Extended Techniques for the Classical Guitar: A Guide for Composers

DMA Document

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The primary purpose this document serves is to give composers writing for the guitar a reference tool to guide them in using extended techniques for the guitar. This document will aid the composer by giving examples of a variety of different techniques possible on the guitar, as well as how to notate these techniques. The examples used in this document are limited to compositions professionally published for the classical guitar.
Dedicated to

Amy Diane Lunn
My Children, Andrew and Samuel Lunn
My Parents, John and Sheryl Lunn
My Mother-in-Law, Judith Schutter
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# TABLE OF CONTENTS

Abstract.......................................................................................................................... ii

Dedication....................................................................................................................... iii

Acknowledgments........................................................................................................ iv

Vita.................................................................................................................................... v

List of Figures ................................................................................................................ viii

List of Examples ............................................................................................................. x

Introduction..................................................................................................................... 1

Chapter 1: The Left Hand ............................................................................................. 5
  1.1 Glissandi ................................................................................................................. 5
  1.2 Left Hand Muting Over Strings ............................................................................ 13
  1.3 Left Hand muting Over the Soundhole ................................................................. 15
  1.4 Vibrato ................................................................................................................... 17
  1.5 Bi-Tones ................................................................................................................ 20

Chapter 2: The Right Hand ......................................................................................... 23
  2.1 Right Hand Glissando ........................................................................................... 23
  2.2 Pizzicato ............................................................................................................... 24
  2.3 Plucking ................................................................................................................. 26
  2.4 Right Hand Tapping ............................................................................................ 27
  2.5 Right Hand Tremolo ......................................................................................... 29

Chapter 3: Percussive Sounds ..................................................................................... 31
  3.1 String Percussion ............................................................................................... 31
  3.2 Tambora ............................................................................................................... 35
  3.3 Body Percussion ............................................................................................... 39

Chapter 4: With Objects .............................................................................................. 44
Chapter 5: Borrowed From Other Traditions............................................................... 54
   5.1 The Rasgueado.................................................................................................... 54
   5.2 Scordatura......................................................................................................... 58

Chapter 6: Miscellaneous Techniques....................................................................... 63

Appendix A: Natural and Artificial Harmonics......................................................... 67
   A.1 Natural Harmonics ............................................................................................. 67
   A.2 Artificial Harmonics ......................................................................................... 71

Appendix B: The Tremolo.......................................................................................... 73

Appendix C: A Summary of Musical Symbols ......................................................... 77

Appendix D: Selected Discography ......................................................................... 79

Works Cited .............................................................................................................. 81

Bibliography ............................................................................................................. 86
LIST OF FIGURES

Figure 1.1 Notes limited to the bottom three strings ................................................................. 5
Figure 1.2 Normal vibrato in Las Seis Cuerdas by Alvaro Company ................................. 18
Figure 1.3 Slow vibrato in Las Seis Cuerdas by Alvaro Company ....................................... 18
Figure 1.4 Rapid vibrato in Las Seis Cuerdas by Alvaro Company ....................................... 18
Figure 1.5 No vibrato in Las Seis Cuerdas by Alvaro Company ........................................... 18
Figure 1.6 Bi-tones on the guitar ................................................................................................ 21
Figure 2.1 The symbol Leo Brower uses to notate a right hand glissando in La Espiral Eterna ................................................................................................................................. 24
Figure 2.2 Bartók Pizzicato ........................................................................................................... 25
Figure 2.3 Symbol Alvaro Company uses in Las Seis Cuerdas to instruct the performer to pluck the string ............................................................................................................................. 26
Figure 3.1 Tambora with the palm of the hand in Sonata by Alberto Ginastera ................. 36
Figure 3.2 Tambora with the thumb in Sonata by Alberto Ginastera ..................................... 37
Figure 3.3 Tambora with a closed fist in Sonata by Alberto Ginastera ................................ 38
Figure 3.4 Percussion diagram in Royal Winter Music by Hans Werner Henze .................. 42
Figure 3.5 “Worry Knot” from 11 Etudes by Benjamin Verdery .............................................. 42
Figure 5.1 Drop-D Tuning .......................................................................................................... 58
Figure 5.2 Scordatura in Koyunbaba by Carlo Domeniconi .................................................... 59
Figure 5.3 Drone in the 4th Movement of *Koyunbaba* by Carlo Domeniconi. Measures 1-2 ........................................................................................................................................ 61

Figure 5.4 The melody in the 4th Movement of *Koyunbaba* by Carlo Domeniconi. Measures 1-2 ........................................................................................................................................ 61

Figure A.1 Natural harmonics at the 5th, 7th and 12th frets ........................................ 67

Figure A.2 Natural harmonics at the 3rd, 4th, and 9th frets ........................................ 68

Figure A.3 Harmonic possibilities from playing harmonics from different frets at the same time ................................................................. 69

Figure A.4 Renotation of measures 32 and 33 from *Etude No. 1* by Heitor Villa-Lobos .................................................................................................................. 71

Figure B.1 Different ways to do the tremolo .................................................................. 73
LIST OF EXAMPLES

Example 1.1 Glissando of a minor third in *A Horse, His Name Was Hunry*
*Fencewaver Walkins* by David Bedford., Rehearsal letter E................................ 6

Example 1.2 Glissando to a specific pitch. *Etude No. 1* for solo guitar by
Jacques Charpentier. Page 5, System 9 ................................................................. 7

Example 1.3 *Dialoge für Gitarre und Percussionsklänge* by Siegfried Fink,
Movement 1, System 1 ......................................................................................... 7

Example 1.4 *Etude No. 1* by Jacques Charpentier, Page 5, System 3 .................. 8

Example 1.5 Highest possible pitch notated in *Synchronisms No. 10* for
guitar and tape by Mario Davidovsky. Measure 240 ........................................... 8

Example 1.6 Notating highest possible pitch in the 2nd movement, “Scherzo,”
from *Sonata*, by Alberto Ginastera. Measure 88 .................................................. 9

Example 1.7 String Bending in *Dreammusic* by Thomas Wilson. Measure 1.......... 10

Example 1.8 String Bending in *Dreammusic* by Thomas Wilson. Measure 2.......... 10

Example 1.9 String Bending in the 2nd movement, “Serenading a Pair of
Giffly Nymphs (Drunk of Night),” from *Serenades of the Unicorn*
by Einojuhani Rautavaara. Measure 13 ................................................................. 11

Example 1.10 Bending a string found in “Chicago, IL,” from Benjamin
Verdery’s *Some Towns and Cities*. Measure 48 .................................................. 11

Example 1.11 Bending two at the same time in “Chicago, IL,” from
*Some Towns and Cities* by Benjamin Verdery. Measure 47 ......................... 12

Example 1.12 Ghost bend in “Greed” from *11 Etudes* by Benjamin Verdery.
Measure 2 ........................................................................................................... 12
Example 1.13 Tuning a string “mid-flight” from D down to C in Simple Gifts arranged for guitar by Ronald Ravenscroft, B.J. Sutherland and John Sutherland. Measures 64-65 ........................................ 13


Example 1.15 Muting in “New York, NY,” from Some Towns and Cities by Benjamin Verdery. Measure 41............................................................. 14

Example 1.16 Muting in La Espiral Eterna by Leo Brouwer. Page 7, System 4........................................................................................................ 15

Example 1.17 Notes over the soundhole in the 2nd movement, “Scherzo,” from Sonata by Alberto Ginastera. Measure 88................................................. 16

Example 1.18 Notes over the soundhole in Memorias de “El Cimarrón” by Hans Werner Henze. Page 10, System 8..................................................... 16

Example 1.19 Vibrato in Seis Pinceladas by Jesus Villa-Rojo. 6th Movement. Measure 6..................................................................................................... 17

Example 1.20 Mixed vibrato in Las Seis Cuerdas by Alvaro Company. Measures 23-24 ..................................................................................................... 19

Example 1.21 Mixed vibrato in Las Seis Cuerdas by Alvaro Company. Measure 10........................................................................................................ 19

Example 1.22 Mixed vibrato in Las Seis Cuerdas by Alvaro Company. Measure 2........................................................................................................ 19

Example 1.23 Bi-tones in “Start Now” from 11 Etudes by Benjamin Verdery. Measure 2..................................................................................................... 22

Example 2.1 Right hand glissando in La Espiral Eterna by Leo Brouwer. Page 6, System 1 ............................................................. 23

Example 2.2 Bartók pizzicato in Movement VI of Seis Pinceladas by Jesus Villa-Rojo. Measure 10 ............................................................. 25

Example 2.3 Extended pizzicato in La Espiral Eterna by Leo Brouwer. Page 6, System 2 .................................................................................... 25

Example 2.4 Plucking twelve frets higher in Las Seis Cuerdas by Alvaro Company. Page 8, system 2..................................................................... 26
Example 2.5 Right hand tapping in “Chicago, IL.” from *Some Towns and Cities* by Benjamin Verdery. Measure 67 .......................................................... 27

Example 2.6 Right hand tapping in *Sequenza XI* by Luciano Berio. Page 4, system 2 .............................................................................................................. 28

Example 2.7 Right hand tapping in *La Espiral Eterna* by Leo Brouwer. Page 8, System 1  .................................................................................................................. 28

Example 2.8 Thumb tremolo in the 3rd movement, “Serenading the Beauty Unobtainable (Too Far in Time), from *Serenades of the Unicorn* by Einojuhani Rautavaara .................................................. 29

Example 2.9 Thumb pad tremolo in “VII. Close,” from *Shadows* by William Albright. Page 21, system 3 ........................................................................................................ 29

Example 3.1 Right hand percussive sounds in movement 4, “Spirits,” from *Shadows* by William Albright. Page 11, System 5 ........................................................................ 31

Example 3.2 slapping string in “Jumping Cholla” from *A Whisper in the Desert* by Brad Richter. Measure 1 ................................................................. 32

