

AN EXPLORATION INTO THE USE OF SCORDATURA TUNING TO PERFORM
J. S. BACH'S PARTITA BWV 1004 ON THE GUITAR

by

Bin Hu

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Thomas Patterson

Date: 12/5/2019



Philip Alejo


Date: 12/5/2019

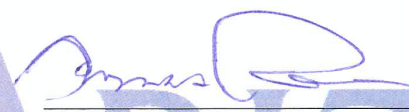


Timothy Kantor

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Thomas Patterson
Document Committee Chair
Fred Fox School of Music

Date: 12/25/2019

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Dedication

To the women in my family:
my mother, my mother-in-law, my wife and my daughter.

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Abstract

J. S. Bach's solo string and lute works have become an indispensable part of the modern guitar repertoire. While the tonal character of the modern guitar, being closely related to the Baroque guitar and lute, is fitting for Baroque performance practice, the instrument was not directly associated with Bach's compositional idioms as he did not play it nor compose for it. Therefore, the renditions of Bach's works on the modern guitar expose a series of technical and stylistic problems, with the majority of the problems being a result of the tuning structure of the guitar. This study investigates the use of a lute-inspired scordatura (hereinafter referred to as semi-lute scordatura) on the guitar to: (1) simplify technical difficulties by promoting the use of lower positions and open strings, (2) embody the stylistic features of the lute and harpsichord, and (3) incorporate ornamental practices from the lute and harpsichord. The Violin Partita BWV 1004 has been used in this document as a model to demonstrate the outstanding features that the semi-lute scordatura provides in these respects. The results of this study not only inform guitarists of the possibility to perform Bach's music with scordatura tuning, but more importantly, they also expose guitarists to the lute and harpsichord style to ultimately provide essential knowledge that can be applied to create a historically inspired rendition of Bach's music on the guitar, even with standard tuning.

I. Introduction

1. Intent and Scope of Study

Although Bach did not compose directly for the guitar, transcriptions and arrangements of his lute suites and solo string works have long been cemented in the modern guitar repertoire.¹ Studies of historical arrangements, including Bach's arrangements of his own music, confirm an idiom-driven approach rather than a rigorous note-for-note translation in the arrangement process.² Idiomatic alterations made when transferring from a melodic instrument to a harmonic instrument are evident in Bach's arrangement of his Violin Sonata BWV 1003 for the harpsichord. Due to the idiomatic differences between bowed string instruments and plucked string instruments, the emphasis of this study is not to tenuously imitate the violin but to utilize the advantages of the guitar for arranging Bach's Violin Partita BWV 1004. In this regard, I follow Bach's model of arranging solo string works for the lute and harpsichord. The use of the semi-lute scordatura facilitates the incorporation of stylistic features of the lute and harpsichord, whose idiosyncrasies are more akin to the guitar than bowed string instruments.³

It is worth noting that the use of scordatura in Bach's works has long been explored, including by the composer himself. The employment of scordatura to solve

¹ Kathy Acosta Zavala and Bin Hu, "Ciaccona," liner notes for *Ciaccona*, by Johann Sebastian Bach, performed by Bin Hu, Ediciones Eudora EUD-SACD-1803, 2018, Super Audio CD, 5.

² Stanley Yates, "Bach's Unaccompanied String Music: A New (Old) Approach to Stylistic and Idiomatic Arrangement for the Guitar (Part 2)," *Classical Guitar* 17, no. 4 (December 1998): 22.

³ *The New Grove Dictionary of Music and Musicians*, 2nd ed., s.v. "Scordatura." A term applied largely to lutes, guitars, viols and the violin family to designate a tuning other than the normal, established one.

technical problems when performing Bach's works is not uncommon, even on the Baroque lute. Examples can be found in the archival production presented by the Deutsche Grammophon in November 1973 when Narciso Yepes recorded all Bach's solo lute compositions on a cassette using five different scordature on a 13-course and 14-course Baroque lute.⁴ The semi-lute scordatura in this study was introduced by Marco Tamayo, Professor of Guitar at the Mozarteum University of Salzburg, in a 2004 concert performance of the Violin Sonata BWV 1001, where he substituted the *Adagio* movement with the *Prelude* BWV 999.⁵ His arrangement is based on the reading of the German lutenist Johann Christian Weyrauch's intabulation of the *Fuga* BWV 1000 and is notable for its technical ease and elaborated ornaments. These two sources are used as principal models in this study to reveal how the semi-lute scordatura lends itself to ornamentation characteristic of Baroque lute and harpsichord, and how this method can be applied to arranging and performing Bach's Violin Partita BWV 1004. The intention of this study is to reveal the typical Baroque stylistic features that the semi-lute scordatura exhibits through slur placements, use of lower positions, technical facilitation, and incorporation of idiomatic features and ornamental practices of the lute and harpsichord, which will be discussed in Chapter II, III, and IV.

However, despite all the advantages that will be discussed here, the absence of diapason courses on the modern guitar restricts access to bass notes which thus makes the

⁴ Hartwig Eichberg and Thomas Kohlhase, *Johann Sebastian Bach neue Ausgabe sämtlicher Werke, Serie V, Band 10: Einzel überlieferte Klavierwerke II und Kompositionen für Lauteninstrumente, Kritischer Bericht* (Kassel: Bärenreiter, 1982), 97.

⁵ Marco Tamayo, "Marco Tamayo Mirabel 2004" (Live Performance, Schloss Mirabel Salzburg, March 23, 2004), accessed November 8, 2018, <https://www.youtube.com/watch?v=yjqD6TRN2DA&t=471s>.

use of the semi-lute scordatura dependent on the key and tessitura of a work.⁶

Nevertheless, the principles derived from this study can still be applied by deliberately choosing specific fingerings with standard guitar tuning, bearing in mind the desired result to be achieved.

Lastly, while there are numerous studies on the subject of transcription and arrangement of Bach's works on the guitar, this study is unique as it focuses on how the semi-lute scordatura achieves not just technical ease, but the spontaneity of musical expression. This study does not attempt to analyze the compositions per se; it is neither a study of Bach's own methods of transcription nor comprehensive research on Baroque performance practice. Instead, the ultimate goal here is to use the modern guitar as a medium to embody the Baroque performance practice—modeled after the Baroque lute and harpsichord—whose idioms were highly developed in the Baroque era. The employment of the semi-lute scordatura on the guitar optimizes the instrument's capacity for the execution of polyphony and other stylistic features of the lute and harpsichord such as *style brisé*, *campanella*, and ornamental practices. In other words, the modern guitar should be treated as if it had existed in the Baroque era and had interacted with other contemporary instruments such as the lute and harpsichord.

2. Statement of Primary Thesis

The use of the semi-lute scordatura on the guitar to perform J. S. Bach's Partita BWV 1004 optimizes the instrument's capability to realize polyphonic texture, solves persistent problems encountered in conventional arrangements, and allows the

⁶ Diapason courses are the octave bass courses below the sixth course on the lute, which are tuned diatonically according to the key of the piece.

incorporation of idioms that are stylistic of the lute and harpsichord. The resulting rendition informs modern arrangers of new possibilities in crafting a historically inspired performance of Bach's music on the modern guitar.

3. Review of Scholarly Literature

The foundation for this document is based on information collected from a variety of sources, which include facsimiles, contemporary recordings and editions, PhD dissertations and DMA documents, historical treatises, and contemporary monographs. The following review will demonstrate the crucial aspects in which these references serve to build the critical foundation of this study.

a. Lute intabulations

The lute intabulations of BWV 995, 997, and the fugue of BWV 1000 currently housed in the *Musikbibliothek der Stadt Leipzig* are the only sources of Bach's lute works that have survived in French lute tablature from Bach's time.⁷ While the intabulator of BWV 995 remains unknown, the BWV 997 and the fugue of BWV 1000 are clearly from the hands of Johann Christian Weyrauch.⁸ Despite debates on whether the intabulation of BWV 1000 was transcribed from a lost arrangement of the earlier violin fugue by Bach or arranged by Weyrauch directly from the violin fugue, the lute version of this fugue

⁷ Eichberg and Kohlhase, *Kritischer Bericht*, 90–91. Sammlung Becker III. 11.3 (BWV 995), III. 11.4 (BWV 1000), III. 11.5 (BWV 997)

⁸ Tilman Hoppstock, *Bach's Lute Works from the Guitarist's Perspective*, vol. 1, *Suites BWV 995/996*, trans. Lindsay Chalmers-Gerbracht (Darmstadt: Prim-Musikverlag, 2012), 46; Eichberg and Kohlhase, *Kritischer Bericht*, 157–158. The tablature of BWV 997 comprises only three movements which are titled *Fantasia*, *Sarabande*, and *Giga*.

demonstrates great technical ease in comparison to the unidiomatic and technically challenging conventional guitar transcriptions.⁹

One of the most distinctive features of the Baroque lute is the diapason courses. The common type of lute during Bach's time had 11 courses and, since around 1720, 13 courses. There were also the 10-, 12-, and 14-course lutes which were less commonly used.¹⁰ Due to the absence of the diapason courses on the modern guitar, direct reading from the tablature of BWV 995 and 997 is not possible even with the semi-lute scordatura. Therefore, these two sources will not be used in this study. Instead, the intabulation of BWV 1000 together with Tamayo's rendition on the guitar serve as crucial models for creating the retuned arrangement of the Violin Partita BWV 1004 in this study.

b. Historical treatises on Baroque performance practice

Treatises from Bach's contemporaries provide valuable insight into Baroque performance practice. Several monumental treatises from François Couperin, Johann Joachim Quantz, Carl Philipp Emanuel Bach, and Leopold Mozart were carefully examined to ensure that the performance practice pertinent to the objectives of the semi-lute scordatura is historically informed.

Bach's works exhibit a mixture of French and Italian traits. The treatise *L'art de toucher le clavecin* by François Couperin on the art of playing the harpsichord, initially published in 1716, represents late French Baroque performance practices. F. Couperin's

⁹ Tilman Hoppstock, *Bach's Lute Works*, vol. 2, *BWV 998/999/1000* (Darmstadt: Prim-Musikverlag, 2013), 19–20.

¹⁰ Eichberg and Kohlhase, *Kritischer Bericht*, 93.

desire to elucidate the expressive nuances of the harpsichord is demonstrated through his artful descriptions of the use of silence as an articulation tool. The *aspiration* and *suspension*, as he explained in his treatise, exemplify the subtlety of the French style. The book also contains a detailed chart on the signs and executions of essential ornaments, which provides clues for identifying Bach's spelled-out ornaments.¹¹ Customary French performance practices such as over-dotted rhythm and rhythmic inequality discussed in this treatise underlie the interpretation of the French style in Bach's music.

The next three treatises in German, *On Playing the Flute, Essay on the True Art of Playing Keyboard Instruments*, and *Versuch einer gründlichen Violinschule* are of equal importance. While questions may arise regarding how truly representative these texts are of the performance practice of J. S. Bach as they were published after his lifetime, their validity has been supported by both historical sources and modern scholars.

For example, the treatise *On Playing the Flute* by Johann Joachim Quantz was highly regarded by Anna Magdalena as one of the closest representations of Bach's art. Though this treatise was only published after Bach's death in 1752, Bach successfully obtained a copy before its publication and read it with much interest, according to Magdalena's report in her "Little Chronicle."¹² Furthermore, Dr. Charles Burney's comments in *The Present State of Music in Germany* in 1773 that Quantz's taste is "that of forty years ago" precisely refer back to the 1710s when Bach's solo violin works were

¹¹ Couperin used the term *agréments* for the essential ornaments in his treatise *The Art of Playing the Harpsichord*.

¹² Richard R. Efrati, *Versuch einer Anleitung zur Ausführung und zur Interpretation der Sonaten und Partiten für Violine solo und der Suiten für Violoncello solo von Johann Sebastian Bach* (Zürich: Atlantis Musikbuch-Verlag, 1979), 15–16. Anna Magdalena was the second wife of Johann Sebastian Bach.

composed.¹³ Quantz's knowledge of Bach's style of performance is also clearly evident in the text of his treatise:

Toward the middle of the last century there were already some celebrated persons who began to effect the improvement of musical style, partly by visiting and profiting from Italy and France themselves, partly by imitating the works and the taste of these meritorious foreign lands...the admirable *Johann Sebastian Bach* in more recent times brought [the improvement of musical style] to its greatest perfection.¹⁴

Additionally, the following texts from Quantz's treatise shows his sympathy with Bach's musical style:

In recent times, however, there are two peoples in particular who have earned considerable esteem through their improvement of musical style; ...These two peoples are the *Italians* and the *French*. Other nations have given the greatest approbation to the styles of these two peoples, and have sought to imitate and adopt some aspects of the styles of either the one or the other.¹⁵

Beyond the evidence in Quantz's treatise and the agreement among his contemporary peers, modern scholars also agree on the similarities between Quantz and Bach. For example, Robert Donington expressed his point of view, saying "I can hardly imagine our being lucky enough to get any closer to J. S. Bach than that, with a great pedagogical treatise, replete in fine detail and broad insight alike."¹⁶ Besides the technical aspect of playing the flute, a significant portion of Quantz's treatise is devoted to the interpretation of styles and performance practice, which are broadly applicable to other instruments like the modern guitar.

¹³ Ibid., 15.

¹⁴ Johann Joachim Quantz, *On Playing the Flute*, trans. Eduard R. Reilly (New York: The Free Press, 1966), 338–339.

¹⁵ Ibid., 320.

¹⁶ Efrati, *Versuch*, 16.

Carl Philipp Emanuel Bach, one of J. S. Bach's eldest sons, was an innovator just like his father. His treatise *Essay on the True Art of Playing Keyboard Instruments*, published only a year after Quantz's essay, carries the legacy of his father's teaching and the family taste for the French-style harpsichord idioms, ornaments, and fingerings.¹⁷ As a leading proponent of the *empfindsamer Stil* (sensitive style), C. P. E. Bach's elaborated explanations of essential ornaments inform modern arrangers of the extended possibilities and subtle nuances in ornamental practice. Aspects of accompanying and improvising are also touched upon in this comprehensive essay. However, as Donington points out in his book *The Interpretation of Early Music*, C. P. E. Bach's treatise reflects more of a later style and should be referred to with caution when applying his treatise to the interpretation of J. S. Bach's music.¹⁸

The *Versuch einer gründlichen Violinschule* (A Treatise on the Fundamental Principles of Violin Playing) was published in 1756 by Leopold Mozart, a respected violin pedagogue of his time and the father of Wolfgang Amadeus Mozart. This treatise gained immense popularity during the lifetime of L. Mozart and was widely disseminated all over Europe.¹⁹ Given that violin techniques did not change abruptly during the first half of the 18th century, the portions on bowing and treatment of ornaments in L. Mozart's treatise are broadly applicable to J. S. Bach's solo violin works. This treatise provides essential knowledge for interpreting the original slur marks in the manuscript of the Violin Partita BWV 1004 on the guitar.

