

**ISTANBUL TECHNICAL UNIVERSITY ★ GRADUATE SCHOOL OF ARTS AND
SOCIAL SCIENCES**

**SYSTEMATIZATION FOR HARMONIC PRACTICES IN *SELPE*
TECHNIQUE**

Ph.D. THESIS

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Department of Music

Music Ph.D. Programme

MARCH 2020

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To my parents,

FOREWORD

This Ph.D. thesis, titled “Systematization for Harmonic Practices in *Şelpe* Technique” was prepared at the I.T.U. Social Sciences Institute, Dr. Erol Üçer Center for Advanced Studies in Music (MIAM).

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ABBREVIATIONS

FP	: Fretboard Position
ITU	: Istanbul Technical University
PN	: Pitch Number
SP	: Sub-position
TRT	: Turkish Radio and Television

SYMBOLS

C	: Connector Value
[x]	: The root degree of any chords
(x)	: The chord degree executed by any open strings of Saz/Bağlama
[(x)]	: The root degree of chord executed by any open strings
/	: Positional mixture of any chord combination
-	: Unused string in a chord positioning
$\begin{pmatrix} FP \\ SP \\ PN \end{pmatrix}$: Matrix symbolization structure for one hand chord positioning
$\begin{pmatrix} FP \\ SP \\ PN \end{pmatrix} c. \begin{pmatrix} FP \\ SP \\ PN \end{pmatrix}$: Matrix symbolization structure for two hands chord positioning

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SYSTEMATIZATION FOR HARMONIC PRACTICES IN ŞELPE TECHNIQUE

SUMMARY

This study aims to identify the musical texture of traditional and contemporary Şelpe¹ music, to present a new system to analyze the multipart musical creation of Saz/Bağlama using the Şelpe technique, and to provide practical performance symbols for Şelpe players. This study also aims to demonstrate structures of vertical textures, such as chords and their finger positioning on Saz/Bağlama's fretboard. In this systemization, the matrix diagrams of mathematics are used to display the coordinates of any kind of chords and their finger positioning on the fretboard. The features of the Matrix system in this systematization are quite different from the Matrix arrays of mathematics. The structure of this systemization is thoroughly explained, tested and presented by samplings such as analyses, arrangements, compositions, notations, figures, and tables. The multi-purpose aspect of this systemization was especially emphasized by showing samples of analyses, compositions, and musical accompaniments.

History of the Saz/Bağlama performing technique without a plectrum, namely Şelpe, goes a long way back, having its roots in various pastoral-nomadic communities of Central Asia and the Middle East. It is a deep-rooted traditional technique performed with Saz/Bağlama and its long-necked lute variants such as *kopuz*, *dutar*, *dombra* and *saz* in various sizes. The tradition to play Saz/Bağlama without a plectrum, Şelpe, tended to cease in Anatolia in the 19th and 20th centuries after the plectrum became popular. Nevertheless, with the help of urbanization, the Şelpe technique survived in the cities and local Saz/Bağlama artists continued following this tradition by performing the Şelpe technique mostly on the radios. Modern Saz/Bağlama artists of the cities, educated in institutions, re-discovered the traditional techniques by either learning directly from the local artists or from their radio broadcasts. In the 1980s and 1990s, popular Saz/Bağlama masters with a wide range of fans in the local and international areas improved and created new techniques. After these dates they developed hybrid techniques combining the Şelpe with similar techniques such as classical/flamenco guitar, *dutar*, and *dombra*. They created their unique music and made this traditional heritage world-famous after all. The contemporary Şelpe technique and its music are mainly based on two traditional techniques of Saz/Bağlama performance without a plectrum. The first one is the Western Anatolian School of Şelpe, which generally consists of the *üçtelli* (three-string) performance technique of *yörüks* (Anatolian nomads) of Teke region. The second one is the

¹ Şelpe technique is a unique and archaic technique used to play a traditional Turkish instrument Saz/Bağlama. We can name it technique in which fingers are used to strum instead of a plectrum. We will use the original and unique name "Şelpe" in this dissertation instead of trying to find an English equivalent.

Eastern Anatolian School of Şelpe, which consists of both Alevi religious music and *Türkmen's* (Eastern Anatolian nomads) Saz/Bağlama tradition. The traditional multipart structure available in both of these schools and the performance technique of Saz/Bağlama without a plectrum has an imperative role in the character of this tradition. Many traditional folkloric music genres of Anatolia in addition to Ottoman art music have a monophonic texture. The modernization and revolution era of the young Turkish Republic provided a wide area of application for the polyphonic practices of Western art music, especially in the urban music creation. In this context, the multipart nature of Şelpe Saz/Bağlama technique and its performance method without a plectrum attracted the attention of many artists and the researchers. The reinvention and modernization progress of the Şelpe technique during the 1990s and 2000s created a new texture of multipart music by the synthesis of the multipart texture of the Şelpe technique and the classical Western harmonic practices. Accordingly, urban Saz/Bağlama masters created many arrangements and compositions with the contemporary Şelpe technique and performed them in public concerts.

In the context of these innovative efforts, modern Saz/Bağlama masters and researchers in the cities created many compositions and arrangements, defined notation and transcription systems and symbols for the Şelpe repertoire, and documented various high-quality Şelpe methods to use in education. During this progress, the researchers realized that the systematic investigations about the multipart texture of the Şelpe created music and analytical studies about the strategies to create arrangements and compositions of this technique were inadequate. In this context, this thesis aims to propose a system that defines all patterns of multipart texture created by Pençe, Tel Çekme, and Parmak Vurma sub-techniques of the Şelpe. We will define and develop all multi-purpose aspects of this system to analyze the texture of the music created with the Şelpe technique, to provide a guide for arrangements and compositions and to provide a practical tool for Şelpe performers to perform Şelpe accompaniments and improvisational practices. This aforementioned system specifically aims to define all types of chords for harmonic practices in tonal music and the finger positioning for these chords including all sub-techniques.

The introduction chapter of the thesis explains the thesis objectives and defines the research methodology used to determine the systemization method. Moreover, this study includes the ethnomusicological approaches such as modernization, Westernization, musical change, musical revivals, and folk/classical/pop music concepts. We presented examples of different types of international music to outline the classification and the status of contemporary Şelpe music creations better among world music.

The second chapter discusses the historical background of performing techniques of Saz/Bağlama without a plectrum, some etymological definitions, and the functional definitions of the sub-techniques of the Şelpe. The second chapter also addresses the modernization period of the Şelpe technique and some substantial works of the pioneer musicians who use this technique.

In the third chapter, the technical definition of the proposed systematization method is explained in detail. Firstly, we described and analyzed the musical texture and harmonic tools of the music performed with traditional and modern Şelpe techniques with various examples. The analyses are illustrated with the figures and tables,

including their explanations. Secondly, we defined new concepts, rules, and limitations for the systematization, which uses the Matrix diagrams as a framework. The systematization is categorized into two different structures. The first structure shows the application of matrix diagrams to chord positioning for Pençe and Tel Çekme sub-techniques with one hand on the fretboard. The symbols and the structure of the Matrix diagram that shows the one hand finger positioning on the fretboard of Saz/Bağlama are explained with various examples. Finally, we mapped the finger positioning of one hand on the fretboard of Saz/Bağlama for all chords and depicted them on a chart. The second structure defines how the system works for the Parmak Vurma sub-technique, in which both hands are used for chord positioning on the fretboard. The new concepts such as “connector value” and “combination of chords” are defined in detail. This second structural feature is of great importance to the systematization method. The Parmak Vurma sub-technique has a complex structure in nature, which requires both hands to play on the fretboard to perform harmonic performances. Therefore, the systematization developed to define all harmonic practices performed using this Parmak Vurma sub-technique should be able to depict this highly sophisticated structure while serving as a practical tool at the same time. We provided examples of matrix diagrams showing the finger positioning of both hands on the fretboard and attached an appendix of tables showing the map illustration of finger positioning on the fretboard for all chords. Moreover, as the Parmak Vurma sub-technique provides a wide range of performing options in many aspects some exceptions may apply. All the exceptions of the Parmak Vurma technique beyond the rules and limitations of the matrix method are collected under the “Exceptional Cases” title. After describing the principals of the Matrix method for the Şelpe technique in this chapter, we gave four different Şelpe arrangements as an example to test and show the multi-purpose applications of the system. The first example of the system implementation shows how the Matrix system works with chord accompaniments performed with the Şelpe technique. This example uses Şelpe arrangement excerpts applied on the “Gülnehal” composition by Hammamizade İsmail Dede Efendi (1778-1846) and Dido's Lament, "When I am laid in earth" from the opera Dido and Aeneas by Henry Purcell (1659-1695). I have arranged both of them to use in this study. The second example of implementation includes a theoretical case analysis conducted using the matrix system. This example aims to use the matrix system to define and analyze the texture of multipart music performed with the Şelpe technique. In this context, we used Erol Parlak's Şelpe arrangement of a traditional Azerbaijani tune, “Naz Barı”, and my Şelpe arrangement of a traditional Turkish song, “Mandıra”, as samples in the scope of this study. We added both of these arrangements and a detailed explanation of their analyses as an appendix to this study. In conclusion, we evaluated all the data resulted from this study and provided some recommendations for future studies.

ŞELPE TEKNİĞİNDE ARMONİK UYGULAMALAR İÇİN SİSTEMLEŞTİRME YÖNTEMİ

ÖZET

Bu çalışmada; geleneksel ve modern Şelpe tekniği ile ortaya konulan müziğin müziksel dokusunu tanımlamak ve Şelpe tekniğinin kullanıldığı Saz/Bağlama'nın çoksesli müzik üretimlerini analiz etmek üzere, dikey müzik dokularını ve bu dokuyu oluşturan akor gibi yapıların sap üzerinde el pozisyonlamasını gösteren bir sistem sunmak amaçlanmıştır. Temelde herhangi bir tür akorun ve onun sap üzerinde el pozisyonlamasını göstermek üzere oluşturulan bu sistematizasyonda matematikte kullanılan matris kodlaması kullanılmıştır. Oluşturulan sistem, analiz, aranje ve kompozisyon çalışmaları, notasyonlar, figür ve tablolar gibi birçok örnekleme detaylı bir şekilde sunulmuş ve sistematizasyon tüm yapısı ile ortaya konulmuştur. Özellikle de, oluşturulan bu sistematizasyonun çok amaçlı bir şekilde kullanılabilirliği birçok analiz, kompozisyon ve eşikleme örnekleri ile sergilenerek vurgulanmıştır.

Saz/Bağlama'nın mızrapsız icra tekniği, geçmişi yüzyıllar öncesine dayanan, Orta Asya ve Orta Doğu'daki birçok konar-göçer toplulukların kültürlerinde bulunan Saz/Bağlama ya da kopuz, dutar, dombra gibi onun yakın türevi olan çalgılarda icra edilen, Saz/Bağlama'nın çok köklü bir icra geleneğinin ürünüdür. Fakat Saz/Bağlama'nın mızraplı icra geleneğinin 19. ve daha ziyade 20. yüzyılda Anadolu'da yaygınlaşmasıyla mızrapsız icra geleneği yakın geçmişe kadar unutulmaya yüz tutmuştur. Bununla birlikte, Türkiye'de yaşanan yaygın şehirleşme etkisiyle, mızrapsız icra geleneğini sürdüren yerel Saz/Bağlama sanatçıları şehirlerde bu geleneği sürdürmüşler ve daha çok radyo yayınları vasıtasıyla bu icra geleneğini yaşatmaya devam etmişlerdir. Kent müzik kültürü içerisinde gelen Saz/Bağlama sanatçıları geleneksel mızrapsız icra tekniğini radyo yayınları yoluyla veya yerel sanatçılarla birebir çalışarak yeniden keşfetmiş ve öğrenmişlerdir. Özellikle, 1980 ve 1990'lı yıllarda ulusal ve uluslararası müzik camiasında geniş dinleyici kitlelerine sahip Saz/Bağlama sanatçıları – artık bu süreçte ulusal ve uluslararası düzeyde “Şelpe” olarak adlandırılmaya başlanan yeni mızrapsız icra tekniklerini geliştirerek – klasik/flamenko gitar, dutar ve dombra gibi mızrapsız icra edilen diğer çalgıların performans tekniklerini Saz/Bağlama'ya adapte etmiş, kendi müzik stilleri içerisinde yaratımlarını ortaya koymuş ve bu yeniden üretilen geleneksel mirası dünya çapında bir ölçüde popüler hale getirmişlerdir. Modern Şelpe tekniği ve bu icra tekniği ile üretilen müzik temelde Saz/Bağlama'nın iki icra geleneğine dayanmaktadır. Bunlardan ilki batı Anadolu Şelpe ekolüdür. Bu ekol Teke yöresi konargöçer yörüklerine ait üçtelli'nin mızrapsız icra geleneğini temel alır. Bir diğeri de, Alevi dinsel müzik geleneğine ve doğu Anadolu Türkmen topluluklarının mızrapsız Saz/Bağlama icra geleneğine dayanan doğu Anadolu Şelpe ekolü olarak tanımlanabilir. Bu her iki ekolde de Saz/Bağlama'nın mızrapsız icra tekniklerinde var olan geleneksel çoksesli yapı, Saz/Bağlama'nın mızrapsız icra tekniği ile ortaya konulan müzikte önemli bir yer teşkil eder. Anadolu'nun birçok geleneksel müzik

türü ve bununla birlikte klasik Türk müziği tek sesli bir müziksel dokuya sahiptir. Türkiye’de kentsel müziklerde Batı sanat müziğinin çoksesli müzik geleneği, Cumhuriyet’in müzik politikaları kapsamındaki modernleşme hareketlerinin etkisiyle önemli bir yer teşkil etmiştir. Aynı doğrultuda, Saz/Bağlama’nın mızrapsız çalım geleneğinden kaynaklanan kendine özgü çokseslilik dokusu kentlerde yaşayan birçok müzisyenin ve araştırmacının dikkatini çekmiştir. 1990lar ve 2000ler boyunca Şelpe tekniğinin modernleşme ve kültürel olarak yeniden yaratım sürecindeki en temel göstergelerden birisi Şelpe’nin geleneksel çoksesli dokusu ile Batı sanat müziği armoni uygulamalarını sentezleyerek oluşturulacak yeni çoksesli bir müziksel dokunun ortaya konulmasıdır. Bu doğrultuda şehirlerdeki Saz/Bağlama üstatları tarafından modern Şelpe tekniği kullanılarak birçok düzenleme ve beste üretilmiş ve konserlerde icra edilmiştir.

Bu yenilikçi çalışmalar kapsamında birçok beste ve düzenleme üretilmiş, Şelpe’nin yeni notasyon sistemleri ve transkripsiyon işaretleri ortaya konulmuş ve birkaç çok önemli metot Şelpe eğitiminde kullanılmak üzere yazılmıştır. Bununla birlikte, Şelpe tekniği ile oluşturulan müziklerin çoksesli müziksel dokusu üzerine sistematik bir anlayışla gerçekleştirilen ve bu doku karakteri ile ortaya konulacak düzenleme ve bestelerin üretilme stratejilerini içeren analitik çalışmaların, diğer çalışmalara kıyasla, yeterli düzeyde olmadığı fark edilmiştir. Bu bağlamda; Şelpe tekniğinin alt teknikleri olan Pençe, Tel Çekme ve Parmak Vurma teknikleri ile üretilen çoksesli dokunun tüm kalıplarını tanımlayan bir sistem bu çalışma ile birlikte sunulacaktır. Bu sistem Şelpe tekniği ile ortaya konan müziklerin dokusal analizlerini ortaya koyan, düzenleme ve bestelemeye bir rehber olarak kullanılabilen ve Şelpe tekniği icracıları için eşliklemelerde ve doğaçlama icralarda kullanılabilecek pratik bir araç olabilen çok amaçlı yönleri ile birlikte ortaya konulacaktır. Özellikle tonal armoni uygulamalarında var olan her tür akorun ve bu akorların sap üzerindeki her alt teknik için el pozisyonlamalarının tanımlanması bu sistemin en temel hedeflerinden birisidir.

Tezin giriş bölümünde bu çalışmanın amaçları ve sistematizasyonun ortaya konulmasından önceki izlenen araştırma yöntemleri sunulacaktır. Ayrıca, bu çalışma modernizasyon, Batılılaşma, müziksel değişim, müziksel uyanış, halk müziği/sanat müziği/popüler müziği kavramları gibi bazı etnomüzikolojik yaklaşımlarla birlikte sunulacaktır.

İkinci bölümde Saz/Bağlama’nın mızrapsız çalım teknikleri ve geleneği, tarihsel arka geçmişi, bazı etimolojik tanımlamalar ve Şelpe’nin alt tekniklerinin fonksiyonel tanımları yer alacaktır. Şelpe tekniğinin modernleşme süreci, yaşanan değişimler, Şelpe tekniği üzerine kayda değer çalışmalar gerçekleştiren müzisyenler ve onların bazı önemli bireysel çalışmaları ayrıca bu bölümde sunulacaktır.

Üçüncü bölümde ise bu çalışma kapsamında önerilen sistematizasyonun tüm teknik tanımlamaları ve detayları sunulacaktır. Öncelikle, geleneksel ve modern Şelpe tekniği ile icra edilmiş müziklerin armoni yapıları, çokseslilik özellikleri ve müziksel dokuları çeşitli örneklemelerle analiz edilmiştir. Daha sonrasında, Matris sistemi olarak adlandırılan bu yeni sistematizasyona ait geliştirilen yeni kavramlar, kurallar ve sınırlılıklar sunulmuştur. Matris sistemi iki farklı yapı halinde sunulmuştur. Birincisi, Matris sisteminin çalgının sapı üzerinde sadece tek elin pozisyonlamalar için kullanıldığı Pençe ve Tel Çekme alt teknikleri ile nasıl uygulandığını gösteren yapıdır. Bu kapsamda tek elin sap üzerinde pozisyonlamaları için kullanılan Matris sembol yapısı çeşitli örneklemelerle birlikte sunulmuştur. Nihayetinde tüm akorlar

için tek elin sap üzerindeki tüm pozisyonlamaları bir çizelge halinde haritalandırılarak verilmiştir. Matris sisteminin ikinci diğer yapısal özelliği ise her iki elin de sap üzerinde pozisyonlamalar için kullanıldığı Parmak Vurma alt tekniğinin Matris sistemi ile birlikte nasıl uygulandığının gösterimidir. “Bağlayıcı değer” ve “akorların kombinasyonu” gibi yeni öne sürülen kavramlar bu kapsamda açık bir şekilde tanımlanmıştır. Matris sisteminin bu ikinci tür yapısal özelliği ortaya konulan sistematizasyon için büyük bir önem arz etmektedir. Parmak Vurma alt tekniği iki elin sap üzerinde aynı anda kullanılarak icra edildiği çoksesli yapıların oluşturulması doğrultusunda tekniğin doğasında var olan kompleks bir yapısal özelliğe sahiptir. Bu sebeple, Parmak Vurma alt tekniği ile icra edilen tüm armonik uygulamaları göstermek üzere sunulan sistematizasyonun bu kompleks yapısal özelliği anlaşılır bir şekilde ve icralarda pratik olarak kullanılabilir bir şekilde sunması büyük önem arz etmektedir. İki elin sap üzerindeki pozisyonlamalarda Matris sistemi ile nasıl kullanıldığını gösteren bu yapı çeşitli örneklemeler ile sunulmakla birlikte, tüm akorlar için sap üzerindeki bütün iki el pozisyonlamaları bir çizelge halinde haritalandırılarak bu çalışmanın ekinde sunulmuştur. Ayrıca, Parmak Vurma alt tekniğinin sahip olduğu çok yönlü ve geniş müziksel icra kapasitesi sebebiyle, Matris sistemi ile ortaya konulan kurallar ve sınırlılıkların ötesinde Parmak Vurma alt tekniği ile oluşturulan tüm armonik uygulamalar istisnai durumlar başlığı altında sunulmuştur. Matris sisteminin Şelpe tekniği ile çalışma prensiplerinin anlatıldığı bölümlerin ardından bu sistem, dört farklı örnek Şelpe düzenlemesi üzerinden sistemin çok amaçlı kullanım yöntemlerini sergilemek üzere örneklendirilmiştir. Matris sisteminin birinci örnek uygulamalarında sistemin Şelpe tekniği kullanılarak oluşturulan akor eşliklemelerinde nasıl kullanıldığı gösterilmiştir. Örneklemelerde Hammamizade İsmail Dede Efendi’nin (1778-1846) “Gülñihal” isimli bestesi ve Henry Purcell’in (1659-1695) operası Dido & Aeneas’dan “When I am Laid in Earth” ağıt (lament) bölümü üzerine yapılan Şelpe düzenlemeleri kullanılmıştır. Her iki eser de bu çalışma kapsamında kullanılmak üzere tarafımdan düzenlenmiştir. Matris sisteminin ikinci örnek uygulamaları Matris sistemi ile gerçekleştirilen analiz örneklerini içermektedir. Bu örnekler ile Şelpe tekniği ile oluşturulan çoksesli müzik dokularını Matris sistemi ile tanımlamak ve analiz etmek hedeflenmiştir. Bu kapsamda Erol Parlak’ın bir Azeri halk ezgisi “Naz Barı” üzerine gerçekleştirdiği Şelpe düzenlemesi ve bu çalışma kapsamında Şelpe düzenlemesini yaptığım “Mandıra” eseri örneklemelerde kullanılmıştır. Tüm düzenlemeler ve Matris sistemi ile ortaya konulan analizler detaylı bir şekilde açıklanmış ve bu çalışmanın ekine yerleştirilmiştir. Sonuç bölümünde ise, bu çalışma kapsamında oluşturulan tüm veriler değerlendirilerek devamında gerçekleştirilebilecek çalışmalar hakkında bazı öneriler sunulmuştur.

1. INTRODUCTION

Şelpe technique of Saz/Bağlama and the music performed with this technique are both in a state of evolution and stunning transformation, especially since the 1980s. The repertoire of Şelpe, the places or venues it's performed, the training process and methods followed in education have differentiated and diversified gradually in time.

I have observed this change and transformation process of Şelpe closely as a performer both during my education period and my career. As the first step, I have learned this performing technique by following Şelpe training methods in which the staff notation of conventional Western music and modern techniques are utilized. At the same time, I have begun to notice that the traditional Şelpe technique of Anatolia is performed in different ways with some certain stylistic differences. This discovery has motivated me to investigate different performing traditions of Şelpe and their historical roots thoroughly. Thus, I mastered traditional performing techniques and investigated their stylistic differences using fieldwork samples which have been recorded in various regions of Anatolia. Besides, during my formal education, I have focused on Western tonal music theory, harmonic practices in tonal music, and piano performing techniques. My education provided the required background for observing and analyzing idiosyncratic multipart textures of traditional Şelpe performance and mixed harmonic practices² of the music created with the modern Şelpe technique. Naturally, I have begun to create similar mixed multipart textures for my Şelpe compositions and arrangements in a systematic manner.

Under certain patterns and rules, I have started with various bands and ensembles to gradually implement tonal harmonic practices in the Şelpe technique within our musical creations. From this point forward, I realized the necessity of a systematization, which could define patterns and rules for harmonic practices performed with the Şelpe technique with a set of symbols articulately showing these patterns. This system could also serve as a practical tool during the performances. I

² Idiosyncratic harmonic practices of traditional Şelpe technique and Western tonal harmonic practices.

am inspired by some current systematizations for necked instruments such as guitar while developing a similar systematization for the Şelpe technique. This systematization could show the chord positions practically and also serve as an accompaniment technique.

1.1 Outlines of Saz/Bağlama and Şelpe Technique

Saz/Bağlama is one of the primary traditional musical instruments in the cultural life of Turkey and has a specific role in Turkey's socio-cultural background. For many years, Saz/Bağlama carried various meanings for different socio-cultural bodies, contexts, eras, and thought movements. As an example; Saz/Bağlama carries a religious value for traditional Alevite rituals and a symbolic influence on “Alevite socio-cultural and musical revivals” (Pinkert, 2016). Saz/Bağlama was always an important icon for the Turkishness concept thus became one of the core musical instruments during Turkey's national modernization (Bryant, 2005; Signell, 1976; Markoff, 1991; Değirmenci, 2006; Stokes, 1992). Saz/Bağlama is also the main musical instrument in oral *Aşık* tradition of Yörük-Türkmen communities in which the instrument embodied and “coalesced” (Bryant, 2005, p. 223) with the words of *Aşık*'s.

Saz/Bağlama music with its different socio-cultural backgrounds, multicultural contexts, and various performing styles presents a rich soundscape and highly sophisticated repertory. We can classify Saz/Bağlama performing techniques into two main categories; “performing techniques with plectrum” and “performing techniques without plectrum”. In the historical and traditional context of Saz/Bağlama the performing techniques without plectrum – called Şelpe – is an older style than the technique executed with the plectrum. Even though the social backgrounds of these two performing techniques come from the same cultural root, their historical developments, timbres, and performance characteristics radically differentiated in the 20th and 21st centuries. The performance technique of Saz/Bağlama with plectrum can be considered as a newer way of performing which came into use at the end of the 19th century. During the 20th century, the performing techniques of Saz/Bağlama without plectrum was mostly replaced by the performing technique with plectrum at the national level. Meanwhile, the performing techniques of Saz/Bağlama without plectrum survived in the rural musical circles of Anatolia

until they became popular in the 1980s at the national level with the name of “Şelpe”. After the Şelpe technique started to become popular, it also became the core subject of the evolution of Saz/Bağlama music in urban circles.

The traditional performance practices of the Şelpe technique are part of an oral tradition in historical context. The regional Saz/Bağlama masters of Anatolia, who perform without a plectrum, play the instrument to accompany both religious and secular lyric repertoires. In the musical repertoire of Anatolian folk music, oral tradition mostly prevails the instrumental performance. Instruments such as Saz/Bağlama have an accompanying role. The tradition of Saz/Bağlama performance without a plectrum, which can be seen in both vocal and instrumental repertoires, contains “rural polyphonic structures” (Picken, 1954, p. 81-82) along with the use of drones, parallel fourths or fifths, etc., which are derived from Saz/Bağlama performance styles. These “rural polyphonic structures” differ from the harmonic practices of Eurocentric tonal music.

Since the 1980s, the performance practices of Şelpe at the national level mainly originated from the rural tradition of Anatolian Saz/Bağlama performance techniques without a plectrum. Saz/Bağlama artists not only utilized the Şelpe technique in the rural religious and secular repertoires but also adapted the Şelpe technique to different folk music repertoires of Anatolia. Numerous new solo arrangements of the Şelpe have been produced and added to the repertoire. In this improved repertoire, the traditional harmonic practices of the Şelpe was enriched and synthesized with the harmonic practices of Eurocentric tonal music. Moreover, folk music artists used Saz/Bağlama as an accompanying instrument to utilize the Şelpe technique while creating new performance practices for their folk music albums instead of guitar, piano, etc. (Baysal, 2013, p. 133).

During the first decades of the 2000s, the instrumental music repertoire featuring the Şelpe technique greatly extended its area of application. The soundscape provided by this Saz/Bağlama technique began to offer a unique way of producing instrumental music. The timbre of Şelpe diverged from the conventional sound of plectrum-style Saz/Bağlama, which made Şelpe technique a brand-new performance style for Saz/Bağlama artists. Thus, music composed or arranged solely with traditional or modern Şelpe technique of Saz/Bağlama tended to be defined as “Şelpe music” due to this novel sounds and timbre in unique compositions and arrangements. The

emerging new studies at that time aimed to produce Şelpe arrangements of pieces from either Western classical music or world music repertoires. These arrangements gradually brought a systematical approach in adapting harmonic practices of tonal music and jazz music to the Şelpe playing technique. The conventional chord construction formulas for piano/keyboard and guitar were adapted to the Şelpe technique for its solo music textures. These new sound palettes of Şelpe enabled performers to create relatively more experimental musical works, unique compositions for the Şelpe technique and new musical synthesis in solo and ensemble music. They also enabled other experiments including traditional makam music or jazz improvisation.

1.2 Purposes of the Thesis

The multipart musical texture plays a significant role in both traditional and modern Şelpe performances within their different harmonic practices.

Recently, the synthesis of multipart musical textures derived from Şelpe's traditional harmonic practices and harmonic practices of Western tonal music resulted in different timbres, new harmonic techniques for Şelpe performance, and a new musical identity for Saz/Bağlama.

The genuine multipart musical textures of traditional Şelpe performance and tonal harmonic practices applied to the synthesis of the musical texture of the Şelpe technique required a systematic approach and theoretical models to define the performance standards of modern Şelpe. The main objective of this dissertation is to develop a systematization, which displays finger positioning of Şelpe's all vertical textures pertaining to traditional, modern, and mixed harmonic practices on Saz/Bağlama fretboard. This can be used along with conventional notation as a guide for performers, composers or arrangers working on Şelpe. It can also be used as a theoretical model to analyze the multipart musical texture of Şelpe. The approach followed in this framework is also a starting point for innovative notation of Şelpe playing. This system codifies the finger positioning patterns used to produce harmonic elements in Şelpe and forms a dictionary of the harmonic practices of modern Şelpe. This dictionary can guide musicians and scholars either in performance or analysis if this new graphical notation/transcription system can be improved further to include all possible chord positions of Şelpe accompaniment

performances to be displayed on Saz/Bağlama fretboard. This system should also provide a practical and adequate method to identify the chord positions and texture of chordal accompaniments.

1.3 The Methods of the Research

Studies carried out to achieve the objectives of the thesis are as follows:

- Collecting and analyzing information about the Şelpe's historical roots, performance techniques, and musical textures using associated methods and literature.
- Investigation of the modernization process of the Şelpe technique and modern Şelpe harmonic practices.
- Creating new harmonic practices and multi-part musical textures by emulating harmonic practices of Western tonal music.
- Arranging and composing with modern Şelpe technique by using new multi-part musical textures.
- Developing a systematization and analysis tool for Şelpe's harmonic practices by adapting a mathematical tool, Matrix diagrams.

1.4 Theoretical Outline and Literature

Discussing some eminent ethnomusicological concepts is of significant importance when it comes to comprehend and conceive the context in which modern Şelpe music was created: the cultural structure that originated Şelpe, musical cultures that influenced and formed the Şelpe techniques, the transformation of the traditional structure of the Şelpe music into a modern musical structure, the newly grown Şelpe music identity and the status of Saz/Bağlama in the new socio-cultural environment.

Historically, the Saz/Bağlama instrument and its oral tradition based Şelpe music repertory have always been considered as elements of the Anatolian folk music. However, in the late 20th and early 21st century, Saz/Bağlama and its performing technique without plectrum became an important portion of traditional art music of

urban musical life in Turkey. German ethnomusicologist Martin Greve uses *neuen Kunst-Volksmusik*³ definition in Parlak's book (2000, p. ix) to emphasize a new type of musical practice in urban art music which is based on traditional Anatolian folk music.

The old *Harvard Dictionary of Music* (Apel, 1969) defines folk song "as the musical repertory and tradition of communities, as opposed to art music which is the artistic expression of musically trained individuals. It develops anonymously, usually among the 'lower classes', together with artless poems dealing with the various phases of daily life: working songs, love songs, cradle songs, drinking songs, patriotic songs, dancing songs, mourning songs, narrative and epic songs, etc." (p. 274). Moreover, the same author introduced "civilized folk song" as a new term for "folk song". He quotes "it shows the influence of art music" as having "strict meter and measure, clear and regular phrases, well-defined tonality (sometimes with traces of modality), a defined form, triadic intervals, etc., are features which have their origin in the rationalized vocabulary of art music and which have, in the course of one or two centuries, sunk down to the lower classes" (p. 275). However, this definition moves into an ethnocentric direction according to Booth and Kuhn (1990) and append the other definition of "Folk Song" as less ethnocentric, which is given with a new title "Folk Music" in the *New Harvard Dictionary of Music*:

Music in oral tradition, often in relatively simple style, primarily of rural provenance, normally performed by nonprofessionals, used and understood by broad segments of a population and especially by the lower socioeconomic classes, characteristic of a nation, society, or ethnic groups, and claimed by one of this as its own (Booth and Kuhn, 1990, p. 412).

As opposed to the definitions, which claim mere musical distinctions between folk music and art music, Blacking (1973) defends the opinion that "currently recognized divisions between art music and folk music are inadequate and misleading as conceptual tools. They are neither meaningful nor accurate as indices of musical differences; at best, they merely define the interests and activities of different social groups." (p. 4). Throughout the 20th and 21st centuries, we witnessed many kinds of music labeled as "folk music", "art music" or "pop music" affected each other in

³ New art-folk music.

many ways and under different circumstances. One musical component of any kind of music may have an enormous potential for change, transformation, continuity, and affection. Likewise, the Şelpe technique originated from the folk tradition was once considered as a component of the folk tradition of Anatolia but it became a part of new art music by the time. “They are created, carried on, and shaped by the human community which lives in a thousand ways, entertains a thousand kinds of relationships, in struggle and alliance.” (Szabolcsi, 1964, p. 506). From the same viewpoint, “Kodaly (1941) draws the conclusion, saying that, taking an over-all view, it may be stated that there is no essential difference between two. They are the varying manifestation of the same human function. The differences have been caused by historical, national, social, and cultural stratification. The most precious manifestation is equivalent. Estimation of the rest depends on artistic value. Hence folk music and art music do not follow paths so wide apart as to preclude influence on each other.” (Szabolcsi, 1964, p. 505).

According to Kaemmer (1980) “two distinct approaches characterize the study of musical styles in relation to social process”, which are based on “evolutionary theory” and “the relationships of music and society in detail.” (p. 62). The first theory is closer to the definitions given by the *Harvard Dictionary of Music* and *New Harvard Dictionary of Music*. Based on the second approach, Kaemmer (1980) uses the term “music complex”, explained as “the analysis of a number of music events is to link together conceptually those observed to be related, forming a nexus of events.” (p. 63). In his approach, “music complex” is classified as “individualistic” (p. 64), “communal” (p. 64), “contractual” (p. 65), “sponsored” (p. 65) and “commercial music” (p. 65). In other respects, Booth and Kuhn (1990) point out two components which are “economic support systems” and “transmission support systems” as “the primary determiners of a particular music’s membership in the categories of folk, art, or pop music” (p. 416).

As Greve (2006) points out; “even while the art music traditions of Ottoman – Turkish and Western extend back much earlier, the notion of performing and listening Anatolian folk music with artistic claims was an innovation which 20th century has brought”. (p. 350). The 20th century has brought rapid urbanization, population movements from rural regions to urban regions, institutionalization, state reforms on music, media productions, and technology. Anatolian folk music and the

materials of the music have been transferred to urban musical life during the 20th century in Turkey. “While the folk music, which was performed on the radio broadcastings and government institutions (halkevleri), was gradually diverging from the older social contexts; the musical score publications, musicological books, and recordings were pointing out a different art genre at the same time”. (Greve, 2006, p. 350). In this direction, Anatolian folk music began to create its new social contexts and realities during the 20th and 21st centuries.

As it can be understood from the definitions and the approaches above, evaluating the Şelpe music as a musical style in accordance with the social process is essential to understand the stylistic character of it as a whole and all its musical components thoroughly. Different styles and genres of Şelpe music were practiced and sustained as a tradition in various periods and venues and they experienced musical changes, interactions, transformations, re-inventions, and revivals.

Broadly speaking, the tradition is a holistic and continuous practice that is “the creation of the future out of the past.” (Glassie, 1995, p. 395). The tradition comprises of cultural materials, artifacts, routines, and praxis that people created through history which guides the notion of today’s and future’s new creations. Glassie (1995) adds that “if tradition is a creation of people, out of their own past, its character is not inert but continuous.” (p.396). In order to understand the tradition in its continuous context, it is essential to explain the way of cultural transformation and the factors of change through time. The tradition is generally considered as the inert praxis or artifacts coming from the past. However, the change, as Morris (1898) pointed out “is the natural state of tradition” (p.157). At the same time, “drifting through endless, numberless changes so subtle as to provide an illusion of stability, traditions streams into continuity.” (Glassie, 1995, p. 405).

In some cases, scholars consider the traditional creations with a modern concept as a discrete context or a new experiment rather than considering them as the continuity of a tradition. “Tradition is thought inevitably to decline as modernity rises; both cannot occupy a common space. Within modernity, isolated traditions can be identified as relics or survivals signaling the distance of the present from a lost lifeworld.” (Noyes, 2009, p. 239-240). From this point forward, studies on music revivals have played an important role in 20th century folk music scene. Livingston (1999) defines musical revival concept as:

Musical revivals can be defined as social movements which strive to “restore” a musical system believed to be disappearing or completely relegated to the past for the benefit of contemporary society... revivalists position themselves in opposition to aspects of the contemporary cultural mainstream, align themselves with a particular historical lineage, and offer a cultural alternative in which legitimacy is grounded in reference to authenticity and historical fidelity (Livingston, 1999, p. 66).

There are two objectives to achieve in musical revival studies. One of them is to create an alternative to mainstream culture and the second one is to improve existing cultural traits based on the revived culture with the claim of authenticity. “In all music revivals, the most important components for formation of the aesthetic and ethical code are the ideas of historical continuity and organic purity of the revived practice. The term authentic is most commonly employed to distinguish the revived practice from other forms of music and to draw attention to its supposed time depth.” (Livingston, 1999, p. 74).

Finding the answer to the question of “what is the authentic remainder of a musical component being revived” is crucial during musical revival studies about oral tradition such as Anatolian folk music. “Due to the general deficiency of written sources for Anatolian music (in particular of non-Turkish traditions), most reconstructions are inevitably based either on fieldwork with musicians, who were supposed to have remained more authentic, providing insights into an older music and performance style, or relying on historical recordings.” (Greve, 2017, p. 153). During the 1980s and 90s, the performing technique of Saz/Bağlama without plectrum and especially the almost forgotten Parmak Vurma sub-technique employed by Yörük community from Teke region were chief subjects to revivalist research of a couple of professional Saz/Bağlama performers/artists. Especially one regional artist, Ramazan Güngör from Fethiye/Teke region was an authentic and prominent resource. As Greve (2017) points out:

Well known Saz/Bağlama players including Talip Özkan, Arif Sağ, Erol Parlak, and Erdal Erzincan visited Güngör to learn from him... As a result, a great number of playing techniques emerged, including pençe, tel çekme, and parmak vurma, which were later further improved to an unprecedented virtuosity (Greve, 2017, p. 154).

As Livingston (1999) emphasizes one of the motivations of musical revival studies as “to improve existing culture through the values based on historical value and authenticity expressed by revivalists” (p. 68). These researches enlightened new unexpected paths to develop new techniques and new musical timbres for Saz/Bağlama which were created in the new social and cultural environment. One of the aims was to explore and absorb the authentic musical material which was almost forgotten, which also opened unexpected ways to create new music. The absorbed materials became the main musical components of new folk music and contributed to new artistic creations with Saz/Bağlama. “Revivals of particular Anatolian music styles or instruments were swiftly integrated into the mainstream (folk) music of Turkey, contributing to further artistic development. Their initial character as revivalist music was soon lost.” (Greve, 2017, p. 154). Hence, a particular musical component of Anatolian folk music, Şelpe technique, became a subject of revivalist studies aiming to open new paths for Saz/Bağlama music in a new musical environment while keeping the connection with conventional performing styles. Two important facts became prominent at this point. Firstly, the revivalists aimed to create an alternative to mainstream cultural policies of the Turkish Republic, especially to modern Anatolian folk music which caused the institutions such as state conservatories, TRT (Turkish Radio and Televisions), et cetera to recognize Saz/Bağlama music.⁴ Secondly, the revivalists aimed to improve the existing Saz/Bağlama music with new performing techniques of the traditional Şelpe technique. As a consequence, “music of the present and also the music of the future, which is not yet part of any historic canon, demands new ideas, techniques, and new musical approaches.” (Greve, 2017, p. 167).

Saz/Bağlama performers and the scholars carrying out individual studies on the traditional Şelpe technique played the primary role in leading musical developments in a relatively new social environment. The reputed artists/scholars of this movement such as Arif Sağ, Erol Parlak, and Erdal Erzincan can be considered as “core revivalists”, who “tend to feel such a strong connection with the revival tradition that they make it upon themselves to ‘rescue’ it from extinction and to pass on to other”

⁴ For further readings regarding the nation-state policies on folk music and Saz/Bağlama, its modernization process, reactions and counter-reactions against the state practices, please check Özdemir (2019), Greve (2017), and Özdemir (2018).

(Livingston, 1999, p. 70). This is the process of creating new streams, aesthetical styles, and musical components in relation with the revived cultural component and the individual preferences of the revivalists. Rosenberg calls a such process “transforming the tradition” (Rosenberg, 1993).

A tension between innovations and the preservation of the tradition is the main challenge of the revivalist movements. According to Livingston (1999), “after a tradition is ‘revived’ the question always arises as to balance between ‘preservation’ of the tradition (i.e. strict adherence to revivalist stylistic parameters) and innovation, even innovation that is intended to win over a greater audience for the tradition.” (p. 71). Nettl (1957) also observed this tension and pointed out with his remarks on urban folk music in Detroit:

Most of the ethnic groups have semiofficial organizations which try to insure the preservation of the folk music heritage. These groups, choirs and bands, are led by, or consist of, specialists in folk music who, although they are usually members of the folk tradition, are often trained professionally and have at least semiprofessional status. They also specialize in teaching. Thus, although they are instrumental in preserving the musical folk tradition, they are also responsible for some of the differences between rural and urban folk music (Nettl, 1957, p. 40).

The same tension is observed during the transformation of Şelpe music. As opposed to core revivalists, the next generation of Saz/Bağlama artists tend to use all components of the musical tradition and introduce brand new individualistic creations of the Şelpe which are hybridized with other musical styles.

This transformation process with its balances and tensions calls forth the term “invented tradition” defined by Eric Hobsbawm (1983) as:

a set of practices, normally governed by overtly or tacitly accepted rules of a ritual or symbolic nature, which seek to inculcate certain values and norms of behavior by repetition, which automatically implies continuity with the past. In fact, where possible, they normally attempt to establish continuity with a suitable historic past... In short, they are response to novel situations which take the form of reference to old situations, or which establish their own part by quasi-obligatory repetition (Hobsbawm, 1983, p. 1-4).

According to this definition, the emerging modern Şelpe music can be asserted as an invented tradition. Instead of building a binary opposition between the tradition and change, the term “invented tradition” may be utilized to address the tradition and the change in a continuum. As Turino (2000) criticizes the dichotomies such as tradition vs modernity and adherence to tradition vs change; the core revivalists of the Şelpe tradition believe that “local people deeply internalize foreign ideas and practices and make them their own” which “allows for internally generated cultural creativity, practices, and identities.” (p.8-9). Hanson (1989) adds a point that “the analytical task is not to strip away the invented portions of culture as inauthentic, but to understand the process by which they acquire authenticity.” (p. 898). The viewpoint below, regarding the transformation process of Kazakh Qyl-qobyz, observed and presented by Rancier (2009), demonstrates very similar features with the modern Şelpe music as an invented tradition which has been transformed following the new context and environment of the urban music:

the non-traditional contexts in which these artists utilize the qyl-qobyz also makes a statement – that modern-day Kazakhs are much more likely to live in an urban apartment and work in a bank than inhabit yurts and herd livestock. The older contexts, for the most part, no longer exist; therefore, artists must create new ones. Through these new contexts, artists pay tribute to the histories, values, and musical conventions of previous eras by invoking them musically or verbally, but then utilize a wide variety of cultural influences and approaches to construct their individual interpretations of how traditional music continues to function in contemporary Kazakh society (Rancier, 2009, p. 205).

The new synthesized creations, newly added techniques, and genuine compositions built with the Saz/Bağlama Şelpe technique became the contemporary Şelpe music of contemporary urban Turkish musical society which is also closely connected with its historical traits. Chae (1996) discusses a similar notion with an example in his work regarding the new Korean music – *Ch’angjak Kugak*:

... *ch’angjak kugak* can certainly be said to have emerged as an invented tradition of modern Korea. First, new compositions were written by

synthesizing many diverse elements but always in reference to the past. Second, in order to connect the present with the past, *chont'ong kugak*⁵ was studied and its central elements were incorporated into the new compositions. Recently, musical elements from diverse cultural backgrounds have also been adopted, reflecting the diversity of contemporary South Korea (Chae, 1996, p. 44).

As the inner dynamics of the performing tradition of Şelpe are sacrificed in favor of the invention of the contemporary Şelpe tradition, the external factors started to play a crucial role to realize synthesized components under a wide variety of cultural interactions such as Western art music canon and its institutionalization models. According to Fossum (2015), "...local musical reforms often seem inspired by Western strategies for valorizing culture. In such studies, a critical ethnomusicological gaze, informed by literature on the 'invention of tradition' (by Hobsbawm and Ranger 1983), has helped discerning how local forms of music are often remodeled after the Western art music canon." (p. 203). Yet, the external factors are never taken directly, "but are actively selected and modified by agents where they are adopted." (Fossum, 2015, p. 203). When Greve (2017) points out the effects of Western art music performance on the invention of contemporary Şelpe tradition and its way of performing he states that "many professional folk musicians (e.g. Erdal Erzincan, Erol Parlak, Erkan Oğur, and Cengiz Özkan, to name just a few of the most well-known) think of themselves as artists in an emphatic sense and their concerts tend to follow the model of Western art music recitals." (p. 183). The model of Western art music was transferred to the Şelpe tradition in the contexts of institutionalization, education, performing, musical style, and technical innovation. This model heralded the Şelpe music revival, a new invented tradition, new timbres for Saz/Bağlama, and a new type of Saz/Bağlama artists in the 1990s and the first decades of 2000s. This performing technique, which has lived among nomads of Anatolia within their cultural and sociological background for centuries, was transferred to the institutions in the urban centers by the core revivalists such as Arif Sağ, Erol Parlak, and Erdal Erzincan. "Although the Şelpe technique, once as a basic nomadic performing technique of Saz/Bağlama has been developed by the modern

⁵ Traditional Korean music form.

virtuosos, its trait of authenticity is always emphasized. On the other hand, among all the precursors, such as Erol Parlak in the first place, a new virtuoso type appeared who combined the musicological researches with elitist artistic claims.” (Greve, 2006, p. 365). As known, the musical changes do not solely consist of the changes in musical components, but the changes in music strictly bound to the change in its social and cultural environment. As Nettl (1957) noted, “some of the processes which usually operate in rural folk music, communal re-creation, oral tradition and general participation, diminish in strength, when the music comes to the city.” (p. 42). The folk music in the city, which is presented through artistic claims, builds new ways and reasons in creation; and its social functions are completely different from its rural origins. In accordance with Nettl (1957), Greve (2006) asserts this opinion regarding the process of changing Anatolian folk music as follows:

The folk music and folk dances-which its immanence and the effects on the rural life and customs gradually decreasing-leave its place in favor of the folk music which is perceived as merely music. The social functions of the rural folk music exist only in some exceptional forms such as lullabies and laments. Even in the wedding ceremonies, the rural versions of the folk tunes which have been transmitted through the generations are not performed but the versions that are widely known which are prompted through radio, television or recordings (Greve, 2006, p. 237).

The performing tradition of Şelpe, its forms and the social functions of these musical forms have encountered sublime changes that led to the contemporary Şelpe music since the mid-1980s.

The changes in Şelpe tradition, the process of these changes, interactions, and the factors – which determined the characteristic features of the contemporary Şelpe music – can be discussed within the ethnomusicological concept of musical change.

“As cultural interaction has increased, the musical changes that take place in non-Western cultures have numbered among the most important topics in the studies of world music since the late 1970s.” (Chae, 1996, p. 1). The change in social factors of folk music and the inner dynamics of the Şelpe tradition play an essential role in the musical transformation that is the result of cultural and sociological transformation in society. The factors of cultural interaction such as Westernization, modernization,

electronic technology, and mass media are the determinants that shape the direction and the outcomes of the musical change in Şelpe tradition. The changes in the music world due to cultural interactions have been examined by some important ethnomusicologists who use different terms in their discussions. Nettl (1978, p. 134) emphasized “Westernization or modernization”, Blaukopf (1989) put forth the term “mediamorphosis” which implies the interaction ability of technological media in musical change, Chou (1977) discussed “influence or confluence”, Meyer (1967, p. 89)’s point of view was “cultural dissonance”, Blacking (1977, p. 7)’s approach was the dichotomy between “purist and syncretists”, and Kartomi (1981, p. 227-250) pointed out “musical transculturation”.

Most of the musical change studies consider the changes in musical components as a result of the change in social structures. It is asserted that the ways of music making process enlightens the aspects of a society. This approach asserts that “ethnomusicology drifted into an era, in which either musical styles or the function of music in society became dominant concerns.” (Kaemmer, 1980, p. 61). Accordingly, Kaemmer (1980) suggests a new theoretical approach in order to identify the processes and the characteristics of a musical change, which are classified into two groups as “change of complex” and “change within a complex”. (p. 68-69). The author means the substitution of new musical components for the previous ones with the term “change of complex”. The “change within a complex” is defined as adding new musical components for altering previous ones. Kaemmer (1980) adds that “whereas change of complex is likely to be caused by social or economic conditions, change within a complex, or intra-complex change, is more likely to occur as the result of individual innovation.” (p. 69). In the case of the musical change in Şelpe tradition, individual efforts have played a major role. The musical components of the Şelpe have been altered, but not been substituted with a new component directly. The synthesis of the components of traditional and Western music is more vivid in the contemporary Şelpe music, such as the addition of Western functional harmony or Jazz harmony. In this context, this mode of musical change in Şelpe music can be classified as “change within a complex”. However, Şelpe’s “change within a complex” can somewhat be related to changes in social conditions and differentiated ways of music production which also resembles the “change of complex” that is caused by changes in social and economic conditions. In

this direction, it is important to quote Greve (2017)'s perspective to foster the differentiated ways of production, changes in social conditions, and the importance of the individual efforts:

In the field of folk music, Saz/Bağlama players such as Ali Ekber Çiçek, Talip Özkan, and Arif Sağ introduced a comparable instrumental virtuosity only much later, beginning in the 1960s. However, the aesthetic changes in Turkish folk music during the twentieth century were even more dramatic than those in Ottoman-Turkish art music. Folk music became ambitious and demanding in terms of aesthetics, intonation, and virtuosity, becoming a sophisticated artificial music, substantially different from performance practices of Anatolian villages where these traditions originated (Greve, 2017, p. 171).

The musical change is sometimes related to new ideas of artists and their individual efforts. Flourished new ideas are also related to the new cultural and social conditions, where the authentic traditions of the musical system completely differentiated. Mitchell (1956) points out in his work on urban African music that a new type of musical system thrived in the city center, which is originated from its rural past and reflects a new way of music making in a new lifestyle. The major Saz/Bağlama artists and the researchers, who specifically have focused on the tradition of Şelpe as their revivalist studies, have created new musical materials and caused musical changes. These new materials not only reflect the tradition's rural past but also encompass the artists' individual perceptions of creativity as well as their cultural environment which affects their creativity. There are actually two eminent researchers demonstrating important individual efforts and creativity in new sociocultural conditions who led and trigger a musical change similar to the Şelpe evolution caused by individual efforts: Turgun Alimatov, a traditional *dutar* musician in modern society of Uzbekistan, called as "madman" by Baily (1988) referring to the meaning of "diwaneh", exerted individual efforts those were worked by Matyakubov (1993) and Amin-e Diwaneh's new creations on the *dutar* of the Herat region.

Baily (1976) noted the musical changes and the technical innovation of Şelpe, which create the contemporary Şelpe music in his work about the musical change in the *dutar* of Herat. He "express in a concrete manner the essence of a complex and

dynamic sociomusical situation, which involves changes in music structure and changes in the social position of music.” (p. 53-54).

According to Elbourne (1975), the tradition “is a form of human behavior. The rich similes and metaphors, so beloved of folklorists, mystify processes of change, which are the result of human interaction within social situations.” (p. 181). However, Blacking (1995) brings a new perspective regarding the study of musical change that not only focuses on to find out the relations between musical changes and changing society, but also emphasizes the “change that is specifically musical, and change that really is change” (Blacking, 1977, p. 6):

The study of musical change is not only interesting because music reflects the deeper sources and meanings of social and cultural continuity and change; it is of vital concern to the future of individuals and societies because it may reveal not only how people have changed their music, but also how, through the medium of music, people can change themselves in unexpected ways (Blacking, 1995, p. 173).

The compositional efforts and technical innovative studies of the Şelpe by the core revivalists such as Erol Parlak and Erdal Erzincan unfolded new paths and aural perceptions in the folk music of Turkey and among the audiences. These studies led further changes in the nature of the music those next generation’s artists created– as Blacking (1995) noted in the same direction:

Changes in the cognitive and social organization of musical activities and attitudes may signify or herald far-reaching changes in society that outweigh the significance of the musical changes. Musical change is important to watch because, owing to the deep-rooted nature of music, it may precede and forecast other changes in society (Blacking, 1995, p. 192).

The Western influences, as a prominent determinant, affected the cultures of the non-Western societies in the course of the 20th century, which did not only cause the cultural changes but also caused changes in the societies. “Western influences also play a role in aspects of musical culture that do not directly involve sound and style. For example, the introduction of public concerts, which have the possibility of including various styles and genres, which might never be combined in the older tradition, and with audiences of once incompatibly mixed social background.” (Nettl,

1986, p. 362). Since the 1980s, Saz/Bağlama has become an important solo and orchestral instrument in the concert halls performed by Saz/Bağlama virtuosos. At this point, the contemporary Şelpe performance gains an important position like in the execution of new genres such as concerto. These new trials reveal a great potential for Şelpe technique to constitute a synthesis of Western and traditional musical traits.

The various mutual interactions of the cultures have inevitably lasted throughout history where the cultural syncretism of Western and non-Western music is one of the outcomes. As Blum (2011) pointed out that “any music history, no matter how vast or how narrow its geographical or temporal limits, ought to be understood as a history of interaction and exchange among people differentiated by such factors as language, religion, gender, social class, age group, and occupation, as well as by musical practices.” (p. 8). Syncretism is one of the most common points of the ethnomusicological researches as it is referred by Blum (2011):

... the processes of hybridizing, combining, and coordinating have been major concerns of ethnomusicologists for as long we’ve called ourselves that. We encountered these concerns in studies of construction and playing techniques of instruments, make-up of ensembles, compositions and performances, roles and subjectivities, theories, styles, and idioms (Blum, 2011, p. 9).

Lopes (1999) defines the “syncretism” using Alan Merriam’s (1964) definition as “the process of forging together elements from different cultures. It entails changes in value and form – a process of reinterpretation and reinvention in cultural diffusion.” (p. 26). In the context of this definition, the 20th century witnessed various types of aggregation of the musical cultures, which were the results of “global industrial culture”, as Wiora (1965) calls in the era of musical homogenization. “The main characteristic of world music history of the 20th century is the enormously increased availability of many music to most people” (Nettl, 1978, p. 123-124), which end up with various syncretic musical styles and genres on all over the world. “In most if not all cases, one could make a case suggesting that the most significant event in world music of the 20th century is the arrival of Western musical culture to all other cultures.” (Nettl, 1986, p. 361).

The influence of Western elements in Ottoman-Turkish art music since the 19th century and in Anatolian folk music throughout the 20th century have stemmed from modernization movements, nationalist ideologies, technological developments which also influenced the education, notational systems, musical styles, genres, instrumental changes, social organizations and behaviors towards music making, and the ways of producing music. (Greve, 2006, 2017; Stokes, 1992; Degirmenci, 2006; Markoff, 1991; Signell, 1976; Tekelioğlu, 1996; Pinkert, 2016; Karahasanoğlu&Skoog, 2009; O’Connel, 2000, 2005). In the 20th century, the modernization movements in Anatolian folk music and the studies carried out within this context under the nation-state’s music reforms have some certain differences from 19th century’s efforts. Some foundations and official institutions such as *Darü’l Elhan*⁶ carried out survey-compilations and researches during the late 19th century and early 20th century in the Ottoman Empire under the influence of Turkishness and nationalistic agendas. Besides, Özdemir (2018) emphasized that more systematic/programmed institutionalization and musical standardization efforts were the core motivations of Republican era music reforms in Turkey:

The institutionalization efforts and in parallel musical standardization efforts which have continued both by official institutions and specialized persons up to the present day are the most important feature of the Republican era music reforms in Turkey. These efforts affected almost every era of 20th century music in Turkey such as notation, music performance, instruments, frets etc. (Özdemir, 2018, p. 364).

The modernization process of Anatolian folk music during the Republican era is divided into three periods by Erol (2009, p. 77): In the first period, folk music was re-produced, re-invented, and institutionalized by the state efforts between the 1920s and the 1950s. The second was the exploration period of folk music by the music industry and professional musicians in the 1960s and the 1970s. Finally, the third period includes music revival efforts of folk music from the 1990s to 2005. At this point, Özdemir (2018, p.368) states that Saz/Bağlama music has come into prominence in the music industry in parallel with the Alevi music revival during the last period as pointed out by Erol (2009). It is also valid for Şelpe music which

⁶ The first music school/state conservatory of Ottoman Empire founded in 1917 with the aims of educating musicians who have both Turkish music and Western music backgrounds.

originates from the traditional/modern performing technique of Saz/Bağlama without a plectrum.

As Özdemir (2018, p. 2126) noted, the folk music, which has an enormous importance on the cultural background of nation-states, is re-invented, re-produced according to the founding ideology, and functioned. During the music reformation of the early Republican era, reformers envisaged to take “Turkish” folk music materials such as tunes, instruments, etc. and to enrich them musically with Western music practices. In this way, a new type of music could be invented according to the modernist ideology of the state. The Western music authorities such as Paul Hindemith, Bela Bartok, and Joseph Marx were invited to develop and conduct the idealized music revolution institutionalized under the state’s cultural policy.

The case of Western influence on Turkish culture or the confluence of Western traits with Turkish traditional music is not the only instance that was observed throughout the 20th century. The change dynamics were generally controlled by the political structures (e.g. Westernization/modernization policies of nation-states, Soviet model of modernization, positivist/modernist point of view), sociocultural backgrounds, socioeconomic policies, institutionalizations, mass media impact, technological advances, rapid urbanization, and so forth. The Soviet case of musical-cultural modernization contains similar motivations but different political agendas with the nation-state policy of Kemalist Turkey towards modernization. The modernization efforts resulted in hybridized musical styles, genres, forms, instrumental changes, technical innovations of performing traditional instruments, change in educational models and social organization. (Fossum, 2015; Frolova-Walker, 1998; Vinogradov, 1960; Kendirbaeva, 1994; Utegalieva, 2016; Slobin, 1971; Nercessian, 2000). There are three other notable studies, regarding the interrelationships between Western and non-Western music, which are very close to the case of Turkey. Stock (1992) reflects “the impact of Western music and the continuing influence of traditional styles of Chinese music” (p. 55) with the accounts of social and political changes in China and demonstrates how traditional Chinese two-stringed fiddle *erhu* has been transformed under those influences. Again, Jinko (1986) mentions some innovative studies on the traditional musical instruments of Japan under the Western impact combined with socio-cultural policies of the state. This transformation process is so similar to the innovative studies carried out for the Şelpe technique. Finally, Chae (1996) worked

on the newly composed traditional musical genre called *Ch'angjak Kugak*, which has been originated from traditional *chon'ong kugak*. This remarkable example is the result of an invention of a new tradition under Westernization impact on urban musical circles with roots extended back the traditional rural culture of South Korea. This process also has a similar direction with the evolution of contemporary Şelpe music and folk music in Turkey.

The types of interrelationships between Western and non-Western music, the diversity of reactions of the non-Western cultures towards Western music, and the outcomes are the key factors defining the traits of the syncretic forms of music in the world. Nettl (1978) suggested some list of typologies regarding the non-Western reactions to Western music impacts such as “abandonment”, “impoverishment”, “preservation”, “diversification”, “consolidation”, “reintroduction”, “exaggeration”, “satire”, “syncretism”, “Westernization”, and “modernization” (p. 130-131-132-133-134). Among these types of responses, “reintroduction”, “syncretism”, “Westernization”, and “modernization” could be discussed to clarify the affectional aspects of Anatolian folk music, certain developments on Saz/Bağlama, and the innovative studies of Şelpe technique.

“Reintroduction” refers to “the return of musical styles to their place of origin after a sojourn elsewhere.” (Nettl, 1978, p. 132). During the republic era of Turkey, national institutions carried out various important compilation studies about Anatolian folk songs. These compiled folk songs have been performed by folk music orchestras with some basic arrangements or in unison, which were not like the performing ways or styles of rural tradition, and have been broadcasted on Turkish Radio and Television (TRT). These broadcastings affected performing traditions in Anatolia and caused musical changes in the tradition itself. The innovational studies of Şelpe and its all musical materials, which were originated from the rural tradition of pastoral nomads, have changed the intelligentsia of the music making with Saz/Bağlama. The contemporary performing techniques of Saz/Bağlama without plectrum became popular among the new musician generations of Anatolia, who graduated from music schools and conservatories.