Example 3.3 slapping string in “Jumping Cholla” from *A Whisper in the Desert* by Brad Richter. Measure 45 ................................................................. 33

Example 3.4 Crossing strings in *Jota* by Francisco Tárrega. Measures 308-309 ........................................................................................................ 33

Example 3.5 Crossing strings in “XI- Home is Here,” from *11 Etudes* by Benjamin Verdery. Measure 33 .................................................................................. 34

Example 3.6 “Home is Here,” from *11 Etudes* by Benjamin Verdery. Measure 32 ........................................................................................................ 34

Example 3.7 Tambora in *Las Seis Cuerdas* by Alvaro Company. 4th Movement, measure 10 ................................................................. 35

Example 3.8 Tambora in *November Memories* by Reginald Smith Brindle. Measure 25 ........................................................................................................ 36

Example 3.9 Tambora with the palm open in *Sonata* by Alberto Ginastera. 1st Movement, “Esordio.” Page 2, system 5 ........................................... 36

Example 3.10 Tambora with the flesh of the thumb in the first movement, “Esordio,” from *Sonata* by Alberto Ginastera. Page 2, System 1 ............... 37
Example 3.11 Tambora with the clenched fist in the fourth movement, “Finale,” from *Sonata* by Alberto Ginastera. Measure 2 ........................................... 38

Example 3.12 Tambora tremolando in *Shadows* by William Albright. 3rd Movement, “Nights,” measure 1 .................................................................... 39


Example 3.14 Golpes in *Shadows* by William Albright. 2nd Movement, “Tierra,” Page 7, system 6 ...................................................................... 40

Example 3.15 Percussion on the body of the guitar in *Four Poems of Garcia Lorca* by Reginald Smith Brindle. 3rd Movement, “Tierra Seca,” measures 1-2 ........................................... 41

Example 3.16 Tapping the body of the guitar in *Sonata* by Alberto Ginastera. 2nd Movement, “Scherzo,” measure 86 ................................................... 41

Example 3.17 Hitting various parts of the guitar in *Royal Winter Music* by Hans Werner Henze. Movement 1, “Gloucester,” Measure 99 ...................... 41

Example 3.18 Hitting the wood of the guitar in “III- Worry Knot” from *11 Etudes* by Benjamin Verdery. Measures 35-36 ................................................. 42

Example 3.19 Tremolo on the wood of the guitar in *A Sad Humoresque* by Phyllis Tate. Measure 38 ................................................................. 43

Example 4.1 Bouncing a spoon on strings in *A Horse, His Name was Hunry Fencewaver Walkins* by David Bedford. Rehearsal K and L, page 26 ................................................................. 44

Example 4.2 Bouncing a spoon on strings in *Serenades of the Unicorn* by Einojuhani Rautavaara. 2nd Movement, “Serenading a Pair of Giggly Nymphs (Drunk of Night).” Measure 1 ........................................ 45

Example 4.3 2nd Movement, “Serenading a Pair of Giggly Nymphs (Drunk of Night)” from *Serenades of the Unicorn* by Einojuhani Rautavaara. Measures 2-4 ................................................ 45

Example 4.4 Using a slide in “Keanae, HI” from *Some Towns and Cities* by Benjamin Verdery. Measures 19-21 ....................................................... 46

Example 4.5 “Keanae, HI,” from *Some Towns and Cities* by Benjamin Verdery. Measure 15 ................................................................. 46
Example 4.6 Matchsticks in *Piece with Clocks* by Nikita Koshkin. Page 3, system 1

Example 4.7 Matchstick in “Clock Strikes Midnight” from *Three Little Nightmares* by Brad Richter. Measures 1-2

Example 4.8 Folded newspaper under the strings in *A Horse, his Name was Hunry Fencewaver Walkins* by David Bedford. Rehearsal J

Example 4.9 Using a cork in between the strings in *Piece with Clocks* by Nikita Koshkin. Page 15, system 2

Figure 4.10 Clothespin in “I felt a Funeral in My Brain” from *Three Little Nightmares* by Brad Richter. Measures 1-2

Example 4.11 Clothespin in “I felt a Funeral in My Brain” from *Three Little Nightmares* by Brad Richter. Measures 5-6

Example 4.12 Playing the guitar with a bow in *A Horse, his Name was Hunry Fencewaver Walkins* by David Bedford. Rehearsal L

Example 4.13 Playing the guitar with a bow in *Memorias de “El Cimarrón”* by Hans Werner Henze. 1st Movement, system

Example 4.14 Plucking the guitar with a pick in *A Horse, his Name was Hunry Fencewaver Walkins* by David Bedford. Measure 5

Example 4.15 Tremolo with a pick from the 1st movement, “Open,” from *Shadows* by William Albright. Page 4, system 1

Example 4.16 Con sordino in *Piece with Clocks* by Nikita Koshkin. Page 6, system 1

Example 5.1 Rasgueado from the 7th movement, “Tarantas,” from *Shadows* by William Albright. Measure 1

Example 5.2 Rasgueado in *Couleurs* by Edith Lejet. Measure 13

Example 5.3 Rasgueado from the 3rd movement, “De Velocite,” from *3 Preludes pour “Fatum”* by Charles Chaynes. Measure 5

Example 5.4 Rasgueado in *Sequenza XI* by Luciano Berio. Page 1, system 3

Example 5.5 Rasgueado in *Sequenza XI* by Luciano Berio. Page 1, system 2

Example 5.6 Rasgueado in *Sequenza XI* by Luciano Berio. Page 1, system 4
Example 5.7 Rasgueado in *Sequenza XI* by Luciano Berio. Page 1, system 3 .......... 58

Example 5.8 Scordatura in *Koyunbaba* by Carlo Domeniconi. 1st Movement, measures 1-3 ........................................................................................................ 60

Example 5.9 Drones in the 4th Movement of *Koyunbaba* by Carlo Domeniconi. Measures 1-2.................................................................................................................. 60

Example 5.10 Scordatura in the third movement, “He’s Gone Away,” from *Mountain Songs for Flute and Guitar* by Robert Beaser. Measures 1-2.............. 61

Example 6.1 Strumming behind the nut in *Sonata* by Alberto Ginastera. 2nd Movement, “Scherzo,” measures 14-16............................................................. 63

Example 6.2 Playing above the nut in *Piece with Clocks* by Nikita Koshkin. Page 15, system 1........................................................................................................ 64

Example 6.3 Piece with Clocks by Nikita Koshkin. Page 15, system 1 .................. 64

Example 6.4 Playing above the nut in *Piece with Clocks* by Nikita Koshkin. Page 15, system 2 ........................................................................................................ 65

Example 6.5 Playing above the nut in “Something Softly our of Silence” from *A Whisper in the Desert* by Brad Richter. Measure 1......................... 65

Example 6.6 Both hands strumming in the 4th movement, “Having a Grand Time (With Some Scythian Centaurs), from *Serenades of the Unicorn* by Einojuhani Rautavaara. Measures 3 ........................................ 66

Example A.1 Wilfred Josephs harmonic chord at the 7th fret in *Toccata*. Measure 13 ..................................................................................................................... 69

Example A.2 Natural harmonics is *Sequenza XI* by Luciano Berio. Page 3, system 3 ..................................................................................................................... 70

Example A.3 Harmonics mixed with naturally plucked notes in *Sequenza XI* by Luciano Berio. Page 1, system 1 ...................................................................... 70

Example A.4 Natural harmonics in *Etude No. 1* by Heitor Villa-Lobos. Measures 32-33 ........................................................................................................... 70

Example A.5 Natural harmonics used to form melodies in “Now you see it, now you don’t, now you do,” from *11 Etudes* by Benjamin Verdery. Measures 1-2 ........................................................................................................ 71
Example A.6 Artificial harmonics in Movement I from *Five Bagatelles* by William Walton. Measures 81-83 ................................................................. 72

Example A.7 Arpeggiating artificial harmonics in “Milwaukee, WI,” from *Some Towns and Cities* by Benjamin Verdery. Measure 2................................. 72

Example B.1 Tremolo in *Recuerdos de la Alhambra* by Francisco Tárrega. Measures 1-2......................................................................................... 74

Example B.2 Tremolo in “Starry Night on the Beach (with federales),” from *A Whisper in the Desert* by Brad Richter. Measures 9-10........................................ 74

Example B.3 Tremolo in *Etude No. 7* by Heitor Villa-Lobos. Measure 49...................... 75

Example B.4 Tremolo in *Sequenza XI* by Luciano Berio. Page 2, system 2 ................. 75

Example B.5 Tremolo in *Sequenza XI* by Luciano Berio. Page 4, system 1 ............... 76
INTRODUCTION

The purpose of this document is to give composers a reference tool in which newly developed instrumental techniques common to the classical guitar are discussed and explained. In addition, this document will discuss ways in which the composer might notate these techniques to give the performer the best idea of the composer’s intent. In cases where there are multiple examples of notating the same technique I will discuss the merits of each and discuss the issue from the performer’s perspective.

Throughout the twentieth century composers have used extended techniques to increase the expressive range of instruments. There are a variety of books composers can turn to assist them in using extended techniques. For example, The Contemporary Violin by Patricia and Allen Strange, The Modern Trombone by Stuart Dempster and The Contemporary Contrabass by Bertram Turetzky. This document is meant to help fill the void of literature dealing with extended techniques for the guitar.

An extended technique uses a non-traditional way to produce sound from an instrument. For the classical guitar, the traditional way to produce sound is to fret the notes with the left hand and to pluck the notes with the right hand. This traditional approach to the instrument can be found in the guitar music from the 19th century. This includes composers such as Fernando Sor (1778-1839), Mauro Giuliani (1781-1829), and
Francisco Tárrega (1852-1909). It should also be noted that many 20\textsuperscript{th} century and present day composers continue to use the instrument in a traditional way.