¹⁷ Ibid.

¹⁸ Robert Donington, *The Interpretation of Early Music* (London: Faber and Faber, 1963), 37–38.

¹⁹ Efrati, *Versuch*, 15.

c. Modern publications on Baroque performance practice

An ideal companion for the aforementioned, fundamental treatises by L. Mozart and Quantz is the *Treatise on the Execution and Interpretation of the Sonatas and Partitas for Solo Violin and the Suites for Solo Cello* by Richard Efrati (1979). Efrati's application of their treatises is clearly reflected in his execution and interpretation of Bach's solo string works. While general agreement can be reached in the interpretation of a piece, divergent opinions toward the execution of specific ornaments and practices still exist, resulting in different interpretations of the same passage. Although we may never know with certainty which interpretation(s) Bach would have favored, the variety of interpretations proposed by Efrati in his treatise grants us greater freedom to craft a historically informed rendition. Efrati's discussions of the Violin Partita BWV 1004 in his book are the most relevant to the subject of study here; they reveal how bowing decision serves to articulate the function of slur, which provides justification for the fingering decision and slur placement on the guitar.

However, to better understand the diverse approach of ornamental practices by significant Baroque theorists and composers from different parts of Europe, the modern comparative publication of *Ornamentation in Baroque and Post-Baroque Music: With Special Emphasis on J.S. Bach* by Frederick Neumann (1978) is the most useful for this purpose. In Neumann's text, historical developments in ornamental practices from across Italy, France, Germany, and England are discussed. As such, Neumann's extensive comparative research provides a panoramic view of the topic of ornamentation, which provides historical evidence for the authenticity of the essential and arbitrary ornaments that will be discussed in Chapter IV. Through the immediate comparison of Bach with

other Baroque composers, Neumann's treatise not only demonstrates the freedom and complexity in Bach's spelled-out ornaments but also reveals the stylistic differences in ornamental practice between Bach and other composers. Additionally, by juxtaposing the diverse possibilities which can be used to execute the same ornament, Neumann also questions the rigid approaches to Baroque ornamental practice and advocates a flexible approach based on the core function of ornaments to enhance a certain musical expression. However, only by becoming aware of the extended possibilities of this practice can this flexibility be obtained. By demonstrating both the diverse possibilities as well as the divergences in ornamental practices, Neumann's treatise emancipates modern performers from perceived rules, allowing ornamental practice to return to its artistic roots. The book also provides insight into understanding the actual function of Bach's ornamental writing.

d. Publications on lute and harpsichord

Harpsichord and Lute Music in 17th-Century France by David Ledbetter (1987) provides useful information on the relationship between lute and harpsichord in the first half of the 17th century. Ledbetter demonstrates how the lute styles such as *style brisé* and *campanella* became common devices of expressions on the harpsichord during the 17th century, as well as how the harpsichord outgrew the popularity of the lute around the turn of the century in France.²⁰ When demonstrating the adaptation of lute idioms to the harpsichord, Ledbetter compares the literal transcription, which is considered a failure,

²⁰ *Oxford Music Online*, s.v. "Campanella," accessed March 20, 2019, <http://www.oxfordmusiconline.com>. A passage in which adjacent or repeated notes are drawn from different courses so that they may continue to sound when the following note is struck; associated terms for *campanella* on the harpsichord: *baigné*, *bariolage*, or over legato.

with the more masterful and idiomatic translation by d'Anglebert. The analysis of historical evidence in his research reveals not just the influence of lute style on the harpsichord, but also how the lute style was optimized on harpsichord, taking advantages of its broader range and fuller polyphonic capacity. The process of borrowing languages from another instrument and making them idiomatic on the target instrument mirrors the objectives of this study.

e. PhD dissertations and DMA documents

C. N. Amos's dissertation on "Lute Practice and Lutenists in Germany between 1500 and 1750" reviews the development of lute technique and its ornamental practice based on historical sources. The sustaining function of the left-hand technique claimed by historical lutenists mirrors the left-hand principle of the modern guitar technique, which will be further discussed in Chapter III under *style brisé*. Explanation of commonly used ornamental signs and their executions provides essential knowledge of ornamental practice of the lute, which facilitates their adaption to the guitar.

Another related study is J. E. Smiles's dissertation, "Improvised Ornamentation in Late Eighteenth-Century Music: An Examination of Contemporary Evidence." Her study emphasizes the more obscure and artistic treatments of the improvised ornaments, rather than the essential ornaments which are more commonly researched. In her work, the French, Italian, and German ornamental traditions are examined separately through the analytical lens of important historical treatises. Regarding its relevance to this study, treatises by C. P. E. Bach, L. Mozart, Quantz, Marpurg, and Agricola distills several principles that could be applied to the treatment of essential ornaments and diminutions in Bach's works.

The literature on scordatura tuning is divided into historical and modern usage. Mark Chambers's Doctor of Music document concludes with a discussion on Bach's own use of scordatura tuning in the Suite V in C Minor for Unaccompanied Violoncello BWV 1011 in the ending chapter.²¹ In his study, Chambers presents a history of scordatura tuning on the cello before Bach's time and identifies the intended function and effect of Bach's scordatura tuning. The lowered first string on the cello, employed by Bach in the fifth cello suite, emphasizes the C minor resonance, facilitates the use of chords that are not available on a cello with standard tuning, and eliminates unnecessary position shifts and left-hand extensions. Interestingly, these benefits gained on the cello mirror the benefits of using the semi-lute scordatura on the guitar.

In order to incorporate idiomatic features of the lute, Renato Serrano Muñoz proposed using a scordatura tuning as an alternative solution in transcribing Weiss's lute work for the modern guitar.²² Renato's study exemplifies the modern use of scordatura tuning, although most of his document is devoted to the transcription process, which was intended to serve as pedagogical guidance.

f. Conclusions about scholarly literature

For this study, information pertinent to the interpretation of style and performance practice of the lute and harpsichord has been collected and reviewed from authoritative Baroque treatises and modern scholarship to justify the retuned rendition of Bach's Violin Partita BWV 1004 from a historically informed perspective. Special attention has

²¹ Mark Chambers, "The 'Mistuned' Cello: Precursors to J. S. Bach's Suite V in C Minor for Unaccompanied Violoncello" (Doctor of Music Treatise, Florida State University, 1996), 63–91.

²² Renato Serrano, "Guidelines for Transcribing Baroque Lute Music for the Modern Guitar, Using Silvius Leopold Weiss's Sonata 36 (From the Dresden Manuscript) as a Model" (DMA document, University of Arizona, 2016), 41–46.

been paid to how the semi-lute scordatura is able to better realize the stylistic and idiomatic features of the Baroque lute and harpsichord when compared to standard tuning. Furthermore, L. Mozart's and Efrati's treatises on the performance practice of the violin provide both musical and technical knowledge of Bach's slur marks in the violin score, which facilitates the translation of these slurs in a guitar arrangement.

While the use of scordatura has long been explored, this study breaks new ground by examining the use of scordatura from both technical and musical aspects. As there is no dearth of arrangements of Bach for the modern guitar, this study intends to reinvigorate and inspire guitarists through a historically informed approach. In a broader sense, the stylistic considerations presented in this study may also serve as a model to help achieve better results in renditions of Bach's music with standard guitar tuning.

4. Scordatura: Definition and General Usage

According to the definition in the *New Grove Dictionary of Music and Musicians*, scordatura is "a term applied largely to lutes, guitars, viols and the violin family to designate a tuning other than the normal, established one."²³ Derived from the Italian verb *scordare*, which literally means to "mistune," it has been typically used as a device to create "novel colors, timbers and sonorities" and to imitate other instruments.²⁴ The related term *accordatura*, on the other hand, is used to indicate the standard tuning of an instrument.

Historical use of scordatura is evident in music for plucked string instruments and bowed string instruments. As far as tuning experimentations are concerned, there is

²³ *New Grove*, s.v. "Scordatura."

²⁴ *Ibid.*

perhaps no better subject to examine than the lute, whose tuning has continuously evolved throughout the Middle Ages and the Baroque period. Although over twenty different tunings in the 17th-century lute repertoire have been documented, only a handful among them became common.²⁵ While the typical six-course lute from the early 16th century was known to have been tuned in perfect fourths surrounding a major third in the middle, a number of alternative tunings were recorded between 1500 and 1750.²⁶ The *cordes avallées* (lowered strings) “used by Francisque (1600) and Besard (c. 1603), which involved lowering the fourth, fifth and sixth courses to give drone-like fourths and fifths,” enjoyed a brief vogue in France.²⁷ The drone basses featured in this tuning were to accommodate the style of rustic dance pieces.²⁸ This scordatura resembles the use of dropped tunings on the modern guitar (e.g., *Sevilla*, Albéniz), which serves exactly the same stylistic purpose. The *accords nouveaux* (new tunings) that emerged at the beginning of the 17th century yielded a large number of variants, though only a handful were commonly used. A similar feature among the new tunings was the shortened interval between the first and sixth courses which was less than two octaves as opposed to the lowered tunings, where this interval was always wider than two octaves. As Sayce points out, “The advantages of the new tunings were increased resonance and ease of left-

²⁵ *The New Grove Dictionary of Music and Musicians*, 2nd ed., s.v. “Lute.”

²⁶ *Oxford Music Online*, s.v. “Courses,” accessed August 21, 2019, <http://www.oxfordmusiconline.com>. According to the entry in *Oxford Music Online*, “courses” are the term by which ranks of strings on plucked instruments were known from the 16th century to the 18th. A course may consist of one, two or even three strings. Thus, six-course denotes six sets of strings. The lute usually has the first course (and, from about 1650 onwards, the second course) single and the rest double.

²⁷ *New Grove*, s.v. “Lute.”

²⁸ *Ibid.*

hand fingering, though only within a very limited range of keys.”²⁹ In particular, the D minor Baroque lute tuning emerged as a popular choice among the new tunings and was widely used throughout Europe in the 18th century. Derived from this D minor tuning, the semi-lute scordatura in this study inherits both the advantages and disadvantages of the new tunings.

The use of scordatura has also been recorded on the vihuela. The six-course vihuela is tuned precisely like the six-course lute of its time. The following paragraph from Juan Bermudo’s treatise *Declaración de instrumentos musicales* (1555) describes the use of scordatura on the vihuela: “If a good player wants to show himself as skillful, he shouldn’t be content with the common vihuela tuning: but he should tune it as he desires, and intabulate according to the tuning, and playing from that tablature. Only he will be able to play with the very similar vihuela.”³⁰ Bermudo also mentions an alternative tuning of *G-B-d-g-b-d'* in Chapter LX for the “small vihuela” and three tuning variants for the seven-course vihuela in Chapter LXII and LXIV.³¹ Among those, the *G'-D-G-d-g-d'-g'* tuning is better for Gombert’s pieces or for playing pieces written for the

²⁹ Ibid.

³⁰ Juan Bermudo, *Comiença el libro llamado de declaraciõ de instrumẽtos musicales dirigido al ilustrisimo señor el señor don Francisco de çuniga Conde de Miranda, señor delas casas de casas de auellaneda y baçã &c. cõpuesto por el muy reuerendo padre fray Iuã Bermudo dela ordẽ delos menores: en el qual hallarã todo lo que en musica dessearẽ, y cõtiene seys libros: segũ en la pagina siguiẽte se vera: examinado y aprouado por los egregios musicos Bernardino de figueroa, y Chistoual de morales* (Osuna, 1555), bk. 4, fol. 93; publ. IMSLP, [https://imslp.org/wiki/El_libro_llamado_declaraci%C3%B3n_de_instrumentos_musicales_\(Bermudo%2C_Juan\)](https://imslp.org/wiki/El_libro_llamado_declaraci%C3%B3n_de_instrumentos_musicales_(Bermudo%2C_Juan)), accessed January 7, 2020. Original texts in Spanish: “Pues para que vn tañedor se muestre abil, no se contente con el temple dela vihuela comun: sino temple la a su voluntad, y cifre conforme al temple, y tañendo aquello cifrado, solo el sabra tañer por semejante vihuela.” Translation by Pedro Ledesma.

³¹ Ibid., fols. 93–95.

organ for its capacity to play up to five voices.³² However, tuning in large intervals of perfect fifth and perfect fourth expands the range, making it challenging to find appropriate strings to accommodate this tuning.³³ Another tuning of *G'-D-G-B-f#-b-d'* (nominal pitches), in which “almost all the open strings produce consonance,” features a narrower range.³⁴

For the four-course guitar, there were two principal tuning variants, the *temple nuevos* (new tuning) and the *temple viejos* (old tuning).³⁵ The intervallic relations of the new tuning correspond to the second to fifth courses of a vihuela, whereas in the old tuning, the fourth course is tuned a whole tone lower. The five-course Baroque guitar had various string arrangements. Some composers used a *bourdon*—a thick string tuned an octave below the other string in the course—on the fifth and fourth courses (Foscarini), while other composers used a re-entrant tuning with a *bourdon* only on the fourth course (Corbetta, de Visée, and de Murcia) or with unisons on the fifth and fourth courses without *bourdon* (Sanz).³⁶ The re-entrant tuning allows for *campanella* scales and adds distinctive harmonic color when playing chords.

Historical use of scordatura on bowed string instruments was also not uncommon. According to Theodore Russell’s point of view, “Violinists inherited the idea of the

³² Ibid., fol. 95.

³³ Ibid.

³⁴ Ibid.

³⁵ James Tyler, *The Early Guitar: A History and Handbook* (London: Oxford University Press, 1980), 25.

³⁶ *Oxford Music Online*, s.v. “Re-entrant tuning,” accessed August 21, 2019, <http://www.oxfordmusiconline.com>. According to the entry in *Oxford Music Online*, “re-entrant tuning” is a term used to describe the tuning of string instruments in which successive strings are tuned not to successively higher pitches but to a pattern of rising and falling intervals.

scordatura from players of the lute and the viol.”³⁷ The use of scordatura on the violin rose in popularity during the 17th century, peaked in the 18th century, and subsequently declined in the 19th century.³⁸ The 17th-century Austrian violinist and composer Henrich Franz Biber used 10 scordatura on the violin in his Sonatas. Mozart also tuned the strings one half-step higher in his “Adelaide” Concerto to facilitate the execution of the awkward E-flat major on the violin, which resembles the use of a capo on the guitar to help resolve issues with unidiomatic tonalities. On some occasions, 19th-century violinists employed a raised or lowered fourth string to facilitate the execution of arpeggios. Moreover, scordatura was also used to imitate period instruments. Tuning in imitation of the viola d’amour was mentioned by B. Campagnoli in his published work *Nouvelle Méthode de la Mécanique Progressive du Jeu du Violon*, op. 21 (1824). However, among all 19th-century figures, the one who employed scordatura the most masterfully on the violin was the great Italian virtuoso Nicolò Paganini. As Carl Guhr testifies in his book *On Paganini’s Art of Playing the Violin*, “[Paganini’s] manner of tuning the instrument is wholly original, and to me appears incomprehensible in many respects.”³⁹ According to Guhr’s testament, Paganini’s tour de force of using altered tunings during his performances while maintaining intonation “firm like a wall” was astonishing.