Regarding the “syncretism”, Nettl (1978) emphasizes synthesizing musical styles of Western and non-Western musical traits. “The development of mixed or hybrid styles is, of course, a characteristic of twentieth-century world music; and these

hybrid styles seem to have developed most readily, when musical similarities between non-Western and Western cultures can be identified, when the forms of music are compatible, and most importantly when they share central traits.” (p. 133). The rise of the revival of Anatolian folk music, and of course, the contemporary Şelpe music, is closely connected with the art music traits of both East and West, which are musically hybridized. As Greve (2017) points out, “over the entire twentieth century, almost all musicians in Turkey have, at least for some time, tried to develop a kind of synthesis, what they perceived as alternative musical worlds, which is the horizontal music of the Middle East and the vertical music of the West.” (p. 169). The degree of hybridization in the music between non-Western and Western musical traits is mostly related to the tendencies of the non-Western societies or the nation-states which aims “to enter the Western cultural system without completely changing the traditional music” (Nettl, 1978, p. 133) or vice versa. Most of the attempts and the innovative studies on Anatolian folk music, technical innovation or revivalist studies of the Şelpe have been carried out by the core revivalists, musicians, scholars, and institutions with claims of authenticity. Finding a balance between the innovation and the traditional traits was one of the leading concerns in Turkey throughout 20th century. The balance and the degree of innovative studies, which are motivated by the Westernization approach, are determined by Nettl (1978) as “modernization” and “Westernization”. “Some societies appear to have changed their traditional music in the direction of Western music by taking those elements, which they consider to be central to it from Western music; this is Westernization.” (Nettl, 1978, p. 134). Yet, if the syncretism results in, where the non-Western elements are considered to be central, with compatible Western traits; this is modernization. As it is understood, technical innovative studies of the Şelpe since the 1980s enabled various individualistic differences in the musical creations, which have been the result of the rise of the contemporary Şelpe music. These studies can be considered as a part of the modernization process of Saz/Bağlama along with adopting new performing techniques, usage of harmony, developing new compositions and styles those merging Western sense and traditional traits, and so forth. In the same direction, Greve (2017) states the general characteristics of the modern folk music of Turkey as follow:

As a result, Turkey in general did not become part of the ‘Western music world’, rather art music in Turkey has become radically individualized and diverse. Today, musical instruments, ensembles, and arrangements exist in unprecedented and inextricable diversity (Greve, 2017, p. 239).

One of the most widespread ways and the eminent impacts of Western culture on the non-Western traits is the use of harmony in the non-Western melodies in various ways for the last two centuries as Nettl (1986) noted below:

Most prominent perhaps is the introduction of Western harmony (in its 18th and 19th century versions) into non-Western musics, and thus, the performance of old melodies, and the composition of new ones, with harmonic accompaniment, often of a very rudimentary form. A correlative feature is the increased emphasis on scalar or modal patterns that may be present in a non-Western repertory, but that are compatible with Western major and minor modes (Nettl, 1986, p. 362).

In the traditional Şelpe performance practices among pastoral nomads of Teke region and Alevi culture, the music contains a vertical structure and specific multipart texture which support the main melody with kind of a chordal accompaniment. This kind of texture results from the natural ways of performance with this technique. The contemporary Şelpe music achieves to combine the traditional multipart musical texture with the compatible Western harmony. The same motivations are observed generally “in Turkish music today, that is, the use of Western functional harmony.” (Greve, 2017, p. 171). Derived from the same mainstream and motivations in the contemporary Şelpe performance practices and the compositions, as the main goal of this study, a systematization will be presented for the harmonic practices in contemporary Şelpe technique, which is mostly based on Western functional harmony practices.

2. ŞELPE

For many centuries, Saz/Bağlama and all kinds of lute type instruments – closely associated with Anatolian Saz/Bağlama in the context of history – have lived in different social groups of Turkic clans. Morphologically, being used for thousands of years, the *kopuz* instrument from Central Asian Turkic culture and its performance techniques have diversified and changed constantly depending on the changing geographies of Turkish culture. For many centuries, *dutar*, *dombra*, *tambura*, *saz*, and other variants, derived from *kopuz*, appeared in different Turkic societies. The diversity of the instruments in this field caused improvements in both sounds and timbres and enabled different performing styles during the long centuries. Among these styles in Turkic societies' musical traditions, performing techniques without a plectrum, like Şelpe, are the oldest performing tradition of these lutes. Constitutively, Şelpe contains three main sub-techniques, which separately have unique characteristics and distinguishable and rich timbres. These sub-techniques are going to be explained in the following subtitles.

2.1 General Information about Şelpe – Performing Technique of Saz/Bağlama without a Plectrum

Şelpe is a unique way of performing Anatolian Saz/Bağlama, where the performing style, timbre and musical articulations are fundamentally different from the performing technique of Saz/Bağlama with a plectrum.

The historical background of Şelpe extends back thousands of years, among Turkic pastoral nomadic clans of Central Asia, Persia, and finally Anatolia. Şelpe technique historically originated from performing techniques of lute-type instruments such as historical Central Asian *kopuz* (Gazimihal, 2001, p. 39; Feldman, 1996, p. 116-119; Parlak, 2000; Eroğlu, 2011), *dombra*, and *dutar* which are rather close relatives of Anatolian Saz/Bağlama. Modern Şelpe performing technique also shares similarities with guitar performing techniques such as strumming, picking, palm mute, tapping et cetera. (Çoğulu, 2010, p. 31).

The tradition of Şelpe is still preserved by “*Alevi-Bektaşî*” communities of Central, Southern, and Eastern Anatolia; the *Yörük-Türkmen* community of Teke region (South-Western Anatolia); and *Barak-Türkmen* community of Gaziantep-Oğuzeli region (South-Eastern Anatolia) with their differentiated way of use.” (Parlak, 2001, p. 9).

Modern Şelpe technique, which is imitated from the traditional Şelpe in Anatolia, has been developed by scholars in the conservatories, Saz/Bağlama artists, and researchers ever since the 1980s. These modernization studies led and caused different understandings and various perspectives in the act of producing modern Saz/Bağlama music and creating a new Şelpe tradition in the urban music society. (Baysal, 2013, p.117).

Before the 1980s, traditional Şelpe technique was executed more often with smaller sized Saz/Bağlamas such as *üçtelli*, *baltasaz*, *ruzba*, etc (Fig. 2.1). These instruments generally have only three strings.



Figure 2.1 : *Üçtelli* (Koruk, 2009, p. 152).

There is also another type of Saz/Bağlama named *ikitelli* which has generally four strings arranged in pairs. During the modernization process, traditional Şelpe technique has begun to be adapted to a “short-necked” type of Saz/Bağlama, which contains a larger soundbox than traditional *üçtelli* and *baltasaz*, and has been used frequently for Şelpe performances (Fig. 2.2).

The “short-necked” Saz/Bağlama emerged in the 1980s, during the modernization efforts and quests (Özdemir, 2018). In the meantime, traditional and modern Şelpe technique has been preserved and performed with traditional *üçtelli*, *baltasaz* and “short-necked” Saz/Bağlama. The “short-necked” Saz/Bağlama has seven strings

generally arranged in courses of three, two, and two. Since the first decades of the 2000s, only three steel strings have begun to be used for “short-necked” Saz/Bağlama more often for the Şelpe technique. The common tuning system for “short-necked” Saz/Bağlama is *Bağlama Düzeni* for Şelpe performance in which the strings are tuned from top to down, A-G-D.



Figure 2.2 : Short-necked saz/bağlama.

Especially after the first decades of the 2000s, there were some serious efforts to modify Saz/Bağlama for the Şelpe performance. One of the most significant modifications resulted in “double-necked” Saz/Bağlama. We used the performance examples of this instrument in this study and evaluated them in the following chapters (Fig. 2.3). The upper neck of this Saz/Bağlama with steel strings supplies one octave higher pitch register than the lower neck’s range obtained with the chrome-coated strings. Generally, the same tuning system is used for both necks. Occasionally, lower and upper necks of such a Saz/Bağlama can be used simultaneously while performing Parmak Vurma sub-technique.



Figure 2.3 : Double-necked saz/bağlama.

2.1.1 Historical roots and etymology of şelpe

With the migrations of Turkic clans from Turkistan to Anatolia since the A.D. 1100s, their music cultures and traditions also gradually settled in Anatolia. The key factor that provided the cultural continuity is a traditional education method called *usta-çırak* (master/apprentice) model which was applied by various cultural and social groups in Anatolia.

Şelpe technique was delivered to the next generations with the help of *usta-çırak* educational method from past to present. In this educational method; *usta* (master) teaches the Şelpe technique to *çırak* (apprentice) orally, visually and with hands-on training so far as possible. “The *Çırak* (apprentice) follows and imitates his *usta* (master) until reaching a certain mastership level. *Çırak* learns to perform and sing by participating in various musical organizations with his *usta*. Depending on his *çırak*’s mastership level, *usta* gives *icazet* (ratification) to him. *İcazet* is a moral maturity of becoming an authority. In this way, this tradition is delivered from generation to generation.” (Parlak, 2000, p. 107-108). This traditional education method is used to teach Şelpe tradition and thus various *Alevi-Bektaşî* communities and *yörük-Türkmen* tribes in Anatolia were able to preserve it.

Performing technique of Saz/Bağlama without a plectrum is named as *pençe*, *şerpe*, or *şelpe* in Anatolia. According to personal interviews and studies carried by Parlak (2000), *pençe* is a Saz/Bağlama performance technique without a plectrum used in Malatya – Arguvan, Kahramanmaraş – Elbistan, Gaziantep, Şanlıurfa – Kışas Village, Tunceli, Sivas, Tokat, and Amasya. *Pençe* is a Persian originated term. The origin of the word is *penç-* infers “five” in Persian and its descendant *pençe* infers “cinque” which signals for “five fingers of a hand”. (Parlak, 2000, p. 108; Kanar, 2010). *Pençe* is also a religious term used both in Shamanism and *Alevi* school of Islam in Turkic/*Türkmen* communities. (Parlak, 2000, p. 109; Korkmaz, 2005, p.284). However, *pençe vurma* or *pençe atma* is completely a musical term, which refers to strumming techniques of Saz/Bağlama. Therefore, the term *pençe* is also used to address a sub-technique of modern Şelpe.

The second most common term used for performance technique of Saz/Bağlama without a plectrum is *şerpe* or *şelpe* in Kayseri – Sarız, Erzincan, Erzurum, and Kahramanmaraş – Elbistan (Parlak, 2000, p.110). Origins of the term *şelpe/şerpe* are found in various Asiatic/Turkic communities. In the Uighur region, *şelpe* refers to “red color”. (Necip, 2008). Among Azeri Turks, *şelpe/şülpe* is a name given to clothes or unimportant stuff. (Altaylı, 1994). According to the interviews carried by Parlak (2000, p. 113), *şelpe* refers to “fringe” and *şelper* infers red garments made of cotton among *Türkmen*s.

Parlak (2000, p.113; 2001, p.10) states that *şelpe* is originated from an Asiatic/Turkic verb *çert-me(k)*. This verb is used in Anatolian Turkish language and listed in

“Türkiye’de Halk Ağzından Derleme Sözlüğü” (Turkish Colloquial Language Dictionary) published in 1975. *Çertme* has variations in different dialects of Turkic communities of Central Asia such as *çertme*, *çirtma*, *çirtiş*, *çertiş*, *sirtiv*, *şertiv* et cetera. All of these variations of *çertme* may refer to performing a lute-type instrument or a style of performing technique, as Parlak (2000, p.112) states. Wilhelm Radloff gives the meaning of *çertme* as hitting/strumming to strings with nails or fingers. Radloff additionally introduces an instrument named *çertmekopuz* of Altai Turks or *şertpekomus* of Şor Turks which is actually the instrument *kopuz/komus* performed with *çertme/şertme* technique.

As it is explained above, Persian originated *pençe* and Turkic/Asian originated *çertme* are etymologically close words which are generally used for the same performing technique of Saz/Bağlama. *Pençe vurma* or *pençe atma* terms of Anatolian *Alevi/Türkmen* music culture and *çertmek* or *çertmelemek* terms of Asian/Turkic music culture refer to similar performing actions of Turkic/*Türkmen* lute-type instruments without a plectrum, especially strumming and its variations. *Çertme* varied to *şertme* in different Turkic language dialects. Finally, *şertme* altered to *şelpe* gradually over time. In different regions of Anatolia, various *Türkmen* and *Alevi* communities use the term *şelpe* or *pençe* to describe the general performing technique of Saz/Bağlama without a plectrum. As Parlak (2000, p.113) described, although this traditional Saz/Bağlama performance technique without a plectrum is widely used by *yörük/Türkmen* community of Teke region (Southwestern of Anatolia), there is no word or specific term used for it.

2.1.2 Sub-techniques of şelpe

Traditional Anatolian Saz/Bağlama performance technique without a plectrum, *Şelpe*, comprises of three chief sub-techniques: “Pençe”, “Tel Çekme”, and “Parmak Vurma”, which all have unique, characteristic, distinguishable, and rich timbres. These sub-techniques can be compared to those of modern guitar, which are similar but not the same. *Pençe* sub-technique is similar to strumming in guitar, whereas *Tel Çekme* and *Parmak Vurma* sub-techniques are close to respectively string plucking and tapping. All these sub-techniques are rooted in the long history of *Şelpe* tradition during which their gestures and variants have been diversified.

The sub-techniques of Şelpe in Anatolian Saz/Bağlama tradition have certain characteristic features in the context of performance styles and musical perception. Firstly, these sub-techniques are meant to be used in combination. Most of the traditional Şelpe repertoires contain homogeneous combinations of these techniques. Secondly; due to the original ways traditional Şelpe sub-techniques are used, an idiosyncratic heterophony combined with certain harmonic sonorities is inescapable. Besides; figures, styles, and performing ways of traditional Şelpe's sub-techniques vary in the regions of Anatolia and these sub-techniques have their own unique schools both in traditional and modern Şelpe. Fundamentally, modern Şelpe techniques stem from these chief schools. The feasibility of technical potential and rich musical articulation enables the Şelpe technique and its sub-techniques to experience technical/musical developments. In this context, these sub-techniques have been developed and modernized mostly in the direction of Westernization. These techniques have started to evolve far beyond their traditional patterns by applying other lute-type instruments' performing styles such as guitar, Kazakh *dombra*, Turkmen *dutar* i.e. – since the 1980s.

2.1.2.1 Pençe

The Pençe sub-technique basically expresses the downward and upward strums of the right hand on the strings with several ways of finger use. Different variations of the Pençe sub-technique are closely linked to performing techniques of Asian lute-necked instruments. As the morphological idiosyncratic features of Anatolian Saz/Bağlama and its derivatives in Anatolia have been differentiated from the other lute-necked instruments of Asia; the characteristics, specific figures and differentiated technical uses of Pençe sub-technique have been revealed concurrently.

The Pençe sub-technique has two basic functions. The first is the downward strum and the second is the upward strum (Fig. 2.4) Different ways of right-hand finger motions and multiple combinations of them create several variations for the Pençe sub-technique, which are applied in Eastern and Western Anatolian Schools of Şelpe technique. Besides, the traditional variations of Pençe reveal a number of rhythmic patterns and various timbres using right-hand finger orders. Parlak (2000, p.158) and Coğulu (2010, p.31) categorized Pençe into two figures for downward strums and

five figures for upward strums with regard to the traditional context of Pençe, which are completely and broadly explained in their works.

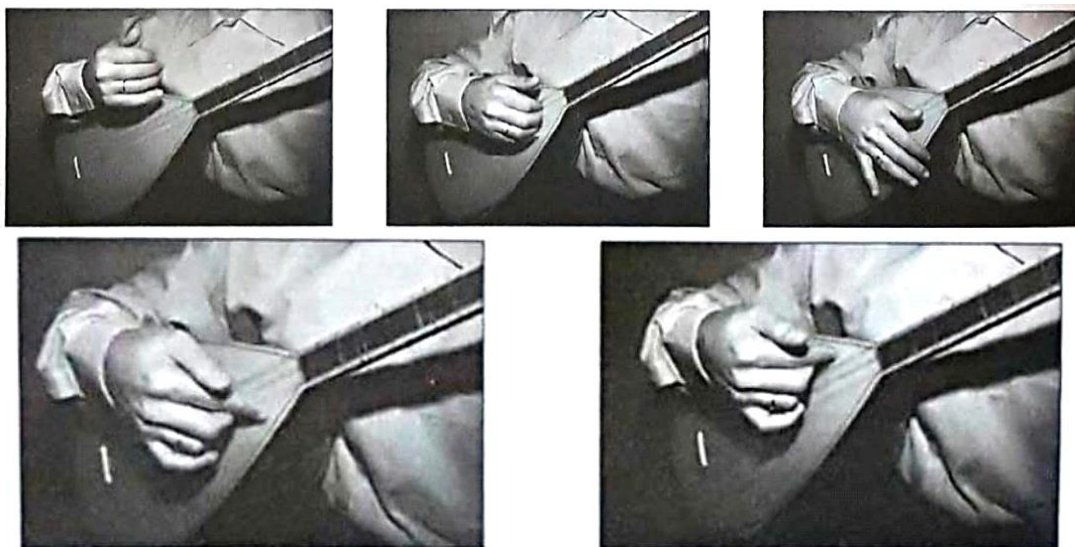


Figure 2.4 : Basic functions of Pençe sub-technique (Parlak, 2001, p. 20-22).

During the modernization process of the Şelpe technique since the 1980s, the most fundamental changes that occurred in the Pençe sub-technique gave more freedom to right-hand functions in contrast with traditional Pençe. This freedom of right hand on the soundboard produced a variety of timbre and sound colors for Pençe strokes and figures. At first hand, scholars, researches, and famous Saz/Bağlama artists focused on the strumming figures and their variations in Central Asian lute-necked instruments to seek technical innovations in Pençe. These traditional techniques and their variations have been adapted to the Pençe sub-technique of Anatolian Saz/Bağlama. A number of new right-hand finger variations and strumming figures have been added and combined with the Anatolian Pençe sub-technique. Hence, the technical innovations provided a reconnection to Central Asian lute-necked instruments, where Şelpe tradition is actually rooted. On the other hand, strumming techniques of flamenco and classical guitars were also examined for the technical innovation efforts in Pençe. New figures and variations have been added to the right-hand strokes and finger functions of Pençe. Finally, under the influences of these two innovative efforts, modern Şelpe performers have invented new, creative, and unique ways of usage for the Pençe sub-technique.

2.1.2.2 Tel çekme

Tel Çekme sub-technique essentially means plucking the strings with right-hand fingers. “Historical roots of Tel Çekme sub-technique are based can be found in ancient Central Asian *kopuz*” (Parlak, 2000, p. 172). This sub-technique has been developed throughout history and utilized in different lute-necked instruments, which are close relatives of Saz/Bağlama. The related figures and performing styles have been diversified in various regions from Central Asia to Anatolia.

The main function of Tel Çekme is plucking the strings with right-hand fingers. The strumming patterns of the right-hand fingers vary among Eastern and Western Schools of Anatolia. In Eastern Anatolian School; right-hand thumb plucks the top string, right-hand index finger plucks the middle string and the right-hand middle finger plucks the bottom string while applying Tel Çekme sub-technique (Fig. 2.6). At the same time, the right hand should be placed closer to Saz/Bağlama’s fretboard. With this right-hand position, a smoother sound can be produced. The general purpose of using this technique in Eastern Anatolia is to minimize strums of the right hand and to create as many sounds as possible with the left hand over the fretboard. In Western Anatolian school, especially in Teke region; due to the prevalence of smaller sized Saz/Bağlamas, thumb and small fingers of the right hand holds the instrument from both top and bottom edges of the soundbox. At the same time, only the index finger plucks all three strings of the instrument in the upward direction (Fig. 2.5). In this way of use, the right hand is placed in the middle of the soundbox. Brighter and sharper sounds can be produced with this position of the right hand. In all kinds of tradition of Tel Çekme sub-technique, only fingertips are used for plucking rather than fingernails.



Figure 2.5 : Tel çekme sub-technique in Western Anatolian School (Parlak, 2000, p. 174).



Figure 2.6 : Tel çekme sub-technique in Eastern Anatolian School (Parlak, 2000, p. 173).

Since the 1980s, fingernails are used for plucking the strings, like in playing guitar. When fingernails are used for plucking instead of the fingertips, completely distinct, sharp, metallic, and brighter sound characters are created. In the modern way of Tel Çekme, first of all, the right hand is set freer to enable to produce more and richer sounds. The second innovative way of strumming is adapted from the guitar's pizzicato technique, the muting technique, which is applied by putting the right-hand palm on the bridge during plucking. Thirdly, a more polyphonic way of playing was adopted during the modernization process of the Şelpe technique in which two or three strings are plucked at the same time in contrast to traditional Tel Çekme playing to produce polyphonic sounds.

2.1.2.3 Parmak vurma

The Parmak Vurma sub-technique is a genuine and unique way of playing, found only in the Teke Region of southwestern Anatolia *yörük/Türkmen* music culture. The history of Parmak Vurma sub-technique and performing tradition is newer compared to the other sub-techniques. Because, while Pençe and Tel Çekme sub-techniques could be performed with the silk and gut strings, the Parmak Vurma sub-technique

cannot be executed with soft string materials. The metal strings are needed to create the required sound with the Parmak Vurma sub-technique.

“In the musical tradition of Teke Region, Parmak Vurma is one of the Şelpe sub-techniques in which the sound is produced by hammer-on and pull-off gestures on the fretboard. The performer creates a perfect fifth upon the open strings, using generally his/her index finger and sometimes the middle finger.” (Parlak, 2000, p. 176).

There are two basic functions in this sub-technique. These are, striking to the string on the fingerboard with a finger by hammering on and afterward pulling off. Moreover, in the traditional Parmak Vurma, both right and left hands can generate melodies actively in which mutual assistance of two hands is utilized. In other words, both of these two basic functions of this sub-technique are applied on the fretboard with both hands, which makes this technique a rich, sonorous, and unique musical playing pattern (Fig. 2.7).

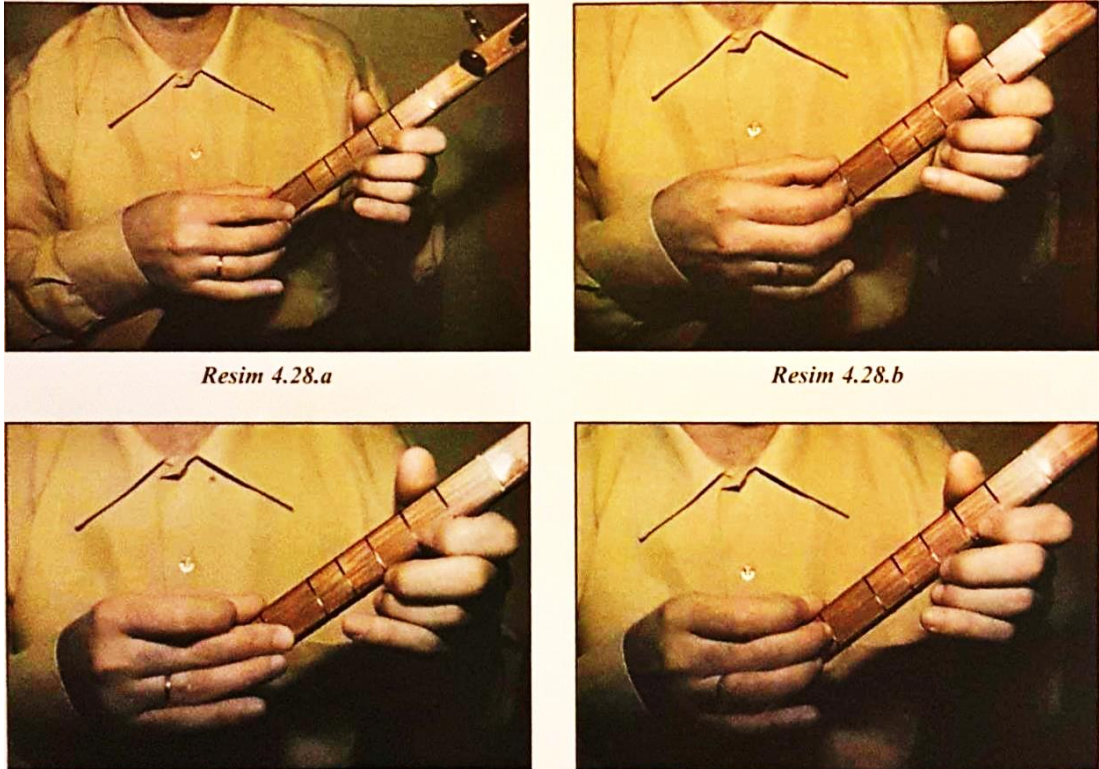


Figure 2.7 : Basic functions of the Parmak Vurma sub-technique (Parlak, 2000, p. 176).

The innovations in the Parmak Vurma sub-technique have derived from and taken its form only from the frameworks of Saz/Bağlama artists' individual contributions and musical perceptions, as there are not any examples of these performing techniques

found in the scope of related traditions all over the world. Of course, the main dynamics of these innovations in the traditional Parmak Vurma sub-technique grows from this musical tradition itself.

One of the most important innovations in Parmak Vurma is using the fingers of the right hand for tapping on the fretboard. Moreover, this innovation adopted to use the right-hand tapping not only on one pitch but also on multiple pitches.

As Parlak (2000) states “an important innovation for Parmak Vurma, right hand’s and left hand’s fingers divided the melody’s sound during the Parmak Vurma performance. Hence, two different octaves can be heard. This feature reflects both the richness of hearing two different octaves simultaneously and the natural agility is provided in difficult musical passages without any coercion.” (p. 213).

Besides these innovations, two different fingers of the right hand can be used simultaneously during hammer-ons and pull-offs on two different strings for performing Parmak Vurma. Thus, various intervals can be generated freely while producing melodies. In addition, different fingers of the right and left hand can also be used simultaneously on the fretboard. The diverse timbres that are generated by applying different strengths of the hammer-on motion with different fingers of the hand, entail a rich expression in music. Another key innovation for Parmak Vurma that has been developed for the last ten years is the flageolet technique. In this technique, the right hand’s finger should be hammered on sharply and vaguely to elicit the overtones of the intended sound. The live performance of the flageolet of Parmak Vurma is so difficult and demands high technical skills.

Parmak Vurma sub-technique of Şelpe played a key role in the modernization period because of its high musical and technical versatility, as it is going to be discussed in the chapter of Şelpe’s modernization process.

2.2 Notation and Education

During the modernization period of Şelpe tradition since the 1980s, crucial studies have been carried out to develop a modern Şelpe performing technique. As a result of these successfully conducted studies in both music markets and at academic circles, technical innovations and new performing styles of Şelpe boosted its popularity gradually in both national and international platforms. This popularity created a

stable demand for Şelpe education, Şelpe methodology and its notation system among the new generation of musicians, especially Saz/Bağlama performers, who are mostly interested in learning performance techniques of Saz/Bağlama without a plectrum.

By the 1990s, Immense and highly popular studies conducted on Şelpe techniques created mainly two different schools of Şelpe methodology and the Şelpe notation system. The first methodology and notation system of Şelpe was developed by Erol Parlak with his Ph.D. thesis published in 2000. His methodological and educational studies of Şelpe yielded in two volumes of Şelpe method book those published sequentially in 2001 and 2005. He has begun using his new method and notation system of Şelpe in his private music school by the 2000s and later in different universities of Istanbul to teach the next generations of Şelpe performers. The second notation system was developed by Erdal Erzincan and Arif Sağ, which resulted in their two-volume manuscript, “Bağlama Metodu” (Bağlama Method), published in 2009. Erdal Erzincan has put forth a different notation system of Şelpe vis-à-vis Parlak’s method and begun teaching the Şelpe technique using his own methodological system in his private music school starting from the first decades of the 2000s until the present.

Parlak has introduced a notation system for Şelpe in his Ph.D. thesis, *Türkiye’de El İle Bağlama Çalma Geleneği ve Çalış Teknikleri* (The Performance Tradition and Performing Techniques of Bağlama with Hand in Turkey), that is published by Republic of Turkey Ministry of Culture and Tourism in 2000. He introduced his new notation system of Şelpe initially in this study. In 2001 and 2005, he published a complete educational method and an advanced notation system for Şelpe technique in two volumes titled “*El İle Bağlama Çalma, Şelpe Tekniği Metodu 1 – 2*” (Method for Performing Technique of the Bağlama with Hand, Şelpe Technique 1 – 2). He conducted a quite enormous study to develop a unique new notation system for the Şelpe technique in his Ph.D. thesis by examining and comparing *dutar*, *dombra*, violin, and guitar methods. Parlak (2000, p. 194-195-196) has preferred to adopt widely known symbols and notation types in his new notation system to comply with the worldwide musical instrument methods. With this new descriptive notation system of Şelpe, demonstration of each extended sound during the performance which creates polyphony or heterophony is the essential point in which the vertical

side of music is emphasized on a level with the horizontal side of music. At the same time, newly invented symbols address various figures and technical details of Şelpe's sub-techniques which also serve as educational materials for this Şelpe method (Fig. 2.8).

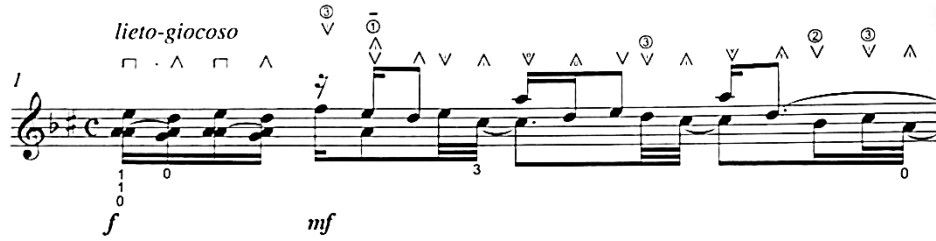


Figure 2.8 : An excerpt from Erol Parlak's notation (Parlak, 2005, p. 54).

In this method, he developed a systematic instructional program for Şelpe education which includes the combination of teaching the new descriptive notation system, traditional performing techniques, and modern Şelpe figures. One of the most eminent achievements of this method is the potential to teach all figures and performance techniques of Şelpe with the help of new symbols that emblemize all these Şelpe techniques in detail on top of this new notation. "Educational strategy of this method is based on "part-to-whole" and "from easy to difficult" models." (Parlak, 2001, p. 15). The first volume of Parlak's method contains an introduction part for new notation and symbols, short riffs to teach Şelpe sub-techniques with new symbols and notation system, and various samples of Şelpe tunes and arrangements written with new notation system. The second volume focuses on how to arrange or compose tunes with the Şelpe technique for Saz/Bağlama performers. It proposes six important steps for transforming any tune into the Şelpe technique. With those steps, "the method focuses on developing melodic, rhythmic, polyphonic, timbre, dynamics, and stylistic features of any tune with Şelpe technique." (Parlak, 2005, p. 12). One of the thriving features of this volume is its achievement to reveal the musical richness of the Şelpe technique thoroughly. Rich polyphonic and rhythmic structures of Şelpe are emphasized and illustrated with the elaborate descriptive notation system.

Arif Sağ and Erdal Erzincan have suggested a completely different notation system for Şelpe with their published method titled, *Bağlama Metodu 1 – 2* (Bağlama Method 1 – 2) in 2009. Their method has been published in two volumes which contain both performing techniques of Saz/Bağlama with a plectrum and without a

descriptive for those purposes. He also quotes: “as a means of communication among people, musicians, etc., music production must be expected to have its subjective aspects” (Seeger, 1958, p.187). In other words, a new deictic and practical system should be developed in addition to Şelpe’s descriptive, objective and standardized notation system to open new paths for individual creativity, musical subjectivity, musical practicability, improvisation and musical accompaniment of Şelpe music.

2.3 Modernization Process of Şelpe Technique

In the history of the Turkish Republic, a considerable amount of traditional Şelpe performers have occurred in the Anatolian tradition, generally connected to Western Anatolian and Eastern Anatolian schools. The traditional Şelpe performers of Anatolia have conveyed their tradition to the next generation for the centuries. Their unique traditional artworks are the focal point and main source of the Şelpe technique’s modernization process.

Western Anatolian school of Şelpe tradition is one of the primary musical heritages of Saz/Bağlama music, which is mostly based on Teke region’s *yörük/Türkmen* music tradition. Ramazan Güngör was in the lead of this school of Şelpe tradition from Teke region, who had exceptional musical articulation and utmost technical skill for Şelpe performance. His original profession was carpentry. Besides, he designed and made his own instruments, especially the traditional *üçtelli* of Teke region. “Güngör, who spent his whole life mostly in Teke region, learned the essentials of traditional music and especially traditional performing of *üçtelli* without plectrum within the *usta-çırak* education method.” (Parlak, 2000, p. 183). His musical talent and his excellent technical skills on traditional Şelpe performance attracted most fieldworkers and musicologists’ attention, who carried out (ethno) musicological fieldwork and researches on Teke region’s musical tradition during the Republic period. He was invited to TRT (Turkish Radio and Television) Istanbul, Izmir, and Antalya radio stations as a regional artist. He produced eminent examples of his regional Teke region tunes and his traditional Şelpe performances, which in fact, became one of the most important focal points and key materials for modernization of the Şelpe technique in the following sequences. Parlak (2000) states that “Güngör – whose individual performance style, tune characters, performing techniques and musical articulation reflect the performance characters of

Asiatic lute-necked instrument astoundingly, even he performs *üçtelli* of Teke region – is an important and historical figure of transition between Asian and Anatolian musical traditions.” (p. 184). Ramazan Güngör is one of the key representatives of Teke region’s *yörük/Türkmen* music which contains various eminent musical forms and repertoires of Turkish folk music, such as *zeybek*⁷, *peşrev*⁸, *boğaz havası*⁹. Besides, he is an important figure of the Western Anatolian school of Şelpe with his excellent musical articulation, and his polyphonic musical interpretation of Şelpe music based on Teke region.

Mustafa Coşkun from Fethiye, Ali Rıza Zorlu from Ula, Hüseyin Karakaya from Dirmil, and Kadir Türen are very important traditional performers of Şelpe in Teke region as well. Most of their traditional Şelpe performances have been recorded by TRT which shed light on the following generations of Şelpe performers.

Eastern Anatolian school of Şelpe tradition, which is based on Alevi community’s and Eastern *Türkmen* tribes’ musical tradition, contains a wide variety of traditional Şelpe performance samples by local Şelpe performers. Aşık Nesimi Çimen had a widespread fame among Şelpe performers of Eastern Anatolian school. His family origin is from an Alevi community in Sivas-Zara and he was born in Adana (Parlak, 2000). “Çimen especially focused on Şelpe performance tradition down from his childhood by following Pir Sultan Abdal, Teslim Abdal, Genç Abdal, Virani and Seyrani” (Parlak, 2000, p. 185), who are significant representatives of *aşıklık* tradition¹⁰ of *Alevi – Türkmen* music. His traditional music performances have been recorded by TRT in the 1960s. He was invited by various institutions of France, Germany, and Sweden as a regional artist to give concerts, to perform on radio broadcasts and to record music albums in the 1970s and 1980s. As Parlak (2000) states that “Nesimi Çimen – who had quite important mastery on *Alevi – Bektaşî* culture and who adhered strictly to the performance tradition of Asiatic two-stringed lute-necked instruments without plectrum – was one of the most important figures of Eastern Anatolian school of Şelpe tradition with his individual stylistic performing

⁷ One of folk dance widely practiced in Western and Central Anatolia. The tunes of dance and the dancers are also called as *zeybek*.

⁸ A traditional instrumental classical Turkish music form, the overture-like musical form in Turkish music.

⁹ A vocal and instrumental musical form of *yörük-Türkmen* musical tradition in Teke region.

¹⁰ An Anatolian music tradition. Aşık is an Anatolian traditional saz/bağlama performer who is a poet at the same time.

techniques and with his mastery on Alevi music forms such as *semah*¹¹, *duaz-ı imam*¹², *deyiş*¹³, *nefes*¹⁴ i.e. – mostly based on *Alevi – Türkmen* tradition.” (p.186). Unfortunately, Aşık Nesimi Çimen was slaughtered during the “Sivas Massacre” on the 2nd of July, 1993.

Along with Çimen; Tacim Dede, Halil Dede from Tokat, Sıddo Hanefi from Gaziantep, and Hasan Hüseyin Orhan from Arguvan are most significant local cultural representatives of *Alevi – Bektaşî – Türkmen* music tradition and Eastern Anatolian school of Şelpe tradition.

It took a quite long process to convey the rural Şelpe performance tradition into the institutions. This has prolonged the modernization process of the Şelpe technique for approximately 30 years. The institutions started to discover Şelpe by following the radio recordings and broadcasts of local Şelpe performers such as Ramazan Güngör, Aşık Nesimi Çimen, Kadir Türen et cetera. However, till mid – 1980s. In addition, Şelpe tradition was generally left unattended, its importance and the rich sonic world were ignored, and the music institutions did not pay the deserved attention. The studies of three important Saz/Bağlama artists who had rural origins and belonged to the Western Anatolian school of Şelpe performance changed this negative attitude starting from the 1970s. They performed traditional music and carried the materials of this traditional music to the institutions with the support of traditional performers, such as Ramazan Güngör.

Foremost among them is Özay Gönlüm who generally performed the regional tunes of Teke region with his Saz/Bağlama, introduced and promoted them in the urban music sphere with his music albums, TV programs, and radio broadcasts. According to Parlak (2000, p.188), although he did not give many samples of performing techniques without plectrum in his works with the ideal technical applications of Şelpe performance, Gönlüm studied with Ramazan Güngör and met him frequently. Thusly he could present fragmented tune samples of Şelpe tradition, which were only limited examples of rich and sonorous Şelpe technique.

¹¹ A traditional, religious, both vocal and instrumental musical form in Alevi music tradition. It is frequently performed with saz/bağlama.

¹² A traditional religious vocal musical form in Alevi music tradition.

¹³ A musical form in Alevi music tradition.

¹⁴ A religious musical form in Alevi music tradition that is generally performed during the rituals.

The second artist in this context is Talip Özkan, who mostly focused on *Boğaz Havası* musical form of Teke region and its only one performing style, Parmak Vurma sub-technique. Özkan studied traditional Şelpe technique as well with Ramazan Güngör. According to Parlak (2000, p.187), Özkan has an excellent skill for the musical performance of Saz/Bağlama. He especially focused to transfer the *Boğaz Havası* tunes of *üçtelli* to the larger-sized Saz/Bağlama.

Another artist – who focused on Teke region’s music culture and Şelpe tradition to convey this heritage to urban musical society – is Hamit Çine. He conducted some important fieldwork to compile new traditional tunes, which have not been discovered yet. He worked with some important regional Şelpe performers during those fieldworks to explore more about the traditional performing techniques without a plectrum.

Gönlüm, Özkan, and Çine, as three important cultural representatives of Western Anatolian school of traditional Şelpe in the urban musical sphere, caused a tremendous impact on Saz/Bağlama artists and performers of urban centers who performed only with a plectrum. On one hand, their works became an introductory study of the Şelpe tradition for all Turkish folk music musicians and researches who have not noticed this cultural heritage yet. These works triggered the consecutive researches and modernization studies of the Şelpe technique. On the other hand, these works of Gönlüm, Özkan, and Çine made an impact on Saz/Bağlama artists, who had generally performed with a plectrum in urban centers at that time. Even though their cultural and musical origins were based on Eastern Anatolian school and they had an awareness of Şelpe tradition due to their own cultural background, they were accustomed to playing with a plectrum. One of the important Saz/Bağlama performer among the urban musical society, Arif Sağ, also played small excerpts of Şelpe practices in his famous recital series during the 1980s especially under the impression of Talip Özkan’s works. A representative of the next generation from Arif Sağ, Hasret Gültekin, a member of Eastern Anatolian school of traditional Şelpe, worked on traditional Şelpe technique of Western Anatolian schools, especially Parmak Vurma sub-technique with Talip Özkan during the 1980s. He tried to combine two traditional schools of Şelpe in his performances which were different in content even though they were both under the influence of the Eastern style. He put forth a short tune taught by Özkan with his specific arrangement which became

popular soon. He gave the title “Avşar Havası” to this tune, although this tune was not directly related to Avşar tribes of *Türkmen*s as Parlak (2000, p.188) states. In the following years, Arif Sağ performed Gültekin’s arrangement in his recitals, and consequently, this tune – an indirect example of the Şelpe tradition indeed – has become even more popular among the younger generations after all.

The outcomes of the works that were carried out about Şelpe techniques until the 1980s can be evaluated only within the boundaries of the tradition. Rather than questioning or broadening new horizons, and developing technical innovations for Şelpe; the main outcome and agenda was to present traditional Şelpe tunes and introduce this tradition to a broader sphere at the national level pretty much preserving the rural tradition. Yet, after the 1980s, all these aforementioned radio broadcasts, album recordings, and concerts opened a new path for Saz/Bağlama music in the urban musical society. The following artist generations, not acquainted with those traditional performing techniques of Saz/Bağlama before, were generally inspired by the traditional way of Şelpe performances while developing and designing new timbre or tunes with this performing technique that is new to them. Furthermore, some of the famous Saz/Bağlama artists both from Eastern and Western Anatolian schools, researchers, and scholars have begun to focus on the Şelpe tradition and its cultural and musical background with more scientific approaches. After all; the musical capacity of the Saz/Bağlama instrument, new generations’ impressions about this instrument and the mode of Saz/Bağlama musical productions have changed drastically since the mid-1980s.

One of the leading artists and researchers during the modernization process of Şelpe technique is Erol Parlak, who decided to focus on Şelpe tradition after he listened one of Ramazan Güngör’s recordings in the archives at the end of 1980s. He carried out quite important fieldwork and researches in Teke region of Anatolia, Kyrgyzstan, and Kazakhstan. He met with Ramazan Güngör in Fethiye and studied with him to gain more practices about the traditional Şelpe technique, especially the Parmak Vurma sub-technique of Teke region. He also met with representatives of Eastern Anatolian school of Şelpe tradition as well as their Central Asian counterparts. Parlak (2000, p.187-188) mentioned that Western Anatolian school, Eastern Anatolian school of Şelpe tradition, and the performing techniques of Asiatic lute-necked instruments without plectrum are differentiated branches of the same root. He felt

obliged to gather up and to learn individually all these differentiated performing techniques of different sized lute-necked instruments to be able to include all possible musical materials in the technical modernization of Şelpe. Moreover, he has designed a new three-stringed Saz/Bağlama, with the extraordinary supports of the Bağlama maker Süleyman Aslan, which contains the characteristic features of Teke region's *üçtelli* and Aşık Nesimi Çimen's *ikitelli*. Parlak began to bring all of these different performing techniques without a plectrum into use and also released a solo Şelpe music album in the mid-1990s. He carried out important composition and arrangement studies for the Şelpe technique. He especially tried to integrate the Parmak Vurma sub-technique to the other kinds of repertoires and forms of music that are out of Teke Region's music tradition and Western Anatolian school of Şelpe tradition. Parlak has arranged, composed, and adapted or combined new techniques for the Şelpe technique during all the 1990s.

Erdal Erzincan is known for his intensive research and performance study on the traditional Şelpe technique by the 1990s. He was aware of Şelpe technique from Eastern Anatolian school and he was one of the old students of Arif Sağ in 1980s. Together with Hasret Gültekin, he began to focus on the Western Anatolian school of Şelpe tradition. He researched and learned especially the fundamentals of the Parmak Vurma sub-technique to gain a high technical skill during his conservatory education in Istanbul. He worked to develop and modernize the Parmak Vurma sub-technique and this important work resulted in the adaptation of the Şelpe technique to various repertoires of Anatolian folk music. At the same time, Erzincan researched the strumming technique of flamenco guitar in addition to the tapping technique of the classical guitar. Then he adapted some features of them into the Şelpe technique as a part of the Westernization approach in the following steps.

Finally, Parlak and Erzincan leagued together and gathered their important individual works to carry out a modernization study for all Şelpe traditions accompanying with Arif Sağ in 1994. Parlak and Erzincan initially focused on developing the Parmak Vurma sub-technique instead of the broad tradition on large scale. This technique is traditionally executed using hammer-ons and pull-offs with the index finger on the fret that is only on the perfect fifth upper interval of the open strings. Parlak and Erzincan have begun to put all frets into use for hammer-ons and pull-offs freely to be able to create longer melodic lines as well as arpeggios. On top of that, they began

to compile, combine, and bring all various performing techniques and different figures of Şelpe from different schools, traditions, and geographies into use. Parlak and Erzincan adapted various techniques and figures without plectrum into tunes from several music repertoires as well as into their own compositions for the Şelpe technique. After all these efforts were assembled they created a performance repertoire for Şelpe. They performed several concerts in Turkey and abroad as a duo (Parlak-Erzincan) and a trio (Sağ-Parlak-Erzincan). One of the most important concert projects of them has been carried out with the Cologne Philharmonic Orchestra in Cologne, Germany, under the auspices of Roman Herzog, the President of Germany in 1996. In this concert project, a Saz/Bağlama trio (Sağ, Parlak, Erzincan) took the solo role with their modern Şelpe technique in company with a symphony orchestra, resulted with an album project titled “Concerto for Bağlama” published in 1998.

All of these modernization efforts of the traditional Şelpe technique including this trio project carried out by Arif Sağ, Erol Parlak, and Erdal Erzincan between 1990 and 2000 attracted considerable attention among the urban musical society of Turkey. They have revived the Şelpe tradition which had started to get forgotten among the urban musical sphere of Saz/Bağlama music. With this study, it has been accepted and understood by national and international spheres that, Şelpe technique is not only a taste of any tradition or a musical color of any broad musical form such as Parmak Vurma sub-technique of *Boğaz Havası*. Rather, Şelpe is a complete and original performing technique for Saz/Bağlama without a plectrum that can be used and applied for any kind of tunes and repertoires. This modernization process of the Şelpe technique has also opened new paths to create a new type of Saz/Bağlama music in the urban sphere, in which the modernized Şelpe technique played an essential role.

Traditional and modern versions of the Şelpe technique have been popularized mainly with the efforts of these artists and scholars either individually or collectively. This popularization period and technical modernization efforts of Şelpe have brought wider perceptions of Saz/Bağlama music in the urban music society. The high musical articulation and broad technical capacity of Şelpe have been noticed and rediscovered by young generations of musicians and especially by Saz/Bağlama artists who focused on the Şelpe technique and its performance since 2000.

Erol Parlak and Erdal Erzincan taught both traditional and modern Şelpe techniques and developed the methodology for them primarily in their private music schools as well as in the state conservatories during the first decades of the 2000s. Many emerging young and promising artists in both artistic and academic levels who were interested in focusing on Şelpe performance have been educated splendidly in these classes. Artists from new generations have also contributed various artistic productions of Şelpe, created both individually or collectively during their mastering in the 2000s and 2010s. With the help of these musical productions of Şelpe, various musical materials both from traditional and modern schools of Şelpe have been adopted and perfectly combined. All sorts of musical materials of the Şelpe technique have become precious tools for producing new Saz/Bağlama sounds. Thus, the boundaries between different schools of traditional Şelpe, as well as the modern Şelpe technique have begun to disappear and coalesced into a new type of urban Saz/Bağlama music tradition gradually.

One of the most characteristic and flamboyant features of this modern Şelpe technique is its achievement to improve the capacity of traditional heterophony hearing of Şelpe and especially its Parmak Vurma sub-technique in the context of Westernization. Harmonic practices in tonal music and jazz played an essential role during this process.

Correspondingly, the technical adaptation of Şelpe to various genres and repertoires has been carried out carefully. One of the first practices for this adaptation study was to perform traditional repertoires and genres of other forms of Anatolian folk music with the Şelpe technique, where the plectrum is mainly used. The main aim is to demonstrate that the Şelpe technique is not solely a musical color belonging to a specific tradition; rather it is a complete performing technique of Saz/Bağlama which might be used to perform any kind of Anatolian folk music. In addition, during the first decades of the 2000s, technical adaptations enabled them to perform the other genres, such as classical Western art music with the Şelpe technique. Modern Şelpe technique has generally been used to imitate the instruments such as piano, harpsichord, and guitar. These studies have also brought wider perspectives to understand Şelpe's high technical capacity of accompaniment.

The Şelpe technique has become frequent in Turkish folk music albums both as a solo instrument and as an accompaniment instrument since the first decades of the

2000s. After digital recording technology has started to develop since the end of the 1990s, multi-track digital recording technology was used to record album arrangements using the Şelpe technique of Saz/Bağlama. These arranged Şelpe tracks generally contain traditional heterophony sounds as well as carefully designed polyphonic musical textures. In short, Saz/Bağlama with the Şelpe technique has started to take over the role of guitar or piano as a background instrument. Before, they were mostly used as accompaniment instruments in the folk music albums of Turkey. After the takeover, several ensembles and music groups of Saz/Bağlama were constituted, in which Şelpe techniques played essential roles by the first decades of the 2000s. These attempts were one of the most crucial thresholds for appreciating the potential and enormous capacity of Saz/Bağlama in instrumental music articulation. In the first decades of the 2000s, there were two most significant efforts resulted in two different ensemble projects. The music band titled “Bağlama Beşlisi” (The Bağlama Quintet) founded by Erol Parlak and his students Ali Kazım Akdağ, Güven Türkmen, Eren Demir, and Doğan Yıldırım at the beginning of the first decades of the 2000s. The second ensemble titled “Bağlama Orkestrası” (The Bağlama Orchestra) founded by Erdal Erzincan and his many students in the first decades of the 2000s.

The Bağlama Beşlisi formed their repertory from various regions and traditions of the Middle East. The selected repertory was arranged for a Saz/Bağlama quintet using the Şelpe technique. One of the distinctive difference of arrangements vis-à-vis Bağlama trio’s of Sağ-Parlak-Erzincan is the textural difference in music. The Trio applied the Şelpe technique with a monophonic texture. All three Şelpe performers of the Trio performed the same melodic lines in the same way. On the other hand, the Quintet used the Şelpe technique within a carefully designed polyphonic texture. This polyphonic texture generally contains the elements of traditional heterophony of Saz/Bağlama and tonal music’s harmony practices at the same time. Erol Parlak and the other performers of the Quintet also composed new tunes for Şelpe, which were musically treated similarly with the arrangement strategy of the regional tunes. The melodic structure of the compositions is usually based on melodic structures of regional tunes. Furthermore, some of the well-known compositions of classical Western art music such as W.A. Mozart’s Rondo Alla Turca (K.331) were adapted, re-arranged, and added to the Quintet’s repertory in order to demonstrate the

capability of performing any music from any repertoires with Saz/Bağlama's Şelpe technique. The main aim of this selected repertoire and this project is to show the full technical performance capacity of the instrument as well as the performing technique within a carefully-designed polyphonic texture.

The Bağlama Orkestrası is the musical project of Erdal Erzincan in which the orchestra members are comprised of many of his students. The repertoire of this project composes of Middle Eastern and Anatolian music traditions. Orchestration of Bağlama Orkestrası executed using different techniques and sub-techniques of Saz/Bağlama with and without a plectrum. For instance, the instruments' parts divided into "Pençe", "Parmak Vurma", "with plectrum" et cetera. This orchestration structure generally creates a considerable traditional heterophony, yet, it also causes an uncontrollable heterophony in the case of which only different performance techniques of similar types of Saz/Bağlama are considered for dividing of the parts.

The Şelpe students – who had started to create their first individual artworks such as new arrangements, adaptation studies or new compositions for Şelpe technique under the guidance of their masters in the first decades of the 2000s – have begun to put forth considerable and professional music works individually, in which Şelpe technique was mainly used. Some of the artists/students from new generations, who began their education with their masters such as Erol Parlak and Erdal Erzincan, started to create innovative and progressive works of music with this Şelpe technique. However, some of them did not continue to work with the Şelpe technique during their professional career anymore after they completed their education. Yet, a number of young Saz/Bağlama performers such as Ali Kazım Akdağ, Güven Türkmen, Erkan Çanakçı, Zeki Çağlar Namlı, Erdem Şimşek, Kemal Dinç, Adem Tosunoğlu, Sinan Ayyıldız have continued to focus on Şelpe technique to create new, progressive, and innovative Saz/Bağlama music. In urban music society, they have focused on different points of Şelpe and reflected their unique musical language in their products. Their efforts keep shaping the future of urban Saz/Bağlama music and proposing new dimensions for the Şelpe of the urban music sphere.

Ali Kazım Akdağ, who was a student of Erol Parlak in his private music school, specifically focused on traditional and modern Şelpe technique during his education. He became a member of Erol Parlak's Bağlama Beşlisi ensemble as a Şelpe performer. He performed pretty good works of traditional Şelpe and arranged various

tunes of Anatolian folk music with the Şelpe technique. His main aim is to put forth a modern version of Şelpe music without losing its traditional taste in his arrangements. He was also more focused on the pedagogical methods of Saz/Bağlama training than the artistic performances. He was a music teacher in a high-school in Istanbul during the first decades of the 2000s. After 2010, he began working in the Turkish Music Conservatory of Istanbul Technical University. Further, he developed a classical guitar/saz duo project and in the context of this project he created several quality samples of various traditional performing techniques and modern Şelpe performance technique via publishing videos, recordings, and concerts. In 2016, he published a pedagogical method to teach performance techniques of Saz/Bağlama, which is one of the primary educational methods, especially for high schools.

Güven Türkmen, a student of Erol Parlak's music school in the same period with Ali Kazım Akdağ during the beginning of the 2000s, had an enormous tendency towards traditional Eastern Anatolian school of Şelpe technique. During his education, he learned all the traditional styles of Şelpe as well as its modern version. He arranged many tunes of folk music works and Western classical art music with the Şelpe technique. He focused on demonstrating and developing a modern way of Şelpe performance without diverging from its traditional roots. He was also one of the Şelpe performers of Erol Parlak's Bağlama Beşlisi ensemble. He specifically focused on recording methods of Saz/Bağlama, especially recording techniques of Şelpe performances in music studios. As an arranger, he has recorded and arranged various tunes for Turkish folk music albums, in which Şelpe was one of the main instruments, both as a solo and as a musical background instrument. He has revealed marvelous skills and contributed significant efforts to develop both recording techniques of Saz/Bağlama and Şelpe. He also developed orchestration techniques and arrangement methods in which the Şelpe technique is mainly used.

Erkan Çanakçı and Zeki Çağlar Namlı were also the other leading talents among the students of Erol Parlak who were belonging to the same generation with Türkmen and Akdağ. They have demonstrated promising skills and produced prominent artworks during the first decades of the 2000s. Çanakçı has focused on the performance study of all versions of Şelpe technique. He has arranged and performed many tunes with modern and traditional methods of Şelpe for various Turkish folk

music album productions. At the same time, Namlı has also focused on the performances of all kinds of Şelpe technique with his excellent technical skill for musical performance. He composed various instrumental tunes for Saz/Bağlama, especially for the Şelpe technique resulted in a solo instrumental music album. He has participated in various national and international music production projects with his instrument as a performer. He especially focused on and examined the systematic capability of the instrument, Saz/Bağlama. He published a systematic instrumentation book titled “*Bağlama Bir Müzik Enstrümanı 1-2*” (Bağlama as a Musical Instrument 1-2), in which the technical features of the instrument such as producing chords, arpeggios, advanced performing techniques, timbre features i.e. are examined. In his performances, he focused on developing Tel Çekme sub-technique by strumming with fingernails and using different string and tuning structures depending on his unique musical taste. In his musical performances and compositions, he desires to open a new path for an experimental way of Saz/Bağlama music in the urban music sphere, in which the Şelpe technique is the main focus.

Erdem Şimşek, who was trained in *Alevi* music tradition and Eastern Anatolian school of Şelpe, studied the performance techniques of Saz/Bağlama with masters such as İhsan Öztürk and Okan Murat Öztürk in urban centers. Şimşek has begun to focus on the modern Şelpe technique since the first decades of the 2000s with his individual efforts by using his cultural background. Şimşek has taken part in several TRT productions as a Saz/Bağlama performer. He has arranged various tunes of folk music for both solo Şelpe music and music albums. In his Şelpe arrangements, traditional ways of the Şelpe technique play an essential role but he also seeks experimental Şelpe techniques. He composed a couple of solo instrumental Şelpe tunes with both traditional and modern Şelpe techniques. One of his most important urban Saz/Bağlama project is “Lal Bağlama Quartet”, in which the performing techniques of Saz/Bağlama without a plectrum have an important role. As a Saz/Bağlama performer, he has performed many concerts and has participated in several musical projects both at national and international levels. Besides, Şimşek has continued his post-graduate education in the academy. He earned a master's degree in ethnomusicology from ITU's “Center for Advanced Studies in Music” department in the 2010s. He continues his Ph.D. studies in musicology at Turkish

Music State Conservatory of ITU. Şimşek continues his researches for all traditional and modern performance techniques of Saz/Bağlama as a research assistant in ITU.

Kemal Dinç, who continued his music education mostly in Germany, focused on performance techniques of classical guitar before learning the performance techniques of Saz/Bağlama. Dinç started to learn Saz/Bağlama and adapted many performance techniques of the guitar to Saz/Bağlama's traditional performance technique. He was in search of developing a new way of Saz/Bağlama performances under the influence of Westernization. He was also searching for his individual musical tastes within the traditional timbres of Saz/Bağlama. Dinç has mostly focused on composing new music for Saz/Bağlama. In his compositions, he generally aimed to use all types of performing styles of Saz/Bağlama for his music rather than focusing specifically on developing the Şelpe technique. He formed new designs for his Saz/Bağlama including the tuning system and string types diverging from the common use of the instrument. His instrumental music contains a quite well blend of Saz/Bağlama tradition and classical Western art music elements. Dinç produced a solo music album for Saz/Bağlama, worked together with music communities such as "Armos" and "Bourdon", performed music for theatre plays such as "Hikmet" and "Don Quixote" in various countries in the first decades of the 2000s. Besides, he was one of the academic staff of Codarts World Music and Dance Center Department in Rotterdam and still teaches in various music academies of Germany.

Adem Tosunoğlu, who learned traditional performing techniques of Saz/Bağlama from Erdal Erzincan and Erol Parlak, was schooled in *Alevi* tradition's music culture. He had knowledge about the Eastern Anatolian School of Şelpe tradition due to the culture that he belongs naturally. During his academic education process, he begun to learn about all performing techniques of Saz/Bağlama of Anatolia and gave their excellent performance instances of both Şelpe and performing technique with plectrum as a performer. Tosunoğlu has arranged various folk tunes of Anatolia for Şelpe technique. In these arrangements, a balance between the traditional musical elements and elements of modernized Şelpe music can be observed. He also used Şelpe technique as a performance tool for composing and arranging innovative, experimental works of music apart from the traditional Şelpe schools of Anatolia. Tosunoğlu has placed in various national and international music album projects and ensemble projects as well as he has given many concerts in both national,

international stages and festivals during the 2000s – 2010s. One of his eminent aims is to disseminate the idea of Saz/Bağlama with its unique performance techniques, containing rich musical components in order to present in music stages of the world within his individual artistic perspective and interpretations.

Sinan Ayyıldız, who is one of the most important and popular figures among the new generation of Şelpe performers and Saz/Bağlama artists, begun to learn the essentials of Şelpe technique from Erol Parlak since the beginnings of the 2000s. He showed quite well progression in his short musical education period and became one of the most remarkable Şelpe performers with his high technical competence, even though he graduated from chemical engineering faculty and he did not study music at an academic level until his age of 20s. During his university years, he took private Saz/Bağlama lessons from Parlak's private music school in order to learn all traditional and modern versions of performing techniques without a plectrum. As soon as he earned his bachelor's degree in chemical engineering, he continued his master's education at ITU's Turkish Music State Conservatory and earned this degree with a thesis titled "Polyphony Features in Southwest Anatolian Teke Region Turkoman Music Culture" in 2013. Unlike the other new-generation performers, Ayyıldız has only focused on Şelpe technique and brought his musical interpretation and technical competence with Şelpe performance to perfection. He studied the modern version of the Şelpe technique and performance more than the traditional Şelpe technique as a performing artist, grew up in the urban musical sphere away from the rural cultural atmosphere of Anatolia. He approaches both traditional and modern Şelpe technique as a unique performance style of the music world and uses as a language for his music with his Saz/Bağlama. In this direction, Ayyıldız has worked on expanding the musical interpretation power of this technique through observing and adopting classical Western art music and all variety of lute-necked instruments' performing techniques of the world. He mainly focused on extending the polyphonic feature of traditional and modern Şelpe technique as well as the technical potential for performing all kinds of improvisations, especially with the Parmak Vurma sub-technique. He arranged many folk tunes and musical works of the whole world and composed various music for Şelpe. For this purpose, Ayyıldız adopted many compositions from classical Western art music repertory into Şelpe technique such as Beethoven's Fur Elise and Moonlight Sonata, Brahms' Hungarian

Dance no.5, J.S. Bach's Badinerie and Prelude no.2, and Korsakov's Bumblebee i.e. in order to demonstrate and to question how every genre of the world music could be interpreted with Şelpe technique of Saz/Bağlama. He gave many concerts, workshops i.e. as well as published music albums with various bands and ensembles as a Şelpe performer in both national and international stages. He formed various music bands and ensembles, which gained considerable popularity among national and international music circles such as "Etni-ka" and "Mesel". Furthermore, he participated in several famous music festivals with these bands. Ayyıldız continues his Ph.D. studies in the Center for Advanced Studies in Music at ITU and he teaches at Medipol University, Turkish Music Department.