Most of the examples of extended technique for the guitar cited by this document are found by composers that worked in the latter half of the 20\textsuperscript{th} Century up to the present day. These new techniques include percussion effects, new glissando techniques, muted sounds and prepared guitars. In addition to new techniques, an extended technique also includes using a traditional technique in a new way. For example, artificial harmonics are commonly used before 1900, but quickly arpeggiating chords using only artificial harmonics would be using artificial harmonics in a different way (Example 1).


Most of the examples of extended technique for the guitar cited by this document are found by composers that worked in the latter half of the 20\textsuperscript{th} Century up to the present day.

For the sake of creating boundaries this document is limited to music that is published and composed specifically for the classical guitar. The electric guitar is not included even though composers such as Steven Mackey and George Crumb have
successfully composed works for this instrument and in some cases have included extended techniques.  

Chapter one discusses techniques involving the left hand. This includes glissandi, vibrato effects and left hand muting. Chapter two discusses techniques involving the right hand, such as right hand tapping and pizzicato. Percussive effects are covered in chapter three and includes striking the strings. Chapter four, titled, “With Objects,” discusses using various objects to alter the sound of the instrument. This includes preparing the guitar as well as using different objects to activate the string. Chapter five discusses techniques incorporated from other traditions. This includes discussing the rasgueado technique borrowed from the Flamenco tradition and using alternate tunings to try and get the flavor of other traditions, such as Middle Eastern Music. Chapter six covers techniques not easily categorized. The first two appendices are devoted to techniques that are not necessarily new techniques, but are nonetheless important techniques a composer for the guitar should be aware of. Appendix A discusses natural and artificial harmonics, and appendix B discusses the tremolo technique. Appendix C is a summary of musical symbols and appendix D is a discography of recordings commercially available of the examples used in this document.

I would like to mention a few books that were important in helping me with this document. The first is *The Contemporary Guitar* by John Schneider. This book is a thorough document on how a guitar is built, acoustics of the instrument, and various traditional and non-traditional techniques. *The Contemporary Violin* by Patricia and Allen Strange discusses extended techniques in the violin literature. This book was an

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1 An example that uses the electric guitar would be *Songs, Drones, and Refrains* of Death by George Crumb.
important source for organizational ideas about this document as well as terms used for
certain techniques. Finally, *A Composer’s Desk Reference for the Classic Guitar* by
Chris Kachian was a helpful guide in organizing this document. Although Kachian only
superficially covers a few extended techniques, the conciseness of his writing was used as
a model in this document.

Finally, I decided that the examples should appear as the composers/publishers
intended them. All of the examples used in this document are copies from the original.
The examples are all in the treble clef even if there is not a clef sign used in the example.
In standard notation practice, a clef sign is used at the beginning of a system. If an
example was used from the middle of a staff, a clef sign does not appear.
CHAPTER I

THE LEFT HAND

1.1 Glissandi

The Harvard Dictionary of Music defines a glissando as, “a continuous or sliding movement from one pitch to another.”¹ There are two basic types of glissandi that can be performed on the guitar. The first is called the fret glissandi.² This involves the left hand finger sliding up or down the string from one note to the next. The problem with the fret glissandi is that no matter how fast the performer plays the glissando, the pitch is still moving by discrete half-steps. Due to the frets, a slide from one fret to the next will not be seamless, but instead, there will be a distinctive half-step shift from one fret to the next. The glissandi can occur anywhere within the range of the guitar but the composer should be aware that a glissando on the bottom three strings might have some additional noise because these strings are wrapped with steel (Figure 1.1).

Figure 1.1 Notes limited to the bottom three strings.

The second type of glissando is the bending glissando. Bending a string is a common technique found in Blues and Rock and Roll style guitar playing, but does not appear in the classical guitar literature until the 20th century. The bending glissandi allows the performer to move up a half or whole step seamlessly. Bending the string allows the performer to move from one half-step to the next without the audible step associated with the fret glissando. Typically the bend will be up in pitch although the performer could have the bend setup before striking the string, then releasing the string. This is referred to in Rock guitar as a ghost bend. The interval limit for a pitch glissando is roughly a major second on the classical guitar because of the loose tension of the strings.

**Fretted Glissandi**

![Example 1.1 Glissando of a minor third in A Horse, His Name Was Hunry Fencewaver Walkins by David Bedford., Rehearsal letter E.](image)

David Bedford uses fretted glissandi in his *A Horse, His Name Was Hunry Fencewaver Walkin* written for guitar, flute, clarinet, violin, cello, double bass and piano. In this example, Bedford has the guitarist glissando roughly the span of a minor third, or three frets on the guitar. In addition, Bedford notates the direction of the glissando by using up and down lines that tell the guitarist whether the glissando should go up or down.

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3 Ibid., 143.
in pitch. Bedford mentions that the glissando should be “about” a minor 3rd. Due to the frets, this interval will not be an approximation as indicated by the term “about”. If it is to low it will be a major 2nd and if to high it will be a major 3rd.


In Example 1.2, Jacques Charpentier, in his Etude No.1 for solo guitar, ends this composition with a large glissando that covers the complete range of the fifth and sixth strings. It should be noted that starting an ascending glissando on an open string, the low E string in Example 1.2, does not pose a problem because the mere act of the left hand finger hitting the first fret during the glissando causes the string to activate and create sound.

Using a glissando to an indeterminate pitch is a common extended technique found in the guitar literature during the twentieth and twenty-first centuries.

Example 1.3 Dialoge für Gitarre und Percussionsklänge by Siegfried Fink, Movement 1, System 1.
In Siegfried Fink’s *Dialoge für Gitarre und Percussionsklänge*, Fink notates this by using an arrow in the direction of the intended glissando.

![Example 1.4 Etude No.1 by Jacques Charpentier, Page 5, System 3.]

Another example of this technique can be found in *Etude No.1* by Jacques Charpentier.

In example 1.4, two notes, F and B natural, glissando up to an indeterminate pitch.

Another common glissando technique is to glissando up to the highest note possible.

![Example 1.5 Highest possible pitch notated in Synchronisms No. 10 for guitar and tape by Mario Davidovsky. Measure 240.]

In this example for guitar and tape, Mario Davidovsky notates the indeterminate note with an X and then explains at the bottom of the page that the note marked with an X
should be played, “as high as possible.” A similar technique can be found in Alberto Ginastera’s *Sonata* for guitar.

![Example 1.6 Notating highest possible pitch in the 2nd movement, “Scherzo,” from *Sonata*, by Alberto Ginastera. Measure 88.](image)

Instead of using an “X” to notate the highest pitch possible, as in Example 1.5, Ginastera uses arrow shaped noteheads to denote the highest pitch possible. In this example the high B does not take part in the glissandi which explains the three arrows. It should be noted that the glissando can extend past the fretboard, much the same way as a violinist can play beyond the fingerboard.

**Bending Glissandi**

As previously mentioned, bending a string is a common technique found in the Rock and Blues literature. Due to the loose string tension on the classical guitar it can be difficult for a performer to get a bend larger than a major second.

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Thomas Wilson uses string bending in his solo guitar piece, Dreammusic. In Example 1.7 he instructs the performer to only pluck the notes marked with an accent. This particular bend is a half step. This could also be notated by using a slur as Wilson does in measure 2:

Example 1.8 String Bending in Dreammusic by Thomas Wilson. Measure 2.

In Example 1.8 the guitarist strikes the initial F and then bends the string back and forth between the F and the G-flat. This technique can also be used to incorporate tones smaller than a half-step.
Example 1.9 String Bending in the 2\textsuperscript{nd} movement, “Serenading a Pair of Giffly Nymphs (Drunk of Night),” from *Serenades of the Unicorn* by Einojuhani Rautavaara. Measure 13.

Einojuhani Rautavaara uses string bending in *Serenades of the Unicorn*. Like Thomas Wilson, Rautavaara uses a slur to notate the bend. In addition, Rautavaara does not give a specific note to bend to, but instead says, “the interval will depend on the instrument.”\textsuperscript{5}

Another way of notating a bend, although not as clear as the Wilson or Rautavaara examples, can be found in Benjamin Verdery’s piece for solo guitar titled, “Chicago, IL.,” from his group of pieces titled, *Some Towns and Cities*.

Example 1.10 Bending a string found in “Chicago, IL.,” from Benjamin Verdery’s *Some Towns and Cities*. Measure 48.

In Example 1.10 Verdery notates the bend by using a trill indication under the C. In the performance notes he mentions that the C should be bent, although he does not give an indication of how far the note should be bent.

It is also possible to bend more than one string at a time (Example 1.11).

Example 1.11 Bending two at the same time in “Chicago, IL.,” from Some Towns and Cities by Benjamin Verdery. Measure 47.

In Example 1.11, both the B and the E will be bent at the same time. The composer does not clearly notate this in the score, but mentions his intentions in the performance notes.

Example 1.12 Ghost bend in “Greed” from 11 Etudes by Benjamin Verdery. Measure 2.

In “Greed,” from 11 Etudes, Verdery uses a ghost bend. This is a note that is bent before plucking the string. After the string is plucked the performer releases the bend. In Example 1.12, the performer bends the string to a C-sharp, plucks the note, then releases the bend to a C-natural.
Other possibilities include the bending of three strings at the same time and the possibility of playing one note which is not bent, while bending another note at the same time. As shown in Example 1.12, it would be possible for a guitarist to bend the B, while playing, but not bending the E. This is a common technique found in Rock music. It would be advisable that the higher sounding pitch be the stationary pitch and the lower note the bent note, otherwise the higher string will not sound.

Example 1.13 Tuning a string “mid-flight” from D down to C in *Simple Gifts* arranged for guitar by Ronald Ravenscroft, B.J. Sutherland and John Sutherland. Measures 64-65.