Bach’s use of scordatura tuning is evident in his fifth cello suite, in which the tuning of the cello is instructed as *C-G-d-g*. This tuning, known as the “Italian tuning,”

³⁷ Theodore Russell, “The Violin ‘Scordatura,’” *The Musical Quarterly* 24 (1938): 85.

³⁸ *Ibid.*, 86–95.

³⁹ Carl Guhr, *Ueber Paganini’s Kunst die Violine zu spielen* (Mainz, Antwerpen and Brüssel: B. Schott’s Söhne, 1829), 4. Original German text: “Was die Stimmung seines Instrumentes betrifft, so ist sie ganz eigen und mir in mancher Hinsicht unerklärbar.”

was commonly used by Italian composers in the late 17th century.⁴⁰ The effects of this scordatura are summarized in Chambers's treatise, as follows:

Johann Sebastian Bach's Suite V in C minor represents the most technically and musically advanced example of solo writing for the four-stringed violoncello at the time of its composition. Bach's use of the "Italian" tuning 1) facilitates the use of chords that are not available on a violoncello tuned *C-G-d-a*; 2) accentuates the harmony of the key of C minor; 3) enables the playing of *A^b* in half position on the high *g* string, eliminating the need to use an open hand position and avoiding unnecessary shifting; 4) utilizes for musical effect and contrast the timbral changes which result from altered string tensions; and 5) facilitates the use of adjacent unisons not available on a violoncello tuned *C-G-d-a*.⁴¹

Echoing Bach's use of the "Italian tuning," the use of the semi-lute scordatura on the guitar aims to attain the same harmonic effects and technical facilitation achieved on the cello.

Yet, despite these advantages of harmonic effects and technical facilitation, the use of scordatura may cause confusion in notating a piece of work and may create additional problems during performance. Quantz's remark on the practice of scordatura in his treatise *On Playing the Flute* reveals both the merits as well as disadvantages in the case of the violin:

The Germans played the violin harmonically rather than melodically. They wrote many pieces for which the violin had to be retuned, that is, the strings had to be tuned in seconds, thirds, or fourths, instead of fifths, in accordance with the indications of the composer. This makes the chords easier, but causes not a little difficulty in the passage-work.⁴²

Exemplified in the passage above, the use of scordatura involves an unusual notational practice and fingerings. In the scordatura notation, "all accidentals apply only to the lines

⁴⁰ Chambers, 25.

⁴¹ Ibid., 80–81.

⁴² Quantz, *Flute*, 337.

and spaces they appear on, not to notes of the same name in octaves above or below.”⁴³

As observed from the notation of Bach’s fifth cello suite, the notes on the first string are notated one whole-step higher than their actual pitches. However, this is less a problem for fretted instruments like the lute and guitar as “even the most unusual of tunings can be read and played as easily as the most normal one” using tablature notation.⁴⁴ This commonality of the lute and guitar as fretted instruments explains the reason why both these instruments have the largest number of pieces using scordatura, as well as its decline in use after the abandonment of tablature.

The employment of scordatura on the modern guitar inherits traditions from the past. Domeniconi’s *Koyunbaba*, a well-known solo guitar work inspired by Turkish folk music, demonstrates the possibility of using scordatura to create novel resonance. Leo Brouwer’s *Hika* (In Memoriam Toru Takemitsu) is another example where the scordatura yields an exotic resonance from the resulting half-diminished seventh chord. The dropped-D and dropped-G tunings are often used in works exhibiting a folk-dance character. To imitate the Renaissance lute or vihuela, tuning with F-sharp on the third string and a capo placed at the second or third fret can be used. This tuning not only enables the performer to read directly from the tablature, but also lends the modern guitar idiomatic resources of these historical instruments.

⁴³ Chambers, 74.

⁴⁴ *New Grove*, s.v. “Scordatura.”

5. The D Minor Lute Tuning

The Baroque lute was tuned differently from the Renaissance lute to accommodate the new musical style and the technical demand of the repertoire. Evolving from the guitar-like Renaissance tuning known as the *vieil ton* (old tuning), the D minor tuning began to emerge as one of the many experiments of the *accords nouveaux* (new tunings) during the early 17th century. By the 1670s, this harmonically-based tuning on the 11-course and later the 13-course lute had become the preferred norm, as it was widely used in Europe.⁴⁵

a. Designation of pitch

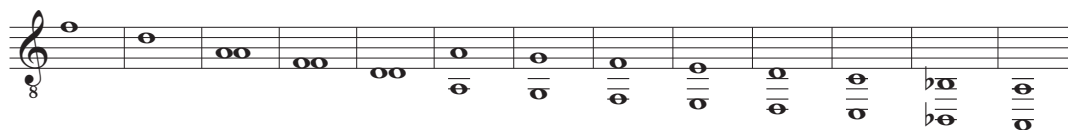
The four-course European lute evolved from its precursor, the Arabian *‘ūd*, which was first introduced into Europe by the Moors during their conquest and occupation of Spain.⁴⁶ The number of courses was augmented to 10 during the Renaissance. Later, in the Baroque era, lutes with courses ranging from 10 to 13 became the norm. Example 1.1 illustrates the D minor tuning on a 13-course Baroque lute. The first six courses in the D minor tuning yield a D minor triad (*A-d-f-a-d'-f'*), and the rest of courses below the sixth, the diapason strings, are tuned diatonically and altered according to the key of the piece. This is the primary reason that Baroque movements are grouped by the key into suites. The single string on the first and second courses, the unison doublings on the third to fifth courses, and the octave doublings from the sixth course downwards demonstrate a typical method of stringing a 13-course Baroque lute.⁴⁷

⁴⁵ *New Grove*, s.v. “Lute.”

⁴⁶ *Ibid.*

⁴⁷ Eichberg and Kohlhasse, *Kritischer Bericht*, 94. “Die oberen beiden Chöre sind einfach besaitet, die Chöre III-V doppelt im Einklang, die übrigen Chöre doppelt mit Oberoktav.”

Example 1.1. D minor tuning on a 13-course Baroque lute⁴⁸



b. The semi-lute scordatura on the guitar

The semi-lute scordatura used in this study derives partially from the D minor lute tuning. The intervallic relations of the four top strings on the lute are emulated by lowering the first string to *d'* and the third string to *f#* on the guitar. The fifth and sixth strings remain unchanged. Example 1.2 illustrates the semi-lute scordatura on the guitar. The four top strings yield a B minor resonance, which is a minor third lower than in the original D minor tuning. With the aid of a capo, the semi-lute scordatura can be transposed a semitone or a whole tone higher, which brings it to C minor or C# minor (Example 1.3).

Example 1.2. Semi-lute scordatura on the guitar



Studies have shown that the pitch standards in the Baroque era fluctuate between a semitone above and a whole tone below today's standard ($a'=440\text{Hz}$) depending on the instrumentation and genre of the piece.⁴⁹ Leading contemporary lutenists and

⁴⁸ This document uses a sub-octave treble clef common to the guitar notation. The c' or "middle C" is located in the second space from the top.

⁴⁹ *Oxford Music Online*, s.v. "Pitch," accessed August 27, 2019, <http://www.oxfordmusiconline.com>.

harpichordists figures such as Hopkinson Smith and Gustav Leonhardt adopt the $a'=415\text{Hz}$ pitch standard to perform Baroque repertoire. When tuned to the $a'=415\text{Hz}$ standard, the actual performance will sound a semitone lower than what is written; the D minor lute tuning will thus sound like C# minor in modern pitch standard. Therefore, with the capo placed at the second position, the semi-lute scordatura could be transposed to C# minor to partially match with the D minor lute tuning (Example 1.3).

Example 1.3. Transposition of semi-lute scordatura with a capo

with capo at I (C minor)

with capo at II (C# minor)

Example 1.4. Structural explanation of semi-lute scordatura

standard guitar tuning with a minor third above the first string

transposed a perfect 4th downwards

The structure of the semi-lute scordatura can be understood as the standard guitar tuning with a minor third above the first string but transposed a perfect fourth downwards. This imaginary “addition” of a treble string provides convenience for elaborated ornaments in the melody and significantly eliminates position shifts encountered in standard tuning (Example 1.4).

Evidence shows that similar tunings have been attempted by modern guitarists when transcribing Weiss’s lute music. David Crittenden mentions Victor van Puijenbroeck and Jef Goor’s use of the same scordatura to arrange Weiss’s lute music in his DMA document.⁵⁰ Renato Serrano also uses a similar scordatura to transcribe Weiss’s *Sonata 36* in his DMA document.⁵¹ Given the similarities between lute and guitar, the semi-lute scordatura allows modern arrangers to more directly access the idiomatic resources of the lute indicated in the lute tablature.

⁵⁰ David Todd Crittenden, “Silvius Leopold Weiss’s Solo Lute Sonatas 20 and 33 from Dresden Manuscript 2841, V. I in the Sächsische Landesbibliothek: A Transcription from the Tablature and a Critical Edition for Classical Guitar” (DMA document, University of Georgia, 1996), 7.

⁵¹ Serrano, 41–46.

II. Interpretation of Slurs in the Manuscript of the Violin Partita BWV 1004

1. Idiomatic Differences of the Violin and Guitar

Although guitar and violin share few similarities, understanding the idiomatic features of the violin is vital for translating the Violin Partita BWV 1004 to suit the unique idioms of the guitar. As a bowed string instrument, the violin's most notable idiomatic quality is its ability to sustain notes through continued sound. The difference between sustained sound and resonant sound is clearly defined by Annibal Gantez: "The continued sound is that of the organ, since it continues to sound as long as you keep your finger on the key, and no longer. The resonant sound is that of the lute, since even when you have stopped [playing,] it does not stop yielding some harmony."⁵² Similar to the organ, the sound of the violin continues only as long as the bow is moving on the string, and no longer. This key feature of bowed instruments yields a variety of articulations that enriches the expressiveness of the instrument, as L. Mozart remarks in his treatise:

The present will fully convince us, that the bow stroke vivifies the notes, so that they soon bring forth a very moderate, soon a naughty, soon a serious, soon a painful, now a flattering, now a set and sublime, now a sad, but now a funny melody—and that it (the bow stroke) is therefore the intermediary thing, through its reasonable usage we come into a position to arouse the mentioned affects of the listeners.⁵³

⁵² Annibal Gantez, *L'entretien des musiciens*, ed. A. Claudin (Paris: n. p., 1878), 110–111. Original texts in French: "Le continu, c'est celuy de l'Orgue, parcequ'autant que vous tenez le doigt sur la touche, il continue le Son & non pas davantage. Le Resonant, c'est celuy du Luth, parcequ'encores que vous ayez cessé ne laisse pas de rendre encores quelque harmonie."

⁵³ Leopold Mozart, *Gründliche Violinschule* (Salzburg: Kulturverlag Polzer, 2007), 172. Original texts in German: "Das Gegenwärtige wird uns gänzlich überzeugen, dass der Bogenstrich die Noten belebe, dass er bald eine ganz modeste (moderate), bald eine freche, bald eine ernsthafte, bald eine scherzhafte, jetzt eine schmeichelnde, jetzt eine gesetzte und erhabene, jetzt eine traurige, jetzt aber eine lustige Melodie hervorbringe – und folglich dasjenige Mittelding sei, durch dessen vernünftigen Gebrauch wir die erst angezeigten Affekte bei den Zuhörern zu erregen in den Stand gesetzt werden." Translation by Hoang Khang Pham.

Comparatively, the guitar shares idiomatic features of both bowed instruments and keyboards. While the guitar cannot sustain a note and swell it like the violin, it has other advantages, such as its resonance and the ability to play polyphony. As a semi-harmonic instrument, guitar can handle polyphony better than bowed instruments but not to the extent of a four-part polyphonic texture like the keyboard. Especially notable is the ease of dealing with chords on the guitar. While the double, triple, and even quadruple stops in the *Chaconne* might seem labored or difficult, even for the finest violinists, they can be easily executed on the guitar.⁵⁴

2. Translation vs. Rigorous Copy

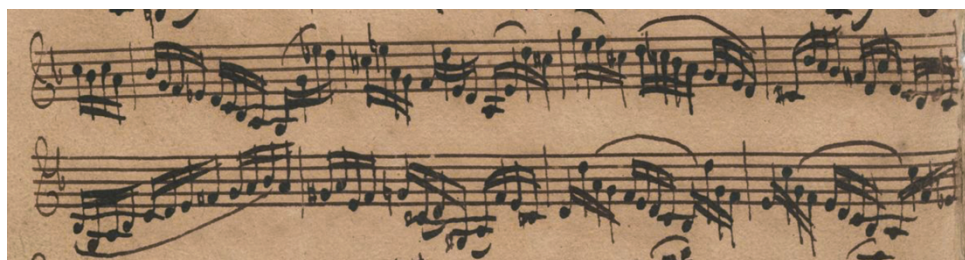
Bach's slur indications in the Sonatas and Partitas for solo violin are idiomatic for the instrument. Since the bow can produce continuously sustained sound, long slurs on bowed instruments like the violin are rather common. In comparison, on plucked instruments like guitar and lute, slurred notes are executed using one right-hand stroke; a maximum of only four notes can be slurred without re-plucking with the right hand. The only exception for this is the trill, which is executed with repeated left-hand finger motions. Hence, most of the long slurs written in the manuscript of Bach's solo string works are impossible to be literally executed on the guitar (Example 2.1).

Some slurs on the violin adapt well to the guitar, whereas some others must be translated to the language of the guitar. Arrangers should know how to determine the placement of slur in respect to the musical intention behind the written notes, namely the tension and movement suggested in the underlying harmony. Adaption of idioms is

⁵⁴ Eric Lewin Altschuler, "Were Bach's Toccata and Fugue BWV565 and the Ciacconia [*sic*] from BWV1004 Lute Pieces?" *The Musical Times* 146, no. 1893 (Winter 2005): 81, accessed March 8, 2015, <http://www.jstor.org/stable/30044126>.

evident in Bach's own arrangement of the second Violin Sonata (BWV 1003) for the keyboard (BWV 964). Example 2.2 demonstrate a passage from the *Allegro* where the slur grouping changes accordingly when implied polyphonic lines in the violin version can be fully realized on a harmonic instrument. Example 2.3 from the *Fuga* of the same sonata shows that the 16th notes originally articulated in three plus one on the violin have been modified to groups of four on the harpsichord in order to conform to the articulations of the added bass line. The harpsichord part in both examples has been transposed from D minor to A minor for easy comparison to the violin part.

