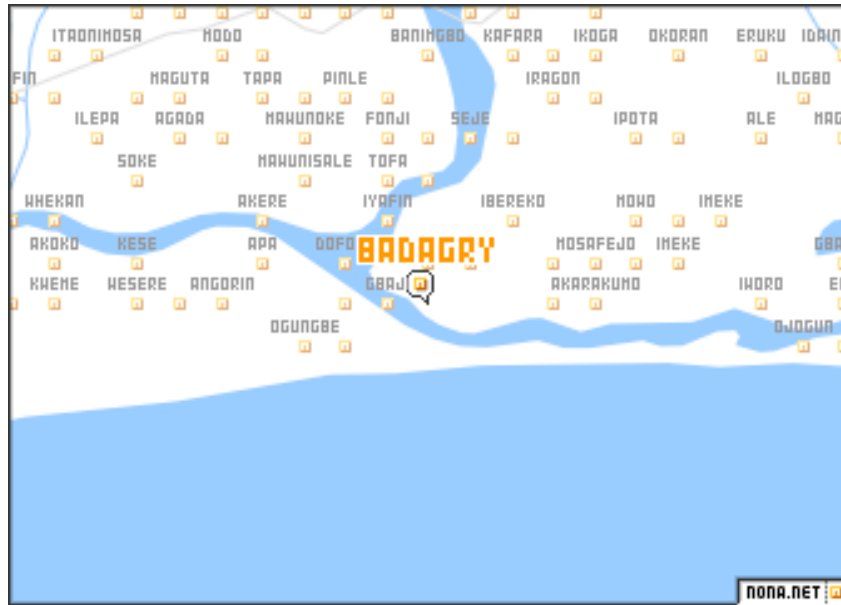
Ogu indigene

## **Introduction**

Musical practices and traditions in Africa are associated with various life cycle activities. Omojola (2014) stressed that musical practices, like other forms of artistic expressions, represent an integral part of culture. Furthermore, he suggested that musical performances, in addition to their aesthetic values, are conceived as a form of human activity and viewed in terms of their significance within the total cultural fabric of a society. Music does not only function as an accompaniment to various activities, but it is also used for entertainment, politics, occupation, life cycle activities, religious worship, installation of kings, and rites of passage, including the initiation ceremonies of professional associations. This claim is corroborated by Omibiyi-Obidike cited in Udoh (2016: 2), that “music speaks the mind of the people and finds its place in all social activities like work, games, dances and religious ceremonies.”

Music is a ubiquitous part of people’s everyday life activities, given the socio-cultural and communal nature of Badagry, a town which lies on the South-West coast of Nigeria, about thirty-five miles west of metropolitan Lagos. Sorensen-Gilmore (1995) observed that Badagry is a small, peripheral town along the road to the border between Nigeria and the Republic of Benin. Badagry Local Government Area, with extensions to Age-Mowo, Ikoga, Idale, Iworo-Ajido and Agbara appears to be the major habitat of Badagry-Ogu people in Lagos State, Nigeria. In addition to these, there are other smaller Ogu settlements in other parts of Lagos state which include Makoko in Yaba area of Lagos, the displaced Maroko community and other smaller Ogu settlements in Lagos State.

Sorensen-Gilmore (1995) observed that the role of religious ceremonies, festivals, and rituals is to maintain a sense of unity and identity amongst the diverse groups of Badagry people.



**Figure 1:** Map of Badagry showing major towns and villages. Source: <https://nona.net/features/map/placedetail.2238098/Badagry/>

Mesewaku and Adeyemi (2000) opined those festivals are occasions for the worship of the gods, spirits, and ancestors, and that these festivals are also used to celebrate life events. Festivals that are celebrated among Badagry Ogu people include *Sato*, *Zangbeto*, *Igunnuko*, *Egungun*, *Ajahungbo*, *Avohunwe*, *Hevioso*, and *Zunmevodun*, among others. Mesewaku et.al (2000) further explained that some of these festivals are sacred or cultic, while others are social and ceremonial. These festivals and ceremonies are accompanied by music and other social activities like dancing, drumming, chanting, magical, artistic and other acrobatic displays.

In line with the functional and traditional character of music in Badagry, Ogu-*Mase* music is used exclusively for entertainment, social and socio-religious functions (Comlan Avitin, personal communication, October 15, 2020). These functions include coronation, marriage, naming and burial ceremonies, housewarmings, birthday celebrations. Although, research has been carried out on *Mase* music by Kunnuji (2016), there are evident omissions regarding the origin, types, and stylistic elements of *Mase* music across various locales in Badagry. Even though the music is generally classified and referred to as *Mase* in Badagry, there is a myriad of differences across various localities in Badagry. These differences include nomenclature, instrumentation, performance style, drum ensemble, vocal ensemble, and sitting arrangement.

## **Theoretical Framework**

The contextual strategies of inquiry and systematisation by Nketia (1990) were used as the theoretical basis for this study. The theory according to Nketia was built and developed from the musicological task theory by Seeger (1977). Nketia, cited in Olusoji (2009), observed that context and contextualisation fall within the musicological task. Context is the physical, ecological, social, and cultural setting or environment, in which an entity or unit of experience is viewed in order to define its identity or characteristics, as well as its relationship, in comparison with other entities or units of experience. Thus, contextualisation is the process of viewing such entities in the context of internal and external relations and their relevance for analytical and evaluative purpose.

In applying the theory to this study, we examined the relationship between performance environment and musical content, contextual factors responsible for the choice of modes or scales and instruments, relationship between Ogu culture, *Mase* music and other intrinsic factors. In addition, we examined and discussed musical similarities and differences of both performances at their various locations.

## **Methodology**

This study adopted an ethnomusicological research design. Omibiyi-Obidike (1999), prescribed three stages as viable procedures for carrying out ethnomusicological research. These are pre-field, field work, and post-field stages. These stages were used to investigate and seek answers to questions about *Ogu-Mase* music's performance practice, genesis, and development. A thorough search of the library and the internet for available and relevant resources on the origin of *Ogu-Mase* music was also conducted, in addition to the knowledge of existing and related literature from various bibliographic sources. These provided background information on the history and stylistic patterns of *Ogu-Mase* music.

We carried out a five-week ethnomusicological field study (from September 22 to October 29, 2020) in Akarakumo (<https://goo.gl/maps/gAKwrK5FtQnZgrBD8>) and Lagon-Thogli (<https://goo.gl/maps/nwjsQyi6aAyVwpcfQA>)— two villages located in Badagry, Lagos State. During the fieldwork, video recordings of several *Ogu-Mase* performances were made with a portable camera as well as the researchers' phone cameras. Oral and one-on-one interviews with leaders and members of the *Ogu-Mase*

ensemble were also conducted. The performances were recorded in their natural and cultural contexts and environments. This makes it a unique set of data for ethnomusicological research, but also an important cultural document of Ogu-*Mase* music. Monetary gifts were prepared as incentive and appreciation to encourage the assistance of the respondents.

### ***Ogu-Mase Music***

*Mase* is a popular, socio-cultural, and secular genre of Ogu music. The genre, according to Kunnuji (2016), is played for social occasions and is the most popular variant today among other popular indigenous Ogu musics. It features praise singing and communal dancing. The author revealed that *Mase* is characterised by a compound-quadruple time signature (12/8) with varying topical lyrics and melodies played at diverse tempos. The originator of *Mase* music, Adjahoui Yedenou hailed from the Avrankou village Wheme, in the Republic of Benin (Solomon Thasi, personal communication, October 13, 2020). Oral sources reveal that Adjahoui was the only person to have successfully played all the different Ogu drums and also performed all the Ogu music genres before his death in 1995. He established three genres of *Mase* music, namely *Mase Gohoun*, *Ake*, and *Eyo*. The various *Mase* genres could be differentiated by varying rhythmic patterns of either the gong, one of the drums, or the mode of drum combination (Comlan Avitin, personal communication, October 27, 2020).

As pointed out, *Mase* music is a functional socio-cultural music used for entertainments at social events and life celebrations such as weddings, birthdays, house-warmings, coronations, graduations, and naming ceremonies. It is characterized by a medley of various topical songs which starts with an introductory section called *Avale*, which literally means 'Homage'. It is customary for *Mase* bands to pay homage to the deities and elders of the land at the beginning of a music performance.



**Figure 2:** An *Ogu-Mase* ensemble at Akarakumo in Badagry: Rehearsal session. Individual archive.

### **Instrumentation**

Indigenous musical instruments used in *Mase* music are categorised as membranophones and idiophones. Ekwueme (2008) defined membranophones as drums made of a hollow round or square frame with an animal skin membrane stretched tightly at one or both ends. Membranophones are either played by hitting it with both hands or with sticks. The membranophones used in *Mase* music include *Alekle-daho*, *Alekle-pevi*, *Apesin-daho*, *Apesin-pevi* and *Aze* (sometimes called *Aje*). On the other hand, idiophones are instruments that produce sounds from their own bodies (Agordoh, 1994). He further explained that they are made of natural, sonorous materials that do not require any additional tension, unlike membranophones (Agordoh, 1994). Idiophones used in *Mase* music include *Mase-Apotin* (wooden box), *Ogan* (gong), *Aya* (beaded rattle) and hand clapping.

*Mase Ake* music uses the *Apesin-daho* (Big clay/pot drum) while *Mase Gohoun* uses the *Apesin-pevi* (small clay/pot drum). The *Mase-Apotin* (wooden box) plays a lead role in the ensemble. It plays extemporised and danceable rhythms at the high point of a particular song, to which the audience responds by dancing. In addition, it also observes silence (rest) for a number of measures before it resumes playing with the ensemble. The *Apotin*



regularly plays melo-rhythmic patterns, which imitate the tonal inflections and linguistic features inherent to the Ogu language to either complement a section of the song or communicate with audience members.



**Figure 3:** Alekle Pevi & Alekle Daho. Individual archive



**Figure 4:** Mase-Apotin. Individual archive.



Although *Mase* music performance is male-dominated, women are occasionally employed as background singers and dancers. These women are referred to as '*iya egbe*' (*Yoruba*, meaning chairlady) and operate as a side attraction during a performance to attract audience attention and get them to show their appreciation of the band, by either spraying money or joining the dancers to dance on the stage.



**Figure 5:** *Aze*



**Figure 6:** *Apesin daho*. Individual archive



**Figure 7:** A section of *Mase* ensemble showing the *Alekle pevi*, *Alekle daho*, *Ogan* and *Apesin daho* players. Individual archive



**Figure 8:** A section of *Mase* ensemble showing the *Aze*, *Aya* and *Alekle pevi* players. Individual archive

### **Comparative Analysis**

In this section, we engaged in comparative analysis of musical elements (scale, melody, intervallic range, harmony, rhythm, and form), in addition to performance practice found in *Mase* music from the live performances witness in the field and recordings. Aided by computer software (Finale), sample analytical summaries of the songs are transcribed and presented in Western notation system (staff notation), representing what happened melodically and harmonically during the performance. In analysing the melodic and harmonic musical elements of the *Mase* music in the present study, we are not interested in the determination of the tuning system. Although various keys are presented as a premise for analysis, the key signatures are meant for transcription purposes only, and the notes of the scale are not employed in the western classical idiom of absolute pitch or equal temperament tuning.

### ***Melodic and Harmonic Structure***

*Mase* music composers and musicians employ common harmonic and melodic elements and concepts that feature in most indigenous Ogu music, as well as other music indigenous to Africa. Some of these features, according to Agu (1999), Udoh (2016), and Olusoji (2009) are speech tone, imitation, and the use of excessive improvisation.

## Melodic Structure of Mase music

Melodic patterns in *Mase* music are constructed from the notes of the pentatonic scale.



Figure 9: Pentatonic scale

The pentatonic scale presented in figure 9 above is found in *Mase* melodies of both Akarakumo and Lagon-Thogli presented in figures 10 and 11. Ogu melodies usually follow the contours and melodic curves dictated by the spoken words, and the melodic progression employed by *Mase* bands of Akarakumo and Lagon-Thogli utilises the pentatonic scale, which incorporates speech tones that are inherent in Ogu language.

**Moderato**

Mipa ma wu e zin a ge le we tho Je su e zin gopao

5 Mipa ma wu e zin a ge le we tho Je su e zin gopao 2

Figure 10: Melody of Avale from Lagon-Thogli

**Adagio**

A ma jo go tin Klu no Ji whe ye we gbe che dua lo che me

*Expression*

o kogbetonponlon va to lua vo chelua o jehona a don te londonlon a jo tin ku lu

ni Ji wheyewhegbe chedua lo chemo o kogbeton o po lo fua to gi go na

Figure 11: Melody of Avale from Akarakumo

In the melodic examples of both communities in figures 10 and 11, the composers exploited the pentatonic scale. The melodies are traditional or rustic in nature and were found to be narrow in range within an octave. This is partly because the melodies are word-born and logogenic in nature. Most of *Mase* melodies do not exceed the interval of an octave. The melodic curves and contours from melodic analysis are dictated by the spoken words in the Ogu language.