An interesting example of a glissando can be found in the arrangement of *Simple Gifts* for guitar by Ronald Ravenscroft, B.J. Sutherland and John Sutherland. In this example the guitarist must tune the sixth string down, “mid-flight,” from D to a C. The aural result is that there is a glissando from the ringing D down to the C-sharp and a glissando from the C-sharp down to the C natural.

### 1.2 Left Hand Muting Over Frets

A left hand muted sound is created by lightly touching the string. This can be used rhythmically as well as melodically. Typically this technique is indicated by the use of an
X as a notehead. The sound produced is made up of mostly noise but there is also a perceptible pitch that can be heard within the noise. Composers can give specific indications of pitch or general ideas of pitch, such as using low or high to inform the performer the type of sound that is desired. If the composer decides to give a specific pitch, he/she should make sure that the pitch is not at the spot of a harmonic node because a harmonic will ring instead of a muted sound.


Example 1.14 from the first movement of *Royal Winter Music* by Hans Werner Henze gives specific locations of where the muted notes should be.

Example 1.15 Muting in “New York, NY,” from *Some Towns and Cities* by Benjamin Verdery. Measure 41.
In *New York, NY*, Benjamin Verdery has notated an improvisatory section that is meant to mimic the feel of Funk by its use of syncopated rhythms and muted chords. In this example the use of muted chords are more for a percussive effect.

![Muting Example](image)

**Example 1.16 Muting in *La Espiral Eterna* by Leo Brouwer. Page 7, System 4.**

Leo Brouwer, in *La Espiral Eterna*, notates the specific spot on the fingerboard the muted notes should be played by placing an X under the particular notehead. In addition, he gives suggestions in the performance notes on how best to play this. Brouwer states that “muted or damped sound produced by the left hand fingers slightly on the strings without pressure. Not touching the fingerboard. Right hand plays normally. A better sound is possible touching the string with the fingernail.”

1.3 Left Hand Muting Over the Soundhole

Composers occasionally call for performers to play notes above or near the soundhole. The sound that results is of a pitched, muted note.

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Example 1.17 Notes over the soundhole in the 2nd movement, “Scherzo,” from *Sonata* by Alberto Ginastera. Measure 88.

In Ginastera’s *Sonata* for solo guitar, he notates this effect by using arrow heads as note heads and below the measure he writes, “very fast but discontinuous improvisation *sul ponticello* on the first, second and third strings near the soundhole.”

Example 1.18 Notes over the soundhole in *Memorias de “El Cimarrón”* by Hans Werner Henze. Page 10, System 8.

Example 1.18, from *Memorias de “El Cimarrón,”* Hans Werner Henze notates an effect similar to the previous example by Ginastera. Like Ginastera, Henze uses arrowheads as noteheads, and again they are used to indicate that this is an improvisatory figure played over the soundhole.

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1.4 Vibrato

There are two different ways to produce vibrato on the guitar. The first is to move the left hand finger back and forth horizontal to the string. This method of vibrato is similar, visually, to what a violinist does when producing a vibrato. On the guitar, this back and forth motion pushes the string down against the fret causing the string to go a little sharp. The second method of producing a vibrato on the guitar is to bend the string perpendicular to the other strings. This causes the string to tighten and therefore go sharp. This second method gives more variety to the vibrato because the performer has more control of the speed of the vibrato. This method causes the widest fluctuation of pitch.


Jesus Villa-Rojo, in the sixth movement of his *Seis Pinceladas*, gives a general contour of what the vibrato should sound like. Although Villa-Rojo does not mention it specifically, in order to perform this type of vibrato the guitarist would bend the string perpendicularly to the other strings.

Alvaro Company, in *Las Seis Cuerdas*, uses a variety of symbols to describe the different types of vibrato the performer should use. Company uses a checkered symbol to notate a normal vibrato (Figure 1-2).
Figure 1.2 Normal vibrato in *Las Seis Cuerdas* by Alvaro Company.

Figure 1.3 is the symbol Company uses to notate a slow vibrato.

Figure 1.3 Slow vibrato in *Las Seis Cuerdas* by Alvaro Company.

Figure 1.4 is the symbol Company uses to notate a rapid vibrato.

Figure 1.4 Rapid vibrato in *Las Seis Cuerdas* by Alvaro Company.

Company uses a straight line to symbolize when there should be no vibrato (Figure 1.5).

Figure 1.5 No vibrato in *Las Seis Cuerdas* by Alvaro Company.

Company combines these symbols in *Las Seis Cuerdas* to create different vibrato effects.

In Example 1.20, the guitarist is to start with a rapid vibrato and then end the note with no vibrato.

Example 1.21 Mixed vibrato in *Las Seis Cuerdas* by Alvaro Company. Measures 23-24

The next example (Example 1.21) begins with a slow vibrato and then speeds up to a normal vibrato, followed by a rapid vibrato and ending with no vibrato.

Example 1.22 Bi-tones in “Start Now” from *11 Etudes* by Benjamin Verdery. Measure 2
The final vibrato example from *Las Seis Cuerdas* (Example 1.22) begins slowly, accelerates to a rapid vibrato before ending with a slow vibrato.

It should be noted that there is no standard way to notate vibrato effects in the guitar literature. It is recommended that whatever system is used, it is fully explained in the performance notes.

### 1.5 Bi-Tones

John Schneider, in his book, *The Contemporary Guitar*, describes a bi-tone by saying: “when a string is made to vibrate by hammering-on two notes emerge — one from the length of the string between the fingered fret and the bridge, and one from the length of string between the fret behind the left-hand finger and the nut.”

This second note is the bi-tone.

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Figure 1.6 Bi-tones on the guitar.

Figure 1.6 gives a list of bi-tones available on the guitar. The square noteheads are the bi-tones and the filled in noteheads are the fretted note. As the fretted note progresses up the fingerboard (towards the soundhole) the string length gets smaller causing a higher pitch. At the same time, the string length from the fretted note to the nut gets longer causing a lower sounding note. Typically, bi-tones are notated by just writing the fretted notes and giving an indication in the score or the performance notes that the bi-tone is the desired effect.
Example 1.23 Bi-tones in “Start Now” from 11 Etudes by Benjamin Verdery.
Measure 2.

Benjamin Verdery, in “Start Now” from 11 Etudes, notates the bi-tones by writing the fretted notes and then describing the desired effect at the bottom of the page. To perform this technique the guitarist would slam the fingers down on the fretboard with enough force to cause the strings to vibrate creating the pitches. It should be noted that using this technique the right hand does not pluck the strings. The resulting sound will contain the fretted notes and the bi-tones.

It should also be noted that the bi-tones are very quiet and the guitar would need to be amplified if they are to be performed in a large space. In addition, if the composer only wants the bi-tones without the sounds of the fretted notes, the performer can mute the strings with the right hand and create the bi-tones with the left hand.
CHAPTER 2

THE RIGHT HAND

The right hand can produce a variety of effects on the guitar. These effects range from right hand glissandi to pizzicato sounds to tremolo effects. The right hand can also produce fretted notes by hammering the finger on the fret with enough force to activate the note. This frees up left hand to produce other additional effects as well.

2.1 Right Hand Glissando

Example 2.1 Right hand glissando in La Espiral Eterna by Leo Brouwer. Page 6, System 1.

In La Espiral Eterna, Leo Brouwer calls for the guitarist to perform a right hand glissando. Brouwer uses the following symbol to notate this effect.
This glissando is produced by holding down the indicated note in the left hand and sliding the right hand fingernails from that spot to the soundhole. This effect is louder when performed on the fourth, fifth, or sixth strings because these strings are wound with steel. The steel produces more noise than the nylon first, second, and third strings.

### 2.2 Pizzicato

Pizzicato is a technique that is borrowed from the string literature. A pizzicato articulation for a violin involves the performer plucking the string with the fingers. For a guitarist, this involves muting the string, close to the bridge, with the flesh of the right hand. Pizzicato is a common technique found throughout the guitar literature. For the purposes of this document, I will give examples of two types, the Bartók pizzicato and the extended pizzicato.

A Bartok pizzicato is a common technique found in orchestral strings literature and named after the Hungarian composer Béla Bartók. The performer lifts the string above the fingerboard, then releases the string so that it slaps against the fingerboard. The resulting pitch contains a noisy attack.
Example 2.2 Bartók pizzicato in Movement VI of Seis Pinceladas by Jesus Villa-Rojo. Measure 10.

In Seis Pinceladas by Jesus Villa-Rojo we find an example of a Bartók pizzicato (Example 2.2).

Figure 2.2 Bartók Pizzicato

The symbol used to notate a Bartók pizzicato can be found above in Figure 2.2.

Example 2.3 Extended pizzicato in La Espiral Eterna by Leo Brouwer. Page 6, System 2.

La Espiral Eterna by Leo Brouwer contains an extended pizzicato section. A typical right hand pizzicato on the guitar is accomplished by resting part of the right hand on the strings close to the bridge. The flesh of the hand muffles the sound. The performer can control the amount of muting by how hard the right hand presses on the strings. In
the example above (Example 2.3) the right hand rests on the strings for the entire segment while the left hand plays a cluster series.

2.3 Plucking

Alvaro Company, in *Las Seis Cuerdas*, gives specific instructions of where the performer should pluck the string with the right hand. Plucking close to the bridge produces a bright, thin sound, while plucking over the soundhole produces a darker, thicker sound. Company calls for the performer to pluck exactly twelve frets higher than the fret the left hand is playing.

Example 2.4 Plucking twelve frets higher in *Las Seis Cuerdas* by Alvaro Company. Page 8, system 2.

This cuts the string in half and produces a hollow sound similar to that of a clarinet. The symbol Company uses to notate this technique, often named the “clarinet sound,” can be found in Figure 2.3.