Example 2.1. Long slurs in Bach's manuscript (*Chaconne* BWV 1004, mm. 42–50)



Example 2.2. Comparison of slur placement (*Allegro* BWV 1003/964, m. 19)

Example 2.3. Comparison of slur placement (*Fuga* BWV 1003/964, mm. 194–199)

The image displays a musical score for Violin and Harpsichord, specifically measures 194 through 199 of the Fuga BWV 1003/964. The score is presented in two systems. The first system shows measures 194 and 195. The Violin part (top staff) features a melodic line with slurs over groups of notes. The Harpsichord part (bottom staff) consists of two staves (treble and bass clef) with a rhythmic accompaniment. The second system shows measures 196, 197, 198, and 199. The Violin part continues with slurred passages, while the Harpsichord part provides a steady accompaniment. The key signature is one sharp (F#), and the time signature is 3/4.

L. Mozart's demonstration of 16 bowing variations on the same melodic figure in his treatise (Chapter VII) further suggests the flexibilities in slur placement. In fact, modern violinists have used different bowings according to their personal tastes. Example 2.4 demonstrates Perlman's and Kremer's bowing for the same slurred passage. Perlman is known for his sonorous tone and romantic interpretations. He treats the slurs in this passage as merely phrase indications and uses *détaché* bowing within the slur to gain more projection of sound as opposed to Kremer's use of legato bowing which exhibits more of a historically informed interpretation. Worth noting is that Kremer also uses a slight decrease of bow pressure to articulate the phrase that the long slur delineates.

Example 2.4. Comparison of Perlman's and Kremer's bowing (*Chaconne* BWV 1004, mm. 49–51)⁵⁵

The image displays two musical staves for comparison. The top staff, labeled 'Perlman', shows a sequence of notes with long, sweeping slurs that encompass multiple measures, indicating a more continuous and sustained bowing style. The bottom staff, labeled 'Kremer', shows the same sequence of notes but with shorter, more distinct slurs that separate the notes more clearly, indicating a more articulated bowing style. Both staves include bowing marks (V) above the notes.

Given the aforementioned flexibilities, guitarists should adopt the musical approach and use slur as a device of articulation to express the musical message behind the notes. Taking advantage of the resonance and the ability to sustain the harmony, especially with the semi-lute scordatura on the guitar, guitarists may justify the placement of slurs according to the implied polyphony and harmony rather than copying all the slurs written in the violin score.

3. The Articulation and Phrasing Function of Slur

Slur in this study is divided into short slur and long slur according to its articulation and phrasing function. Robert Donington defines articulation as a means to “distinguish individual notes or group them into units of brief extents.” In this respect,

⁵⁵ Abner Silva, “Itzhak Perlman - Bach Partita N° 2, BWV 1004” (Live broadcast, BBC Radio 3 Lunch Time Concert, Saint John’s Smith Square, London), accessed September 9, 2019, <https://www.youtube.com/watch?v=KpYUaRg0aDw>; Some Oane, “Bach, Partita Nr 2 d Moll BWV 1004 Gidon Kremer Violine” (video), accessed September 9, 2019, <https://www.youtube.com/watch?v=KKVMxvFS5Qo&t=69s>.

short slur has the function of grouping notes into small units, whereas long slur has the phrasing function that “groups notes into units of more or less substantial extent.”⁵⁶

Before delving into the subject, it is vital to understand the ordinary articulation during Bach’s time. The following remarks by August Wenzinger provide us with a historical perspective:

Bach’s articulation makes special demands on bowing technique. The modern cellist is almost exclusively trained in legato playing for the presentation of romantic and post-romantic music and for the augmentation of tone. For the 17th and 18th century string-player however, non-legato playing, a broad détaché bowing, was the primary style. He was accustomed to present a continuous musical line with detached bowing. The slurs had the object of distinguishing and picking out from the uniform flow a group of notes as a figure.⁵⁷

Wenzinger stresses that the ordinary articulation in Bach’s time leans more toward detached than legato. This historical perspective emphasizes the articulation and phrasing function of the slur—the slurred notes distinguish themselves as a figure from the detached notes around them. Similarly, C. P. E. Bach describes a semidetached manner of playing notes without slur or separation signs since his definition of detached notes is reserved for *staccato*, an even shorter articulation:

Tones which are neither detached, connected, nor fully held are sounded for half their value, unless the abbreviation *Ten.* (hold) is written over them, in which case they must be held fully. Quarters and eighths in moderate and slow tempos are usually performed in this semidetached manner. They must not be played weakly, but with fire and a slight accentuation.⁵⁸

⁵⁶ Robert Donington, *Baroque Music: Style and Performance* (London: Faber Music Ltd, 1982), 30.

⁵⁷ Johann Sebastian Bach, *Sechs Suiten für Violoncello solo, BWV 1007–1012*, ed. August Wenzinger (Kassel: Bärenreiter, 1967), 3.

⁵⁸ Carl Phillip Emanuel Bach, *Essay on the True Art of Playing Keyboard Instruments*, trans. William J. Mitchell (New York, W. W. Norton, 1949), 157.

Regarding the use of slur, C. P. E. Bach remarks that, in general, “the briskness of allegros is expressed by detached notes and the tenderness of adagios by broad, slurred notes.”⁵⁹ Similarly, Marpurg’s definition of the “ordinary movement” as something between legato and *staccato* shows sympathy with the middle ground occupied by C. P. E. Bach on this topic. For keyboard instruments, this is achieved by “[lifting] the finger from the last key shortly before touching the next note.”⁶⁰ Marpurg additionally remarks that this ordinary movement, despite being never indicated, should always be understood unless instructed otherwise.

Although the mechanism of slur varies according to the instrument on which it is executed, the principal function of the slur is to connect notes in an idiomatic way, like in speech. The general trait of slur features a slight emphasis placed on the initial note of the group, according to L. Mozart’s remarks:

If now, in a musical piece, there are 2, 3, 4 or even more notes connected by the half-circle, so that you can recognize from that, that the composer does not want such notes to be performed separately, but rather slurred in a singing manner, (then) you have to attack the first of such united notes a bit stronger, but the remainder slurred onto it mildly and more and more quietly.⁶¹

The technique mentioned here by L. Mozart clearly defines the beginning of the slurred note group. This practice is similarly stated by C. P. E. Bach in his treatise, with the difference being that he adds another sub-accent on the third note of a slurred four-note group. This is merely to render a metrical accent on the *nota buona*: “Patterns of two

⁵⁹ Bach, *Essay*, 149.

⁶⁰ Donington, *Baroque Music*, 30.

⁶¹ Mozart, *Violinschule*, 185. Original texts in German: “Wenn nun in einem musikalischen Stücke 2, 3, 4 und noch mehr Noten durch den Halbzirkel zusammen verbunden werden, sodass man daraus erkennt, der Komponist wolle solche Noten nicht abgesondert, sondern in einem Schleifer singbar vorgetragen wissen, so muss man die erste solcher vereinbarten Noten etwas stärker angreifen, die übrigen aber ganz gelind und immer etwas stiller daran schleifen.” Translation by Hoang Khang Pham.

and four slurred notes are played with a slight, scarcely noticeable increase of pressure on the first and third notes. The same applies to the first tones of groups of three notes. In other cases, only the first of the slurred notes is played in this manner.”⁶²

a. Appoggiatura

Short slur can be used to delineate melodic figures such as ornaments, motifs, and arpeggios. The technical nature of a slur on the lute and the guitar renders a slight emphasis on the initial note, which lends itself to two-note figures with a strong-weak dynamic trait. The appoggiatura and *notes inégales* fall into this category.

Appoggiatura is one of the most commonly used essential ornaments. As C. P. E. Bach suggests, the appoggiaturas “enhance harmony as well as melody; they heighten the attractiveness of the latter by joining notes smoothly together.”⁶³ Despite all the arguments on the length and on-beat or pre-beat attributes, historical theorists have at least reached one agreement: the appoggiatura must be connected to the principal note in a legato fashion. C. P. E. Bach wrote, “they must be held until released by the following tone so that both are smoothly joined,” indicating appoggiaturas must be joined regardless of the presence of a slur.⁶⁴ For L. Mozart, this is a rule without exception: “[The] appoggiatura is never separated from its main note and they are always played in

⁶² The Italians refer to the note with metrical accent as *nota buona* (good note). The metrical accents are the first and third quarters in 4/4 time and the first and fourth eighths in 3/8 and 6/8 time; Bach, *Essay*, 154.

⁶³ *Ibid.*, 87.

⁶⁴ *Ibid.*, 88.

one bow stroke.”⁶⁵ When the appoggiatura is a dissonance, it rouses the emotion and thus should be struck louder than its principal note according to Quantz’s explanation in his treatise, writing, “to excite different passions the dissonances must be struck more strongly than the consonances. Consonances make the spirit peaceful and tranquil; dissonances, on the other hand, disturb it.”⁶⁶

Regarding the treatment of the lower appoggiatura where the preceding note is repeated, F. Couperin proposes a new style of fingering that suggests finger replacement on the repeated note (Example 2.5). The tiny breath after the first note *b* resulted from the finger replacement is referred to as *aspiration* by F. Couperin. The separation between the first *b* and the second *b* enhances the stress of the latter, the dissonant appoggiatura in this case.

Example 2.5. Finger replacement on repeated note

Old Style



New style



Effect of the new style

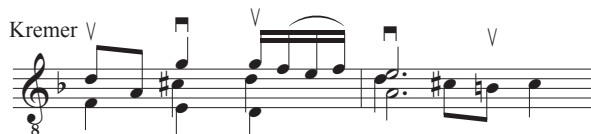


⁶⁵ Mozart, *Violinschule*, 244. Original texts in German: “Es ist eine Regel ohne Ausnahme: Man trenne den Vorschlag niemals von seiner Hauptnote und nehme sie allzeit in einem Bogenstriche.” Translation by Bin Hu.

⁶⁶ Quantz, *Flute*, 254.

The seamless connection between the appoggiatura and its principal note lends itself aptly to the use of legato bowing. While it is easy to identify an appoggiatura when Bach writes it as a grace note, it is a challenge for modern performer to identify the ones that are spelled out in regular notes since they look the same as their principal notes. Example 2.6a shows an example of two appoggiaturas prescribed in regular notes in the *Sarabande*.

Example 2.6a. Appoggiaturas prescribed in regular notes (*Sarabande* BWV 1004, mm. 7–8)



The resolution f of the dissonant appoggiatura g' on the third beat of measure 7 is elaborated with a lower neighbor tone figure ($f'-e'-f$), which is originally marked with a slur by Bach. This slur here delineates the three notes as a melodic figure. Worth noting is that although Bach did not include the first 16th note in the slur, by identifying the g' as an appoggiatura, experienced violinists would strike the g' louder and use legato bowing on all the four notes. This way of execution is supported by a comment of C. P. E. Bach, when he writes "...appoggiaturas are louder than the following tone, including any additional embellishment."⁶⁷ An example of Kremer's bowing is provided in Example 2.6a to support this argument. The appoggiatura figure $d'-c\sharp'-b\flat-c\sharp'$ in measure 8 echoes the aforementioned melodic figure from the previous measure. The bowing design of

⁶⁷ Bach, *Essay*, 88.

Kremer reinforces the legato rule of C. P. E. Bach by deliberately connecting the d' and $c\#'$ with one bow stroke. The placement of the bow change indicates that the connection of the appoggiatura to its parent note (d' - $c\#'$) takes priority over the neighbor tone figure ($c\#'$ - $b\flat$ - $c\#'$).

The low string tension on the Baroque lute allows the performer to effortlessly achieve a similar sound between plucked and slurred notes. However, the modern guitar lacks this capacity because of the significantly increased string tension in its construction. Therefore, performers often choose to imitate slurs with plucked notes on the right hand, either on one string or on adjacent strings. The latter option creates a musical design where one note is held until after the attack of the next, imitating the over legato from the harpsichord's context. As such, the broken slurs in Example 2.6b signify not the actual slur but the slurring effect. The appoggiaturas can be played in a plucked manner, however, imitating the direction of the slur by emphasizing the dissonant notes and underplaying the resolutions. The 16th note appoggiatura e' in measure 7 of Example 2.6b can even be slightly lingered on to emphasize its dissonant quality.

Example 2.6b. Imaginary slurs on the guitar (*Sarabande* BWV 1004, mm. 7–8)⁶⁸

Scordatura: ①=d', ③=f♯a

C. II

The image displays two staves for measures 7 and 8 of the Sarabande BWV 1004. The top staff, labeled 'original slur marks', shows the musical notation in G major (one sharp) with a treble clef and a common time signature. It includes fingerings (1, 2, 3, 4) and slurs over the notes. The bottom staff, labeled 'execution', shows the guitar fretboard with strings 1-6. Fingerings are indicated by numbers 0-4 on the strings. A dashed line indicates a slur effect over the notes in measure 7. A bracket labeled 'C. II' spans across both measures.

⁶⁸ Although all musical examples of the Partita BWV 1004 in scordatura tuning are notated in B minor throughout this document, they are to be performed in C minor with a capo at the first fret.

b. *Notes inégales*

In Chapter VII of L. Mozart's treatise, he demonstrates 16 varieties of bowing in duple meter and 34 varieties of bowing in triple meter using two model passages. The first example of the 16 varieties with paired slurs introduces a common French performance practice of rhythmic inequality (Example 2.7). Specifically, L. Mozart explains this practice: "The first of the two notes occurring in one bow stroke is attacked a bit stronger, also held a bit longer; but the second slurred very silently and a bit later onto [the first]. This way of performing conveys the good taste through the singing character and prevents rushing through holding back."⁶⁹

Example 2.7. Implication of rhythmic inequality (first variety of bowing in L. Mozart's treatise)



This inequality, referred to as *notes inégales* by the French, is mentioned only in one sentence in F. Couperin's treatise *L'art de toucher le clavecin*:

In my opinion, there are defects in our method of writing music which correspond to our manner of writing our language. We write differently from the way we play... On the contrary, the Italians write their music in the true note values in which it is to be played. For example, we dot several eighth notes in succession moving by conjunct degrees; however, we write them in equal time values.⁷⁰

⁶⁹ Mozart, *Violinschule*, 173. Original texts in German: "Die erste der zwei in einem Striche vorkommenden Noten wird etwas stärker angegriffen, auch etwas länger angehalten; die zweite aber ganz still und etwas später daran geschliffen. Diese Art des Vortrages befördert den guten Geschmack durch das Singbare und es hindert das Forttreiben durch das Zurückhalten." Translation by Hoang Khang Pham.