**Figure 12:** An octave

Repetition of motifs is a common feature, although the melodic shapes are not rigid as a result of the improvisatory nature of the melodies. The melodies are sometimes embellished with ornaments.

The intervallic range in *Mase* music of Lagon-Thogli is a perfect fourth (see figure 10) while that of Akarakumo spanned a minor sixth (see figure 11). The melodic intervals that are evident in *Mase* music as observed in both communities are unison, major seconds, major and minor thirds, perfect fourth, perfect fifth, and minor sixth. No form of modulation was observed. The melody of *Mase* performance in Akarakumo is observed to have the supertonic note only at the cadential points.



**Figure 13:** Perfect Fourth



**Figure 14:** Minor Sixth

### **Harmonic Structure of *Mase* music**

Based on our observations, the harmonic structure employed in the vocal section of *Mase* music in both communities is the unison. This was done in both solo-responsorial and through-composed forms.

## Rhythmic Structure of Mase music

*Mase* music commonly utilises the compound quadruple time signature (12/8). This is well expressed in the rhythms employed both in vocals and instrumentation. However, there are concurrences of many rhythmic patterns played by the accompanying instruments producing cross and interlocking rhythms.

**Allegro**

The musical score consists of eight staves, each representing a different instrument or vocal part. The time signature is 12/8, indicated by a '12' over an '8' and a common time signature 'C'. The tempo is marked 'Allegro'. The staves are labeled as follows from top to bottom: Alekle kpevi, Alekle Daho, Ogan, Aya, Aze, Akpesin, Hand Clap, and Akpotin. The Aya staff includes the word 'improvised' written below the notes. The notation includes various rhythmic symbols such as eighth notes, quarter notes, and rests, with some notes beamed together to show eighth-note patterns.

**Figure 15:** Instrumental Rhythms from Ogu mase of Lagon-Thogli

Figure 15 above presents the instrumental rhythms of *Mase* from Lagon-Thogli. The *Aya* plays the time-keeping role, the *Aze* provides the pulse, while the *ogan* gives the ostinatos.

The image shows a musical score for seven instruments: Aya, Alekle kpevi, Alekle Daho, Akpesin, Aze, Ogan, and Akpotin. Each instrument part is written on a five-line staff in 12/8 time. The Aya part features a series of eighth notes. Alekle kpevi and Alekle Daho play a complex, interlocking rhythmic pattern. Akpesin and Aze play simpler, more rhythmic patterns. Ogan plays a pattern with some accents. Akpotin is marked as 'improvised' and shows a few notes followed by a rest.

**Figure 16:** Instrumental Rhythms from *Ogu mase* of Akarakumo

The rhythmic patterns played by the *Ogu-Mase* instruments from Akarakumo are presented in figure 16 above. The *Alekle-pevi* and *Alekle-Daho* jointly produce a rhythm that functions as the time-liner. This role is also imitated by the *Aya*. The *Apesin* acts as the ostinato while the *Aze* provides the pulse.

### **Form in Ogu-Mase music of Akarakumo**

The form or structure of *Mase* music in Akarakumo follows the solo-responsorial pattern. The solos led by the lead vocalist are lengthier than the response by the chorus. The solos are largely improvised and are found to be through-composed.

### **Form in Mase music of Lagon-Thogli**

*Mase* music performance from Lagon-Thogli is characterised by a call and response. It is also found to be both strophic and solo-responsorial in nature. The improvisations of the lead vocalist follow a particular melodic pattern with variations in the lyrical content. It employs the chain song (medley) technique with continuous variation of the theme.



## Performance Practice

*Mase* is an entertainment music that is used at social functions. The performance of *Mase* music usually starts with an introductory section called *Avale*. It normally starts slowly and gathers momentum into faster sections that involve active participation of all the group members. At the peak of their performance, the audience 'sprays' money notes and dances in patronage to the band's performance. At this point, the band sings eulogies and praises of identified patrons among the dancing audience, particularly those who danced and 'sprayed' them with money as a form of appreciating their performance.

In Akarakumo, the *Mase* ensemble is made up of the following:

- Singers: 1 male lead vocalist and 8 male back-up singers
- Instrumentalists: All men in the group played one instrument or another.

In addition to singing, each back-up singer also played a percussive instrument. The lead vocalist doubled as the *Ogan* player, one of the musicians played a combination of *Alekle-Daho* and *Alekle-pevi* simultaneously. *Akpotin*, *Aze*, *Aya* and *Apesin-Daho* were played by different musicians in the ensemble. Other ensemble members clapped in unison at different points in the songs.



**Figure 17:** *Mase* ensemble of Akarakumo. Individual archive

The Ogu-Mase ensemble of Lagon-Thogli is made of

- **Singers:** 1 male lead vocalist and 4 female back-up singers
- **Instrumentalists:** 5 instrumentalists in all.

One instrumentalist each plays on the Mase Apotin, Aze, Alekle-pevi, Ogan and Aya. Another instrumentalist simultaneously played a combination of both the Alekle-Daho and Apesin-pevi.



**Figure 18:** Mase ensemble of Lagon-Thogli. Individual archive



**Figure 19:** Mase ensemble of Lagon-Thogli (showing the singers). Source: Individual archive



## Conclusion

This work is a comparative study on Ogu *Mase* music in Akarakumo and Lagon-Thogli villages located in Badagry, a coastal city located in Lagos, Southwest Nigeria. *Mase* music like the music genre of other minority ethnic groups is characterised by paucity of information and documentation. Beyond the regular discussion of indigenous practices facing extinction as a result of globally widespread shift in lifestyle, the study noted that Ogu *Mase* music featured prominently in the social activities of Ogu people in Badagry and its environs. The music is characterised by unique musical elements. Other socio-cultural features found within the ambit of its performance practices include *Avale* (introductory section), audience participation, and 'spraying of money' as a form of appreciation during performance.

The differences in the musical properties for the two *Mase* groups were observed to be remarkably few. This is overt in the tonal organisation, use of scales, pattern of melodies, intervallic range, harmony, and in the number of instruments that provides strong polyrhythmic instrumental background, which are maintained for the complete duration of a song. The two *Mase* performances recorded in Akarakumo and Lagon-Thogli were also not identical in their musical improvisations.

It is obvious from this work that indigenous musical expressions display relatively high communicative competence. The various audience responses show that *Mase* music performance is an integral part of the traditional values of the *Ogu* people. Given the global yearnings for cultural development, indigenous music should be encouraged and preserved for posterity, rather than the current dominant position of popular music in Nigeria and Africa at large. This study has contributed to musical scholarship through transcription of some *Mase* songs into staff notation and the ensued structural analysis. Therefore, it prepares ground for further studies.

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## Investigation of the Economic Dimensions of Choir Festivals-Festivities in Terms of Participating Choirs and Organizations: "Choral Tourism"

### ABSTRACT

Choirs constitute an important role in increasing the artistic, social, and academic quality. Choir festivals, in which choirs perform their works, have become widespread in Türkiye over the last ten years, and it is observed that the choirs not only participate in these festivals but also in festivals abroad. These festivals and events are important for choir members and conductors, as they provide opportunities for choirs to take stage outside their own environment. Choirs from all over the world participate in national-international festivals held in Türkiye and exhibit their works, and benefit from this as a social and touristic trip. Based on these views, choral festivals' economic dimensions were examined in terms of choirs and organizations. This research is a descriptive study in which data is collected through unstructured interview which constituted a small group. The main purpose of the research is to draw attention to "choral tourism".

In this research, a study was conducted on the expenditures of 3 choirs and 4 organizations in order to address choral festivals' economic dimension. The participation processes of the three choirs in festivals held in different cities were discussed, and what kind of expenditures a choir had was tried to be determined, based on their expenditures during the process. Therefore, it is desired that choir educators and conductors who participate in festivals will be informed regarding expenditures. Based on this research, it is concluded that choral festivals contribute to international cultural exchanges and increase tourism revenues.

### KEYWORDS

Choir Festivals

Festivities

Choral Tourism

## **Introduction**

Music has individual, social, educational, cultural, and economic functions, and these functions have the power to affect a wide stratum of society. It can be said that music performs quite different functions in a very wide area, from entertainment to education, from religious purposes to therapy and healing. These functions reveal the duties that music undertakes in various contexts, and the values it carries in terms of individual and social development are also shown. The fact that music is generally the result of a multi-faceted unity and can be performed with wide participation from the individual to the society causes it to become a valuable phenomenon both individually and socially. Uçan (2018) discussed the main elements that play a role in the phenomenon of music as "composer, musical work (piece), vocalist/commentator, listener/audience, communication/interaction (channel) between them, and the environment/setting in which all these take place and are performed".

Music activities, both with instruments and with sound, offer many opportunities as environments where individuals who make up the society come together and communicate. Choirs, orchestras, dance ensembles and rhythm ensembles appear as communities that have an impact on social life in this respect. Among these communities, choirs stand out as they are more common, whether amateur, or professional, open to children, young, old or very different cultural structures, as they exhibit a structure suitable for the participation of individuals of all ages and levels. In addition, the fact that every person has the opportunity to participate and perform their works in any environment with the need only for human voice and instrumental accompaniment makes choral activities an effective and valuable social environment. It is known that there is a very different and special interaction between the individuals who come together in choirs. Festivals organized in the field of choral music have many benefits in this regard, and it is possible for people of very different ages, educational levels and society to come together, communicate with each other and get to know different cultures (Çevik, 2015; Apaydın, 2001).

According to Ali-Knight & Robertson (2003), "Culture is the mechanism through which individuals, communities and nations define themselves" and they also add, "Culture is very much seen as a process or a product and, if so, the product of individual or group activities. For example, culture can range from 'high' culture such as the arts to 'popular'

and ‘contemporary’ culture which can include such diverse activities as football, music, and television”. The fact that culture is a product of individual or group activities also transforms culture into a social meeting place. Cultural events such as music festivals are accordingly transformed into environments where individuals, communities and nations define themselves. At this point, choir festivals can be considered as a unique environment, as culture, art and tourism, that takes place with the widest participant mass.

Choirs hold qualifications as a social group. Groups have been described with definitions such as the gathering of individuals who interact with each other, a unity formed by individuals working together to achieve a certain purpose, and a community formed by individuals acting together to meet certain needs. Another feature of groups is that they consist of individuals structured according to a set of roles and rules and they influence each other (Aktaş, 1997). Considering these qualities, choirs can be called a social group with their structure consisting of individuals who have come together for a certain purpose, influencing each other, and with their sense of belonging.

Individuals in the choirs participate in these groups with the aim of improving their artistic abilities and skills, being in a social environment and communicating with different individuals and exhibiting their joint works together. Admiration of group activities, formation of common values, realization of individual and group goals, and enabling individual development and interaction contribute to the increase of ties between the individuals forming the group and to the sense of belonging to the group. These qualities show the aspect of the choir that contributes to social and individual development. The togetherness in choirs is based on singing together. The fact that the success to be achieved depends on the success of the others, the need to integrate with the others during the performance, retaining the same value oneself simultaneously, are the basic and general behaviours of group members during working and performing. According to Coşkuner (2019), “The standard approach in the choral tradition of Classical Western Music includes the process of solfeggio of a song over a written note, learning its lyrics, learning the nuances and giving it a presentation suitable for performance”. This is a process in which choir members interact with each other, listen, and follow, and feel intensely the other choir members until they perform on the stage. In particular, the exhibition/performance stage is the most intense time of interaction. Çevik (2015) stated

that in the process of preparing a choir lesson programme for the choir directors for an academic year, in line with the objectives of the lesson, in the determination of the targets and target behaviours and in the determination of the works that can be an area of application for the choir, it is important to consider the scope and details of the concert programmes and that concerts with a predetermined date and place are an important motivation for the choir in achieving the goals determined in choir education. The environments where choirs will exhibit their work and share with individuals who love choral music can be seen as environments of education, art, and social interaction. Thus, those who take part in the choir can spend their time in a valuable environment of interaction. In this respect, choirs have qualifications as a social environment.

While social environments offer individuals the opportunity to get to know others, they also allow individuals to spend quality time together. "Providing and encouraging children with music and cultural activities in which they can spend their free time helps prevent them from entering the wrong circles. It can be said that such cultural activities prevent children from acquiring bad habits. For this reason, it is expected that polyphonic choir education, which is thought to help children in their emotional, psychomotor and cognitive development, will be given more importance by educators and families" (Kaynak, 2018). Being educated in the choir provides children with very important opportunities not only in terms of making use of their free time, but also in terms of using their time in a qualified way. Especially today, individuals who are lonely use their time in social activities such as choral singing, which reveals very useful results.