Figure 2.3 Symbol Alvaro Company uses in *Las Seis Cuerdas* to instruct the performer to pluck the string.
There is not a standard way to notate this technique and is often added to a performance by the performer as a way to add color to the piece. Writing, “clarinet sound” above the intended passage with an explanation in the performance notes should suffice.

2.4 Right Hand Tapping

Example 2.5 Right hand tapping in “Chicago, IL.” from Some Towns and Cities by Benjamin Verdery. Measure 67.

In Example 2.5, “Chicago, IL.,” from Some Towns and Cities by Benjamin Verdery, the performer activates the string at a particular fret with the right hand. This technique is known as right hand tapping, or just tapping. In this example, the left hand is playing slur figures while the right hand activates the low G by hitting the fret with the right hand thumb hard enough to produce the G3. The right hand thumb then glides up the sixth string producing a glissando to the E4. Verdery notates this by using a T at the spots where the right hand finger produces the sound (see Example 2.5).
Example 2.6 Right hand tapping in *Sequenza XI* by Luciano Berio. Page 4, system 2.

A different type of right hand tapping can be found in *Sequenza XI* by Luciano Berio. Berio has notated the technique using two staves, the top for the left hand and the bottom for the right hand. The left hand begins by slurring F-sharp, G, F-sharp. Then one of the right hand fingers hits the G-sharp, followed by F-sharp, G, F-sharp slurred in the left hand. This technique is very smooth and fluid. It does not contain any strong attacks due to the fact that the string is never plucked in a traditional sense (see Example 2-6).

Example 2.7 Right hand tapping in *La Espiral Eterna* by Leo Brouwer. Page 8, System 1.

Leo Brouwer incorporates right hand tapping in *La Espiral Eterna*. In Example 2.7, the right hand hits the fretboard at indiscriminate spots. Brouwer indicates the rhythm and dynamics and uses an x for the noteheads to provide a basic melodic contour.
without notating specific pitches. The $i$, $m$, and $a$ markings are standard fingerings for the right hand.\footnote{The $i$ stands for the index finger, $m$ for middle finger, and $a$ for ring finger.}

### 2.5 Right Hand Tremolo

Example 2.8 Thumb tremolo in the 3\textsuperscript{rd} movement, “Serenading the Beauty Unobtainable (Too Far in Time), from Serenades of the Unicorn by Einojuhani Rautavaara.

In Serenades of the Unicorn, Einojuhani Rautavaara calls for the performer to play a tremolo with the flesh of the thumb. Because this technique does not involve the nail, the resulting sound is a very quiet, whispering sound. There is a lot of string noise from the finger rubbing against the strings. This technique can only be used at soft volume levels.

Example 2.9 Thumb pad tremolo in “VII. Close,” from Shadows by William Albright. Page 21, system 3.
Another example of a tremolo played by the flesh of the thumb can be found in *Shadows* by William Albright. In this example, Albright has notated the entire chord at the beginning of the measure and then gives a squiggly line to represent the thumb tremolo.
Composers during the last hundred years have often used the guitar as a percussive instrument by hitting the strings or the body of the guitar. I will discuss three basic types of percussive sounds in this chapter. The first is string percussion. This involves hitting the strings at various points to get different sounds. The strings can be struck on the fretboard to get the added sound, or a special quality can be achieved by hitting the strings without the string hitting the fretboard. The later is called the tambora effect and is discussed in section 3.2. The final percussive sound involves hitting the wood of the guitar, called body percussion, and this is discussed in section 3.3.

3.1 String Percussion

In the fourth movement, “Spirits,” from the piece titled, *Shadows*, William Albright has the performer slap the “strings against the fretboard with the [right hand] fingers to produce random, fast, percussive sounds.” Albright has notated this section using two staves, the top for the right hand and the bottom for the left hand. He has also given the rhythm. The resulting sound is a mix of bi-tones, noise from the strings hitting the frets, as well as the notes created when the string hits the fret.

Example 3.2 slapping string in “Jumping Cholla” from *A Whisper in the Desert* by Brad Richter. Measure 1.

In “Jumping Cholla” from *A Whisper in the Desert*, Brad Richter writes that the performer should slap the “[right hand] thumb against the sixth string near the 19th fret.” Richter notates this with an “X” notehead and describes what he wants at the bottom of the score. The resulting sound is a mix of noise, from the string hitting the fretboard, and pitch. The nineteenth fret is a spot where there is a harmonic node. The act of slapping the fingerboard brings out this harmonic. A similar effect can be found later in the piece:

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2 Bi-tones are discussed in Chapter 1.
Example 3.3 slapping string in “Jumping Cholla” from A Whisper in the Desert by Brad Richter. Measure 45.

In Example 3.3, Richter notates that the performer should slap the string at the 12\textsuperscript{th} fret. Just like example 3.2, the 12\textsuperscript{th} fret is a harmonic node so the resulting sound will contain the noise from the string hitting the fretboard and that harmonic.

Example 3.4 Crossing strings in Jota by Francisco Tárrega. Measures 308-309.

Francisco Tárrega creates a percussion sound by crossing the strings in his composition titled, Jota. The performer must cross the 5\textsuperscript{th} string over the 6\textsuperscript{th} string. The resulting sound gives the impression of a snare drum. The string crossing is made possible because of the rather loose tension nylon strings have. This would be a much more difficult technique to do with the higher tension steel string guitars used in folk music. The composer should be aware that it does take a second or two for the performer to cross the strings.
A similar technique can be found in “Home is Here,” from *11 Etudes* by Benjamin Verdery:

In the performance notes Verdery writes that the performer should pull the 4th string over the 3rd string. The first finger of the left hand should hold the 3rd string at the sixth fret while the third finger holds the 4th string at the seventh fret. This is prepared in the measure before where the guitarist plays eighth notes on the open 1st string (Example 3.6):

Because the left hand is not used to play the open strings, the performer has time to prepare the string crossing.
3.2 Tambora

The tambora is a popular percussive effect used in guitar music from the twentieth century. The Harvard Dictionary of Music defines tambora as “a two-headed drum of Latin America. In the Dominican Republic, where it is particularly prominent, it is made from a hollowed tree trunk and played with the bare left hand and a stick held in the right hand.”

A tambora for the guitar involves the performer hitting the guitar, close to the bridge, with the flesh portion of the right hand thumb or fingers. The resulting sound is similar to that of a timpani.

Example 3.7 Tambora in *Las Seis Cuerdas* by Alvaro Company. 4th Movement, measure 10.

There are a variety of ways to notate the tambora effect. In *Las Seis Cuerdas* by Alvaro Company, the tambora effect is notated by using the letter X. Company uses the letter X to notate the left hand notes while the right hand hits the strings.

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Reginald Smith Brindle, in *November Memories*, notates the tambora by writing the complete chord only at the beginning. The remainder of the tambora is notated with an x at the bottom of the stem.

Alberto Ginastera notates three different types of tambora effects in his *Sonata* for guitar, each describing a different way the right hand hits the strings. The first method is to have the palm of the right hand hit the strings. Ginastera notates this with a drawing of an open hand (Figure 3.1).

![Figure 3.1 Tambora with the palm of the hand in Sonata by Alberto Ginastera.](image)

Example 3.9 Tambora with the palm open in *Sonata* by Alberto Ginastera. 1st Movement, “Esordio.” Page 2, system 5.
An example of this type of tambora from the *Sonata* by Alberto Ginastera can be found in the first movement titled, “Esordio” (Example 3.9). Hitting the strings with the palm of the hand creates a louder, sharper sound than the traditional tambora. This is because the strings hit the fretboard creating extra noise in the attack.

The second type of tambora found in the *Sonata* is the traditional tambora played with the flesh of the thumb close to the bridge. Ginastera notates this type with a drawing of a closed hand with the thumb extended (Figure 3.2).

*Figure 3.2 Tambora with the thumb in *Sonata* by Alberto Ginastera.*

An example of this type of tambora can be found in the first movement, “Esordio.”

*Example 3.10. Tambora with the flesh of the thumb in the first movement, “Esordio,” from *Sonata* by Alberto Ginastera. Page 2, System 1.*

The final type of tambora that Ginastera employs in his *Sonata* involves the guitarist hitting the strings with a closed fist. This technique is found throughout the final
movement of the *Sonata*. Ginastera notates this technique with a drawing of a closed fist (Figure 3.3).

![Figure 3.3 Tambora with a closed fist in *Sonata* by Alberto Ginastera.](image)

An example of this can be found in the final movement, “Finale.”

![Example 3.11 Tambora with the clenched fist in the fourth movement, “Finale,” from *Sonata* by Alberto Ginastera. Measure 2.](image)

Ginastera uses the closed fist to serve two purposes. The first is to create a percussive attack on the off beats. The second reason is that the closed fist is in the ready position for a rasgueado. Ginastera states in the program notes:

> The combination of “rasgueado” and “tambora” is a percussive effect which marks the rhythms at the off beat. The “rasgueado” is achieved by a fast, energetic brushing by the fingers of the right hand. The “tambora” chords are played by the right hand’s clenched fist which hits the strings over the soundhole dryly with the last phalanx of all fingers in order to subdue all vibration. At *fortissimo* the strokes must be sufficiently energetic to cause the strings to rebound against the fingerboard. This effect of Argentinean popular style playing is essential to the fulfillment of the composer’s intentions.

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5 Rasgueado’s are discussed in Chapter 5.
Example 3.12 Tambora tremolando in *Shadows* by William Albright. 3\textsuperscript{rd} Movement, “Nights,” measure 1.

William Albright employs a tambora tremolando in the third movement of his solo guitar piece, *Shadows*. The technique is easy to do and sounds like a quiet tremolo with a timpani. Another example of this can be found throughout the first movement, titled, “Lamentacion de la Muerte,” from *Four Poems of Garcia Lorca* by Reginald Smith Brindle (Example 3.12).