⁷⁰ François Couperin, *L'art de toucher le clavecin (The Art of Playing the Harpsichord)*, ed. and trans. Margery Halford, 2nd ed. (USA: Alfred Pub. Co., 1995), 49.

Similar to the swing of notes in Jazz, the practice of inequality adds grace and elegance to the melody. The degree of inequality can vary according to personal tastes and different ratios can considerably change how a piece would sound. For example, F. Couperin's suggestion of repeated fingering in the Second Prelude shortens the second notes of the pairs, thus enforcing the inequality (Example 2.8).

Example 2.8. Fingering that enforces inequality (Second Prelude, *L'art de toucher le clavecin*, m. 15)

The image shows a musical score in treble clef, starting with a key signature of one sharp (F#) and a common time signature. The notation features two pairs of notes, each pair connected by a slur. The first pair consists of a quarter note followed by an eighth note, and the second pair also consists of a quarter note followed by an eighth note. Above the first pair, the fingering numbers 5, 4, 3 are written, and above the second pair, the numbers 3, 2 are written. Below the slurs, the text 'long-short long-short' is written, indicating the intended timing or phrasing for these note pairs. The score continues with a series of eighth notes and a final chord.

Example 2.9. *Notes inégales* in Bach (*Adagio* and *Fuga* BWV 1001)

Adagio, m. 11

The image shows a musical score in treble clef, starting with a key signature of one flat (Bb) and a common time signature. The notation features a series of eighth notes grouped into pairs, each pair connected by a slur. The pairs are: (quarter note, eighth note), (quarter note, eighth note), (quarter note, eighth note), (quarter note, eighth note), (quarter note, eighth note), and (quarter note, eighth note). The slurs are drawn over each pair, indicating the intended phrasing for these notes.

Fuga, mm. 30–32

The image shows a musical score in treble clef, starting with a key signature of one flat (Bb) and a common time signature. The notation features a series of eighth notes grouped into pairs, each pair connected by a slur. The pairs are: (quarter note, eighth note), (quarter note, eighth note), (quarter note, eighth note), (quarter note, eighth note), (quarter note, eighth note), (quarter note, eighth note), (quarter note, eighth note), (quarter note, eighth note), (quarter note, eighth note), and (quarter note, eighth note). The slurs are drawn over each pair, indicating the intended phrasing for these notes.

According to the conventions, inequality could be applied to notes which fall naturally into pairs, especially when paired slurs are indicated. When slurs are not marked, the decision of inequality is at the performer's discretion bearing in mind that the melody must sound more elegant with it. Bach being aware of the French style, exhibits this French trait in some of his works. Example 2.9 shows two passages from the *Adagio*

and *Fuga* BWV 1001, where a slight inequality would be appropriate to endow the melody with some elegance.

Example 2.10. Employment of inequality (*Sarabande* BWV 1004, mm. 3–4)

Scordatura: ①=d', ③=f♯

original slur marks

execution

T	0				0				0				0				
A	0	5	5	0	0	0	0	0	0	3	1	0	2	1	1	2	0
B	2	5	4	2	3	2	3	2	3	2	1	2	2	4	1	2	0

Example 2.10 demonstrates a passage from the *Sarabande* where a slight inequality can be employed in measure 3 to enhance the soliciting character, despite the absence of slurs in the original manuscript. On the contrary, the descending 16th notes in measure 4, though originally marked with paired slurs, should be executed without inequality, for it would hinder their directionality to the second quarter beat. Instead, the first 16th note *b*—an appoggiatura prescribed in regular note—is dwelled upon and connected to the other three 16th notes in a legato fashion. As discussed in the execution of appoggiatura before, slurred notes on the modern guitar do not always sound clean, especially slurs over the span of a major second. Therefore, the slurring effect marked with the broken slurs in the tablature of Example 2.10 is emulated using right hand articulation on the guitar.

The passage of Example 2.11 portrays a feeling of hesitation and disorientation, thus lending itself perfectly to a slight inequality to hold back the momentum. Similar to

the example mentioned above, the inequality here is achieved by controlling the articulations on the right hand. Equality is restored when the broken chords intervene.

Example 2.11. Employment of inequality (*Chaconne* BWV 1004, mm. 81–84)

Scordatura: ①=d', ③=f♯

The image displays two systems of musical notation for Example 2.11. Each system consists of a treble clef staff with a sharp key signature and a common time signature, and a corresponding guitar execution staff. The first system is labeled 'original slur marks' and 'execution'. The execution staff shows fingerings: 5 5 3 3 3 3 5 5 2 3 4. Brackets under the execution staff indicate 'broken chord' positions. The second system also shows 'original slur marks' and 'execution'. The execution staff shows fingerings: 2 2 1 1 4 4 1 1 2 4 1. A bracket under the execution staff indicates a 'broken chord' position.

c. Auxiliary notes

Three-note slurred figure comprised of neighbor tone or passing tone is the most ubiquitous in music (Example 2.12). In Bach's solo string works, such figures are to be articulated with one bow stroke, emphasizing the three notes as one unity.⁷¹ With the semi-lute scordatura, the original slurs over three notes can be executed with notable

⁷¹ In the numerology of Bach, number three is the most significant number as it symbolizes the Christian doctrine of the Trinity: the Father, the Son (Jesus Christ), and the Holy Spirit. For example, the *Chaconne* is in triple meter, it begins with a triad, and it was structured in the form of three.

lightness and technical ease (Example 2.13). The broken slurs in the tablature are executed in the cross-string fashion like on the harpsichord.

Example 2.12. Illustration of common auxiliary notes

Example 2.13. Execution of three-note slurs (*Chaconne* BWV 1004, mm. 57–63)

Scordatura: ①=d', ③=f#

Another neighbor tone figure that adapts well to the semi-lute scordatura is shown in Example 2.14b. Although the original slur in the violin score has a grouping of four notes, it is clearly understood from the initial chordal arpeggio that the first note of the group and the neighbor tone figure represent the soprano and alto voice respectively. Kremer's bowing shown in Example 2.14a clarifies the voice setting.

In the scordatura version (Example 2.14b), the recurring neighbor tone figure (*b-a#-b*) in the alto voice can be executed in a cross-string manner with the aid of an open string. This neighbor tone figure, the embellished pedal, has been used as a rhetorical device to portray the feeling of immobility. In standard tuning, the sustainment of individual voices results in awkward left-hand fingerings that complicate its simple musical message. The semi-lute scordatura provides the possibility of using the second open string for the neighbor tone figure, which not only offers technical ease but also makes the texture more fluid. The alternation upon the open string and other strings creates a *bariolage* effect, which will be further discussed on page 85.

Example 2.14a. Original slur indication and Kremer's bowing (*Chaconne* BWV 1004, mm. 217–220)⁷²

Kremer:

⁷² Some Oane, "Bach, Partita Nr 2 d Moll BWV 1004 Gidon Kremer Violine" (video), accessed September 12, 2019, <https://www.youtube.com/watch?v=KKVMxvFS5Qo&t=69s>.

Example 2.14b. Neighbor tone embellishing a pedal note (*Chaconne* BWV 1004, mm. 217–220)

Scordatura: ①=d', ③=f♯

original slur marks

execution

original slur marks

execution

Example 2.15a. Passing tones filling the interval of a fourth (*Allemande* BWV 1004, m. 11)

Scordatura: ①=d', ③=f♯

original slur marks

execution

Although passing tone is mostly used to embellish the interval of a third, passing tones filling the interval of a fourth can also be encountered in Bach's music. Example 2.15a and 2.15b showcase two examples from the *Allemande*, where passing tones are used to connect the interval of a fourth. The open strings in the semi-lute scordatura enrich the resonance and remove the necessity of left-hand bars in standard tuning. In

combination with the open strings, these rapid passing tones can be slurred in a way similar to the movement created by the bow.

Example 2.15b. Passing tones filling the interval of a fourth (*Allemande* BWV 1004, mm. 20–21)

Scordatura: ①=d', ③=f♯

original slur marks

execution

Generally speaking, slurs placed on the passing tone figures delineate a minor or major third that belongs to the essential harmony. To identify a neighbor tone and passing tone without the presence of slur or when its placement is questionable, one must judge it according to the underlying harmony. The slurs marked in Example 2.16a distinguish the melodic figures from the harmonic chordal arpeggios. It is worth noting that Bach clearly marks the figures with slurs except for the first two groups of 16th notes in measure 8. The reason for that is, while these two groups at first glance might seem like a juxtaposition of a neighbor tone and a passing tone figure, they must be articulated differently from the surrounding groups. According to the underlying harmony, the *e'* and

c' in these two groups of 16th notes belong to the essential harmony. The passage in Example 2.16a has been harmonized with a bass line to clarify the structure. Added notes are indicated with parentheses. Example 2.16b illustrates a voice exchange with the bass line.

Example 2.16a. Neighbor tone and passing tone figures (*Giga* BWV 1004, mm. 7–9)

Example 2.16b. Demonstration of voice exchange in Example 2.16a

d. Notes of broken chords

Broken chords are frequently used as a device to express the underlying harmony in a melodic fashion in Bach's solo violin and cello works. The broken chord is a more elegant way for bowed instruments to announce harmony in comparison to the hefty double or triple stops. Broken chords appear in both descending and ascending orders. C.

P. E. Bach suggests holding the slurred notes of broken chords in the manner of Example 2.17. He further mentions the French manner, “wherein each tone of a chord stands for a separate voice.”⁷³

Example 2.17. Execution of broken chord⁷⁴



This manner of holding the notes of broken chords is not realizable in Bach’s solo violin and cello works with the bow. The semi-lute scordatura optimizes the capability to sustain and allows most broken chords to be executed with ease. The following selected passages are just a few examples of this frequently occurring figure from the Violin Partita BWV 1004. The employment of the *tenue* lines in the lute tablature has been adopted here to indicate how long the notes of broken chords are to be held. The passage featured in Example 2.18 from the *Chaconne* perfectly displays the capability to sustain with the semi-lute scordatura. In the passage of Example 2.19, the voice leading in measure 23 can be automatically recognized when each voice of broken chord is held until the same voice moves again, as shown in the tablature with the sustaining lines. The advantage of the semi-lute scordatura exhibited in Example 2.20 is the use of two open strings at the beginning of the third beat that eliminates the necessity of position change in standard tuning.

⁷³ Bach, *Essay*, 155.

⁷⁴ *Ibid.*

Example 2.18. Execution of broken chords (*Chaconne* BWV 1004, mm. 27–32)

Scordatura: ①=d', ③=f♯

original slur marks

execution

0 2 0 0 4 0 0 4 5 2 5 4 2 5 4

0 0 0 0 2 2 0 2 0 4 0 2 1 1 2 1 4 2 1 0 2 0 2

5 2 0 1 2 2 3 2 0 2 4 3 2 4 4

0 2 1 2 2 3 2 0 2 4 3 2 4

Example 2.19. Execution of broken chords (*Sarabande* BWV 1004, mm. 22–23)

Scordatura: ①=d', ③=f♯

original slur marks

C. I

1 1 3 2 4 3 1 2 4 3 4 1 3 4 3 4 1 4

B Minor: Neapolitan⁶ vii^o 4₃ i⁶ vii^o i V

execution

2 5 4 2 0 2 4 5 7 0 0 4 2 0 5 2 4

1 1 1 1 4 5 7 0 0 4 5 4 5 2 4

0 2 3 7 0 4 5 4 5 4

Example 2.20. Execution of broken chords (*Giga* BWV 1004, m. 10)

Scordatura: ①=d', ③=f#

The image shows a musical score for a guitar piece. The top staff is a treble clef with a key signature of one sharp (F#). The music consists of a single melodic line with slurs over groups of notes. Below the staff is a guitar-specific fingering diagram with four lines representing strings. The fingerings are: 4-2-3, 2-2-5, 3-1-3, 3-5-5, 0-0-3, 2-3-4, 3-1-3, 3-4-4, 4-4.

Having the capacity to sustain does not preclude other moments of separation. This judgement is at the performer's discretion upon a good sense of the character of the movement. Example 2.21 and 2.22 provide two examples where broken chords are executed melodically with separation. In Example 2.21, the slurs connecting the first two eighth notes of the three-eighth-note groups denote a melodic legato despite being part of the chordal arpeggiations. Thus, they must be slurred on the same string with a slight emphasis on the first note. The third eighth note of the three-eighth-note groups is an anacrusis and must be separated from the downbeat in order to create a lively, dance-like movement. The tiny breath after a note, the *aspiration* described by F. Couperin in his treatise, is used here to enhance the gravity of the downbeats.⁷⁵ The detached articulation is determined by the brisk character of the gigue, which is better expressed by detached notes according to C. P. E Bach's principle as previously quoted on page 44.⁷⁶

⁷⁵ Couperin, *Clavecin*, 33–34.

⁷⁶ Bach, *Essay*, 149.

Example 2.21. Broken chords executed melodically (*Giga* BWV 1004, mm. 1–2)

Scordatura: ①=d', ③=f#

The image shows a musical score for Example 2.21, consisting of three parts: 'original', 'execution', and a guitar diagram. The 'original' part is a single staff in treble clef with a key signature of one sharp (F#) and a common time signature. It contains two measures of music with various fingerings (1, 4, 0, 2, 4, 2, 3, 0, 2, 0, 4, 0, 4, 1, 4, 0, 2, 4, 2, 4, 2, 0, 0, 0) and scordatura markings (1, 1, 1). The 'execution' part is a single staff in treble clef with the same key signature and time signature. It contains two measures of music with aspiration marks (indicated by a downward arrow) and scordatura markings (1, 1, 1). The guitar diagram at the bottom shows the fretboard with fingerings for the original and execution versions.

Similarly, in Example 2.22, an *aspiration* is placed after the second eighth note of each measure to enhance the emphasis on the second beat where the metrical accent of the *Chaconne* is assigned. This effect of the *aspiration* is often achieved on the violin by retaking the bow.

Example 2.22. Broken chords executed melodically (*Chaconne* BWV 1004, mm. 57–59)

Scordatura: ①=d', ③=f#

The image shows a musical score for Example 2.22, consisting of three parts: 'original', 'execution', and a guitar diagram. The 'original' part is a single staff in treble clef with a key signature of one sharp (F#) and a common time signature. It contains three measures of music with various fingerings (0, 0, 0, 2, 1, 0, 1, 2, 2, 3, 0, 2, 0, 0, 0, 2, 0, 2, 0, 2, 4) and scordatura markings (1, 1, 1). The 'execution' part is a single staff in treble clef with the same key signature and time signature. It contains three measures of music with aspiration marks (indicated by a downward arrow) and scordatura markings (1, 1, 1). The guitar diagram at the bottom shows the fretboard with fingerings for the original and execution versions.

e. *Échappée* and *cambiata*

Échappée (escaped tone) and *cambiata* (changing tone) were both non-harmonic tones when they were first introduced in early species counterpoint settings. In Bach's writing, they can be either harmonic or non-harmonic depending on the context.