Another aspect of choirs is economic inputs and outputs. Participants, choir educators and accompanists must act in a material and moral partnership in the choir. Although material attitudes and approaches vary from choir to choir and the attitudes of institutions also affect the budget to be spent, there is a material and moral exchange. The economic aspect of choirs, on the other hand, gains a more remarkable meaning not only during the education process, but especially during festivals and festivities and their size. The greatest difficulties experienced by the choir conductors, especially during the participation in festivals and festivities, arise at the point of meeting these financial requirements. On the other hand, stage performances are important in terms of exhibiting the works in large organizations, achieving the purpose of education, and exhibiting the products. Concerts to be given in other cities and environments are considered as a kind

of touristic organization, as an event and a valuable period of time that should be planned for the institution, choir directors, choral singers and their families.

### **Choral Tourism**

According to Çelik, “Traditional art sectors (visual arts, dance, drama, opera, museums, etc.) have an approach that tends to be uneconomical. The outputs of these sectors are generally referred to as ‘artwork’ rather than ‘cultural quality and utility’. Their main function is to enlighten people, to enjoy a beautiful work of art, to adhere to historical and educational values and philosophical and political facts. Their economic value is often considered insignificant.”

Çelik also qualifies these sectors as “subsidized” sectors. In other words, the art sector is an area that supports the development of individuals. “Public subsidies justify art, which is non-economic and non-profit. However, their economic value is also increasing. The field of arts is an important tool for regional development. It is a thriving industry and a catalyst for the dynamism of creative cities. It provides regional and social integration and creates regional cohesion that drives the success of companies and talented people. It is also a successful item for attracting tourists. Cultural industries produce markets and play an important role in the production of cultural goods” (Çelik, 2011). In this respect, choral festivals draw attention as organizations that prepare the environment for choral tourism, and cause many choirs, choir members and interested parties to participate in these organizations.

Choir Festivals are a place where choir members enjoy the fruits of their work throughout the year. A choir participating in the festival both exhibits its products and has fun with its members and deserves to be entertained as a result of their strenuous work. This state resembles a celebratory programme. The definitions made also refer to this aspect. “Festivals can be expressed as social celebrations held in certain periods for various reasons. A full definition of the concept of festival cannot be given due to the differences in content, purposes, times, venues, organizational forms, etc. In addition, the fact that researchers look at the festivals from different perspectives, such as social, cultural, and economic, is one of the reasons why there is no unity of expression in the definitions put forward” (Şengül and Genç, 2016).



The festival comes from the word 'festum', festivity, folk entertainment, and it emerged from religious origins; traditions were repeated every year to transfer them from generation to generation, many societies throughout history held festivals for religious reasons and divine purposes, for Dionysus, the God of Wine in Ancient Greece, in ancient civilizations. It is stated that such ceremonies were also held in Anatolia, the Far East and Rome. After the Renaissance, with the Age of Enlightenment, festivals began to be organized for entertainment purposes other than religious requirements, and the Music Festival which was organized in the name of Handel in London in the 18th century, is recorded as one of the first festivals in Europe. It is stated that it takes place in many cities for entertainment purposes. It is important for the development of this concept that festivals gained a local character between the two world wars, and then international after the 1950s, and it is also known that the touristic marketing of cities led to economic, political, and social changes and developments of those cities. Again, in terms of cities, festivals play an important role in creating an image or changing a negative image. On the other hand, factors such as the increase in the level of education and the increase in living standards also contribute to the development of festival tourism while increasing tourism awareness (Tokatlı, 2019; Kahraman, 2020; Atak, 2009; Bilgili, Yağmur, Yazarkan, 2012).

While the festivals introduce the cultural structure, nature and touristic values of the region where they are held, they are a kind of celebration for the festival participants. "The observance of and participation in festivals, and what we may broadly term 'celebratory events', is an increasingly significant aspect of the contemporary tourist experience. Historically festivals, carnival processions and pageants have always provided points of meaningful connectivity and spectacle for visitors" (Picard & Robinson, 2006).

Festivals in Europe gained great importance after the 1950s, and the idea of emphasizing the cultural identity and integrity of Europe, whose importance was emphasized by Denis de Rougemont among the reasons for the establishment of the European Festivals Association, reveals that the concept of festival has not only a cultural but also a political side. The European Music Festivals Association, which was founded in Geneva in 1952 under the leadership of Denis de Rougemont, one of the leading figures of the European movement, and Igor Marketvich, who advocated the idea of a federal Europe, began to offer membership opportunities to festivals outside Europe, which "contribute to the

ideal of developing European culture". There are many festival members from Turkiye in this union (Bozkurt, 2008). Emphasizing the cultural identity and integrity of the festival union's purpose is thought-provoking, because Pieter Steinz (2016) emphasized that in his book "Values That Make Europe Europe - Art That Holds the Continent of Europe Together", art shares the same values and a common culture in many European countries. He says, "Music festivals in European cities gather young people from all nationalities."

Tokatlı (2019) informs us that activities are environments that are created by people acting together, organized for the purposes of meeting social or individual needs, sharing common feelings and thoughts, and being a social being, and that the tiredness of daily life is relieved at the same time. It can be for social, cultural, economic purposes and may include rituals, performances, and celebrations. He also states that it strengthens communication between different cities and different cultures, increases awareness of cultural identity, and strengthens the sense of community pride of local people. The emphasis on the effects of festivals on quality of life and public pride is striking.

The functions of festivals such as tourism, entertainment, education, social interaction, business, trade, and inspiration are mentioned. In addition, there is a wide range of socio-cultural, physical, and environmental, political, and economic impacts that can be positive or negative on local people and society (Kahraman, 2020; Atak et al. 2017). A festival held in a city or region can lead a large number of people to travel. The socio-cultural aspect of this is cultural sharing. The environmental aspect refers to the arrangement of the city or region in accordance with the people visiting, the arrangement of elements such as roads, transportation, and accommodation. Politically, it is possible to talk about a more positive and sometimes negative energy among the people who come to the festival area. From an economic point of view, it should be stated that the expenditures within this process have a multifaceted effect.

"Over recent years the relationships between festivals and tourism have mainly been dealt with in a largely mechanistic and even deterministic way, and in general, have shied away from inductive observations. Borrowing in the main from the discipline and discourse of economics, dominant themes have related to the management and economic 'impact' of festivals. In this sense, festivals (often as a sub-set of 'events') are described and discussed as 'products' that can be 'purchased' and 'consumed' by festival visitors and

participants” (Picard & Robinson, 2006). These products, which can be bought and consumed, also indicate sharing. For this reason, festivals that allow those with similar interests and consumption tendencies to come together require the organizers to structure them to support high visitor density and participation.

“Festivals clearly have a higher concentration of visitors in areas of a country that are already established tourist destinations, and the majority of festival organisers therefore design the programme content with the attraction of tourists in mind” (Smith, MacLeod & Hart, 2010).

Chang (2006) stated that local festivals play an important role in destination marketing and strengthening the local economy. Thanks to the festivals, visitors find themselves in an agreeable social activity and provide a source of income for the destination. Festival organizations provide visitors who come to the destination for tourism activities with activities other than the routine course of the destination, as well as creating new tourism demand for the purpose of participation in the festival (as cited in Şengül and Genç, 2016). It is known that the regions where festivals are held cause an intense tourist flow during the activities of the festivals, and the number of tourists can be increased through these events. It is also stated that the average expenditure amount of tourists participating in festival tourism is higher than tourists participating in other types of tourism (Çela et al., 2007 as cited in: Giritlioğlu et al., 2015).

According to Diane and Jackson (2002), festivals often support local businesses, contributing to hoteliers, restaurants, craft producers, entertainment providers, and any service industry in the festival area. “However, explaining the contribution of the festivals to the destination with these short-term tourist expenditures is a one-way view. Local festivals make great contributions to the destination such as spreading the season, reviving the low season, creating an image, providing an attractive variety of products, and protecting and promoting natural heritage, traditions, and customs” (as cited in Şengül and Genç, 2016). These versatile contributors turn festivals into unique opportunities, and similarly, it can be understood that choral festivals provide the highest tourism environment with a high participant rate.

The vast majority of choir festivals are places where performances are given. In some organizations, topics such as the training of choir conductors or platforms where the

opinions of the jury members who take part in the advisory evaluation board are shared. In this respect, it is observed that choir festivals offer a versatile educational environment.

The social benefits of festivals have been seen in many countries and cities of the world, and for centuries, festivals organized in many fields from sports to music have contributed to the coming together of people. Choir festivals are also held in many countries and cities, and some of them can even be held for religious purposes. A very remarkable aspect of all these festivals is the economic dimension. Considering that each choir consists of a community of at least 20 people and other individuals acting with this community, there is a significant increase in the number of tourists traveling between cities and countries. While some festivals organize such needs as accommodation, transportation and food and beverages within the scope of the festival, some leave these needs to the choirs. However, of course, community managers who come from outside and do not know the city are given the information they need to meet their accommodation and other needs. While this whole process contributes to the economy of the city and the country, it also becomes an important tourism sector in terms of promotion.

Festivals and events are considered important by many managers on account of the development of tourism and the revival of city life. Many different festivals and events are organized in Türkiye. "Culture has important contributions to local and regional development. It plays an active role in development. Developed or developing countries use culture as a tool. In the face of the sharp competition environment brought by the global economy, local governments now attach importance to culture as one of the main tools to strengthen the image and socio-economic performance of cities" (Türkmen, 2018). In this sense, it can be seen that the concept of cultural tourism means that artistic heritage, museums, libraries, archives, and festivals where music events are presented are also a part of this tourism industry as art environments, because "music is a commercial commodity and a serious industry" (Türkmen, 2021) and every genre and field of music is also part of this industry. Say (1995) states that Türkiye has begun to take an important place in the field of international music festivals. He adds that international festivals are held in three large cities and are among the world-famous festivals that are members of the European Festival Association. He says that especially in the last twenty years, efforts have been made to become a festival country, rural festivals sponsored by municipalities have also become widespread, and events that add colour to people's lives.

Choir festivals in Turkiye are generally based on performance, and in some festivals, criteria and certain rules in terms of participation have started to become clear in recent years. From this point of view, it can be said that choir festivals include choirs that fulfil the rules determined by their committees and they are environments where choirs perform.

Choir organizations are multi-faceted and interactive activities that involve many different expenditure items for both festivals, choir employment and participation in the festival. To qualify to join an organization, a choir should work at least 4 hours a week, this work should be planned in detail, the room where the work will be held should have suitable conditions, accompaniment and assistant trainers, and organizations should have a structure that will support matters that require financial and other planning other than education. A choir's success is enhanced by these additional services together with educational planning. Likewise, the success of festival organizations is also possible with members of the jury who make up the advisory and evaluation board, the hall, and the stage conditions where the performances are exhibited, well-planned organization and the managers and service team who can easily solve problems. Each of these points indicates a budget, and a quality event can be provided with a good budget. Again, advertising and recognition is another very important area that should not be neglected.

The events organized in the choir area are very important in other countries, allowing many groups to visit their cities within the framework of these events, whether they are touristic or not. According to Göncü and Azmioğlu (2018), as of 2018, there are 4 children's choir festivals, 1 youth/adult choirs' festival/festivities and 10 festivals covering all choirs. A total of 15 festivals and festivities constitute the environments where the works in the choir area are given. Considering these numbers, it can be said that choral festivals are very few in terms of 81 provinces and a country with a large population.

The first festival organized in the choral field in Turkiye was the Turkish Polyphonic Choirs Festival. The festival, which started in 1996, hosted guests from different countries from time to time; today more than 150 choirs and more than 4 thousand chorists participate, and it has become a well-known festival throughout the country as an event followed by thousands of listeners and viewers. Other festivals and festivities being

organized are determined as children's choir festivals and festivities and festivals and festivities open to all choirs. These festivals and festivities are as follows:

Children's Choir Festivals: Afyon 23 April Children's Choirs Festival, Bolu National Children's Choirs Festival, Denizli Children's Choirs Festival, Kütahya National Children's Choirs Festival. Adult-Youth Choirs Festival: Korofest (Bogazici University Choir Festival). Festivals and festivities open to the participation of all choirs: Antalya Choir Festival, Çanakkale Choirs Festival, İzmir Choirs Festival, Mersin Nevit Kodallı Polyphonic Choirs Festival, Pamukkale University Choirs Festival, Pera International Choirs Festival, Sansev Istanbul Polyphonic Choirs Festival, Sakarya Polyphonic Choirs Festival, Türkiye Choirs Festival, 100 Voice Choirs Festival (Göncü and Azmioğlu, 2018). The choral festivals that are actively organized in our country as of 2021 are as follows:

| <b>Children's Choir Festivals</b>              |
|--|
| 1. Afyon 23 April Children's Choirs Festival   |
| 2. Bolu National Children's Choirs Festival    |
| 3. Denizli Children's Choirs Festival          |
| 4. Kütahya National Children's Choirs Festival |
| 5. Çanakkale Children's Choirs Festival        |
| 6. Adıyaman Children's Choirs Festival         |

**Table 1.** Choral festivals that are actively organized in our country as of 2021.

The number of children's choir festivals continuing as of 2021 is 6, and these festivals are held especially within the framework of the 23 April National Sovereignty and Children's Day events.

|  |
|--|
| 1. Turkiye Choirs Festival                                 |
| 2. Mersin Nevit Kodallı Polyphonic Choirs Festival         |
| 3. Sansev Istanbul Polyphonic Choirs Festival              |
| 4. İzmir Polyphonic Choirs Festival                        |
| 5. Çanakkale International Choirs Festival and Competition |
| 6. Pamukkale University Choirs Festival                    |
| 7. Sakarya Polyphonic Choirs Festival                      |

**Table 2.** Choir Festivals

To provide some information concerning the children's choir festivals organized, the fact that the number of children's choirs participating in the Afyon 23 April Children's Choir Festival as of 2019 is 45, the number of choirs participating from outside the province is 12, and the number of singers taking the stage is approximately 1,000, which is significant for a festival in which only children's choirs participate. This is important data. The number of people traveling with choirs from outside the province reaches 500. These numbers are higher in festivals open to the participation of all choirs, and factors such as the quality of the festival, its reputation, the characteristics of the city and concert hall where it is held, and the jury members who take part in the advisory evaluation board affect the number of participants. This situation reveals a serious economic structure from different aspects. The expenditures of the choir and the expenditures of the festival require to consider the economic structure from two different aspects. The expenditure items of the choirs consist of many elements, among which the expenses such as clothing, accommodation, transportation, and meals take first place. In terms of festivals, many items such as rent and furnishing of the halls, accommodation, transportation and meal expenses, expenses of the festival staff, especially the expenses of the jury members who take part in the advisory evaluation committee, are handled separately. In this study, the expenditures made in terms of choirs and the economic dimension of the festivals from the expenditures of the choirs were examined; in this context, the expenditures of 3 choirs and 4 organizations were examined. Based on these views, it can be said that the aim of the study is to examine the effects of choral festivals and festivities on the economy and to focus on the contributions they will make in terms of tourism. Based on this purpose, it is considered that the study is important in terms of presenting an opinion to choir



managers, managers who organize a festival, city managers who want to include such events for the purpose of tourism and city promotion, and those involved.