\section*{3.3 Body Percussion}

Body percussion is any percussive sound created by hitting the wood of the guitar. The golpe is a common body percussive technique that involves a right hand finger, usually the ring finger, hitting the wood just below the bridge.
William Albright uses golpes in the second movement of *Shadows*. In the score, Albright writes that the golpes should be “of the loudest and brightest pitch possible.” This would suggest that the performer would use the nail from the right hand to hit the wood of the guitar. Golpes are usually notated with a box notehead although, sometimes composers will use an X as a notehead and write golpe above.

Reginald Smith Brindle, in the third movement of his *Four Poems of Garcia Lorca*, uses percussion on the body of the guitar. Brindle writes that the performer should “strike [the] body of instrument with all fingers flat.” Brindle is telling the

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performer to use the finger pads and not use nails. The resulting sound will have less of an attack.

Example 3.16 Tapping the body of the guitar in *Sonata* by Alberto Ginastera. 2\textsuperscript{nd} Movement, “Scherzo,” measure 86.

Alberto Ginastera also uses tapping on the body of the guitar in his *Sonata*. Ginastera states in the performance notes that the performer should “tap, on the sound box with the knuckles.”


Hans Werner Henze uses body percussion throughout his *Royal Winter Music*. Henze notates the percussion on a different staff and labels three areas on the guitar that should be used for the percussion. He uses A, B and C to label the spots. In the

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\footnote{Alberto Ginastera, *Sonata for Guitar* (London: Boosey & Hawkes, 1978), Unnumbered Performance Notes.}
performance notes he gives a diagram of a guitar with an explanation on the locations of these spots (Figure 3.4):

![Figure 3.4 Percussion diagram in Royal Winter Music by Hans Werner Henze.](image)

Example 3.18 Hitting the wood of the guitar in “III- Worry Knot” from 11 Etudes by Benjamin Verdery. Measures 35-36.

Benjamin Verdery, in, “Worry Knot,” from 11 Etudes, asks the guitarist to perform percussive effects at various points on the guitar. Instead of having a diagram of a guitar and pointing to spots like Henze did in the previous example, Verdery assigns different locations on the staff to indicate where the percussive effect should happen (Figure 3.5).

![Figure 3.5 “Worry Knot” from 11 Etudes by Benjamin Verdery.](image)
Verdery identifies three different ways to hit the instrument: the thumb “taps on the bridge,” the left hand finger “taps behind the bridge,” and the middle finger of the right hand “taps behind the bridge.”\textsuperscript{10}

\begin{center}
\includegraphics[width=0.5\textwidth]{example.png}
\end{center}

Example 3.19 Tremolo on the wood of the guitar in \textit{A Sad Humoresque} by Phyllis Tate. Measure 38.

The final example comes from \textit{A Sad Humoresque} by Phyllis Tate. In this example the performer performs a tremolo on the wood of the guitar with the nails. The nails will give this a brighter sound.

CHAPTER 4

WITH OBJECTS

In the twentieth and twenty-first centuries composers have incorporated objects to alter the sound of the instrument. This includes preparing the guitar with various objects as well as using different objects to activate the string. For example, teaspoons have been used to create tremolos, bottle neck slides used for glissandi and matchsticks have been woven into the strings to give a percussive sound, just to name a few.

Example 4.1 Bouncing a spoon on strings in *A Horse, His Name was Hunry Fencewaver Walkins* by David Bedford. Rehearsal K and L, page 26.

In *A Horse, His Name was Hunry Fencewaver Walkins* by David Bedford, the performer uses a teaspoon to create a tremolo effect. This effect is created by bouncing the spoon on the string with the right hand while fretting the note with the left hand. The composer should give the performer a couple of seconds to grab and prepare the spoon, similar to the length of time given to a violinist when switching to a mute.

Einojuhani Rautavaara, in *Serenades of the Unicorn*, also calls for the performer to bounce a spoon on the strings. Rautavaara gives an approximate starting pitch and indicates the general contour of the rhythm of the bouncing spoon. In addition to that, he indicates that on the descending figure the spoon should bounce on the first two strings while on the ascending figure the spoon should bounce on the second and third strings.

After the introduction, Rautavaara continues with the bouncing spoon in the right hand and adds hammer-ons\(^1\) and glissandi in the left hand (Example 4-3).

Example 4.3. 2\(^{nd}\) Movement, “Serenading a Pair of Giggly Nymphs (Drunk of Night)” from *Serenades of the Unicorn* by Einojuhani Rautavaara. Measures 2-4.

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\(^1\) Hammer-ons are played by hitting the fret with the left hand hard enough to get the string to activate. This is a way to play notes without plucking with the right hand fingers.
Example 4.4 Using a slide in “Keanae, HI” from Some Towns and Cities by Benjamin Verdery. Measures 19-21.

In the movement, “Keanae, HI” from Some Towns and Cities by Benjamin Verdery, the performer uses a slide to create glissandi in the melodic voice. The use of a slide can be found throughout the guitar literature in Rock and Blues music. In those styles it is used to play notes just slightly flat or sharp of pitch, as well as to create glissandi to and from pitches.

The slide is a metal or plastic cylinder that slips over anyone of the left hand fingers. As seen in the first couple of examples in this chapter, the composer should give the guitarist a couple of seconds to prepare the slide (Example 4.5).

Example 4.5 “Keanae, HI,” from Some Towns and Cities by Benjamin Verdery. Measure 15.
A few measures before the guitarist is to use the slide, Verdery has written a group of
open notes so that while the right hand is playing the open strings the left hand prepares
the slide.²

Example 4.6 Matchsticks in Piece with Clocks by Nikita Koshkin. Page 3, system 1.

In Piece with Clocks, by Nikita Koshkin, the guitar is prepared by using a
matchstick that is inserted in the strings. In the score, Koshkin has diagramed how the
matchstick should be prepared. The matchstick should cover the fourth, fifth, and sixth
strings. The matchstick mutes the strings and gives the guitar a percussive sound.
Meanwhile, the upper three strings are played normally. This gives the aural impression
of two instruments being played. The first is the guitar sound (first three strings) and the
second is the percussive sounds (bottom three strings.)

² In “Keanae, HI” the guitar is tuned differently than the normal tuning. From first to sixth string: D, A,
F-sharp, D, G, D.
Example 4.7 Matchstick in “Clock Strikes Midnight” from *Three Little Nightmares* by Brad Richter. Measures 1-2.

Sticking with the clock theme and using matchsticks, Brad Richter in “Clock Strikes Midnight,” from *Three Little Nightmares*, calls for two matchsticks to be woven into the strings. Richter explains in the performance notes how the matchsticks should be placed:

Place two wooden match sticks in the strings. One should be ‘woven’ under the first string, over the second and back under the third string at the second fret. Be sure the match does not touch the fourth string. The other match should be woven under the sixth string, over the fifth string and back under the fourth string about 5 cm from the bridge. Be sure this match does not touch the third string. Though placing the matches in the strings changes the pitches as well as the timbre of the open strings, the open strings are notated in standard pitch.3

Example 4.8 Folded newspaper under the strings in *A Horse, his Name was Hunry Fencewaver Walkins* by David Bedford. Rehearsal J.

In *A Horse, his Name was Hunry Fencewaver Walkins* by David Bedford, the guitarist inserts folded newspaper under the strings in order “to produce [a] dry, rattling

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sound.” This is a similar effect to the matchstick in the previous example. The difference is that the newspaper will create a “rattling sound” because the paper is not as stiff as the matchstick.

In addition to the matchsticks, Koshkin, in *Piece with Clocks*, prepares the guitar with a cork. The cork is placed in between the first and the second strings. This creates a percussive sound similar to the matchstick sound.

In “I felt a funeral in My Brain” from *Three Little Nightmares*, Brad Richter specifies that the performer should attach a clothespin to the sixth string of the guitar. Richter states in the performance notes:

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Example 4.9 Using a cork in between the strings in *Piece with Clocks* by Nikita Koshkin. Page 15, system 2.

Example 4.10 Clothespin in “I felt a Funeral in My Brain” from *Three Little Nightmares* by Brad Richter. Measures 1-2.

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Attach a clothespin to the sixth string (2-3 cm. from the bridge). Let it lean against the fifth string such that when the clothespin is pulled back and released, it bounces on the fifth string for around three seconds. The piece begins by letting the clothespin bounce twice in this manner.\(^5\)

The aural impression given by the bouncing clothespin is that of a snare drum. Richter uses the percussive clothespin along with open and fretted notes to give the impression of a funeral march (Example 4.11).

![Example 4.11 Clothespin in “I felt a Funeral in My Brain” from Three Little Nightmares by Brad Richter. Measures 5-6.](image)

Example 4.12 Playing the guitar with a bow in A Horse, his Name was Hunry Fencewaver Walkins by David Bedford. Rehearsal L

In A Horse, his Name was Hunry Fencewaver Walkins, David Bedford calls for the guitarist to play with a double bass bow. Bedford adds a theatrical element in that the guitarist should walk over to the bass player and take the bass bow.

Due to the construction of the guitar, it is difficult to play individual lines, using a bow, with any kind of accuracy. The guitar bridge, unlike the violin bridge, is flat, therefore it would be impossible to bow the inner strings separately. However, it would be possible to bow the outer two strings separately. In this example (Example 4.12) by Bedford, the guitarist bows all six strings at the same time.

Example 4.13 Playing the guitar with a bow in Memorias de “El Cimarrón” by Hans Werner Henze. 1st Movement, system 1.

Hans Werner Henze, in Memorias de “El Cimarrón,” also makes use of the bow. In this example, the performer is to alternate between harmonics at the twelfth fret and nineteenth frets. In the performance notes, Henze states that “the guitar should be held between the legs like a violincello.” In addition, Henze recommends that a cello bow be used, “because of its weight and size.” Finally, Henze states, “It is recommended that one plays ‘sul ponticello’ (on the bridge) with the bow throughout, so that the rosin does not affect the middle position of the right hand; furthermore, this style of playing produces a sound which is richer in partials.”