3. SYSTEMATIZATION FOR HARMONIC PRACTICES IN ŞELPE TECHNIQUE: MATRIX SYSTEM

3.1 Harmonic Practices of Şelpe (Since the 1980s)

Traditional Eastern and Western Anatolian schools of Şelpe music contain heterophonic elements derived from traditional performing techniques of Saz/Bağlama. (Ayyıldız, 2013, p. 49; Ekici, 2006, p.47; Parlak, 2000, p.152; 2001, p.11; 2005, p.30). All strings of Saz/Bağlama are used in almost all different traditions of Saz/Bağlama performed with or without a plectrum. Obviously, this type of performing of Saz/Bağlama creates heterophonic hearings.

Traditional harmonic practices of Şelpe contain a wide variety of irregular heterophonic and applied harmonic structures in both Eastern and Western Anatolian schools of the Şelpe technique. “Polyphonic tools created by the parallel fifth and pedal polyphony are widely observed among the instruments such as *kemençe*, *tulum*, *zurna*, *sipsi*, *bağlama* of Anatolian traditional works of music. These polyphonic tools are the main stylistic features of Eastern Anatolian school and Teke/*yörük* tradition of Şelpe” (p. 153-154).

As Ayyıldız (2013, p. 75) and Parlak (2000, p. 154) state that Teke/*yörük* music tradition of Western Anatolia and its performing techniques of *üçtelli* without a plectrum contain unique functional harmonic practices besides the polyphonic tools, which can only be created by parallel fifth and pedal polyphony. Pençe and Tel Çekme sub-techniques are used more systematically while performing *üçtelli* to create a kind of functional harmony. Further, the main difference of the Parmak Vurma sub-technique comes from the harmonic practices of Şelpe vis-à-vis Eastern Anatolian school of Şelpe performance tradition.

Ayyıldız (2013, p. 80) analyzed the chord progressions and functions of Teke region’s tune named “Boğma Zeybek” for which the notation is given in Appendix C1 and the chord progression is given below.

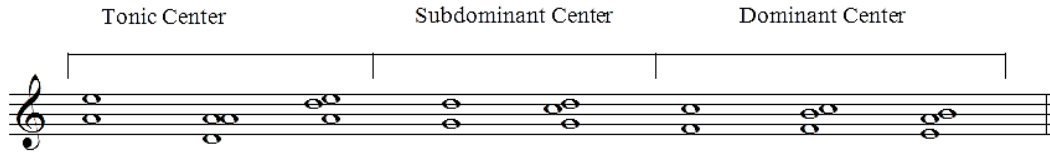


Figure 3.1 : Chord progressions and functions of “Boğma Zeybek”, adapted from (Ayyıldız, 2013).

As shown in Figure 3.1, the progression contains tonic, sub-dominant and dominant centers of the melodic motifs and modal scale (see Figure 3.2.) of the tune.



Figure 3.2 : Scale structure of “Boğma Zeybek”.

Parlak (2000, p. 156) conducts a chord progression analysis for another Teke region’s tune named “Kervan” for which the notation is attached in Appendix C2 and the chord progression is shown in Figure 3.3.

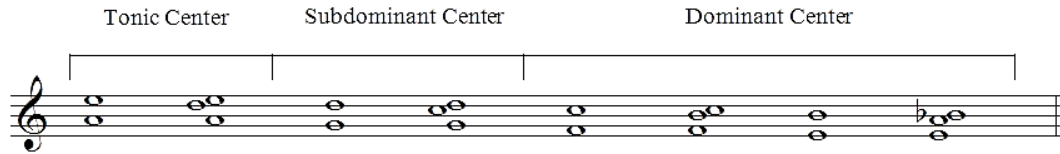


Figure 3.3 : Chord progressions and functions of “Kervan”, adapted from (Parlak, 2000).

These samples, which are demonstrated in Figure 3.1 and Figure 3.3, are quite important, as they share similar functions and progressions of the chords. This functional way of use and chord progressions demonstrate one certain rule and a common use of the harmonic practice, belongs to Teke region’s *yörük/Türkmen* music and Western Anatolian school of Şelpe tradition.

During the gradual cultural transformation of Şelpe tradition since the 1980s, theoretical and applied studies on traditional harmonic practices of Şelpe have been carried out mostly under the Westernization influence. The Şelpe technique and its traditional harmonic practices, which have been applied to various performance areas and forms of Saz/Bağlama, have gone through an enormous change.

After the changes have occurred and modernization studies have been conducted in the subject of Şelpe performance tradition and its traditional harmonic practices, folk music has also begun to change drastically beginning from the 1980s. Rediscovery of

the traditional harmonic practices of Şelpe tradition and modernization studies carried on this tradition basically triggered these drastic changes.

During the 1990s and the first decades of the 2000s, Saz/Bağlama artists began to use traditional Şelpe and Western tonal harmonic in combination creating their artworks such as compositions, arrangements, and solo performances. As a result, a cultural/musical fusion is achieved by using traditional Şelpe harmonies, modal/makam scale structures of Eastern culture, and Western-style tonal harmony.

Primarily, various harmonic tools and musical textures of Western tonal music were used directly in combination with the Şelpe technique. Some pieces from the classical Western art music repertoire have been adapted for the Şelpe. After the incorporation of these Western musical structures and pieces to the Şelpe repertoire, the real goal of the research, a unique fusion, which is more appropriate for the musical character of the Şelpe technique, was achieved gradually until the first half of the 2000s. This newer fusion indicates a relatively higher tendency to the amelioration of existing technical skills, opening ways to further innovations in performance practices. As a consequence of all these developments, the music created with the Şelpe technique has been enriched and characterized by the mixed-use of traditional harmonic practices of Eastern and Western Anatolian schools, and the Western European tonal system.

3.1.1 Musical textures of şelpe and analysis

There are some primary elements that effect the character of the music sound. Texture in music basically defines, “determination of the sound how it produces and in which density it is reflected in a part of written music or in whole of the music” (Altay, 2011, p. 9). In a detailed definition of texture in music:

If we listen carefully to an orchestral composition, we will notice relationships between a variety of music elements. Such elements include not only particular combination of pitches or rhythmic patterns but also density, range, timbre, dynamics, and doublings. These relationships, which combine to produce what we call texture, may be compared to a woven fabric: its thread, color, tactile properties, density of weave, and interplay of patterns. (Gauldin, 1997, p. 50)

Musical texture defines the character of all kinds of music in the world. Defining the texture of non-Western music is one of the most important steps to understand the music as an outsider of non-Western music. Even though the types and practices of the musical texture of non-Western music may not have the same practices of the textures of Western music, similar textures in different practices and rules could be taken in one type of the musical texture. There are several polyphonic musical textures among non-Western music, which contain completely different polyphony practices of Western music. Nevertheless, both of these forms of music are considered as polyphonic textural music.

Gauldin (1997) categorizes three basic types of musical texture, monophonic, homophonic, and contrapuntal. This classification is described only for musical textures of Western art music. Altay (2011) defines four types of musical texture for the music of the world. These are monophony, homophony, polyphony, and heterophony.

Monophony expresses a single-line melody without any accompanying sounds from different pitches. At the same time, the musical texture of a single-line melody with octave accompaniment is considered as monophonic texture as it is shown in Figure 3.4.

A. SIBELIUS: SYMPHONY NO. 1, I



Figure 3.4 : Monophonic texture example (Gauldin, 1997, p. 51).

Homophonic texture in music (Fig. 3.5) refers to the vertical accompaniment parts of a single prominent tune and “this foreground/background relationship produces the homophonic texture” (Gauldin, 1997, p. 51).

A. Archilei or E. de' Cavalieri: *Intermedi*, Florence, 1589

Qual vor mio - vi Mi - det - vi e for - te for -

Luto Grosso

2 chitarroi also accompany the voice

Al - ci - de

Figure 3.5 : Homophonic texture example (Altay, 2011, p. 13).

Gauldin (1997) divides homophonic textures into two different groups. Chordal homophonic texture is the first one in which all vertical accompaniment parts of the music progress in the same rhythmic structure. In Figure 3.6, the uppermost part contains the main melody and the other parts play the accompaniment role in homorhythm.

A. BIZET: FARANDOLE FROM *L'ARLÉSIENNE* SUITE No. 2

Figure 3.6 : Chordal homophonic texture example (Gauldin, 1997, p. 51).

In Figure 3.7 J. S. Bach's Prelude in C minor is shown where the melody and accompaniment parts proceed one after another. The upper part of the broken chord (arpeggios) gives the sense of the principal melodic line even though it is weakened by arpeggios. This kind of concentric melody and accompaniment parts with a series of block chord and even its arpeggios produce a chordal homophonic texture.

Example 3 BACH: PRELUDE IN C MAJOR FROM *WELL-TEMPERED CLAVIER*, BOOK I



Figure 3.7 : J. S. Bach's prelude in C minor (Gauldin, 1997, p. 52).

The second type of homophonic texture is described as “melody and accompaniment” by Gauldin (1997). In this type, the principal melody is set rhythmically apart from the accompaniment parts, as seen in the sample of Ave Maria by Bach/Gounod, which contains the same chordal accompaniment with J.S. Bach's Prelude in C minor (Fig. 3.8).

B. BACH-GOUNOD: "AVE MARIA"



Figure 3.8 : Melody and accompaniment homophonic texture example (Gauldin, 1997, p. 53).

Polyphony etymologically originated from *polyphonia* which is combined by *poly* – multi and *phonia* – sound/part. Polyphony refers to both a composition technique in Western art music and a musical texture to define horizontal parts of music. At this point, Gauldin (1997) defines the horizontal parts of musical texture as a contrapuntal texture. In other words, Altay (2011) defines the same kind of texture as polyphony. According to Altay (2011) “contrapuntal composition technique also contains a polyphonic texture” (p. 11). Polyphonic texture (Fig. 3.9) “consists of the simultaneous combination of melodic lines. Here, each voice retains its own melodic contour and rhythmic identity, producing a web of interweaving parts” (Gauldin, 1997, p. 53).



Figure 3.9 : Polyphonic texture example (Altay, 2011, p. 12).

Heterophonic texture in music refers to a distribution of a melody by diversifying or altering into different parts (Fig. 3.10). Heterophony is neither a polyphony nor monophony, yet “a kind of complex monophony” (Altay, 2011, p. 13). Heterophony is produced both deliberately and coincidentally. Coincidental heterophonic musical textures are generally found in non-Western music such as Hindu, Middle – Eastern, Balkan, and Turkish music.



Figure 3.10 : Heterophonic texture example (Altay, 2011, p. 14).

Occasionally, some type of heterophonic musical textures are labeled as incipient polyphony, which “includes antiphony and call and response, drones, and parallel intervals” (Url-1). Several folk music traditions of Albanian, Greek, Turkish, Romanian, Macedonian Slav, Georgian, African, and Native American contain various types of drones, parallel intervals, which are functionally and systematically used apart from coincidental heterophony and Western art music practices of polyphony (Arom, 1991; Ayyıldız, 2013; Baysal, 2013; Picken, 1954; Nettl, 1961; Mok, 1966; Golos, 1961; Url-1).

Although an ambiguity can be seen about the definition of the polyphonic and heterophonic textures of the non-Western music cultures, it is clear that some “multi-part” (Arom, 1991, p. 34) musical texture of non-Western works of music contain idiosyncratic functions of harmony practices and textures.

The musical texture of traditional Şelpe performances possess neither monophonic nor homophonic textures of Western music. Yet, the traditional Şelpe textures contain elements such as drones, parallel intervals those forming kind of an incipient polyphony. At the same time, especially in the Şelpe tradition of Teke region’s *yörük/Türkmen* music, polyphonic or multipart textural tools generally produce a certain idiosyncratic harmonic framework. One of the most prominent instances of this kind of harmonic practice and musical texture is observed in Ramazan Güngör’s Şelpe performance of a regional tune “Avşar Beyleri”. Güngör’s performance was transcribed by Parlak (2000) that is given in Appendix C3.

The modal scale structures of “Avşar Beyleri” are given in Figure 3.11.



Figure 3.11 : Modal scale structures of “Avşar Beyleri”, adapted from (Parlak, 2000).

The use of the drone is frequently seen as it is shown in Figure 3.12. The upper part contains E as a drone note, while the lower part contains the main tune.

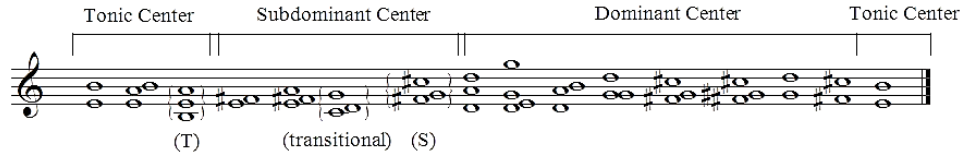


Figure 3.15 : Chord functions in “Avşar Beyleri”, adapted from (Parlak, 2000).

Figure 3.15 demonstrates suspended chords and perfect fifth interval built on scale degree 1, functioning as tonic chords. The chords such as “sus2” or “min7”, built on scale degree 2, fulfill the features of a subdominant function, while the chords built on scale degrees 6 and 7 act as chordal structures having a dominant function. These chord structures are commonly seen in quartal harmony. The functions of the chords in “Avşar Beyleri” are mostly derived from the active melodic line, which is also another feature seen again in quartal harmony. “Chords by perfect fourth are ambiguous in that, like all chords built by equidistant intervals such as diminished seventh chords or augmented triads, any member can function as the root. The indifference of this rootless harmony to tonality places the burden of key verification upon the voice with the most active melodic line (Persichetti, 1961, p. 94).

Fusion has been applied to the musical texture of modern Şelpe music since the 1990s. With the modernization studies were carried for the traditional performing technique of Şelpe under the Westernization influence, a blend of harmonic practices of Western tonal music and traditional harmonic practices of Şelpe has been developed in newly created repertory for modern Şelpe technique. Since the 2000s, the texture of music has become quite closer to Western tonal music practices in some of the modern Şelpe music repertoires, which are considered as more experimental for the Şelpe technique. The changing role of the Şelpe technique in a multi-part musical composition plays an essential part. The role of musical accompaniment with the Şelpe technique addresses more to create chord progressions of Eurocentric music, which also affects solo music of Şelpe in the direction to possessing more harmonic sounds within it. In some latest samples of modern Şelpe music, the texture retains more Eurocentric functional harmony, chordal homophony, and accompaniment homophony, as Gauldin (1997) described, than the traditional textural structure of Şelpe such as heterophony or incipient polyphony.

The first six bars of “Naz Bari”, shown in Figure 3.16, provides a very good example of such textural fusion. In the first bar, there is an opening with a suspended chord derived from the traditional harmonic practices of Şelpe, which ends with the Asus4/6 chord. In the following bar, the Hicaz makam in A is applied with the finest positioning of the Parmak Vurma sub-technique, resulting with a sonorous hearing of the scale. That is, all struck pitches sound simultaneously creating a cluster-like entity. In the third bar, the arpeggio passages of Asus4 reaches to D minor in the end. Especially in the sixth bar, the previous A Hicaz makam scale positioning of Parmak Vurma ends with a delicate and sonorous A major sounding as a tonic chord.

Şelpe

Asus4/6

A Hicaz scale

Şip.

Asus4

Dm

A Hicaz scale

A

Şip.

In the 21st and 22nd bars of “Naz Bari”, as shown in Figure 3.17, a four-pitch group of scale degree 2, namely Bb-C#-D-E, are used as a tetrachord taken from A Hicaz scale. One has to note the difference between the structural makam tetrachords or pentachords and such secondary tetrachords created using any scale tone. This non-structural tetrachord is applied here in a more traditional Şelpe strumming. The passage begins with an arpeggio featuring the pitches A1-D-A2, creating perfect

fourth and fifth intervals with Parmak Vurma, and providing a Western-style arpeggio gesture. In the following bar, this melodic progression ends with a monophonic texture using the aforementioned Bb-C#-D-E tetrachord of A Hicaz scale, performed only with the third/upper string.

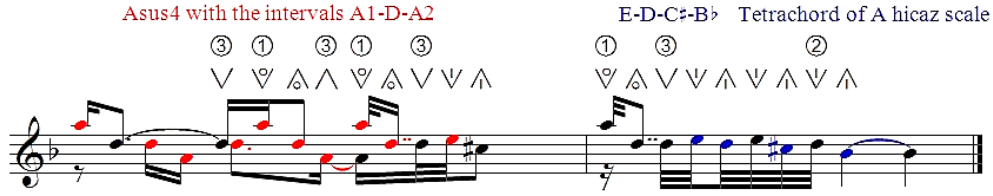


Figure 3.17 : Bars 21-22 of “Naz Bari”.

A solo Şelpe arrangement by Sinan Ayyıldız, for a tune titled “Ay Laçın” from Azerbaijan, exemplifies how modern Şelpe musical texture and related harmonic practices have evolved to tonal music harmonic progressions. This Şelpe arrangement, given in Appendix D2, contains instances of chordal texture as a type of homophony.

Bars 7 to 10 show how the principal melodic line is placed inside the arpeggiation figure and represents the chordal structure at the same time. Although the principal melody is given as part of a series of arpeggios, it is still very perceptible. Notes forming the main melodic line are shown with red-colored noteheads in Figure 3.18.

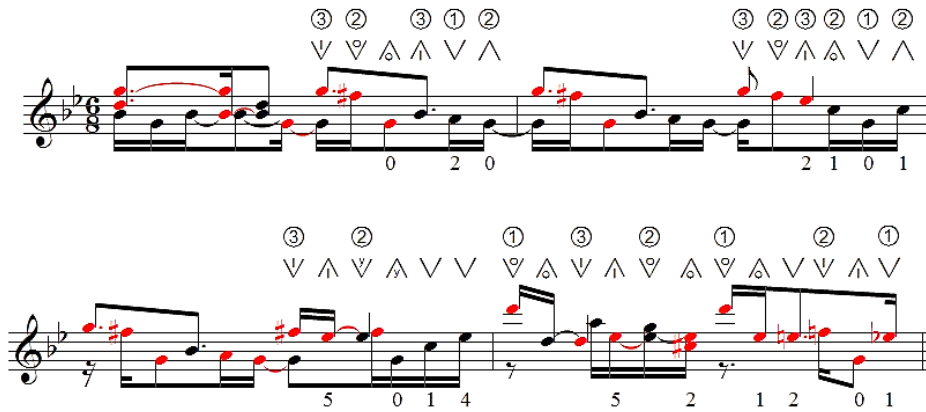


Figure 3.18 : Bars 7-10 of “Ay Laçın” arranged by Sinan Ayyıldız.

In the section between bars 23 and 26 of the music piece “Ay Laçın”, shown in Figure 3.19, the main melodic line is placed in a chordal arpeggiation figure expanding to a one and a half octave range. In this way, the principal melodic line is broken into two different octaves by using arpeggios. The technique of breaking the

melodic line into two different octaves is highly common in both traditional and modern performing ways of the Parmak Vurma sub-technique.

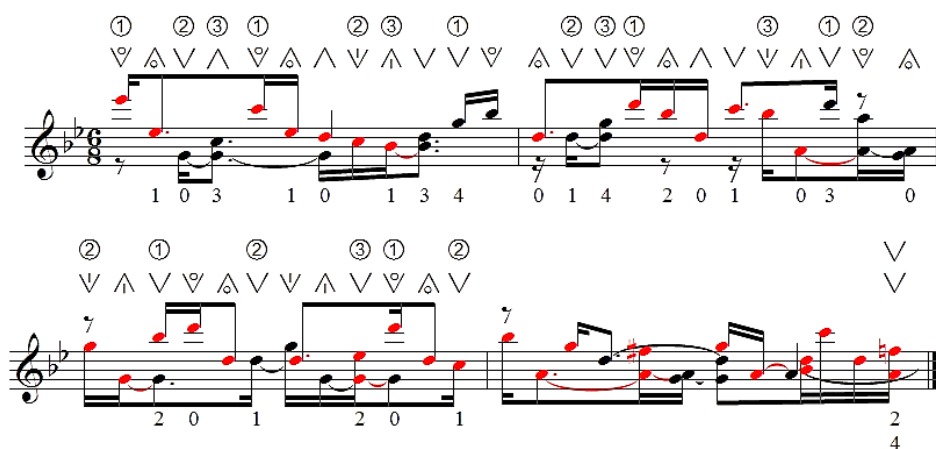


Figure 3.19 : Bars 23-26 of “Ay Laçın”.

An example of my Şelpe accompaniment passage for the arrangement of a famous lament, Dido's Lament, "When I am laid in earth" from the opera Dido and Aeneas by Henry Purcell, is given in Figure 3.20. This is an example representing the conventional melody-and-accompaniment style homophonic texture. Şelpe parts, exemplified in Figure 3.20, imitate a harpsichord accompaniment to the extent possible within the technical limits of the Parmak Vurma sub-technique.

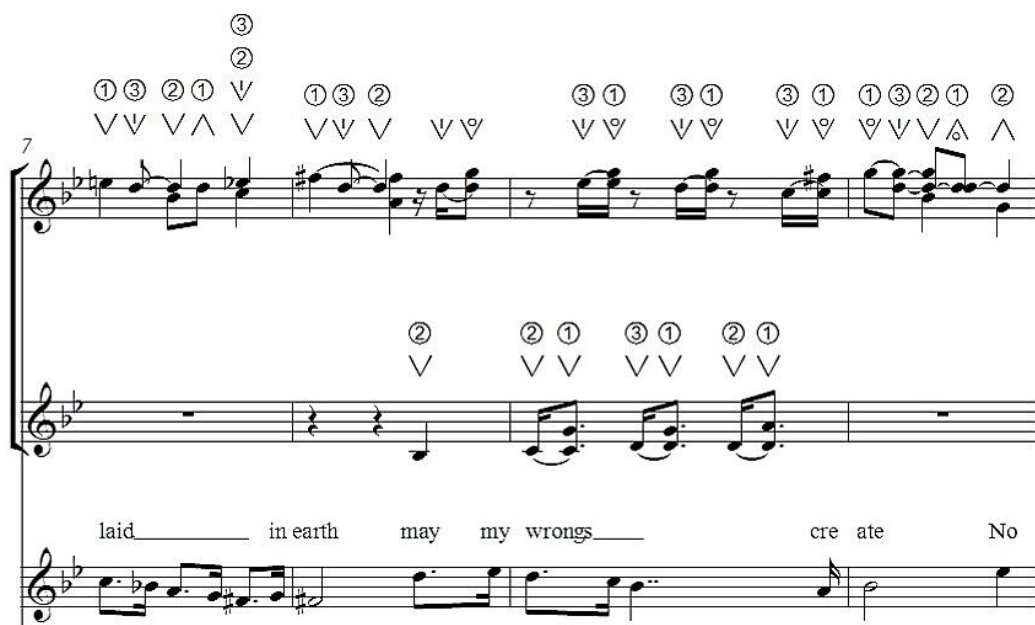


Figure 3.20 : Excerpt from the şelpe accompaniment written for Purcell’s “When I am laid in earth”.

The Şelpe accompaniment is in a different rhythmic setting from the main melody. In addition, its musical texture contains the arpeggios of a certain chord progression, emphasizing its role as an “accompanimental part” in the texture.

As it is seen in Figure 3.20, Şelpe accompaniment consists of two different Şelpe parts. These parts are written for a new type of modified double-necked Saz/Bağlama. Another example, shown below in Figure 3.21, is an excerpt for this new modified instrument. It is derived from another arrangement titled “Hasaposerviko”, which is originally a Greek folk tune.



Figure 3.21 : Excerpt from the şelpe arrangement “Hasaposerviko”.

In this excerpt of the arrangement as given in Appendix D3, Saz/Bağlama provides the chordal accompaniment to the main melody played by the violin. The homophonic texture of the accompaniment part is expanded to one octave wider range with the use of double-necked Saz/Bağlama with a playing pattern, which makes it possible to have the strings of both necks sounding at the same time. This practice also offers more timbral choices and possibilities for Saz/Bağlama accompaniment.

3.1.2 Tonal harmonic structures used in modern şelpe technique

Different kinds of musical articulations, harmonic structures, and musical textures are achieved by using different sub-techniques of Şelpe and they are all used in combination with usual Şelpe performances or arrangements. These sub-techniques come in handy, especially if one tries to use either more elaborate harmony than usual triads or simply give a different feeling to the harmonic accompaniment by

adding rhythmic or articulation-wise varieties. Block chord textures containing Western tonal progressions are widely used with the Pençe sub-technique, as exemplified with the “i-iv-V-i” functional progression given in Figure 3.22.

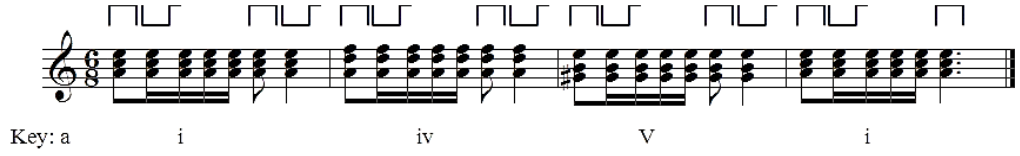


Figure 3.22 : i-iv-V-I chord progression with pençe sub-technique.

Another version of this block-chords idea can be produced using an approach similar to the chord-melody technique in jazz and also incorporating the melodic line into the chord-based texture like in this example. In Figure 3.23, a section is taken from my solo Şelpe arrangement of the piece “Hicaz Onbirli” that is played with Pençe sub-technique inside the block chords. In this example, the blue-colored notes make the main melodic line heard within a chordal homophonic texture.

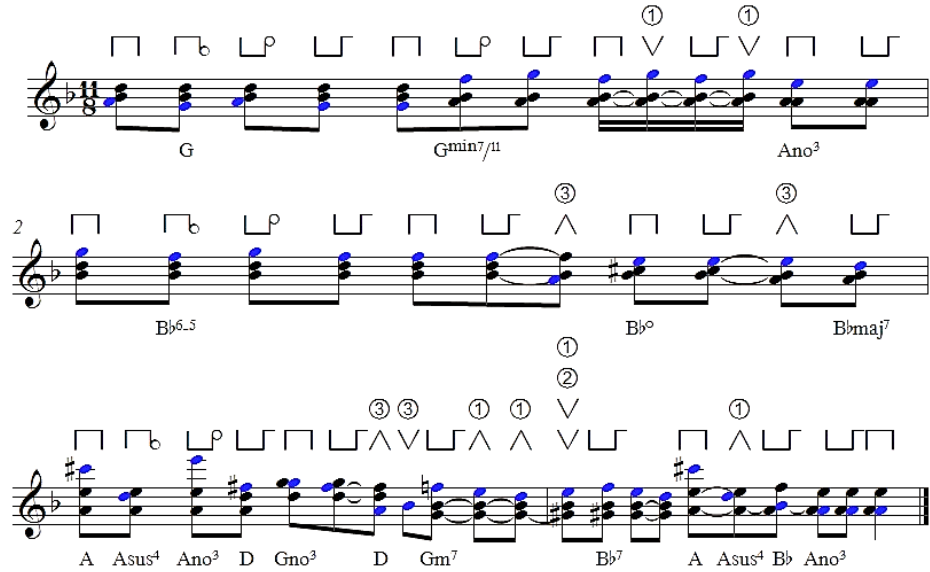


Figure 3.23 : A section from the arrangement of the piece “Hicaz Onbirli”: melodic line displayed with blue noteheads.

In Tel Çekme sub-technique, a version of the fingering technique of guitar is applied for arpeggios. In Figure 3.24, a “i-iv-V-i” progression in harmonic minor mode is applied with Tel Çekme sub-technique resulting in a series of arpeggios. In this example, the arpeggiated chord tones are used both alone in the first two bars, and with double stops in bars 3 and 4.

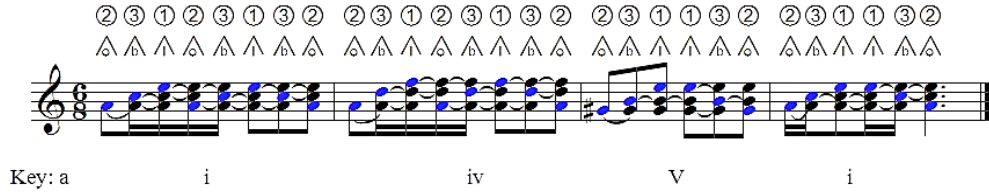


Figure 3.24 : i-iv-V-I chord progression with tel çekme sub-technique.

The Parmak Vurma sub-technique requires high technical skills to perform arpeggios. Having a separate right and left hand on the fretboard enables the performer to split the arpeggiation into two parts, providing numerous possibilities with richer harmonic choices, compared to the Tel Çekme sub-technique. Arpeggiations performed with Tel Çekme can contain a maximum of three pitches. However, with the Parmak Vurma sub-technique, the number of available pitches is doubled i.e. six different tones can be included in the arpeggiation, may it be triadic tones, tensions or non-chord tones like pedal points or passing notes. In Figure 3.25, “i-iv-V-i” progression is applied with the Parmak Vurma sub-technique including chord tensions.

Right Hand Notes are blue-colored

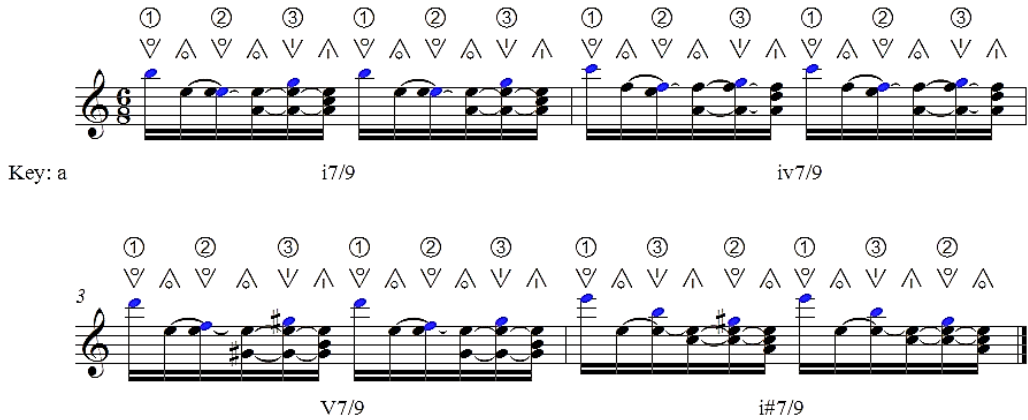


Figure 3.25 : i-iv-V-I chord progression with parmak vurma sub-technique, chord tensions included.

In Figure 3.26, an excerpt from my solo Şelpe arrangement of the traditional Turkish piece titled “Hicaz Mandıra” is given. Here, the principal melody, shown with red-colored notes, is presented as a line within a functional chord progression. In this part of the arrangement for the Parmak Vurma sub-technique, there is a chordal homophonic texture formed with several double-stops of the chords and a principal melody weakened by short arpeggios in an intense harmonic progression. The use of

double-stops with the Parmak Vurma sub-technique is very common in the harmonic practices of the modern Şelpe technique.

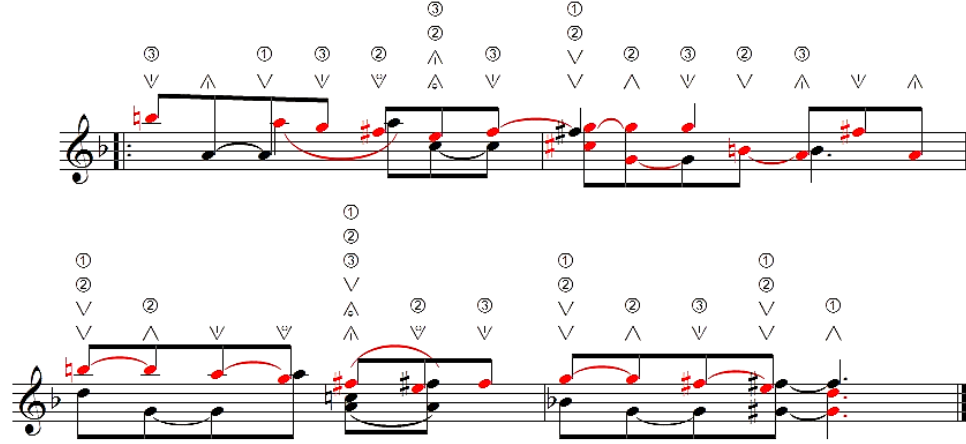


Figure 3.26 : Parmak vurma sub-technique example from “Hicaz Mandıra”.

The introduction part of the same arrangement, “Hicaz Mandıra”, contains a unique harmonic application within the framework of the Parmak Vurma sub-technique. An excerpt from this introduction is shown in Figure 3.27. Here, instead of only chordal or melody-and-chords structures, we have a contrapuntal writing with two lines. Each line is played by a different hand on the fretboard, thus producing a polyphonic texture using Şelpe.

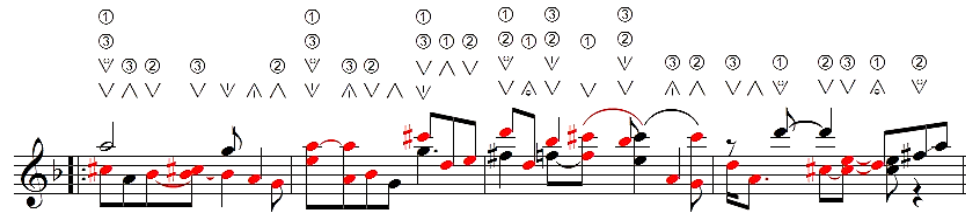


Figure 3.27 : Polyphonic texture example of Parmak vurma from “Hicaz Mandıra”.

In modern Şelpe compositions or arrangements, different sub-techniques of the Şelpe, their all available harmonic tools, and different forms of musical textures provide various musical materials, articulations, and colors of Şelpe, which are combined aesthetically one to another.

3.2 Matrix System for Şelpe

The genuine multipart musical textures of traditional Şelpe performance and the synthesis produced by the incorporation of tonal harmonic practices into the Şelpe

technique have called forth a systematic approach and theoretical models forming the performance standards of the modern Şelpe.

The main objective and the outcome of this analytical approach is a system titled “Matrix system” that displays Şelpe’s all vertical musical structures including the traditional, modern, and mixed harmonic practices. This proposed Matrix System indicates the related positions on Saz/Bağlama fretboard. This new system can serve as a starting point for an innovation in the notation of Şelpe performance. Once it gains recognition, this notation system can be used along with conventional notation forming a guide for performers, composers or arrangers working on Şelpe. Hand placements and fingerings are codified to produce harmonic elements in Şelpe which form a dictionary for the harmonic practices of modern Şelpe. This dictionary can guide musicians and scholars in either their performances or analysis in case it is further developed. This development should result in a new graphical notation/transcription system for all the chord positions possible on Saz/Bağlama’s fretboard for Şelpe accompaniments.

In conclusion, this system purposes a multi-directional approach that could be used as a practical instruction system in the performances of Şelpe’s harmonic music, a compositional guide for Şelpe’s multi-part textures, and an analyzing tool of Şelpe’s positional use in compositions and arrangements.

3.2.1 Classification of chords and chord symbols using in matrix system

The Matrix system contains a demonstration method of every sort of chord position on the Saz/Bağlama fretboard for Şelpe accompaniment performances. The system provides a practical and appropriate way of identifying the chord positions and chordal accompaniment texture of the music.

For this purpose, practical, universal, and current chord symbols are required for the Matrix system and its symbolization. As Gauldin (1997) states, “jazz and commercial music is often notated on a score called a *leadsheet*, which simply gives the melody and a shorthand notation that symbolizes the chordal harmony. These symbols, usually written directly above the melody notes, provide a quick and convenient way of identifying the root and chord types of harmonies that should be played.” (p. 646). In this respect, the Matrix system, as a practical illustration system in the

performances of Şelpe's harmonic music, has the same logic with jazz music *leadsheet* score, which is a universal and relatively a current way of practice.

The Matrix system is not designed to foster the chords' harmonic functions. "Commercial symbols, however, do not indicate anything about the chords' harmonic functions" (Gauldin, 1997, p. 646). The system, designed for the use of every sort of harmony school, may incorporate different functions of chordal progressions. Due to these reasons, each chords' symbolization and classification are quoted from jazz music theory.

The chords which are frequently used and positioned on Saz/Bağlama's fretboard for Şelpe performances, their way of classification and their symbolizations are shown in Table 3.1.

Table 3.1 : Classification of chords and chord symbols using in matrix system.

TYPE OF CHORDS	CHORD NAME	CHORD SYMBOL
Triad Chords	Major	E
	Minor	Em
	Diminished	E°
	Augmented	E ⁺
	Suspended	E ^{sus4}
	No3	E ^{no3}
	No3 Diminished	E ^{°no3}
	No3 Augmented	E ^{+no3}
Seventh Chords	Major 7 th	E ^{Maj7}
	Dominant 7 th	E ⁷
	Minor 7 th	Em ⁷
	Minor #7 th	Em ^{#7}
	Diminished 7 th	E ^{°7}
	Half Diminished 7 th	E ^{ø7}
	Augmented Major 7 th	E ^{+Maj7}
	Augmented Dominant 7 th	E ⁺⁷
	Suspended Major 7 th	E ^{sus4(Maj7)}
	Suspended Minor 7 th	E ^{sus4(Min7)}
	No3 Major 7 th	E ^{no3(Maj7)}
	No3 Minor 7 th	E ^{no3(Min7)}
	No3 Diminished 7 th	E ^{no3(°7)}
	No3 Half Diminished 7 th	E ^{no3(ø7)}
	No3 Augmented Major 7 th	E ^{no3+(Maj7)}
	No3 Augmented Dominant 7 th	E ^{no3+(7)}
Ninth Chords	Major 9 th	E ^{9(Maj7)}
	Dominant 9 th	E ⁹
	Dominant b 9 th	E ^{7b9}
	Minor 9 th	Em ⁹
	Half Diminished 9 th	Em ^{9b5}

Regarding the performing of chords with Şelpe, a number of limitations mostly derived from the morphological structure of Saz/Bağlama, are constituted, which are going to be mentioned in the following chapters.

3.2.2 General rules and limitations of matrix system

There are some limitations in the Matrix system corresponding to the performance ergonomics and the morphological structure of the instrument in order to put forth the theory of harmonic practices in Şelpe. There are also some certain rules related to a variety of performance characteristics, stemming from common points. These limitations and the rules delimit the comprehensiveness and integrity of the theory.

Several tuning systems of the instrument, the octave range of Saz/Bağlama, and the handling of the chords in three-stringed Saz/Bağlama's harmonic practices are going to be treated within this framework of general rules and limitations.

A number of special exceptions and specific rules of Matrix systematization related to Şelpe's sub-techniques, which are in the same course with the general rules and limitations, will be discussed in the following chapters.

3.2.2.1 Tuning system of saz/bağlama

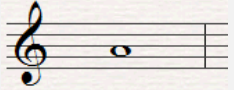
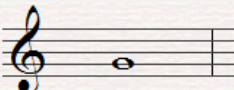
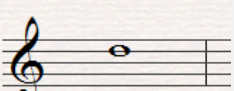
Concerning the tuning system, the Şelpe performance tradition varies comparatively by regions of Anatolia. Parlak (2000, p.135) states nine different types of traditional tuning systems of Şelpe technique such as *Bağlama Düzeni*, *Ruzba Düzeni*, *Zeybek Düzeni*, *Çiftetelli Düzeni*, *Kaval Düzeni*, *Boğma Düzeni*, *Müstezat Düzeni*, *Misket Düzeni*, and *Bozuk Düzen*. All of these tuning types, called *Düzen* in the Turkish language, create different timbres and harmonic sounds with the help of the open strings, which are differently tuned within various intervallic structures. Within these various *düzens*, the positioning of the chords and performances on the fretboard are completely different from each other. Due to these several alternatives of *düzens*, there is an ambiguity in mapping all the chord and performance positions on the fretboard systematically.

Indeed, the Matrix system provides a demonstration scheme for all these positions on the fretboard separately for each *düzen*. However, the number of indicators required to show the positions of all the *düzens* in the Matrix system disable researchers to put

forth a systematization. For the sake of the comparison, the integrity of the theory, and building a systematization at once; the most commonly used *düzen* of the modern Şelpe practices, called *Bağlama Düzeni*, is going to be applied to the Matrix system.

The open strings and tuning structure of this *düzen* is shown in Table 3.2.

Table 3.2 : Open strings and tuning structure of *bağlama düzeni*.

BAĞLAMA DÜZENİ	
OPEN STRINGS	PITCHES
Third (Upper) String	A 
Second (Middle) String	G 
First (Lower) String	D 

Bağlama Düzeni is the well-known and commonly used tuning system of the performance techniques of the performance with a plectrum as well as the Şelpe technique. *Bağlama Düzeni* “is a particular tuning system of Saz/Bağlama which merely belongs to Anatolian music tradition” (Parlak, 2000, p. 135). This tuning system, which is an inseparable element of traditional and modern Şelpe technique, provides a quality timbre owing to the interval structure of the open strings and traditional harmonic practices created with its permissible positioning on the fretboard.

3.2.2.2 Octave range of saz/bağlama

The octave range and pitch structures of Saz/Bağlama dictate the natural limits of the instruments in the sense of Şelpe technique, performance, and harmonic practices. The octave range of the instrument composes of approximately one and a half octaves.

Saz/Bağlama is a kind of transposing instrument usually depending on its different sizes. The pitch A of the instrument can be transposed to any pitch depending on its

size. However, the name of the pitch nevertheless remains “A” for Saz/Bağlama even though the actual pitch is B, C, D or et cetera. In this respect, the lowest pitch is G and the highest is E as shown below (Fig. 3.28).

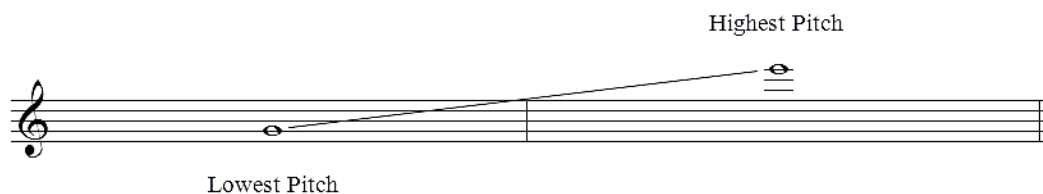


Figure 3.28 : Octave range of saz/bağlama.

In Table 3.3, the open strings and the pitch names are organized according to *Bağlama Düzeni*. Each of the chordal positions is will be shown with the structure of this tuning system in the Matrix system.

Table 3.3 : Pitch structure of saz/bağlama.

3rdString: A	B \flat	B \flat^2	B	C	C \sharp^3	C \sharp	D	E \flat	E \flat^2	E	F	F \sharp^3	F \sharp	G	A \flat	A \flat^2	A	B \flat	B
2ndString: G	A \flat	A \flat^2	A	B \flat	B \flat^2	B	C	D \flat	D \flat^2	D	E \flat	E \flat^2	E	F	G \flat	G \flat^2	G	A \flat	A
1stString: D	E \flat	E \flat^2	E	F	F \sharp^3	F \sharp	G	A \flat	A \flat^2	A	B \flat	B \flat^2	B	C	D \flat	D \flat^2	D	E \flat	E

As it is shown in Table 3.3 a number of microtonal frets are placed between chromatic pitches. The microtonality contains an enormous importance for the horizontal texture and the scale structures of the Şelpe music placed in Şelpe’s harmonic practices. Yet, the microtonal frets of Saz/Bağlama are not going to be included in the Matrix system.

3.2.2.3 Use of the chords for three-stringed saz/bağlama

Saz/Bağlama is composed of 3 strings or 3 string groups as lower, middle, and upper strings. In the Şelpe technique, execution of the chords with more than 3 degrees contains certain differences according to the sub-techniques of the Şelpe technique.

Some degrees of the chords with more than 3-degree are usually omitted from the chord structure in Pençe and Tel Çekme sub-techniques which is performed with a single hand on the Saz/Bağlama’s fretboard. In a single Maj7 chord position of Şelpe, which contains 1st, 3rd, 5th, and 7th degrees, the 5th degree is usually omitted from the chord structure because the instrument contains only 3 strings. Thus, this Maj7 chord is comprised of only 1st, 3rd, and 7th degrees in a single chord position which still strongly gives Maj7 effect. In other respects, all degrees of a single chord

can be performed with multiple hand positioning of the chord as inversions during the arpeggio performance with Tel Çekme sub-technique.

Alternatively, the Parmak Vurma sub-technique allows us to perform all degrees of the chords with more than 3-degree without changing the hand positions of the chords. Having two hands on the fretboard during the Parmak Vurma performances enables us to perform all degrees of the chords such as 6-degreed chords without omitting any degree. This capability is owed to the combination of two different chord positions of two hands on the fretboard into one. On one hand, the chords with more than 3-degree can be set up in numerous alternatives with the Parmak Vurma sub-technique by omitting and doubling the degrees in multiple ways. These alternatives yield numerous chord positioning with the Parmak Vurma sub-technique, which can be all shown in the Matrix system as well. On the other hand, to map all chord positions of the Şelpe's sub-technique and to put forth a systematical positioning in the theory, certain rules will be proposed to stabilize the chord degrees for all chord positions in the following chapters.

3.2.3 Matrix system for pençe and tel çekme sub-techniques

The performance figures of the right hand give the essentials of Pençe and Tel Çekme sub-techniques. Various strumming figures of Pençe sub-technique and plucking figures of Tel Çekme sub-technique determine the harmonic colors, musical textures, and timbres.

The function of the left hand in Pençe and Tel Çekme sub-techniques identifies the progressions of horizontal and vertical motifs or melody and harmony. It determines how the harmonic progression continues within a certain melody on the fretboard of Saz/Bağlama.

The Matrix system for Pençe and Tel Çekme sub-techniques demonstrates how a musical texture, which is created with the right hand, progresses with left hand vertically. In other words, the Matrix system for Pençe and Tel Çekme sub-techniques is a theoretical approach, showing how the functional harmony of Şelpe music progresses on the fretboard positions.

Left-hand positions on the fretboard coded with Matrix system presents a route for harmonic progressions of Şelpe accompaniment with various Pençe and Tel Çekme

performance figures of the right hand. Those accompaniments are created and appropriately deemed by performers. In this case, an accompaniment part of Pençe and Tel Çekme sub-techniques and its chord progression schemes encoded with the Matrix system could be treated with various figures of the right hand. These varieties by different performers inspire several interpretations. In this way, the performer's influence would be augmented by controlling the music.

This structure of the system is coherent with the production strategy of modern Şelpe music. Generally, most of the arrangements and accompaniments of the Şelpe technique are composed actually by Şelpe performers using their own musical interpretations. For this reason, alternative Şelpe arrangements and interpretations of the same tune, which are produced by different Şelpe performers, are available in the repertory of Şelpe music. In this sense, Şelpe performers play the role of the composers in the production process of the repertory and composing process of the music.

This compositional production strategy is preserved and adopted in the Matrix system identically by including the interpretations of the harmonic progressions both with the right hand Pençe and Tel Çekme figures designed by the performer and with left hand positioning determined by the performer's Matrix design.

The Matrix system for Pençe and Tel Çekme sub-techniques contains certain concepts that determine the structural principals of Matrix for left-hand positioning.

3.2.3.1 The concept of “fretboard position”

The “fretboard position” is a concept to demonstrate the finger positions on the fretboard of Saz/Bağlama by assigning numbers. The fretboard of the instrument is commonly composed of 19 unequal temperament frets, but there is no concrete standardization for the structure of the frets. Saz/Bağlama contains certain microtonal frets, as it is stated in the chapter 3.2.2.2. However, the position depends on equal chromatic temperament frets, as no standardization was put forth for using the microtonal frets of Saz/Bağlama. Therefore, as it is shown in Table 3.4, 14 equal temperament frets without microtonal pitches are determined as the “fretboard position” of Saz/Bağlama for this study.

Table 3.4 : FPs of saz/bağlama.

FP	1	-	2	3	-	4	5	6	-	7	8	-	9	10	11	-	12	13	14
A	B \flat	B \flat^2	B	C	C \sharp^3	C \sharp	D	E \flat	E \flat^2	E	F	F \sharp^3	F \sharp	G	A \flat	A \flat^2	A	B \flat	B
G	A \flat	A \flat^2	A	B \flat	B \flat^2	B	C	D \flat	D \flat^2	D	E \flat	E \flat^2	E	F	G \flat	G \flat^2	G	A \flat	A
D	E \flat	E \flat^2	E	F	F \sharp^3	F \sharp	G	A \flat	A \flat^2	A	B \flat	B \flat^2	B	C	D \flat	D \flat^2	D	E \flat	E

The concept of fretboard position, which could be abbreviated as “FP”, is adopted on the Matrix system with a minor change. As the FP determines the positioning of the left hand in the Matrix system as well, this concept is used for mapping the position of the fingers’ hammer-on/pull-off executed by only the upper string in the symbolization of Matrix.

3.2.3.2 The concept of “sub-position” of the fretboard

The “sub-position” concept is a new terminology presented with the Matrix system. The concept of sub-position, which could be abbreviated as “SP”, determines the positioning of fingers hammer-on/pull-off executed on only the middle string within a single FP. Each SP is considered inside every single FP, which is mapped according to its FP.

3.2.3.3 The concept of “pitch number” of fretboard

The “pitch number” definition, which can be abbreviated as “PN”, is used to form a complete vertical hand positioning on the fretboard with FP and SP. PN determines the positioning of fingers hammer-on/pull-off executed by only the lower string within a single FP. In the Matrix system symbolizations, PN and SP constitute a numeric correlation within an FP. Ultimately FP, SP, and PN demonstrate an exact finger positioning of the chords or the positioning of vertical texture on the fretboard within a certain correlation between each other. The correlation of the FP, SP, and PN is going to be demonstrated, which describes the positioning of the chords on the fretboard, in the following chapter.

3.2.3.4 Structure of matrix symbolization for one hand on the fretboard

The Matrix symbolization for one hand on the fretboard is designed for Pençe and Tel Çekme sub-techniques, which shows the chord positions of the left hand specified by FP, SP, and PN parameters on the fingerboard.

In the structure of Matrix symbolization for Pençe and Tel Çekme, FP contains the positioning of the left hand, which the fingers hammer-on/pull-off executed by the upper string on the fretboard. As the FP is divided into 14 frets/positions of the fretboard, FPs are demonstrated with 14 different pitch names of the upper string in the Matrix system. The letters of the Latin alphabet are used for the pitch names of the upper string in order to demonstrate FPs of the Matrix symbolization.

In the Matrix symbolization, SP and PN are the numerical values of the middle and the lower string positioning according to its FP on the top. These numerical values give the coordinates of any chord positioning on the fretboard. The numbers are assigned by each chromatic/half step pitches of the fretboard. In a fretboard position on the upper string, if the SP or PN stays on the left side of FP, the negative whole numbers are used such as “-3, -2, -1” depending on how many frets or half steps are behind the FP. In the same sense, if the SP or PN stays on the right side of FP, the positive whole numbers are used such as “1, 2, 3” depending on how many frets or half steps are in front of FP. If SP or PN is on the same line with its FP on the upper string, the numerical value is shown as “0”.

In Figure 3.29, a positioning of G major is seen on the fretboard of Saz/Bağlama. The FP is located at the fifth position, which is D note on the upper string. SP is located on B note of the middle string and PN is presented with G note of the lower string.



Figure 3.29 : Positioning of G major/first inversion on the fingerboard.

The chord positioning of G major in Figure 3.29 is transposed into the Matrix system in Table 3.5 as below.

Table 3.5 : Matrix symbolization of G major/first inversion for one hand.

$$\begin{array}{ccc}
 \text{G} & & \text{Name of the Chord} \\
 \left(\begin{array}{c} \text{D} \\ -1 \\ [0] \end{array} \right) & \begin{array}{c} \longleftrightarrow \\ \longleftrightarrow \\ \longleftrightarrow \end{array} & \left(\begin{array}{c} \text{FP} \\ \text{SP} \\ \text{PN} \end{array} \right)
 \end{array}$$

In this Matrix symbolization of G major chord positioning, FP on the top is shown with the pitch name of the fifth fret, “D” of the upper string. The SP which is demonstrated as “-1” indicates a half step or one fret behind its FP on the middle string. In other words, SP stays one fret left side of FP where the negative whole number “-1” refers to one fret behind FP. The PN which is symbolized with “[0]” implies that the position of the lower string is in the same line with its FP. Number “0”, enclosed in the square brackets, signals the root or the tonic degree of the chord (G note on the lower string) which is located in a parallel position with D (its FP) on the upper string.

The numerical values of this G major chord positioning in Matrix symbolization contain a fixed and stable positioning of any first inversion of the major chord in twelve tones. Therefore, in this type of chord positioning, SP and PN values are constantly “-1” and “[0]”, while the FP changes depending on the frets matching its tones on the upper string. In Figure 3.30 and Figure 3.31, the positioning of A major and F major is shown on the fretboard.



Figure 3.30 : Positioning of A major/first inversion on the fingerboard.



Figure 3.31 : Positioning of F major/first inversion on the fingerboard.

The geometry of finger positioning on the strings does not change which indicates the same inversion of the major chord positioning with the previous sample but in different tones. Thence, the values of A major and F major chord positioning in Matrix symbolization have fixed numerical values representing the same geometry of finger positioning, as seen in Table 3.6 and Table 3.7.

Table 3.6 : Matrix symbolization of A major/first inversion for one hand.

$$\begin{matrix} A \\ \begin{pmatrix} E \\ -1 \\ [0] \end{pmatrix} \end{matrix}$$

Table 3.7 : Matrix symbolization of F major/first inversion for one hand.

$$\begin{matrix} F \\ \begin{pmatrix} C \\ -1 \\ [0] \end{pmatrix} \end{matrix}$$

The number of samples of the chord positions on the fretboard and their Matrix symbols could be increased and G major samples with different chord positions would ensure a better understanding.

In Figure 3.32, a different positioning of G major is shown on the fretboard of Saz/Baglama. The FP is presented with the scale degree 3 of the chord i.e. B note of the upper string. SP on the middle string is located 2 frets behind the FP which is the

G note. PN is presented with D note of the lower string which stays 2 pitch left of FP.



Figure 3.32 : Positioning of G major/root position on the fingerboard.

The chord positioning of G major shown in Figure 3.32 is transposed into the Matrix system in Table 3.8.

Table 3.8 : Matrix symbolization of G major/root position for one hand.

$$\begin{matrix} G \\ \left(\begin{matrix} B \\ [-2] \\ -2 \end{matrix} \right) \end{matrix}$$

This positioning of G major constitutes the root position of the chord. The root position of major chords on the fretboard always has fixed numerical values (“-2, -2”) on the Matrix symbolization, even though the key of the chord changes within 12 tones.

As understood from the samples above, the numerical values and diverse correlations of FP, SP, and PN data systematically symbolize each chord positions, which are observed visually on the fretboard without considering different keys. This symbolization system contains a key objective to transpose all available fretboard positioning of the vertical side of the music into mathematic codes or practical symbols. This coding process is supposed to visualize the appearance of the fretboard chord positions on the Matrix.

All explained aspects of the structure of Matrix symbolization for one hand on the fretboard constitute the basics of the Matrix system. The exceptions and advanced use of the Matrix system will be explained in the next chapters.

3.2.3.5 Limitations for sub-positions and pitch numbers on a fingerboard position

Some different pitch/fret width of the chord degrees within chord positions on the fretboard require certain limitations and standardization for SP and PN values in a single FP. The limitation is needed for ergonomic and fluent performances. The standardization is needed to create a mapping of all sorts of chord positions on the fretboard accurately. Furthermore, the pitch/fret width does not necessarily have the same fret length on the fretboard. A pitch/fret width of a chord degree on an FP of the chord, shown by SP and PN, might not be the same with another FP of the same type of chord having exactly the same SP and PN. In order to constitute a systematization, a limitation and standardization for numerical values of SP and PN is required which would be applicable to all FPs.

According to this limitation in general, the SP and PN could be extended only “3” degrees to the left side or “3” degrees to the right side of an FP. In other words, SP position on the middle string and the PN position on the lower string can move a maximum of 3 equal frets in behind its FP or 3 equal frets in front of its FP. This rule is only applicable to FP and its SP-PN correlations.

Table 3.9 : Limitation rule for SP and PN values on a single FP.

FINGERBOARD POSITION (FP)							
SP	PN						
	-3	-2	-1	0	1	2	3
-3	Applicable	Applicable	Applicable	Applicable	Applicable	N/A	N/A
-2	Applicable	Applicable	Applicable	Applicable	Applicable	Applicable	N/A
-1	Applicable	Applicable	Applicable	Applicable	Applicable	Applicable	Applicable
0	Applicable	Applicable	Applicable	Applicable	Applicable	Applicable	Applicable
1	Applicable	Applicable	Applicable	Applicable	Applicable	Applicable	Applicable
2	N/A	Applicable	Applicable	Applicable	Applicable	Applicable	Applicable
3	N/A	N/A	Applicable	Applicable	Applicable	Applicable	Applicable

Under this general limitation, there is another positioning rule concerning SP and PN. According to this rule, diametric extensions of SP and PN within a single FP are limited to 4 equal frets.

In Table 3.9, the general limitation of FP in terms of SP-PN combination is demonstrated graphically.

Besides the limitation and standardization to constitute a systematization, Şelpe performances have various advanced and exceptional harmonic performance practices far beyond the general positioning limits of the chords. These practices are going to be explained with the Matrix system as well in the chapters titled “Exceptional Cases” and “Shifting”.

3.2.3.6 Positioning table of the chords for pençe and tel çekme sub-techniques on all fretboard positions

All types of categorized chords’ finger positions on the fretboard are determined without considering the key of the chords.

Within each of 14 FPs of the fretboard, each type of categorized chords is produced in the same way with the described finger positions with the exact numerical values of SP and PN respectively.

In the positioning table of the chords, all the FPs in the Matrix symbols are demonstrated with “X”. As the keys of the chords are not taken into consideration, only each FP numbers are considered instead of that. Because; although the keys, tonic degrees of the chords, or the names of the FPs change, the positioning values of SP and PN for the same types of chords do not change. Thence, a concrete and valid mapping for all types of chords in all FPs is determined uniquely even the FPs change.

As it is shown in Table 3.10, all sorts of chord positions are mapped between 4th and 11th FPs according to the limitation rules of the FP, SP, and PN combinations, which are explained in the previous chapter.

Table 3.10 : Left hand positioning of the chords between 4th-11th FPs for pençe and tel çekme sub-techniques.