Échappée and *cambiata* usually appear between two adjacent notes as an ornament, adding nuances to the melody. There are two fingering options on the guitar to interpret these three-note slurred melodic figures. The one that appears in Example 2.23 at the end of the running passage exemplifies the melodic treatment in which all three notes are executed on the same string. The escaped note (*bb*) is slurred from the previous note for its unaccented and consonant properties. The slur placement here renders an accent on the dissonant second scale degree (*a*).

Example 2.23. Melodic treatment of *échappée* (*Adagio* BWV 1001, m. 1)



The group of three 16th notes under the slur in Example 2.24a is a *cambiata* figure. The harmonic reduction of the first two measures in Example 2.24b reveals the 7–6 sequential movement in the underlying harmonic structure. The *cambiata* figure here can be seen as a double neighbor tone figure with the dissonant first 16th note resolving to the third 16th note. According to the essential harmony, the *cambiata* figures are treated melodically, but the descending broken chords that immediately follow should be sustained.

Example 2.25. Interlocking *cambiata* and *échappée* figure (*Chaconne* BWV 1004, mm. 4–5)

Scordatura: ①=d', ③=f♯

original slur marks

execution

harmonic

Example 2.26 presents a passage from the *Sarabande* where harmonic treatment is used at the end of the melodic sequence to accentuate the dominant harmony. The crescendo created by overlapping the notes intensifies the dramatic onset of the diminished 4/2 chord and the passing 6/4 chord that ultimately lead to the Neapolitan sixth chord in the following measure. This way of increasing the sound by overlapping notes is commonly practiced on the harpsichord to compensate for its deficiency of dynamic variety.

Example 2.26. Combination of melodic and harmonic treatment (*Sarabande* BWV 1004, mm. 19–21)

Scordatura: ①=d', ③=f♯

original slur marks

execution

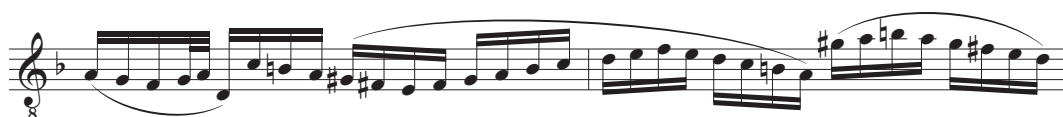
melodic melodic melodic harmonic

f. Long slur with phrasing function

A slur embracing a longer span of notes indicates more of a phrasing function. In extreme cases, some slurs which extend several measures are close to impossible to be executed, even on bowed instruments. Example 2.27 provides such an example in which the slur merely emphasizes that the notes should be performed with as much legato as possible despite any bow change.

Long slurs over rapid scale passages between two strong beats exhibit a connective nature. This kind of passage, being subordinate in structure, is attributed to the arbitrary ornament called *tirata*. As a diminution practice, the *tirata*, from the Italian verb *tirare* (to pull), is “nothing else than a row of stepwise ascending and descending notes” that are arbitrarily applied to fill the space of a large interval.⁷⁷ The German lutenist Ernst Gottlieb Baron termed these rapidly-played notes *Toni-intermedii* (intermediary notes), a name that is more suggestive of their intermediate function. They were prescribed in small notes in Baron’s lute tablature.⁷⁸ Example 2.28 demonstrates Bach’s use of *tirata* on the harpsichord.

Example 2.27. Demonstration of extended slur (*Allemande* BWV 1004, mm. 9–10)



⁷⁷ Mozart, *Violinschule*, 305. Original texts in German: “Und da die Tirata nichts anders ist als eine Reihe stufenweise auf- und absteigender Noten, die zwischen zwei anderen Noten, welche von einander etwas entfernt sind, willkürlich angebracht werden...” Translation by Bin Hu

⁷⁸ Charles Nelson Amos, “Lute Practice and Lutenists in Germany between 1500 and 1750” (PhD diss., University of Iowa, 1975), 124.

Example 2.28. Bach's use of *tirata* (*Fuga BWV 964*, mm. 280–283)

L. Mozart also talks about the *tirata* that begins with a rest (Example 2.29). This type of *tirata*, functioning as anacrusis to the downbeat, should be struck later and more rapidly.⁷⁹ Example 2.30 displays two descending *tirate* in the *Praeludio BWV 996*, one begins with a rest and the other without.

Example 2.29. L. Mozart's demonstration of *tirata* that begins with a rest⁸⁰

Allegro

Example 2.30. *Tirata* that begins with a rest (*Praeludio BWV 996*, m. 5 and m. 9)

⁷⁹ Mozart, *Violinschule*, 322.

⁸⁰ *Ibid.*

The *tirata* figures in measure 124 of the *Chaconne* can be slurred in three on the same string using the semi-lute scordatura (Example 2.31). This way of execution highlights the dexterous character of the *tirata*.

Example 2.31. Slurred *tirata* figure (*Chaconne* BWV 1004, m. 124)

Scordatura: ①=d', ③=f#

original slur marks

execution

The image displays a musical score for a guitar. The top staff is a treble clef with a key signature of one sharp (F#) and a common time signature. It shows three measures of music, each containing a slurred eighth-note scale. The notes are: Measure 1: G2, A2, B2, C3, D3, E3, F#3, G3; Measure 2: A2, B2, C3, D3, E3, F#3, G3, A3; Measure 3: B2, C3, D3, E3, F#3, G3, A3, B3. Below the staff is a guitar fretboard diagram with six strings. The first string (top) has fret numbers 0, 2, 4, 0, 0, 2, 4, 0, 0, 4, 2, 4, 2. The second string (middle) has fret numbers 2, 2, 0, 0, 2.

Legato in long slurred passages on the guitar is achieved through right-hand articulation, combination of short slurs, and *campanella* technique, with right-hand articulation being the most technically demanding for the precision of synchronization of both hands. These techniques are combined under most circumstances. Example 2.32 features a passage from the *Chaconne* where long slurs have been broken down into pairs of slurs on the guitar. The semi-lute scordatura enables the fast scales in Example 2.32 to be executed in the same left-hand position.

The scale passages in Example 2.33 are originally written without indication of slur. For playing this passage, violinists typically use the *détaché* bowing, which is similar to the right-hand articulation on the guitar. The occasional slurs used here are merely for emphasis and technical convenience.

Campanella is an idiomatic device of the lute and guitar which involves “the drawing of successive notes of a scale from different courses, so that the first note continues to sound while the next is played.”⁸¹ It is a great tool to achieve both legato and speed in long scale passages as shown in Example 2.34. The semi-lute scordatura allows the ending scale passage of the *Chaconne* to be played with the *campanella* technique. The scale begins softly with a short slur over three notes and merges into the *campanella* texture, which resembles the effect created by the sustain pedal on the piano.

Example 2.34. Scale combining short slur and *campanella* (*Chaconne* BWV 1004, m. 248)

Scordatura: ①=d', ③=f#

original slur marks

execution

campanella

Detailed description: The image shows two staves of music. The top staff is in treble clef, G major (one sharp), 3/4 time. It contains a scale passage starting with a slur over three notes (G4, A4, B4) and then continuing with a series of notes. A bracket labeled 'campanella' spans from the fourth note (C5) to the end of the scale. The bottom staff shows the execution with fingerings: 1, 1, 3, 4, 1, 0, 4, 0, 3, 1, 0, 4, 0, 2, 0, 4, 0, 1, 3, 0, 4, 0, 1, 4. A slur is placed over the first three notes (1, 1, 3). The 'campanella' section is indicated by a bracket below the staff.

⁸¹ David Ledbetter, *Harpichord and Lute Music in 17th-Century France* (London: The Macmillan Press Ltd, 1987), 41.

III. Outstanding Features of the Semi-Lute Scordatura

1. Possibility of Using Lower Positions

The historically informed performance approach on the violin encourages the use of lower positions whenever possible.⁸² This approach is embodied in the arrangements with the semi-lute scordatura. The main factor that contributes to this feature is the transposition of the key of the piece. The dropped first string in the semi-lute scordatura narrows down the range of the guitar. In order to accommodate the reduced range, the key of the Partita BWV 1004 has been transposed a minor third down from D minor to B minor (C minor with the capo), which results in the tonic note being shifted from the 4th string to the 5th string. While some bass notes in the key of D minor are no longer available in the new key, this overall shift of right-hand position also creates an available string on top, which removes the necessity of position shifts and thus promotes the use of lower positions.

To exemplify this feature of the semi-lute scordatura, a passage from the *Fuga* BWV 1000 is provided in Example 3.1a followed by Tamayo's execution of this same passage in F-sharp minor using the semi-lute scordatura (Example 3.1b). The scordatura allows this passage to be played within the first four frets, whereas compared to the standard tuning, the guitarist has to start at the seventh fret and shift gradually down to the first. The technical facilitation and capacity for resonance that the semi-lute scordatura provides are evident in this example.

⁸² David D. Boyden, *The History of Violin Playing, from Its Origins to 1761 and Its Relationship to the Violin and Violin Music* (London: Oxford University Press, 1965), 249–250.

Example 3.1a. Passage from *Fuga* BWV 1000 transposed to the key of A minor (mm. 7–10)

Example 3.1b. Tamayo's execution of Example 3.1a using semi-lute scordatura⁸³

Scordatura: ①=d', ③=f#

The extended possibility of using lower positions is exhibited throughout the Partita BWV 1004. Table 3.1 lists the measures exceeding the fifth position in the *Chaconne* comparing scordatura tuning with standard tuning. The incidents of using higher positions in standard tuning, at 80 total measures, outnumbers a total of only 53 measures in semi-lute scordatura.

⁸³ Tamayo's arrangement of the *Fuga* BWV 1000 is played with a capo at the second fret. Although all the examples of his arrangement are notated in E minor in this document, they actually sound in F-sharp minor with the correct position of the capo.

Table 3.1. Comparison of measures that exceed the fifth position in the *Chaconne* BWV 1004

Tuning	Semi-Lute Scordatura	Standard Tuning
Measure Range	mm. 17–18	m. 8
	m. 37	mm. 17–18
	m. 56	mm. 21–22
	mm. 65–67	m. 33
	mm. 86–88	mm. 37–38
	mm. 111–115	m. 39
	mm. 137–138	m. 48
	m. 147	m. 53
	mm. 152–154	m. 56
	mm. 158–160	m. 61
	m. 163	m. 69
	m. 171	mm. 72–73
	mm. 174–176	mm. 75–76
	mm. 179–180	mm. 81
	mm. 182–183	mm. 85–92
	mm. 194–200	mm. 99–100
	mm. 203–204	mm. 106–107
	mm. 207–208	mm. 111–116
	m. 212	m. 120
	m. 225	m. 128
	mm. 227–228	m. 132
	mm. 236–237	m. 147
	m. 240	mm. 151–154
	m. 248	mm. 158–159
	m. 257	m. 163
		mm. 171–172
		mm. 174–176
		m. 180
		m. 183
		mm. 195–200
		mm. 203–204
		m. 206
		m. 208
	mm. 213–214	
	mm. 216–220	
	m. 225	
	m. 227	
	m. 233	
	m. 235	
	m. 239	
	mm. 241–242	
	m. 244	
Total Number of Measures	53	80

2. Technical Facilitation

The semi-lute scordatura together with the key transposition create more usable open strings in the primary key, which enrich the resonance of the instrument and facilitate the technical demands such as position shifts, bars and left-hand extensions. For instance, the initial triad in the *Chaconne* that contains no open strings in standard tuning can be played now with two open strings.

Left-hand bars are undesirable as they hinder the flexibility of left hand and thus introduce technical challenges to maintain legato in position shifts; they may also strain the hand when excessively used. The open strings in the semi-lute scordatura evade the necessity of left-hand bars in countless cases. Example 3.2a shows a passage from the *Giga* in which the two left-hand bars are avoided using open strings in the semi-lute scordatura (Example 3.2b).

Example 3.2a. Left-hand bars using standard tuning (*Giga* BWV 1004, m. 35)

Musical notation for Example 3.2a, showing a passage from the *Giga* BWV 1004, m. 35. The notation is in treble clef with a key signature of one flat (B-flat). It features two sections labeled 'C. I' and 'C. III' with horizontal lines above them. The music consists of a series of eighth notes, with some notes beamed together. A circled number '8' is located at the beginning of the first section.

Example 3.2b. Avoidance of left-hand bars using semi-lute scordatura

Scordatura: ①=d', ③=f#

Musical notation for Example 3.2b, showing the same passage as Example 3.2a but using semi-lute scordatura. The notation is in treble clef with a key signature of two sharps (D major). It features a circled number '8' at the beginning. Below the staff is a TAB (Tuning and Fingering) section with six lines. The first line (Treble) contains the numbers: 0, 0, 2, 4, 0, 0, 2, 4, 0, 2, 0, 5, 4, 2, 0, 2, 0. The second line (A) contains: 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0. The third line (B) contains: 3, 2, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0.

The two left-hand bars in measure 8 of the *Chaconne* can be both avoided using the semi-lute scordatura (Example 3.3a and 3.3b).

Example 3.3a. Left-hand bars using standard tuning (*Chaconne* BWV 1004, m. 8)

Example 3.3b. Avoidance of left-hand bars using semi-lute scordatura (*Chaconne* BWV 1004, m. 8)

Scordatura: ①=d', ③=f♯

Example 3.4a showcases a passage in which left-hand bar and complicated fingerings are necessary to sustain the voices. Yet, regardless of which fingering one might choose, this passage is destined to sound awkward in standard tuning. Comparatively, the semi-lute scordatura allows this passage to be executed within the fifth position. The use of the second open string on the pedal note *b* creates more resonance and simplifies the complicated fingerings in standard tuning (Example 3.4b).

Example 3.4a. Bars and complicated fingerings using standard tuning (*Chaconne* BWV 1004, mm. 217–220)

Example 3.4a shows two staves of musical notation in standard tuning. The first staff is marked 'C. V' and the second staff is marked 'C. II'. Both staves show complex arpeggiated patterns with many bars and complicated fingerings.

Example 3.4b. Simplification of Example 3.4a using semi-lute scordatura

Scordatura: ①=d', ③=f#

Example 3.4b shows a single staff of musical notation in semi-lute scordatura, marked 'C. II'. Below the staff is a guitar tablature with fingerings. The scordatura is defined as ①=d', ③=f#.

Another instance that involves left-hand bars among fast arpeggios is shown in Example 3.5a. Although modern guitarists with a fair technique are able to handle this passage sufficiently well, the technical ease and resonance of the semi-lute scordatura endow this passage with a more flowing quality. Particularly, the left-hand finger replacement of the $c\sharp'$ on the last beat of measure 244 avoids the bar and ensures the legato connection to the chord in the following measure (Example 3.5b).