Based on these views, the research is attempts to address within this framework the problem "What is the economic dimension of choir festivals in terms of participating choirs and organizations?" with the sub-problems "What are the Choir Expenses in terms of Necessary Expenditure of Choirs for Festival Participation?" and "What are the Expenses of Choir Festival/Festival Organizations in terms of Organizing Expenditures?".

## **Method**

This study is a descriptive study in which data was collected through unstructured interview. In unstructured interviews, interviewers ask questions within the scope of the research to the interviewees without being certain systematic, so that the information, opinions, or thoughts of the interviewees about the subject can be obtained. It is a data collection method that gives freedom to the researcher, and it is desirable to obtain rich and sufficient information through open-ended questions instead of forcing them to choose for ease of analysis. The important point here is that the interviewer does not limit what he will say when asking questions of the interviewee (Demir, 2010; Büyüköztürk et al. 2011). In this direction, the research was based on the idea that the expenditure of choirs participating in choir festivals would constitute the economic dimension of the festivals, and choir educators and managers were asked under what headings they made this expenditure. Three choirs were included in the study. Choir A from these three choirs expressed its views on the economic dimension of participating in a one-night and two-day domestic festival and revealed their expenditure. Choir B stated the expenses related to participation in a domestic organization of 5 nights and 6 days, while Choir C gave information about the expenses that they had within the scope of a 5-night and 6-days organization abroad. The differences in the expenditures of choirs and organizations showed that an average amount of expenditure cannot be determined.

In addition, 4 organizations are discussed in order to reveal the economic dimension of festivals and festivities. One of these organizations is an international festival and competition. The other is an organization that is organized as an international festival and is open to the participation of all choirs. The other two are national children's choir festivals and are organizations where only children's songs are performed and children's

choirs participate. The data presented within the scope of this research are only the data reflecting the research sample. It is observed that many choirs have different expenditures, and these fees vary according to the transportation and accommodation types they prefer. The aim of this research is to draw attention to the size of expenditure in terms of choral tourism rather than the fees paid by the choirs.

### **Data Collection**

Every organization functions by fulfilling various requirements. Choirs must carefully arrange financial issues in stages, such as renting the hall where the work is carried out throughout the year, sharing the expenses of the participants, and paying expenses during the participation process to the organizations. A choir that will participate in a festival or festivities is required to assume expenses and expenses such as clothing, transportation, food, and beverages for the stage performance. All these expenditures and expenses appear as an important activity in the economy of the city and the country, and it is understood that the international dimension can become a serious element of the tourism sector when it is supported and encouraged.

Based on these views, in this research, the economic dimension of participation in a festival has been examined and its effects on economic mobility have been examined. This economic activity is described by considering the expenditure necessary for transportation, accommodation, food and beverages, etc. Expenditures within the scope of festivals were included in the research, and the expenses paid by choirs during the working process and their expenses during the education process were excluded.

Expenditure for meetings and preliminary studies made for organizations are excluded from the scope of this study. The interview technique was used to collect the data, and a single unstructured interview question was asked of the managers whose opinions were sought, and they were asked to indicate their expenditure. Managers reported their expenditure based on their files and records, and data for 2019 and 2020 were taken into account.

Research data were obtained from a very small group. For this reason, a generalization cannot be made and transportation, accommodation and other expenses may increase or decrease in proportion to the financial possibilities of the group or organization. Another

issue that needs to be emphasized is that some organizations are carried out over a 5-day package programme. Participation in such organizations is charged based on this 5-day participation. For this reason, the data are shown in a way that takes this into account.<sup>1</sup>

## **Results**

Within the scope of the research, expenditure, which was determined in the examination on which items the choirs spend on their participation in festival and festival organizations, and the expenses of three choirs, two of which participated in festivals and festivities in Turkiye and one abroad, as well as the expenditure of the four choir organizations in Turkiye, the international choir festival, the international choir festival, and competition, and the general expenditure items of the two children's choir festivals in different provinces were researched and evaluated. Thus, data obtained from two different dimensions, choir, and festival organizations, were processed.

### **Choir Expenses in Terms of Expenditure of Choirs for Festival-Festival Participation**

#### *Choir A (Participation in the Domestic Choir Organization -One Night, Two Days)*

The conductor of the choir stated that they took a rest and rehearsal the day before the stage performance and returned after completing their participation in the festival. They stated that they received institutional support for transportation and that their institutions covered the expenses of one of the two vehicles.

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<sup>1</sup> For 2019, the Turkish lira equivalents of 1 Euro, 1 dollar and 1 gr of gold are approximately as follows.  
Foreign Exchange and Gold Prices in 2019  
Exchange Rates for 2019 (Average Exchange Rate year-end)  
1 Euro = 6,35 ₺  
1 Dollar = 5,90 ₺  
1gr Gold =278 ₺

| Expense Items                   | One Night Two Days |
|---------------------------------|--------------------|
| Rental Bus                      | 1.180 Eur          |
| Accommodation (2-3-star hotel)  | 1.678 Eur          |
| Meal                            | 415 Eur            |
| Individual expenses             | 692 Eur            |
| Festival Fee                    | 94 Eur             |
| Touristic expenses              | 188 Eur            |
| <b>Total Expenditure Amount</b> | <b>4.247 Eur</b>   |
| Expenditure Amount per Person   | 92 Eur             |

**Table 3.** Choir A Expenditure

The total expenses of the team consisting of 46 people, including 42 choir singers, 1 choir conductor, and 2 accompanists and assistant trainers, are presented in Table 3. When the above data are examined, it is seen that the expenditure items of the choir can be placed under 5 headings in general: transportation, accommodation, meal, festival participation, and individual expenditures. The total expenditure amount of the choir for participation in the festival was stated as *4.247 Euros*. The highest expenditure seems to have been accommodation, followed by transportation and individual expenditure. Among individual expenditure, there is also the cost of a joint uneaten meal.

*Choir B (Participation in the Domestic Choir Organization – Five Nights, Six Days)*

| Expense Items                              | Five Nights Six Days |
|--|----------------------|
| Rental Bus                                 | 1.417 Eur            |
| Accommodation + Festival Participation Fee | 2.170 Eur            |
| Meal                                       | 1.370 Eur            |
| General expenses (individual expenses)     | 1.141 Eur            |
| Touristic expenses                         | 913 Eur              |
| <b>Total Expenditure Amount</b>            | <b>7011 Eur</b>      |
| Expenditure Amount per Person              | 242 Eur              |

**Table 4.** Choir B Expenditures

The B choir consists of a total of 29 people, including 25 choir singers, 1 choir conductor, 2 accompanists and assistant trainers. When the above data are examined, the expenditure of the choir is generally gathered under 4 headings: transportation, accommodation, meal, and individual expenses. The festival participation fee of the choir is included in the accommodation fee on account of the participation conditions of the festival. The total amount of expenditure is stated as *7011 Euros*. Accommodation, transportation, and meal expenditures constitute the highest expenses respectively.

*Choir C (Participation in the Foreign Choir Organization – Five Nights, Six Days)*

| Expense Items                                     | Five Nights Six Days |
|---|----------------------|
| Rental Bus  | 3.150 Eur            |
| Accommodation + Meal + Festival Participation Fee | 11.062 Eur           |
| General expenses (individual expenses)            | 5354 Eur             |
| Passport + Fees Abroad                            | 2834 Eur             |
| <b>Total Expenditure Amount</b>                   | <b>22.400 Eur</b>    |
| Expenditure Amount per Person                     | 622 Eur              |

**Table 5.** Choir C Expenditures

The C choir, which participated in a festival in the Balkan countries, consists of a total of 36 people, including 32 choir singers, 1 choir conductor, 2 accompanists and assistant trainers. According to the data above, 4 headings have been specified in general: transportation, accommodation (meal and festival participation fee are included in this item), general/individual expenses and passport and non-tear fees. The total expenditure amount of the choir is shown as *22.400 Euros*. The highest amount was again given in accommodation. Here, individual expenditures exceeded the transportation costs and passport, and fees for travelling abroad were added as expenditure items. The choir's transportation by rental bus significantly reduced the expenses and provided ease of movement in the city where the festival is located. This was reflected as an important gain as it eliminated the costs of aircraft and transportation vehicles to be obtained from the city where the festival was held.

Of these three choirs, the general expenditure amount of the choir participating in a festival that lasted for a week in the country was *7.011 Euros*, the expenditure amount of

the choir for a festival attended for a few days was *4.247 Euros*, and the approximate expenditure amount of the choir participating in a foreign festival was *22.400 Euros*. According to these data, the duration of participation in the festival, whether the festival is in the country or abroad, and the number of choir members increase the amount of expenditure, that is, the expenses.

There are 10 active festival organizations in Turkiye that can be attended for a few days. Considering the general expenditure of the choirs participating in these festivals from outside the city where the festival is held, the expenditure of 200 choirs from all over Turkiye with this festival is approximately *841.000 Euros*. In addition, the total expenditure amount of the 62 choirs participating in the two choir festivals organized for one week is *421.000 Euros*. As a result of the observations made on the choirs participating in the festivals throughout Turkiye in recent years, it can be said that there are about a thousand polyphonic choirs, children, youth, and adults. Considering these calculations, it is seen that the participation of the choirs in the festivals leads to the creation of a very large economy, and it can also create remarkable opportunities in terms of tourism.

### **Expenses of Choir Festival/Festivity Organizations in Terms of Organizing Expenditure**

The expenditure items and the resulting amounts for the organization of the four activities from the choral festivals and festivities held in our country are tabulated below.

*Organization A – International Festival and Competition*

| <b>Expense Items</b>  |                   |
|---|-------------------|
| 1. Festival Brochure  |                   |
| 2. Poster – Advertisement Materials                         |                   |
| 3. Festival Hall Foyer Area Design                          |                   |
| 4. Festival Hall – Branda Hall – Material Images            |                   |
| 5. Festival Hall Sound – Light System                       |                   |
| 6. Festival Team – T-Shirt                                  |                   |
| 7. Festival Name Badge                                      |                   |
| 8. Festival Bag   |                   |
| 9. Street Billboard Advertisements                          |                   |
| 10. Choir Ceramic Awards                                    |                   |
| 11. Certificates of Participation                           |                   |
| 12. Website   |                   |
| 13. Promotion videos  |                   |
| 14. Festival Invitations                                    |                   |
| 15. Competition Award Certifications                        |                   |
| 16. Street Concerts Light – Sound System and Podium         |                   |
| 17. Festival Team Rations                                   |                   |
| 18. Guest Expenses (Accommodation-Transportation-Meal)      |                   |
| 19. Guest Jury Expenses (Accommodation-Transportation-Meal) |                   |
| 20. Jury Stamp Expenses                                     |                   |
| 21. Piano Accord – Accommodation-Transportation-Meal        |                   |
| 22. Festival Technical Employee – Employee Fees             |                   |
| 23. Festival After Party – Meal – DJ                        |                   |
| 24. Photocopy – Stationery                                  |                   |
| 25. Rental transportation + Fuel                            |                   |
| <b>Total Expenditure Amount</b>                             | <b>21.180 Eur</b> |

**Table 6.** Organization A – International Festival and Competition Expenditures

When the table above is examined, it is seen that a total of 21.180 Euros was spent on 25 items. The organization is an international event, institutional support for the use of the



halls has reduced the expenses, albeit a little. In general, it is seen that expenditures can be handled under the headings such as transportation, accommodation, meal, advertising, awards and documents, technical staff and services.