ONLY LEFT HAND - FINGERBOARD POSITIONS (for the 4th-5th-6th-7th-8th-9th-10th-11th positions)							
PITCH NUMBER	SUB-POSITIONS						
	-3 SP	-2 SP	-1 SP	0 SP	1 SP	2 SP	3 SP
	-3	Sus4 $\begin{pmatrix} X \\ [-3] \\ -3 \end{pmatrix}$	No3-Halfdim7th $\begin{pmatrix} X \\ -2 \\ [-3] \end{pmatrix}$	No3-Min7th $\begin{pmatrix} X \\ -1 \\ [-3] \end{pmatrix}$	No3-Augdom7th $\begin{pmatrix} X \\ 0 \\ [-3] \end{pmatrix}$	Alt. No3-Augdom7th $\begin{pmatrix} X \\ 1 \\ [-3] \end{pmatrix}$	-
	-2	Min $\begin{pmatrix} [X] \\ -3 \\ -2 \end{pmatrix}$	Maj $\begin{pmatrix} X \\ [-2] \\ -2 \end{pmatrix}$	Dim $\begin{pmatrix} X \\ [-1] \\ -2 \end{pmatrix}$	Min7th $\begin{pmatrix} [X] \\ 0 \\ -2 \end{pmatrix}$	Min*7th $\begin{pmatrix} [X] \\ 1 \\ -2 \end{pmatrix}$	Min $\begin{pmatrix} [X] \\ [2] \\ -2 \end{pmatrix}$
	-1	Maj $\begin{pmatrix} [X] \\ -3 \\ -1 \end{pmatrix}$	Aug $\begin{pmatrix} X \\ [-2] \\ -1 \end{pmatrix}$	Min $\begin{pmatrix} X \\ [-1] \\ -1 \end{pmatrix}$	Dom7th $\begin{pmatrix} [X] \\ 0 \\ -1 \end{pmatrix}$	Maj7th $\begin{pmatrix} [X] \\ 1 \\ -1 \end{pmatrix}$	Maj $\begin{pmatrix} [X] \\ [2] \\ -1 \end{pmatrix}$
	0	Sus4 $\begin{pmatrix} [X] \\ -3 \\ 0 \end{pmatrix}$	Min $\begin{pmatrix} X \\ -2 \\ [0] \end{pmatrix}$	Maj $\begin{pmatrix} X \\ -1 \\ [0] \end{pmatrix}$	Sus4 $\begin{pmatrix} X \\ 0 \\ [0] \end{pmatrix}$	Alt. Sus4 $\begin{pmatrix} X \\ 1 \\ [0] \end{pmatrix}$	No3 $\begin{pmatrix} X \\ 2 \\ [0] \end{pmatrix}$
	1	Alt. Sus4 $\begin{pmatrix} [X] \\ -3 \\ 1 \end{pmatrix}$	Dom7th $\begin{pmatrix} X \\ [-2] \\ 1 \end{pmatrix}$	Dim $\begin{pmatrix} X \\ -1 \\ [1] \end{pmatrix}$	No3-Halfdim7th $\begin{pmatrix} [X] \\ 0 \\ 1 \end{pmatrix}$	Alt. No3 $\begin{pmatrix} X \\ [1] \\ 1 \end{pmatrix}$	No3-Dim $\begin{pmatrix} [X] \\ [2] \\ 1 \end{pmatrix}$
	2	-	Maj7th $\begin{pmatrix} X \\ [-2] \\ 2 \end{pmatrix}$	Min7th $\begin{pmatrix} X \\ [-1] \\ 2 \end{pmatrix}$	No3-Min7th $\begin{pmatrix} [X] \\ 0 \\ 2 \end{pmatrix}$	No3-Maj7th $\begin{pmatrix} [X] \\ 1 \\ 2 \end{pmatrix}$	No3 $\begin{pmatrix} [X] \\ [2] \\ 2 \end{pmatrix}$
	3	-	-	Min*7th $\begin{pmatrix} X \\ [-1] \\ 3 \end{pmatrix}$	No3-Augdom7th $\begin{pmatrix} [X] \\ 0 \\ 3 \end{pmatrix}$	No3-Augmaj7th $\begin{pmatrix} [X] \\ 1 \\ 3 \end{pmatrix}$	No3-Aug $\begin{pmatrix} [X] \\ [2] \\ 3 \end{pmatrix}$

Due to the limits and natural length of Saz/Bağlama's fretboard, some chord positions, which are defined from 4th to 11th FPs, could not be applied to the 1st, 2nd, 3rd, 12th, 13th, and 14th FPs. The chord positioning maps of those FPs are prepared separately and listed in tables for each proposed FPs in Appendix E. As it is seen, even though some chords are absent in the tables of those FPs, the same chain or order of the chord positioning are observed with the chord positioning of the FPs between 4th and 11th.

These positioning tables of the chords for Pençe, Tel Çekme, and even Parmak Vurma sub-techniques for all FPs provide an ultimate chart of the chords.

3.2.4 Matrix system for parmak vurma sub-technique

The left and right hands fingers' positioning on the fretboard for the Parmak Vurma sub-technique designates the vertical and horizontal progressions of the tune at the same time. Hammer-ons and pull-offs, describing the fundamental functions of the Parmak Vurma sub-technique, are performed in a certain coordination with both hands on the fretboard. Ultimately, the functional coordination of right and left hands in the Parmak Vurma sub-technique and their positioning on the fretboard specify the horizontal and vertical characteristics as well as musical textures of the tune.

The Matrix system for the Parmak Vurma sub-technique shows how any musical texture is created and progressed with right and left hands on the fretboard. In other words, the Matrix system for the Parmak Vurma sub-technique is a theoretical description of the functional harmony designed with Parmak Vurma progressions. It uses a special coordinate system to show any position of the left and right hands on the fretboard.

Unlike the Matrix symbolization for Pençe and Tel Çekme sub-techniques, a display and numerical designation of designed coordinates and positioning of two hands are developed for the Matrix symbolization of Parmak Vurma sub-technique based on the performance functions of it.

The FP, SP, and PN values will also be used in the Matrix symbolization for the Parmak Vurma sub-technique as in the case of one hand on the fretboard. Besides, some new concepts are going to be introduced, solely for the use of the Parmak Vurma sub-technique where both hands strum on the fretboard.

3.2.4.1 The concept of “connector”

The “connector” concept is used only in the structure of Matrix symbolization for the Parmak Vurma sub-technique. In the Matrix system for the Parmak Vurma sub-technique, the combination of two hands on the fretboard constitute the complete positioning of a chord. Two different finger positioning of each hand separately on the fretboard forms the determined chord degrees of a single chord. The positional correlations of left and right hands for a single chord are tied by a “connector” which is denoted with a numerical value. Basically, the connector value defines the pitch/fret distances between left and right hands in a single chord positioning. This connector value is assigned in accordance with each chromatic/half step pitches of the fretboard. The connector values between the chord positioning of each hand are calculated according to the half step pitch distances between their FPs on the upper strings.

3.2.4.2 The concept of “combination of chords” with two hands

The “combination of chords” concept determines the main framework of the Matrix system for the Parmak Vurma sub-technique.

In Pençe and Tel Çekme sub-techniques, a maximum of 3 different degrees of any chords can be used in a certain positioning of a hand on the fretboard. As two hands are used on the fretboard for the Parmak Vurma sub-technique, a total of 6 different degrees of any chords can be placed on the fretboard. Therefore, various alternative chords with multiple degrees can be generated with the Parmak Vurma sub-technique by two hands performing on the fretboard at the same time. On the other hand; 9th, 11th or 13th degrees could be added easily as chord tensions, which can result in polychords, as long as the 1st, 3rd or 5th degrees are used in combination with the tensions.

“The term polychord literally means many (poly) chords. In actual practice, a polychord is usually a combination of only two chords, which creates a more complex sound” (Haerle, 1980, p. 30). The concept of “combination of chords” defines the finger positioning combinations of two hands for two different chords. They are demonstrated in “the positioning table of the chords for Pençe and Tel Çekme sub-techniques for all fretboard positions” to generate more complex sound and tension chords such as the 7th and 9th degrees.

In Table 3.11, a combination of two different chord positioning for both hands are shown.

Table 3.11 : AbMaj7 chord positioning for parmak vurma sub-technique.

AbMAJ7 CHORD POSITIONING FOR PARMAK VURMA

Connector Value: 3 (C3)

	Left Hand Position (Ab)			Right Hand Position (Cm)		
POSITONS	1	2	3	4	5	6
FP	Bb	B	C	C#	D	Eb
Middle String (G)	-2 (Ab)				-1 (C)	
Lower String (D)	-2 (Eb)				-1 (G)	

The left-hand triad chord positioning of Ab major and the right-hand triad chord positioning of C minor create a combination of AbMaj7 chord with two hands on the fretboard. In this combination, the left-hand positioning contains the 1st, 3rd, and 5th degrees of AbMaj7. The right-hand positioning have the 3rd, 5th, and 7th degrees of the same chord as it is shown in Figure 3.33 as below.

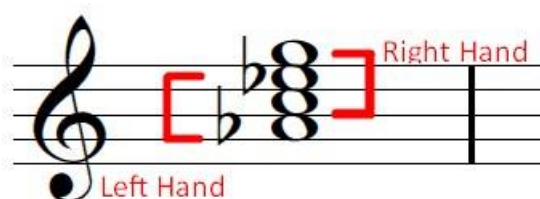


Figure 3.33 : Right-left hand split of AbMaj7 chord degrees.

In this combination of AbMaj7 as shown in Figure 3.33, two different chord positionings are combined with a connector value “C3” to form a combined Maj7 chord positioning for two hands. The numerical value of this connector points out 3-half-step-pitch-distance between FPs of the right and left hands. The left hand’s FP

is given as the pitch “C” whereas the right hand’s FP shows the pitch “Eb” which is 3-half-step-pitch distance.

In Table 3.12, the combination of two different chord positioning for both hands is given with a different connector value, “C8”:

Table 3.12 : Fmin7 chord positioning for parmak vurma sub-technique.

FMIN7 CHORD POSITIONING FOR PARMAK VURMA

Connector Value: 8 (C8)											
Left Hand Position (Ab)						Right Hand Position (Fm)					
POSITONS	1	2	3	4	5	6	7	8	9	10	11
FP	Bb	B	C	C#	D	Eb	E	F	F#	G	Ab
Middle String (sol)	-2 (Ab)									-1 (F)	
Lower String (re)	-2 (Eb)									-1 (C)	

In this case; even though the combined chord positions of right and left hands are the same with the previous sample, this combination creates a min7 chord instead since a different connector value and FP of the right hand are used. The numerical value of this connector defines 8-half-step-pitch-distance between FPs of the right and left hands. According to this different connector, the PN and SP values of the right hand demonstrate different pitches within a different FP even though the positioning values of PN and SP are the same with the previous sample of combination.

In the combination of Fmin7, which is demonstrated in Table 3.12, the left-hand positioning contains 3rd, 5th, and 7th degrees of Fmin7. The right-hand positioning has the 1st, 3rd, and 5th degrees of the same chord as it is demonstrated in Figure 3.34.



Figure 3.34 : Right-left hand split of Fmin7 chord degrees.

The concept of the connector has critical importance for FP, SP, and PN definitions of the chord positioning in the sense of chord combination with two hands. Ultimately, all chord positioning values, the connector, and the chord combination are the key essentials of the Matrix system for the Parmak Vurma sub-technique.

3.2.4.3 Structure of matrix symbolization for two hands on the fretboard

The Matrix symbolization for two hands on the fretboard is designed only for the Parmak Vurma sub-technique which can demonstrate all combined chord positions of the left and right hand on the fretboard with the FP, SP, PN, and connector parameters.

In the structure of Matrix symbolization for the Parmak Vurma sub-technique, two different chord positioning of the left and right hands are correlated in a way to form a combined single chord positioning with separately given FP, SP, and PN values. The combination of two separate chord positions are concretized by FP, SP, and PN values and systematically defined as a single combined chord position with the help of the connector values.

All numerical values of SP and PN related to the FPs of two different chord positions and the value of the connector give the coordinates of any single, fixed, and stable chord positioning for the Parmak vurma technique. Here the numerical value of the connector determines the number of temperament frets that exist between the distance of the left and right hands

In Figure 3.35, a positioning of G major is visualized on the fretboard of the instrument. For the left hand; FP is located on the fifth position which is D note on the upper string, SP is located on B note on the middle string, and PN is presented with G note of the lower string. For the right hand; FP is located on the tenth position with G note on the upper string, SP is presented with D note on the middle string and PN is located on B note on the lower string.

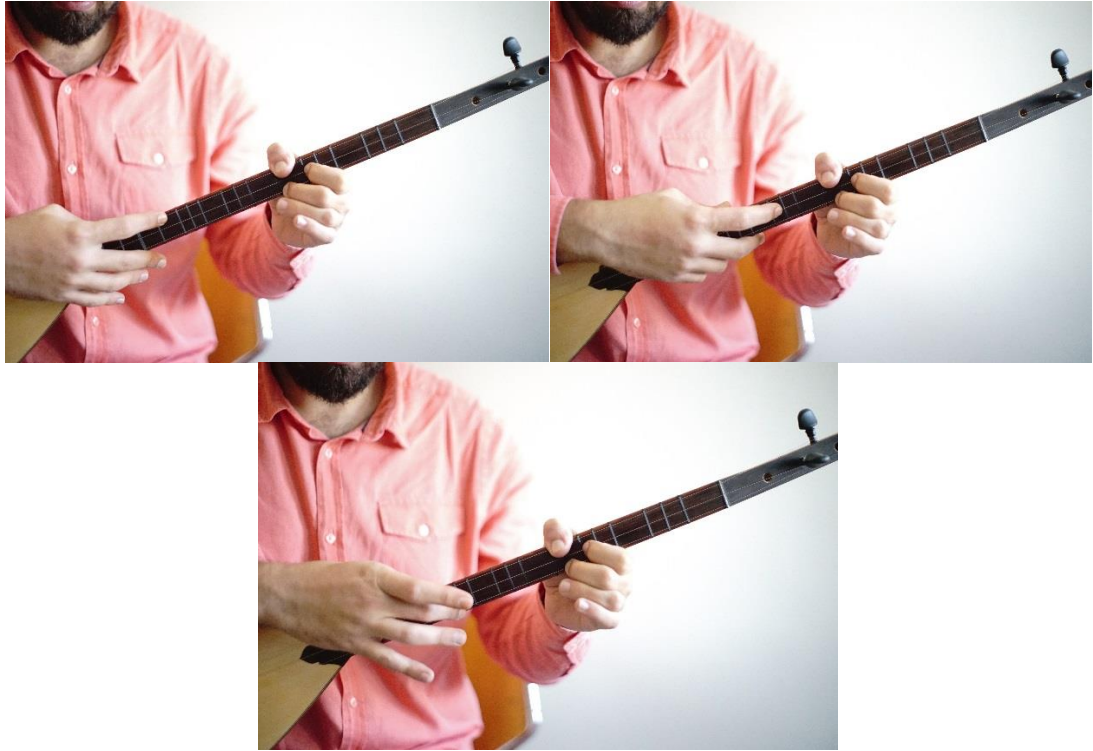


Figure 3.35 : Hand positioning of G major for parmak vurma sub-technique.

The chord positioning of G major in Figure 3.35 is transposed into the Matrix system for two hands and shown in Table 3.13 as below.

Table 3.13 : Matrix symbolization example of G major for two hands.

$$\begin{array}{c}
 \text{G} \\
 \left(\begin{array}{cc} D & [G] \\ -1 & C5 \\ [0] & -3 \\ & -1 \end{array} \right) \\
 \text{Left Hand} \quad \text{Connector} \quad \text{Right Hand} \\
 \text{Name of the Chord} \\
 \left(\begin{array}{cc} FP & FP \\ SP & C? \\ PN & SP \\ & PN \end{array} \right)
 \end{array}$$

In this Matrix symbolization of G major chord positioning, left and right hands separately contain the triad inversions of G major chord positioning. The connector value is presented as “C5”. The left hand’s FP is represented with “D” and the right hand’s FP is represented with “[G]” creating a 5-half-step-pitch-distance between right and left hands.

The Matrix symbolization of this G major chord positioning combination for two hands contains a sort of fixed and stable positioning of the major chord in 12 tones. However, this positioning might not be applicable in some keys due to the limited fretboard range of the instrument. In Figure 3.36, the positioning combination of A major is shown on the fretboard.



Figure 3.36 : Hand positioning of A major for parmak vurma sub-technique.

Visually, the left and right hands' positioning on the string does not change as it indicates the same type of positioning yet in a different key. Therefore, the values of the positioning sample of previous G major and this positioning sample of A major in Matrix symbolization have the fixed numerical values in parallel which implies their same visual shapes as it is seen in Table 3.14 below.

Table 3.14 : Matrix symbolization example of A major for two hands.

$$\begin{matrix} & & A \\ \left(\begin{array}{cc} E & [A] \\ -1 & C5 \\ [0] & -1 \end{array} \right) \end{matrix}$$

In the positioning samples of the aforementioned G major and A major, both right and left hands contain separate major chords in different inversions to create a combination of a major chord with two hands on the fretboard. This combination has only the 1st, 3rd, and 5th degrees. In Table 3.15, a combination of E7 chord positioning for two hands is demonstrated with Matrix symbolization for the Parmak Vurma sub-technique.

Table 3.15 : Matrix symbolization example of E7 for two hands.

$$\begin{matrix} & & E7 \\ \left(\begin{array}{cc} B & D \\ -1 & C3 \\ [0] & -1 \end{array} \right) \end{matrix}$$

In this Matrix symbolization of E7 chord positioning, a sort of polychord combination is seen between two hands. The left hand has a typical triad major chord positioning and the right hand have a diminished chord positioning to combine a dominant seventh chord position for two hands with a connector value of “C3”. The left hand’s triad major chord positioning takes the 1st, 3rd, and 5th degrees and the right hand’s diminished chord positioning completes the 3rd, 5th, and 7th degrees of the E7 chord.

In Table 3.16, a combination of E major chord positioning for two hands is shown with Matrix symbolization for the Parmak Vurma sub-technique to highlight one of the importance of the connector concept.

Table 3.16 : Matrix symbolization example of E major for two hands.

$$\begin{matrix} & & E \\ & & \\ \left(\begin{array}{ccc} B & & B \\ 2 & C12 & -1 \\ [0] & & [0] \end{array} \right) \end{matrix}$$

In this Matrix symbolization of E major chord positioning, two different points draw the attention. First, this major triad chord is combined with two different types of chords, where one of them does not contain all the degrees of the combined major triad chord. The left-hand positioning, defined as “No3”, gives only the 1st and 5th degrees of the major chord. The right-hand positioning shows a common positioning of the major triad chord which has the 1st, 3rd, and 5th degrees. Secondly, the FPs of both right and left hands positioning contain the same character “B”, which might be separately performed from the 2nd or 14th FPs with Pençe or Tel Çekme sub-technique if the connector value for Parmak Vurma sub-technique would not exist. The connector value “C12” refers to a one-octave range between two hands’ positioning for the Parmak Vurma sub-technique. The left hand’s FP demonstrates the second position and the right hand’s FP points out the 14th position within a combined E major chord positioning for two hands.

All the concepts and explained points of the structure of Matrix symbolization for two hands on the fretboard constitute the main principals of this system for the Parmak Vurma sub-technique.

3.2.4.4 Limitations for tensioned chords and stabilizing chord degrees

In the Matrix system for the Parmak Vurma sub-technique, the chord degrees can be handled in numerous alternative ways within the combination of any chord positioning with two hands. Some of the chord degrees might be omitted from the combination or could be duplicated by both left and right hands’ positioning within a certain chord combination for the Parmak Vurma sub-technique. All alternative ways of selecting chord degrees for positioning of a chord with two hands can be transposed into the Matrix symbolization for the Parmak Vurma sub-technique. Nevertheless, in order to develop a chart for all chord positions for two hands on the fretboard with a certain systematical rule, the stabilization for all sorts of chords is needed. According to this systematical stabilization rule for using chord degrees, all

degrees of a certain chord must be used at least for one time either within the left or right hands' chord positioning. This should include a complete chord combination for two hands on the fretboard. The same chord degree within a chord positioning with two hands can be used twice or three times as long as all chord degrees of the chord is used at least for one time.

In Table 3.17, the stabilized degrees of chords for hand positioning for the Parmak Vurma sub-technique are listed.

Table 3.17 : Stabilized degrees of chords for positioning with parmak vurma sub-technique.

TYPES OF CHORDS	STABILIZED DEGREES
Major	1-3-5
Minor	1-b3-5
Suspended	1-4-5
Augmented	1-3-#5
Diminished	1-b3-b5
Major7th	1-3-5-7
Dominant7th	1-3-5-b7
Minor7th	1-b3-5-b7
Half-Diminished7th	1-b3-b5-b7
Diminished7th	1-b3-b5-bb7
Minor#7	1-b3-5-7
Suspended Major7th	1-4-5-7
Suspended Minor7th	1-4-5-b7
Augmented Major7th	1-3-#5-7
Augmented Dominant7th	1-3-#5-b7
Major9th	1-3-5-7-9
Dominant9th	1-3-5-b7-9
Dominantb9th	1-3-5-b7-b9
Minor9th	1-b3-5-b7-9
Half-Diminished9th	1-b3-b5-b7-9

In the Matrix system for the Parmak Vurma sub-technique, all types of tensioned chords are demonstrated and their chord degrees can be used in numerous alternative ways within a combination of chord positioning. However, in the case of the degrees of 11th and 13th, where all the chords are used, the combination of the chord with two hands on the fretboard results in a complete polychordal structure, which is inappropriate to develop a systematical chart. Furthermore, in the case of omitting the degrees of 11th and 13th in some chords, the combination of the chord with two hands on the fretboard results in numerous alternatives, which is also not suitable for

mapping a systematical chart of all chord positioning combined for two hands on the fretboard. Due to these two main reasons, 11th and 13th degreed chords are not used as a limitation rule in the chart of chord positioning for the Parmak Vurma technique. This limitation will be explained in the next chapter. Besides, the 7th and 9th degreed chords are mapped completely according to the stabilization rule of chord degrees in this chart.

3.2.4.5 Positioning tables of the chords for parmak vurma sub-technique on all fretboard positions

All positional combinations of 20 different chord types for two hands on the fretboard, where their degrees are stabilized and their names are listed in Table 3.17, are determined and listed separately without considering the keys of the chords.

All chord positions for Pençe and Tel Çekme sub-techniques – which are predetermined and their positioning on the fingerboard are codified with FP, PN, and SP values – are used in various ways within the system of chord combinations for two hands according to previously supposed limitation and stabilization rules.

Various combinations created for each chord of the Parmak Vurma sub-technique by using the chord positions for Pençe and Tel Çekme sub-techniques are tabulated by each chord type separately and listed by their connector values in the positioning tables of the chords for the Parmak Vurma sub-technique.

In these tables, all combinations of the chords display the coordinates of each chords' positions for all fretboard positions available for the Parmak Vurma sub-technique. Their positioning values are determined within the structure of Matrix symbolization for two hands.

In Table 3.18, a chart of major triad chord's positions for the Parmak Vurma sub-technique and chord combinations for two hands on the fretboard are shown.

As it is seen, all chord combinations and positional charts of major triad chords are sorted by the connector values on the left column. All 14 fretboard positions are drawn on the top of the table.

Table 3.18 : Chart of major triad chord combinations and hand positioning for parmak vurma sub-technique.

CONNECTOR	POSITIONS/PITCHES													
	1/B \flat	2/B	3/C	4/C \sharp	5/D	6/D \sharp	7/E	8/F	9/F \sharp	10/G	11/A \flat	12/A	13/B \flat	14/B
0		$\begin{smallmatrix} x \\ -1 \\ [0] \end{smallmatrix}$ C0 $\begin{smallmatrix} x \\ 2 \\ [0] \end{smallmatrix}$												
			$\begin{smallmatrix} x \\ [-2] \\ -2 \end{smallmatrix}$ C0 $\begin{smallmatrix} x \\ 2 \\ [3] \end{smallmatrix}$											
				$\begin{smallmatrix} [x] \\ -3 \\ -1 \end{smallmatrix}$ C0 $\begin{smallmatrix} [x] \\ [2] \\ 2 \end{smallmatrix}$										
3	$\begin{smallmatrix} x \\ 2 \\ [3] \end{smallmatrix}$	C3		$\begin{smallmatrix} x \\ 2 \\ [0] \end{smallmatrix}$										
			$\begin{smallmatrix} x \\ [-2] \\ -2 \end{smallmatrix}$	C3		$\begin{smallmatrix} x/x \\ -1/2 \\ [0]/[0] \end{smallmatrix}$								
			$\begin{smallmatrix} x \\ 2 \\ -2 \end{smallmatrix}$	C3		$\begin{smallmatrix} x/x \\ -1/2 \\ [0]/[0] \end{smallmatrix}$								
4	$\begin{smallmatrix} [x] \\ [2] \\ 2 \end{smallmatrix}$	C4			$\begin{smallmatrix} x/x/x \\ [-2]/2/2 \\ -2/-2/[3] \end{smallmatrix}$									
		$\begin{smallmatrix} [x] \\ [2] \\ -1 \end{smallmatrix}$	C4			$\begin{smallmatrix} x/x \\ [-2]/2 \\ -2/[3] \end{smallmatrix}$								
				$\begin{smallmatrix} [x] \\ -3 \\ -1 \end{smallmatrix}$	C4		$\begin{smallmatrix} x/x/x \\ [-2]/2/2 \\ -2/-2/[3] \end{smallmatrix}$							
5	$\begin{smallmatrix} x \\ 2 \\ [0] \end{smallmatrix}$	C5				$\begin{smallmatrix} [x]/[x] \\ -3/[2] \\ -1/-1 \end{smallmatrix}$								
		$\begin{smallmatrix} x \\ -1 \\ [0] \end{smallmatrix}$	C5				$\begin{smallmatrix} [x]/[x]/[x] \\ -3/[2]/[2] \\ -1/-1/2 \end{smallmatrix}$							
7	$\begin{smallmatrix} [x] \\ [2] \\ 2 \end{smallmatrix}$	C7						$\begin{smallmatrix} x \\ -1 \\ [0] \end{smallmatrix}$						
		$\begin{smallmatrix} [x] \\ [2] \\ -1 \end{smallmatrix}$	C7						$\begin{smallmatrix} x/x \\ -1/2 \\ [0]/[0] \end{smallmatrix}$					
				$\begin{smallmatrix} [x] \\ -3 \\ -1 \end{smallmatrix}$	C7						$\begin{smallmatrix} x/x \\ -1/2 \\ [0]/[0] \end{smallmatrix}$			

Table 3.18 (continued) : Chart of major triad chord combinations and hand positioning for parmak vurma sub-technique.

CONNECTOR	POSITIONS/PITCHES															
	1/B \flat	2/B	3/C	4/C \sharp	5/D	6/D \sharp	7/E	8/F	9/F \sharp	10/G	11/A \flat	12/A	13/B \flat	14/B		
8	x 2 [3]	C8								$[x]/[x]$ -3/[2] -1/2						
			x [-2] -2	C8								$[x]/[x]/[x]$ -3/[2]/[2] -1/-1/2				
			x 2 -2	C8								$[x]/[x]/[x]$ -3/[2]/[2] -1/-1/2				
9	x 2 [0]	C9								$x/x/x$ [-2]/2/2 -2/-2/[3]						
		x -1 [0]	C9								$x/x/x$ [-2]/2/2 -2/-2/[3]					
12	$x/[x]/x$ 2/[2]/2 [0]/2/[3]	C12											$x/[x]/x$ -1/-3/[-2] [0]/-1/-2			
		$x/[x]$ -1/[2] [0]/-1	C12											$x/[x]$ -1/-3 [0]/-1		

The dark grey color demonstrates the actual coordinate of a chord position for two hands on the fretboard. This dark grey color part is extended according to the connector value of the chord combination. As the connector value is increased, the dark grey color part, which covers the area of the chord combination or the actual positioning area, is extended. The light grey color points out each chords' potential positioning areas or extendable areas of any chord combinations according to the limitation rules of FP, SP, and PN values (Table 3.19).

Table 3.19 : Actual coordinate of a chord combination and its extendable areas in the chart.

CONNECTOR	POSITIONS/PITCHES													
	1/Bb	2/B	3/C	4/C#	5/D	6/D#	7/E	8/F	9/F#	10/G	11/Ab	12/A	13/Bb	14/B
3	$\begin{matrix} x \\ 2 \\ [3] \end{matrix}$		$\begin{matrix} C3 \end{matrix}$	$\begin{matrix} x \\ 2 \\ [0] \end{matrix}$										

Extendable Areas of the Hand Position and Chord Combination through different FPs

Dark Grey Area: The Actual Coordinate of the Hand Position and Chord Combination

In this case, a chord position for one hand is combined with multiple alternative chord positions for the other hand in order to form a type of chord position for two hands. The alternative chord positions are divided by slashes and the extendable areas of all divided alternative combinations are demonstrated separately with smaller lines than lines used for the main one (Table 3.20).

Table 3.20 : Multiple alternative chord combinations with right hand and their positional areas in the chart.

CONNECTOR	POSITIONS/PITCHES													
	1/Bb	2/B	3/C	4/C#	5/D	6/D#	7/E	8/F	9/F#	10/G	11/Ab	12/A	13/Bb	14/B
3			$\begin{matrix} x \\ [-2] \\ -2 \end{matrix}$		$\begin{matrix} C3 \end{matrix}$	$\begin{matrix} x/x \\ -1/2 \\ [0]/[0] \end{matrix}$								

First Alternative of the Chord Combination Second Alternative of the Chord Combination

$$\begin{pmatrix} X & X \\ [-2] & C3 & -1 \\ -2 & & [0] \end{pmatrix} \qquad \begin{pmatrix} X & x \\ [-2] & C3 & 2 \\ -2 & & [0] \end{pmatrix}$$

Furthermore, in this case, multiple chord positions for one hand, divided by slashes, are combined with multiple chord positions for the other hand. The combinations for both hands, divided by slashes, are formed separately in regular turn as shown in Table 3.21 below.

Table 3.21 : Multiple alternative chord combinations with both hands and their positional areas in the chart.

CONNECTOR	POSITIONS/PITCHES												
	1/Bb	2/B	3/C	4/C#	5/D	6/D#	7/E	8/F	9/F#	10/G	11/Ab	12/A	13/Bb
12		$\begin{matrix} x/[x] \\ -1/[2] \\ [0]/-1 \end{matrix}$	C12										$\begin{matrix} x/[x] \\ -1/-3 \\ [0]/-1 \end{matrix}$

First Combination

$$\begin{pmatrix} X & & X \\ -1 & C12 & -1 \\ [0] & & [0] \end{pmatrix}$$

Second Combination

$$\begin{pmatrix} [X] & & [x] \\ [2] & C12 & -3 \\ -1 & & -1 \end{pmatrix}$$

The table of major triad chord positioning for the Parmak Vurma sub-technique and its combination chart for two hands shows that all different combinations and positioning values give a complete positioning of the major triad chord for two hands on the fretboard. This demonstration is of course within the limitation rules of FP, SP and PN values and the stabilizing rules of chord degrees. This structure of the major triad chord positioning table is applied for the other 19 types of chords such as 7th degreed chords, 9th degreed chords, and their sub-types with the same demonstration strategy. A complete set of tables for each is given in Appendix F.

All these proposed tables do not contain the combination of the chords for two hands and their positions on the fretboard which are formed as an exception to the stabilization and limitation rules with numerous alternatives. The exceptions are allowed although all sorts of chord combinations for two hands could be formed with the Matrix system. These tables, rather, provide systematical diagrams of the chord positions used for the Parmak Vurma sub-technique and all types of their combinations for two hands within the designated rules of stabilization and limitation.

3.2.5 Exceptional cases in matrix system

Two main categories of exceptional cases in Matrix System are going to be explained in this topic.

The first exceptional case contains the ways of using open strings inside the chord positions and combinations in the Matrix system. In this exceptional case, positional limitation rules of the chords for SP and PN values have an essential role.

If any open string for FP, SP or PN falls into the positional limitation of the chord position, SP or PN values and either FP symbols are put in the parenthesis in the Matrix symbolization for both “one-hand on frets” and “two-hands on frets”, as seen in Table 3.22.

Table 3.22 : Symbolization for open strings within the positional limits of FP, SP, and PN values.

Em	G
$\begin{pmatrix} B \\ (-2) \\ [0] \end{pmatrix}$	$\begin{pmatrix} B & & [G] \\ 2 & C8 & -3 \\ (-2) & & -1 \end{pmatrix}$

If the open string for FP, SP or PN falls into the positional limitation of the chord position as root degree of that chord, SP or PN values and FP symbols are demonstrated as shown in Table 3.23.

Table 3.23 : Symbolization for open strings as root degrees within the positional limits of FP, SP, and PN values.

G	A
$\begin{pmatrix} B \\ [(-2)] \\ (-2) \end{pmatrix}$	$\begin{pmatrix} [(A)] & & E \\ [2] & C7 & -1 \\ 2 & & [0] \end{pmatrix}$

If any open string used for FP, SP or PN falls out of the positional limits of the chord position, the pitch symbol (a Latin letter) of the open string is written in parenthesis for both FP, SP, and PN in the Matrix symbolization for both “one-hand on the frets” and “two-hands on the frets” as shown in Table 3.24.

Table 3.24 : Symbolization for open strings out of the positional limits of FP, SP, and PN values.

G	Am7
$\begin{pmatrix} B \\ [-2] \\ (D) \end{pmatrix}$	$\begin{pmatrix} E & & [A] \\ (G) & C5 & -3 \\ [0] & & -1 \end{pmatrix}$

If the open string used for FP, SP or PN falls out of the positional limits of a chord position as the root degree of that chord, the pitch symbol (a Latin letter) of the open string is demonstrated as shown below (Table 3.25).

Table 3.25 : Symbolization for open strings as root degrees out of the positional limits of FP, SP, and PN values.

$\begin{matrix} \text{Gm} \\ \left(\begin{array}{c} D \\ [(G)] \\ 3 \end{array} \right) \end{matrix}$	$\begin{matrix} \text{Dm7} \\ \left(\begin{array}{ccc} F & & A \\ 2 & C4 & 2 \\ [(D)] & & -2 \end{array} \right) \end{matrix}$
--	---

The second exceptional case is related to unused FP, SP, and PN values inside a chord position and combinations in the Matrix system. The FP, SP, and PN values do not have to be used all at once in a single chord position. Even a single value of a chord positioning could be enough to be identified as a positioning.

In the Matrix symbolization for one hand; if an SP or PN value is not used within a chord positioning, hyphens are used as a placeholder. In this case, middle or lower strings are not used for positioning of the chord for one hand. According to this exceptional case, the middle or lower strings are not used during the performance of the chords any more (Table 3.26).

Table 3.26 : Unused SP and PN values in matrix symbolization designed for one hand.

$\begin{matrix} \text{Dno3} \\ \left(\begin{array}{c} [D] \\ - \\ 2 \end{array} \right) \end{matrix}$	$\begin{matrix} \text{Dno3} \\ \left(\begin{array}{c} [D] \\ -3 \\ - \end{array} \right) \end{matrix}$
--	---

In case the FP is not used within a chord positioning, a hyphen is put on the FP's place in the Matrix symbolization for one hand. However, the FP value has an essential role in defining the coordinates of any chord positioning on the fretboard. In a chord position on the fretboard, the SP and PN values are appointed according to their predetermined FP value. In case of lack of the FP, the SP value on the middle string takes the role of FP, which is symbolized with pitch names (a Latin letter), instead of numerical values. This pitch names determine the coordinate value of PN

in a chord positioning as shown in Table 3.27. According to this rule, the upper string position, shown with FP, is not used anymore during the performance of the chords within certain positioning.

Table 3.27 : Unused FP value in matrix symbolization designed for one hand.

Cno3

$$\begin{pmatrix} - \\ [C] \\ 0 \end{pmatrix}$$

In case the SP and PN are not used within a chord combination, which is demonstrated with the Matrix symbolization for two hands, hyphens are used as a placeholder in the matrix diagram. In this case, middle or lower strings are not used for positioning of the chord and performing of the combination with the Parmak Vurma sub-technique (Table 3.28).

Table 3.28 : Unused SP and PN values in matrix symbolization designed for two hands.

$$\begin{array}{ccc} \text{D7} & \text{C9} & \text{Bm7} \\ \begin{pmatrix} [D] & A \\ - & C7 & -1 \\ 2 & & -2 \end{pmatrix} & \begin{pmatrix} [C] & E \\ 0 & C4 & 0 \\ 2 & & - \end{pmatrix} & \begin{pmatrix} [B] & D \\ 0 & C3 & - \\ - & & -1 \end{pmatrix} \end{array}$$

In the Matrix symbolization for two hands; if the FP values are not used within a chord combination, hyphens are used as a placeholder. In this case, the upper string is not used for positioning and performing the chord for two hands' combination.

In case of lack of FPs in the chord combination for two hands, the FP role of left and right hands in a certain chord combination is given to other position values in various ways. For the missing FP of the left hand in the combination, the SP value on the middle string takes the role of FP and pitch names (a Latin letter) are given for this SP to determine the coordinates of the left hand's PN (Table 3.29).

Table 3.29 : Unused left hand's FP value in matrix symbolization designed for two hands.

$$\begin{matrix} & & \text{Dm7} \\ \begin{pmatrix} - & & [D] \\ A & C3 & 0 \\ 1 & & 2 \end{pmatrix} \end{matrix}$$

For the missing FP of the right hand in the combination, in case the FP is hyphenated, the SP and PN values continue with their original roles of right hand's chord positioning and are denoted with their original numerical values. In this case, the place of missing FP of the right hand is defined with the connector value of the chord combination. The connector value gives the pitch distances between FPs of right and left hands. The unused FP place of the right hand is calculated according to the left hand's FP by using the connector value. The SP and PN coordinate values of the right hand are determined by this connector value, which automatically gives the unused FP place of the right hand (Table 3.30).

Table 3.30 : Unused right hand's FP value in matrix symbolization designed for two hands.

$$\begin{matrix} & & \text{Cmaj7} \\ \begin{pmatrix} [C] & & - \\ 1 & C9 & 0 \\ 2 & & 2 \end{pmatrix} \end{matrix}$$

Moreover; in case the FPs of right and left hands are hyphenated in the combination at the same time, the SP of the left hand takes the role of the FP value, which is shown with pitch names in Latin letter. The connector value is determined according to this SP of the left hand, which takes the role of the left hand's FP. Ultimately, the SP and PN coordinate values of the right hand are determined by the connector value, which indirectly shows the place of unused FP of the right hand in the combination for two hands (Table 3.31).

Table 3.31 : Unused FP values of both hands in matrix symbolization designed for two hands.

$$\begin{matrix} & & G \\ \begin{pmatrix} - & & - \\ B & C3 & 0 \\ [1] & & 2 \end{pmatrix} \end{matrix}$$

3.2.6 Positional mixture (shifting) of the chord positions for parmak vurma sub-technique in matrix system

The shift of right and left hands rapidly within the multiple chord positions, dividing the musical progression into two octaves produced within multiple positions, and the accelerated use of the hands on the fretboard are the key technical features of producing musical textures with Parmak Vurma sub-technique.

The fixed chord positions of right and left hands could be inadequate for various musical texture, accompaniment, and solo melodic progression of the Şelpe technique. The concept of “combination of chords” in the Matrix system for the Parmak Vurma sub-technique provides prosperity for the Şelpe technique. Moreover, this concept shows the real musical potential of traditional and modern Parmak Vurma sub-technique in a limited way as such.

At this point, a new concept in the Matrix system titled, “positional mixture and shifting of the chord positions for Parmak Vurma sub-technique”, provides a broadened combination method for the chords with two hands. This concept aims to foster the use of multiple positioning of the left and right hands in a single type of chord beyond the limitation rules of FP, SP, and PN.

In this way; a methodological way of mapping and a practical way of symbolization are provided to use arpeggios with Parmak Vurma sub-technique in wider octave ranges formed by the mixture or the shifting of multiple chord positions.

In Table 3.32, The positional mixture sample of Amin9 combination for Parmak Vurma sub-technique is shown.

Table 3.32 : Positional mixture instance of Amin9 combination for parmak vurma sub-technique.

$$\begin{pmatrix} C & [A]/E \\ [-1] & C9/4 & -3/-3 \\ -1 & & -2/-2 \end{pmatrix}$$

In this sample, the left-hand position for Amin9 combination contains a single “A” minor positioning. The right-hand position contains two different types of chord positioning at the same time. The first positioning gives an A minor chord and the second positioning gives an E minor chord. All degrees of these chords create an Amin9 chord combination in total. With the right hand, two different positions of A minor and E minor chords are mixed to provide all degrees of Amin9 chord in the combination. The connector numbers “C9/4” are sorted by the first and second positions of the right hand. A performance example of this combination is given in Figure 3.37.



Figure 3.37 : Amin9 positional mixture example for parmak vurma sub-technique.

In Table 3.33, an alternative positional mixture sample of Amin9 combination is given.

Table 3.33 : Alternative positional mixture instance of Amin9 combination.

$$\begin{pmatrix} C/C & [A]/E \\ [-1]/[-1] & C9/4 & 0/-3 \\ -1/2 & & -2/[0] \end{pmatrix}$$

According to this sample, the positions of both left and right hands contain two different types of chord positioning. The left hand contains the positional mixture of A minor and Amin7. The right-hand position provides another mixture of Amin7 and Esus4 chords. During the performance of this combination created by the positional mixture of these chords with both hands; A minor of left-hand positioning is combined with Amin7 of the right hand. In addition, Amin7 of the left hand is

combined with Esus4 of the right hand positioning. A sample of Amin9 combination's performance is notated in Figure 3.38.

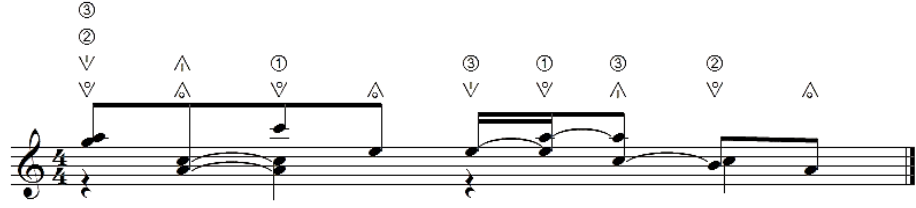


Figure 3.38 : Amin9 alternative positional mixture performance example.

All degrees of the combined chords or all FP, SP, and PN values of the chord positions in a combination created by positional mixtures might not always be used as it is seen in Table 3.34.

Table 3.34 : Positional mixture instance of AMaj7 combination.

$$\begin{matrix} & \text{Amaj7} \\ \left(\begin{array}{cc} C\# & E/G\# \\ [-2] & C3/7 \\ -2 & -1/- \\ & -/0 \end{array} \right) \end{matrix}$$

As it is seen in this example, the right hand provides some degrees of AMaj7 combination within two different chord positionings which are shifted. A performance sample of this combination is notated in Figure 3.39.

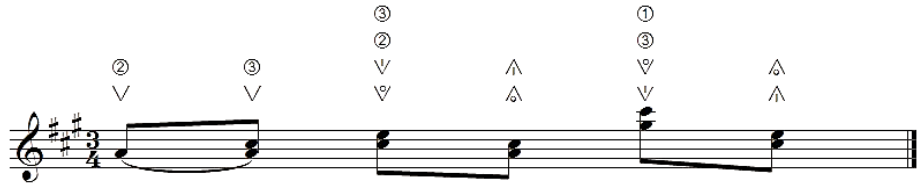


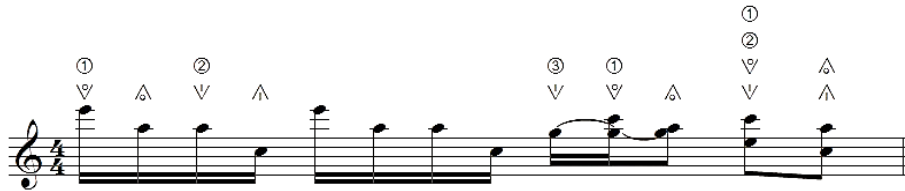
Figure 3.39 : AMaj7 positional mixture performance example.

One of the advanced use of positional mixture in a combination is given in Table 3.35.

Table 3.35 : Positional mixture instance of Amin7 combination.

$$\begin{matrix} & \text{Amin7} \\ \left(\begin{array}{cc} - & -/G \\ C & C9/5 \\ [2] & [0]/-1 \\ & 0/0 \end{array} \right) \end{matrix}$$

According to this combination of Amin7, the left-hand positioning contains only SP and PN values which give “C-A”, an M6 interval. The right hand contains a positional mixture of “A-E”, P5 interval and C major. All degrees of mixed chord positions in this combination create an Amin7 chord positioning for the Parmak Vurma sub-technique. A designed performance sample of this combination is notated and shown in Figure 3.40.



fretboard for Şelpe. This feature has an important role in the performances where all compositional details are not fully specified such as the performance of improvisational music or the performance of the compositions. Accompaniment parts or solo parts of Şelpe contain a high-level harmony practice within the predetermined hand positioning of the chords on the fretboard with the Matrix system. This feature helps the performers to apply various innovative performing figures of Şelpe's sub-techniques and to design more unique and freer strumming patterns and alternative arpeggiations of the chords.

Accompaniment parts of Şelpe are generally used in different and complex ways to obtain diverse timbres, and designing it takes more time when conventional Şelpe notation and transcription system is used. Herewith, the predetermination of hand positioning on the fretboard for any musical texture and especially for accompaniment parts of Şelpe will serve as a practical compositional guide for any musical creations, especially for improvisational performances. It will also save time in the case of creating any elaborate vertical music textures with Şelpe technique when the time is limited.

3.3.1 Şelpe accompaniments with matrix system

The determination of chord progressions of any main melody or a melodic scale is the first step for creating Şelpe accompaniments with the Matrix system.

A hand position on the fretboard or more hand positions could optionally be created by using the Matrix system within the determined chord progression of any tune, which is shifted or mixed for a single type of chord. Moreover, two different chord positions of both hands could be designed as a complete positioning with the positional shifting rule for polychord, which is formed by adding the tension degrees such as 9th, 11th, 13th degrees of the chords.

The performers can create the melodic progression or perform arpeggio performances ad libitum within the predetermined hand positioning of a type of chord with the Matrix system and its general rules. It depends on the compositional and performance choices of the performers.

There is only a single rule determined by the Matrix system for Şelpe performances of accompaniment to design chord positions for one or both hands. In the Matrix

positioning for one hand, chords are performed by any performance figures of Pençe and Tel Çekme sub-techniques. In the Matrix positioning for two hands, only the figures of the Parmak Vurma sub-technique are used for performances.

In the Matrix system for accompaniment, determined hand positioning of the chords should be simply and cognizably noticed with Matrix symbolization so far as possible. In the chord arpeggiation, the performing order of the chord degrees is not determined and shown by the Matrix system. Moreover; Matrix symbolization does not demonstrate open strings used congruously with the degrees of the chords within the determined hand positions. Open strings could always be used during the accompaniment performances with the determined chords and within the chord positions shown by Matrix symbols notwithstanding any rules, performing orders, and demonstrations.

Some samples are chosen from the Turkish makam music tradition. The makam system contains idiosyncratic melodic progressions, pitches, and special scale structures issued by the use of microtones. However, the Turkish makam music system is not preferred to apply directly to the Matrix system in this study. There is no standard polyphonic practice defined, admitted and applied for Makam music and the exact tuning of the microtonal scale degrees still remain unstandardized. Saz/Bağlama also contains some microtonal frets with approximately defined positions since its repertoire mostly includes makam music pieces. Yet, as it is stated in chapter 3.2.2.2, the microtonal frets of Saz/Bağlama and some structural features of the related temperament systems are not incorporated in the Matrix system. Moreover, a proposal of certain harmonic practice for this kind of music system is out of this study's scope. The matrix system is preferred to be put into practice with commonly used harmonic practices in modern Şelpe music, the harmonic practice of Western tonal music so to say, in which the rules and the concepts are completely defined within the framework of equal temperament system.

Under these general structures and rules, two models of implementation of Şelpe accompaniment are going to be presented with the Matrix system. The first accompaniment sample is a tune titled "Gülnehal" composed by Hammamizade İsmail Dede Efendi (1778-1846). The full score of the Şelpe accompaniment shown by Matrix system is given in Appendix G1. The other Şelpe accompaniment sample is Dido's Lament, "When I am laid in earth" from the opera Dido and Aeneas by

Henry Purcell (1659-1695). The full notation and the accompaniment part shown with the Matrix system is given in Appendix G2.

In these samples, determined and demonstrated hand positions of the chords by Matrix system are given with the notations of performance samples in favor of comprehensibility by comparison of Matrix symbolization with Şelpe notation.

Firstly, we used the Matrix system to create the Şelpe accompaniment finger positioning of the first example, Gulnihal, primarily for the sake of comprehensibility.

The score of “Gülñihal”, which is given in Figure 3.41, is notated in respect to the conventions of Turkish makam music. The piece is in “Rast” makam, which contains certain microtonal pitches both in its key signature and also as in-bar accidentals due to the requirements of some melodic progressions. The tonic degree of the tune is G. According to the Turkish makam music theory; the pitch G, named as the “Rast” pitch, equals to the pitch C (when A4 is tuned to 440 Hz). The Şelpe accompaniment sample of “Gülñihal” created with the Matrix system is notated using pitches available in 12-tone equal temperament system which resulted in a major key. The microtonal pitches of the Rast makam are represented by the closest pitch in 12-tone equal temperament for the reasons explained above. Moreover, for the sake of comparison with the other samples, the piece is transposed so that the tonic note will be A.

USÛLÜ : SEMÂİ

RAST ŞARKI

YİNE BİR GÜL-NİHÂL ALDI BU GÖNLÜMÜ

MÜZİK : İSMÂİL DEDE
(Hammâmîzâde)

ARANAĞME

Yİ GÖR NE ME BİR DİM GÜL KİM Nİ SE HÂL DE AL(1-2) Dİ LE

BU BİR GÖN DİL LÜ RÜ MÜ BÂ GÖN DİL LÜ RÜ MÜ BÂ

SİM BÖY LE TEN KAŞ GÖN BÖY CA LE FEM GÖZ BÂ BE LE

DEL EL OL BÖY GÜ LE ZEL YÜZ OL BÖY GÜ LE ZEL YÜZ

Â Â TE Şİ ŞİN KİN RÜH BAĞ LE Rİ Nİ YAK Tİ ME

BU YE GÖN GÖZ LÜ SÜ MÜ ZER GÖN GÖZ LÜ SÜ MÜ ZER

PÜR EL E A DÂ MAN PÜR PEK CE YA FÂ MAN HER HER ZA ZA

MAN MAN OL OL GÜ GÜ ZEL ZEL OL OL GÜ GÜ ZEL ZEL (SON)

YİNE BİR GÜL-NİHÂL ALDI BU GÖNLÜMÜ,
SİM-TEN, GONCA-FEM.Bİ-BEDEL OL GÜZEL
ÂTEŞİN RÜHLERİ YAKTI BU GÖNLÜMÜ,
PÜR-EDÂ,PÜR-CEFÂ,PEK KÜÇÜK,PEK GÜZEL.

GÖRMEDİM KİMSEDE, BÖYLE BİR DİL- RÜBÂ,
BÖYLE KAŞ, BÖYLE GÖZ, BÖYLE EL, BÖYLE YÜZ.
ÂŞIKIN BAĞRINI ÜZMEYE GÖZ SÜZER,
EL AMAN, PEK YAMAN, HER ZAMAN OL GÜZEL.

Figure 3.41 : The score of the composition “Gülñihal” presented with the rules of the Turkish makam music structure.

In the sample of Gülñihal’s Şelpe accompaniment, one single hand positioning on the fretboard is defined for each chord. As is seen in the example, conventional notation and transcription symbols of the Şelpe technique naturally give an idea for the

positioning of each chord on the fretboard, in which the strings are used for hammer-ons and pull-offs. However, in this case, it is cumbersome to recognize the finger positioning of the chords because of the detailed notation system and a wide variety of transcription symbols of the Şelpe technique. Herewith, the Matrix system for accompaniment provides a practical tool for recognizing the chord positioning on the fretboard and to perform alternative ways ad libitum.

For the second example, “When I am Laid in Earth”, double-necked Saz/Bağlama is used to create the Matrix system for Şelpe accompaniment. In this piece, the whole accompaniment part of Şelpe for double-necked Saz/Bağlama is composed in a “continuo” style. In the parallel direction with the basso continuo part, it is repeated by similar motifs consisting of 5 bars. Therefore, only the first 15 bars of the piece is used for the Şelpe accompaniment example with the Matrix system.

In the notation, the double-necked Saz/Bağlama is divided into two parts. The upper neck with steel strings is labeled as “Şelpe Çelik”, while the lower neck with chrome-coated strings is labeled as “Şelpe Bam” in the score.

The hand positioning of the chords in the second sample of Şelpe accompaniment with double-necked Saz/Bağlama are shown with Matrix symbolization. Those hand positionings belong only to the upper neck of the instrument in the bars between 5th and 6th, as shown in Figure 3.42.

Gm D Dm

$$\begin{pmatrix} - & D \\ B^b & c2 \\ - & [0] \end{pmatrix} \begin{pmatrix} - & [D] \\ A & c3 \\ 2 & - \end{pmatrix} \begin{pmatrix} - & [D] \\ A & c3 \\ 1 & - \end{pmatrix}$$

① ③ ② ① ② ① ③ ② ∇
 ∇ ∇ ∇ ∇ ∇ ∇ ∇ ∇ ∇
 ∇ ∇ ∇ ∇ ∇ ∇ ∇ ∇ ∇

When I am laid am

Figure 3.42 : Şelpe accompaniment of the composition “When I am Laid in Earth” by use of matrix system, bars 5-6.

In bars 8 and 9, the “Şelpe Çelik” part is used with the “Şelpe Bam” part simultaneously as shown in Figure 3.43. It gives one octave lower tones than the upper part. In the case of using both necks of the instrument at the same time during the execution of the Parmak Vurma sub-technique, the left-hand positioning of the “Matrix system for two hands” refers to the lower neck, while the right-hand positioning refers to the upper neck. In this sample, the Matrix system is used for the accompaniment with the Parmak Vurma sub-technique. Here, the left hand’s “Şelpe Bam” and the right hand’s “Şelpe Çelik” chord positionings are used simultaneously in a way to form a single chord positioning. Be reminded that both hands are on different fretboards of double-necked Saz/Bağlama.

D	Gm	Cm	Gno3	D7
$\begin{pmatrix} - & [D] \\ A & c3 \\ 2 & - \end{pmatrix} \begin{pmatrix} - & D \\ Bb & c2 \\ - & [0] \end{pmatrix} \begin{pmatrix} - & E^b \\ [C] & c1 \\ 0 & 0 \end{pmatrix} \begin{pmatrix} D & D \\ - & - \\ [0] & [0] \end{pmatrix} \begin{pmatrix} - & C \\ [D] & c-4 \\ 0 & 1 \end{pmatrix}$				

Figure 3.43 : Şelpe accompaniment of the composition “When I am Laid in Earth” by use of matrix system, bars 8-9.

The Şelpe accompaniment sample of “Gülnihal” with the Matrix system is shown in Figure 3.44. Most of the chord positionings in the accompaniment are chosen from the predetermined charts of chord positioning for one hand and both hands. They are formed according to the rules and limitations of the Matrix system. In other words, the main structure of the Matrix system is applied to this accompaniment sample.

3.3.2 Case analysis with matrix system

The Matrix analysis system is a tool, which provides detailed demonstrations and analysis of various harmonic practices, chord progressions, detailed hand positioning of the chord progressions on the fretboard, and several vertically positioned melodic progressions in Şelpe compositions and arrangements.

The Matrix analysis system, in other words, provides a detailed mapping of the vertical dimension of the Şelpe's musical character as well as its vertically positioned structures on Saz/Bağlama's fretboard. This detailed mapping indicates the instrumentation strategies of Şelpe compositions and arrangements put forth by the composer.

The Matrix analysis system, which serves as a highly detailed analytical approach for Şelpe's all harmonic practices within the vertical hand positioning on the fretboard of Saz/Bağlama. It generally contains a more complex structure than the Matrix symbolizations used for Şelpe accompaniments. Furthermore, their area of use has some differences. Despite differences, certain systematical symbolization and general rules of Matrix system are valid for both the Matrix analysis system and the Matrix system used for Şelpe accompaniments.

Within the limits of certain systematical symbolization and general rules of the Matrix system, there are a few points of Matrix analysis system different from the Matrix system used for accompaniments.

As a significant example of the differences between these two concepts, we can emphasize the different meanings of slash “/” sign in both systems. In the Matrix system applied for accompaniments, the slash “/” sign is used to represent the positional shifting. Whereas, in Matrix analysis system, slash “/” sign is used to define the pitches which are outside of any chord degrees or any positional boundaries of the chords on the fretboard. This symbol also shows the positional shifting of the chords in the Matrix analysis system. In Figure 3.46 and Figure 3.47, two different uses of the slash “/” sign is shown. Respectively, the slash “/” sign in Figure 3.46 demonstrates the positional shifting and the slash “/” sign in Figure 3.47 demonstrates the pitches out of the chord degrees or out of positional boundaries of the chords.

D9(maj7)

$$\begin{pmatrix} [D]/E & F\# \\ -/-1 & C4/2 & - \\ -/- & [(D)] \end{pmatrix}$$

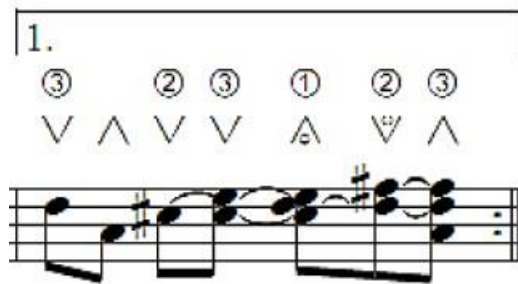


Figure 3.46 : Slash used for positional mixture in matrix analysis of “Hicaz Mandıra”, bar 25.

G Nikriz Pentachord

$$\begin{pmatrix} C\#/(A) \\ -1/(G) \\ (D) \end{pmatrix}$$

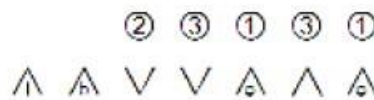


Figure 3.47 : Slash used for pitches out of the chord degrees and out of hand positioning limits in matrix analysis of “Hicaz Mandıra”, bar 59.

The other different point of the Matrix analysis system is the symbolization scheme of open strings out of the positional boundaries of any chords. The use of open strings out of the positional boundaries of the chords is symbolized with the slash “/” sign as shown in Figure 3.48. In both cases, the open string belongs to the degree of the chords or the pitch of the open string is not the part of chord degrees.

$$\begin{pmatrix} - & E/[A] \\ C^\# & C1 & - \\ 2 & & - \end{pmatrix}$$


compositions, if the melodic progressions or scale structures are positioned vertically on the fretboard, they can be demonstrated with the Matrix analysis system as shown in Figure 3.50 and Figure 3.51.

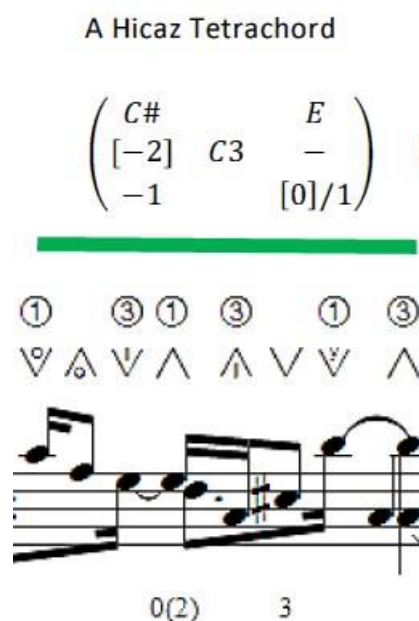


Figure 3.50 : Matrix analysis of the arrangement “Naz Bari”, bar 2.

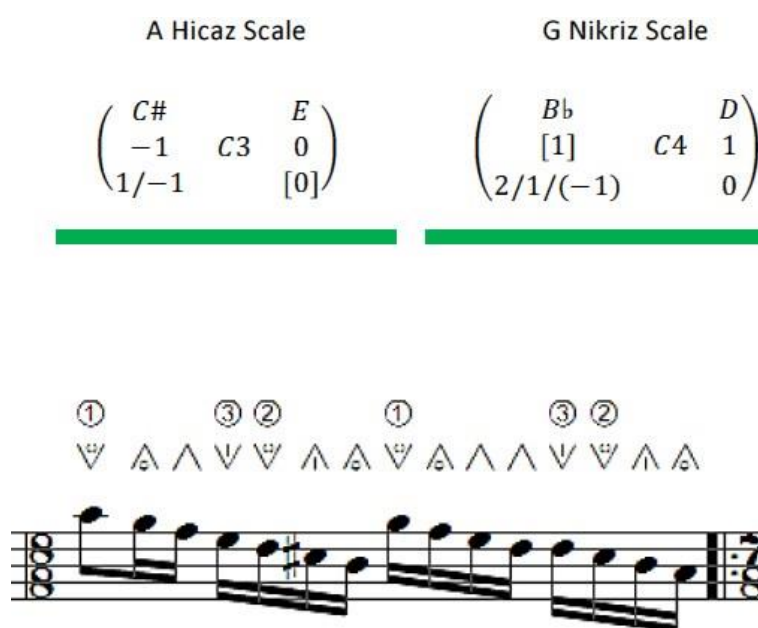


Figure 3.51 : Matrix analysis of the arrangement “Hicaz Mandıra”, bar 21.

In these samples, where the makam scales are used, the tonic degrees of the makam scales are put into square brackets with regard to the Matrix symbolization. A Hicaz tetrachord sample shown in Figure 3.50 is presented within a harmonic structure, as it is seen in the notation. In the same direction, its hand positioning on the fretboard

has a vertical type. Hicaz scale and G Nikriz scale samples, shown in Figure 3.51, are positioned vertically on the fretboard, even if these samples show a monophonic characteristic as it is seen in the notation.

We have analyzed two cases and explained them in the context of the Matrix system. These case analyses are given in Appendix H separately in detail. All the figures of this chapter are quoted from these two cases. The sample used for the first case of the Matrix analysis was “Naz Barı” by Erol Parlak. The sample used for the second case of the Matrix analysis was my arrangement, “Hicaz Mandıra”.