Example 3.5a. Arpeggios with bars using standard tuning (*Chaconne* BWV 1004, mm. 241–244)

Example 3.5a shows two staves of music in standard tuning. The first staff contains measures 241 and 242, with chords labeled C. III and (C. I). The second staff contains measures 243 and 244, with chords labeled C. III, C. VI, and C. VII. The music features eighth-note arpeggios with triplets.

Example 3.5b. Simplification of Example 3.5a using semi-lute scordatura

Scordatura: ①=d', ③=f#

Example 3.5b shows two staves of music in semi-lute scordatura. The first staff contains measures 241 and 242, with chord C. II. The second staff contains measures 243 and 244, with chords C. II and C. II^h. The music features eighth-note arpeggios with triplets. Below the staves are guitar fingerings for both staves.

The semi-lute scordatura, while promoting the use of lower positions, also mitigates left-hand technical challenges such as position shift and extension. The following selected examples serve to demonstrate this technical facilitation. The passage

in Example 3.6a shows at least one left-hand extension and one position shift, while in Example 3.6b, these two challenges are eliminated using the semi-lute scordatura, thus providing the passage with a smoother flow. Although there is a position shift on the last beat of measure 4, it is disguised by the second open string before it (Example 3.6b).

Example 3.6a. Left-hand extension and position shift using standard tuning (*Allemande* BWV 1004, mm. 4–5)

Musical notation for Example 3.6a, showing a left-hand extension and a position shift. The notation is in G minor, 3/8 time, and features a treble clef with a 3/8 time signature. The melody consists of eighth notes and quarter notes. A bracket labeled "LH extension" spans the first two measures, and an arrow labeled "position shift" points to the start of the third measure.

Example 3.6b. Simplification of Example 3.6a using semi-lute scordatura

Scordatura: ①=d', ③=f#

Musical notation for Example 3.6b, showing a simplification of Example 3.6a using semi-lute scordatura. The notation is in G major, 3/8 time, and features a treble clef with a 3/8 time signature. The melody consists of eighth notes and quarter notes. A bracket labeled "C. II" spans the first two measures. Below the staff is a guitar fretboard diagram with six strings and five frets, showing fingerings for each note.

In Example 3.7a, an irresolvable problem in the D minor version of the *Chaconne* is exposed: the resolution of the dominant 5/6 chord on the second beat of measure 2 results in the doubling of the third, which creates an undesired left-hand extension. Arrangers have tried various solutions including omitting the *f* in the tenor voice, replacing it with *d'*, or transposing the bass *d* to an octave lower. However, none of these solutions are legitimate due to their violation of basic voice-leading principles. But, this

seemingly stubborn problem can be easily solved using the semi-lute scordatura (Example 3.7b).

Example 3.7a. Left-hand extension caused by key choice (*Chaconne* BWV 1004, mm. 1–3)

Musical notation for Example 3.7a, showing the left-hand extension caused by key choice. The notation is in 3/4 time, with a key signature of one flat (B-flat). The left hand plays a sequence of chords and notes, with an arrow pointing to a note on the first string labeled "LH extension".

Example 3.7b. Solution of Example 3.7a using semi-lute scordatura

Scordatura: ①=d', ③=f#

Musical notation for Example 3.7b, showing the solution of Example 3.7a using semi-lute scordatura. The notation is in 3/4 time, with a key signature of one sharp (F-sharp). The left hand plays a sequence of chords and notes, with a table of fingerings below the notation.

0	0	2	2	2	3	0	3
0		1	0		0	1	
2		2	2		0	0	
		2	1		2	3	

Example 3.8a. Frequent position shifts using standard tuning (*Chaconne* BWV 1004, mm. 61–63, Segovia edition)

Musical notation for Example 3.8a, showing frequent position shifts using standard tuning. The notation is in 4/4 time, with a key signature of one flat (B-flat). The left hand plays a sequence of chords and notes, with arrows pointing to notes labeled "position shift" and "LH extension". The notation includes fingerings and a "C. III" marking.

Example 3.8a demonstrates a passage with frequent position shifts, which can be completely avoided using the semi-lute scordatura (Example 3.8b). The rich resonance

notable in this passage is achieved by using the open strings and maintaining the same left-hand position.

Example 3.8b. Elimination of position shifts using semi-lute scordatura

Scordatura: ①=d¹, ③=f[♯]

3. Exhibition of Idiomatic Features of the Lute

a. *Style brisé*

As a term coined by French musicologist Lionel de la Laurencie in the early 20th century, *style brisé* (broken style) has been widely applied by modern scholars to describe the broad stylistic features related to 17th-century French lute music. Although no evidence has suggested the usage of this term before the 20th century, other descriptive words such as *brisé* (*Brechung* in German) and *luthée* were used to identify the arpeggiations and broken chords originally associated with the *style luthé* (lute style).⁸⁴ The essence of the lute style embraces a sense of freedom, which is expressed through the use of spread chords that blur the location of the beat and loosen the rhythmic integrity.⁸⁵

⁸⁴ David J. Buch, “‘Style brisé, Style luthé,’ and the ‘Choses luthées,’” *The Musical Quarterly* 71, (1985): 52–67, accessed January 26, 2019, <https://www.jstor.org/stable/948172>.

⁸⁵ Frederick Neumann, *Ornamentation in Baroque and Post-Baroque Music: With Special Emphasis on J. S. Bach* (Princeton, New Jersey: Princeton University Press, 1978), 67.

This rubato style lends itself to movements that exhibit improvisatory traits. Particularly, this aspect of the *style brisé* will be discussed in Chapter IV under the section Spread Chords.

In a broader context, the term *style brisé* denotes the broken, arpeggiated texture, which marks one of the main characteristics of 17th-century French lute and harpsichord music.⁸⁶ As an authentic expression of the lute, the *style brisé* breaks down the notes in the block chords—which are hard to connect on plucked string instruments—into a horizontal line, endowing the musical texture with an “elegant flow of single notes.”⁸⁷ Under the influence of the lute style, the *style brisé* became common on the harpsichord only in the late 17th century in France. As Ledbetter points out, the *style brisé* “is in fact a principle which governs the very nature of the music” as it promotes the aesthetics of asymmetry and unpredictability, thus adding liveliness and rhythmic interest to the music.⁸⁸ The characteristics of the *style brisé* make it a favorite compositional device widely applied in dance movements that exhibit a fluid trait.

Example 3.9, depicting the Prelude from the Lute Sonata No. 5 in G Major, WeissSW 5 by Silvius Leopold Weiss, features a typical *brisé* passage in the lute style. Example 3.10, *Les Baricades Mistérieuses* by F. Couperin, shows the incorporation of this idiomatic feature on the harpsichord. The simplicity of the tablature notation in Example 3.9 in comparison with the complicated indications of ties in the staff notation in Example 3.10 further prove the lute derivation of this idiom.

⁸⁶ *Oxford Music Online*, s.v. “Style brisé,” accessed October 2, 2019, <http://www.oxfordmusiconline.com>.

⁸⁷ Ledbetter, *Harpsichord and Lute*, 34.

⁸⁸ *Ibid.*, 33.

Example 3.9. *Style brisé* on the lute (Prelude from Lute Sonata No. 5 in G Major, WeissSW 5, first line)

Example 3.10. *Style brisé* on the harpsichord (*Les Baricades Mistérieuses*, mm. 1–4)

Bach is known for interweaving the polyphonic framework into a horizontal flow of irregular arpeggios, a feature that has been displayed throughout both his solo violin and cello works. This compositional technique compensates for the limitation of bowed instruments to sustain multiple voices. The sonority of such passages when the voice parts are sustained with the semi-lute scordatura, exhibits the trait of the *style brisé*.

Generally, the semi-lute scordatura allows each voice in the polyphonic framework to be allocated to a different string so that the voice parts may move independently of one another. The following four examples (Example 3.11, 3.12, 3.13, and 3.14) are so idiomatic on the guitar with the semi-lute scordatura that the polyphony

Example 3.14. Execution of *style brisé* passage (*Allemande* BWV 1004, mm. 27–30)

Scordatura: ①=d', ③=f♯

In addition to the written-out *style brisé* passages displayed in the aforementioned examples, this stylistic feature of the lute can also be freely employed to enhance the connection of block chords as shown in the example of Example 3.15.

Example 3.15. Employment of *Style brisé* to enhance the connection between block chords (*Sarabande* BWV 1004, mm. 13–14)

Scordatura: ①=d', ③=f♯

4. Retention of Idiomatic Feature of the Violin

a. *Bariolage*

Derived from the French verb *barioler*, its noun form *bariolage* (odd mixture of colors) is used to describes a special effect on bowed instruments achieved by the alternation of notes on adjacent strings, one of which is usually open.⁹⁰ Originally associated with a color effect, it denotes the contrast of tone color between an open string and stopped notes on bowed string instruments.

Example 3.18a. *Bariolage* passage in the original key of D minor (*Chaconne*, BWV 1004, mm. 229–240)

⁹⁰ *Oxford Music Online*, s.v. “Bariolage,” accessed October 3, 2019, <http://www.oxfordmusiconline.com>.

Example 3.18b. Execution of Example 3.18a using semi-lute scordatura

Scordatura: ①=d', ③=f♯

0 0 4 0 5 0 4 0 2 0 0 | 0 5 0 4 0 2 0 0 0 | 0 4 0 2 0 0 0 0

2 4 5 2 4 3

0 0 2 0 5 0 4 0 2 0 | 0 0 4 0 3 0 2 0 1 0 0 0 | 0 2 0 1 0 0 0 0 0 0

4 2 2 4 5

0 0 0 0 1 0 2 0 3 0 | 4 0 4 0 4 0 4 0 6 0 8 0 | 9 0 7 0 5 0 5 0 5 0

2 4 2 4 5 6 7 9 10 7 5 5 4 7

5 0 5 0 4 4 4 4 0 | 4 0 4 0 2 0 2 0 2 0 0 | 2 0 0 4 0 2 0 0 0

4 0 5 4 2 0 4 4 2 1 4 1 4 2 5 4 6

The *bariolage* effect is exhibited in measures 229–240 of the *Chaconne* (Example 3.18a). It is important to note that the key factor to achieve the *bariolage* effect is the utilization of open string as it creates more resonance and contrast to the stopped notes. In

the original key of D minor, Bach's writing takes advantage of the violin's open *a'* string, which is not found on the guitar. In Segovia's and many other popular transcriptions, the unison and minor seconds are played on the same string as the pedal note to avoid left-hand stretches, while in other transcriptions, the pedal note is transposed to a higher octave in order to preserve the string alternation. Unfortunately, neither of the results are totally satisfactory. However, the semi-lute scordatura provides an effective and efficient solution to this problem. The utilization of the third open string for the pedal note, preserving both the string alternation and the color of the harmonic unisons and seconds, allows this passage to be rendered as closely to Bach's original intention (Example 3.18b).⁹¹

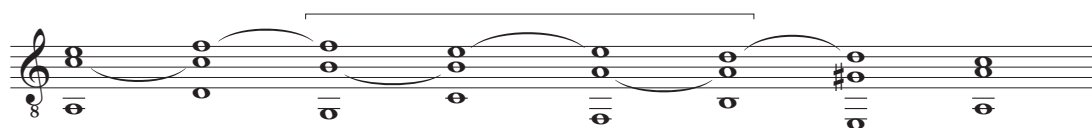
5. Sequence of Non-Dominant Seventh Chords

The sequence of non-dominant seventh chords exhibits one of the most identifiable sonorities in Baroque music. The key feature of this descending-fifth sequence is the interlocking suspension figures as shown in Example 3.19. The third in each seventh chord inside the bracket bears double significance: the resolution of the seventh in the preceding chord and the preparation for the seventh in the following chord. Example 3.20 demonstrates how this prototype is applied in a passage from the *Allegro* BWV 1003. The bass notes are added to clarify the harmony.

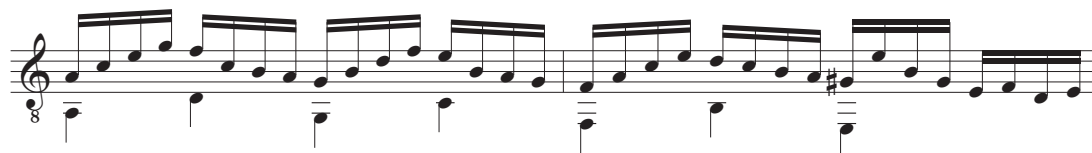
⁹¹ Acosta and Hu, *Ciaccona*, 14–15.

Example 3.19. Sequence of seventh chords in descending fifth

A minor



Example 3.20. Sequence of seventh chords in Bach (*Allegro* BWV 1003, mm. 7–8)



Editorial practices can be applied to enrich the sonority of the sequence of seventh chords in the Partita BWV 1004. In the passage of Example 3.21, a bass line has been added to highlight the harmonic scheme illustrated in Example 3.19 in F-sharp minor. The passage from the *Chaconne* in Example 3.22 involves both the transfer of register to a higher octave and addition of bass notes to present the implied harmony.

Example 3.21. Completion of implied harmony (*Allemande* BWV 1004, mm. 8–9)

Scordatura: ①=d', ③=f#

Example 3.22. Completion of implied harmony (*Chaconne* BWV 1004, mm. 65–68)

Scordatura: ①=d', ③=f#

0 4 2 0 2 0 3 1 0 1 9 7 8 7 10 8 7 2 0 2 0 3 1 0 2 0 7 5 7 5 8 6

0 8 6 0 3 1 0 3 1 0 2 5 4 2 0 2 0 4 2 0 2 4 5 2 3 2 4 5 4 2 0 2 0 4 2 0 4 2 0 2

IV. Incorporation of Ornamental Practices from the Lute and Harpsichord

The semi-lute scordatura offers the technical resources to incorporate stylistic ornaments of the lute and harpsichord. Ornamental practices are divided into two major categories, the essential ornaments and the arbitrary ornaments (or diminutions). The essential ornaments must be added at the discretion of the performer if the composer had not written them down, for the melody is considered incomplete without them.⁹² Differing from this, arbitrary ornaments are used to either embellish the harmonic framework of an incomplete melody or to vary the adornments of an elaborated melody when repeated (German name *willkürliche Veränderungen*). In the early 18th century, ornamentation was considered the performer's realm for showcasing his/her improvisational skills.⁹³ Many Baroque theorists and composers have discussed the artistic nature of ornamentation and the limitation of teaching it through written word.⁹⁴

As seen through Bach's notational practice, he prescribed ornaments in three different ways according to their complexity in execution. Firstly, symbols are used only for ornaments whose executions are straightforward. His famous ornament table, the *Explication* from the *Clavierbüchlein vor Wilhelm Friedmann Bach*, contains symbols for a handful of uncontroversial ornaments (Table 4.1). Secondly, grace notes are used mostly for appoggiaturas and turns that are executed in the standard fashion. Lastly, ornaments that expose a higher level of complexity and ambiguity in their executions are prescribed in regular notes to ensure the correct rhythmic disposition. Most slides, *tirate*,

⁹² Joan Ellen Smiles, "Improvised Ornamentation in Late Eighteenth-Century Music: An Examination of Contemporary Evidence" (PhD diss., Stanford University, 1976), 8.