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7 Ibid., 6.
8 Ibid., 6.
In *A Horse, his Name was Hunry Fencewaver Walkins*, David Bedford has the guitarist perform for a bit with a plectrum, or pick, as it is often referred to. Picks are usually made of plastic, although sometimes metal, and are generally triangular in shape. Picks are rarely used in classical guitar music, but quite common in other styles of guitar playing. A pick gives a brighter, thinner sound, compared to the use of the flesh and nail as in traditional classical guitar playing.

The opening of the first movement from the piece, *Shadows*, by William Albright, the guitarist is asked to use a pick to create the opening tremolo.
Nikita Koshkin, in *Piece with Clocks*, incorporates a guitar mute into the piece. The guitar mute is generally made out of foam and attaches to the strings at the bridge, similar to a violin mute. The guitar mute is a rarely used in the classical guitar literature. The mute does two things, first, it lowers the volume, and second, it does not allow the strings to ring for very long.

Example 4.16 Con sordino in *Piece with Clocks* by Nikita Koshkin. Page 6, system 1.
CHAPTER 5
BORROWED FROM OTHER TRADITIONS

5.1 The Rasgueado

The Harvard Dictionary of Music defines the rasgueado as “a style of guitar playing in which the strings are strummed, as distinct from punteado, in which individual strings are plucked.”¹ The rasgueado is a strumming technique commonly found in flamenco and latin style guitar playing. Rasgueados are good for increasing the volume of the guitar. There are a variety of ways to perform a rasgueado. One way is to fan the right hand fingers across the six strings creating quick, successive attacks. Generally it begins with the pinky (labeled c), followed by the ring finger (labeled a), followed by the middle finger (labeled m) and concluding with the index finger (labeled i). This can also be incorporated with the thumb (labeled p) in various permutations. Another way to perform a rasgueado is to strum quickly with one right hand finger. The finger moves up and down across the strings.

There are a couple different ways to notate the rasgueado. One thing they all have in common is that the word rasgueado, or an abbreviation, will be included in the score.

Example 5.1 Rasgueado from the 7th movement, “Tarantas,” from Shadows by William Albright. Measure 1.

William Albright uses a rasgueado in the 7th movement of Shadows. Example 5.1 begins with a quick arpeggiation of a chord using the thumb. The rasgueado begins with the encircled notes.

Example 5.2 Rasgueado in Couleurs by Edith Lejet. Measure 13.

Edith Lejet notates the rasgueado in her piece, Couleurs, by using a tremolo articulation and indicating that it should be performed as a rasgueado. Lejet also gives an indication of how it should be performed. The c,a,m,i indications tell the performer what left hand fingers should be used. The arrows give the direction the fingers should strum. An arrow pointing up tells the performer that the rasgueado should go from low pitch to high pitch.

Example 5.3 from the 3rd movement of Charles Chaynes’ 3 Preludes pour “Fatum,” uses a popular way of notating the rasgueado. The first chord is given followed by the rhythm of the rasgueado. Luciano Berio, in Sequenza XI, notates a rasgueado similarly (Example 5.4):

Example 5.4 Rasgueado in Sequenza XI by Luciano Berio. Page 1, system 3.

Luciano Berio’s Sequenza XI is a fourteen minute tour-de-force that contains many different types of rasgueados. Berio states that he was trying to fuse elements from the classical and flamenco styles in this work. He says, “In Sequenza XI two instrumental and gestural styles are also present, one having its roots in the flamenco guitar tradition, and the other in that of the classical guitar.”

In Example 5.5, Berio writes in the performance notes that the rasgueado should be achieved by using the c, a, m, i fingers of the right hand creating a “fast grace note rasgueado.” Berio notates four stems, each representing a different attack by the four different right hand fingers.

Berio describes Example 5.6 in the program notes as a “fast grace note rasgueado followed by an accented chord.” The grace note rasgueado’s should be performed the same as Example 5.5. The additional accented chord should be performed by the thumb.

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4 Ibid., Performance Notes.
Example 5.7 Rasgueado in *Sequenza XI* by Luciano Berio. Page 1, system 3.

Berio describes the rasgueado in example 7 as played, “as fast as possible:

continuous rasgueado as in flamenco.”\(^5\) Berio then goes on to say that it can be played using a combination of fingers and thumb, or can be strummed up and down with a single right hand finger.

5.2 Scordatura

Scordatura is a common technique found throughout the literature of the guitar. The most common alternate tuning would be what is referred to as “drop D” tuning (Figure 5.1).

![Figure 5.1 Drop-D Tuning.](image)

In Drop-D tuning the sixth string is tuned from the pitch E, down to a D. This is often used in pieces that are in the key of D major because it allows the tonic to be the lowest sounding note, and the open fifth string A, is the dominant.

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Recently composers have used scordatura to evoke sounds from different cultures. A good example of this can be found in *Koyunbaba* by the Italian guitarist/composer, Carlo Domeniconi. In *Koyunbaba*, Domeniconi draws from Turkish music and he uses scordatura to facilitate this. Domeniconi calls for the open strings to be tuned to a D minor chord (Figure 5.2).

![Figure 5.2 Scordatura in Koyunbaba by Carlo Domeniconi.](image)

Domeniconi notates *Koyunbaba* using two staves. The top staff, which Domeniconi describes as ‘real,’ is the sounding pitch. The bottom staff, which Domeniconi describes as ‘scordatur,’ is used to help the performer play the proper notes. *Koyunbaba* uses a tuning that is quite different compared to standard guitar tuning. When a guitarist sees a C5 notated, the location of that note is clear in the mind of the performer. If that string is tuned up a minor 3rd, as is the case in this piece, then the location of C5 is not as clear. Domeniconi notates the music in the bottom staff as if it were in drop-D tuning (see Example 5.8).

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7 Domeniconi then states, on page 21 in the score, that the guitarist should tune the strings ½ step lower and tune the guitar to a C-sharp minor chord. He does not give a reason for this but I speculate that by tuning the first string up a half step might lead to broken strings.
In Example 5.8, the top staff is the sounding pitch and the bottom staff is notated as if the tuning were in drop-d tuning.

The open strings enable the use of drones as can be seen in Example 5-9 below.

Domeniconi calls for three notes to create the drone, D4, A4, and D5 (Figure 5.3). They occur on the second and third notes of each three-note figure.
Domeniconi uses the open strings because they will ring freely. The aural effect is similar to using a sustain pedal on the piano. On top of this drone is the melody which occurs on the first note of each three-note figure (Figure 5.4).

The final example comes from Robert Beaser who composed a group of songs for flute and guitar based on American folk music. In the third song, “He’s Gone Away,” the guitarist tunes the fifth string to G, down from A, and the sixth string to D, down from E (Example 5.10).

This tuning creates a tonic/dominant relationship in the lower two strings which Beaser uses in the first two measures from Example 5.10. This motion back and forth between the two strings is a popular bass line found throughout the folk literature.
CHAPTER 6
MISCELLANEOUS TECHNIQUES

This chapter discusses certain techniques from the guitar literature that do not easily fit into any of the earlier chapters. For example, techniques such as strumming the strings between the nut and the tuning pegs can be performed with either the left or right hand.


Alberto Ginastera, in the second movement of his Sonata, writes that the guitarist should strum the strings between the nut and the tuning pegs. Due to the short string lengths the sound from the strings is high in pitch. This technique can be achieved by either hand. In this particular example the guitarist uses his/her right hand to strum the strings above the nut. In the last beat of measure 14 the guitarist plays a slur figure with the left hand. This frees the right hand up to strum the strings above the nut in measures 15 and 16.
Example 6.2 Playing above the nut in *Piece with Clocks* by Nikita Koshkin. Page 15, system 1.

Nikita Koshkin uses the same technique in *Piece with Clocks*. In this piece, Koshkin gives a diagram of how to perform this technique. Using the left hand, the performer alternates between two groups of three strings with the first two fingers of the left hand. This occurs a total of eight times as indicated by the eight vertical lines (Example 6.3).

Example 6.3 Piece with Clocks by Nikita Koshkin. Page 15, system 1.

Koshkin then goes on to add the right hand while the left hand is simultaneously playing above the nut (Example 6.4).
Brad Richter, in “Something Softly out of Silence,” from *A Whisper in the Desert* also incorporates strumming behind the nut (Example 6.5).

In this example the performer strums the strings behind the nut with the left hand while the right hand plays harmonics. Richter explains why he uses this technique in the program notes for this piece:

After moving to Arizona, I got into the habit of going out into the desert or up into the mountains to compose. As I sat one day looking at a beautiful and vast landscape, but having no idea what to write, the wind made a vague and haunting chime-like sound as it blew through my guitar strings. I found that I could
produce a similar sound by strumming the strings above the nut and began to compose around that timbre. “Something Softly out of Silence” was the result.¹

Richter goes on to give a playing tip:

Be sure your strings are not touching any part of the headstock above the nut of your guitar. This ensures better clarity as your left hand index finger strums the strings above the nut. The “above the nut strumming” must be done quite loudly to balance with the rest of the piece.²

As can be seen from the first five examples, there is not a single correct way to notate this technique. Each composer has notated it differently and has provided clear directions for the performer.

Example 6.6 Both hands strumming in the 4th movement, “Having a Grand Time (With Some Scythian Centaurs), from Serenades of the Unicorn by Einojuhani Rautavaara. Measures 1-3.

In the 4th movement of Serenades of the Unicorn, by Einojuhani Rautavaara we find an example where both hands are used to strum the strings. The right hand plays a rasgueado while the left hand strums the six strings. The result is that the left hand motion creates accents in the piece.