In both case analyses, the motifs, which are positioned vertically in the Şelpe technique on the fretboard, are denoted with a green line and their Matrix analysis symbols are placed above the lines. The motifs, which do not contain any vertical positioning are denoted with a red line. In both case analyses, the notation and detailed transcription symbols of Şelpe arrangements are given for comparison with the Matrix analysis symbols.

4. CONCLUSION

The multipart musical texture of Şelpe is considered as one of the most eminent musical components in both traditional and contemporary performances, although their characters are different from each other.

In the musical performance practices of the contemporary Şelpe technique, the multipart musical texture and harmonic practices have gradually changed since the 1980s. The core revivalists learned the traditional ways of performing Şelpe directly by imitating the regional performers in the first step. This has been followed by some important innovative studies on the traditional Şelpe technique, going on for approximately thirty years. The harmonic practices of contemporary Şelpe techniques have been affected by the Western functional harmonic practices in the framework of innovative Şelpe studies. This happened in accordance with the general tendency of the modernization movement in traditional Anatolian folk music throughout the history of the Turkish Republic.

In the contemporary performance practices of Şelpe, different and several performing methods, stylistic features, genuine timbres, and hybridized multipart musical textures are created by the new generation of Saz/Bağlama artists mostly educated in the institutions. Especially with the emergence of individuality in newer musical creations for the Şelpe technique, the rich toolbox serving the composers, arrangers and/or performers resulted in fresh-sounding pieces and recordings.

As shown in this study, the harmonic practices of Şelpe music feature more than one type of multipart musical texture, fostering elaborate and complex polyphonic elements. Therefore, the Matrix system as a systematization for harmonic practices of the Şelpe technique, presented in this study, identifies and involves all multipart musical textures of the Şelpe technique. The system is designed to be used for Şelpe performing and composing. Furthermore, the system could set a model for the education of the Şelpe technique.

In the systematization that is suggested within the scope of this study, *Bağlama Düzeni* as the tuning system and Western tonal harmonic practices are primarily used

to foster the rules of systematization through the samples, analysis, and mapping of the chords on the fretboard. In the meantime, the Matrix system can also be used with different tuning systems of Saz/Bağlama and can be applied to different harmony practices under the same principals. In this case, the chords or all sorts of multipart textural formations needed to be re-mapped according to the tuning structure and the harmonic practices.

At the first hand, the Matrix system is presented with Western tonal harmonic practices and with the limitation rule of using *Bağlama Düzeni*. Some samples are used to demonstrate the features such as describing the chord types, which are used with the Matrix system; remarking the chord symbolization method, which is preferred to use; and implementing rules of the chords on the three-stringed Saz/Bağlama, which contain more than 3 degrees.

Thereafter, two principal methods are defined for the implementation and symbolic demonstration of the Matrix system. The main difference between these methods is derived from the number of hands on the fretboard. One hand on the fretboard demonstrates the multipart musical texture created by Pençe and Tel Çekme sub-techniques and two hands on the fretboard fosters Parmak Vurma's harmonic texture. Two hand positioning for the chords on the fretboard is obtained by using the same structure of one hand positioning for the chords on the fretboard. One hand of the fretboard style is executed with the Pençe and Tel Çekme sub-techniques where the two hands on the fretboard style is executed with the Parmak Vurma sub-technique. After stabilizing of the chord degrees with proposed limitation rule, all chord combinations, which are derived from the use of two hands on the fretboard for chord positioning, are listed and mapped in Appendix F. Some certain new concepts are also introduced such as “connector”, “fretboard position”, “sub-position”, and “pitch number”. In this mapping, all the vertical musical components, that could be constituted on the instrument, are barred at the base level. In the meantime, it is seen that the Matrix system can be utilized practically for the Şelpe performing in the cases where the chord degrees are not stabilized with its limitation rule. However, for the mapping strategy, the assortment of the numerous alternatives of the chord combinations, which are derived from various two hands chord positioning on the fretboard for the Parmak Vurma sub-technique, does not seem possible without the limitation rule of stabilizing the chord degrees.

In the Matrix system, while the chord positioning was formed with these two principal methods for all the sub-techniques of Şelpe, another limitation rule was envisaged for any one-hand chord positioning. In this rule, the horizontal distance between pitches on the fretboard is limited with a maximum of three pitch-distance to either side, even though it is possible to put more than three pitch-distance in some FP. This limitation rule is put into practice to bring a standardization for several positional variations and their symbols (as these are limited with -3, -2, -1, 0, 1, 2, 3), and to achieve more understandable chord positioning maps for both sub-techniques of the Şelpe. On the other hand, any chord positioning that goes beyond the scope of this limitation is handled and demonstrated with the new concept titled, “positional mixture (shifting)” described in the chapter of “exceptional cases”.

The usability of the Matrix system, as a performing guideline for compositions, arrangements, chord accompaniments or improvisational performances, and as a theoretical analysis tool for Şelpe’s musical textures, was demonstrated with four different examples.

The exemplifications of Matrix system as performing and chord accompaniment guideline were given with the short Şelpe arrangement excerpts titled, “Gülñihal” composed by Hammamizade İsmail Dede Efendi (1778-1846) and “When I am Laid in Earth” – from Dido & Aeneas Opera composed by Henry Purcell (1659-1695). In these both excerpts, the notation system of Şelpe, which is developed by Parlak (2000), is used to demonstrate the Matrix system’s compatibility with the Şelpe notation comparatively. In the Şelpe arrangement of “Gülñihal”, chord positioning and all chord combinations were set for the one-necked Saz/Bağlama. However, the chord positioning and their combinations were put forth for double-necked Saz/Bağlama in the Şelpe arrangement of “When I am Laid in Earth”. Especially, for some parts of Purcell’s composition, where the Parmak Vurma sub-technique is used, the right hand is used for the chord positioning in the lower neck and the left hand is used for the chord positioning on the upper neck simultaneously. In this case, the tuning system and the pitch system for both fretboards are the same, but only the registers are different between the two necks. The formed chord positioning between the fretboards of these two necks could be shown in the Matrix system in one body.

The theoretical case analysis with Matrix system was exemplified with Erol Parlak’s Şelpe arrangement on a traditional Azerbaijani tune titled “Naz Bari” and my Şelpe

arrangement on a piece of traditional Turkish music titled “Hicaz Mandıra” in which the arrangement was dedicated to this study. The functions of the Matrix symbols as the performing & chordal accompaniment guideline, are differentiated partially in the analysis. In some cases, the chord progressions built by at least two different chords, are shown with only one Matrix diagram. On the contrary, in the Şelpe accompaniment Matrix system, each chord is shown by only one Matrix symbol, even though it is built by multiple chord positioning on the fretboard. Furthermore, in the case analysis of the Matrix system, some melodic progressions, which are constituted by tetrachords or makam scales, are shown with the Matrix symbol. The hand positioning of these melodic progressions forms a vertical structure on the fretboard, which enables us to foster melodic patterns with Matrix symbols just as the chord positioning.

The intense multipart musical textures of Şelpe, which can also be seen with the elaborate Şelpe notation system, become plainly visible vertical patterns with the Matrix system’s hand positioning method for the chords. With the Matrix system, that is used for the analysis of Şelpe arrangements and the compositions, the objective is to provide visibility for all harmonic practices, multipart musical textures, and technical capabilities of Şelpe’s multipart music for the future Şelpe compositions and arrangements.

As it is shown in various cases, samples, and analysis, the Matrix system – which visually tabularizes the multipart musical texture of the Şelpe – provides a practical tool for Saz/Bağlama performers, who use the Şelpe technique in their arrangements and the improvisational performances.

The Matrix system can serve as an instrumentation tool for the Saz/Bağlama composers using the Şelpe technique or a guideline that is prepared for the performers and the composers. Beyond the scope of this study, new studies on the systematization are required in order to develop the system as an instrumentation method for the Şelpe technique.

During the researches and observations carried out for this study, it has been seen that creating multipart musical textures and composing/arranging with certain harmonic patterns, that is constituted with multipart textural features of the Şelpe technique, are not dwelled on sufficiently in the education process of the Şelpe

technique, which is although one of the most important aspects. The second volume of Erol Parlak's Şelpe method titled *El İle Bağlama Çalma, Şelpe Tekniği Metodu*, which was published in 2005, is the first and only work on this subject. Accordingly, the use of the Matrix system as a Şelpe method can take an important role in the educational process of the Şelpe technique. Therefore, an educational model and a Matrix-based method of the Şelpe technique can be developed for future studies of the Matrix system.

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APPENDICES

APPENDIX A: TRANSCRIPTION SYMBOLS OF EROL PARLAK FOR ŞELPE TECHNIQUE

APPENDIX B: TRANSCRIPTION SYMBOLS OF ARİF SAĞ & ERDAL ERZİNCAN FOR ŞELPE TECHNIQUE

APPENDIX C: SCORES OF TRADITIONAL ŞELPE REPERTORY

APPENDIX D: SCORES OF ARRANGEMENTS AND COMPOSITIONS FOR ŞELPE

APPENDIX E: POSITIONING TABLES OF CHORDS FOR PENÇE AND TEL ÇEKME SUB-TECHNIQUES ON ALL FPs

APPENDIX F: POSITIONING TABLES OF CHORDS FOR PARMAK VURMA SUB-TECHNIQUE ON ALL FPs

APPENDIX G: ŞELPE ACCOMPANIMENT WITH MATRIX SYSTEM

APPENDIX H: MATRIX ANALYSES

APPENDIX A: TRANSCRIPTION SYMBOLS OF EROL PARLAK FOR ŞELPE TECHNIQUE

0 : Open string (playing the string without fingering on the left hand)	□ : Damping the string with the right or left hand	! : Taramali (slightly retarded stroke): Strumming the strings one finger after the other
① : 1st string (physically lowest while playing)	∇ : tapping, left hand	Ⓜ : Right hand taramali downstroke over all the strings, beginning with the little and followed by the ring, middle and first fingers
② : 2nd string (middle string)	Λ : pull off, left hand	Ⓜ : Right hand taramali downstroke over all the strings with the first, middle, ring and little fingers
③ : 3rd string (physically highest while playing)	∇ : tapping, right index finger	Ⓜ : Right hand taramali downstroke over all the strings with the first, middle, ring and little fingers
④ : The left hand position sign (the position is determined by the placement of the first/index finger of the left hand). Starting from the lowest/first fret of the bağlama, each chromatically ascending fret is a separate position, excluding the quarter tone frets. For example, if the index finger is on the first fret, the left hand is in the 1st position. If the index finger is on the third fret, then the left hand is not on the 3rd but rather the 2nd position, because the second fret is a quarter tone. The positions are thus laid out only on the chromatic tones (half tones), skipping the quarter tones.	∇ : tapping, right middle finger	Ⓜ : Taramali Down-and up strumming with the right index finger
	∇ : tapping, right ring finger	Ⓜ : Taramali Down-and up strumming with the right middle finger
	∇ : tapping, right little finger	Ⓜ : Taramali Down and up strumming with the right ring finger
	∇ : tapping, right thumb	Ⓜ : Taramali Down and up strumming with the right thumb
	Λ : plucking, right index finger	Ⓜ : Right hand movement without touching the strings
	Λ : plucking, right middle finger	∇ : Pulling (bending) the string downwards or upwards with the fingers of either the left or right hand
	Λ : plucking, right ring finger	Ⓜ : Vibrato bending of multiple strings down or up with the fingers of either the left or right hand
	Δ : plucking, right little finger	x : Thump on the face of the instrument with the middle, ring or little finger of the right hand
	Δ : plucking, right thumb	Ⓜ : Fisk stroke: Flicking the fingers of the right hand against the face
1 : Left hand index finger	Ⓜ : Single downstroke with the fingers of the right hand (index, middle, ring and little fingers) together.	Ⓜ : Dragging the fingers or palm of the right hand down and up over the strings
2 : Left hand middle finger	Ⓜ : Single upstroke with the fingers of the right hand (index, middle, ring and little fingers) together.	
3 : Left hand ring finger	Ⓜ : Strumming all the strings down and up with the right index finger	
4 : Left hand little finger	Ⓜ : Strumming all the strings down and up with the right middle finger	
5 : Left hand thumb	Ⓜ : Strumming all the strings down and up with the right ring finger	
Ⓜ : Right hand position indicator (over the face)	Ⓜ : Strumming all the strings down and up with the right little finger	
Ⓜ : Right hand position indicator (over the neck)	Ⓜ : Strumming all the strings down and up with the right thumb	
Ⓜ : Right hand position indicator (pressing with the heel of the hand over the bridge and muting the sound)		
Ⓜ : Right hand position indicator (playing while resting the hand behind the bridge)		

Figure A.1 : Erol Parlak's transcription symbols for şelpe technique (Parlak, 2010).

APPENDIX B: TRANSCRIPTION SYMBOLS OF ARİF SAĞ & ERDAL ERZİNCAN FOR ŞELPE TECHNIQUE

Bağlama Üslubu
Bağlama Üslubu
Şelpe

Symbols

Fingering:
The fingers of the left hand are indicated with numbers, and those of the right hand with letters. In addition, the numbers for the left hand are in red, and the letters for the right hand are in blue.

Pence Stroke:
A stroke with the fingers of the right hand in the direction indicated by the arrows. Where the stroke is executed by more than two fingers, the first and last fingers used are indicated, separated by a dash (-). Ex. s-i, i-a (little finger to index finger; first to ring finger)

Sweep Pence:
A sweeping strum with the fingers of the right hand over the strings, in the direction indicated by the arrows.

Skimming Pence:
A light strum in which the fingers of the right hand skim very quickly over the strings, in the direction indicated by the arrows.

Pence Trill:
A fast trill stroke with the fingers of the right hand indicated in the symbol.

Figure B.1 : Arif Sağ and Erdal Erzincan transcription symbols for şelpe technique (Sağ and Erzincan, 2009).

Hammer-Pulloff (Tapping) (right hand):

Varmış Çekme 1 Çekme 2

Hammer: A note executed by striking the indicated fret with the fingers of the right hand.

Pulloff: A note obtained by pulling a finger of the right hand off of the string already stopped on the fret indicated.

Pulloff 2: A note obtained by pulling a finger of the right hand off a string independently of any previously stopped fret.



Plucking:

p - i - m - a - s

Plucking the strings with the fingers of the right hand indicated above the staff.



Flick:

Flicking the fingers of the right hand outwards to strike the face of the instrument as the strings are sounded.



Hold Symbol:

≡ ≡ ≡ ≡ ≡ ≡

This indicates that the note obtained when fingering any given fret should be held for the indicated time.

Straight broken lines in three rows indicate the sounds of the 3rd, 2nd and 1st strings (3rd being the uppermost string and 1 being the lowermost).

The straight line or lines here indicate the string on which the held note is to be played.



Figure B.1 (continued) : Arif Sağ and Erdal Erzincan transcription symbols for şelpe technique (Sağ and Erzincan, 2009).

APPENDIX C: SCORES OF TRADITIONAL ŞELPE REPERTORY

APPENDIX C.1	Boğma Zeybek
APPENDIX C.2	Kervan
APPENDIX C.3	Avşar Beyleri

Boğma Zeybek

Kaynak : Ramazan Güngör
Nota : Sinan Ayyıldız

The musical score for "Boğma Zeybek" is presented in three systems. Each system consists of three staves, labeled "Alt Tel", "Orta Tel", and "Ust Tel" in the first system, and "1.Tel", "2.Tel", and "3.Tel" in the subsequent systems. The music is written in 2/4 time and features a mix of red and green notes. The first system includes a red "f" (forte) dynamic marking. The second and third systems are marked with a "2" and "3" respectively, indicating a second and third ending or a specific measure count. The notation includes various rhythmic values such as eighth and sixteenth notes, and rests.

Figure C.1 : Ramazan Güngör's "Boğma Zeybek" (Adapted from Ayyıldız, 2013).

4

1.Tel

2.Tel

3.Tel

5

1.Tel

2.Tel

3.Tel

6

1.Tel

2.Tel

3.Tel

7

1.Tel

2.Tel

3.Tel

Figure C.1 (continued) : Ramazan Güngör's "Boğma Zeybek" (Adapted from Ayyıldız, 2013).

(EK. G.1)

KERVAN

DERLEYEN
NOTAYA ALAN;
Erol PARLAK

[illegible]

Figure C.2 : Ramazan Güngör’s “Kervan” (Adapted from Parlak, 2000).

① - - - - -
 ② - - - - -
 ③ - - - - -
 ④ L F A M A L F V M A L F V

0 1 0 1 0 1 3 3 0 1 0
 0 - - - - -
 0 - - - - -

Figure C.2 (continued) : Ramazan Güngör's "Kervan" (Adapted from Parlak, 2000).

KAYNAK: (EK A.1)
Fethiyeli
Ramazan GÜNGÖR

AVŞAR BEYLERİ

DERLEYEN
NOTAYA ALAN:
Erol PARLAK

①
③
③
③

③

1 0 0

3 2 1 0

2 1 1 2 3 5 3 3 5 0

③

①
③
③

3 1 2 1 2 1 5 0

2 1 2 1 0 5

3 1 2 0 5

3 1 2 0 5

Figure C.3 : Ramazan Güngör's "Avşar Beyleri" (Adapted from Parlak, 2000).



Figure C.3 (continued) : Ramazan Güngör's "Avşar Beyleri" (Adapted from Parlak, 2000).



Figure C.3 (continued) : Ramazan Güngör's "Avşar Beyleri" (Adapted from Parlak, 2000).



Figure C.3 (continued) : Ramazan Güngör's "Avşar Beyleri" (Adapted from Parlak, 2000).

APPENDIX D: SCORES OF ARRANGEMENTS AND COMPOSITIONS FOR ŞELPE

APPENDIX D.1	Naz Barı
APPENDIX D.2	Ay Laçın
APPENDIX D.3	Hasaposerviko
APPENDIX D.4	Hicaz Mandıra

Compiler: Nida Tüfekçi
Arrangement: Erol Parlak
Notation: Erol Parlak
Matrix Analysis: A.Ozan Baysal

Figure D.1 : The arrangement “Naz Bari” by Erol Parlak (Adapted from Parlak, 2005).



Figure D.1 (continued) : The arrangement “Naz Barı” by Erol Parlak (Adapted from Parlak, 2005).

AY LAÇIN

The musical score for "Ay Laçın" is presented in four staves. Each staff begins with a treble clef, a key signature of one flat (B-flat), and a 3/8 time signature. The notation includes eighth and sixteenth notes, often beamed together. Above the staves, there are circled numbers (1, 2, 3) and symbols like 'V' and '^'. Below the staves, there are fingerings (0, 2, 3, 5) and a 'GLISS.' marking. The score is divided into measures by vertical bar lines.

Figure D.2 : The arrangement “Ay Laçın” by Sinan Ayyıldız.

③ ② - - - ① - ③ - ② - ① - - ② - ①
 V Λ V Λ V V V Λ V Λ V Λ V Λ V Λ V

9 5 0 1 4 5 2 1 2 0 1

11

13 ① - ③ - ② -
 V Λ V Λ V Λ 0 5 0

15 ① - ① -
 ① - ② V Λ ③ - ② V Λ ② ③ ① - ② ③ ① - ② -
 V Λ V Λ V V V Λ V V V Λ V Λ
 0 0 1 3 3 1 2 0 1 2 0 1 2 0 1 0

17 ①
 ③ V ② ③ - - - - ① - ② - ③ - ② ① - ③
 V Λ V V Λ V Λ V Λ V Λ V Λ V Λ V
 4 0 1 1 4 0 1 3

Figure D.2 (continued) : The arrangement “Ay Laçın” by Sinan Ayyıldız.

Hasaposerviko

Arr: A. Ozan Baysal

The musical score is arranged in three systems, each with three staves. The top staff is for Violin, the middle for Çelik Şelpe, and the bottom for Bam Şelpe. The tempo is marked as $\text{♩} = 135$. The key signature has one flat (B-flat). The time signature is 2/4. The first system shows the initial melody in the Violin and a rhythmic accompaniment in the Bam Şelpe. The second system starts at measure 6, featuring a more complex violin melody with slurs and accents, while the Bam Şelpe continues its accompaniment. The third system starts at measure 11, showing a continuation of the violin melody and the Bam Şelpe accompaniment. The Çelik Şelpe part remains mostly silent throughout the shown measures.

Figure D.3 : The arrangement “Hasaposerviko” by Ahmet Ozan Baysal.

The musical score is arranged in three systems, each containing three staves: Violin (Vln.), Çelik (Cello), and Bam (Bass). The key signature is one flat (B-flat major or D minor). The time signature is 2/4.

- System 1 (Measures 19-21):**
 - Vln.:** Measures 19-21. Measure 19: eighth notes G4, A4, Bb4, A4, G4. Measure 20: quarter note G4, quarter rest. Measure 21: eighth notes G4, A4, Bb4, A4, G4.
 - Çelik:** Measures 19-21. All measures contain whole rests.
 - Bam:** Measures 19-21. Measure 19: eighth notes G2, A2, Bb2, A2, G2. Measure 20: quarter note G2, quarter rest. Measure 21: eighth notes G2, A2, Bb2, A2, G2.
- System 2 (Measures 22-24):**
 - Vln.:** Measures 22-24. Measure 22: eighth notes G4, A4, Bb4, A4, G4. Measure 23: eighth notes G4, A4, Bb4, A4, G4. Measure 24: eighth notes G4, A4, Bb4, A4, G4.
 - Çelik:** Measures 22-24. Measure 22: whole rest. Measure 23: whole rest. Measure 24: eighth notes G4, A4, Bb4, A4, G4.
 - Bam:** Measures 22-24. Measure 22: eighth notes G2, A2, Bb2, A2, G2. Measure 23: eighth notes G2, A2, Bb2, A2, G2. Measure 24: eighth notes G2, A2, Bb2, A2, G2.
- System 3 (Measures 25-27):**
 - Vln.:** Measures 25-27. Measure 25: eighth notes G4, A4, Bb4, A4, G4. Measure 26: quarter note G4, quarter rest. Measure 27: eighth notes G4, A4, Bb4, A4, G4.
 - Çelik:** Measures 25-27. Measure 25: eighth notes G4, A4, Bb4, A4, G4. Measure 26: eighth notes G4, A4, Bb4, A4, G4. Measure 27: eighth notes G4, A4, Bb4, A4, G4.
 - Bam:** Measures 25-27. All measures contain whole rests.
- System 4 (Measures 28-30):**
 - Vln.:** Measures 28-30. Measure 28: eighth notes G4, A4, Bb4, A4, G4. Measure 29: eighth notes G4, A4, Bb4, A4, G4. Measure 30: eighth notes G4, A4, Bb4, A4, G4.
 - Çelik:** Measures 28-30. Measure 28: eighth notes G4, A4, Bb4, A4, G4. Measure 29: eighth notes G4, A4, Bb4, A4, G4. Measure 30: eighth notes G4, A4, Bb4, A4, G4.
 - Bam:** Measures 28-30. All measures contain whole rests.

Dynamic markings: *p* (piano) and *f* (forte) are present in measure 28 of the Vln. staff.

Figure D.3 (continued) : The arrangement “Hasaposerviko” by Ahmet Ozan Baysal.

The image displays a musical score for three instruments: Violin (Vln.), Çelik (Çelik), and Bam (Bam). The score is divided into four systems, each containing three staves. The first system starts at measure 31, marked with a piano (*p*) dynamic and a pizzicato (*pizz.*) instruction. The Violin part features a melodic line with eighth and quarter notes, while the Çelik part provides a rhythmic accompaniment with sixteenth-note patterns. The Bam part is silent. The second system starts at measure 34, continuing the melodic and rhythmic patterns. The third system starts at measure 37, maintaining the same instrumental textures. The fourth system starts at measure 40, where the Violin part has a brief melodic phrase before resting. The Çelik part continues its rhythmic accompaniment, and the Bam part remains silent. The key signature is one flat (B-flat), and the time signature is 2/4.

Figure D.3 (continued) : The arrangement “Hasaposerviko” by Ahmet Ozan Baysal.

The musical score is presented in three systems, each containing three staves: Violin (Vln.), Çelik (Çelik), and Bam (Bam). The key signature has one flat (B-flat), and the time signature is 2/4.

- Measure 45:** Vln. has a whole rest followed by an eighth-note pattern starting on B-flat, marked *arco* and *mf*. Çelik and Bam have whole rests.
- Measure 46:** Vln. plays a continuous eighth-note pattern. Çelik plays a complex eighth-note pattern. Bam has a whole rest.
- Measure 49:** Vln. plays a series of eighth notes with various accidentals. Çelik plays a series of eighth notes with various accidentals. Bam plays a series of eighth notes with various accidentals.
- Measure 53:** Vln. plays a series of eighth notes with various accidentals and articulations. Çelik plays a series of eighth notes with various accidentals. Bam plays a series of eighth notes with various accidentals.

Figure D.3 (continued) : The arrangement “Hasaposerviko” by Ahmet Ozan Baysal.

The musical score is divided into four systems, each containing three staves for Violin (Vln.), Çelik (Cello), and Bam (Bass). The key signature has one flat (B-flat).

- System 1 (Measures 59-61):**
 - Measure 59:** Vln. starts with a half note B-flat, quarter notes A-flat, G-flat, F-flat, E-flat, D-flat, C, and B-flat. Çelik and Bam have whole rests.
 - Measure 60:** Vln. has a half note B-flat. Çelik has a half note B-flat. Bam has a whole rest.
 - Measure 61:** Vln. has a half note B-flat. Çelik has a half note B-flat. Bam has a whole rest.
- System 2 (Measures 62-64):**
 - Measure 62:** Vln. has a whole rest. Çelik has a half note B-flat. Bam has a whole rest.
 - Measure 63:** Vln. has a whole rest. Çelik has a half note B-flat. Bam has a whole rest.
 - Measure 64:** Vln. has a whole rest. Çelik has a half note B-flat. Bam has a whole rest.
- System 3 (Measures 65-67):**
 - Measure 65:** Vln. has a half note B-flat, quarter notes A-flat, G-flat, F-flat, E-flat, D-flat, C, and B-flat. Çelik has a half note B-flat. Bam has a whole rest.
 - Measure 66:** Vln. has a half note B-flat, quarter notes A-flat, G-flat, F-flat, E-flat, D-flat, C, and B-flat. Çelik has a half note B-flat. Bam has a whole rest.
 - Measure 67:** Vln. has a half note B-flat, quarter notes A-flat, G-flat, F-flat, E-flat, D-flat, C, and B-flat. Çelik has a half note B-flat. Bam has a whole rest.
- System 4 (Measures 68-70):**
 - Measure 68:** Vln. has a half note B-flat, quarter notes A-flat, G-flat, F-flat, E-flat, D-flat, C, and B-flat. Çelik has a half note B-flat. Bam has a whole rest.
 - Measure 69:** Vln. has a half note B-flat, quarter notes A-flat, G-flat, F-flat, E-flat, D-flat, C, and B-flat. Çelik has a half note B-flat. Bam has a whole rest.
 - Measure 70:** Vln. has a half note B-flat, quarter notes A-flat, G-flat, F-flat, E-flat, D-flat, C, and B-flat. Çelik has a half note B-flat. Bam has a whole rest.

Figure D.3 (continued) : The arrangement “Hasaposerviko” by Ahmet Ozan Baysal.

The musical score is arranged in three systems, each containing three staves. The top staff is for Violin (Vln.), the middle for Çelik, and the bottom for Bam. The key signature has two flats (B-flat and E-flat), and the time signature is 2/4. Measure numbers 71, 76, 81, and 85 are indicated at the start of their respective systems. The Vln. part features melodic lines with various ornaments and dynamics like *mf* and *arco*. The Çelik part provides harmonic support with chords and single notes. The Bam part consists of a steady bass line. The score concludes with a double bar line and repeat signs at the end of measure 85.

Figure D.3 (continued) : The arrangement “Hasaposerviko” by Ahmet Ozan Baysal.

The image displays a musical score for three instruments: Violin (Vln.), Çelik, and Bam. The score is divided into four systems, each containing three staves. The measures are numbered 89, 92, 94, and 97 at the beginning of each system. The key signature is one flat (B-flat). The time signature is not explicitly shown but appears to be 2/4 based on the note values. The Vln. part features various melodic lines, including a glissando in measure 94. The Çelik part provides a rhythmic accompaniment with repeated eighth-note patterns. The Bam part provides a harmonic accompaniment with sustained notes and some rhythmic movement. Dynamics such as *p* (piano) and *mf* (mezzo-forte) are indicated. The notation includes various musical symbols such as accidentals, slurs, and articulation marks.

Figure D.3 (continued) : The arrangement “Hasaposerviko” by Ahmet Ozan Baysal.

The musical score is arranged in four systems, each containing three staves: Violin (Vln.), Çelik, and Bam. The key signature has two flats (B-flat and E-flat), and the time signature is 2/4.

- System 1 (Measures 101-104):**
 - Vln.:** Measures 101-104. Measure 101 starts with a melodic line. Measure 102 has a slur over two measures. Measure 103 has a slur over two measures. Measure 104 has a slur over two measures.
 - Çelik:** Measures 101-104. Measure 101 has a chord. Measure 102 has a chord. Measure 103 has a chord. Measure 104 has a chord.
 - Bam:** Measures 101-104. Measure 101 has a chord. Measure 102 has a chord. Measure 103 has a chord. Measure 104 has a chord.
- System 2 (Measures 105-108):**
 - Vln.:** Measures 105-108. Measure 105 starts with a melodic line. Measure 106 has a slur over two measures. Measure 107 has a slur over two measures. Measure 108 has a slur over two measures. Dynamic markings: *p* at measure 106, *mf* at measure 108. Performance markings: *pizz.* at measure 106, *arco* at measure 108.
 - Çelik:** Measures 105-108. Measure 105 has a chord. Measure 106 has a chord. Measure 107 has a chord. Measure 108 has a chord.
 - Bam:** Measures 105-108. Measure 105 has a chord. Measure 106 has a chord. Measure 107 has a chord. Measure 108 has a chord.
- System 3 (Measures 110-113):**
 - Vln.:** Measures 110-113. Measure 110 starts with a melodic line. Measure 111 has a slur over two measures. Measure 112 has a slur over two measures. Measure 113 has a slur over two measures.
 - Çelik:** Measures 110-113. Measure 110 has a chord. Measure 111 has a chord. Measure 112 has a chord. Measure 113 has a chord.
 - Bam:** Measures 110-113. Measure 110 has a chord. Measure 111 has a chord. Measure 112 has a chord. Measure 113 has a chord.
- System 4 (Measures 114-117):**
 - Vln.:** Measures 114-117. Measure 114 starts with a melodic line. Measure 115 has a slur over two measures. Measure 116 has a slur over two measures. Measure 117 has a slur over two measures. Dynamic markings: *pizz.* at measure 115, *arco* at measure 117.
 - Çelik:** Measures 114-117. Measure 114 has a chord. Measure 115 has a chord. Measure 116 has a chord. Measure 117 has a chord.
 - Bam:** Measures 114-117. Measure 114 has a chord. Measure 115 has a chord. Measure 116 has a chord. Measure 117 has a chord.

Figure D.3 (continued) : The arrangement “Hasaposerviko” by Ahmet Ozan Baysal.

The image displays a musical score for the piece "Hasaposerviko" by Ahmet Ozan Baysal, specifically measures 118 through 130. The score is arranged for three instruments: Violin (Vln.), Çelik (Steel Drum), and Barn (Bass Drum). The key signature is one flat (B-flat major or D minor), and the time signature is 2/4. The Violin part features a melodic line with various ornaments and slurs. The Çelik part provides harmonic support with chords and single notes. The Barn part plays a steady, rhythmic pattern. The score is divided into four systems, each containing three staves. Measure numbers 118, 122, 126, and 130 are indicated at the beginning of their respective systems.

Figure D.3 (continued) : The arrangement “Hasaposerviko” by Ahmet Ozan Baysal.



Figure D.3 (continued) : The arrangement “Hasaposerviko” by Ahmet Ozan Baysal.

Hicaz Mandıra

(First Part)


Arrangement: A. Ozan Baysal

Notation: A. Ozan Baysal

Matrix Analysis: A. Ozan Baysal

♪ = 360

Selpe



Handwritten musical notation for the piece 'Selpe'. The notation is on a single staff with a treble clef, a key signature of one sharp (F#), and a 7/8 time signature. The melody consists of various note values (quarter, eighth, and sixteenth notes) and rests, with a final double bar line and repeat dots.

① ③ ① ① ③ ③
③ ③ ③ ① ② ② ① ② ① ②
▽ ③ ② ③ ② ▽ ③ ② ▽ ^ ▽ ▽ ▽ ③ ② ③ ① ② ③ ① ②
▽ ^ ▽ ▽ ▽ ^ ^ ▽ ^ ▽ ▽ ▽ ▽ ▽ ^ ▽ ▽ ▽ ▽ ▽ ▽

5



9 

12

Figure D.4 : The arrangement “Hicaz Mandira” by Ahmet Ozan Baysal.

33

36

39

43

46

Figure D.4 (continued) : The arrangement “Hicaz Mandıra” by Ahmet Ozan Baysal.

The image displays a musical score for the piece "Hicaz Mandıra" by Ahmet Ozan Baysal, specifically measures 68 through 83. The score is written on a single staff in treble clef, with a key signature of one flat (B-flat). The notation includes various rhythmic values and accidentals, accompanied by a series of numbers (1, 2, 3) and symbols (V, ^, □) above the staff, likely indicating fingerings or specific performance techniques. The measures are grouped into four systems, each starting with a measure number (68, 72, 76, 80, 83). The notation is complex, featuring many beamed notes and rests, suggesting a fast or intricate tempo.

Figure D.4 (continued) : The arrangement “Hicaz Mandıra” by Ahmet Ozan Baysal.

[illegible]

APPENDIX E: POSITIONING TABLES OF CHORDS FOR PENÇE AND TEL ÇEKME SUB-TECHNIQUES ON ALL FPs

Table E.1 : Positioning table of chords for pençe and tel çekme sub-techniques on 4th-11th FPs.

ONLY LEFT HAND - FINGERBOARD POSITIONS (for the 4th-5th-6th-7th-8th-9th-10th-11th positions)							
PITCH NUMBER	SUB-POSITIONS						
	-3 SP	-2 SP	-1 SP	0 SP	1 SP	2 SP	3 SP
	Sus4 $\begin{pmatrix} X \\ -3 \\ -3 \end{pmatrix}$	No3-Halfdim7th $\begin{pmatrix} X \\ -2 \\ -3 \end{pmatrix}$	No3-Min7th $\begin{pmatrix} X \\ -1 \\ -3 \end{pmatrix}$	No3-Augdom7th $\begin{pmatrix} X \\ 0 \\ -3 \end{pmatrix}$	Alt. No3-Augdom7th $\begin{pmatrix} X \\ 1 \\ -3 \end{pmatrix}$	-	-
	Min $\begin{pmatrix} X \\ -3 \\ -2 \end{pmatrix}$	Maj $\begin{pmatrix} X \\ -2 \\ -2 \end{pmatrix}$	Dim $\begin{pmatrix} X \\ -1 \\ -2 \end{pmatrix}$	Min7th $\begin{pmatrix} X \\ 0 \\ -2 \end{pmatrix}$	Min*7th $\begin{pmatrix} X \\ 1 \\ -2 \end{pmatrix}$	Min $\begin{pmatrix} X \\ 2 \\ -2 \end{pmatrix}$	-
	Maj $\begin{pmatrix} X \\ -3 \\ -1 \end{pmatrix}$	Aug $\begin{pmatrix} X \\ -2 \\ -1 \end{pmatrix}$	Min $\begin{pmatrix} X \\ -1 \\ -1 \end{pmatrix}$	Dom7th $\begin{pmatrix} X \\ 0 \\ -1 \end{pmatrix}$	Maj7th $\begin{pmatrix} X \\ 1 \\ -1 \end{pmatrix}$	Maj $\begin{pmatrix} X \\ 2 \\ -1 \end{pmatrix}$	Min*7th $\begin{pmatrix} X \\ 3 \\ -1 \end{pmatrix}$
	Sus4 $\begin{pmatrix} X \\ -3 \\ 0 \end{pmatrix}$	Min $\begin{pmatrix} X \\ -2 \\ 0 \end{pmatrix}$	Maj $\begin{pmatrix} X \\ -1 \\ 0 \end{pmatrix}$	Sus4 $\begin{pmatrix} X \\ 0 \\ 0 \end{pmatrix}$	Alt. Sus4 $\begin{pmatrix} X \\ 1 \\ 0 \end{pmatrix}$	No3 $\begin{pmatrix} X \\ 2 \\ 0 \end{pmatrix}$	Maj7th $\begin{pmatrix} X \\ 3 \\ 0 \end{pmatrix}$
	Alt. Sus4 $\begin{pmatrix} X \\ -3 \\ 1 \end{pmatrix}$	Dom7th $\begin{pmatrix} X \\ -2 \\ 1 \end{pmatrix}$	Dim $\begin{pmatrix} X \\ -1 \\ 1 \end{pmatrix}$	Alt. Maj $\begin{pmatrix} X \\ 0 \\ 1 \end{pmatrix}$	Alt. No3 $\begin{pmatrix} X \\ 1 \\ 1 \end{pmatrix}$	No3-Dim $\begin{pmatrix} X \\ 2 \\ 1 \end{pmatrix}$	Alt. Sus4 $\begin{pmatrix} X \\ 3 \\ 1 \end{pmatrix}$
	-	Maj7th $\begin{pmatrix} X \\ -2 \\ 2 \end{pmatrix}$	Min7th $\begin{pmatrix} X \\ -1 \\ 2 \end{pmatrix}$	No3-Min7th $\begin{pmatrix} X \\ 0 \\ 2 \end{pmatrix}$	No3-Maj7th $\begin{pmatrix} X \\ 1 \\ 2 \end{pmatrix}$	No3 $\begin{pmatrix} X \\ 2 \\ 2 \end{pmatrix}$	Alt. No3 $\begin{pmatrix} X \\ 3 \\ 2 \end{pmatrix}$
	-	-	Min*7th $\begin{pmatrix} X \\ -1 \\ 3 \end{pmatrix}$	No3-Augdom7th $\begin{pmatrix} X \\ 0 \\ 3 \end{pmatrix}$	No3-Augmaj7th $\begin{pmatrix} X \\ 1 \\ 3 \end{pmatrix}$	No3-Aug $\begin{pmatrix} X \\ 2 \\ 3 \end{pmatrix}$	No3-Maj7th $\begin{pmatrix} X \\ 3 \\ 3 \end{pmatrix}$

Table E.2 : Positioning table of chords for pençe and tel çekme sub-techniques on 1st FP.

ONLY LEFT HAND - FINGERBOARD POSITIONS								
(only for 1st position)								
PITCH NUMBER	SUB-POSITIONS							
	-3 SP	-2 SP	-1 SP	0 SP	1 SP	2 SP	3 SP	
	-	-	-	-	-	-	-	-3
	-	-	-	-	-	-	-	-2
	-	-	-	-	-	-	-	-1
	-	-	-	Sus4 $\begin{pmatrix} X \\ 0 \\ 0 \end{pmatrix}$	Alt. Sus4 $\begin{pmatrix} X \\ 1 \\ 0 \end{pmatrix}$	No3 $\begin{pmatrix} X \\ 2 \\ 0 \end{pmatrix}$	Maj7th $\begin{pmatrix} X \\ 3 \\ 0 \end{pmatrix}$	0
	-	-	-	Alt. Maj $\begin{pmatrix} X \\ 0 \\ 1 \end{pmatrix}$	Alt. No3 $\begin{pmatrix} X \\ 1 \\ 1 \end{pmatrix}$	No3-Dim $\begin{pmatrix} X \\ 2 \\ 1 \end{pmatrix}$	Alt. Sus4 $\begin{pmatrix} X \\ 3 \\ 1 \end{pmatrix}$	1
	-	-	-	No3-Min7th $\begin{pmatrix} X \\ 0 \\ 2 \end{pmatrix}$	No3-Maj7th $\begin{pmatrix} X \\ 1 \\ 2 \end{pmatrix}$	No3 $\begin{pmatrix} X \\ 2 \\ 2 \end{pmatrix}$	Alt. No3 $\begin{pmatrix} X \\ 3 \\ 2 \end{pmatrix}$	2
	-	-	-	No3-Augdom7th $\begin{pmatrix} X \\ 0 \\ 3 \end{pmatrix}$	No3-Augmaj7th $\begin{pmatrix} X \\ 1 \\ 3 \end{pmatrix}$	No3-Aug $\begin{pmatrix} X \\ 2 \\ 3 \end{pmatrix}$	No3-Maj7th $\begin{pmatrix} X \\ 3 \\ 3 \end{pmatrix}$	3

Table E.3 : Positioning table of chords for pençe and tel çekme sub-techniques on 2nd FP.

ONLY LEFT HAND - FINGERBOARD POSITIONS								
(only for 2nd positions)								
PITCH NUMBER	SUB-POSITIONS							
	-3 SP	-2 SP	-1 SP	0 SP	1 SP	2 SP	3 SP	
	-	-	-	-	-	-	-	-3
	-	-	-	-	-	-	-	-2
	-	-	Min $\begin{pmatrix} X \\ -1 \\ -1 \end{pmatrix}$	Dom7th $\begin{pmatrix} X \\ 0 \\ -1 \end{pmatrix}$	Maj7th $\begin{pmatrix} X \\ 1 \\ -1 \end{pmatrix}$	Maj $\begin{pmatrix} X \\ 2 \\ -1 \end{pmatrix}$	Min*7th $\begin{pmatrix} X \\ 3 \\ -1 \end{pmatrix}$	-1
	-	-	Maj $\begin{pmatrix} X \\ -1 \\ 0 \end{pmatrix}$	Sus4 $\begin{pmatrix} X \\ 0 \\ 0 \end{pmatrix}$	Alt. Sus4 $\begin{pmatrix} X \\ 1 \\ 0 \end{pmatrix}$	No3 $\begin{pmatrix} X \\ 2 \\ 0 \end{pmatrix}$	Maj7th $\begin{pmatrix} X \\ 3 \\ 0 \end{pmatrix}$	0
	-	-	Dim $\begin{pmatrix} X \\ -1 \\ 1 \end{pmatrix}$	Alt. Maj $\begin{pmatrix} X \\ 0 \\ 1 \end{pmatrix}$	Alt. No3 $\begin{pmatrix} X \\ 1 \\ 1 \end{pmatrix}$	No3-Dim $\begin{pmatrix} X \\ 2 \\ 1 \end{pmatrix}$	Alt. Sus4 $\begin{pmatrix} X \\ 3 \\ 1 \end{pmatrix}$	1
	-	-	Min7th $\begin{pmatrix} X \\ -1 \\ 2 \end{pmatrix}$	No3-Min7th $\begin{pmatrix} X \\ 0 \\ 2 \end{pmatrix}$	No3-Maj7th $\begin{pmatrix} X \\ 1 \\ 2 \end{pmatrix}$	No3 $\begin{pmatrix} X \\ 2 \\ 2 \end{pmatrix}$	Alt. No3 $\begin{pmatrix} X \\ 3 \\ 2 \end{pmatrix}$	2
	-	-	Min*7th $\begin{pmatrix} X \\ -1 \\ 3 \end{pmatrix}$	No3-Augdom7th $\begin{pmatrix} X \\ 0 \\ 3 \end{pmatrix}$	No3-Augmaj7th $\begin{pmatrix} X \\ 1 \\ 3 \end{pmatrix}$	No3-Aug $\begin{pmatrix} X \\ 2 \\ 3 \end{pmatrix}$	No3-Maj7th $\begin{pmatrix} X \\ 3 \\ 3 \end{pmatrix}$	3

Table E.4 : Positioning table of chords for pençe and tel çekme sub-techniques on 3rd FP.

ONLY LEFT HAND - FINGERBOARD POSITIONS (only for 3rd positions)							
PITCH NUMBER	SUB-POSITIONS						
	-3 SP	-2 SP	-1 SP	0 SP	1 SP	2 SP	3 SP
	-	-	-	-	-	-	-
	-	Maj $\begin{pmatrix} X \\ -2 \\ -2 \end{pmatrix}$	Dim $\begin{pmatrix} X \\ -1 \\ -2 \end{pmatrix}$	Min7th $\begin{pmatrix} X \\ 0 \\ -2 \end{pmatrix}$	Min*7th $\begin{pmatrix} X \\ 1 \\ -2 \end{pmatrix}$	Min $\begin{pmatrix} X \\ 2 \\ -2 \end{pmatrix}$	-
	-	Aug $\begin{pmatrix} X \\ -2 \\ -1 \end{pmatrix}$	Min $\begin{pmatrix} X \\ -1 \\ -1 \end{pmatrix}$	Dom7th $\begin{pmatrix} X \\ 0 \\ -1 \end{pmatrix}$	Maj7th $\begin{pmatrix} X \\ 1 \\ -1 \end{pmatrix}$	Maj $\begin{pmatrix} X \\ 2 \\ -1 \end{pmatrix}$	Min*7th $\begin{pmatrix} X \\ 3 \\ -1 \end{pmatrix}$
	-	Min $\begin{pmatrix} X \\ -2 \\ 0 \end{pmatrix}$	Maj $\begin{pmatrix} X \\ -1 \\ 0 \end{pmatrix}$	Sus4 $\begin{pmatrix} X \\ 0 \\ 0 \end{pmatrix}$	Alt. Sus4 $\begin{pmatrix} X \\ 1 \\ 0 \end{pmatrix}$	No3 $\begin{pmatrix} X \\ 2 \\ 0 \end{pmatrix}$	Maj7th $\begin{pmatrix} X \\ 3 \\ 0 \end{pmatrix}$
	-	Dom7th $\begin{pmatrix} X \\ -2 \\ 1 \end{pmatrix}$	Dim $\begin{pmatrix} X \\ -1 \\ 1 \end{pmatrix}$	Alt. Maj $\begin{pmatrix} X \\ 0 \\ 1 \end{pmatrix}$	Alt. No3 $\begin{pmatrix} X \\ 1 \\ 1 \end{pmatrix}$	No3-Dim $\begin{pmatrix} X \\ 2 \\ 1 \end{pmatrix}$	Alt. Sus4 $\begin{pmatrix} X \\ 3 \\ 1 \end{pmatrix}$
	-	Maj7th $\begin{pmatrix} X \\ -2 \\ 2 \end{pmatrix}$	Min7th $\begin{pmatrix} X \\ -1 \\ 2 \end{pmatrix}$	No3-Min7th $\begin{pmatrix} X \\ 0 \\ 2 \end{pmatrix}$	No3-Maj7th $\begin{pmatrix} X \\ 1 \\ 2 \end{pmatrix}$	No3 $\begin{pmatrix} X \\ 2 \\ 2 \end{pmatrix}$	Alt. No3 $\begin{pmatrix} X \\ 3 \\ 2 \end{pmatrix}$
	-	-	Min*7th $\begin{pmatrix} X \\ -1 \\ 3 \end{pmatrix}$	No3-Augdom7th $\begin{pmatrix} X \\ 0 \\ 3 \end{pmatrix}$	No3-Augmaj7th $\begin{pmatrix} X \\ 1 \\ 3 \end{pmatrix}$	No3-Aug $\begin{pmatrix} X \\ 2 \\ 3 \end{pmatrix}$	No3-Maj7th $\begin{pmatrix} X \\ 3 \\ 3 \end{pmatrix}$

Table E.5 : Positioning table of chords for pençe and tel çekme sub-techniques on 12th FP.

ONLY LEFT HAND - FINGERBOARD POSITIONS (only for 12 th position)							
PITCH NUMBER	SUB-POSITIONS						
	-3 SP	-2 SP	-1 SP	0 SP	1 SP	2 SP	3 SP
	-3	Sus4 $\begin{pmatrix} X \\ -3 \\ -3 \end{pmatrix}$	No3-Halfdim7th $\begin{pmatrix} X \\ -2 \\ -3 \end{pmatrix}$	No3-Min7th $\begin{pmatrix} X \\ -1 \\ -3 \end{pmatrix}$	No3-Augdom7th $\begin{pmatrix} X \\ 0 \\ -3 \end{pmatrix}$	Alt. No3-Augdom7th $\begin{pmatrix} X \\ 1 \\ -3 \end{pmatrix}$	-
	-2	Min $\begin{pmatrix} X \\ -3 \\ -2 \end{pmatrix}$	Maj $\begin{pmatrix} X \\ -2 \\ -2 \end{pmatrix}$	Dim $\begin{pmatrix} X \\ -1 \\ -2 \end{pmatrix}$	Min7th $\begin{pmatrix} X \\ 0 \\ -2 \end{pmatrix}$	Min*7th $\begin{pmatrix} X \\ 1 \\ -2 \end{pmatrix}$	Min $\begin{pmatrix} X \\ 2 \\ -2 \end{pmatrix}$
	-1	Maj $\begin{pmatrix} X \\ -3 \\ -1 \end{pmatrix}$	Aug $\begin{pmatrix} X \\ -2 \\ -1 \end{pmatrix}$	Min $\begin{pmatrix} X \\ -1 \\ -1 \end{pmatrix}$	Dom7th $\begin{pmatrix} X \\ 0 \\ -1 \end{pmatrix}$	Maj7th $\begin{pmatrix} X \\ 1 \\ -1 \end{pmatrix}$	-
	0	Sus4 $\begin{pmatrix} X \\ -3 \\ 0 \end{pmatrix}$	Min $\begin{pmatrix} X \\ -2 \\ 0 \end{pmatrix}$	Maj $\begin{pmatrix} X \\ -1 \\ 0 \end{pmatrix}$	Sus4 $\begin{pmatrix} X \\ 0 \\ 0 \end{pmatrix}$	Alt. Sus4 $\begin{pmatrix} X \\ 1 \\ 0 \end{pmatrix}$	No3 $\begin{pmatrix} X \\ 2 \\ 0 \end{pmatrix}$
	1	Alt. Sus4 $\begin{pmatrix} X \\ -3 \\ 1 \end{pmatrix}$	Dom7th $\begin{pmatrix} X \\ -2 \\ 1 \end{pmatrix}$	Dim $\begin{pmatrix} X \\ -1 \\ 1 \end{pmatrix}$	Alt. Maj $\begin{pmatrix} X \\ 0 \\ 1 \end{pmatrix}$	Alt. No3 $\begin{pmatrix} X \\ 1 \\ 1 \end{pmatrix}$	No3-Dim $\begin{pmatrix} X \\ 2 \\ 1 \end{pmatrix}$
	2	-	Maj7th $\begin{pmatrix} X \\ -2 \\ 2 \end{pmatrix}$	Min7th $\begin{pmatrix} X \\ -1 \\ 2 \end{pmatrix}$	No3-Min7th $\begin{pmatrix} X \\ 0 \\ 2 \end{pmatrix}$	No3-Maj7th $\begin{pmatrix} X \\ 1 \\ 2 \end{pmatrix}$	No3 $\begin{pmatrix} X \\ 2 \\ 2 \end{pmatrix}$
	3	-	-	-	-	-	-

Table E.6 : Positioning table of chords for pençe and tel çekme sub-techniques on 13th FP.

ONLY LEFT HAND - FINGERBOARD POSITIONS							
(only for 13 th position)							
PITCH NUMBER	SUB-POSITIONS						
	-3 SP	-2 SP	-1 SP	0 SP	1 SP	2 SP	3 SP
	Sus4 $\begin{pmatrix} X \\ -3 \\ -3 \end{pmatrix}$	No3-Halfdim7th $\begin{pmatrix} X \\ -2 \\ -3 \end{pmatrix}$	No3-Min7th $\begin{pmatrix} X \\ -1 \\ -3 \end{pmatrix}$	No3-Augdom7th $\begin{pmatrix} X \\ 0 \\ -3 \end{pmatrix}$	Alt. No3-Augdom7th $\begin{pmatrix} X \\ 1 \\ -3 \end{pmatrix}$	-	-
	Min $\begin{pmatrix} X \\ -3 \\ -2 \end{pmatrix}$	Maj $\begin{pmatrix} X \\ -2 \\ -2 \end{pmatrix}$	Dim $\begin{pmatrix} X \\ -1 \\ -2 \end{pmatrix}$	Min7th $\begin{pmatrix} X \\ 0 \\ -2 \end{pmatrix}$	Min*7th $\begin{pmatrix} X \\ 1 \\ -2 \end{pmatrix}$	-	-
	Maj $\begin{pmatrix} X \\ -3 \\ -1 \end{pmatrix}$	Aug $\begin{pmatrix} X \\ -2 \\ -1 \end{pmatrix}$	Min $\begin{pmatrix} X \\ -1 \\ -1 \end{pmatrix}$	Dom7th $\begin{pmatrix} X \\ 0 \\ -1 \end{pmatrix}$	Maj7th $\begin{pmatrix} X \\ 1 \\ -1 \end{pmatrix}$	-	-
	Sus4 $\begin{pmatrix} X \\ -3 \\ 0 \end{pmatrix}$	Min $\begin{pmatrix} X \\ -2 \\ 0 \end{pmatrix}$	Maj $\begin{pmatrix} X \\ -1 \\ 0 \end{pmatrix}$	Sus4 $\begin{pmatrix} X \\ 0 \\ 0 \end{pmatrix}$	Alt. Sus4 $\begin{pmatrix} X \\ 1 \\ 0 \end{pmatrix}$	-	-
	Alt. Sus4 $\begin{pmatrix} X \\ -3 \\ 1 \end{pmatrix}$	Dom7th $\begin{pmatrix} X \\ -2 \\ 1 \end{pmatrix}$	Dim $\begin{pmatrix} X \\ -1 \\ 1 \end{pmatrix}$	Alt. Maj $\begin{pmatrix} X \\ 0 \\ 1 \end{pmatrix}$	Alt. No3 $\begin{pmatrix} X \\ 1 \\ 1 \end{pmatrix}$	-	-
	-	-	-	-	-	-	-
	-	-	-	-	-	-	-

Table E.7 : Positioning table of chords for pençe and tel çekme sub-techniques on 13th FP.

ONLY LEFT HAND - FINGERBOARD POSITIONS							
(only for 14 th position)							
PITCH NUMBER	SUB-POSITIONS						
	-3 SP	-2 SP	-1 SP	0 SP	1 SP	2 SP	3 SP
	Sus4 $\begin{pmatrix} X \\ -3 \\ -3 \end{pmatrix}$	No3-Halfdim7th $\begin{pmatrix} X \\ -2 \\ -3 \end{pmatrix}$	No3-Min7th $\begin{pmatrix} X \\ -1 \\ -3 \end{pmatrix}$	No3-Augdom7th $\begin{pmatrix} X \\ 0 \\ -3 \end{pmatrix}$	-	-	-
	Min $\begin{pmatrix} X \\ -3 \\ -2 \end{pmatrix}$	Maj $\begin{pmatrix} X \\ -2 \\ -2 \end{pmatrix}$	Dim $\begin{pmatrix} X \\ -1 \\ -2 \end{pmatrix}$	Min7th $\begin{pmatrix} X \\ 0 \\ -2 \end{pmatrix}$	-	-	-
	Maj $\begin{pmatrix} X \\ -3 \\ -1 \end{pmatrix}$	Aug $\begin{pmatrix} X \\ -2 \\ -1 \end{pmatrix}$	Min $\begin{pmatrix} X \\ -1 \\ -1 \end{pmatrix}$	Dom7th $\begin{pmatrix} X \\ 0 \\ -1 \end{pmatrix}$	-	-	-
	Sus4 $\begin{pmatrix} X \\ -3 \\ 0 \end{pmatrix}$	Min $\begin{pmatrix} X \\ -2 \\ 0 \end{pmatrix}$	Maj $\begin{pmatrix} X \\ -1 \\ 0 \end{pmatrix}$	Sus4 $\begin{pmatrix} X \\ 0 \\ 0 \end{pmatrix}$	-	-	-
	-	-	-	-	-	-	-
	-	-	-	-	-	-	-
	-	-	-	-	-	-	-

APPENDIX F: POSITIONING TABLES OF CHORDS FOR PARMAK VURMA SUB-TECHNIQUE ON ALL FPs

Table F.1 : Positioning tables of major triad chord for parmak vurma sub-technique on all FPs.

CONNECTOR	POSITIONS/PITCHES													
	1/Bb	2/B	3/C	4/C#	5/D	6/D#	7/E	8/F	9/F#	10/G	11/Ab	12/A	13/Bb	14/B
0		$\begin{matrix} x \\ -1 \\ [0] \end{matrix}$ C0 $\begin{matrix} x \\ 2 \\ [0] \end{matrix}$												
			$\begin{matrix} x \\ [-2] \\ -2 \end{matrix}$ C0 $\begin{matrix} x \\ 2 \\ [3] \end{matrix}$											
				$\begin{matrix} [x] \\ -3 \\ -1 \end{matrix}$ C0 $\begin{matrix} [x] \\ 2 \\ [2] \end{matrix}$										
3	$\begin{matrix} x \\ 2 \\ [3] \end{matrix}$	C3		$\begin{matrix} x \\ 2 \\ [0] \end{matrix}$										
			$\begin{matrix} x \\ [-2] \\ -2 \end{matrix}$	C3		$\begin{matrix} x/x \\ -1/2 \\ [0]/[0] \end{matrix}$								
			$\begin{matrix} x \\ 2 \\ -2 \end{matrix}$	C3		$\begin{matrix} x/x \\ -1/2 \\ [0]/[0] \end{matrix}$								
4	$\begin{matrix} [x] \\ [2] \\ 2 \end{matrix}$	C4			$\begin{matrix} x/x/x \\ [-2]/2/2 \\ -2/-2/[3] \end{matrix}$									
		$\begin{matrix} [x] \\ [2] \\ -1 \end{matrix}$	C4			$\begin{matrix} x/x \\ [-2]/2 \\ -2/[3] \end{matrix}$								
				$\begin{matrix} [x] \\ -3 \\ -1 \end{matrix}$	C4		$\begin{matrix} x/x/x \\ [-2]/2/2 \\ -2/-2/[3] \end{matrix}$							
5	$\begin{matrix} x \\ 2 \\ [0] \end{matrix}$	C5				$\begin{matrix} [x]/[x] \\ -3/[2] \\ -1/-1 \end{matrix}$								
		$\begin{matrix} x \\ -1 \\ [0] \end{matrix}$	C5				$\begin{matrix} [x]/[x]/[x] \\ -3/[2]/[2] \\ -1/-1/2 \end{matrix}$							
							$\begin{matrix} x \\ -1 \\ [0] \end{matrix}$							
7	$\begin{matrix} [x] \\ [2] \\ 2 \end{matrix}$	C7						$\begin{matrix} x \\ -1 \\ [0] \end{matrix}$						
		$\begin{matrix} [x] \\ [2] \\ -1 \end{matrix}$	C7						$\begin{matrix} x/x \\ -1/2 \\ [0]/[0] \end{matrix}$					
				$\begin{matrix} [x] \\ -3 \\ -1 \end{matrix}$	C7						$\begin{matrix} x/x \\ -1/2 \\ [0]/[0] \end{matrix}$			

Table F.1 (continued): Positioning tables of major triad chord for parmak vurma sub-technique on all FPs.

CONNECTOR	POSITIONS/PITCHES													
	1/Bb	2/B	3/C	4/C#	5/D	6/D#	7/E	8/F	9/F#	10/G	11/Ab	12/A	13/Bb	14/B
8	x 2 [3]	C8							$[x]/[x]$ -3/[2] -1/2					
			x [-2] -2	C8							$[x]/[x]/[x]$ -3/[2]/[2] -1/-1/2			
			x 2 -2	C8							$[x]/[x]/[x]$ -3/[2]/[2] -1/-1/2			
9	x 2 [0]	C9								$x/x/x$ [-2]/2/2 -2/-2/[3]				
		x -1 [0]	C9								$x/x/x$ [-2]/2/2 -2/-2/[3]			
12	$x/[x]/x$ 2/[2]/2 [0]/2/[3]	C12											$x/[x]/x$ -1/-3/[-2] [0]/-1/-2	
		$x/[x]$ -1/[2] [0]/-1	C12											$x/[x]$ -1/-3 [0]/-1

Table F.2 : Positioning tables of minor triad chord for parmak vurma sub-technique on all FPs.