*Organization B – International Festival*

| <b>Expense Items</b> |                                    |
|----------------------|------------------------------------|
| 1.                   | Festival Graphic Design            |
| 2.                   | Festival Video-Photography         |
| 3.                   | Recording and Studio               |
| 4.                   | Festival T-Shirt – Bag             |
| 5.                   | Festival Hall Sound – Light System |
| 6.                   | Festival Team – T-Shirt Print      |
| 7.                   | Advertisement – Plaque             |
| 8.                   | Catalogue – Graphical Design       |
| 9.                   | Jury – Team Meal Expenses          |
| 10.                  | Cafeteria Expenses                 |
| 11.                  | Jury Dinner                        |
| 12.                  | Platform                           |
| 13.                  | Piano Tuning                       |
| 14.                  | Team Expenses and Fees             |
| 15.                  | Jury Hotel Accommodation           |
| 16.                  | Poster Design Print                |
| 17.                  | Employee Fees                      |
| 18.                  | Photocopies                        |
| 19.                  | Fuel                               |
|                      | <b>Total Expenditure Amount</b>    |
|                      | <b>16.712 Eur</b>                  |

**Table 7.** Organization B – International Festival Expenditures

Considering the above data, it is seen that expenditure covered 19 items, in total 16.712 Euros. It can be said that the festival does not have a competitive dimension and thus reduces expenses. In general, it may be seen that expenditure can be handled under

headings such as transportation, accommodation, meal, advertisement, awards and documents, technical staff and services, as in the previous organization.

*Organization C – Children’s Choir Festival*

| <b>Expense Items</b> |   |
|----------------------|---|
| 1                    | Festival Booklet                                      |
| 2                    | Poster – Advertisement Materials                      |
| 3                    | Festival Hall – Branda Hall – Material Images         |
| 4                    | Festival Team – T-Shirt                               |
| 5                    | Festival Name Badges                                  |
| 6                    | Certificates of Participation                         |
| 7                    | City Billboard Advertisements                         |
| 8                    | Festival Invitations                                  |
| 9                    | Festival Team Rations                                 |
| 1                    | Jury Accommodation – Transportation and Meal Expenses |
| 1                    | Piano Tuning – Accommodation – Transportation – Meal  |
| 1                    | Stationery - Photocopies                              |
|                      | <b>Total Expenditure Amount</b>                       |
|                      | <b>6.023 Eur</b>                                      |

**Table 8.** Organization C – International Festival Expenditures

The organization is a national event. The duration of the event is about two days. The participating choirs are also fewer in number than the organizations open to all choirs, since it is a children's choir festival. This situation has been effective in the decrease in expenditure. In addition, institutional support was received in the organization of the festival, and the halls and workforce were covered by the institution. The assigned team consists of volunteers. Meal expenses of the volunteers are covered by the organization.

### *Organization D – Children’s Choir Festival*

| <b>Expense Items</b>                                 |           |
|--|-----------|
| 1. Festival Hall Design                              |           |
| 2. Festival Booklet                                  |           |
| 3. Graphic Designer’s Fee                            |           |
| 4. Festival Name Badges                              |           |
| 5. Choir Conductors’ Plaques                         |           |
| 6. Consultative – Assessment Board Plaques           |           |
| 7. Certificates of Participation                     |           |
| 8. Award Certificates                                |           |
| 9. Festival Choir Report Scoring Documents           |           |
| 10 Assessment Board Breakfast – Meal - Catering      |           |
| 11 Assessment Board Accommodation and Transportation |           |
| 12 Festival Employees Meal                           |           |
| 13 Festival Employees Daily Employment Fees          |           |
| 14 Sound – Video Recording                           |           |
| 15 Stationery – Photocopies                          |           |
| Total Expenditure Amount                             | 6.654 Eur |

**Table 9.** Organization D – International Festival Expenditures

This organization is also a national event. The duration of the event is about two days, like the previous event. The number of participating choirs is less since it is a children's choir festival. Although this situation is effective in reducing expenditure, the appropriations of officials have been added to the expenditure. Institutional support was received in the organization of this festival: some of the halls and workforce were covered by the institution, some of them were carried out by volunteers, and some of them were paid staff for technical reasons.

### **Conclusion, Discussion and Recommendations**

The spread of music-related events and festivals means that culture-oriented tourism activities are becoming increasingly important. Choir festivals, on the other hand, have started to take an increasingly important place among music events. Choir festivals, which

enable a large group to travel for the festival, with density of both participant performers and audience, also offer the opportunity for a wide-ranging interaction between participants. “The relation between festivals and tourism has a long history, but these events have never been so popular as in recent years. Visiting a music festival has become a must-do summer programme for Generations Y and Z. Such events also have significant economic, cultural, and social value for many stakeholders of the destination. The experiences from the festivals are shared via social media during and after the event. All such feedback also provides information for future consumers” (Iványi & Bíró-Szigeti, 2020).

Choir festivals also provide an important opportunity for choir conductors to learn and follow what is being done. Conductors attending a festival with their choir find the opportunity to see new repertoires, new choir inventions and new timbres, and create their works for the following season with these new ideas. In addition to their plans for these works, they create a demand among the choir members for the festivals they will attend next season, as well as arousing a desire to come to know and explore new venues.

“Festivals – especially music festivals – for younger generations can also function as the primary tourist attraction. In the case of older generations, regarding also festivals connected with food, tradition and arts, visitors do not go to the destination especially because of the festival, thus the festival becomes a secondary attraction. This type of event encourages tourists to consume more and more, stay longer at the destination, therefore “strengthen the attractiveness of tourist destinations” (as cited in Husz, 2012, Iványi& Bíró-Szigeti, 2020).

While all these views discuss the importance of music festivals from many different perspectives, they also reveal their value in terms of tourism. The expenses of the 3 choirs and 4 organizations covered in this study should not be considered in terms of expenditures, but in terms of how big the budget is and what kind of expansions it will lead to in the future.

When we examine the amounts spent by these four organizations to realize their own organization, the total amount that emerges is *50.569 Euros*. As of 2020, there are 12 choral festivals and festival organizations in our country. In the light of the examinations made above, when the estimated expenditure of the other 8 organizations are added, the

entire expenditure budget of the festival organizations in the field of choral music in our country seems to be over *78.740 Euros*. Considering the social benefits of festivals, it is thought that it is not a very large expenditure. It is thought that choir activities to be held at various public and meeting points in the city will contribute to the identity and cultural structure of the city.

In terms of city identity, thousands of people who visit the city with choirs come together with the purpose of introducing their own culture, beyond just benefiting from the city's opportunities, as they meet at a cultural event. From this point of view, it is thought that these organizations will be of interest to educational institutions, universities, municipalities, cultural directorates, and non-governmental organizations, and it is quite natural and necessary for the aforementioned institutions to contribute and support the organizations. The support of these institutions to the organization and choir activities is a separate and important research topic, and it is thought that the municipality and city non-governmental organizations will make a great contribution to this field and the cultural development of the social structure.

It is seen that the amounts spent by the choirs for participation in a festival create employment especially in transportation, accommodation, meal, touristic areas, etc. It is observed that the budget spent by the choirs for a festival performance is mostly made up of the personal contributions of the choir members and trainers working in that choir. Although the choirs are an educational tool and the expenses are met by choir members, it is expected that the activities to be carried out in order to increase the efficiency of the choirs and improve their quality are also supported by the society, and to participate in these organizations as listeners and spectators. The support to be given to the studies to be carried out in this field will lead to an increase in cultural richness and will also serve to ensure social unity.

The study was carried out to deal with the economic dimensions of choir mobility in our country in terms of the amounts spent by the choirs in participating in a festival and the expenditure they put forward to organize these festivals. It is seen that the sum of the expenditure of approximately one thousand polyphonic child-youth and adult choirs, concerts, or participation in a festival throughout Turkiye undeniably creates economic employment in our country. On the other hand, the institutional support given to such

organizations is a serious discussion and research topic. It is a matter that needs to focus on what kind of approach the municipality, special provincial administration, culture directorate, university and national education directorates have or do not have in terms of allocating a budget for the organization of these events. On the other hand, choral festivals or choral tourism show a valuable movement from an economic point of view, and their support in this respect affects education, culture, city economy and city culture.

It seems that the expenditure of festivals in terms of organization provides an important economic employment to many intertwined sectors. Thanks to the organization of a festival, it may be seen that the expenditure of the choirs participating in the festival makes a significant economic contribution to the city where the festival is held. Within the scope of an international festival, it can be seen especially that choirs coming from abroad provide an important input of foreign currency to the economy of our country and the city where the festival is held. In this respect, it is a matter of discussion how much the ministry of culture recognizes choral festivals as a promotional tool and method, and how much the people working in this field inform the necessary institutions is another subject of research.

These organizations are either supported by various institutions or by the state. On this subject, the study titled "The Choir Festival as an Opportunity to Develop the Music Skills of Secondary School Students" by Zahradníková (2020) provides very important information.

"Choral singing is a form of artistic activity that is open to all ages, that is, from younger school children to seniors. It is also the most widespread musical activity in the world. The greatest boom of choral singing in Slovakia took place in the second half of the 20th century when the state supported choral singing as a part of art education" (Zahradníková, 2020). When choral singing, which is seen as an important element of Slovak art education, could not find enough support from the state, this development slowed down. Zahradníková (2020) explained this: "After 1990, the system of state support for choral singing began to decrease and because of this, many choirs ceased to exist. One of the main problems is that there is insufficient funding needed for the existence and development of musical ensembles as well as the sustainability of cultural events, whether festivals, concerts, or competitions" Another issue that draws our

attention here is the inability to continue cultural events, whether festivals, concerts, or competitions. The continuation of these activities contributes to the development of choirs, the creation of a new song repertoire by the composers interested in this field, and better quality of music education.

It is observed that choir mobility increases with the organization of the festivals and the festivals create an important working area, which helps to increase the economic dimension of this area in the process. Considering the organizational quality of choral festivals around the world, it is observed that some of them are particularly noteworthy in terms of institutional identity and economic autonomy, and this economic autonomy is reflected in the quality of the organization. In Türkiye, on the other hand, it is seen that the main economic supports are realized with partial contributions of various individuals, associations, and institutions. This situation causes economic inadequacies and an inability to carry out detailed studies. These economic uncertainties and deficiencies cause festivals to fail to gain institutional and professional identity.

Considering the expenditure of festivals in Türkiye, it can be seen that no budget is allocated for human resources and the workforce. This situation prevents festivals from forming a corporate identity and professional management. For Turkish choral festivals to develop on a global scale and to reflect this development to choirs, it is observed that the festivals should attach importance to corporate identity studies and take steps to generate economic income and turn this income into investment.

In terms of the contribution of Turkish choral music to the country's economy, support should be increased to encourage further the contribution of choral music within the scope of the culture and tourism policies of the Republic of Türkiye. In order to expand their capacity further within the scope of tourism and cultural revenues created by choral festival organizations, it would be beneficial for the Ministry of Culture and Tourism to support studies and organizations in this field and to support initiatives in this direction.

The increase in the number of choirs, with the support to be given to both polyphonic choir culture and choral activities in other musical branches, contributes to the country's economy, music culture, development of social unity and integrity, artistic development, and transfer of cultural accumulation, and these contributions should be adequately promoted to interested parties. In addition to the choral festivals currently taking place

in our country, an increase in the number of national and international choral festivals and organizations all over Turkiye will contribute to an increase in their economic contribution. The increase in world-class festival organizations will again reveal a significant gain in terms of foreign currency inflow and promotion.

Based on the views that choir festivals revitalize choral tourism and nourish city culture, it is recommended that choral events and organizations be included in city cultural events and that these activities be supported by culture and art institutions, educational institutions, municipalities, and non-governmental organizations.

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## On the Evidence that Confirms the Continuity of Georgian Chant Tradition

### ABSTRACT

The texts of Georgian polyphonic chants (heirmoi), written down in the 19th century using the European notational system, can be found in mediaeval musical manuscripts as well. Is there any connection between these two sources with at least ten century-long time difference? The article reveals nine heirmoi with the final cadences of their last clauses having similar patterns of neume symbol arrangement and similar melodies in corresponding musical scores. The correlation between the earliest and latest melody types has been established. By obtaining the exact probability of occurring this kind of correspondence the strength of the relationship has been assessed. Based on the fact, that the probability obtained proved to be very small, the hypothesis of pure chance has been rejected. The following conclusion has been drawn: it is very likely that despite the faults of the oral transmission method mediaeval hymns safely reached the 19th century due to the non-interrupted musical tradition.