¹ Brad Richter, Solo Guitar Collection (Pacific: Mel Bay Publications, 2005), 4.
² Brad Richter, Solo Guitar Collection (Pacific: Mel Bay Publications, 2005), 4.
APPENDIX A

NATURAL AND ARTIFICIAL HARMONICS

As with all stringed instruments, there are two types of harmonics that can be played on the guitar. The first is the natural harmonic and the second is the artificial harmonic. The natural harmonic is the easiest and involves one hand, usually the left hand, touching the particular spot on the string while the right hand plucks the string. The artificial harmonic is usually plucked using the right hand and is a little more involved. First, the left hand fingers a note at a fret and then the right hand index finger touches the string twelve frets higher. Finally, the right hand ring finger or thumb plucks the string. Composers often use harmonics to extend the range of the guitar.

A.1 Natural Harmonics

The most commonly used natural harmonics occur at the fifth, seventh and twelfth frets (Figure A.1).

Figure A.1 Natural harmonics at the 5th, 7th and 12th Frets.
The fifth fret harmonics can also be found over the soundhole where the twenty-fourth fret would be found, if the guitar had that many frets. The harmonics at the seventh fret can also be found at the nineteenth frets.

In addition to harmonics found at the fifth, seventh and twelfth frets, natural harmonics can also be found at the third, fourth, and ninth frets (Figure A.2).

![Figure A.2 Natural harmonics at the 3rd, 4th, and 9th frets.](image)

The fourth fret harmonics are the same as the ninth fret harmonics. The harmonics at the third, fourth and ninth frets do not follow the equal-tempered nature of the guitar and are therefore a little off the fret. The harmonics at the third fret can be found a little to the right of the third fret wire. The fourth fret harmonics can be found just a little left of the fourth fret wire. The ninth fret harmonics can be found a little to the left of the ninth fret wire.

Natural harmonics can be used for both melodic and harmonic writing. Due to the tuning of the guitar, the harmonics of any particular fret, when played together, will produce a chord containing mostly fourths with one third.
Example A.1. Wilfred Josephs harmonic chord at the 7th fret in *Toccata*. Measure 13.

An example of this can be found in Wilfred Josephs’ *Toccata* for guitar.

Composers are not limited to just natural harmonics at one fret, but can play a harmonic chord consisting of harmonics from different frets. A few possibilities can be found in figure A.3.

The first and second chords from figure A.3 contain harmonics from the seventh and twelfth frets. The third chord contains harmonics from the fifth and seventh frets. A guitarist can easily reach the harmonics at the third and seventh frets, fourth and seventh frets, and the seventh to the twelfth frets. It is a bit of a stretch to reach from the fourth to the ninth fret harmonics.

Mechanically, it is just as easy to arpeggiate the harmonics as it is to play them as a straight chord.
Example A.2 Natural harmonics is *Sequenza XI* by Luciano Berio. Page 3, system 3.

Luciano Berio, in *Sequenza XI*, arpeggiates the harmonics found at the seventh fret.

Example A.3 Harmonics mixed with naturally plucked notes in *Sequenza XI* by Luciano Berio. Page 1, system 1.

In the same piece, Berio combines natural notes with harmonics in a rolled chord.


Heitor Villa-Lobos uses arpeggiated natural harmonics to close his *Etude No. 1* for guitar. Villa-Lobos’ notation of the harmonics can lead to confusion for the performer. Ideally, the composer should notate the sounding pitch and give the fret and/or string that the harmonic is located on. Villa-Lobos notates the location of the harmonic at the
particular fret note, which may or may not coincide to the actual pitch. Furthermore, instead of using numbers to distinguish the strings, Villa-Lobos gives the string name. This can cause confusion because both the first and sixth strings are E. A better way of notating these harmonics can be found in Figure A.4.

![Figure A.4 Renotation of measures 32 and 33 from Etude No. 1 by Heitor Villa-Lobos.](image)

Example A.5 Natural harmonics used to form melodies in “Now you see it, now you don’t, now you do,” from 11 Etudes by Benjamin Verdery. Measures 1-2.

Benjamin Verdery, in “Now you see it, now you don’t, now you do,” from 11 Etudes, begins with harmonics played melodically. Even though the tempo is rather quick, this opening should not pose a problem for the performer because the natural harmonics are fairly close together.

### A.2 Artificial Harmonics

Artificial harmonics are not limited to certain frets like natural harmonics. Artificial harmonics can be performed any place on the guitar. Typically, artificial
harmonics are produced by plucking the string with the ring finger or thumb while lightly touching the string with the right hand index finger twelve frets higher than what is being fretted with the left hand.

Example A.6 Artificial harmonics in Movement I from *Five Bagatelles* by William Walton. Measures 81-83.

An example of artificial harmonics can be found in the first movement of *Five Bagatelles* by William Walton. Walton uses a circle above the note to notate the harmonic. This passage would sound an octave higher than notated.

Example A.7 Arpeggiating artificial harmonics in “Milwaukee, WI,” from *Some Towns and Cities* by Benjamin Verdery. Measure 2.

Example A.7, from “Milwaukee, WI” from *Some Towns and Cities* by Benjamin Verdery, contains an interesting example of artificial harmonics. The left hand frets the chord while the right hand rolls the chord using artificial harmonics. The resulting sound is harp-like.
APPENDIX B

THE TREMOLO

The tremolo, like harmonics, is an effect that is not considered an extended technique, but is an important technique that a composer for the guitar should be aware of. The Harvard Dictionary of Music defines tremolo as “the quick and continuous reiteration of a single pitch.” The technique is created by having the thumb play the bass note while the fingers do the tremolo (Figure B.1).

Figure B.1 Different ways to do the tremolo.

Figure B.1 shows three common ways to play the tremolo on the guitar. When played at a quick tempo the aural impression is of two instruments, one playing the bass line and one the melody.

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Example B.1 Tremolo in *Recuerdos de la Alhambra* by Francisco Tárrega. Measures 1-2.

Example B.1 contains the first two measures from *Recuerdos de la Alhambra* by Francisco Tárrega, one of the most popular pieces in the guitar repertoire. *Recuerdos de la Alhambra* was inspired by a trip the composer took to Granada where the composer was “enthralled [by] the famed Moorish palace of the Alhambra.”

Example B.2 Tremolo in “Starry Night on the Beach (with federales),” from *A Whisper in the Desert* by Brad Richter. Measures 9-10.

In “Starry Night on the Beach (with federales),” from *A Whisper in the Desert*, Brad Richter uses a variation of the tremolo technique. After the bass is struck, Richter inserts a slur figure before moving to the repeated E’s.

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Heitor Villa-Lobos also uses a variation on the tremolo effect in *Etude No. 7*. Instead of having the E’s performed on the same string, they are performed on three different strings. A guitarist can easily perform certain notes on different strings simultaneously.

Luciano Berio uses the tremolo throughout *Sequenza XI*. In Example B.4 the tremolo is written below the bass notes. The A-flat, D, and E-flat bass notes are all performed on lower strings than the tremolo, even though those notes are higher in pitch. This is evident because of the encircled 5 and 6 in the example. The tremolo is played on the open 4th string, D. Another example of the tremolo technique can be found in Example B-5 below:
In this example the tremolo is once again below the bass notes. In this particular example the tremolo is performed on two different strings, similar to the Villa-Lobos example above. The A is played on the open fifth string, followed by the same note played at the fifth fret sixth string, followed by open fifth string.
APPENDIX C

A SUMMARY OF MUSICAL SYMBOLS

\[ p, i, m, a \]  
Right hand fingers. \( P \) is for the thumb, \( i \) is for the index finger, \( m \) is for the middle finger, and \( a \) is for the ring finger

\[ 1, 2, 3, 4 \]  
Left hand fingers. 1 is for the index finger, 2 is for the middle finger, 3 is for the ring finger and 4 is for the pinky finger

\[ \text{Bartók Pizzicato} \]

\[ \text{Glissando} \]

\[ \text{Alvaro Company’s symbol for no vibrato} \]

\[ \text{Alvaro Company’s symbol for a normal vibrato} \]

\[ \text{Alvaro Company’s symbol for a slow vibrato} \]

\[ \text{Alvaro Company’s symbol for a rapid vibrato} \]
Play left notes over the soundhole

Rasgueado

Golpe

Tambora

Alberto Ginastera’s symbol for using an open palm to perform the tambora

Alberto Ginastera’s symbol for using a closed fist to perform a tambora

Alberto Ginastera’s symbol for using the thumb to perform a tambora
APPENDIX D

SELECTED DISCOGRAPHY


Brouwer, Leo. *Brouwer*. Elena Papandreou. Naxos compact disk B00005RT4M

Davidovsky, Mario. *Flashbacks: Music by Mario Davidovsky*. David Starobin. Bridge compact disk B00004T91M


Ginastera, Alberto. *Guitar Recital*. Jérôme Ducharme. Naxos compact disk B000H4VZDU

Henze, Hans Werner. *Royal Winter Music*. David Tanenbaum. Stradivarius compact disk B000A0HFVC


Tárrega, Francisco. *The Legendary Segovia*. Andres Segovia. EMI Classics compact disk B0000013VA
Verdery, Benjamin. *Start Now*. Benjamin Verdery. Mushkatweek compact disk B00A6VY40


WORKS CITED

CHAPTER 1

THE LEFT HAND


CHAPTER 2

THE RIGHT HAND


CHAPTER 3

PERCUSSIVE SOUNDS


**CHAPTER 4**

**WITH OBJECTS**


CHAPTER 5
BORROWED FROM OTHER TRADITIONS


CHAPTER 6
MISC.


APPENDIX A

NATURAL AND ARTIFICIAL HARMONICS


APPENDIX B

THE TREMOLO


BIBLIOGRAPHY