CONNECTOR	POSITIONS/PITCHES													
	1/Bb	2/B	3/C	4/C#	5/D	6/D#	7/E	8/F	9/F#	10/G	11/Ab	12/A	13/Bb	14/B
0		$\begin{matrix} x \\ [-1] \\ -1 \end{matrix}$ C0 $\begin{matrix} x \\ 2 \\ -1 \end{matrix}$												
			$\begin{matrix} [x] \\ [2] \\ -2 \end{matrix}$ C0 $\begin{matrix} [x] \\ [2] \\ 2 \end{matrix}$											
			$\begin{matrix} x \\ -2 \\ [0] \end{matrix}$ C0 $\begin{matrix} x \\ 2 \\ 3 \end{matrix}$											
				$\begin{matrix} [x] \\ -3 \\ -2 \end{matrix}$ C0 $\begin{matrix} [x] \\ [2] \\ 2 \end{matrix}$										
3	$\begin{matrix} [x] \\ [2] \\ 2 \end{matrix}$	C3		$\begin{matrix} x/x \\ [-1]/2 \\ -1/-1 \end{matrix}$										
			$\begin{matrix} [x] \\ [2] \\ -2 \end{matrix}$	C3		$\begin{matrix} x/x \\ [-1]/2 \\ -1/-1 \end{matrix}$								
				$\begin{matrix} [x] \\ -3 \\ -2 \end{matrix}$	C3		$\begin{matrix} x/x \\ [-1]/2 \\ -1/-1 \end{matrix}$							
4		$\begin{matrix} x \\ [-1] \\ -1 \end{matrix}$	C4			$\begin{matrix} x/x/x \\ -2/2/2 \\ [0]/[0]/3 \end{matrix}$								
		$\begin{matrix} x \\ 2 \\ -1 \end{matrix}$	C4			$\begin{matrix} x/x \\ -2/2 \\ [0]/[0] \end{matrix}$								
5	$\begin{matrix} x \\ 2 \\ [0] \end{matrix}$	C5				$\begin{matrix} [x]/[x] \\ -3/[2] \\ -2/-2 \end{matrix}$								
	$\begin{matrix} x \\ 2 \\ 3 \end{matrix}$	C5				$\begin{matrix} [x]/[x]/[x] \\ -3/[2]/[2] \\ -2/-2/2 \end{matrix}$								
			$\begin{matrix} x \\ -2 \\ [0] \end{matrix}$	C5			$\begin{matrix} [x]/[x]/[x] \\ -3/[2]/[2] \\ -2/-2/2 \end{matrix}$							
7	$\begin{matrix} [x] \\ [2] \\ 2 \end{matrix}$	C7					$\begin{matrix} x/x \\ -2/2 \\ [0]/3 \end{matrix}$							
			$\begin{matrix} [x] \\ [2] \\ -2 \end{matrix}$	C7						$\begin{matrix} x/x/x \\ -2/2/2 \\ [0]/[0]/3 \end{matrix}$				

Table F.2 (continued): Positioning tables of minor triad chord for parmak vurma sub-technique on all FPs.

CONNECTOR	POSITIONS/PITCHES														
	1/Bb	2/B	3/C	4/C#	5/D	6/D#	7/E	8/F	9/F#	10/G	11/Ab	12/A	13/Bb	14/B	
7				[x] -3 -2	C7						x/x/x -2/2/2 [0]/[0]/3				
	x 2 [0]	C8							x/x [-1]/2 -1/-1						
		x 2 3	C8							x [-1] -1					
8			x -2 [0]	C8						x/x [-1]/2 -1/-1					
	x [-1] -1	C9							[x]/[x]/[x] -3/[2]/[2] -2/-2/2						
		x 2 -1	C9							[x]/[x]/[x] -3/[2]/[2] -2/-2/2					
9	x/x/[x] 2/2/[2] [0]/3/2	C12										x/x/[x] -2/-2/-3 [0]/[0]/-2			
		x/x [-1]/2 -1/-1	C12												x/x [-1]/[-1] -1/-1

Table F.3 : Positioning tables of Sus4 chord for parmak vurma sub-technique on all FPs.

CONNECTOR	POSITIONS/PITCHES													
	1/Bb	2/B	3/C	4/C#	5/D	6/D#	7/E	8/F	9/F#	10/G	11/Ab	12/A	13/Bb	14/B
0	$\begin{matrix} x \\ 0 \\ [0] \end{matrix}$ $\begin{matrix} x \\ C0 \\ 2 \\ [0] \end{matrix}$													
				$\begin{matrix} [x] \\ -3 \\ 0 \\ [x] \end{matrix}$ $\begin{matrix} C0 \\ 2 \\ [2] \end{matrix}$										
				$\begin{matrix} [x] \\ -3 \\ 0 \\ [x] \end{matrix}$ $\begin{matrix} C0 \\ 2 \\ [2] \end{matrix}$										
2	$\begin{matrix} x \\ 2 \\ [2] \end{matrix}$	C2	$\begin{matrix} x/x \\ 0/2 \\ [0]/[0] \end{matrix}$											
				$\begin{matrix} x \\ [-3] \\ -3 \end{matrix}$	C2	$\begin{matrix} x/x \\ 0/2 \\ [0]/[0] \end{matrix}$								
5	$\begin{matrix} x \\ 0 \\ [0] \end{matrix}$	C5				$\begin{matrix} [x]/[x]/[x] \\ -3/[2]/[2] \\ 0/0/2 \end{matrix}$								
	$\begin{matrix} x \\ 2 \\ [0] \end{matrix}$	C5				$\begin{matrix} [x]/x/ [x] \\ -3/[-3]/[2] \\ 0/-3/0 \end{matrix}$								
	$\begin{matrix} [x] \\ [2] \\ 2 \end{matrix}$	C5				$\begin{matrix} x/ x \\ [-3]/2 \\ -3/[2] \end{matrix}$								
				$\begin{matrix} [x] \\ -3 \\ 0 \end{matrix}$	C5				$\begin{matrix} x/ x \\ [-3]/2 \\ -3/[2] \end{matrix}$					
7	$\begin{matrix} [x] \\ [2] \\ 0 \end{matrix}$	C7						$\begin{matrix} x/x \\ 0/2 \\ [0]/[0] \end{matrix}$						
	$\begin{matrix} [x] \\ [2] \\ 2 \end{matrix}$	C7						$\begin{matrix} x \\ 0 \\ [0] \end{matrix}$						
	$\begin{matrix} x \\ 2 \\ [2] \end{matrix}$	C7						$\begin{matrix} [x]/[x] \\ -3/[2] \\ 0/2 \end{matrix}$						
				$\begin{matrix} x \\ [-3] \\ -3 \end{matrix}$	C7						$\begin{matrix} [x]/[x]/[x] \\ -3/[2]/[2] \\ 0/0/2 \end{matrix}$			
				$\begin{matrix} [x] \\ -3 \\ 0 \end{matrix}$	C7						$\begin{matrix} x/x \\ 0/2 \\ [0]/[0] \end{matrix}$			

Table F.3 (continued): Positioning tables of Sus4 chord for parmak vurma sub-technique on all FPs.

CONNECTOR	POSITIONS/PITCHES													
	1/B \flat	2/B	3/C	4/C#	5/D	6/D#	7/E	8/F	9/F#	10/G	11/A \flat	12/A	13/B \flat	14/B
10	x 0 [0]	C10									$x/$ x [-3]/2 -3/[2]			
	x 2 [0]	C10									$x/$ x [-3]/2 -3/[2]			
12	x 0 [0]	C12											x 0 [0]	
	x 2 [0]	C12											$x/[x]$ 0/-3 [0]/0	
	[x] [2] 2	C12											[x] -3 0	
	x 2 [2]	C12											x [-3] -3	

Table F.4 : Positioning tables of augmented chord for parmak vurma sub-technique on all FPs.

CONNECTOR	POSITIONS/PITCHES													
	1/B♭	2/B	3/C	4/C#	5/D	6/D#	7/E	8/F	9/F#	10/G	11/A♭	12/A	13/B♭	14/B
0			$\begin{matrix} x \\ -2 \\ -1 \end{matrix}$ C0 $\begin{matrix} x \\ 2 \\ 3 \end{matrix}$											
4			$\begin{matrix} x \\ -2 \\ -1 \end{matrix}$	C4			$\begin{matrix} x/x/x \\ -2/2/2 \\ -1/-1/3 \end{matrix}$							
	$\begin{matrix} x \\ 2 \\ 3 \end{matrix}$	C4			$\begin{matrix} x/x/x \\ -2/2/2 \\ -1/-1/3 \end{matrix}$									
		$\begin{matrix} x \\ 2 \\ -1 \end{matrix}$	C4			$\begin{matrix} x/x \\ -2/2 \\ -1/-1 \end{matrix}$								
			$\begin{matrix} x \\ -2 \\ -1 \end{matrix}$	C8							$\begin{matrix} x/x/x \\ -2/2/2 \\ -1/-1/3 \end{matrix}$			
8	$\begin{matrix} x \\ 2 \\ 3 \end{matrix}$	C8							$\begin{matrix} x/x \\ -2/2 \\ -1/3 \end{matrix}$					
		$\begin{matrix} x \\ 2 \\ -1 \end{matrix}$	C8							$\begin{matrix} x/x/x \\ -2/2/2 \\ -1/-1/3 \end{matrix}$				
			C12										$\begin{matrix} x \\ -2 \\ -1 \end{matrix}$	
12	$\begin{matrix} x \\ 2 \\ 3 \end{matrix}$	C12												$\begin{matrix} x \\ -2 \\ -1 \end{matrix}$
		$\begin{matrix} x \\ 2 \\ -1 \end{matrix}$	C12											$\begin{matrix} x \\ -2 \\ -1 \end{matrix}$

Table F.5 : Positioning tables of diminished chord for parmak vurma sub-technique on all FPs.

CONNECTOR	POSITIONS/PITCHES														
	1/Bb	2/B	3/C	4/C#	5/D	6/D#	7/E	8/F	9/F#	10/G	11/Ab	12/A	13/Bb	14/B	
3	$\begin{matrix} [x] \\ [2] \\ 1 \end{matrix}$	C3		$\begin{matrix} x \\ [-1] \\ -2 \end{matrix}$											
			$\begin{matrix} x \\ [-1] \\ -2 \end{matrix}$	C3		$\begin{matrix} x/x \\ -1/2 \\ [1]/[1] \end{matrix}$									
			$\begin{matrix} x \\ 2 \\ -2 \end{matrix}$	C3		$\begin{matrix} x/x \\ -1/2 \\ [1]/[1] \end{matrix}$									
6	$\begin{matrix} [x] \\ [2] \\ 1 \end{matrix}$	C6					$\begin{matrix} x \\ -1 \\ [1] \end{matrix}$								
	$\begin{matrix} x \\ 2 \\ [1] \end{matrix}$	C6					$\begin{matrix} [x] \\ [2] \\ -2 \end{matrix}$								
		$\begin{matrix} x \\ -1 \\ [1] \end{matrix}$	C6					$\begin{matrix} x \\ 2 \\ 1 \end{matrix}$							
			$\begin{matrix} [x] \\ [2] \\ -2 \end{matrix}$	C6					$\begin{matrix} x/x \\ -1/2 \\ [1]/[1] \end{matrix}$						
9	$\begin{matrix} x \\ 2 \\ [1] \end{matrix}$	C9								$\begin{matrix} x/x \\ [-1]/2 \\ -2/-2 \end{matrix}$					
		$\begin{matrix} x \\ -1 \\ [1] \end{matrix}$	C9								$\begin{matrix} x/x \\ [-1]/2 \\ -2/-2 \end{matrix}$				
			$\begin{matrix} x \\ [-1] \\ -2 \end{matrix}$	C9								$\begin{matrix} [x]/[x] \\ [2]/[2] \\ -2/1 \end{matrix}$			
			$\begin{matrix} x \\ 2 \\ -2 \end{matrix}$	C9								$\begin{matrix} [x]/[x] \\ [2]/[2] \\ -2/1 \end{matrix}$			
12	$\begin{matrix} x \\ 2 \\ [1] \end{matrix}$	C12											$\begin{matrix} x \\ -1 \\ [1] \end{matrix}$		

Table F.6 : Positioning tables of Maj7 chord for parmak vurma sub-technique on all FPs.

CONNECTOR	POSITIONS/PITCHES													
	1/B \flat	2/B	3/C	4/C#	5/D	6/D#	7/E	8/F	9/F#	10/G	11/A \flat	12/A	13/B \flat	14/B
0		$\begin{matrix} x & x/x \\ -1 & C0 & -1/2 \\ -1 & [0]/[0] \end{matrix}$												
		$\begin{matrix} [x] & [x] \\ 1 & C0 & [2] \\ -1 & 2 \end{matrix}$												
			$\begin{matrix} x & x/x \\ [-2] & C0 & [-2]/2 \\ -2 & 2/2 \end{matrix}$											
			$\begin{matrix} x & x \\ [-2] & C0 & 2 \\ 2 & [3] \end{matrix}$											
				$\begin{matrix} [x] & [x]/[x] \\ -3 & C0 & 1/1 \\ -1 & -1/2 \end{matrix}$										
				$\begin{matrix} x & x \\ -3 & C0 & 2 \\ -2 & [3] \end{matrix}$										
1	$\begin{matrix} x \\ -2 & C1 \\ 0 \end{matrix}$	$\begin{matrix} [x] \\ -3 \\ -2 \end{matrix}$												
	$\begin{matrix} x \\ 2 & C1 \\ 0 \end{matrix}$	$\begin{matrix} [x] \\ 1 \\ 2 \end{matrix}$												
			$\begin{matrix} x & x \\ -2 & C1 \\ 0 \end{matrix}$	$\begin{matrix} [x]/[x]/[x]/[x] \\ 1/ & 1/[2]/[2] \\ -1/2/-1/2 \end{matrix}$										
3	$\begin{matrix} x \\ 2 \\ 2 \end{matrix}$	C3		$\begin{matrix} x/x \\ -1/2 \\ [0]/[0] \end{matrix}$										
			$\begin{matrix} x \\ [-2] \\ 2 \end{matrix}$	C3		$\begin{matrix} x/ & x/x/x \\ -1/-1/2/2 \\ -1/[0]/-1/[0] \end{matrix}$								
			$\begin{matrix} x \\ [-2] \\ -2 \end{matrix}$	C3		$\begin{matrix} x/x \\ -1/2 \\ -1/-1 \end{matrix}$								
				$\begin{matrix} x \\ -3 \\ -2 \end{matrix}$	C3		$\begin{matrix} x/x \\ -1/2 \\ [0]/[0] \end{matrix}$							
4	$\begin{matrix} x \\ 2 \\ [0] \end{matrix}$	C4			$\begin{matrix} x/x/x \\ -2/2/[3] \\ 0/0/0 \end{matrix}$									
	$\begin{matrix} [x] \\ 1 \\ 2 \end{matrix}$	C4			$\begin{matrix} x/ & x/x/ & x/x \\ [-2]/[-2]/2/2/2 \\ -2/ & 2/ & -2/2/[3] \end{matrix}$									

Table F.6 (continued): Positioning tables of Maj7 chord for parmak vurma sub-technique on all FPs.

CONNECTOR	POSITIONS/PITCHES													
	1/Bb	2/B	3/C	4/C#	5/D	6/D#	7/E	8/F	9/F#	10/G	11/Ab	12/A	13/Bb	14/B
4	$\begin{matrix} [x] \\ [2] \\ 2 \end{matrix}$	C4			$\begin{matrix} x/x \\ [-2]/2 \\ 2/2 \end{matrix}$									
		$\begin{matrix} x \\ -1 \\ [0] \end{matrix}$	C4			$\begin{matrix} x/x/x/x/x \\ -2/2/[3]/2/[3] \\ 0/0/0/3/3 \end{matrix}$								
		$\begin{matrix} [x] \\ 1 \\ -1 \end{matrix}$	C4			$\begin{matrix} x/x/x \\ -3/[-2]/2 \\ -2/-2/-2 \end{matrix}$								
		$\begin{matrix} x \\ 2 \\ -1 \end{matrix}$	C4			$\begin{matrix} x \\ [3] \\ 0 \end{matrix}$								
		$\begin{matrix} x \\ -1 \\ -1 \end{matrix}$	C4			$\begin{matrix} x/x \\ [3]/[3] \\ 0/3 \end{matrix}$								
				$\begin{matrix} [x] \\ -3 \\ -1 \end{matrix}$	C4			$\begin{matrix} x/x/x \\ -3/[-2]/2 \\ -2/2/2 \end{matrix}$						
5	$\begin{matrix} x \\ 2 \\ 0 \end{matrix}$	C5				$\begin{matrix} x \\ [-2] \\ -2 \end{matrix}$								
	$\begin{matrix} x \\ 2 \\ [0] \end{matrix}$	C5				$\begin{matrix} [x] \\ 1 \\ -1 \end{matrix}$								
	$\begin{matrix} x \\ 2 \\ 3 \end{matrix}$	C5				$\begin{matrix} x/ x/x \\ [-2]/[-2]/2 \\ -2/ 2/ [3] \end{matrix}$								
	$\begin{matrix} x \\ [3] \\ 0 \end{matrix}$	C5				$\begin{matrix} x/x \\ [-2]/2 \\ -2/-2 \end{matrix}$								
	$\begin{matrix} x \\ [3] \\ 3 \end{matrix}$	C5				$\begin{matrix} x/ x/ x/ x/x \\ [-2]/[-2]/2/2/2 \\ -2/ 2/ -2/2/[3] \end{matrix}$								
		$\begin{matrix} x \\ 2 \\ -1 \end{matrix}$	C5				$\begin{matrix} [x]/[x]/[x] \\ -3/1/[2] \\ -1/-1/-1 \end{matrix}$							
		$\begin{matrix} x \\ -1 \\ -1 \end{matrix}$	C5				$\begin{matrix} [x]/[x]/[x]/[x]/[x] \\ -3/1/1/[2]/[2] \\ -1/-1/2/-1/2 \end{matrix}$							

Table F.6 (continued): Positioning tables of Maj7 chord for parmak vurma sub-technique on all FPs.

CONNECTOR	POSITIONS/PITCHES													
	1/Bb	2/B	3/C	4/C#	5/D	6/D#	7/E	8/F	9/F#	10/G	11/Ab	12/A	13/Bb	14/B
5		x -1 [0]	C5				$[x]/[x]$ 1/ 1 -1/2							
			x -2 0	C5				$x/ x/x$ [-2]/[-2]/2 -2/ 2/ [3]						
7	x 2 [3]	C7						$x/ /x/x$ -2/2/[3] 0/3/3						
	$[x]$ 1 2	C7						x/x -1/-1 -1/[0]						
	$[x]$ [2] 2	C7						x -1 -1						
	x 2 2	C7						x [3] 0						
		$[x]$ 1 -1	C7					$x/x/x/x$ -1/-1/2/2 -1/[0]/-1/[0]						
		$[x]$ [2] -1	C7					x/x -1/2 -1/-1						
			x [-2] 2	C7				x/x -2/[3] 0/3						
			x [-2] -2	C7				$x/x/x/x$ -2/2/[3]/[3] 0/0/0/3						
			x 2 -2	C7				x/x [3]/[3] 0/3						
				$[x]$ -3 -1	C7						x/x -1/2 -1/-1			
				x -3 -2	C7						x [3] 0			
	x 2 0	C8						x/x -1/2 [0]/[0]						
	x 2 3	C8						x -1 [0]						

Table F.6 (continued): Positioning tables of Maj7 chord for parmak vurma sub-technique on all FPs.

CONNECTOR	POSITIONS/PITCHES															
	1/B \flat	2/B	3/C	4/C \sharp	5/D	6/D \sharp	7/E	8/F	9/F \sharp	10/G	11/A \flat	12/A	13/B \flat	14/B		
8	x 2 [3]	C8							$[x]$ 1 2							
	x [3] 0	C8							x/x $-1/2$ $-1/-1$							
	x 2 2	C8							$[x]/[x]/[x]$ $-3/1/[2]$ $-1/2/2$							
	x [3] 3	C8							x/x $-1/-1$ $-1/[0]$							
			x -2 0	C8							x/x $-1/2$ [0]/[0]					
			x [-2] 2	C8							$[x]/[x]$ $-3/[2]$ $-1/2$					
			x [-2] -2	C8							$[x]/[x]$ 1/ 1 $-1/2$					
			x 2 -2	C8							$[x]/[x]$ 1/ 1 $-1/2$					
				x -3 -2	C8							$[x]/[x]/[x]/[x]$ $-3/1/2/1/[2]$ $-1/-1/-1/2/2$				
	9	x 2 [0]	C9								$x/x/x$ $-3/[-2]/2$ $-2/2/2$					
		x -1 [0]	C9								$x/x/x$ $-3/[-2]/2$ $-2/2/2$					
		x 2 -1	C9								x/ x [-2]/[-2] $-2/ 2$					
		x -1 -1	C9								$x/ x/x$ [-2]/[-2]/2 $-2/ 2/ [3]$					
11	$[x]$ 1 2	C11										x/x $-2/2$ 0/0				
	$[x]$ [2] 2	C11										x/x $-2/2$ 0/0				

Table F.6 (continued): Positioning tables of Maj7 chord for parmak vurma sub-technique on all FPs.

CONNECTOR	POSITIONS/PITCHES														
	1/Bb	2/B	3/C	4/C#	5/D	6/D#	7/E	8/F	9/F#	10/G	11/Ab	12/A	13/Bb	14/B	
11		$\begin{matrix} [x]/[x] \\ 1/[2] \\ -1/-1 \end{matrix}$	C11											$\begin{matrix} x \\ -2 \\ 0 \end{matrix}$	
12	$\begin{matrix} x \\ 2 \\ [0] \end{matrix}$	C12											$\begin{matrix} x \\ -1 \\ -1 \end{matrix}$		
	$\begin{matrix} x \\ 2 \\ [3] \end{matrix}$	C12											$\begin{matrix} x \\ -3 \\ -2 \end{matrix}$		
	$\begin{matrix} x/x \\ [3]/[3] \\ 0/3 \end{matrix}$	C12											$\begin{matrix} x \\ -2 \\ 0 \end{matrix}$		
	$\begin{matrix} [x] \\ 1 \\ 2 \end{matrix}$	C12											$\begin{matrix} [x]/[x] \\ -3/1 \\ -1/-1 \end{matrix}$		
	$\begin{matrix} x \\ 2 \\ 2 \end{matrix}$	C12											$\begin{matrix} x \\ [-2] \\ -2 \end{matrix}$		
	$\begin{matrix} [x] \\ [2] \\ 2 \end{matrix}$	C12											$\begin{matrix} [x] \\ 1 \\ -1 \end{matrix}$		
		C12												$\begin{matrix} x \\ -1 \\ -1 \end{matrix}$	
		$\begin{matrix} x \\ -1 \\ [0] \end{matrix}$	C12												$\begin{matrix} [x] \\ -3 \\ -1 \end{matrix}$
		$\begin{matrix} [x] \\ 1 \\ -1 \end{matrix}$	C12												$\begin{matrix} x \\ -1 \\ [0] \end{matrix}$
		$\begin{matrix} x/x \\ 2/-1 \\ -1/-1 \end{matrix}$	C12												$\begin{matrix} x \\ -1 \\ [0] \end{matrix}$
13	$\begin{matrix} x/x/x/x \\ 2/2/[3]/[3] \\ 0/3/0/3 \end{matrix}$	C13												$\begin{matrix} [x] \\ -3 \\ -1 \end{matrix}$	

Table F.7 : Positioning tables of Dom7 chord for parmak vurma sub-technique on all FPs.

CONNECTOR	POSITIONS/PITCHES													
	1/B \flat	2/B	3/C	4/C \sharp	5/D	6/D \sharp	7/E	8/F	9/F \sharp	10/G	11/A \flat	12/A	13/B \flat	14/B
0		$\begin{matrix} [x] \\ 0 \\ -1 \end{matrix}$ C0 $\begin{matrix} [x]/[x] \\ 0/[2] \\ 2/2 \end{matrix}$												
			$\begin{matrix} x \\ -1 \\ -2 \end{matrix}$ C0 $\begin{matrix} x/x \\ -1/2 \\ [0]/[0] \end{matrix}$											
			$\begin{matrix} x \\ [-2] \\ -2 \end{matrix}$ C0 $\begin{matrix} x/ \\ [-2]/2 \\ 1/1 \end{matrix}$											
				$\begin{matrix} [x] \\ -3 \\ -1 \end{matrix}$ C0 $\begin{matrix} [x]/[x] \\ 0/0 \\ -1/2 \end{matrix}$										
				$\begin{matrix} x \\ -1 \\ [-3] \end{matrix}$ C0 $\begin{matrix} x/x \\ -1/2 \\ 1/1 \end{matrix}$										
2	$\begin{matrix} x \\ 2 \\ 1 \end{matrix}$	C2	$\begin{matrix} [x]/[x] \\ 0/[2] \\ 2/2 \end{matrix}$											
		$\begin{matrix} x \\ -1 \\ 1 \end{matrix}$	C2	$\begin{matrix} [x]/[x]/[x] \\ -3/[2]/[2] \\ -1/-1/2 \end{matrix}$										
				$\begin{matrix} x \\ -1 \\ [-3] \end{matrix}$	C2	$\begin{matrix} [x]/[x]/[x] \\ -3/0/[2] \\ -1/-1/-1 \end{matrix}$								
3	$\begin{matrix} x \\ 2 \\ [0] \end{matrix}$	C3		$\begin{matrix} x/x \\ -1/2 \\ 1/1 \end{matrix}$										
		$\begin{matrix} x \\ -1 \\ [0] \end{matrix}$	C3		$\begin{matrix} x/x/x \\ -1/-1/2 \\ [-3]/1/1 \end{matrix}$									
			$\begin{matrix} x \\ [-2] \\ 1 \end{matrix}$	C3		$\begin{matrix} x/x/x/x \\ -1/-1/2/2 \\ -2/[0]/-2/[0] \end{matrix}$								
			$\begin{matrix} x \\ -1 \\ -2 \end{matrix}$	C3		$\begin{matrix} x \\ -1 \\ [-3] \end{matrix}$								
			$\begin{matrix} x \\ [-2] \\ -2 \end{matrix}$	C3		$\begin{matrix} x/x \\ -1/2 \\ -2/-2 \end{matrix}$								
4	$\begin{matrix} [x] \\ 0 \\ 2 \end{matrix}$	C4			$\begin{matrix} x/x/x/x/x \\ [-2]/[-2]/2/2/2 \\ -2/1/-2/1/[3] \end{matrix}$									
	$\begin{matrix} [x] \\ [2] \\ 2 \end{matrix}$	C4			$\begin{matrix} x/x \\ [-2]/2 \\ 1/1 \end{matrix}$									

Table F.7 (continued): Positioning tables of Dom7 chord for parmak vurma sub-technique on all FPs.

CONNECTOR	POSITIONS/PITCHES													
	1/Bb	2/B	3/C	4/C#	5/D	6/D#	7/E	8/F	9/F#	10/G	11/Ab	12/A	13/Bb	14/B
4		$\begin{bmatrix} x \\ 0 \\ -1 \end{bmatrix}$	C4			$\begin{bmatrix} x/x \\ [-2]/2 \\ -2/-2 \end{bmatrix}$								
				$\begin{bmatrix} x \\ -3 \\ -1 \end{bmatrix}$	C4			$\begin{bmatrix} x/x \\ [-2]/2 \\ 1/1 \end{bmatrix}$						
5	$\begin{bmatrix} x \\ 2 \\ [0] \end{bmatrix}$	C5				$\begin{bmatrix} x \\ 0 \\ -1 \end{bmatrix}$								
		$\begin{bmatrix} x \\ -1 \\ [0] \end{bmatrix}$	C5				$\begin{bmatrix} [x]/[x] \\ 0/0 \\ -1/2 \end{bmatrix}$							
			$\begin{bmatrix} x \\ -1 \\ -2 \end{bmatrix}$	C5				$\begin{bmatrix} [x]/[x]/[x]/[x] \\ -3/0/0/[2]/[2] \\ -1/-1/2/-1/2 \end{bmatrix}$						
			$\begin{bmatrix} x \\ 2 \\ -2 \end{bmatrix}$	C5				$\begin{bmatrix} [x]/[x] \\ 0/[2] \\ -1/-1 \end{bmatrix}$						
6	$\begin{bmatrix} x \\ 2 \\ 1 \end{bmatrix}$	C6					$\begin{bmatrix} x \\ [-2] \\ -2 \end{bmatrix}$							
	$\begin{bmatrix} x \\ 2 \\ [3] \end{bmatrix}$	C6					$\begin{bmatrix} x/x \\ -1/-1 \\ [-3]/1 \end{bmatrix}$							
		$\begin{bmatrix} x \\ -1 \\ 1 \end{bmatrix}$	C6					$\begin{bmatrix} x/x/x \\ [-2]/[-2]/2 \\ -2/1/[3] \end{bmatrix}$						
			$\begin{bmatrix} x \\ [-2] \\ 1 \end{bmatrix}$	C6					$\begin{bmatrix} x/x \\ -1/-1 \\ [-3]/1 \end{bmatrix}$					
			$\begin{bmatrix} x \\ 2 \\ -2 \end{bmatrix}$	C6					$\begin{bmatrix} x \\ -1 \\ [-3] \end{bmatrix}$					
			$\begin{bmatrix} x \\ [-2] \\ -2 \end{bmatrix}$	C6					$\begin{bmatrix} x/x/x \\ -1/-1/2 \\ [-3]/1/1 \end{bmatrix}$					
				$\begin{bmatrix} x \\ -1 \\ [-3] \end{bmatrix}$	C6					$\begin{bmatrix} x/x/x/x/x \\ [-2]/[-2]/2/2/2 \\ -2/1/-2/1/[3] \end{bmatrix}$				
7	$\begin{bmatrix} [x] \\ [2] \\ 2 \end{bmatrix}$	C7						$\begin{bmatrix} x \\ -1 \\ -2 \end{bmatrix}$						
	$\begin{bmatrix} [x] \\ 0 \\ 2 \end{bmatrix}$	C7						$\begin{bmatrix} x/x \\ -1/-1 \\ -2/[0] \end{bmatrix}$						

Table F.7 (continued): Positioning tables of Dom7 chord for parmak vurma sub-technique on all FPs.

CONNECTOR	POSITIONS/PITCHES														
	1/B♭	2/B	3/C	4/C#	5/D	6/D#	7/E	8/F	9/F#	10/G	11/A♭	12/A	13/B♭	14/B	
7		$\begin{bmatrix} x \\ 0 \\ -1 \end{bmatrix}$	C7							$\begin{matrix} x/x/x/x \\ -1/-1/2/2 \\ -2/[0]/[0]/-2 \end{matrix}$					
		$\begin{bmatrix} x \\ 2 \\ -1 \end{bmatrix}$	C7							$\begin{matrix} x/x \\ -1/2 \\ -2/-2 \end{matrix}$					
				$\begin{bmatrix} x \\ -3 \\ -1 \end{bmatrix}$	C7							$\begin{matrix} x/x \\ -1/2 \\ -2/-2 \end{matrix}$			
8	$\begin{matrix} x \\ 2 \\ [3] \end{matrix}$	C8							$\begin{bmatrix} x \\ 0 \\ 2 \end{bmatrix}$						
			$\begin{matrix} x \\ [-2] \\ 1 \end{matrix}$	C8							$\begin{matrix} [x]/[x] \\ -3/[2] \\ -1/2 \end{matrix}$				
			$\begin{matrix} x \\ 2 \\ -2 \end{matrix}$	C8							$\begin{matrix} [x]/[x] \\ 0/0 \\ -1/2 \end{matrix}$				
			$\begin{matrix} x \\ [-2] \\ -2 \end{matrix}$	C8							$\begin{matrix} [x]/[x] \\ 0/0 \\ -1/2 \end{matrix}$				
9	$\begin{matrix} x \\ 2 \\ 1 \end{matrix}$	C9							$\begin{matrix} x/x \\ -1/2 \\ [0]/[0] \end{matrix}$						
	$\begin{matrix} x \\ 2 \\ [0] \end{matrix}$	C9							$\begin{matrix} x/x \\ [-2]/2 \\ 1/1 \end{matrix}$						
		$\begin{matrix} x \\ -1 \\ 1 \end{matrix}$	C9							$\begin{matrix} x/x \\ -1/2 \\ [0]/[0] \end{matrix}$					
		$\begin{matrix} x \\ -1 \\ [0] \end{matrix}$	C9							$\begin{matrix} x/x \\ [-2]/2 \\ 1/1 \end{matrix}$					
			$\begin{matrix} x \\ -1 \\ -2 \end{matrix}$	C9							$\begin{matrix} x/x \\ [-2]/[-2] \\ -2/1 \end{matrix}$				
			$\begin{matrix} x \\ 2 \\ -2 \end{matrix}$	C9							$\begin{matrix} x/x \\ [-2]/[-2] \\ -2/1 \end{matrix}$				
				$\begin{matrix} x \\ -1 \\ [-3] \end{matrix}$	C9							$\begin{matrix} x/x \\ -1/-1 \\ -2/[0] \end{matrix}$			
10	$\begin{bmatrix} x \\ 2 \\ 2 \end{bmatrix}$	C10									$\begin{matrix} x/x \\ -1/2 \\ 1/1 \end{matrix}$				

Table F.7 (continued): Positioning tables of Dom7 chord for parmak vurma sub-technique on all FPs.

CONNECTOR	POSITIONS/PITCHES													
	1/B \flat	2/B	3/C	4/C \sharp	5/D	6/D \sharp	7/E	8/F	9/F \sharp	10/G	11/A \flat	12/A	13/B \flat	14/B
10	[x] 0 2	C10										x/x -1/2 1/1		
		[x] 0 -1	C10										x/x -1/-1 [-3]/1	
		[x] [2] -1	C10										x -1 1	
				[x] -3 -1	C10									x -1 [-3]
12	x 2 [0]	C12											x -1 -2	
	[x] [2] 2	C12											[x] 0 -1	
	[x] 0 2	C12											[x]/[x] -3/0 -1/-1	
	x 2 1	C12											x -1 [-3]	
		x -1 [0]	C12											x -1 -2
		x -1 1	C12											x -1 [-3]
		[x] 0 -1	C12											[x] -3 -1

Table F.8 : Positioning tables of Min7 chord for parmak vurma sub-technique on all FPs.

CONNECTOR	POSITIONS/PITCHES													
	1/Bb	2/B	3/C	4/C#	5/D	6/D#	7/E	8/F	9/F#	10/G	11/Ab	12/A	13/Bb	14/B
0		$\begin{matrix} x \\ [-1] \\ -1 \end{matrix} \begin{matrix} C0 \\ [-1]/2 \\ 2/2 \end{matrix} \begin{matrix} x/x \\ [-1]/2 \\ 2/2 \end{matrix}$												
			$\begin{matrix} x \\ -2 \\ -2 \end{matrix} \begin{matrix} C0 \\ [0]/[0] \end{matrix} \begin{matrix} x/x \\ -2/2 \\ [0]/[0] \end{matrix}$											
			$\begin{matrix} [x] \\ 0 \\ -2 \end{matrix} \begin{matrix} C0 \\ 0/[2] \\ 2/2 \end{matrix} \begin{matrix} [x]/[x] \\ 0/[2] \\ 2/2 \end{matrix}$											
				$\begin{matrix} [x] \\ -3 \\ -2 \end{matrix} \begin{matrix} C0 \\ 0/0 \\ -2/2 \end{matrix} \begin{matrix} [x]/[x] \\ 0/0 \\ -2/2 \end{matrix}$										
				$\begin{matrix} x \\ -3 \\ -1 \end{matrix} \begin{matrix} C0 \\ [-1]/[-1] \\ -1/2 \end{matrix} \begin{matrix} x/x \\ [-1]/[-1] \\ -1/2 \end{matrix}$										
				$\begin{matrix} x \\ -1 \\ [-3] \end{matrix} \begin{matrix} C0 \\ -1/2 \\ 0/0 \end{matrix} \begin{matrix} x/x \\ -1/2 \\ 0/0 \end{matrix}$										
2	$\begin{matrix} x \\ 2 \\ 0 \end{matrix}$	C2	$\begin{matrix} [x]/[x] \\ 0/[2] \\ 2/2 \end{matrix}$											
		$\begin{matrix} x \\ -1 \\ 0 \end{matrix}$	C2	$\begin{matrix} [x]/[x]/[x]/[x]/[x] \\ -3/0/0/[2]/[2] \\ -2/-2/2/-2/2 \end{matrix}$										
				$\begin{matrix} x \\ -1 \\ [-3] \end{matrix}$	C2	$\begin{matrix} [x]/[x]/[x] \\ -3/0/[2] \\ -2/-2/-2/ \end{matrix}$								
3	$\begin{matrix} [x] \\ 0 \\ 2 \end{matrix}$	C3		$\begin{matrix} x/x/x/x/x \\ -3/[-1]/[-1]/2/2 \\ -1/-1/2/-1/2 \end{matrix}$										
	$\begin{matrix} x \\ 2 \\ [0] \end{matrix}$	C3		$\begin{matrix} x/x \\ -1/2 \\ 0/0 \end{matrix}$										
	$\begin{matrix} [x] \\ [2] \\ 2 \end{matrix}$	C3		$\begin{matrix} x/x \\ [-1]/2 \\ 2/2 \end{matrix}$										
			$\begin{matrix} [x] \\ 0 \\ -2 \end{matrix}$	C3		$\begin{matrix} x/x/x \\ -3/[-1]/2 \\ -1/-1/-1 \end{matrix}$								
			$\begin{matrix} x \\ -2 \\ -2 \end{matrix}$	C3		$\begin{matrix} x \\ -1 \\ [-3] \end{matrix}$								
			$\begin{matrix} x \\ -2 \\ [0] \end{matrix}$	C3		$\begin{matrix} x/x/x \\ -1/-1/2 \\ [-3]/0/0 \end{matrix}$								

Table F.8 (continued): Positioning tables of Min7 chord for parmak vurma sub-technique on all FPs.

CONNECTOR	POSITIONS/PITCHES													
	1/B♭	2/B	3/C	4/C#	5/D	6/D#	7/E	8/F	9/F#	10/G	11/A♭	12/A	13/B♭	14/B
3				[x] -3 -2	C3		x/x/x -3/[-1]/2 -1/2/2							
4	x 2 2	C4			x/x -2/2 [0]/[0]									
		x [-1] 2	C4			x/x/x/x/x -2/2/2/2/2 -2/[0]/-2/[0]/3								
		x [-1] -1	C4			x/x -2/2 -2/-2								
				x -3 -1	C4			x/x -2/2 [0]/[0]						
5	x 2 [0]	C5				[x] 0 -2								
	x 2 0	C5				x [-1] -1								
	x 2 3	C5				[x]/[x] 0/0 -2/2								
		x -1 0	C5				x/x [-1]/[-1] -1/2							
			x -2 -2	C5				[x]/[x]/[x]/[x] -3/0/0/[2]/[2] -2/-2/2/-2/2						
			x 2 -2	C5				[x]/[x]/[x] -3/0/[2] -2/-2/-2						
			x -2 [0]	C5				[x]/[x] 0/0 -2/2						
				x -1 [-3]	C5				x/x/x/x/x -3/[-1]/[-1]/2/2 -1/-1/2/-1/2					
7	[x] 0 2	C7					x/x/x -2/2/2 -2/[0]/3							
	[x] [2] 2	C7					x -2 -2							

Table F.8 (continued): Positioning tables of Min7 chord for parmak vurma sub-technique on all FPs.

CONNECTOR	POSITIONS/PITCHES													
	1/Bb	2/B	3/C	4/C#	5/D	6/D#	7/E	8/F	9/F#	10/G	11/Ab	12/A	13/Bb	14/B
7	$\begin{matrix} x \\ 2 \\ 2 \end{matrix}$	C7						$\begin{matrix} x \\ -1 \\ [-3] \end{matrix}$						
		$\begin{matrix} x \\ [-1] \\ 2 \end{matrix}$	C7						$\begin{matrix} x/x \\ -1/-1 \\ [-3]/0 \end{matrix}$					
		$\begin{matrix} x \\ [-1] \\ -1 \end{matrix}$	C7						$\begin{matrix} x/x/x \\ -1/-1/2 \\ [-3]/0/0 \end{matrix}$					
		$\begin{matrix} x \\ 2 \\ -1 \end{matrix}$	C7						$\begin{matrix} x \\ -1 \\ [-3] \end{matrix}$					
			$\begin{matrix} [x] \\ 0 \\ -2 \end{matrix}$	C7						$\begin{matrix} x/x/x/x/x \\ -2/-2/2/2/2 \\ -2/[0]/-2/[0]/3 \end{matrix}$				
			$\begin{matrix} [x] \\ [2] \\ -2 \end{matrix}$	C7						$\begin{matrix} x/x \\ -2/2 \\ -2/-2 \end{matrix}$				
				$\begin{matrix} [x] \\ -3 \\ -2 \end{matrix}$	C7						$\begin{matrix} x/x \\ -2/2 \\ -2/-2 \end{matrix}$			
				$\begin{matrix} x \\ -3 \\ -1 \end{matrix}$	C7						$\begin{matrix} x \\ -1 \\ [-3] \end{matrix}$			
8	$\begin{matrix} x \\ 2 \\ [0] \end{matrix}$	C8						$\begin{matrix} x/x/x \\ -3/[-1]/2 \\ -1/2/2 \end{matrix}$						
	$\begin{matrix} x \\ 2 \\ 3 \end{matrix}$	C8						$\begin{matrix} x \\ [-1] \\ 2 \end{matrix}$						
			$\begin{matrix} x \\ -2 \\ -2 \end{matrix}$	C8						$\begin{matrix} x/x \\ [-1]/[-1] \\ -1/2 \end{matrix}$				
			$\begin{matrix} x \\ 2 \\ -2 \end{matrix}$	C8						$\begin{matrix} x/x \\ [-1]/[-1] \\ -1/2 \end{matrix}$				
			$\begin{matrix} x \\ -2 \\ [0] \end{matrix}$	C8						$\begin{matrix} x/x/x \\ -3/[-1]/2 \\ -1/2/2 \end{matrix}$				
9	$\begin{matrix} x \\ 2 \\ 2 \end{matrix}$	C9							$\begin{matrix} [x]/[x]/[x] \\ -3/0/[2] \\ -2/2/2 \end{matrix}$					
	$\begin{matrix} x \\ 2 \\ 0 \end{matrix}$	C9							$\begin{matrix} x/x \\ -2/2 \\ [0]/[0] \end{matrix}$					

Table F.8 (continued): Positioning tables of Min7 chord for parmak vurma sub-technique on all FPs.

CONNECTOR	POSITIONS/PITCHES													
	1/Bb	2/B	3/C	4/C#	5/D	6/D#	7/E	8/F	9/F#	10/G	11/Ab	12/A	13/Bb	14/B
9		x [-1] 2					C9				[x]/[x]/[x] -3/0/[2] -2/2/2			
		x -1 0					C9				x/x -2/2 [0]/[0]			
		x [-1] -1					C9				[x]/[x] 0/0 -2/2			
		x 2 -1					C9				[x]/[x] 0/0 -2/2			
				x -3 -1				C9					[x]/[x] -3/0 -2/-2	
				x -1 [-3]				C9					x/x -2/2 -2/[0]	
10	[x] 0 2						C10				x/x -1/2 0/0			
	[x] [2] 2						C10				x/x -1/2 0/0			
			[x] 0 -2					C10					x/x -1/-1 [-3]/0	
			[x] [2] -2					C10					x/x -1/-1 [-3]/0	
				[x] -3 -2				C10						x/x -1/-1 [-3]/0
12	[x] 0 2						C12						[x]/[x] -3/0 -2/-2	
	[x] [2] 2						C12						[x] 0 -2	
	x 2 2						C12						x [-1] -1	
	x 2 [0]						C12						x -2 -2	
	x 2 0						C12						x -1 [-3]	

Table F.8 (continued): Positioning tables of Min7 chord for parmak vurma sub-technique on all FPs.

CONNECTOR	POSITIONS/PITCHES													
	1/B \flat	2/B	3/C	4/C \sharp	5/D	6/D \sharp	7/E	8/F	9/F \sharp	10/G	11/A \flat	12/A	13/B \flat	14/B
12		x [-1] 2	C12											x/x -3/[-1] -1/-1
		x -1 0	C12											x -1 [-3]
		x [-1] -1	C12											x -3 -1

Table F.9 : Positioning tables of Halfdim7 chord for parmak vurma sub-technique on all FPs.

CONNECTOR	POSITIONS/PITCHES													
	1/Bb	2/B	3/C	4/C#	5/D	6/D#	7/E	8/F	9/F#	10/G	11/Ab	12/A	13/Bb	14/B
0		x -1 C0 -1 [1]/[1]												
			$[x]$ 0 C0 -2 1/1											
			x [-1] C0 -2 [-1]/2											
				x -2 C0 [-3] 0/0										
2	x 2 0	C2	$[x]$ 0/[2] 1/1											
			x -2 0	C2	$[x]$ 0/[2] -2/1/-2/1									
				x -2 [-3]	C2	$[x]$ 0/[2] -2/-2								
3	$[x]$ 0 1	C3		$x/x/x/x/x$ -3/[-1]/[-1]/2 -2/-2/2/-2/2										
	x 2 2	C3		x/x -1/2 [1]/[1]										
		x [-1] 2	C3		$x/x/x/x$ -1/-1/2/2 -1/[1]/-1/[1]									
			x [-1] -2	C3		x/x -1/2 -1/-1								
			$[x]$ 0 -2	C3		$x/x/x$ -3/[-1]/2 -2/-2/-2								
				x -3 -2	C3		x/x -1/2 [1]/[1]							
4	x 2 [1]	C4			x/x -2/2 0/0									
		x -1 -1	C4			x -2 [-3]								

Table F.9 (continued): Positioning tables of Halfdim7 chord for parmak vurma sub-technique on all FPs.

CONNECTOR	POSITIONS/PITCHES													
	1/Bb	2/B	3/C	4/C#	5/D	6/D#	7/E	8/F	9/F#	10/G	11/Ab	12/A	13/Bb	14/B
4		x -1 [1]	C4			x/x/x/x -2/-2/2/2 [-3]/0/0/3								
5	x 2 0	C5				x [-1] -2								
	x 2 3	C5				x/x [-1]/[-1] -2/2								
			x -2 0	C5				x/x [-1]/[-1] -2/2						
				x -2 [-3]	C5				x/x/x/x/x -3/[-1]/[-1]/2/2 -2/-2/2/-2/2					
6	[x] 0 1	C6					x/x -1/-1 -1/[1]							
	x 2 [1]	C6					[x] 0 -2							
		x -1 -1	C6					[x]/[x]/[x] 0/0/[2]/[2] -2/1/-2/1						
		x 2 -1	C6					[x]/[x] 0/[2] -2/-2						
		x -1 [1]	C6					[x]/[x] 0/0 -2/1						
			[x] 0 -2	C6					x/x/x/x -1/-1/2/2 -1/[1]/-1/[1]					
			[x] [2] -2	C6					x/x -1/2 -1/-1					
7	x 2 2	C7						x -2 [-3]						
		x [-1] 2	C7						x/x -2/-2 [-3]/0					

Table F.9 (continued): Positioning tables of Halfdim7 chord for parmak vurma sub-technique on all FPs.

CONNECTOR	POSITIONS/PITCHES													
	1/Bb	2/B	3/C	4/C#	5/D	6/D#	7/E	8/F	9/F#	10/G	11/Ab	12/A	13/Bb	14/B
7			x [-1] -2	$C7$						$x/x/x/x$ -2/-2/2/2 [-3]/0/0/3				
			x 2 -2	$C7$						x -2 [-3]				
				x -3 -2	$C7$						x -2 [-3]			
8	x 2 0	$C8$							x/x -1/2 [1]/[1]					
	x 2 3	$C8$							x -1 [1]					
			x -2 0	$C8$							x/x -1/2 [1]/[1]			
				x -2 [-3]	$C8$							x/x -1/-1 -1/[1]		
9	x 2 [1]	$C9$								$x/x/x$ -3/[-1]/2 -2/-2/2				
	x 2 2	$C9$								$[x]/[x]$ 0/[2] 1/1				
		x -1 -1	$C9$								x/x [-1]/[-1] -2/2			
		x 2 -1	$C9$								x/x [-1]/[-1] -2/2			
		x -1 [1]	$C9$								$x/x/x$ -3/[-1]/2 -2/-2/2			
		x [-1] 2	$C9$								$[x]/[x]$ 0/[2] 1/1			
			x [-1] -2	$C9$								$[x]/[x]$ 0/0 -2/1		
			x 2 -2	$C9$								$[x]/[x]$ 0/0 -2/1		
				$C9$										

Table F.9 (continued): Positioning tables of Halfdim7 chord for parmak vurma sub-technique on all FPs.

CONNECTOR	POSITIONS/PITCHES													
	1/Bb	2/B	3/C	4/C#	5/D	6/D#	7/E	8/F	9/F#	10/G	11/Ab	12/A	13/Bb	14/B
9				x -3 -2	C9								[x]/[x] 0/0 -2/1	
10	[x] 0 1	C10										x/x -2/2 0/0		
			[x] 0 -2	C10								x/x -2/-2 [-3]/0		
			[x] [2] -2	C10								x/x -2/-2 [-3]/0		
12	x 2 2	C12										x [-1] -2		
	x 2 0	C12										x -2 [-3]		
	[x] 0 1	C12										[x] 0 -2		
	x 2 [1]	C12										x -1 -1		
		x [-1] 2	C12									x/x -3/[-1] -2/-2		
		x -1 [1]	C12									x -1 -1		

Table F.10 : Positioning tables of Dim7 chord for parmak vurma sub-technique on all FPs.

CONNECTOR	POSITIONS/PITCHES															
	1/B \flat	2/B	3/C	4/C \sharp	5/D	6/D \sharp	7/E	8/F	9/F \sharp	10/G	11/A \flat	12/A	13/B \flat	14/B		
0			$\begin{smallmatrix} x \\ -1 \\ -2 \end{smallmatrix}$ C0 $\begin{smallmatrix} x/x \\ -1/2 \\ 1/1 \end{smallmatrix}$													
3	$\begin{smallmatrix} x \\ 2 \\ 1 \end{smallmatrix}$	C3		$\begin{smallmatrix} x/x \\ -1/2 \\ 1/1 \end{smallmatrix}$												
		$\begin{smallmatrix} x \\ -1 \\ 1 \end{smallmatrix}$	C3		$\begin{smallmatrix} x/x/x/x \\ -1/-1/2/2 \\ -2/1/-2/1 \end{smallmatrix}$											
			$\begin{smallmatrix} x \\ -1 \\ -2 \end{smallmatrix}$	C3		$\begin{smallmatrix} x/x \\ -1/2 \\ -2/-2 \end{smallmatrix}$										
6	$\begin{smallmatrix} x \\ 2 \\ 1 \end{smallmatrix}$	C6					$\begin{smallmatrix} x \\ -1 \\ -2 \end{smallmatrix}$									
		$\begin{smallmatrix} x \\ -1 \\ 1 \end{smallmatrix}$	C6					$\begin{smallmatrix} x/x \\ -1/-1 \\ -2/1 \end{smallmatrix}$								
			$\begin{smallmatrix} x \\ -1 \\ -2 \end{smallmatrix}$	C6					$\begin{smallmatrix} x/x/x/x \\ -1/-1/2/2 \\ -2/1/-2/1 \end{smallmatrix}$							
			$\begin{smallmatrix} x \\ 2 \\ -2 \end{smallmatrix}$	C6					$\begin{smallmatrix} x/x \\ -1/2 \\ -2/-2 \end{smallmatrix}$							
9	$\begin{smallmatrix} x \\ 2 \\ 1 \end{smallmatrix}$	C9								$\begin{smallmatrix} x/x \\ -1/2 \\ 1/1 \end{smallmatrix}$						
		$\begin{smallmatrix} x \\ -1 \\ 1 \end{smallmatrix}$	C9								$\begin{smallmatrix} x/x \\ -1/2 \\ 1/1 \end{smallmatrix}$					
			$\begin{smallmatrix} x \\ -1 \\ -2 \end{smallmatrix}$	C9								$\begin{smallmatrix} x/x \\ -1/-1 \\ -2/1 \end{smallmatrix}$				
			$\begin{smallmatrix} x \\ 2 \\ -2 \end{smallmatrix}$	C9								$\begin{smallmatrix} x/x \\ -1/-1 \\ -2/1 \end{smallmatrix}$				
12	$\begin{smallmatrix} x \\ 2 \\ 1 \end{smallmatrix}$	C12											$\begin{smallmatrix} x \\ -1 \\ -2 \end{smallmatrix}$			
		$\begin{smallmatrix} x \\ -1 \\ 1 \end{smallmatrix}$	C12												$\begin{smallmatrix} x \\ -1 \\ -2 \end{smallmatrix}$	

Table F.11 : Positioning tables of Min#7 chord for parmak vurma sub-technique on all FPs.

CONNECTOR	POSITIONS/PITCHES													
	1/B♭	2/B	3/C	4/C#	5/D	6/D#	7/E	8/F	9/F#	10/G	11/A♭	12/A	13/B♭	14/B
0		$\begin{matrix} x \\ [-1] \\ -1 \end{matrix}$ C0 $\begin{matrix} x/x \\ [-1]/2 \\ 3/3 \end{matrix}$												
		$\begin{matrix} x \\ [3] \\ -1 \end{matrix}$ C0 $\begin{matrix} x \\ [3] \\ 3 \end{matrix}$												
			$\begin{matrix} x \\ -2 \\ -1 \end{matrix}$ C0 $\begin{matrix} x/x \\ -2/2 \\ [0]/[0] \end{matrix}$											
			$\begin{matrix} [x] \\ 1 \\ -2 \end{matrix}$ C0 $\begin{matrix} [x]/[x] \\ 1/[2] \\ 2/2 \end{matrix}$											
1		$\begin{matrix} x \\ 2 \\ -1 \end{matrix}$ C1	$\begin{matrix} [x]/[x] \\ 1/[2] \\ 2/2 \end{matrix}$											
		$\begin{matrix} x \\ [3] \\ -1 \end{matrix}$ C1	$\begin{matrix} [x] \\ [2] \\ 2 \end{matrix}$											
3	$\begin{matrix} [x] \\ 1 \\ 2 \end{matrix}$	C3		$\begin{matrix} x/x/x/x \\ -2/[-1]/2/[-1]/2 \\ -1/-1/-1/3/3 \end{matrix}$										
	$\begin{matrix} [x] \\ [2] \\ 2 \end{matrix}$	C3		$\begin{matrix} x/x \\ [-1]/2 \\ 3/3 \end{matrix}$										
			$\begin{matrix} [x] \\ 1 \\ -2 \end{matrix}$	C3		$\begin{matrix} x/x/x \\ -2/[-1]/2 \\ -1/-1/-1 \end{matrix}$								
				$\begin{matrix} [x] \\ -3 \\ -2 \end{matrix}$	C3		$\begin{matrix} x/x/x \\ -2/[-1]/2 \\ -1/3/3 \end{matrix}$							
4	$\begin{matrix} x \\ 2 \\ [0] \end{matrix}$	C4			$\begin{matrix} x/x/x \\ -2/2/[3] \\ -1/-1/-1 \end{matrix}$									
	$\begin{matrix} x \\ 2 \\ 3 \end{matrix}$	C4			$\begin{matrix} x/x/x/x \\ -2/2/[3]/[3] \\ [0]/[0]/-1/3 \end{matrix}$									
	$\begin{matrix} x \\ [3] \\ 3 \end{matrix}$	C4			$\begin{matrix} x/x/x/x \\ [-1]/2/[-1]/2 \\ -1/-1/3/3 \end{matrix}$									
		$\begin{matrix} x \\ [-1] \\ -1 \end{matrix}$	C4			$\begin{matrix} x/x \\ -2/2 \\ -1/-1 \end{matrix}$								
		$\begin{matrix} x \\ 2 \\ -1 \end{matrix}$	C4			$\begin{matrix} x/x \\ [-1]/[3] \\ -1/-1 \end{matrix}$								

Table F.11 (continued): Positioning tables of Min#7 chord for parmak vurma sub-technique on all FPs.

CONNECTOR	POSITIONS/PITCHES													
	1/Bb	2/B	3/C	4/C#	5/D	6/D#	7/E	8/F	9/F#	10/G	11/Ab	12/A	13/Bb	14/B
4		x [-1] 3	C4			x/x/x/x/x -2/-2/2/2/2 -1/[0]/-1/[0]/3								
		x [3] -1	C4			x/x [-1]/2 -1/-1								
			x -2 -1	C4			x/x/x/x -2/2/[3]/[3] [0]/[0]/-1/3							
			x -2 [0]	C4			x/x/x/x/x -2/2/2/[3]/[3] -1/-1/3/-1/3							
5	x 2 [0]	C5				[x] 1 -2								
	x 2 3	C5				[x]/[x] 1/1 -2/2								
		x 2 -1	C5				[x]/[x]/[x] -3/1/[2] -2/-2/-2							
			x -2 -1	C5				[x]/[x]/[x]/[x] -3/1/1/[2]/[2] -2/-2/2/-2/2						
			x -2 [0]	C5				[x]/[x] 1/1 -2/2						
7	[x] 1 2	C7					x/x/x -2/-2/2 -1/[0]/3							
	[x] [2] 2	C7					x -2 -1							
			[x] 1 -2	C7						x/x/x/x -2/-2/2/2/2 -1/[0]/-1/[0]/3				
			[x] [2] -2	C7						x/x -2/2 -1/-1				
				[x] -3 -2	C7						x/x -2/2 -1/-1			

Table F.11 (continued): Positioning tables of Min#7 chord for parmak vurma sub-technique on all FPs.

CONNECTOR	POSITIONS/PITCHES														
	1/B \flat	2/B	3/C	4/C#	5/D	6/D#	7/E	8/F	9/F#	10/G	11/A \flat	12/A	13/B \flat	14/B	
8	x 2 [0]	C8							$x/x/x$ $-2/[-1]/2$ $-1/3/3$						
	x [3] 3	C8							$x/x/x$ $-2/-2/2$ $-1/[0]/3$						
	x 2 3	C8							x/x [-1]/[3] 3/3						
		x [-1] -1	C8							$x/x/x/x/x$ $-2/2/2/[3]/[3]$ $-1/-1/3/-1/3$					
		x 2 -1	C8							$x/x/x/x$ [-1]/-2/2/[-1] -1/[0]/[0]/3					
		x [-1] 3	C8							$x/x/x$ $-2/2/[3]$ $-1/3/3$					
		x [3] -1	C8							$x/x/x/x/x$ $-2/-2/2/2/2$ $-1/[0]/-1/[0]/3$					
			x -2 -1	C8							$x/x/x/x$ [-1]/[-1]/[3]/[3] $-1/3/-1/3$				
			x -2 [0]	C8							$x/x/x$ $-2/[-1]/2$ $-1/3/3$				
	9	x 2 3	C9							$[x]/[x]/[x]$ $-3/1/[2]$ $-2/2/2$					
		x [-1] -1	C9							$[x]/[x]$ 1/1 $-2/2$					
			x -2 -1	C9							$[x]/[x]/[x]/[x]$ $-3/1/1/[2]/[2]$ $-2/-2/2/-2/2$				
11	$[x]$ 1 2	C11									x/x $-2/2$ $-1/-1$				
	$[x]$ [2] 2	C11									x/x $-2/2$ $-1/-1$				

Table F.11 (continued): Positioning tables of Min#7 chord for parmak vurma sub-technique on all FPs.

CONNECTOR	POSITIONS/PITCHES													
	1/B \flat	2/B	3/C	4/C#	5/D	6/D#	7/E	8/F	9/F#	10/G	11/A \flat	12/A	13/B \flat	14/B
11			$\begin{bmatrix} x \\ 1 \\ 2 \end{bmatrix}$ $\begin{bmatrix} x \\ 1 \\ 2 \end{bmatrix}$ $-2/-2$						C11					$\begin{bmatrix} x \\ -2 \\ -1 \end{bmatrix}$
12	$\begin{bmatrix} x \\ 1 \\ 2 \end{bmatrix}$								C12				$\begin{bmatrix} x \\ -3 \\ 1 \end{bmatrix}$ $-2/-2$	
	$\begin{bmatrix} x/x \\ 2/[3] \\ [0]/3 \end{bmatrix}$								C12				$\begin{bmatrix} x \\ -2 \\ -1 \end{bmatrix}$	
	$\begin{bmatrix} x \\ 2 \\ 3 \end{bmatrix}$								C12				$\begin{bmatrix} x \\ [-1] \\ -1 \end{bmatrix}$	
	$\begin{bmatrix} x \\ [2] \\ 2 \end{bmatrix}$								C12				$\begin{bmatrix} x \\ 1 \\ -2 \end{bmatrix}$	
		$\begin{bmatrix} x \\ [-1] \\ -1 \end{bmatrix}$							C12					$\begin{bmatrix} x \\ -2 \\ -1 \end{bmatrix}$
		$\begin{bmatrix} x \\ 2 \\ -1 \end{bmatrix}$							C12					$\begin{bmatrix} x \\ -2 \\ [0] \end{bmatrix}$
		$\begin{bmatrix} x \\ [-1] \\ 3 \end{bmatrix}$							C12					$\begin{bmatrix} x/x \\ -2/[-1] \\ -1/-1 \end{bmatrix}$
		$\begin{bmatrix} x \\ [3] \\ -1 \end{bmatrix}$							C12					$\begin{bmatrix} x \\ -2 \\ -1 \end{bmatrix}$
									C13					$\begin{bmatrix} x \\ -3 \\ -2 \end{bmatrix}$
13	$\begin{bmatrix} x \\ [3] \\ 3 \end{bmatrix}$													

Table F.12 : Positioning tables of Sus4Maj7 chord for parmak vurma sub-technique on all FPs.