### KEYWORDS

Chant  
Music  
Neumes  
Ecclesiastical

## Introduction

Georgian ecclesiastical music reached the 19th century in two ways: manuscripts with neumatic notation and oral tradition. Nowadays, several bulky manuscripts dating from the 10th-12th centuries, containing Georgian hymns and musical notation<sup>1</sup> are at our disposal.<sup>2</sup>

The second way proved to be more difficult: as the old notation did not allow precise fixation and reproduction of melodies, Georgian ecclesiastical music has been transmitted from generation to generation orally. In the 19th century, master chanters were still to be found, bearing the knowledge retrieved from this musical heritage. By the efforts of Georgian society and contemporary professional chanters, hymns were transcribed into European musical notation. As a result, several thousands of hymns have been written on paper, several books of hymns have been published and part of the material has come down to us as manuscripts<sup>3</sup>. European five-line notational system was not capable of exactly reflecting the tuning of the melodies performed by master chanters (this problem became evident as soon as the process of writing down chants has begun), although the melodic line and the polyphonic structure of Georgian chants were written with a certain level of accuracy. Thus, the heritage has been saved.

At the moment, thanks to the timely measures applied in the 19th century, old Georgian three-part polyphonic chants are sung in churches. It is natural to ask the question: how old is this music? Is there any connection between the mediaeval Georgian documents with neumatic notation and the melodies heard today in Georgian churches? Was chanting tradition continuous during the whole period of the 10th-19th centuries? Did there emerge, at some point in the history of Georgia, the necessity to create new hymns as knowledge of the old music was completely lost?

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<sup>1</sup> The oldest Georgian manuscripts, bearing texts with mediaeval neumes, are nowadays located in several book depositories. The most important and voluminous sources are kept in Korneli Kekelidze Georgian National Centre of Manuscripts (Tbilisi, manuscripts S-425 and A-603) and the library of St Catherine's Monastery (Mount Sinai, manuscripts Sin1, Sin14 and Sin21).

<sup>2</sup> There are some later musical manuscripts; however, in this article, we consider only the earliest ones and their relationship with the hymns written down in the 19th century using modern musical notation.

<sup>3</sup> The most significant nucleus of the chants written down using European staff notation is to be found in the Georgian National Centre of Manuscripts, National Archive of Georgia and Folklore State Centre.

## **Nine heirmoi and the mediaeval musical manuscript**

The problem of the existence of the relationship between two sources is important in and of itself. Moreover, it is directly connected to the deciphering of Georgian neumes. The problem of mediaeval Georgian neumes has been studied by generations of scholars since the beginning of the 20th century. The scientists mostly restricted themselves to visual characterization of this musical notation and by pointing out possible ways of approaching this ungraspable problem. Only Ingorokva (1958) suggested the interpretation of musical signs in his theory, which proved to be unconvincing for other researchers. One of the remarkable representatives of the contemporary generation of scholars is E. Oniani. In her studies, she usually provides an outstanding and consistent approach to the subject (Oniani, 2016).

In studies dedicated to the deciphering of the neumes, I revealed some shreds of evidence indicating the existence of such a connection, although this study is not yet finished. (Tsereteli, 2004; 2008) To prove, finally, the relationship between the ecclesiastical music of the 19th century (and thus, between the music of today) and that of the Middle Ages, and to decipher the neumes completely, exhaustive research of mediaeval musical manuscripts and the hymns written down in the 19th century has to be undertaken.

As more and more of the material is studied, new pieces of evidence indicating the continuity of the tradition are revealed, forcing us to reject the hypothesis of a break caused by historical misfortune. Here I shall consider one such piece of evidence, which is found in the nativity canon created by Kosmas of Jerusalem. First I shall examine nine heirmoi of this canon in the most important Georgian musical source of the 10th century, manuscript S-425. Then I shall look at the musical scores of those nine hymns in the 19th-century musical manuscripts. I shall focus only on the final cadences of the hymns. Finally, based on a comparison of the material in the two kinds of musical sources, we will conclude the possibility of the existence of a relationship between mediaeval and 19th-century versions of these nine chants.

I will begin with S-425 — the Iadgari of Michael Modrekili (10th century)<sup>4</sup>. Before considering the details of the heirmoi in this important hymnographical source, I will first

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<sup>4</sup> The manuscript S-425 is located in the Korneli Kekelidze Georgian National Centre of Manuscripts (Tbilisi). There is no doubt that this is the most important musical source from the Middle Ages. It contains

give a brief description of its textual organization. The manuscript has two sections: 1) it begins with the section that was supposed to contain dozens of pages, most of which have been lost. Here, the heirmoi, classified in modes and odes, are given. Texts are written without titlos and have musical signs (neumes) accompanying them. This section can be considered as a reference book of heirmoi, i.e., hymn-models; 2) the second part contains several hundreds of pages and collects works by foreign and Georgian hymnographers dedicated to important Christian feasts. Among them, naturally, are, canons. Most of the texts bear musical notation — the neumes.

All of the nine odes of the Nativity Canon are present on pp. 72-74 in S-425. (Gvakharia, 1978) Each ode is preceded by the abbreviated reference to the corresponding heirmos. Several troparia of the ode follow this reference. Here are nine heirmoi of the canon:

| Ode  | Title of the Heirmos                     | Georgian Title of the Heirmos |
|------|--|-------------------------------|
| I    | <i>From Harsh Slavery</i>                | მონებისა მისგან მწარისა       |
| II   | <i>Attend, O Heaven and Let us Say</i>   | მოიხილე ცაო და ვიტყოდი რამეთუ |
| III  | <i>Cry Unto the Only Begotten Son</i>    | წინასაუკუნეთა                 |
| IV   | <i>From the Rod of the Root of Jesse</i> | კვერთხი იესეს ძირისაგან       |
| V    | <i>Thou art a God of Peace</i>           | ღმერთი ხარ მშვიდობისა         |
| VI   | <i>Jonah Was Cast from the Monster</i>   | პირველ იონა                   |
| VII  | <i>The Youths Reared in Faith</i>        | ყრმანი სარწმუნოებით           |
| VIII | <i>The Bedewed Furnace</i>               | სახუმბილი შეცვრეული           |
| IX   | <i>All creatures were surprised</i>      | დაუკვირდა საიდუმლო            |

**Table 1.** List of the heirmoi of Nativity Canon.

All of the heirmoi from Table 1 belong to the first mode (I follow E. Wellesz and use the term “modes” for the Echi of oktoechos). In general, mediaeval Christian hymns are built up from the clauses and Georgian ecclesiastical music is no exception. The hymns listed

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hundreds of heirmoi, Georgian translations of the works by foreign hymnographers, and original hymnographic compositions of Georgian authors. Most of the texts bear mediaeval Georgian musical signs - the neumes. The manuscript was written in the period of 978-988. Currently, it contains 272 (37,5 x 29,5 cm) sheets of parchment. Most of the manuscript is lost.

above are constructed of a varied number of clauses. I will focus only on the last clauses of each hymn.

### Neume pattern types of final cadences


Before I proceed, it should be noted that none of these heirmoi is found in the reference section of S-425 (see description of its structure above): it would seem that the pages bearing them have been lost. On the other hand, fortunately, there are troparia in the second part of the manuscript, scattered across various canons, modelled according to the heirmoi listed in Table 2. The texts of these troparia are accompanied by mediaeval neumes. This makes possible the restoration of the neume patterns of the lost heirmoi. Let us examine the last clauses of troparia composed according to the model of the first heirmos *'From Harsh Slavery'*.

| Trop. | Syllables |    |    |    |    |   |   |   |   |   |   |   |   |   |
|-------|-----------|----|----|----|----|---|---|---|---|---|---|---|---|---|
|       | 14        | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 1     |           | \  |    |    |    |   |   |   | ↗ |   |   | \ | ↗ |   |
| 2     |           |    | \  |    |    |   |   |   | ↗ |   |   | \ | ↗ |   |
| 3     |           | \  |    |    |    |   |   |   | ↗ |   |   | \ | ↗ |   |
| 4     |           | \  |    |    |    |   |   |   |   | ↗ |   | \ | ↗ |   |
| 5     |           | \  |    |    |    |   |   |   | ↗ |   |   | \ | ↗ |   |
| 6     | \         |    |    |    |    |   |   |   | ↗ |   |   | \ | ↗ |   |
| 7     | \         |    |    |    |    |   |   |   | ↗ |   |   | \ | ↗ |   |
| 8     | \         |    |    |    |    |   |   |   | ↗ |   |   | \ | ↗ |   |
| 9     |           |    | \  |    |    |   |   |   | ↗ |   |   | \ | ↗ |   |
| 10    | \         |    |    |    |    |   |   |   | ↗ |   |   | \ | ↗ |   |
| 11    |           | \  |    |    |    |   |   |   | ↗ |   |   | \ | ↗ |   |
| 12    |           | \  |    |    |    |   |   |   | ↗ |   |   | \ | ↗ |   |
| 13    |           | \  |    |    |    |   |   |   | ↗ |   |   | \ | ↗ |   |

**Table 2.** Final clause neume-patterns of troparia modelled by the 1<sup>st</sup> ode heirmos “From Harsh Slavery”.

The first column contains a simple numbering of the troparia. These troparia belong to the first odes of various canons, found in S-425, although, for our purposes, it is not important which canon they belong to. This is why I do not specify canons, but only number the hymns. The numbering of columns in the table indicates syllables in the clause, although the numbering is reversed: for our purposes reverse numbering will be



more convenient. Note that the text is not important for solving the problem we are dealing with here: what is important is the distribution of the neumes upon syllables. Highlighted cells indicate the first syllables of the clauses. One can see that lengths of clauses (overall number of syllables) vary between 12 and 14 (e. g. there are 13 syllables in the final clause of the first troparion). Each cell in the table corresponds to one particular syllable. In the cell of the first row beneath the number 6, one can see the sign . This means that in manuscript S-425, the reversed 6<sup>th</sup> syllable of the last clause of this troparion bears this sign. The reversed 13<sup>th</sup>, 3<sup>rd</sup>, and 2<sup>nd</sup> syllables are marked by some signs as well. The rest of the cells are empty, meaning that corresponding syllables have no signs on them, they are neume-free.<sup>5</sup>

Let us emphasize a very important circumstance. All of the patterns given in Table 2 represent versions of one melody. This statement is based on the general principle of canon creation. According to this principle, texts of the troparia are modelled on the pattern of the text of the heirmos, and their melody on the pattern of the melody of the heirmos. As the patterns given in Table 2 represent the last clauses of troparia modelled on the same heirmos (*'From Harsh Slavery'* in this case), one may claim that all of them, despite the variety of neume arrangement patterns, must represent variants of one melody.

Now let us present similar tables for the troparia modelled according to the heirmoi of the 3<sup>rd</sup>, 4<sup>th</sup>, and 6<sup>th</sup> odes. The explanation, of why I have chosen these particular odes will follow.

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<sup>5</sup> It is characteristic for mediaeval Georgian musical manuscripts that some (often significant) amount of syllables in the clause are neume-free.

| Trop. | Syllables |   |   |   |   |   |   |
|-------|-----------|---|---|---|---|---|---|
|       | 7         | 6 | 5 | 4 | 3 | 2 | 1 |
| 1     |           |   | ↗ |   |   | ↘ | ↘ |
| 2     |           |   | ↗ |   |   | ↘ | ↘ |
| 3     |           |   | ↗ |   |   | ↘ | ↘ |
| 4     |           |   | ↗ | ↘ | ↘ | ↘ |   |
| 5     |           | ↗ |   |   | ↘ | ↘ |   |
| 6     |           |   | ↗ |   | ↘ | ↘ |   |
| 7     |           |   | ↗ |   | ↘ | ↘ |   |
| 8     |           |   | ↗ |   | ↘ | ↘ |   |
| 9     |           |   | ↗ |   | ↘ | ↘ |   |
| 10    |           |   | ↗ |   | ↘ | ↘ | ↘ |
| 11    |           |   |   |   | ↘ | ↘ |   |
| 12    |           |   |   |   | ↘ | ↘ |   |
| 13    |           |   | ↗ |   | ↘ | ↘ |   |
| 14    |           |   | ↗ |   | ↘ | ↘ | ↘ |

**Table 3.** Final clause neume-patterns of troparia modelled on the 3<sup>rd</sup> ode heirmos “Cry Unto the Only Begotten Son”.

| Trop. | Syllables |    |   |   |   |   |   |   |   |   |   |
|-------|-----------|----|---|---|---|---|---|---|---|---|---|
|       | 11        | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 1     |           |    |   | ↗ |   | ↘ |   |   | ↘ | ↘ |   |
| 2     |           |    |   | ↗ |   | ↘ |   |   | ↘ | ↗ | ↘ |
| 3     | ↘         |    |   | ↗ |   | ↘ |   |   | ↘ | ↘ |   |
| 4     |           | ↘  |   | ↗ |   | ↘ |   |   | ↘ | ↘ |   |
| 5     |           |    | ↘ |   |   | ↘ |   |   | ↘ | ↘ |   |
| 6     |           |    |   | ↗ |   | ↘ |   |   | ↘ | ↘ |   |
| 7     |           |    |   | ↗ |   | ↘ |   |   | ↘ | ↘ |   |
| 8     |           |    |   | ↗ |   | ↘ |   |   | ↘ | ↘ |   |
| 9     |           |    |   | ↗ |   | ↘ |   |   | ↘ | ↘ |   |
| 10    |           |    |   | ↗ |   | ↘ |   |   | ↘ | ↘ |   |
| 11    |           |    |   |   |   | ↘ |   |   | ↘ | ↘ |   |
| 12    | ↘         |    |   |   |   |   | ↘ |   | ↘ |   |   |