CONNECTOR	POSITIONS/PITCHES													
	1/B \flat	2/B	3/C	4/C \sharp	5/D	6/D \sharp	7/E	8/F	9/F \sharp	10/G	11/A \flat	12/A	13/B \flat	14/B
0	$\begin{matrix} [x] \\ 1 \\ 0 \end{matrix} \begin{matrix} [x]/[x] \\ C0 \\ 2/2 \end{matrix}$													
	$\begin{matrix} x \\ [3] \\ 1 \end{matrix} \begin{matrix} C0 \\ [3] \\ 3 \end{matrix}$													
		$\begin{matrix} x \\ 0 \\ -1 \end{matrix} \begin{matrix} C0 \\ 0/2 \\ [0]/[0] \end{matrix}$												
				$\begin{matrix} x \\ [-3] \\ -3 \end{matrix} \begin{matrix} C0 \\ [x] \\ 1 \end{matrix}$										
				$\begin{matrix} [x] \\ -3 \\ 0 \end{matrix} \begin{matrix} C0 \\ [x] \\ 1/1 \\ 0/2 \end{matrix}$										
1	$\begin{matrix} x \\ 2 \\ 1 \end{matrix} \begin{matrix} C1 \\ 1/[2] \\ 2/2 \end{matrix}$													
	$\begin{matrix} x \\ [3] \\ 1 \end{matrix} \begin{matrix} C1 \\ [2] \\ 2 \end{matrix}$													
			$\begin{matrix} x \\ -2 \\ 1 \end{matrix} \begin{matrix} C1 \\ [x]/[x]/[x]/[x] \\ -3/1/1/[2]/[2] \\ 0/0/2/0/2 \end{matrix}$											
2	$\begin{matrix} x \\ 2 \\ 1 \end{matrix} \begin{matrix} C2 \\ 0/2 \\ [0]/[0] \end{matrix}$		$\begin{matrix} x/x \\ 0/2 \\ [0]/[0] \end{matrix}$											
				$\begin{matrix} x \\ [-3] \\ -3 \end{matrix}$	C2	$\begin{matrix} x/x \\ 0/2 \\ -1/-1 \end{matrix}$								
				$\begin{matrix} x \\ [-3] \\ 1 \end{matrix}$	C2	$\begin{matrix} x/x/x/x \\ 0/0/2/2 \\ -1/[0]/-1/[0] \end{matrix}$								
4	$\begin{matrix} x \\ 0 \\ [0] \end{matrix}$	C4			$\begin{matrix} x/x/x/x/x \\ -3/2/2/[3]/[3] \\ 1/1/3/1/3 \end{matrix}$									
	$\begin{matrix} x \\ 2 \\ [0] \end{matrix}$	C4			$\begin{matrix} x/x/x \\ -2/2/[3] \\ 1/1/1 \end{matrix}$									
		$\begin{matrix} x \\ 0 \\ -1 \end{matrix}$	C4			$\begin{matrix} x/x \\ [3]/[3] \\ 1/3 \end{matrix}$								
		$\begin{matrix} x \\ 2 \\ -1 \end{matrix}$	C4			$\begin{matrix} x \\ [3] \\ 1 \end{matrix}$								

Table F.12 (continued): Positioning tables of Sus4Maj7 chord for parmak vurma sub-technique on all FPs.

CONNECTOR	POSITIONS/PITCHES													
	1/B \flat	2/B	3/C	4/C \sharp	5/D	6/D \sharp	7/E	8/F	9/F \sharp	10/G	11/A \flat	12/A	13/B \flat	14/B
5	[x] 1 0			C5		x [-3] -3								
	[x] 1 2			C5		x/x/x/x [-3]/[-3]/2/2 -3/1/1/[2]								
	x 0 [0]			C5		[x]/[x] 1/1 0/2								
	x 2 [0]			C5		[x] 1 0								
	[x] [2] 2			C5		x/x [-3]/2 1/1								
		x 0 -1		C5			[x]/[x]/[x]/[x] -3/1/1/[2]/[2] 0/0/2/0/2							
		x 2 -1		C5			[x]/[x]/[x] -3/1/[2] 0/0/0							
				[x] -3 0		C5			x/x [-3]/2 1/1					
6	x 2 1			C6		x/x [-3]/[3] -3/3								
	x [3] 1			C6		x [-3] -3								
	x 2 3			C6		x/x/x [-3]/[-3]/2 -3/1/[2]								
	x [3] 3			C6		x/x/x/x [-3]/[-3]/2/2 -3/1/1/[2]								
	x 2 [2]			C6		x/x/x -2/2/[3] 1/3/3								
			x -2 1		C6				x/x/x [-3]/[-3]/2 -3/1/[2]					
				x [-3] -3		C6				x/x/x/x -2/2/2/[3]/[3] 1/1/3/1/3				

Table F.12 (continued): Positioning tables of Sus4Maj7 chord for parmak vurma sub-technique on all FPs.

CONNECTOR	POSITIONS/PITCHES													
	1/Bb	2/B	3/C	4/C#	5/D	6/D#	7/E	8/F	9/F#	10/G	11/Ab	12/A	13/Bb	14/B
6				x [-3] 1	C6					x/x/x -2/2/[3] 1/3/3				
7	x 2 1	C7						[x]/[x]/[x] -3/1/[2] 0/2/2						
	[x] 1 0	C7						x/x/x/x 0/0/2/2 -1/[0]/-1/[0]						
	[x] 1 2	C7						x/x 0/0 -1/[0]						
	[x] [2] 0	C7						x/x 0/2 -1/-1						
	[x] [2] 2	C7						x 0 -1						
	x 2 [2]	C7						[x] 1 2						
				[x] -3 0	C7						x/x 0/2 -1/-1			
				x [-3] -3	C7						[x]/[x] 1/1 0/2			
				x [-3] 1	C7						[x]/[x] 1/[2] 2/2			
8	x 2 1	C8							x/x 0/2 [0]/[0]					
	x [3] 1	C8							x/x/x/x 0/0/2/2 -1/[0]/-1/[0]					
	x 2 3	C8							x 0 [0]					
	x [3] 3	C8							x/x 0/0 -1/[0]					
			x -2 1	C8							x/x 0/2 [0]/[0]			

Table F.12 (continued): Positioning tables of Sus4Maj7 chord for parmak vurma sub-technique on all FPs.

CONNECTOR	POSITIONS/PITCHES															
	1/B \flat	2/B	3/C	4/C \sharp	5/D	6/D \sharp	7/E	8/F	9/F \sharp	10/G	11/A \flat	12/A	13/B \flat	14/B		
10	x 0 [0]	C10										x/x [-3]/2 1/1				
	x 2 [0]	C10										x 2 1				
		x 0 -1	C10										$x/x/x$ [-3]/[-3]/2 -3/1/[2]			
		x 2 -1	C10										$x/x/x/x$ [-3]/[-3]/2/2 -3/1/1/[2]			
11	$[x]/[x]$ 1/[2] 0/0	C11										x -2 1				
	$[x]$ 1 2	C11										x/x -2/2 1/1				
	$[x]$ [2] 2	C11										x/x -2/2 1/1				
12	x 2 1	C12											x [-3] -3			
	$[x]$ 1 0	C12											$[x]$ -3 0			
	$[x]$ 1 2	C12											$[x]/[x]$ -3/1 0/0			
	x/x 0/2 [0]/[0]	C12											$[x]$ 0 -1			
	x/x [3]/[3] 1/3	C12											x -2 1			
	$[x]$ [2] 2	C12											$[x]$ 1 0			
		x/x 0/2 -1/-1	C12												x 0 [0]	
13	$x/x/x/x$ 2/[3]/2/[3] 1/1/3/3	C13													$[x]$ -3 0	

Table F.13 : Positioning tables of Sus4Min7 chord for parmak vurma sub-technique on all FPs.

CONNECTOR	POSITIONS/PITCHES													
	1/B \flat	2/B	3/C	4/C \sharp	5/D	6/D \sharp	7/E	8/F	9/F \sharp	10/G	11/A \flat	12/A	13/B \flat	14/B
0	$\begin{matrix} [x] \\ 0 \\ 0 \end{matrix} \begin{matrix} [x]/[x] \\ C0 \\ 0/[2] \\ 2/2 \end{matrix}$													
			$\begin{matrix} x \\ 0 \\ -2 \end{matrix} \begin{matrix} C0 \\ 0/2 \\ [0]/[0] \end{matrix}$											
				$\begin{matrix} x \\ [-3] \\ -3 \end{matrix} \begin{matrix} C0 \\ x/x \\ [-3]/2 \\ 0/0 \end{matrix}$										
				$\begin{matrix} x \\ -3 \\ [-3] \end{matrix} \begin{matrix} C0 \\ x/x \\ -1/-1 \\ [-3]/2 \end{matrix}$										
				$\begin{matrix} [x] \\ -3 \\ 0 \end{matrix} \begin{matrix} C0 \\ [x]/[x] \\ 0/0 \\ 0/2 \end{matrix}$										
				$\begin{matrix} x \\ -1 \\ [-3] \end{matrix} \begin{matrix} C0 \\ x/x \\ -1/2 \\ 2/2 \end{matrix}$										
2	$\begin{matrix} x \\ 2 \\ 0 \end{matrix}$	C2	$\begin{matrix} x/x \\ 0/2 \\ [0]/[0] \end{matrix}$											
	$\begin{matrix} x \\ 2 \\ 2 \end{matrix}$	C2	$\begin{matrix} [x]/[x] \\ 0/[2] \\ 2/2 \end{matrix}$											
		$\begin{matrix} x \\ -1 \\ 2 \end{matrix}$	C2	$\begin{matrix} [x]/[x]/[x]/[x] \\ -3/0/0/[2]/[2] \\ 0/0/2/0/2 \end{matrix}$										
				$\begin{matrix} x \\ [-3] \\ -3 \end{matrix}$	C2	$\begin{matrix} x/x \\ 0/2 \\ -2/-2 \end{matrix}$								
				$\begin{matrix} x \\ -3 \\ [-3] \end{matrix}$	C2	$\begin{matrix} [x]/[x] \\ 0/[2] \\ 2/2 \end{matrix}$								
				$\begin{matrix} x \\ [-3] \\ 0 \end{matrix}$	C2	$\begin{matrix} x/x/x/x \\ 0/0/2/2 \\ -2/[0]/-2/[0] \end{matrix}$								
				$\begin{matrix} x \\ -1 \\ [-3] \end{matrix}$	C2	$\begin{matrix} [x]/[x]/[x] \\ -3/0/[2] \\ 0/0/0 \end{matrix}$								
3	$\begin{matrix} x \\ 0 \\ [0] \end{matrix}$	C3	$\begin{matrix} x/x/x/x \\ -3/-1/-1/2 \\ [-3]/[-3]/2/2 \end{matrix}$											
	$\begin{matrix} x \\ 2 \\ [0] \end{matrix}$	C3	$\begin{matrix} x/x \\ -1/2 \\ 2/2 \end{matrix}$											

Table F.13 (continued): Positioning tables of Sus4Min7 chord for parmak vurma sub-technique on all FPs.

CONNECTOR	POSITIONS/PITCHES													
	1/B♭	2/B	3/C	4/C#	5/D	6/D#	7/E	8/F	9/F#	10/G	11/A♭	12/A	13/B♭	14/B
3			x 0 -2	C3	x/x -3/-1 [-3]/[-3]									
5	x 2 0	C5				x -1 [-3]								
	x 2 [0]	C5				[x] 0 0								
	[x] [2] 2	C5				x/x [-3]/2 0/0								
	x 2 [2]	C5				x/x -1/-1 [-3]/2								
	[x] 0 0	C5				x [-3] -3								
	x 0 [0]	C5				[x]/[x] 0/0 0/2								
	[x] 0 2	C5				x/x/x/x [-3]/[-3]/2/2 -3/0/0/[2]								
			x 0 -2	C5				[x]/[x]/[x]/[x] -3/0/0/[2]/[2] 0/0/2/0/2						
			x 2 -2	C5				[x]/[x]/[x] -3/0/[2] 0/0/0						
				x [-3] -3	C5				x/x/x/x -3/-1/-1/2 [-3]/[-3]/2/2					
				x [-3] 0	C5				x/x -1/-1 [-3]/2					
				[x] -3 0	C5				x/x [-3]/2 0/0					
	x 2 0	C7						[x]/[x]/[x] -3/0/[2] 0/2/2						
	[x] [2] 0	C7						x/x 0/2 -2/-2						

Table F.13 (continued): Positioning tables of Sus4Min7 chord for parmak vurma sub-technique on all FPs.

CONNECTOR	POSITIONS/PITCHES													
	1/B \flat	2/B	3/C	4/C#	5/D	6/D#	7/E	8/F	9/F#	10/G	11/A \flat	12/A	13/B \flat	14/B
7	x 2 2	C7						x [-3] -3						
	[x] [2] 2	C7						x 0 -2						
	x 2 [2]	C7						[x] 0 2						
	[x] 0 0	C7						x/x/x/x 0/0/2/2 -2/[0]/-2/[0]						
	[x] 0 2	C7						x/x 0/0 -2/[0]						
		x -1 2	C7						x/x/x [-3]/[-3]/2 -3/0/[2]					
				x -3 [-3]	C7						x [-3] -3			
				x [-3] -3	C7						[x]/[x] 0/0 0/2			
				x [-3] 0	C7						[x]/[x]/[x] -3/0/[2] 0/2/2			
				[x] -3 0	C7						x/x 0/2 -2/-2			
				x -1 [-3]	C7						x/x/x/x [-3]/[-3]/2/2 -3/0/0/[2]			
	x 2 2	C9								x/x 0/2 [0]/[0]				
		x -1 2	C9								x/x 0/2 [0]/[0]			
9				x -3 [-3]	C9								x/x 0/0 -2/[0]	
				x -1 [-3]	C9								x/x 0/0 -2/[0]	

Table F.13 (continued): Positioning tables of Sus4Min7 chord for parmak vurma sub-technique on all FPs.

CONNECTOR	POSITIONS/PITCHES													
	1/Bb	2/B	3/C	4/C#	5/D	6/D#	7/E	8/F	9/F#	10/G	11/Ab	12/A	13/Bb	14/B
10	x 2 [0]	C10										x/x [-3]/2 0/0		
	[x] [2] 0	C10										x/x -1/-1 [-3]/2		
	[x] [2] 2	C10										x/x/x -3/-1/2 [-3]/2/2		
	x 0 [0]	C10										x/x [-3]/2 0/0		
	[x] 0 0	C10										x/x -1/-1 [-3]/2		
	[x] 0 2	C10										x/x/x -3/-1/2 [-3]/2/2		
			x 0 -2	C10										x/x [-3]/[-3] -3/0
			x 2 -2	C10										x [-3] -3
				[x] -3 0	C10									x/x -3/-1 [-3]/[-3]
12	x 2 [0]	C12											x 0 -2	
	x 2 0	C12											x [-3] -3	
	x 2 2	C12											x -1 [-3]	
	[x] [2] 2	C12											[x] 0 0	
	[x] 0 0	C12											[x] -3 0	
	x 0 [0]	C12											x/x 0/0 -2/[0]	
	[x] 0 2	C12											[x]/[x] -3/0 0/0	

Table F.13 (continued): Positioning tables of Sus4Min7 chord for parmak vurma sub-technique on all FPs.

CONNECTOR	POSITIONS/PITCHES													
	1/B \flat	2/B	3/C	4/C \sharp	5/D	6/D \sharp	7/E	8/F	9/F \sharp	10/G	11/A \flat	12/A	13/B \flat	14/B
12		x -1 2	C12											x/x -3/-1 [-3]/[-3]

Table F.14 : Positioning tables of AugMaj7 chord for parmak vurma sub-technique on all FPs.

CONNECTOR	POSITIONS/PITCHES													
	1/Bb	2/B	3/C	4/C#	5/D	6/D#	7/E	8/F	9/F#	10/G	11/Ab	12/A	13/Bb	14/B
0		$\begin{matrix} [x] \\ 1 \\ -1 \end{matrix}$ C0 $\begin{matrix} [x]/[x] \\ 1/[2] \\ 3/3 \end{matrix}$												
			$\begin{matrix} x \\ -2 \\ -2 \end{matrix}$ C0 $\begin{matrix} x/x \\ -2/2 \\ [-1]/[-1] \end{matrix}$											
			$\begin{matrix} [x] \\ -2 \\ -1 \end{matrix}$ C0 $\begin{matrix} [x]/[x] \\ 1/1 \\ -1/3 \end{matrix}$											
			$\begin{matrix} x \\ [-2] \\ -1 \end{matrix}$ C0 $\begin{matrix} x/x \\ [-2]/2 \\ 2/2 \end{matrix}$											
				$\begin{matrix} x \\ -3 \\ -1 \end{matrix}$ C0 $\begin{matrix} x/x \\ [-2]/2 \\ 2/[3] \end{matrix}$										
1	$\begin{matrix} x/x \\ [3]/2 \\ 0/0 \end{matrix}$ C1 $\begin{matrix} [x] \\ [2] \\ 3 \end{matrix}$													
		$\begin{matrix} x \\ -1 \\ 0 \end{matrix}$ C1 $\begin{matrix} [x]/[x]/[x]/[x] \\ -2/1/[2]/1/[2] \\ -1/-1/-1/3/3 \end{matrix}$												
3	$\begin{matrix} x \\ 2 \\ 3 \end{matrix}$	C3		$\begin{matrix} x \\ [3] \\ 0 \end{matrix}$										
		$\begin{matrix} x \\ 2 \\ [-1] \end{matrix}$	C3		$\begin{matrix} x/x/x \\ -1/2/[3] \\ 0/0/0 \end{matrix}$									
			$\begin{matrix} x \\ -2 \\ -2 \end{matrix}$	C3		$\begin{matrix} x \\ [3] \\ 0 \end{matrix}$								
4	$\begin{matrix} x \\ 2 \\ 2 \end{matrix}$	C4			$\begin{matrix} x/x \\ -2/2 \\ [-1]/[-1] \end{matrix}$									
	$\begin{matrix} [x] \\ 1 \\ 3 \end{matrix}$	C4			$\begin{matrix} x/x/x/x/x/x \\ -3/[-2]/[-2]/2/2/2 \\ -1/-1/2/-1/2/3 \end{matrix}$									
	$\begin{matrix} x \\ 2 \\ 3 \end{matrix}$	C4			$\begin{matrix} [x]/[x] \\ 1/1 \\ -1/3 \end{matrix}$									
	$\begin{matrix} [x] \\ [2] \\ 3 \end{matrix}$	C4			$\begin{matrix} x/x \\ [-2]/2 \\ 2/2 \end{matrix}$									
		$\begin{matrix} [x] \\ 1 \\ -1 \end{matrix}$	C4			$\begin{matrix} x/x/x \\ -3/[-2]/2 \\ -1/-1/-1 \end{matrix}$								

Table F.14 (continued): Positioning tables of AugMaj7 chord for parmak vurma sub-technique on all FPs.

CONNECTOR	POSITIONS/PITCHES													
	1/B \flat	2/B	3/C	4/C#	5/D	6/D#	7/E	8/F	9/F#	10/G	11/A \flat	12/A	13/B \flat	14/B
4		$\begin{matrix} x \\ 2 \\ [-1] \end{matrix}$	C4			$\begin{matrix} [x] \\ 1 \\ -1 \end{matrix}$								
			$\begin{matrix} [x] \\ -2 \\ -1 \end{matrix}$	C4			$\begin{matrix} x/x/x \\ -3/[-2]/2 \\ -1/2/2 \end{matrix}$							
			$\begin{matrix} x \\ [-2] \\ -1 \end{matrix}$	C4			$\begin{matrix} x/x \\ -2/2 \\ -2/-2 \end{matrix}$							
			$\begin{matrix} x \\ [-2] \\ 2 \end{matrix}$	C4			$\begin{matrix} x/x/x/x/x \\ -2/-2/2/2/2 \\ -2/[-1]/-2/[-1]/3 \end{matrix}$							
			$\begin{matrix} x \\ -2 \\ -2 \end{matrix}$	C4			$\begin{matrix} [x]/[x]/[x]/[x]/[x] \\ -2/1/[2]/1/[2] \\ -1/-1/-1/3/3 \end{matrix}$							
			$\begin{matrix} x \\ 2 \\ -2 \end{matrix}$	C4			$\begin{matrix} [x]/[x]/[x] \\ -2/1/[2] \\ -1/-1/-1 \end{matrix}$							
			$\begin{matrix} x \\ -2 \\ [-1] \end{matrix}$	C4			$\begin{matrix} [x]/[x] \\ 1/1 \\ -1/3 \end{matrix}$							
				$\begin{matrix} x \\ -3 \\ -1 \end{matrix}$	C4			$\begin{matrix} x/x \\ -2/2 \\ [-1]/[-1] \end{matrix}$						
5	$\begin{matrix} x \\ [3] \\ 0 \end{matrix}$	C5				$\begin{matrix} x/x \\ [-2]/2 \\ -1/-1 \end{matrix}$								
	$\begin{matrix} x \\ 2 \\ 0 \end{matrix}$	C5				$\begin{matrix} x \\ [-2] \\ -1 \end{matrix}$								
		$\begin{matrix} x \\ -1 \\ 0 \end{matrix}$	C5				$\begin{matrix} x/x/x \\ [-2]/[-2]/2 \\ -1/2/[3] \end{matrix}$							
7	$\begin{matrix} x \\ 2 \\ [3] \end{matrix}$	C7						$\begin{matrix} x \\ -1 \\ 0 \end{matrix}$						
		$\begin{matrix} x \\ 2 \\ -1 \end{matrix}$	C7						$\begin{matrix} x \\ [3] \\ 0 \end{matrix}$					
			$\begin{matrix} x \\ [-2] \\ -1 \end{matrix}$	C7						$\begin{matrix} x/x \\ -1/2 \\ 0/0 \end{matrix}$				
			$\begin{matrix} x \\ [-2] \\ 2 \end{matrix}$	C7						$\begin{matrix} x \\ -1 \\ 0 \end{matrix}$				

Table F.14 (continued): Positioning tables of AugMaj7 chord for parmak vurma sub-technique on all FPs.

CONNECTOR	POSITIONS/PITCHES													
	1/B \flat	2/B	3/C	4/C \sharp	5/D	6/D \sharp	7/E	8/F	9/F \sharp	10/G	11/A \flat	12/A	13/B \flat	14/B
7				x -3 -1	C7						x [3] 0			
8	x 2 2				C8				[x]/[x]/[x] -2/1/[2] -1/3/3					
	[x] 1 3				C8				x/x/x -2/-2/2 -2/[-1]/3					
	[x] [2] 3				C8				x -2 -2					
	x 2 3				C8				x [-2] 2					
	x 2 [3]				C8				[x] 1 3					
		[x] 1 -1			C8				x/x/x/x -2/-2/2/2 -2/[-1]/[-1]/3					
		x 2 [-1]			C8				x/x/x -3/[-2]/2 -1/2/2					
		[x] [2] -1			C8				x/x -2/2 -2/-2					
		x 2 -1			C8				[x]/[x] 1/1 -1/3					
			x -2 [-1]		C8				x/x/x -3/[-2]/2 -1/2/2					
			[x] -2 -1		C8				x/x -2/2 -2/-2					
			x [-2] 2		C8				[x]/[x] -2/[2] -1/3					
			x -2 -2		C8				x/x/x [-2]/[-2]/2 -1/2/[3]					
			x 2 -2		C8				x/x/x [-2]/[-2]/2 -1/2/[3]					

Table F.14 (continued): Positioning tables of AugMaj7 chord for parmak vurma sub-technique on all FPs.

CONNECTOR	POSITIONS/PITCHES															
	1/B♭	2/B	3/C	4/C#	5/D	6/D#	7/E	8/F	9/F#	10/G	11/A♭	12/A	13/B♭	14/B		
8			x [-2] -1	C8								[x]/[x] 1/1 -1/3				
				x -3 -1	C8								[x]/[x]/[x] -2/1/[2] -1/-1/-1			
9	x [3] 0	C9								x/x/x/x/x -2/-2/2/2/2 -2/[-1]/-2/[-1]/3						
	x 2 0	C9								x/x -2/2 [-1]/[-1]						
		x -1 0	C9								x/x -2/2 [-1]/[-1]					
11	[x] 1 3	C11										x/x -1/2 0/0				
	[x] [2] 3	C11										x/x -1/2 0/0				
		[x]/[x] 1/[2] -1/-1	C11										x -1 0			
			[x] -2 -1	C11										x -1 0		
12	x 2 2	C12											x [-2] -1			
	[x] 1 3	C12											[x]/[x] -2/1 -1/-1			
	x [3] 0	C12											x -1 0			
	x 2 [3]	C12											x -3 -1			
	[x] [2] 3	C12											[x] 1 -1			
		[x] 1 -1	C12											[x] -2 -1		
		x 2 [-1]	C12											x -2 -2		

Table F.14 (continued): Positioning tables of AugMaj7 chord for parmak vurma sub-technique on all FPs.

CONNECTOR	POSITIONS/PITCHES													
	1/B♭	2/B	3/C	4/C#	5/D	6/D#	7/E	8/F	9/F#	10/G	11/A♭	12/A	13/B♭	14/B
13	x/x [3]/2 0/0	C13												[x] -2 -1

Table F.15 : Positioning tables of AugDom7 chord for parmak vurma sub-technique on all FPs.

CONNECTOR	POSITIONS/PITCHES													
	1/Bb	2/B	3/C	4/C#	5/D	6/D#	7/E	8/F	9/F#	10/G	11/Ab	12/A	13/Bb	14/B
0		$\begin{bmatrix} x \\ 0 \\ -1 \end{bmatrix}$ C0 $\begin{bmatrix} x \\ 0/[2] \\ 3/3 \end{bmatrix}$												
			$\begin{bmatrix} x \\ -2 \\ -1 \end{bmatrix}$ C0 $\begin{bmatrix} x \\ 0/0 \\ -1/3 \end{bmatrix}$											
			$\begin{bmatrix} x \\ -2 \\ -1 \end{bmatrix}$ C0 $\begin{bmatrix} x \\ 0/[2] \\ 3/3 \end{bmatrix}$											
				$\begin{bmatrix} x \\ -2 \\ -3 \end{bmatrix}$ C0 $\begin{bmatrix} x \\ 0/2 \\ 1/1 \end{bmatrix}$										
				$\begin{bmatrix} x \\ 0 \\ -3 \end{bmatrix}$ C0 $\begin{bmatrix} x \\ 0/2 \\ 1/1 \end{bmatrix}$										
2	$\begin{bmatrix} x \\ 0 \\ 1 \end{bmatrix}$	C2	$\begin{bmatrix} x \\ -2/0/[2] \\ -1/-1/-1/3/3 \end{bmatrix}$											
	$\begin{bmatrix} x \\ 2 \\ 1 \end{bmatrix}$	C2	$\begin{bmatrix} x \\ 0/[2] \\ 3/3 \end{bmatrix}$											
		$\begin{bmatrix} x \\ 2 \\ -1 \end{bmatrix}$	C2	$\begin{bmatrix} x \\ 0/2 \\ 1/1 \end{bmatrix}$										
			$\begin{bmatrix} x \\ -2 \\ -1 \end{bmatrix}$	C2	$\begin{bmatrix} x \\ 0/0 \\ -3/1 \end{bmatrix}$									
				$\begin{bmatrix} x \\ -2 \\ -3 \end{bmatrix}$	C2	$\begin{bmatrix} x \\ 0 \\ -3 \end{bmatrix}$								
				$\begin{bmatrix} x \\ 0 \\ -3 \end{bmatrix}$	C2	$\begin{bmatrix} x \\ -2/0/[2] \\ -1/-1/-1 \end{bmatrix}$								
4	$\begin{bmatrix} x \\ 0 \\ 3 \end{bmatrix}$	C4				$\begin{bmatrix} x \\ -2/[-2]/2/2/2 \\ -1/1/-1/1/[3] \end{bmatrix}$								
	$\begin{bmatrix} x \\ 2 \\ 3 \end{bmatrix}$	C4				$\begin{bmatrix} x \\ 0/0 \\ -1/3 \end{bmatrix}$								
	$\begin{bmatrix} x \\ 2 \\ 3 \end{bmatrix}$	C4				$\begin{bmatrix} x \\ -2/2 \\ -1/1 \end{bmatrix}$								
		$\begin{bmatrix} x \\ 0 \\ -1 \end{bmatrix}$	C4				$\begin{bmatrix} x \\ -2/2 \\ -1/-1 \end{bmatrix}$							

Table F.15 (continued): Positioning tables of AugDom7 chord for parmak vurma sub-technique on all FPs.

CONNECTOR	POSITIONS/PITCHES													
	1/B♭	2/B	3/C	4/C#	5/D	6/D#	7/E	8/F	9/F#	10/G	11/A♭	12/A	13/B♭	14/B
4		$\begin{matrix} x \\ 2 \\ [-1] \end{matrix}$	C4			$\begin{matrix} [x] \\ 0 \\ -1 \end{matrix}$								
			$\begin{matrix} x \\ [-2] \\ -1 \end{matrix}$	C4			$\begin{matrix} x \\ -2 \\ -3 \end{matrix}$							
			$\begin{matrix} x \\ -2 \\ [-1] \end{matrix}$	C4			$\begin{matrix} [x]/[x] \\ 0/0 \\ -1/3 \end{matrix}$							
			$\begin{matrix} x \\ [-2] \\ 1 \end{matrix}$	C4			$\begin{matrix} x/x/x/x \\ -2/-2/2/2 \\ -3/[-1]/[-1]/3 \end{matrix}$							
			$\begin{matrix} [x] \\ -2 \\ -1 \end{matrix}$	C4			$\begin{matrix} x/x \\ [-2]/2 \\ 1/1 \end{matrix}$							
				$\begin{matrix} x \\ -2 \\ -3 \end{matrix}$	C4			$\begin{matrix} [x]/[x]/[x]/[x] \\ -2/0/[2]/0/[2] \\ -1/-1/-1/3/3 \end{matrix}$						
6	$\begin{matrix} x \\ 2 \\ 1 \end{matrix}$	C6					$\begin{matrix} x \\ [-2] \\ -1 \end{matrix}$							
	$\begin{matrix} x \\ 0 \\ 1 \end{matrix}$	C6					$\begin{matrix} x/x/x \\ [-2]/[-2]/2 \\ -1/1/[3] \end{matrix}$							
	$\begin{matrix} x \\ 2 \\ [3] \end{matrix}$	C6					$\begin{matrix} x/x \\ 0/0 \\ [-3]/1 \end{matrix}$							
		$\begin{matrix} x \\ 2 \\ -1 \end{matrix}$	C6					$\begin{matrix} x \\ 0 \\ [-3] \end{matrix}$						
			$\begin{matrix} x \\ [-2] \\ -1 \end{matrix}$	C6					$\begin{matrix} x/x/x \\ 0/0/2 \\ [-3]/1/1 \end{matrix}$					
			$\begin{matrix} x \\ [-2] \\ 1 \end{matrix}$	C6					$\begin{matrix} x/x \\ 0/0 \\ [-3]/1 \end{matrix}$					
				$\begin{matrix} x \\ 0 \\ [-3] \end{matrix}$	C6					$\begin{matrix} x/x/x/x \\ [-2]/[-2]/2/2 \\ -1/1/-1/1/[3] \end{matrix}$				
8	$\begin{matrix} [x] \\ 0 \\ 3 \end{matrix}$	C8							$\begin{matrix} x/x/x \\ -2/-2/2 \\ -3/[-1]/3 \end{matrix}$					
	$\begin{matrix} [x] \\ [2] \\ 3 \end{matrix}$	C8							$\begin{matrix} x \\ -2 \\ -3 \end{matrix}$					

Table F.15 (continued): Positioning tables of AugDom7 chord for parmak vurma sub-technique on all FPs.

CONNECTOR	POSITIONS/PITCHES													
	1/B \flat	2/B	3/C	4/C#	5/D	6/D#	7/E	8/F	9/F#	10/G	11/A \flat	12/A	13/B \flat	14/B
8	x 2 3	C8							x [-2] 1					
	x 2 [3]	C8							[x] 0 3					
		[x] 0 -1	C8							x/x/x/x -2/-2/2/2 -3/[-1]/[-1]/3				
		[x] [2] -1	C8							x -2 -3				
		x 2 -1	C8							[x]/[x] 0/0 -1/3				
		x 2 [-1]	C8							x/x [-2]/2 1/1				
			[x] -2 -1	C8							x -2 -3			
			x [-2] -1	C8							[x]/[x] 0/0 -1/3			
			x [-2] 1	C8							[x]/[x]/[x] -2/0/[2] -1/3/3			
			x -2 [-1]	C8							x/x [-2]/2 1/1			
				x -2 -3	C8							x/x [-2]/[-2] -1/1		
10	x 2 1	C10									x/x -2/2 [-1]/[-1]			
	x 0 1	C10									x/x -2/2 [-1]/[-1]			
	[x] 0 3	C10									x/x 0/2 1/1			
	[x] [2] 3	C10									x/x 0/2 1/1			

Table F.15 (continued): Positioning tables of AugDom7 chord for parmak vurma sub-technique on all FPs.

CONNECTOR	POSITIONS/PITCHES													
	1/B \flat	2/B	3/C	4/C \sharp	5/D	6/D \sharp	7/E	8/F	9/F \sharp	10/G	11/A \flat	12/A	13/B \flat	14/B
10		[x] 0 -1	C10										x/x 0/0 [-3]/1	
		[x] [2] -1	C10										x/x 0/0 [-3]/1	
			[x] -2 -1	C10										x/x 0/0 [-3]/1
				x 0 [-3]	C10									x/x -2/-2 -3/[-1]
12	x/x 2/0 1/1	C12											x 0 [-3]	
	[x] 0 3	C12											[x]/[x] -2/0 -1/-1	
	[x] [2] 3	C12											[x] 0 -1	
		[x] 0 -1	C12											[x] -2 -1
		x 2 [-1]	C12											x -2 -3

Table F.16 : Positioning tables of Maj9 chord for parmak vurma sub-technique on all FPs.

CONNECTOR	POSITIONS/PITCHES													
	1/Bb	2/B	3/C	4/C#	5/D	6/D#	7/E	8/F	9/F#	10/G	11/Ab	12/A	13/Bb	14/B
0			$\begin{matrix} x \\ [-2] \\ -2 \end{matrix}$ $\begin{matrix} x \\ C0 \\ 0 \\ 2 \end{matrix}$											
				$\begin{matrix} x \\ -3 \\ -1 \end{matrix}$ $\begin{matrix} x \\ C0 \\ -1 \\ [0] \end{matrix}$										
				$\begin{matrix} x \\ -1 \\ -3 \end{matrix}$ $\begin{matrix} x \\ C0 \\ 0 \\ [0] \end{matrix}$										
				$\begin{matrix} [x] \\ -3 \\ -3 \end{matrix}$ $\begin{matrix} [x] \\ C0 \\ 1 \\ -1 \end{matrix}$										
				$\begin{matrix} x \\ -3 \\ -2 \end{matrix}$ $\begin{matrix} x \\ C0 \\ 0 \\ [3] \end{matrix}$										
1			$\begin{matrix} x \\ -2 \\ -2 \end{matrix}$ $\begin{matrix} C1 \\ -3/1/[2] \\ -1/-1/-1 \end{matrix}$											
2	$\begin{matrix} x \\ [0] \\ 0 \end{matrix}$	$\begin{matrix} C2 \\ x/x/x \\ [-2]/0/2 \\ 2/2/2 \end{matrix}$												
		$\begin{matrix} [x] \\ 1 \\ -1 \end{matrix}$	$\begin{matrix} C2 \\ x/x/x \\ -1/[0]/2 \\ 0/0/0 \end{matrix}$											
		$\begin{matrix} x \\ -1 \\ 0 \end{matrix}$	$\begin{matrix} C2 \\ x/x \\ [-2]/[-2] \\ -2/2 \end{matrix}$											
				$\begin{matrix} [x] \\ -3 \\ -1 \end{matrix}$	$\begin{matrix} C2 \\ x/x \\ -1/-1 \\ -3/0 \end{matrix}$									
				$\begin{matrix} [x] \\ -3 \\ -3 \end{matrix}$	$\begin{matrix} C2 \\ x \\ -1 \\ -3 \end{matrix}$									
				$\begin{matrix} x \\ -1 \\ -3 \end{matrix}$	$\begin{matrix} C2 \\ x \\ [-2] \\ -2 \end{matrix}$									
3	$\begin{matrix} x \\ 0 \\ 2 \end{matrix}$	$\begin{matrix} C3 \\ x/x/x \\ -3/-1/2 \\ [0]/[0]/[0] \end{matrix}$												
	$\begin{matrix} x \\ 2 \\ 0 \end{matrix}$	$\begin{matrix} C3 \\ x \\ [0] \\ 0 \end{matrix}$												
	$\begin{matrix} x \\ [3] \\ 0 \end{matrix}$	$\begin{matrix} C3 \\ x/x \\ [0]/2 \\ 0/0 \end{matrix}$												
			$\begin{matrix} x \\ [-2] \\ -2 \end{matrix}$	$\begin{matrix} C3 \\ x \\ -3 \\ -1 \end{matrix}$										

Table F.16 (continued): Positioning tables of Maj9 chord for parmak vurma sub-technique on all FPs.

CONNECTOR	POSITIONS/PITCHES													
	1/Bb	2/B	3/C	4/C#	5/D	6/D#	7/E	8/F	9/F#	10/G	11/Ab	12/A	13/Bb	14/B
3			x -2 -2	C3		x [0] -3								
			x -2 0	C3		x/x [0]/[0] -3/0								
			x [-2] 2	C3		x/x -1/2 2/2								
				x -3 -2	C3		x -3 [0]							
4	[x] 1 2	C4			x/x/x 0/0/0 -2/2/[3]									
	[x] [2] 2	C4			x 0 2									
	x 2 2	C4			x [3] 0									
		[x] 1 -1	C4			x 0 -2								
		x -1 [0]	C4			x/x -2/2 -2/-2								
		x -1 2	C4			x/x [3]/[3] 0/3								
				[x] 1 -3	C4		x/x/x/x -3/[-2]/0/2 -2/-2/-2/-2							
				x -3 [0]	C4		x/x/x -2/2/[3] 0/0/0							
				[x] -3 -3	C4		x/x/x/x -3/[-2]/0/2 -2/2/2/2							
				[x] -3 -1	C4		x 0 2							
				x -3 -1	C4		x [3] 0							

Table F.16 (continued): Positioning tables of Maj9 chord for parmak vurma sub-technique on all FPs.

CONNECTOR	POSITIONS/PITCHES													
	1/Bb	2/B	3/C	4/C#	5/D	6/D#	7/E	8/F	9/F#	10/G	11/Ab	12/A	13/Bb	14/B
5	x [3] 3			C5		x/x/x 0/0/0 -2/2/[3]								
	x [0] 0			C5		x -1 -1								
	x [3] 0			C5		x 0 -2								
	x 2 2			C5		[x] 1 -1								
	x 2 3			C5		x 0 [3]								
		x -1 0		C5		x -1 [0]								
		x -1 -1		C5		[x]/[x] -3/1 -3/-3								
		x -1 [0]		C5		[x] 1 -3								
		x -1 2		C5		[x]/[x]/[x] 1/1/1 -3/-1/2								
			x -2 -2	C5		x/x/x/x [-2]/[-2]/0/2 -2/2/[3]/[3]								
			x 2 -2	C5		x -2 -2								
			x -2 0	C5		x 0 [3]								
				x -3 -1	C5				[x]/[x]/[x] -3/1/[2] -1/-1/-1					
				x [0] -3	C5				x/x/x -3/-1/2 -1/-1/-1					
				x -1 -3	C5				x/x/x -3/-1/2 [0]/[0]/[0]					
				x -3 [0]	C5				[x] 1 -1					

Table F.16 (continued): Positioning tables of Maj9 chord for parmak vurma sub-technique on all FPs.

CONNECTOR	POSITIONS/PITCHES													
	1/Bb	2/B	3/C	4/C#	5/D	6/D#	7/E	8/F	9/F#	10/G	11/Ab	12/A	13/Bb	14/B
7	x 2 [3]				C7			x -2 -2						
	x 2 [0]				C7			x -1 -3						
	x 0 [3]				C7			x/x/x/x -2/-2/2/[3] -2/0/3/3						
	[x] 1 2				C7			x -1 2						
	x 0 2				C7			x [3] 3						
		[x] 1 -1			C7				x/x/x -3/-1/2 -1/2/2					
		x -1 [0]			C7				x/x -1/-1 -3/0					
		x -1 -1			C7				x/x [0]/[0] -3/0					
		[x] [2] -1			C7				x -3 -1					
		x 2 -1			C7				x [0] -3					
			x [-2] -2			C7				x/x -2/2 -2/-2				
			x [-2] 2			C7				x -2 -2				
			x 0 -2			C7				x/x [3]/[3] 0/3				
				[x] -3 -1			C7				x -3 -1			
				x -3 -1			C7				x [0] -3			
				[x] 1 -3			C7				x/x/x -1/-1/-1 -1/[0]/2			

Table F.16 (continued): Positioning tables of Maj9 chord for parmak vurma sub-technique on all FPs.

CONNECTOR	POSITIONS/PITCHES													
	1/Bb	2/B	3/C	4/C#	5/D	6/D#	7/E	8/F	9/F#	10/G	11/Ab	12/A	13/Bb	14/B
7				x -3 [0]	C7						x -1 -3			
				$[x]$ -3 -3	C7						x -1 -1			
8	x 0 2	C8						$[x]/[x]/[x]/[x]$ -3/-3/1/[2] -3/-1/2/2						
	x 2 0	C8						x -3 [0]						
	x [3] 0	C8						$x/x/x/x$ -3/-3/-1/2 -1/[0]/2/2						
	x [3] 3	C8						x -1 2						
	x 0 [3]	C8						$[x]$ 1 2						
			x -2 -2	C8							x -1 [0]			
			x 2 -2	C8							$x/[x]$ -1/1 [0]/-3			
			x [-2] 2	C8							$[x]$ -3 -3			
			x -2 0	C8							x -3 [0]			
			x [-2] -2	C8							$[x]$ 1 -3			
			x 0 -2	C8							$[x]/[x]/[x]$ 1/1/1 -3/-1/2			
				x -3 -2	C8							$[x]/[x]$ -3/1 -3/-3		
	x [0] 0	C9						$x/x/x$ -2/2/[3] 0/0/0						
	x 2 [0]	C9						x 0 2						

Table F.16 (continued): Positioning tables of Maj9 chord for parmak vurma sub-technique on all FPs.

CONNECTOR	POSITIONS/PITCHES													
	1/B \flat	2/B	3/C	4/C \sharp	5/D	6/D \sharp	7/E	8/F	9/F \sharp	10/G	11/A \flat	12/A	13/B \flat	14/B
9	x 2 2	C9									x [-2] 2			
	x 2 0	C9									x [3] 0			
		x -1 [0]	C9									x 0 2		
		x -1 2	C9									x [-2] 2		
		x -1 0	C9									x [3] 0		
		x/x -1/2 -1/-1	C9									x 0 [3]		
				x -3 -1	C9								x [-2] -2	
				x [0] -3	C9								x/x -2/-2 -2/0	
				x -3 [0]	C9								x -3 -2	
10	x/x 0/2 2/2	C10									x [0] 0			
	x/x 0/2 [3]/[3]	C10									x -1 0			
	x/x [0]/2 0/0	C10									[x] 1 -1			
		x -1 0	C10									[x]/[x]/[x] -3/1/[2] -1/-1/-1		
			x [-2] -2	C10									x/x -1/-1 -3/0	
			x [-2] 2	C10									x/x -1/[0] 0/0	
				x -1 -3	C10									[x]/[x] -3/-3 -3/-1

Table F.16 (continued): Positioning tables of Maj9 chord for parmak vurma sub-technique on all FPs.

CONNECTOR	POSITIONS/PITCHES													
	1/B♭	2/B	3/C	4/C#	5/D	6/D#	7/E	8/F	9/F#	10/G	11/A♭	12/A	13/B♭	14/B
10				x -3 -2	C10									x/x [0]/[0] -3/0
11		[x]/[x] 1/[2] -1/-1	C11										x -2 -2	
12	x 0 2	C12										x [-2] -2		
	x [0] 0	C12										x -1 -3		
	x [3] 0	C12										x -2 -2		
	x 0 [3]	C12										x -3 -2		
		[x] 1 -1	C12									[x] -3 -3		
		x -1 [0]	C12									x -3 -1		
		x -1 0	C12									x [0] -3		
		x -1 -1	C12									x -3 [0]		
	13	x/x 2/[3] 0/0	C13										[x] -3 -3	

Table F.17 : Positioning tables of Dom9 chord for parmak vurma sub-technique on all FPs.

CONNECTOR	POSITIONS/PITCHES													
	1/Bb	2/B	3/C	4/C#	5/D	6/D#	7/E	8/F	9/F#	10/G	11/Ab	12/A	13/Bb	14/B
0			$\begin{matrix} x \\ [-2] \\ -2 \end{matrix} \begin{matrix} C0 \\ 0 \\ 1 \end{matrix} \begin{matrix} x \\ 0 \\ 1 \end{matrix}$											
				$\begin{matrix} x \\ -3 \\ -2 \end{matrix} \begin{matrix} C0 \\ 0 \\ 0 \end{matrix} \begin{matrix} x \\ -1 \\ [0] \end{matrix}$										
				$\begin{matrix} x \\ -2 \\ -3 \end{matrix} \begin{matrix} C0 \\ 0 \\ 0 \end{matrix} \begin{matrix} x \\ [0] \\ 0 \end{matrix}$										
				$\begin{matrix} [x] \\ -3 \\ -3 \end{matrix} \begin{matrix} C0 \\ 0 \\ 0 \end{matrix} \begin{matrix} [x] \\ 0 \\ -1 \end{matrix}$										
2	$\begin{matrix} x \\ [0] \\ 0 \end{matrix}$	C2	$\begin{matrix} x/x/x \\ [-2]/0/2 \\ 1/1/1 \end{matrix}$											
		$\begin{matrix} x \\ -1 \\ -1 \end{matrix}$	C2	$\begin{matrix} [x]/[x]/[x] \\ -3/0/[2] \\ -1/-1/-1 \end{matrix}$										
		$\begin{matrix} [x] \\ 0 \\ -1 \end{matrix}$	C2	$\begin{matrix} x/x/x \\ -2/[0]/2 \\ 0/0/0 \end{matrix}$										
			$\begin{matrix} x \\ -2 \\ 0 \end{matrix}$	C2	$\begin{matrix} x/x/x/x \\ [-2]/[-2]/0/2 \\ -2/1/[3]/[3] \end{matrix}$									
				$\begin{matrix} x \\ -2 \\ -3 \end{matrix}$	C2	$\begin{matrix} x \\ [-2] \\ -2 \end{matrix}$								
				$\begin{matrix} [x] \\ -3 \\ -3 \end{matrix}$	C2	$\begin{matrix} x \\ -2 \\ -3 \end{matrix}$								
				$\begin{matrix} [x] \\ -3 \\ -1 \end{matrix}$	C2	$\begin{matrix} x/x/x/x \\ -2/-2/[0]/2 \\ -3/0/3/3 \end{matrix}$								
3	$\begin{matrix} x \\ 0 \\ 1 \end{matrix}$	C3	$\begin{matrix} x/x/x \\ -3/-1/2 \\ [0]/[0]/[0] \end{matrix}$											
		$\begin{matrix} x \\ -1 \\ [0] \end{matrix}$	C3	$\begin{matrix} x/x \\ -1/2 \\ -1/-1 \end{matrix}$										
			$\begin{matrix} x \\ [-2] \\ -2 \end{matrix}$	C3	$\begin{matrix} x \\ -3 \\ -2 \end{matrix}$									
			$\begin{matrix} x \\ -2 \\ 1 \end{matrix}$	C3	$\begin{matrix} x/x/x/x \\ -3/-3/-1/2 \\ -2/[0]/2/2 \end{matrix}$									

Table F.17 (continued): Positioning tables of Dom9 chord for parmak vurma sub-technique on all FPs.

CONNECTOR	POSITIONS/PITCHES													
	1/B♭	2/B	3/C	4/C#	5/D	6/D#	7/E	8/F	9/F#	10/G	11/A♭	12/A	13/B♭	14/B
3				x -3 [0]	C3		x/x -1/2 1/1							
	[x] 0 2	C4			x/x/x 0/0/0 -2/1/[3]									
4	x 2 1	C4			x [0] 0									
	[x] [2] 2	C4			x 0 1									
		x -1 -1	C4			x [0] -3								
		[x] 0 -1	C4			x 0 -2								
		x -1 1	C4			x/x/x [0]/[0]/[0] -3/0/3								
				[x] 0 -3	C4		x/x/x [-2]/0/2 -2/-2/-2							
				x -1 [-3]	C4		x/x -2/[0] -3/-3							
				[x] -3 -3	C4		x/x/x/x/x [-2]/0/2/0/2 1/1/1/[3]/[3]							
				[x] -3 -1	C4		x 0 1							
	x 2 2	C5				[x] 0 -1								
5	x [0] 0	C5				x -1 -1								
	x [0] 3	C5				x/x/x -1/-1/-1 -2/[0]/2								
	x 2 3	C5				x -1 [0]								
		x -1 [0]	C5				[x] 0 -3							

Table F.17 (continued): Positioning tables of Dom9 chord for parmak vurma sub-technique on all FPs.

CONNECTOR	POSITIONS/PITCHES													
	1/Bb	2/B	3/C	4/C#	5/D	6/D#	7/E	8/F	9/F#	10/G	11/Ab	12/A	13/Bb	14/B
5		x -1 2	C5				[x]/[x]/[x] 0/0/0 -3/-1/2							
			x -2 0	C5				x -1 [0]						
			x -1 -2	C5				[x]/[x] -3/0 -3/-3						
				x -3 -2	C5				[x]/[x]/[x] -3/0/[2] -1/-1/-1					
				x [0] -3	C5				x/x/x -3/-1/2 -2/-2/-2					
				x -2 -3	C5				x/x/x -3/-1/2 [0]/[0]/[0]					
				x -3 [0]	C5				[x] 0 -1					
6	x 0 1	C6					x -1 [-3]							
	x 0 [3]	C6					x/x/x -1/-1/-1 -3/-1/1							
	x 2 [3]	C6					x -1 -1							
		x -1 -1	C6					x/x/x/x [-2]/[-2]/0/2 -2/1/[3]/[3]						
		x 2 -1	C6					x [-2] -2						
		x -1 1	C6					x 0 [3]						
			x [-2] -2	C6					x/x -1/2 -1/-1					
			x 0 -2	C6					x -1 [-3]					
				x -1 [-3]	C6					x/x/x 0/0/0 -2/1/[3]				

Table F.17 (continued): Positioning tables of Dom9 chord for parmak vurma sub-technique on all FPs.

CONNECTOR	POSITIONS/PITCHES													
	1/Bb	2/B	3/C	4/C#	5/D	6/D#	7/E	8/F	9/F#	10/G	11/Ab	12/A	13/Bb	14/B
7	x 2 [0]	C7						x -2 -3						
	[x] 0 2	C7						x -1 2						
		[x] [2] -1	C7						x -3 -2					
		x -1 [0]	C7						x/x/x/x -2/-2/[0]/2 -3/0/3/3					
		[x] 0 -1	C7						x/x/x/x -3/-3/-1/2 -2/[0]/2/2					
		x -1 2	C7						x [0] 3					
			x -1 -2	C7						x/x/x [0]/[0]/[0] -3/0/3				
			x 2 -2	C7						x [0] -3				
				x -3 -2	C7						x [0] -3			
				[x] 0 -3	C7						x/x/x -1/-1/-1 -2/[0]/2			
				x -3 [0]	C7						x -2 -3			
				[x] -3 -3	C7						x -1 -2			
				[x] -3 -1	C7						x -3 -2			
8	x 0 1	C8							[x]/[x]/[x]/[x] -3/-3/0/[2] -3/-1/2/2					
	x [0] 0	C8							x/x -1/2 -1/-1					

Table F.17 (continued): Positioning tables of Dom9 chord for parmak vurma sub-technique on all FPs.

CONNECTOR	POSITIONS/PITCHES													
	1/B \flat	2/B	3/C	4/C \sharp	5/D	6/D \sharp	7/E	8/F	9/F \sharp	10/G	11/A \flat	12/A	13/B \flat	14/B
8	x [0] 3	C8							x -1 1					
	x 0 [3]	C8							[x] 0 2					
			x/x [-2]/2 -2/-2	C8							[x] 0 -3			
			x -2 1	C8							[x] -3 -3			
			x 0 -2	C8							[x]/[x]/[x] 0/0/0 -3/-1/2			
				x [0] -3	C8							$x/x/x$ -1/-1/-1 [-3]/-1/1		
				x -2 -3	C8							x -1 [-3]		
9	x 2 1	C9							x -3 [0]					
	x 2 [0]	C9							x 0 1					
	x 2 2	C9							x [-2] 1					
		x/x -1/2 -1/-1	C9								x -1 [0]			
		x -1 1	C9								x -3 [0]			
		x -1 [0]	C9								x 0 1			
		x -1 2	C9								x [-2] 1			
				x -3 -2	C9							x/x [-2]/[-2] -2/1		
				x -3 [0]	C9							x/x [-2]/0 1/1		

Table F.17 (continued): Positioning tables of Dom9 chord for parmak vurma sub-technique on all FPs.

CONNECTOR	POSITIONS/PITCHES																
	1/Bb	2/B	3/C	4/C#	5/D	6/D#	7/E	8/F	9/F#	10/G	11/Ab	12/A	13/Bb	14/B			
10	x 0 1	C10										x [0] 0					
	x/x [0]/2 0/0	C10										[x] 0 -1					
	x/x [0]/2 3/3	C10										[x] -3 -1					
	x/x 0/2 [3]/[3]	C10										x -2 0					
		[x]/[x] 0/[2] -1/-1	C10										x -1 -1				
			x [-2] -2	C10										x/x -2/-2 -3/0			
			x -2 0	C10										[x]/[x] -3/0 -1/-1			
			x -2 1	C10										x/x -2/[0] 0/0			
				x -2 -3	C10									[x]/[x] -3/-3 -3/-1			
				[x] -3 -1	C10									x -1 -1			
12	x 0 1	C12												x [-2] -2			
	x [0] 0	C12												x -2 -3			
		x -1 [0]	C12												x -3 -2		
		[x] 0 -1	C12												[x] -3 -3		

Table F.18 : Positioning tables of Domb9 chord for parmak vurma sub-technique on all FPs.

CONNECTOR	POSITIONS/PITCHES													
	1/B \flat	2/B	3/C	4/C \sharp	5/D	6/D \sharp	7/E	8/F	9/F \sharp	10/G	11/A \flat	12/A	13/B \flat	14/B
0		$\begin{bmatrix} x \\ 0 \\ -1 \end{bmatrix}$ C0	$\begin{bmatrix} x \\ 3 \\ 2 \end{bmatrix}$											
			$\begin{bmatrix} x \\ [-2] \\ -2 \end{bmatrix}$ C0	$\begin{bmatrix} x \\ -1 \\ 1 \end{bmatrix}$										
1		$\begin{bmatrix} x \\ 0 \\ -1 \end{bmatrix}$ C1	$\begin{bmatrix} x/x/x \\ -1/[1]/2 \\ 1/1/1 \end{bmatrix}$											
				$\begin{bmatrix} x \\ -3 \\ -1 \end{bmatrix}$ C1	$\begin{bmatrix} x/x \\ -1/-1 \\ -2/1 \end{bmatrix}$									
2	$\begin{bmatrix} x \\ 2 \\ 1 \end{bmatrix}$	C2	$\begin{bmatrix} x \\ 3 \\ 2 \end{bmatrix}$											
		$\begin{bmatrix} x \\ -1 \\ 1 \end{bmatrix}$	C2	$\begin{bmatrix} x/[x] \\ 3/3 \\ -1/2 \end{bmatrix}$										
			$\begin{bmatrix} x \\ -1 \\ -2 \end{bmatrix}$	C2	$\begin{bmatrix} x/[x]/[x]/[x] \\ -3/0/[2]/3 \\ -1/-1/-1/-1 \end{bmatrix}$									
				$\begin{bmatrix} x \\ -1 \\ [-3] \end{bmatrix}$	C2	$\begin{bmatrix} x \\ 3 \\ -1 \end{bmatrix}$								
3	$\begin{bmatrix} x \\ [1] \\ 1 \end{bmatrix}$	C3		$\begin{bmatrix} x/x/x \\ [-2]/-1/2 \\ 1/1/1 \end{bmatrix}$										
	$\begin{bmatrix} x \\ 2 \\ 1 \end{bmatrix}$	C3		$\begin{bmatrix} x \\ [1] \\ 1 \end{bmatrix}$										
		$\begin{bmatrix} x \\ -1 \\ 1 \end{bmatrix}$	C3	$\begin{bmatrix} x/x/x/x \\ [-2]/[-2]/[1]/[1] \\ -2/1/-2/1 \end{bmatrix}$										
		$\begin{bmatrix} x \\ -1 \\ [0] \end{bmatrix}$	C3	$\begin{bmatrix} x/x \\ -1/2 \\ -2/-2 \end{bmatrix}$										
			$\begin{bmatrix} x \\ -1 \\ -2 \end{bmatrix}$	C3	$\begin{bmatrix} x \\ [1] \\ -2 \end{bmatrix}$									
			$\begin{bmatrix} x \\ [-2] \\ 1 \end{bmatrix}$	C3	$\begin{bmatrix} x/x \\ -1/2 \\ 1/1 \end{bmatrix}$									
				$\begin{bmatrix} x \\ -1 \\ [-3] \end{bmatrix}$	C3	$\begin{bmatrix} x/x/x \\ -1/[1]/2 \\ -2/-2/-2 \end{bmatrix}$								

Table F.18 (continued): Positioning tables of Dom $\flat 9$ chord for parmak vurma sub-technique on all FPs.

CONNECTOR	POSITIONS/PITCHES													
	1/B \flat	2/B	3/C	4/C \sharp	5/D	6/D \sharp	7/E	8/F	9/F \sharp	10/G	11/A \flat	12/A	13/B \flat	14/B
4	$\begin{bmatrix} x \\ 0 \\ 2 \end{bmatrix}$	C4			$\begin{bmatrix} x/x/x \\ -1/-1/-1 \\ -2/1/[3] \end{bmatrix}$									
	$\begin{bmatrix} x \\ 3 \\ 2 \end{bmatrix}$	C4			$\begin{bmatrix} x/x \\ -1/2 \\ 1/1 \end{bmatrix}$									
		$\begin{bmatrix} x \\ 0 \\ -1 \end{bmatrix}$	C4			$\begin{bmatrix} x \\ -1 \\ -2 \end{bmatrix}$								
				$\begin{bmatrix} x \\ -3 \\ -1 \end{bmatrix}$	C4			$\begin{bmatrix} x \\ -1 \\ 1 \end{bmatrix}$						
5			$\begin{bmatrix} x \\ -1 \\ -2 \end{bmatrix}$	C5				$\begin{bmatrix} x/[x] \\ 3/3 \\ -1/2 \end{bmatrix}$						
			$\begin{bmatrix} x \\ 2 \\ -2 \end{bmatrix}$	C5				$\begin{bmatrix} x \\ 3 \\ -1 \end{bmatrix}$						
6	$\begin{bmatrix} x/x \\ [1]/2 \\ 1/[3] \end{bmatrix}$	C6					$\begin{bmatrix} x \\ -1 \\ -2 \end{bmatrix}$							
		$\begin{bmatrix} x \\ -1 \\ 1 \end{bmatrix}$	C6					$\begin{bmatrix} x/x \\ -1/-1 \\ [0]/[3] \end{bmatrix}$						
		$\begin{bmatrix} x \\ -1 \\ [3] \end{bmatrix}$	C6					$\begin{bmatrix} x/x/x \\ -1/-1/-1 \\ [-3]/-2/1 \end{bmatrix}$						
		$\begin{bmatrix} x \\ -1 \\ [0] \end{bmatrix}$	C6					$\begin{bmatrix} x/x \\ -1/-1 \\ -2/1 \end{bmatrix}$						
			$\begin{bmatrix} x \\ [-2] \\ -2 \end{bmatrix}$	C6					$\begin{bmatrix} x/x \\ -1/2 \\ -2/-2 \end{bmatrix}$					
			$\begin{bmatrix} x \\ -1 \\ -2 \end{bmatrix}$	C6					$\begin{bmatrix} x/x/x/x/x/x \\ [-2]/[-2]/[1]/[1]/-1/2 \\ -2/1/-2/1/[3]/[3] \end{bmatrix}$					
			$\begin{bmatrix} x \\ 2 \\ -2 \end{bmatrix}$	C6					$\begin{bmatrix} x/x \\ [-2]/[1] \\ -2/-2 \end{bmatrix}$					
			$\begin{bmatrix} x \\ [1] \\ -2 \end{bmatrix}$	C6					$\begin{bmatrix} x/x \\ -1/2 \\ -2/-2 \end{bmatrix}$					
			$\begin{bmatrix} x \\ [-2] \\ 1 \end{bmatrix}$	C6					$\begin{bmatrix} x \\ -1 \\ -2 \end{bmatrix}$					

Table F.18 (continued): Positioning tables of Dom $\flat 9$ chord for parmak vurma sub-technique on all FPs.

CONNECTOR	POSITIONS/PITCHES													
	1/B \flat	2/B	3/C	4/C#	5/D	6/D#	7/E	8/F	9/F#	10/G	11/A \flat	12/A	13/B \flat	14/B
6				x -1 [-3]	C6					$x/x/x$ -1/-1/-1 -2/1/[3]				
	$[x]$ 3 2	C7						x -1 -2						
7	$[x]$ 0 2	C7						x -1 1						
		$[x]$ 3 -1	C7						x/x -1/2 -2/-2					
		$[x]$ 0 -1	C7						x/x -1/2 1/1					
		x -1 [3]	C8							$[x]$ 0 2				
8			x [-2] 1	C8							$[x]$ 3 2			
	x [1] 1	C9								x/x -1/2 1/1				
9	x 2 [3]	C9								x -1 1				
		x/x -1/-1 [0]/[3]	C9								x -1 1			
			x [-2] -2	C9							x/x -1/-1 -2/1			
			x/x -1/2 -2/-2	C9							x -1 [0]			
			x [1] -2	C9							$x/x/x$ -1/-1/-1 [-3]/-2/1			
			x [-2] 1	C9							$x/x/x$ -1/[1]/2 1/1/1			
				x -1 [-3]	C9							x -1 1		
	$[x]$ 3 2	C10									x/x -1/2 1/1			

Table F.18 (continued): Positioning tables of Dom $\flat 9$ chord for parmak vurma sub-technique on all FPs.

CONNECTOR	POSITIONS/PITCHES													
	1/B \flat	2/B	3/C	4/C#	5/D	6/D#	7/E	8/F	9/F#	10/G	11/A \flat	12/A	13/B \flat	14/B
10		$\begin{bmatrix} x \\ 3 \\ -1 \end{bmatrix}$	C10										$\begin{bmatrix} x/x/x \\ -1/-1/-1 \\ [-3]/-2/1 \end{bmatrix}$	
		$\begin{bmatrix} x \\ 0/[2] \\ -1/-1 \end{bmatrix}$	C10										$\begin{bmatrix} x \\ -1 \\ -2 \end{bmatrix}$	
				$\begin{bmatrix} x \\ -3 \\ -1 \end{bmatrix}$	C10									$\begin{bmatrix} x \\ -1 \\ -2 \end{bmatrix}$
11	$\begin{bmatrix} x/x \\ [1]/2 \\ 1/1 \end{bmatrix}$	C11										$\begin{bmatrix} x \\ 0 \\ -1 \end{bmatrix}$		
		$\begin{bmatrix} x \\ -1 \\ 1 \end{bmatrix}$	C11										$\begin{bmatrix} x/[x] \\ -3/0 \\ -1/-1 \end{bmatrix}$	
12	$\begin{bmatrix} x \\ 3 \\ 2 \end{bmatrix}$	C12										$\begin{bmatrix} x \\ 0 \\ -1 \end{bmatrix}$		
	$\begin{bmatrix} x \\ [1] \\ 1 \end{bmatrix}$	C12										$\begin{bmatrix} x \\ -1 \\ -2 \end{bmatrix}$		
13	$\begin{bmatrix} x/[x] \\ 0/3 \\ 2/2 \end{bmatrix}$	C13												$\begin{bmatrix} x \\ -1 \\ -2 \end{bmatrix}$

Table F.19 : Positioning tables of Min9 chord for parmak vurma sub-technique on all FPs.

CONNECTOR	POSITIONS/PITCHES													
	1/B \flat	2/B	3/C	4/C \sharp	5/D	6/D \sharp	7/E	8/F	9/F \sharp	10/G	11/A \flat	12/A	13/B \flat	14/B
0	$\begin{matrix} x \\ [0] \\ 0 \end{matrix}$ C0 3													
		$\begin{matrix} x \\ [-1] \\ -1 \end{matrix}$ C0 1 2												
				$\begin{matrix} x \\ -3 \\ -2 \end{matrix}$ C0 $\begin{matrix} x \\ -2 \\ [0] \end{matrix}$										
				$\begin{matrix} [x] \\ -3 \\ -3 \end{matrix}$ C0 $\begin{matrix} [x] \\ 0 \\ -2 \end{matrix}$										
1	$\begin{matrix} x \\ [0] \\ 0 \end{matrix}$ C1	$\begin{matrix} x/x/x \\ [-1]/1/2 \\ 2/2/2 \end{matrix}$												
			$\begin{matrix} x \\ -2 \\ 0 \end{matrix}$ C1	$\begin{matrix} x/x \\ [-1]/[-1] \\ -1/2 \end{matrix}$										
2	$\begin{matrix} [x] \\ 0 \\ 2 \end{matrix}$	C2	$\begin{matrix} x/x \\ 3/3 \\ 0/3 \end{matrix}$											
	$\begin{matrix} [x] \\ [2] \\ 2 \end{matrix}$	C2	$\begin{matrix} x \\ 3 \\ 3 \end{matrix}$											
		$\begin{matrix} x \\ -1 \\ -1 \end{matrix}$	C2	$\begin{matrix} [x]/[x]/[x] \\ -3/0/[2] \\ -2/-2/-2 \end{matrix}$										
			$\begin{matrix} [x] \\ 0 \\ -2 \end{matrix}$	C2	$\begin{matrix} x/x/x/x \\ -2/[0]/2/3 \\ 0/0/0/0 \end{matrix}$									
				$\begin{matrix} [x] \\ -3 \\ -2 \end{matrix}$	C2	$\begin{matrix} x/x/x/x \\ -2/[0]/2/3 \\ 0/0/3/3 \end{matrix}$								
				$\begin{matrix} [x] \\ 0 \\ -3 \end{matrix}$	C2	$\begin{matrix} x \\ 3 \\ 0 \end{matrix}$								
				$\begin{matrix} [x] \\ -3 \\ -3 \end{matrix}$	C2	$\begin{matrix} x \\ 3 \\ 3 \end{matrix}$								
3	$\begin{matrix} [x] \\ 0 \\ 2 \end{matrix}$	C3	$\begin{matrix} x/x \\ 1/1 \\ -1/2 \end{matrix}$											
	$\begin{matrix} [x] \\ [2] \\ 2 \end{matrix}$	C3	$\begin{matrix} x \\ 1 \\ 2 \end{matrix}$											

Table F.19 (continued): Positioning tables of Min9 chord for parmak vurma sub-technique on all FPs.

CONNECTOR	POSITIONS/PITCHES													
	1/B♭	2/B	3/C	4/C#	5/D	6/D#	7/E	8/F	9/F#	10/G	11/A♭	12/A	13/B♭	14/B
3			x -2 [0]	C3		x/x -1/2 -1/-1								
			$[x]$ 0 -2	C3		x 1 -1								
				$[x]$ 0 -3	C3		$x/x/x/x$ -3/[-1]/1/2 -1/-1/-1/-1							
				x -3 [0]	C3		x/x -1/2 0/0							
				$[x]$ -3 -3	C3		$x/x/x/x$ -3/[-1]/1/2 -1/2/2/2							
				$[x]$ -3 -2	C3		x 1 2							
4	x 1 2	C4				$x/x/x$ -3/-2/2 [0]/[0]/[0]								
	x 2 0	C4				x [0] 0								
		x [-1] 2	C4				$x/x/x/x$ -3/-3/-2/2 -2/[0]/2/2							
		x -1 0	C4				x/x [0]/[0] 0/3							
				x -3 -1	C4				x -3 [0]					
				x -1 [-3]	C4				x/x 3/3 0/3					
5	x [0] 3	C5				$x/x/x/x$ -2/-2/-2/2 -2/[0]/2/3								
	x 3 3	C5				x/x -2/2 [0]/[0]								

Table F.19 (continued): Positioning tables of Min9 chord for parmak vurma sub-technique on all FPs.

CONNECTOR	POSITIONS/PITCHES													
	1/B \flat	2/B	3/C	4/C#	5/D	6/D#	7/E	8/F	9/F#	10/G	11/A \flat	12/A	13/B \flat	14/B
5	x 2 3	C5				x -2 [0]								
	x 2 2	C5				[x] 0 -2								
	x [0] 0	C5				x -2 -2								
		x/x -1/2 -1/-1	C5				x [-1] -1							
			x -2 [0]	C5				[x] 0 -3						
			x -2 0	C5				x -2 [0]						
			x -2 -2	C5				[x]/[x] -3/0 -3/-3						
			x -2 2	C5				[x]/[x]/[x] 0/0/0 -3/-2/2						
				x -3 -2	C5				[x]/[x]/[x] -3/0/[2] -2/-2/-2					
				x -3 [0]	C5				[x] 0 -2					
				x -1 [-3]	C5				x/x 1/1 -1/2					
7	x 1 2	C7						x -1 [-3]						
	[x] 0 2	C7						x -2 2						
	x 2 3	C7						x [0] 3						
	x 2 [0]	C7						x 3 3						
		x [-1] -1	C7						x/x -1/2 -1/-1					

Table F.19 (continued): Positioning tables of Min9 chord for parmak vurma sub-technique on all FPs.

CONNECTOR	POSITIONS/PITCHES													
	1/B \flat	2/B	3/C	4/C \sharp	5/D	6/D \sharp	7/E	8/F	9/F \sharp	10/G	11/A \flat	12/A	13/B \flat	14/B
7		x [-1] 2	C7						x -1 -1					
		x 1 -1	C7						x -1 [-3]					
			x -2 [0]	C7						$x/x/x/x$ -2/[0]/2/3 0/3/3/3				
			[x] 0 -2	C7						$x/x/x/x$ -3/-3/-2/2 -2/[0]/2/2				
			[x] [2] -2	C7						x -3 -2				
			x -2 -2	C7						x/x [0]/[0] 0/3				
			x -2 2	C7						x [0] 3				
				[x] 0 -3	C7						$x/x/x/x$ -2/-2/-2/2 -2/[0]/2/3			
				[x] -3 -2	C7						x -3 -2			
				[x] -3 -3	C7						x -2 -2			
				x -3 [0]	C7						x 3 3			
8	x [0] 3	C8							x -1 0					
	x/x 3/3 0/3	C8							x -1 [-3]					
	x [0] 0	C8							x/x -1/2 0/0					
	x 2 [0]	C8							x 1 2					

Table F.19 (continued): Positioning tables of Min9 chord for parmak vurma sub-technique on all FPs.

CONNECTOR	POSITIONS/PITCHES													
	1/Bb	2/B	3/C	4/C#	5/D	6/D#	7/E	8/F	9/F#	10/G	11/Ab	12/A	13/Bb	14/B
8	$\begin{matrix} x \\ 2 \\ 2 \end{matrix}$	C8							$\begin{matrix} x \\ [-1] \\ 2 \end{matrix}$					
			$\begin{matrix} x \\ -2 \\ [0] \end{matrix}$	C8							$\begin{matrix} x \\ 1 \\ 2 \end{matrix}$			
			$\begin{matrix} x \\ -2 \\ 2 \end{matrix}$	C8							$\begin{matrix} x \\ [-1] \\ 2 \end{matrix}$			
				$\begin{matrix} x \\ -3 \\ -2 \end{matrix}$	C8							$\begin{matrix} x/x \\ [-1]/[-1] \\ -1/2 \end{matrix}$		
				$\begin{matrix} x \\ -3 \\ [0] \end{matrix}$	C8							$\begin{matrix} x/x/x/x \\ -3/[-1]/1/2 \\ -1/2/2/2 \end{matrix}$		
9	$\begin{matrix} x \\ 1 \\ 2 \end{matrix}$	C9								$\begin{matrix} [x]/[x]/[x] \\ -3/0/[2] \\ -2/2/2 \end{matrix}$				
	$\begin{matrix} x \\ 2 \\ 0 \end{matrix}$	C9								$\begin{matrix} x \\ -3 \\ [0] \end{matrix}$				
	$\begin{matrix} x \\ 2 \\ 2 \end{matrix}$	C9								$\begin{matrix} [x] \\ -3 \\ -3 \end{matrix}$				
		$\begin{matrix} x \\ [-1] \\ -1 \end{matrix}$	C9								$\begin{matrix} [x] \\ 0 \\ -3 \end{matrix}$			
		$\begin{matrix} x \\ -1 \\ -1 \end{matrix}$	C9								$\begin{matrix} x \\ -2 \\ [0] \end{matrix}$			
		$\begin{matrix} x \\ 2 \\ -1 \end{matrix}$	C9								$\begin{matrix} [x]/x \\ 0/-2 \\ -3/[0] \end{matrix}$			
		$\begin{matrix} x \\ [-1] \\ 2 \end{matrix}$	C9								$\begin{matrix} [x] \\ -3 \\ -3 \end{matrix}$			
		$\begin{matrix} x \\ 1 \\ -1 \end{matrix}$	C9								$\begin{matrix} [x]/[x]/[x] \\ 0/0/0 \\ -3/-2/2 \end{matrix}$			
		$\begin{matrix} x \\ -1 \\ 0 \end{matrix}$	C9								$\begin{matrix} x \\ -3 \\ [0] \end{matrix}$			
				$\begin{matrix} x \\ -3 \\ -1 \end{matrix}$	C9								$\begin{matrix} [x]/[x] \\ -3/0 \\ -3/-3 \end{matrix}$	
10	$\begin{matrix} x/x \\ [0]/2 \\ 3/3 \end{matrix}$	C10									$\begin{matrix} [x] \\ -3 \\ -2 \end{matrix}$			

Table F.19 (continued): Positioning tables of Min9 chord for parmak vurma sub-technique on all FPs.

CONNECTOR	POSITIONS/PITCHES													
	1/B♭	2/B	3/C	4/C#	5/D	6/D#	7/E	8/F	9/F#	10/G	11/A♭	12/A	13/B♭	14/B
10	x 3 3	C10										[x]/[x]/[x] -3/0/[2] -2/2/2		
	x 3 0	C10										[x]/[x]/[x] 0/0/0 -3/-2/2		
	x/x [0]/2 0/0	C10										[x] 0 -1		
			x -2 0	C10									[x]/[x] -3/0 -2/-2	
			[x]/[x] 0/[2] -2/-2	C10									x -1 -1	
				[x]/[x] -3/0 -3/-3	C10									x -1 0
				[x] -3 -2	C10									x -1 -1
11	x/x 1/2 2/2	C11										x [0] 0		
		x [-1] -1	C11										x -2 0	
		x [-1] 2	C11										x/x -2/[0] 0/0	
12	x 3 3	C12										x [0] 0		
	x 1 2	C12										x [-1] -1		
13	x [0] 3	C13												x/x -3/[-1] -1/-1
	x/x 2/3 3/3	C13												x [-1] -1
	x [0] 0	C13												x -3 -1

Table F.20 : Positioning tables of Halfdim9 chord for parmak vurma sub-technique on all FPs.

CONNECTOR	POSITIONS/PITCHES													
	1/B \flat	2/B	3/C	4/C \sharp	5/D	6/D \sharp	7/E	8/F	9/F \sharp	10/G	11/A \flat	12/A	13/B \flat	14/B
0		$\begin{matrix} x \\ [0] \\ -1 \end{matrix}$ C0 $\begin{matrix} x \\ 3 \\ 3 \end{matrix}$												
			$\begin{matrix} x \\ [-1] \\ -2 \end{matrix}$ C0 $\begin{matrix} x \\ 1 \\ 2 \end{matrix}$											
			$\begin{matrix} x \\ -2 \\ -1 \end{matrix}$ C0 $\begin{matrix} x \\ -1 \\ [1] \end{matrix}$											
1		$\begin{matrix} x \\ [0] \\ -1 \end{matrix}$ C1	$\begin{matrix} x/x/x \\ [-1]/1/2 \\ 2/2/2 \end{matrix}$											
			$\begin{matrix} x \\ -2 \\ -1 \end{matrix}$ C1	$\begin{matrix} x/x \\ [-1]/[-1] \\ -2/2 \end{matrix}$										
2	$\begin{matrix} x \\ -1 \\ [1] \\ [x] \\ 0 \\ 1 \end{matrix}$	C2	$\begin{matrix} x \\ 3 \\ 3 \end{matrix}$											
		C2	$\begin{matrix} x/x \\ 3/3 \\ -1/3 \end{matrix}$											
			$\begin{matrix} x \\ -2 \\ -1 \end{matrix}$	C2	$\begin{matrix} [x]/[x] \\ 0/[2] \\ -2/-2 \end{matrix}$									
			$\begin{matrix} [x] \\ 0 \\ -2 \end{matrix}$	C2	$\begin{matrix} x/x/x/x \\ -2/[0]/2/3 \\ -1/-1/-1/-1 \end{matrix}$									
				$\begin{matrix} [x] \\ 0 \\ -3 \end{matrix}$	C2	$\begin{matrix} x \\ 3 \\ -1 \end{matrix}$								
3	$\begin{matrix} x \\ 1 \\ 2 \end{matrix}$		C3	$\begin{matrix} x/x/x \\ -2/-1/2 \\ [1]/[1]/[1] \end{matrix}$										
	$\begin{matrix} [x] \\ 0 \\ 1 \end{matrix}$		C3	$\begin{matrix} x/x \\ 1/1 \\ -2/2 \end{matrix}$										
	$\begin{matrix} x \\ -1 \\ [1] \end{matrix}$		C3	$\begin{matrix} x \\ 1 \\ 2 \end{matrix}$										
		$\begin{matrix} x \\ [-1] \\ 2 \end{matrix}$	C3	$\begin{matrix} x/x/x/x \\ -2/-2/-1/2 \\ -1/[1]/3/3 \end{matrix}$										
			$\begin{matrix} x \\ [-1] \\ -2 \end{matrix}$	C3		$\begin{matrix} x \\ -2 \\ -1 \end{matrix}$								

Table F.20 (continued): Positioning tables of Halfdim9 chord for parmak vurma sub-technique on all FPs.

CONNECTOR	POSITIONS/PITCHES													
	1/B♭	2/B	3/C	4/C#	5/D	6/D#	7/E	8/F	9/F#	10/G	11/A♭	12/A	13/B♭	14/B
3			$\begin{bmatrix} x \\ 0 \\ -2 \end{bmatrix}$	C3		$\begin{bmatrix} x \\ 1 \\ -2 \end{bmatrix}$								
				$\begin{bmatrix} x \\ 0 \\ -3 \end{bmatrix}$	C3		$\begin{matrix} x/x/x/x \\ -3/[-1]/1/2 \\ -2/-2/-2/-2 \end{matrix}$							
				$\begin{bmatrix} x \\ -3 \\ -2 \end{bmatrix}$	C3		$\begin{bmatrix} x \\ -2 \\ [1] \end{bmatrix}$							
4	$\begin{bmatrix} x \\ 2 \\ 0 \end{bmatrix}$	C4			$\begin{bmatrix} x \\ [0] \\ -1 \end{bmatrix}$									
	$\begin{matrix} x/x \\ 2/3 \\ 3/3 \end{matrix}$	C4			$\begin{bmatrix} x \\ -1 \\ [1] \end{bmatrix}$									
	$\begin{bmatrix} x \\ 3 \\ 3 \end{bmatrix}$	C4			$\begin{bmatrix} x \\ 2 \\ [1] \end{bmatrix}$									
		$\begin{bmatrix} x \\ -1 \\ [1] \end{bmatrix}$	C4			$\begin{matrix} x/x \\ -2/2 \\ -1/-1 \end{matrix}$								
		$\begin{bmatrix} x \\ [0] \\ -1 \end{bmatrix}$	C4			$\begin{bmatrix} x \\ -1 \\ -1 \end{bmatrix}$								
			$\begin{bmatrix} x \\ -2 \\ [1] \end{bmatrix}$	C4			$\begin{matrix} x/x \\ -2/2 \\ 0/0 \end{matrix}$							
			$\begin{bmatrix} x \\ -2 \\ 0 \end{bmatrix}$	C4			$\begin{matrix} x/x \\ [0]/[0] \\ -1/3 \end{matrix}$							
			$\begin{bmatrix} x \\ -2 \\ -1 \end{bmatrix}$	C4			$\begin{bmatrix} x \\ -1 \\ [1] \end{bmatrix}$							
				$\begin{bmatrix} x \\ [0] \\ 3 \end{bmatrix}$	C4			$\begin{matrix} x/x/x \\ -1/-1/-1 \\ -1/[1]/3 \end{matrix}$						
				$\begin{bmatrix} x \\ -2 \\ [-3] \end{bmatrix}$	C4			$\begin{matrix} x/x \\ 3/3 \\ -1/3 \end{matrix}$						
5		$\begin{bmatrix} x \\ 2 \\ -1 \end{bmatrix}$	C5				$\begin{bmatrix} x \\ [-1] \\ -2 \end{bmatrix}$							
			$\begin{bmatrix} x \\ -2 \\ -1 \end{bmatrix}$	C5				$\begin{matrix} x/x \\ [-1]/[-1] \\ -2/2 \end{matrix}$						
				$\begin{bmatrix} x \\ -2 \\ [-3] \end{bmatrix}$	C5				$\begin{bmatrix} x/x \\ 1/1 \\ -2/2 \end{bmatrix}$					

Table F.20 (continued): Positioning tables of Halfdim9 chord for parmak vurma sub-technique on all FPs.

CONNECTOR	POSITIONS/PITCHES													
	1/Bb	2/B	3/C	4/C#	5/D	6/D#	7/E	8/F	9/F#	10/G	11/Ab	12/A	13/Bb	14/B
6	$\begin{matrix} x \\ 2 \\ 3 \end{matrix}$	C6					$\begin{matrix} [x] \\ 0 \\ -2 \end{matrix}$							
	$\begin{matrix} [x] \\ 0 \\ 1 \end{matrix}$	C6					$\begin{matrix} x \\ -1 \\ 3 \end{matrix}$							
		$\begin{matrix} x/x \\ -1/-1 \\ -1/[1] \end{matrix}$	C6					$\begin{matrix} [x] \\ 0 \\ -3 \end{matrix}$						
		$\begin{matrix} x \\ -1 \\ 3 \end{matrix}$	C6					$\begin{matrix} [x]/[x]/[x] \\ 0/0/0 \\ -3/-2/1 \end{matrix}$						
			$\begin{matrix} x \\ -2 \\ -1 \end{matrix}$	C6					$\begin{matrix} [x]/[x] \\ 0/[2] \\ -2/-2 \end{matrix}$					
			$\begin{matrix} x \\ -2 \\ [1] \end{matrix}$	C6					$\begin{matrix} [x] \\ 0 \\ -2 \end{matrix}$					
			$\begin{matrix} [x] \\ 0 \\ -2 \end{matrix}$	C6					$\begin{matrix} x/x/x \\ -2/-1/2 \\ -1/3/3 \end{matrix}$					
			$\begin{matrix} [x] \\ [2] \\ -2 \end{matrix}$	C6					$\begin{matrix} x \\ -2 \\ -1 \end{matrix}$					
				$\begin{matrix} [x] \\ 0 \\ -3 \end{matrix}$	C6					$\begin{matrix} x/x/x \\ -1/-1/-1 \\ -1/[1]/3 \end{matrix}$				
7	$\begin{matrix} x \\ 1 \\ 2 \end{matrix}$	C7					$\begin{matrix} x \\ -2 \\ [-3] \end{matrix}$							
		$\begin{matrix} x \\ [-1] \\ 2 \end{matrix}$	C7					$\begin{matrix} x \\ -2 \\ -1 \end{matrix}$						
			$\begin{matrix} x \\ [-1] \\ -2 \end{matrix}$	C7					$\begin{matrix} x/x \\ -2/2 \\ -1/-1 \end{matrix}$					
			$\begin{matrix} x \\ 1 \\ -2 \end{matrix}$	C7					$\begin{matrix} x \\ -2 \\ [-3] \end{matrix}$					
8	$\begin{matrix} x \\ 3 \\ 3 \end{matrix}$	C8						$\begin{matrix} x \\ -2 \\ [-3] \end{matrix}$						
	$\begin{matrix} x \\ 2 \\ 0 \end{matrix}$	C8						$\begin{matrix} x \\ -2 \\ [1] \end{matrix}$						
	$\begin{matrix} x \\ -1 \\ [1] \end{matrix}$	C8						$\begin{matrix} x \\ 3 \\ 3 \end{matrix}$						

Table F.20 (continued): Positioning tables of Halfdim9 chord for parmak vurma sub-technique on all FPs.

CONNECTOR	POSITIONS/PITCHES													
	1/B \flat	2/B	3/C	4/C \sharp	5/D	6/D \sharp	7/E	8/F	9/F \sharp	10/G	11/A \flat	12/A	13/B \flat	14/B
8		x -1 [1]	C8								$x/x/x/x$ -2/[0]/2/3 -1/3/3/3			
		x [0] -1	C8								x/x -2/2 0/0			
		x 3 -1	C8								x -2 [-3]			
		x -1 -1	C8								x/x [0]/[0] -1/3			
		x 2 -1	C8								x -1 [1]			
		x -1 3	C8								x [0] 3			
			x -2 -1	C8								x -1 [1]		
			x -2 0	C8								x -2 [1]		
			x -2 [1]	C8								x 3 3		
				x [0] 3	C8								x -2 0	
9	x 1 2	C9								$[x]/[x]$ 0/[2] 1/1				
	x -1 [1]	C9								x 1 2				
	x 2 3	C9								x [-1] 2				
		x -1 [1]	C9								x 1 2			
			x/x [-1]/2 -2/-2	C9								$[x]$ 0 -3		
			x -2 -1	C9								x/x [-1]/[-1] -2/2		

Table F.20 (continued): Positioning tables of Halfdim9 chord for parmak vurma sub-technique on all FPs.

CONNECTOR	POSITIONS/PITCHES														
	1/Bb	2/B	3/C	4/C#	5/D	6/D#	7/E	8/F	9/F#	10/G	11/Ab	12/A	13/Bb	14/B	
9			x 1 -2	C9									[x]/[x]/[x] 0/0/0 -3/-2/1		
			x -2 [1]	C9									x/x/x [-1]/1/2 2/2/2		
				x -3 -2	C9									[x] 0 -3	
10	x 3 3	C10										[x]/[x] 0/[2] 1/1			
		x/x [0]/2 -1/-1	C10									[x] 0 -2			
		x 3 -1	C10									[x]/[x]/[x] 0/0/0 -3/-2/1			
			x -2 -1	C10									[x] 0 -2		
			[x]/[x] 0/[2] -2/-2	C10									x -2 -1		
				[x] 0 -3	C10										x -2 0
11	x/x 1/2 2/2	C11										x [0] -1			
		x [-1] 2	C11									x/x -2/[0] -1/-1			
			x [-1] -2	C11										x -2 -1	
12	x 1 2	C12											x [-1] -2		
	x 3 3	C12											x [0] -1		
		x -1 [1]	C12												x -2 -1
13	x/x 2/3 3/3	C13													x -2 -1

Table F.20 (continued): Positioning tables of Halfdim9 chord for parmak vurma sub-technique on all FPs.

CONNECTOR	POSITIONS/PITCHES													
	1/B \flat	2/B	3/C	4/C \sharp	5/D	6/D \sharp	7/E	8/F	9/F \sharp	10/G	11/A \flat	12/A	13/B \flat	14/B
13	x [0] 3	C13												x/x $-3/[-1]$ $-2/-2$

APPENDIX G: ŞELPE ACCOMPANIMENT WITH MATRIX SYSTEM

APPENDIX G.1

Gülnihal

APPENDIX G.2

When I am Laid in Earth

Gülnihal

Composer: Hamamizade Ismail Dede Efendi
Arrangement and Matrix Analysis: A. Ozan Baysal

$\text{♩} = 90$

Oboe

Amaj⁷ B^{ø7} E⁷ Amaj⁷

$$\begin{pmatrix} C\# & E \\ [-2] & C3 & -1 \\ -2 & & -1 \end{pmatrix} \quad \begin{pmatrix} [B] & D \\ 0 & C3 & [-1] \\ 1 & & 2 \end{pmatrix} \quad \begin{pmatrix} B & D \\ -1 & C3 & -1 \\ [0] & & 1 \end{pmatrix} \quad \begin{pmatrix} C\# & C\# \\ [-2] & C0 & [-2] \\ -2 & & 2 \end{pmatrix}$$

Şelpe

Ob.

A⁷ Bmin⁷ E⁷ A^{ø7}

$$\begin{pmatrix} E & G \\ -1 & C3 & -1 \\ [0] & & 1 \end{pmatrix} \quad \begin{pmatrix} D & A \\ [-1] & C7 & -1 \\ -1 & & 0 \end{pmatrix} \quad \begin{pmatrix} D & B \\ -1 & C9 & -1 \\ [-3] & & [0] \end{pmatrix} \quad \begin{pmatrix} C\# & G \\ [-1] & C6 & - \\ -2 & & 1 \end{pmatrix}$$

Şlp.

Figure G.1 : The şelpe arrangement “Gülnihal” with matrix system.

5

Ob.

Bmin^7 Cmaj^7 $\text{E}^{\flat 7}$ F^{\sharp}

$$\begin{pmatrix} D \\ [-1] \\ -1 \end{pmatrix} \text{C}^7 \begin{pmatrix} A \\ - \\ 0 \end{pmatrix} \quad \begin{pmatrix} [C] \\ 1 \\ - \end{pmatrix} \text{C}^2 \begin{pmatrix} - \\ - \\ G \end{pmatrix} \quad \begin{pmatrix} B \\ -1 \\ [1] \end{pmatrix} \text{C}^3 \begin{pmatrix} D \\ - \\ 1 \end{pmatrix} \quad \begin{pmatrix} - \\ A \\ - \end{pmatrix} \text{C}^2 \begin{pmatrix} C^{\sharp} \\ - \\ [0] \end{pmatrix}$$

Şlp.

7

Ob.

Dmaj^7 B^7 E^7 A^{no^3}

$$\begin{pmatrix} [D] \\ -3 \\ -1 \end{pmatrix} \text{C}^7 \begin{pmatrix} A \\ -1 \\ -1 \end{pmatrix} \quad \begin{pmatrix} [B] \\ 0 \\ 2 \end{pmatrix} \text{C}^7 \begin{pmatrix} F^{\sharp} \\ -1 \\ [0] \end{pmatrix} \quad \begin{pmatrix} B \\ -1 \\ [0] \end{pmatrix} \text{C}^9 \begin{pmatrix} G^{\sharp} \\ 0 \\ [3] \end{pmatrix} \quad \begin{pmatrix} [(A)] \\ - \\ - \end{pmatrix} \text{C}^9 \begin{pmatrix} - \\ E \\ [-2] \end{pmatrix}$$

Şlp.

The musical score is for the şelpe arrangement "Gülnehal". It consists of two systems. The first system (measures 5-6) features an Oboe (Ob.) and a Şelpe (Şlp.) part. The Ob. part has a melodic line with a fermata on the fifth measure. The Şlp. part has a complex rhythmic pattern with many beamed sixteenth notes. Above the Şlp. staff, there are fingerings (circled numbers 1-3) and articulations (up-bow/diagonal lines and down-bow/diagonal lines with 'v' marks). Between the staves, the matrix system notation is provided for measures 5-6, including chord symbols (Bmin7, Cmaj7, E♭7, F♯) and their corresponding matrix representations. The second system (measures 7-8) continues the Ob. and Şlp. parts. The Ob. part has a melodic line ending with a fermata. The Şlp. part continues its rhythmic pattern. Similar fingerings and articulations are present above the Şlp. staff. The matrix system notation for measures 7-8 is provided between the staves, including chord symbols (Dmaj7, B7, E7, A no3) and their matrix representations.

Figure G.1 (continued) : The şelpe arrangement “Gülnehal” with matrix system.

Dido's Lament: When I am Laid in Earth from "Dido and Aeneas" Act III (1689)

Composer: Henry Purcell
Şelpe Arrangement: A. Ozan Baysal
Matrix Accompaniment: A. Ozan Baysal

Gm D Dm

$$\begin{pmatrix} - & D & - \\ B\flat & c2 & - \\ - & [0] & - \end{pmatrix} \begin{pmatrix} - & - & [D] \\ A & c3 & - \\ - & 2 & - \end{pmatrix} \begin{pmatrix} - & - & [D] \\ A & c3 & - \\ - & 1 & - \end{pmatrix}$$

V
① ③ ② ① ② ① ③ ② V
▽ ▽ ▽ ▽ ▽ ▽ ▽ ▽ ▽

Şelpe Çelik (Continuo)

Şelpe Bam (Continuo)

Dido

Violin I-II

Viola

Basso Continuo

When I am laid am

Figure G.2 : The şelpe arrangement “When I am Laid in Earth” with matrix system.

Eno3e7 Cm D Gm Cm Gno3 D7 Gm

$$\begin{pmatrix} - & Bb & c2 & D \\ [-1] & - & - & - \end{pmatrix} \begin{pmatrix} - & c & c1 & Eb \\ - & - & - & - \end{pmatrix} \begin{pmatrix} - & A & c3 & D \\ 2 & - & - & - \end{pmatrix} \begin{pmatrix} - & Bb & c2 & D \\ - & - & - & - \end{pmatrix} \begin{pmatrix} - & c & c1 & Eb \\ 0 & - & - & - \end{pmatrix} \begin{pmatrix} D & - & D \\ - & - & - \end{pmatrix} \begin{pmatrix} - & c0 & D \\ 0 & - & - \end{pmatrix} \begin{pmatrix} - & c & - & c \\ 0 & - & - & - \end{pmatrix} \begin{pmatrix} - & Bb & c2 & D \\ - & - & - & - \end{pmatrix}$$

③
②

① ③ ② ① ∇ ① ③ ② ③ ① ③ ① ③ ① ① ③ ② ① ②
∇ ∇ ∇ ∇ ∇ ∇ ∇ ∇ ∇ ∇ ∇ ∇ ∇ ∇ ∇ ∇ ∇ ∇ ∇

7

② ② ① ③ ① ② ①
∇ ∇ ∇ ∇ ∇ ∇ ∇

laid in earth may my wrongs create No

Figure G.2 (continued) : The şelpe arrangement “When I am Laid in Earth” with matrix system.

D Dm Eno3ø7 Cm D Gm Cm Gno3 D7

$$\begin{pmatrix} - \\ A \\ 2 \end{pmatrix} \begin{pmatrix} D \\ C3 \\ - \end{pmatrix} \begin{pmatrix} - \\ A \\ 1 \end{pmatrix} \begin{pmatrix} D \\ C3 \\ - \end{pmatrix} \begin{pmatrix} - \\ Bb \\ [-1] \end{pmatrix} \begin{pmatrix} D \\ C2 \\ - \end{pmatrix} \begin{pmatrix} - \\ C \\ c1 \\ - \end{pmatrix} \begin{pmatrix} D \\ C3 \\ - \end{pmatrix} \begin{pmatrix} - \\ Bb \\ [-1] \end{pmatrix} \begin{pmatrix} D \\ C2 \\ - \end{pmatrix} \begin{pmatrix} - \\ C \\ c1 \\ [0] \end{pmatrix} \begin{pmatrix} D \\ C0 \\ - \end{pmatrix} \begin{pmatrix} - \\ Bb \\ [0] \end{pmatrix} \begin{pmatrix} D \\ C0 \\ - \end{pmatrix} \begin{pmatrix} - \\ Bb \\ [0] \end{pmatrix} \begin{pmatrix} D \\ C-4 \\ - \end{pmatrix} \begin{pmatrix} - \\ C \\ 1 \end{pmatrix}$$

The musical score is written for a piano and voice. It features a complex matrix system at the top with various musical notations, including chords (D, Dm, Eno3ø7, Cm, D, Gm, Cm, Gno3, D7) and a series of mathematical expressions involving matrices. The score includes a vocal line with lyrics: "trou ble no trou ble in thy breast". The piano accompaniment is written for the right and left hands, with various musical notations including notes, rests, and fingerings.

Figure G.2 (continued) : The şelpe arrangement “When I am Laid in Earth” with matrix system.

APPENDIX H: MATRIX ANALYSES

APPENDIX H.1

Naz Barı

APPENDIX H.2

Hicaz Mandıra

Naz Barı

Compiler: Nida Tüfekçi
Arrangement: Erol Parlak
Notation: Erol Parlak
Matrix Analysis: A.Ozan Baysal

Asus4/6 A Hicaz Tetrachord A Asus4 Dm

$$\begin{pmatrix} [(A)] & E \\ [A] & C5 \\ 0/(-2) & [0] \end{pmatrix} \quad \begin{pmatrix} C\# & E \\ [-2] & C3 \\ -1 & [0]/1 \end{pmatrix} \quad \begin{pmatrix} C\# & E \\ - & C3 \\ -2 & [0] \end{pmatrix} \quad \begin{pmatrix} E/(A) \\ - & [0]/(D) \\ - & F \end{pmatrix} \quad \begin{pmatrix} - & [D] \\ - & C2 \\ - & 2 \end{pmatrix}$$

③ ② ① ② ① ③ ① ③ ① ③ ① ③ ① ③

Şelp. 67

0(1) 0(2) 3

Asus4

$$\begin{pmatrix} - & E/(A) \\ - & C5 \\ E & [0]/(D) \end{pmatrix}$$

① ③

4

2 1 0(1) 3 0(3)

A Hicaz Tetrachord A Ano3

$$\begin{pmatrix} C\# & E \\ [-2] & C3 \\ -1 & [0]/1 \end{pmatrix} \quad \begin{pmatrix} C\#/(A) & C\# \\ 2 & C0 \\ -2 & - \end{pmatrix} \quad \begin{pmatrix} - & E/(A) \\ - & C5 \\ E & [0] \end{pmatrix}$$

② ① ③ ① ③ ① ② ③

6

1 0 1 0(3) 4 0

Asus4 Gno3

$$\begin{pmatrix} - & E/(A) \\ - & C5 \\ E & [0]/(D) \end{pmatrix} \quad \begin{pmatrix} - & [G] \\ - & C6 \\ F\# & [2]/[(G)] \\ & 2/(D) \end{pmatrix}$$

② ① ③ ① ②

8

1 2 1

Figure H.1 : Matrix analysis “Naz Barı” arranged by Erol Parlak.

F-E-D-C# Tetrachord

$$\begin{pmatrix} C\# & E/(A) \\ - & C3 \\ -1/(D) & 0 \end{pmatrix}$$

Asus4

$$\begin{pmatrix} D/[(A)] & E \\ - & C2 \\ - & [0] \end{pmatrix}$$

Şlp. 19

Hicaz Tetrachord

$$\begin{pmatrix} C\#/(A) & Bb \\ -1 & C9 \\ -/(D) & -2 \end{pmatrix}$$

Şlp. 22

Dsus2

$$\begin{pmatrix} [D]/(A) & E \\ - & C2 \\ -/(D) & 0 \end{pmatrix}$$

Hicaz Tetrachord

$$\begin{pmatrix} C\#/(A) & Bb \\ -1 & C9 \\ -/(D) & -2 \end{pmatrix}$$

Şlp. 25

Ane3

$$\begin{pmatrix} - & F/E/[(A)] \\ - & C6/5 \\ E & [-1]/[0] \end{pmatrix}$$

Dm

$$\begin{pmatrix} [D] & E/F \\ - & C2/3 \\ -3/-2 & 0/-1 \end{pmatrix}$$

Şlp. 28

Figure H.1 (continued) : Matrix analysis “Naz Bari” arranged by Erol Parlak.

Asus4 A11 A Hicaz Trichord Dm

$$\begin{pmatrix} D \\ - \\ - \end{pmatrix} \begin{pmatrix} C2 \\ - \\ [0] \end{pmatrix} \begin{pmatrix} E \\ - \\ - \end{pmatrix} \begin{pmatrix} C\# \\ - \\ - \end{pmatrix} \begin{pmatrix} C3 \\ - \\ [0]/(D) \end{pmatrix} \begin{pmatrix} C\#/[A] \\ -1 \\ - \end{pmatrix} \begin{pmatrix} C9 \\ - \\ - \end{pmatrix} \begin{pmatrix} Bb \\ - \\ - \end{pmatrix} \begin{pmatrix} [D] \\ - \\ -3 \end{pmatrix} \begin{pmatrix} F \\ - \\ -1 \end{pmatrix}$$

31 

Asus4 A11

$$\begin{pmatrix} D \\ - \\ - \end{pmatrix} \begin{pmatrix} C2 \\ - \\ [0] \end{pmatrix} \begin{pmatrix} E \\ - \\ - \end{pmatrix} \begin{pmatrix} C\# \\ - \\ - \end{pmatrix} \begin{pmatrix} C3 \\ - \\ [0]/(D) \end{pmatrix}$$

34 

A Hicaz Tetrachord

$$\begin{pmatrix} C\# \\ -1 \\ -2 \end{pmatrix} \begin{pmatrix} C8 \\ - \\ -2 \end{pmatrix} \begin{pmatrix} A \\ - \\ -1/2/(D) \end{pmatrix}$$

37 

Figure H.1 (continued) : Matrix analysis “Naz Barı” arranged by Erol Parlak.

Arrangement: A. Ozan Baysal
Notation: A. Ozan Baysal
Matrix Analysis: A. Ozan Baysal



Figure H.2 : Matrix analysis “Hicaz Mandıra” arranged by Ahmet Ozan Baysal.

$G\flat 7$ $Dno3+(maj7)$ Gm A $Bbmaj7$ $C\sharp m$

$$\begin{pmatrix} - & C\sharp \\ B\flat/[G] & - \\ 0/(-3) & [1] \end{pmatrix} \quad \begin{pmatrix} [D]/(A) \\ 1 \\ 3 \end{pmatrix} \quad \begin{pmatrix} A\flat/- & B\flat/A \\ [1]/C\sharp/B\flat & C2/7 \\ -/- & -1 \end{pmatrix} \quad \begin{pmatrix} C\sharp & (A) \\ (-2) & (2) \end{pmatrix} \begin{pmatrix} b & A \\ (-2) & - \end{pmatrix} \begin{pmatrix} 2 \\ (-2) & c\sharp \end{pmatrix} \begin{pmatrix} 2 \\ (-2) & c\sharp \end{pmatrix}$$

$\begin{matrix} ① & ① \\ ② & ① & ③ \\ \vee & \vee & \vee \end{matrix}$ $\begin{matrix} ② & ③ & ② \\ \vee & \vee & \vee \end{matrix}$ $\begin{matrix} ③ & ② \\ \vee & \vee \end{matrix}$ $\begin{matrix} ① & ② & ③ \\ \vee & \vee & \vee \end{matrix}$ $\begin{matrix} ③ & ② & ③ & ② \\ \vee & \vee & \vee & \vee \end{matrix}$

16

$G\flat 7$ A Hicaz Scale G Nikriz Scale

$$\begin{pmatrix} - & C\sharp \\ B\flat/[G] & - \\ 0/(-3) & [1] \end{pmatrix} \quad \begin{pmatrix} C\sharp & E \\ -1 & 0 \\ 1/-1 & [0] \end{pmatrix} \quad \begin{pmatrix} B\flat & D \\ [1] & 1 \\ 2/1/(-1) & 0 \end{pmatrix}$$

$\begin{matrix} ① & ① \\ ② & ① & ③ \\ \vee & \vee & \vee \end{matrix}$ $\begin{matrix} ② & ③ & ② \\ \vee & \vee & \vee \end{matrix}$ $\begin{matrix} ① & ③ & ② \\ \vee & \vee & \vee \end{matrix}$ $\begin{matrix} ① & ③ & ② \\ \vee & \vee & \vee \end{matrix}$ $\begin{matrix} ① & ③ & ② \\ \vee & \vee & \vee \end{matrix}$

20

A $B\flat$ $C\sharp m$ $D9(maj7)$ A

$$\begin{pmatrix} C\sharp & D & E \\ [-2] & [-2] & [-1] \end{pmatrix} \quad \begin{pmatrix} [D]/E & F\sharp \\ -/-1 & - \\ -/- & [(D)] \end{pmatrix} \quad \begin{pmatrix} C\sharp \\ [-2] & -2 \end{pmatrix}$$

$\begin{matrix} ③ \\ ② & ③ \\ \wedge & \wedge & \wedge \end{matrix}$ $\begin{matrix} ① & ③ & ② \\ \wedge & \wedge & \wedge \end{matrix}$ $\begin{matrix} ③ & ② & ① & ② & ③ \\ \wedge & \wedge & \wedge & \wedge & \wedge \end{matrix}$ $\begin{matrix} ③ \\ \wedge & \wedge & \wedge \end{matrix}$

23

$Dno3$ $Eno3(min7)$ $Asus4$ $Em7$ D

$$\begin{pmatrix} [D] \\ -3 \\ (D) \end{pmatrix} \quad \begin{pmatrix} [E] \\ -3 \\ (D) \end{pmatrix} \quad \begin{pmatrix} [A] \\ -3 \\ (D) \end{pmatrix} \quad \begin{pmatrix} G \\ [-1] & (D) \end{pmatrix} \quad \begin{pmatrix} F\sharp & (A) \\ (G)/0 & [D] \\ [(D)] & [(D)] \end{pmatrix}$$

$\begin{matrix} ① \\ ② \\ \vee \end{matrix}$ $\begin{matrix} ③ & ③ \\ \wedge & \wedge \end{matrix}$ $\begin{matrix} ② \\ \vee \end{matrix}$

27

Figure H.2 (continued) : Matrix analysis “Hicaz Mandıra” arranged by Ahmet Ozan Baysal.

$Dmaj7$ $E(alt)No3+(7)$ $Gno3$ Bm $Bm7$ $C\sharp^7$
 $\begin{pmatrix} F\sharp \\ -3 \\ [(D)] \end{pmatrix}$ $\begin{pmatrix} [E] \\ -1 \\ (D) \end{pmatrix}$ $\begin{pmatrix} D \\ [(G)]/1 \\ (D) \end{pmatrix}$ $\begin{pmatrix} D \\ [-1] \\ (D) \end{pmatrix}$ $\begin{pmatrix} (A) \\ B \\ (D) \end{pmatrix}$ $\begin{pmatrix} [C\sharp] \\ -1 \\ -2 \end{pmatrix}$

30

$Bbmaj7$ Gm $F\sharp m$ $Esus4$ $Dsus4$ D $Dsus4$ $Asus4$
 $\begin{pmatrix} [Bb] \\ 1 \\ (-1) \end{pmatrix}$ $\begin{pmatrix} Bb \\ [(-1)] \\ (-1) \end{pmatrix}$ $\begin{pmatrix} (A) \\ C\sharp \\ [-2] \end{pmatrix}$ $\begin{pmatrix} (A) \\ B \\ [-2] \end{pmatrix}$ $\begin{pmatrix} (A) \\ (0) \\ [(0)] \end{pmatrix}$ $\begin{pmatrix} (A) \\ F\sharp \\ [(D)] \end{pmatrix}$ $\begin{pmatrix} (A) \\ (0) \\ [(0)] \end{pmatrix}$ $\begin{pmatrix} E \\ 0 \\ [0] \end{pmatrix}$

33

$Asus4$ $F\sharp m7$ $A7$ $Bno3(min7)$
 $\begin{pmatrix} E \\ 0 \\ [0] \end{pmatrix}$ $\begin{pmatrix} E \\ -2 \\ 0 \end{pmatrix}$ $\begin{pmatrix} G/[F\sharp] \\ C3 \\ - \end{pmatrix}$ $\begin{pmatrix} C\sharp/[(G)] \\ -1 \\ - \end{pmatrix}$ $\begin{pmatrix} (B) \\ C6 \\ - \end{pmatrix}$ $\begin{pmatrix} G/(A)/F\sharp \\ - \end{pmatrix}$

36

G $D9$ Gm $E9$ $Em7$ A
 $\begin{pmatrix} D/[(G)] \\ C \\ -1 \end{pmatrix}$ $\begin{pmatrix} (A) \\ C \\ C7/4 \end{pmatrix}$ $\begin{pmatrix} A/F\sharp \\ 0/0 \\ [0]/- \end{pmatrix}$ $\begin{pmatrix} Bb/[(G)] \\ [2] \\ [1]/(-1) \end{pmatrix}$ $\begin{pmatrix} G\sharp \\ C8 \\ - \end{pmatrix}$ $\begin{pmatrix} F\sharp \\ - \end{pmatrix}$ $\begin{pmatrix} G \\ [-1]/-2 \end{pmatrix}$ $\begin{pmatrix} (D) \\ -1 \\ 2 \end{pmatrix}$ $\begin{pmatrix} E \\ -1 \\ C5 \end{pmatrix}$ $\begin{pmatrix} [A] \\ - \end{pmatrix}$

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Figure H.2 (continued) : Matrix analysis “Hicaz Mandıra” arranged by Ahmet Ozan Baysal.

G- F-E-D Tetrachord D-C#-B \flat Trichord G Nikriz Pentachord

$$\begin{pmatrix} - & G/E \\ G\# & C9/6 \\ 2 & 0/0 \\ - & -/- \end{pmatrix} \quad \begin{pmatrix} B\flat & D \\ - & C4 \\ - & 1 \end{pmatrix} \quad \begin{pmatrix} C\#/(A) \\ -1/(G) \\ (D) \end{pmatrix}$$

①
②
③ ② ① ③ ② ① ③ ① ② ① ③ ② ③ ① ② ③ ② ② ③ ① ③ ①

56

F-E-D-C# Tetrachord G Nikriz Pentachord D9(maj7) G Nikriz Pentachord

$$\begin{pmatrix} F \\ 1/-2 \\ (D) \end{pmatrix} \quad \begin{pmatrix} C\#/(A) \\ -1/2/(G) \\ (D) \end{pmatrix} \quad \begin{pmatrix} [D]/E & F\# \\ -/-1 & C4/2 \\ -/- & [(D)] \end{pmatrix} \quad \begin{pmatrix} C\#/(A) \\ -1/(G) \\ (D) \end{pmatrix}$$

③
③ ② ① ② ③ ② ② ① ② ③ ② ③ ② ③ ① ② ① ② ③ ① ③ ①

60

F-E-D-C#-B \flat -A Hexachord Dm Gm Dsus4 Gno3 Gno3

$$\begin{pmatrix} F/(A) \\ 1 \\ (D)/3/0/ \end{pmatrix} \quad \begin{pmatrix} A/(A) \\ -2 \\ -1/[0] \end{pmatrix} \quad \begin{pmatrix} B\flat/A \\ [(G)] \\ (D) \end{pmatrix} \quad \begin{pmatrix} A \\ 0/(G) \\ [(D)] \end{pmatrix} \quad \begin{pmatrix} [G] \\ [2]/[(G)] \\ (D) \end{pmatrix} \quad \begin{pmatrix} D \\ [(G)] \\ [0]/3/2/ \end{pmatrix}$$

③ ② ① ① ③ ① ③ ③ ② ② ①

64

G(alt)sus4 Cno3(min7) C#-B \flat -A Trichord Dno3 A Dno3 Gno3

$$\begin{pmatrix} C\# \\ [(G)]/-1/-2 \\ [1] \end{pmatrix} \quad \begin{pmatrix} [C] \\ 0/(-3) \\ 2/(-3) \end{pmatrix} \quad \begin{pmatrix} C\#/(A) \\ (G)/-1 \\ (D) \end{pmatrix} \quad \begin{pmatrix} [D]/(A) \\ [2] \\ [(D)] \end{pmatrix} \quad \begin{pmatrix} E/[(A)] \\ -1 \\ (D) \end{pmatrix} \quad \begin{pmatrix} (A) \\ [D] \\ (D) \end{pmatrix} \quad \begin{pmatrix} D \\ [(G)] \\ [0]/3/2/ \end{pmatrix}$$

③ ② ② ② ① ③ ③ ③ ② ② ①

68

Figure H.2 (continued) : Matrix analysis “Hicaz Mandıra” arranged by Ahmet Ozan Baysal.

$G(alt)sus4$ $Cno3(min7)$ $Nikriz\ Tetrachord$ $Ano3$ $Dsus4$ $Ano3$ $Dsus4$ $Gno3$

$\begin{pmatrix} C\# \\ [(G)]/-1/-2 \\ [1] \end{pmatrix}$ $\begin{pmatrix} [C] \\ 0/(-3) \\ 2/(-3) \end{pmatrix}$ $\begin{pmatrix} C\#/(A) \\ (G)/-1 \\ (D) \end{pmatrix}$ $\begin{pmatrix} [(A)] \\ [2] \\ 2 \end{pmatrix}$ $\begin{pmatrix} (A) \\ (G) \\ [(D)] \end{pmatrix}$ $\begin{pmatrix} [(A)] \\ [2] \\ 2 \end{pmatrix}$ $\begin{pmatrix} (A) \\ (G) \\ [(D)] \end{pmatrix}$ $\begin{pmatrix} D \\ [(G)] \\ [0]/3/2 \end{pmatrix}$

③ ② ② ② ③ ① ② ① ② ③ ①

72

$G(alt)sus4$ $Cno3(min7)$ $C\#-B\flat-A\ Trichord$ $Dno3$ A $Dno3$ $Gno3$

$\begin{pmatrix} C\# \\ [(G)]/-1/-2 \\ [1] \end{pmatrix}$ $\begin{pmatrix} [C] \\ 0/(-3) \\ 2/(-3) \end{pmatrix}$ $\begin{pmatrix} C\#/(A) \\ (G)/-1 \\ (D) \end{pmatrix}$ $\begin{pmatrix} [D]/(A) \\ [2] \\ [(D)] \end{pmatrix}$ $\begin{pmatrix} E/[(A)] \\ -1 \\ (D) \end{pmatrix}$ $\begin{pmatrix} (A) \\ [D] \\ (D) \end{pmatrix}$ $\begin{pmatrix} D \\ [(G)] \\ [0]/3/2 \end{pmatrix}$

③ ② ② ② ① ③ ① ③ ② ② ①

76

$G(alt)sus4$ $Cno3(min7)$ $Nikriz\ Tetrachord$ $Ano3$ $Dsus4$ $Ano3$ $Dsus4$

$\begin{pmatrix} C\# \\ [(G)]/-1/-2 \\ [1] \end{pmatrix}$ $\begin{pmatrix} [C] \\ 0/(-3) \\ 2/(-3) \end{pmatrix}$ $\begin{pmatrix} C\#/(A) \\ (G)/-1 \\ (D) \end{pmatrix}$ $\begin{pmatrix} [(A)] \\ [2] \\ 2 \end{pmatrix}$ $\begin{pmatrix} (A) \\ (G) \\ [(D)] \end{pmatrix}$ $\begin{pmatrix} [(A)] \\ [2] \\ 2 \end{pmatrix}$ $\begin{pmatrix} (A) \\ (G) \\ [(D)] \end{pmatrix}$

③ ② ② ② ③ ③ ② ① ② ①

80

$E\flat maj7$ $E\phi7$ $E\flat7$ $E\flat7$ $Nikriz\ Hexachord$

$\begin{pmatrix} [E\flat] \\ (G)/1 \\ (D)/-1 \end{pmatrix}$ $\begin{pmatrix} [E] \\ 0 \\ 1 \end{pmatrix}$ $\begin{pmatrix} A \\ C5 \\ 0 \\ [2] \end{pmatrix}$ $\begin{pmatrix} [E\flat] \\ (G)/0 \\ -1 \end{pmatrix}$ $\begin{pmatrix} [E\flat] \\ 0 \\ 2 \end{pmatrix}$ $\begin{pmatrix} A \\ C6 \\ 0/(G) \\ [1] \end{pmatrix}$ $\begin{pmatrix} B\flat \\ 0 \\ 2/1/(-1) \end{pmatrix}$ $\begin{pmatrix} E/C\# \\ C6/3 \\ -1/-1/(G) \\ -/- \end{pmatrix}$

② ① ③ ② ② ① ③ ② ③ ① ③ ① ② ① ③ ②

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Figure H.2 (continued) : Matrix analysis “Hicaz Mandıra” arranged by Ahmet Ozan Baysal.

CURRICULUM VITAE



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- **B.Sc.** : 2010, Necmettin Erbakan University, Ahmet Keleşoğlu Faculty of Fine Arts Education, Music Department
- **M.Sc.** : 2013, Istanbul Technical University, Center for Advanced Studies in Music (MIAM), Music Department (Ethnomusicology Concentration Area)

PROFESSIONAL EXPERIENCE AND REWARDS:

- December 2013. Solo Bağlama Recital, Center for Advanced Studies in Music (MIAM), Istanbul, Turkey.
- April 2014. Solo Performance, ITU Bağlama Günleri, Istanbul, Turkey.
- October 2014. Solo Performance, Identity Conference-Evening Concert, Istanbul, Turkey.
- December 2015. Solo Performance, Müzik Köyü Concert, Avcılar Kültür Merkezi, Istanbul, Turkey.
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- July 2016. Group&Orchestra Performance, Aix-en-Provence Festival-Mediterranean Youth Orchestra, La Cite de la Savine, Marseille, France.
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- July 2016. Group&Orchestra Performance, Aix-en-Provence Festival-Mediterranean Youth Orchestra, Unicredit Pavillion, Milan, Italy.
- January 2017. Artist in Residence for Workshop, Relay Musicians and Singers: Comprehensive Module, Aix-en-Provence, France.
- March 2017. Artist in Residence for Workshop, Relay Musicians and Singers: Project Development Module, Aix-en-Provence, France.
- April 2017. Solo Performance, CRR II. Akademik Bağlama Günleri, Istanbul, Turkey.
- July 2017. Orchestra Performance, BAU Symphonic Orchestra, Bir Efsanedir Anadolu Concert, Beylikdüzü Yaşam Vadisi, Istanbul, Turkey.
- November 2017. Artist in Residence for Workshop, Building Participatory Project, Dutch National Opera, Amsterdam, Netherlands.
- December 2017. Orchestra Performance, MIAM Modern Music Ensemble, Mavi Concert, Istanbul, Turkey.
- February 2018. Artist in Residence for Workshop, Relay Musicians and Singers: Comprehensive Module, Aix-en-Provence, France.
- June 2018. Orchestra Performance, Parade Orfeo&Majnun Opera Outreach Concert, Cours Mirabeau, Aix-en-Provence, France.
- August 2018, Artist in Residence for Workshop, Müzik Köyü: Bağlama Workshop, Fethiye, Muğla, Turkey.
- October 2018. Project&Orchestra Performance, Mübadele/The Exchange”, Istanbul, Turkey. [Outreach Music Project developed by Ahmet Ozan Baysal, Recep Gül, and Alexandros Charkiolakis; supported by Aix-en-Provence Festival (France), MEDINEA Community (France), İTÜ MIAM (Turkey), European Union Delegation to Turkey, ITU MIAM (Turkey), The Friends of Music Society (Greece), and Lozan Mübadilleri Vakfı (Turkey)].
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- March 2019. Artist/Composer in Residence for Workhsop, Opera Deci-Dela, Aix-en-Provence, France.
- April 2019. Orchestra Performance, Concert Organization of International Music and Science Symposium, Trump Towers, Istanbul, Turkey.
- June 2019. Group Performance&Composer in Residence, Opera Deci-Dela, Aix-en-Provence, France.
- August 2019. Group&Orchestra Performance, Nuoro Jazz Festival, Nuoro, Sardinia, Italy.

PUBLICATIONS, PRESENTATIONS AND PATENTS ON THE THESIS:

- **Baysal A. O., Ayyıldız S.** 2016: New Performance Approaches to Urban Bağlama Music: Theoretical Suggestions towards Traditional Şelpe Techniques of Bağlama, Fourth International Conference on Analytical Approaches to World Music (AAWM 2016), June, 8-11, 2016, New York, NY, U.S.A..
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OTHER PUBLICATIONS AND PRESENTATIONS:

- **Baysal, A. O.** 2013: Two Directions of Urban Folk Music in Turkey: Authenticity and Popularity Concerns, Müzik Biliminde Gençler Buluşması III, October, 4, 2013, Istanbul, Turkey.
- **Baysal, A. O.** 2014: Reflections of a Different Shadow in the Cities' Cultural Wall: Emergence and Development of the Arabesk as a New Identity Symbol of Migrated Sub-Urban Population of Turkey, Identities Conference: An Interdisciplinary Approach, October, 23-25, 2014, Istanbul, Turkey.