**Table 4.** Final clause neume-patterns of troparia modelled on the 4<sup>th</sup> ode heirmos “From the Rod of the Root of Jesse”.

| Trop. | Syllables |    |   |   |   |   |   |   |   |   |   |
|-------|-----------|----|---|---|---|---|---|---|---|---|---|
|       | 11        | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 1     |           |    |   |   |   |   |   |   |   |   |   |
| 2     |           |    |   |   |   |   |   |   |   |   |   |
| 3     |           |    |   |   |   |   |   |   |   |   |   |
| 4     |           |    |   |   |   |   |   |   |   |   |   |
| 5     |           |    |   |   |   |   |   |   |   |   |   |
| 6     |           |    |   |   |   |   |   |   |   |   |   |
| 7     |           |    |   |   |   |   |   |   |   |   |   |
| 8     |           |    |   |   |   |   |   |   |   |   |   |
| 9     |           |    |   |   |   |   |   |   |   |   |   |
| 10    |           |    |   |   |   |   |   |   |   |   |   |
| 11    |           |    |   |   |   |   |   |   |   |   |   |
| 12    |           |    |   |   |   |   |   |   |   |   |   |
| 13    |           |    |   |   |   |   |   |   |   |   |   |

**Table 5.** Final clause neume-patterns of troparia modelled on the 6<sup>th</sup> ode heirmos “Jonah Was Cast from the Monster”.

The reason why I have displayed final clauses of troparia modelled according to the heirmoi of 1<sup>st</sup>, 3<sup>rd</sup>, 4<sup>th</sup>, and 6<sup>th</sup> odes is that they have similar final cadences. More specifically, I shall examine the last four syllables of each troparion. One can observe differences between the neume patterns of the last four syllables, although there is one that can be observed in most cases. This pattern can be described verbally as follows:

**Type A Pattern:** Reversed 4<sup>th</sup> and 1<sup>st</sup> syllables are neume-free, the 3<sup>rd</sup> syllable bears either the short or the long stroke and the 2<sup>nd</sup> syllable bears the neume .

One can see that 39 of 52 cases (=75%) given in the four tables satisfy the description of the neume pattern for the last four syllables. It seems quite reasonable to assume that if the four heirmoi have come down to us (remember that all of the pages of S-425, bearing the nine heirmoi under consideration here, are lost), they would have the final cadence of Type A.

Now I shall show four more tables, listing the troparia from the 2<sup>nd</sup>, 5<sup>th</sup>, 8<sup>th</sup>, and 9<sup>th</sup> odes and, this time, the most common final cadence will be different from the one described above:

| Trop. | Syllables |    |    |    |    |    |   |   |   |   |   |   |   |   |   |
|-------|-----------|----|----|----|----|----|---|---|---|---|---|---|---|---|---|
|       | 15        | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 1     |           | ■  |    | ↗  |    | ↗  | ↘ |   | ↗ | ↘ |   |   | ↗ | ↘ |   |
| 2     | ↗         |    |    |    | ↘  |    |   |   |   | ↘ |   |   | ↗ | ↘ |   |
| 3     |           |    | ■  |    | ↗  |    |   |   | ↘ | ↗ |   |   | ↗ | ↘ |   |
| 4     |           |    |    | ■  |    |    | ↗ |   |   | ↘ |   |   |   | ↘ |   |
| 5     |           |    | ■  |    |    | ↗  |   |   |   | ↘ |   | ↗ |   | ↘ |   |
| 6     |           |    | ■  |    |    |    | ↗ |   |   | ↘ |   |   | ↗ | ↘ |   |
| 7     |           |    | ■  |    |    | ↗  |   |   |   | ↘ |   |   | ↗ | ↘ |   |

**Table 6.** Final clause neume-patterns of troparia modelled on the 2<sup>nd</sup> ode heirmos “Attend, O Heaven and Let us Say”.

| Trop. | Syllables |    |    |   |   |   |   |   |   |   |   |   |  |
|-------|-----------|----|----|---|---|---|---|---|---|---|---|---|--|
|       | 12        | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |  |
| 1     |           |    |    | ■ | ↗ |   | ↘ |   |   | ↗ | ↘ |   |  |
| 2     |           |    | ■  |   | ↗ |   | ↘ |   |   | ↗ | ↘ |   |  |
| 3     |           |    |    | ■ | ↗ |   | ↘ |   |   | ↗ | ↘ |   |  |
| 4     |           |    |    |   | ■ | ↗ | ↘ |   |   | ↗ | ↘ |   |  |
| 5     |           |    | ■  | ↗ |   |   | ↘ |   |   | ↗ | ↘ |   |  |
| 6     |           |    |    | ■ | ↗ |   | ↘ |   |   | ↗ | ↘ |   |  |
| 7     |           |    | ■  |   | ↗ |   |   |   |   | ↗ | ↘ |   |  |
| 8     |           |    |    | ■ | ↗ |   | ↘ |   |   |   |   |   |  |
| 9     |           |    |    | ■ |   |   | ↘ |   |   | ↗ | ↘ |   |  |
| 10    |           |    |    | ■ | ↗ |   | ↘ |   |   | ↗ | ↘ |   |  |
| 11    | ■         |    |    |   | ↗ |   | ↘ |   |   | ↗ | ↘ |   |  |
| 12    |           |    | ■  |   | ↗ |   | ↘ |   |   | ↗ | ↘ |   |  |
| 13    | ■         |    | ↗  |   |   |   | ↘ |   |   | ↗ | ↘ |   |  |

**Table 7.** Final clause neume-patterns of troparia modelled on the 5<sup>th</sup> ode heirmos “Thou art a God of Peace”.


| Trop. | Syllables |   |   |   |   |   |   |   |   |   |  |
|-------|-----------|---|---|---|---|---|---|---|---|---|--|
|       | 10        | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |  |
| 1     |           | ■ |   |   | ↘ |   |   | ↗ | ↘ |   |  |
| 2     | ■         |   |   |   | ↘ |   |   | ↗ | ↘ |   |  |
| 3     | ■         |   | ↗ |   | ↘ |   |   | ↗ | ↘ |   |  |

**Table 8.** Final clause neume-patterns of troparia modelled on the 8<sup>th</sup> ode heirmos “The Bedewed Furnace”.

| Trop. | Syllables |    |    |    |    |    |   |   |   |   |   |   |   |   |   |
|-------|-----------|----|----|----|----|----|---|---|---|---|---|---|---|---|---|
|       | 15        | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 1     |           |    | ↘  |    |    | ↗  |   |   |   | ↘ |   |   | ↗ | ↘ |   |
| 2     |           |    | ↘  |    |    | ↗  |   |   |   | ↘ |   | ↗ | ↗ | ↘ |   |
| 3     |           |    |    |    |    | ↗  |   |   |   | ↘ |   |   | ↗ | ↘ |   |
| 4     |           |    |    |    |    | ↗  |   |   |   | ↘ |   |   | ↗ | ↘ |   |
| 5     |           |    |    |    | ↗  |    |   | ↗ | ↘ |   | ↗ |   | ↗ | ↘ |   |
| 6     |           |    |    | ↗  | ↗  |    |   |   |   | ↘ |   |   | ↗ | ↘ |   |
| 7     |           |    |    | ↗  |    | ↗  |   |   |   | ↘ |   | ↗ | ↗ | ↘ |   |
| 8     | ↘         |    |    | ↗  |    | ↗  |   |   |   | ↘ |   |   | ↗ | ↘ |   |
| 9     |           |    |    | ↗  |    | ↗  |   |   |   | ↘ |   |   | ↗ |   | ↘ |
| 10    |           |    |    |    |    |    | ↗ |   |   | ↘ |   |   | ↗ | ↘ |   |
| 11    |           |    |    |    |    | ↗  |   |   |   | ↘ |   |   | ↗ | ↘ |   |
| 12    |           |    |    |    |    |    | ↗ |   |   | ↘ |   |   | ↗ | ↘ |   |
| 13    |           |    |    |    |    | ↗  |   |   |   | ↘ |   |   | ↗ |   |   |
| 14    |           |    |    |    |    |    |   |   |   | ↘ |   |   | ↗ | ↘ |   |
| 15    |           |    |    |    |    | ↗  |   |   |   | ↘ |   |   | ↗ | ↘ |   |

**Table 9.** Final clause neume-patterns of troparia modelled on the 9<sup>th</sup> ode heirmos “All creatures were surprised”.

It is now possible to find six syllable-long final cadences which will be the most characteristic to the troparia of this class. They may be described as follows:

**Type B Pattern:** Reversed 5<sup>th</sup>, 4<sup>th</sup> and 1<sup>st</sup> syllables are neume-free, 6<sup>th</sup> and 2<sup>nd</sup> syllables bear either the short or the long stroke, and the 3<sup>rd</sup> syllable bears the sign .

27 of 38 cases (=71%) given in Tables 6-9 satisfy the description of the neume pattern for the last six syllables above. Again, it will be reasonable to assume that if the four new heirmoi have come down to us they would have the final cadence of Type B.

Finally, I shall present the one last table, representing the final clauses with the final cadences of different character.

| Trop. | Syllables |    |    |    |    |   |   |   |   |   |   |   |   |   |
|-------|-----------|----|----|----|----|---|---|---|---|---|---|---|---|---|
|       | 14        | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 1     |           |    | ↘  | ↘  | ↗  | ⌒ | ↗ |   | ↘ |   | ↗ |   |   | ↘ |
| 2     |           |    | ↘  | ↘  | ↗  | ⌒ |   |   | ↘ |   |   | ↗ |   | ↘ |
| 3     |           |    | ↘  | ↘  | ↗  | ⌒ | ↗ |   | ↘ |   | ↗ |   |   | ↘ |
| 4     |           |    | ↘  | ↘  | ↗  | ⌒ |   |   | ↘ |   |   | ↗ |   | ↘ |
| 5     |           |    | ↘  | ↘  | ↗  | ⌒ |   | ↗ | ↘ |   | ↗ |   |   | ↘ |
| 6     |           |    | ↘  | ↘  | ↗  | ⌒ |   | ↗ | ↘ |   |   | ↗ |   | ↘ |
| 7     |           |    | ↘  | ↘  | ↗  | ⌒ |   | ↗ | ↘ |   | ↗ |   |   | ↘ |
| 8     |           |    |    |    |    | ⌒ | ↗ |   | ↘ |   |   | ↗ |   | ↘ |
| 9     | ↗         |    |    |    |    | ⌒ |   |   | ↘ |   |   | ↗ |   | ↘ |

**Table 10.** Final clause neume-patterns of troparia modelled on the 7<sup>th</sup> ode heirmos “The Youths Reared in Faith”.

This one implies the following description:

**Type C Pattern:** Reversed 5<sup>th</sup> and 2<sup>nd</sup> syllables are neume-free, 6<sup>th</sup> syllable bears either the short or the long stroke, 1<sup>st</sup> syllable bears the long stroke, and exactly one of the 4<sup>th</sup> and 3<sup>rd</sup> syllables bears the neume ↗.

All of the nine clauses in Table 10 satisfy the description of the neume pattern for the last six syllables. Still, it seems quite logical to suppose, that if the heirmos *‘The Youths Reared in Faith’* has come down to us it would have the final cadence of Type C.

Thus, all of the nine heirmoi are covered and the result can be summarized as follows:

| Ode  | Title of the Heirmos                     | Type of the Final Cadence Neume Pattern |
|------|--|---|
| I    | <i>From Harsh Slavery</i>                | A                                       |
| II   | <i>Attend, O Heaven and Let us Say</i>   | B                                       |
| III  | <i>Cry Unto the Only Begotten Son</i>    | A                                       |
| IV   | <i>From the Rod of the Root of Jesse</i> | A                                       |
| V    | <i>Thou art a God of Peace</i>           | B                                       |
| VI   | <i>Jonah Was Cast from the Monster</i>   | A                                       |
| VII  | <i>The Youths Reared in Faith</i>        | C                                       |
| VIII | <i>The Bedewed Furnace</i>               | B                                       |
| IX   | <i>All creatures were surprised</i>      | B                                       |

**Table 11.** Three types of final cadence neume-patterns of the heirmoi.

Each of the neume patterns given in Table 11 represents some melody. One can say that melodies are similar if they are variants of each other. I suppose that the melodies behind the same pattern types must have been similar. Further, different pattern types would have represented different melodies. Having in mind the reasoning just given one can conclude, that Table 11 shows which of the three different final cadence melodies the mediaeval musician applied to which of the nine heirmoi.

### **The 19th-century musical scores of nine hymns**

This brings us to the second stage of our study in which I will be searching for the nine heirmoi in the musical scores written down in the 19th century. As above, I shall be focusing on the final cadences of final clauses. As a result of this stage, I hope to develop a table similar to Table 11 this time based on musical scores.

Let us start with the first heirmos "*From Harsh Slavery*". It can be found in two of the 19th-century manuscripts (Gvakharia, Shugliashvili and Razmadze, 2013). Below I reproduce the last clause of the hymn from one of the manuscripts — Q-684<sup>6</sup> (for ease of reading, the text has been transliterated into the Latin alphabet):

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<sup>6</sup> Manuscript Q-684 is a good copy draft manuscript compiled by Ekvtime Kereselidze in the 1910s from original transcriptions made by Pilimon Koridze in the 1880s and 1890s. The source singer, Anton Dumbadze, was the master of the oral chant tradition associated with the Gelati monastery in central



**Figure 1.** Last clause of the heirmos “From Harsh Slavery” (three parts).

One can observe three parts in the example, representing the three-part polyphonic nature of this particular chant. This is typical, as Georgian ecclesiastical music is polyphonic.<sup>7</sup> For the rest of the paper, I will be discussing the topmost voice only, because two other voices depend on it and that is the inherited melody which should most likely correspond to the mediaeval neumes.

Sometimes a hymn in different manuscripts is given in different tonalities, having notes of either double or half duration, with a variety of melodic lines. In addition, in some manuscripts, all three parts of the hymn are written, and in some of them only the first part. Despite such differences, the last investigated clause is given always with a similar melodic line. After removing the second and third parts and removing barlines, irrelevant for ecclesiastical chant built up of clauses, we come to the following result:



**Figure 2.** Last clause of the 1<sup>st</sup> heirmos “From Harsh Slavery” (first part).

Below I present the first parts of the last clauses for four more heirmoi, namely the 3<sup>rd</sup>, 4<sup>th</sup>, 6<sup>th</sup>, and 7<sup>th</sup> (Gvakharia, Shugliashvili and Razmadze, 2013).

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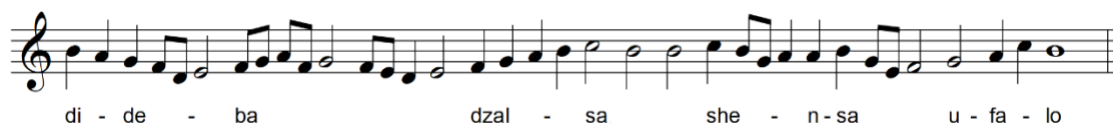
Georgia, and with the Shemokmedi monastery in southwest Georgia. The manuscript is currently held in the National Manuscript Centre in Tbilisi, Georgia.

<sup>7</sup> In Georgian ecclesiastical music, the first part (Mtqmeli) is the main, determinant one, while the second part (Modzakhili) and the third one (Bani) depend on it. Knowing the melody of the first part made possible perfect harmonization of sacred chant in the process of live performance.





**Figure 3.** Last clause of the 3<sup>rd</sup> heirmos “Cry Unto the Only Begotten Son” (first part).<sup>8</sup>



**Figure 4.** Last clause of the 4<sup>th</sup> heirmos “From the Rod of the Root of Jesse” (first part).<sup>9</sup>



**Figure 5.** Last clause of the 6<sup>th</sup> heirmos “Jonah Was Cast from the Monster” (first part).<sup>10</sup>



**Figure 6.** Last clause of the 7<sup>th</sup> heirmos “The Youths Reared in Faith” (first part).<sup>11</sup>






I am not concerned with analysing the melodic lines of whole clauses. Instead, I will be focusing only on the final cadences. The four-syllable long final melodies are collected here in one table:

<sup>8</sup> The heirmos can be found in several manuscripts. The fragment presented is taken from Q-681.

<sup>9</sup> The heirmos can be found in several manuscripts. The fragment presented is taken from Q-681.

<sup>10</sup> The heirmos can be found in several manuscripts. The fragment presented is taken from Q-681.

<sup>11</sup> The heirmos can be found in several manuscripts. The fragment presented is taken Q-681.

| Heirmos | Final cadence melodic formula  |
|---------|--|
| I       |  |
| III     |  |
| IV      |  |
| VI      |  |
| VII     |  |

**Table 12.** Versions of the four syllable-long final melodies of five heirmoi.

A few notes about Table 12 are necessary: a) Key signatures are not given at all: as already mentioned at the beginning of this article, the European five-line notational system was not capable of exactly reflecting the tuning of the melodies performed by master chanters. Because of that, those who were in charge of writing down musical scores for the pieces performed live have always struggled to select the most appropriate tonalities. This is why melodies with almost identical melody lines and harmonization are often given in different signatures. I am focusing not on tunings, however, but on the melodic lines, and these were written with a satisfactory level of accuracy. b) In the cases of the 1<sup>st</sup> and 7<sup>th</sup> heirmoi the musical line is transposed one tone up and the duration of the notes is doubled. c) In all cases <S> stands for the syllable in general. In the melodic formula belonging to the 7<sup>th</sup> heirmos the consonant “l” is ignored, as it does not form a syllable. The assignment of consonants to separate notes is just an artistic technique characteristic of Georgian ecclesiastical chants and is often observed in 19th-century musical manuscripts.

One can observe that formulae given in Table 12 have equal overall durations, identical distributions of syllables on the beats, and melodic lines are variants of each other. In other words, these melodies are similar. We are dealing with the versions of one melodic formula. I will call it Type A.

I shall now apply the same treatment to the rest of the 4 heirmoi:



**Figure 7.** Last clause of the 2<sup>nd</sup> heirmos “Attend, O Heaven and Let us Say” (first part).<sup>12</sup>



**Figure 8.** Last clause of the 5<sup>th</sup> heirmos “Thou Art a God of Peace” (first part).<sup>13</sup>



**Figure 9.** Last clause of the 8<sup>th</sup> heirmos “The Bedewed Furnace” (first part).<sup>14</sup>



**Figure 10.** Last clause of the troparion “We Have Seen a Strange Mystery” modelled on the 9<sup>th</sup> heirmos “All creatures were surprised” (first part).<sup>15</sup>




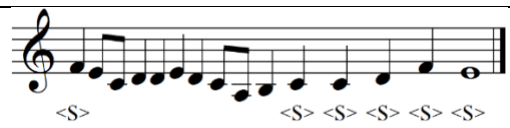
Now I shall collect the six-syllable long final melodies in one table:

<sup>12</sup> The heirmos can be found only in the manuscript Q-689.

<sup>13</sup> The heirmos can be found in several manuscripts. The fragment presented is taken from Q-681.

<sup>14</sup> The heirmos can be found in several manuscripts. The fragment presented is taken from Q-681.

<sup>15</sup> The musical score of the heirmos has not come down to us. The fragment presented is taken from Q-681. According to the principles of canon creation, texts of the troparia are modelled on the pattern of the text of the heirmos, and their melody on the pattern of the melody of the heirmos. Thus, the melodic line given in Figure 10 must represent the melody of the last clause of the heirmos itself. The meaning of the words is not important and can be ignored. The way the syllables are distributed along the melody line is important, however.

| Heirmos | Final cadence melodic formula  |
|---------|--|
| II      |  |
| V       |  |
| VIII    |  |
| IX      |  |

**Table 13.** Versions of the six syllable-long final melodies of four heirmoi.

In the case of the 2<sup>nd</sup> heirmos, the duration of the notes is doubled.

It is obvious that the formulae given in Table 13 have equal overall durations, identical distributions of syllables on the beats, and melodic lines are variants of each other. This means that these melodies are, again, similar. We are dealing with versions of a melodic formula and this time it is a different one. For this reason, I shall call it Type B.

### Summary

It will be helpful to collect and merge the results obtained from Tables 11-13 into one:

| Heirmos | Type of mediaeval cadence | Type of 19th-century cadence |
|---------|---------------------------|------------------------------|
| I       | A <sub>M</sub>            | A <sub>19</sub>              |
| II      | B <sub>M</sub>            | B <sub>19</sub>              |
| III     | A <sub>M</sub>            | A <sub>19</sub>              |
| IV      | A <sub>M</sub>            | A <sub>19</sub>              |
| V       | B <sub>M</sub>            | B <sub>19</sub>              |
| VI      | A <sub>M</sub>            | A <sub>19</sub>              |
| VII     | C <sub>M</sub>            | A <sub>19</sub>              |
| VIII    | B <sub>M</sub>            | B <sub>19</sub>              |
| IX      | B <sub>M</sub>            | B <sub>19</sub>              |

**Table 14.** Correspondence between neume-pattern and melody types of final cadences.

Here the subscripts ('M' for 'Mediaeval' and '19' for '19th century') are introduced to emphasize that in this study I am not pretending to claim that mediaeval and 19th-century cadences are identical. I am focusing on the distribution of cadence types applied to these heirmoi by mediaeval musician(s) and those who lived several centuries later.

Note that three types of melodies are applied to the final cadences of these hymns in the 10th century. Only two types of melodies can be observed in the musical manuscripts written in the 19th century. However, a very important circumstance can be seen in Table 14: wherever type  $A_M$  is applied to the mediaeval versions of the heirmoi, only type  $A_{19}$  is applied to the 19th-century versions of them. Likewise, wherever type  $B_M$  is used in the earliest hymns, only type  $B_{19}$  is used in the later versions. Only one mismatch can be seen here: in the case of the 7<sup>th</sup> heirmos. Probably the most important downside of the oral transmission of music is the risk of losing information. No one should be surprised if the melody type corresponding to  $C_M$  did not reach us. On the other hand, despite this problem in oral transmission and the 10 century-long time gap, the fact that the types of the final cadences of eight heirmoi out of nine are matched like this, is astounding.

Now one may draw some conclusions. First of all, let us assume that at some point in the history of Georgia (say in the 16th-17th centuries) the connection to the old musical tradition was interrupted, old melodies were lost, no one could read mediaeval neumes and the recreation of sacred hymns became necessary. Then the melodies of the nine heirmoi would have been created independently of the mediaeval tradition. If so, how is it that one can see a strong relationship between the oldest and the latest melodic types revealed in Table 14? Are we dealing with some randomness here? It must be admitted that the possibility of pure chance cannot be completely rejected. One may then question directly: what is the probability of the match of the melody types observed in Table 14 occurring accidentally? It is not so difficult to obtain the value of this probability: it equals 0.0078125.<sup>16</sup> What does that mean? It means that there is less than a 0.8% chance of the relationship witnessed in Table 14 occurring due to pure chance.

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<sup>16</sup> To obtain the probability I am looking for, it would be convenient to formulate and solve the probability theory problem, equivalent to the one I am dealing with. Suppose we have 16 coloured balls, 8 of them white and 8 of them black. Let us assume that there are two participants in the experiment: P1 and P2. P1 is asked to name at most 8 integers between 1 and 8 (e. g. one could name the numbers 2, 4, 6 and 7; or 1, 3 and 8). P2, not being aware about the numbers named by P1, is asked to choose any combination of 8 balls from the set of 16 balls and to place them side by side in a row from left to right. One can say that the

Nine heirmoi have been considered, then, in this study. All of them belong to the first mode. The last clauses of them have been investigated in the most important mediaeval source S-425 and 19th-century musical manuscripts. I focused on the final cadences of the hymns and found three types of the most characteristic neume symbol arrangements (see Table 11). The investigation of the parallel musical scores revealed two types of melodies applied to those final cadences (see Table 12 and Table 13). After gathering these results in the single table (see Table 14), it became evident that there is a strong relationship between the distributions of melodic types in the earliest and the latest musical manuscripts. Moreover, I obtained the exact value of the probability of this kind of relationship occurring accidentally. The figure proved to be very small. This means that it is very unlikely that the relationship revealed in Table 14 has been established randomly. With more than 99% confidence, one can claim, instead, that the correspondence one sees is the result of non-interrupted musical tradition. Despite the faults of oral transmission, melodies from the distant middle ages have more or less safely reached the 19th century. The connection between these two sources is seen in Table 14. No doubt that during their 10-century-long journey melodies changed their shape to some extent, although this is a subject for future studies. For now, we have a reasonably well-grounded clue as to where to search for the meanings of mediaeval Georgian musical signs and how to decipher the neumes.

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leftmost ball is at position 1, the next one at position 2, etc., and the rightmost is at position 8. What is the probability of the following event occurring: all the balls at positions named by P1 are identical in colour and all the rest are another colour? There are 256 ( $=2^8$ ) different possibilities that two colours (black or white) might appear at 8 positions. And there are only two cases supporting the occurrence of the event: a) when all of the balls at positions named by P1 are white and all of the rest are black, or b) when all of the balls at positions named by P1 are black and all of the rest are white. Therefore the value of the probability we are looking for is equal to  $2/256=0.0078125$ .

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