⁹³ *Ibid.*, 11.

⁹⁴ Neumann, *Ornamentation*, 10–12.

turns, compound ornaments, diminutions, and even some appoggiaturas with unusual suffix are spelled out in regular notes.

Typically, for performers of Bach's music, there is little room to add additional ornaments given Bach's already ingeniously prescribed ornaments. However, this statement tends only to be true when performing his music on the instrument for which it was originally written. Evidence showing further elaborations when arranging a piece for another instrument is again demonstrated through Bach's own arrangement of the Violin Sonata BWV 1003 for the harpsichord (Example 4.1). Through this straightforward example, it is clearly evident how an instrument's technical capability determines the writing of ornamentation. Due to the complexity of Bach's notational practice on ornamentation, a performer of his music must identify the essential structure from the spelled-out ornaments in regular notes to avoid the redundancy of adding an ornament to one already existing. The added ornaments must either intensify the harmonic expression or enhance the connection between notes. When adding embellishment, the general principle that should be kept in mind, as David Russell suggests, is the decorative function of embellishments to beautify music.⁹⁵ Any ornaments, whether added or prescribed, essential or arbitrary, must serve this core function to accentuate the musical expression. As such, adding ornaments for the sake of presenting a middling variation is usually unjustified and gratuitous with Bach's music.

⁹⁵ David Russell, "Masterclass" (annual artist-in-residence program at the University of Arizona, Tucson, March, 2019).

Example 4.1. Bach's ornamental practice in his arrangement of the violin fugue for the harpsichord (*Fuga* BWV 1003/964, mm. 280–285)

The image displays a musical score for Example 4.1, consisting of two systems of music. The top system features a Violin part on a single staff and a Harpsichord part on two staves. The Harpsichord part includes annotations for 'tirata' (a trill) and 'diminution' (a grace note). The bottom system continues the Harpsichord part with further 'diminution' annotations. The Violin part is shown in a simplified manner, focusing on the main melodic line.

Table 4.1. Replication of the *Explication* in the *Clavierbüchlein vor Wilhelm Friedmann Bach*

The image displays a musical score for Table 4.1, consisting of two systems of music. The top system shows a single staff with various ornaments and techniques labeled: Trillo, Mordant, Trillo und Mordant, Cadence, Doppelt-Cadence, idem, and Doppelt-Cadence und Mordant. The bottom system shows a single staff with various ornaments and techniques labeled: idem, Accent steigend, Accent fallend, Accent und Mordant, Accent und Trillo, and idem. The score is presented in a simplified manner, focusing on the specific ornaments and techniques.

1. Essential Ornaments

Ornament terms include graces in English, *agréments* in French, *effetti* or *abbellimenti* in Italian, and *wesentliche Manieren* in German. These denote fixed form ornaments that are an essential part of the musical expression embellishing a single note.⁹⁶ The common essential ornaments that fall into this category are the appoggiatura, acciaccatura, mordent, trills, turn, slide, accent, and combinations of these. While extensive studies have been done on this topic, this current chapter is not intended to investigate all essential ornaments, but to discuss those that are relevant to the semi-lute scordatura. For references on the applications of essential and arbitrary ornaments, Frederick Neumann's monograph *Ornamentation in Baroque and Post-Baroque Music* better serves this purpose.

a. Cross-string trill

Ornaments with cross-string design to resemble the sonority of keyboard instruments have been popularized by major contemporary guitarist figures. Since the early 17th century, one of the essential qualities of the lute was its expressiveness, conveyed through its playing of ornaments, which were typically executed on one string. As Ledbetter remarks, the ornaments on the lute have a natural decline in volume, as only the first note is struck.⁹⁷ While ornaments with single-string design, like those on the lute, are more capable of portraying a lyrical and sentimental character, the dexterity of trills and mordents in allegros and other dance movements, especially those in the keyboard repertoire, is better imparted using the cross-string design on the modern guitar.

⁹⁶ Smiles, 5.

⁹⁷ Ledbetter, *Harpsichord and Lute*, 29.

Right-hand fingering of the cross-string trill is generally based on the “a-i-m-p” formula. Although short trills with the passing function require only a single use of the formula, it appears more often in looped setting in cadential trills. According to F. Couperin’s explanation, trills consist of three parts: 1) stress, 2) repercussions, and 3) *point d’arrêt* (stopping point); ultimately, trills “begin more slowly than they end.”⁹⁸ Several principles are to be kept in mind when interpreting the notation of the trills in the following examples. First, the gradation of acceleration in the repercussions should be imperceptible despite being notated in specific note values. Second, the *aspiration* after the trill indicated by the short rest in the notation (like the one marked in Example 4.2) should not sound abrupt. Third, the number of the repercussions of the trills should not be countable by listeners despite being explicitly notated. In other words, the number of repercussions can vary, as long as they fit into the length of the trilled note.

Example 4.2. Cadential trill executed as cross-string trill (*Chaconne* BWV 1004, mm. 206–208)

Scordatura: ①=d', ③=f#

The musical score for Example 4.2 shows a cadential trill in G major. The notation includes a treble clef, a key signature of one sharp (F#), and a common time signature. The trill is notated with a series of notes: G4, A4, B4, C5, B4, A4, G4. Above the notes, the fingering "a i m p a i m p" is indicated. Below the notes, a "gradual acceleration" arrow points to the right, and an "aspiration" arrow points to a short rest following the trill. The score also includes a scordatura diagram with fingerings for the strings.

⁹⁸ Couperin, *Clavecin*, 38–39.

The key feature of the cross-string trill is the pronounced vibrato effect in the repercussions.⁹⁹ Transferring to the key of B minor provides open strings that allow cadential trill to be executed as cross-string trill, intensifying the significant cadential moments in the *Chaconne* (Example 4.2).

Example 4.3a shows the cadential trill that marks the closure of the *Chaconne* executed as cross-string trill. Although the actual trill begins on the second beat of the penultimate measure, it could be interpreted as an expanded trill that begins on the third beat of measure 255. This expanded trill, as marked in Example 4.3a, demonstrates the feature of a *tremblement lié* (tied trill), in which the first note of the trill is sustained until the next strong beat and the repercussions begin thereafter with a gradual acceleration. The actual trill on the second beat of the penultimate measure can be seen as the continuation of the prior written-out repercussion. Bach's ingenious design of this expanded trill prolongs the trill and offers a wider gradation of acceleration for the repercussions, which powerfully dramatizes the ending of this magnificent work.

In addition, this dramatic moment lends itself perfectly to the application of a compound trill to further intensify the musical expression. Neumann categorizes the compound trills into four types according to their prefix designs, among which the turn-trill corresponds to the *cadence* in the ornament table of D'Anglebert (1689).¹⁰⁰ The name *Doppelt-Cadence* in Bach's small ornament table explicitly shows its derivation from the French lineage (Table 4.1).¹⁰¹ As its name suggests, the turn-trill consists of a

⁹⁹ Frank Koonce and Richard Troeger, "Aspects of Baroque Performance" in *The Solo Lute Works of Johann Sebastian Bach*, ed. Frank Koonce (San Diego: Neil A. Kjos, 1989), xiii.

¹⁰⁰ Neumann, *Ornamentation*, 389–392.

¹⁰¹ *Ibid.*, 399.

turn and a trill. The expanded trill in Example 4.3a could be converted into an expanded turn-trill by placing the turn before the actual trill, merging it into the musical context. The execution shown in Example 4.3b is an expanded turn-trill that begins slowly and blends into the actual trill. The short rest after the trill in Example 4.3a and 4.3b indicates the effect of an *aspiration*, imitating the breath of a singer. As mentioned before, this *aspiration* effect should not be executed abruptly.

Example 4.3a. Cadential trill executed as cross-string trill (*Chaconne* BWV 1004, mm. 255–257)

Scordatura: ①=d', ③=f#

The musical score for Example 4.3a consists of two staves. The upper staff is in treble clef with a key signature of one sharp (F#) and a common time signature. It features a melodic line with a trill. Above the trill, the text "expanded trill" is written with a bracket. Below the trill, the lyrics "a i m p a i m p a i m p" are written. The lower staff shows guitar fingerings for the strings, with numbers 1, 2, 3, and 4 indicating fret positions. The score concludes with a double bar line and repeat dots.

Example 4.3b. Cadential trill executed as expanded turn-trill (*Chaconne* BWV 1004, mm. 255–257)

Scordatura: ①=d', ③=f#

The musical score for Example 4.3b consists of two staves. The upper staff is in treble clef with a key signature of one sharp (F#) and a common time signature. It features a melodic line with a turn-trill. Above the turn-trill, the text "expanded turn-trill" is written with a bracket. Below the turn-trill, the lyrics "i m i a i m p a i m p a i m p" are written. The lower staff shows guitar fingerings for the strings, with numbers 1, 2, 3, and 4 indicating fret positions. The score concludes with a double bar line and repeat dots.

The restatement of the main theme at the end of the *Chaconne* showcases a tonicization of the subdominant as shown in Example 4.4a. To highlight the *e-d#-e* in the middle voice, a *Trillo und Mordant*, according to Bach's terminology in the *Explication* (Table 4.1), may be employed on the *d#* of the applied leading tone chord as shown in Example 4.4b. The cross-string execution here demands a left-hand bar and an extension of the fourth finger.

Example 4.4a. Tonicization of subdominant (*Chaconne* BWV 1004, mm. 253–254)

Scordatura: ①=d', ③=f#

Example 4.4b. *Trillo und Mordant* (*Chaconne* BWV 1004, mm. 253–254)

Scordatura: ①=d', ③=f#

Another implied cadential trill that marks the closure of the first variation in the *Chaconne* is shown in Example 4.5a. Although the harmonic progression clearly exhibits the cadential function, a fully elaborated cadential trill would be premature in the first

variation of such a large movement. In this case, the *tremblement feint* (fake trill) would be a modest way to pronounce the cadence and reserve the cadential trill for the closure of a larger unit (Example 4.5b).¹⁰² The addition of this ornament fills the interruption of the dotted rhythmic pattern on the penultimate beat and smoothly continues the prior rhythmic design.

Example 4.5a. Implied cadential trill (*Chaconne* BWV 1004, mm. 15–16)

Scordatura: ①=d', ③=f♯

2	0	0	2	4	0	2	0	4	0
0	0	0	2	4	0	2	4		
2	4	3		3	2	0	2		

Example 4.5b. Implied cadential trill executed as *tremblement feint* (*Chaconne* BWV 1004, mm. 15–16)

Scordatura: ①=d', ③=f♯

2	0	0	2	4	0	2	0	4	0	4	0
0	0	0	2	4	0	2	4				
2	4	3		3	2	0	2				

¹⁰² Ibid., 271.

b. Cross-string acciaccatura

Derived from the Italian verb *acciaccare* (to crush), the acciaccatura in this study denotes a non-harmonic tone that is struck as quickly as possible before the principal tone and released shortly after clashing with it. This quickly relieved dissonance, like certain spices in cooking, pleasantly stimulates the ears without harming the original underlying “flavor” of the music when used in moderation. The inserted acciaccaturas in the spread chords in Example 4.6 and 4.7 exhibit the harpsichord sonority, adding a stinging effect that enlarges the spread chords. Mersenne describes the additions of acciaccatura to the chords as a device used by keyboardists to emphasize the sonorous, as opposed to the percussive, sound of a consonant chord.¹⁰³ This effect is very similar to the *arpégé figuré* (figurate arpeggio), which will be discussed later in this chapter under arbitrary ornaments.

Example 4.6. Acciaccatura in spread chord (*Allemande* BWV 1004, mm. 6–7)

Scordatura: ①=d¹, ③=f[♯]

The musical score for Example 4.6 is presented in a treble clef with a key signature of one sharp (F#) and a common time signature. It consists of two measures. The first measure contains a series of eighth notes with a scordatura symbol (a circled 1) above the first note. The second measure contains a series of eighth notes with a scordatura symbol (a circled 3) above the first note. Below the staff are two sets of guitar strings with fret numbers indicated by numbers 0-4.

¹⁰³ Ledbetter, *Harpsichord and Lute*, 99.

Example 4.7. Acciaccatura in spread chord (*Chaconne* BWV 1004, mm. 5–7)

Scordatura: ①=d', ③=f♯

c. *Nachschlag*

The generic German term *Nachschlag* (plural: *Nachschläge*) indicates a manifold of ornaments placed at the tail of the main note. These ornaments with characteristics of a suffix are slurred from the main note, essentially taking part of its value. Bach prescribed most of the *Nachschläge* in regular notes as exemplified in Example 4.8 and 4.9. Those shown in Example 4.8 have a consonant property. The note *g* serves to prepare the following appoggiatura. The *Nachschläge* in Example 4.9, which are slurred softly at the tail of the main note *c♯*, functions to render a stress on the main note. This effect is similar to the *accent*, an ornament mentioned by Couperin in his treatise, except for the two-note design here.¹⁰⁴ The second *Nachschlag e'* in Example 4.9 also foreshadows the *e* in the bass voice of the dominant 4/2 chord.

Example 4.8. Example of spelled-out *Nachschläge* in Bach (*Adagio* BWV 1001, m. 1)

¹⁰⁴ Couperin, *Clavecin*, 12.

Example 4.9. Example of spelled-out *Nachschläge* in Bach (*Sarabande* BWV 1004, m. 9)

Scordatura: ①=d', ③=f♯

Musical notation for Example 4.9, showing a treble clef staff with a key signature of two sharps (F# and C#) and a scordatura of ①=d', ③=f#. The notation includes a slur over a group of notes, a trill (tr) above a note, and the word "Nachschläge" below the staff. Below the staff is a scordatura diagram with five lines and numbers 2, 4, 4, 2, 4 from top to bottom.

Example 4.10. Improvised *Nachschläge* for elaborations (*Chaconne* BWV 1004, mm. 126–132)

Scordatura: ①=d', ③=f♯

Musical notation for Example 4.10, showing two systems of musical notation. Each system includes a treble clef staff with a key signature of two sharps (F# and C#) and a scordatura of ①=d', ③=f#. The notation includes slurs, trills (tr), and the word "Nachschläge" below the staff. Below the staff is a scordatura diagram with five lines and numbers 2, 1, 2, 2, 2 from top to bottom.

Example 4.10 provides two examples of improvised *Nachschläge* in the first return of the main theme in the *Chaconne*. This practice of elaborating the texture toward principal cadences is reflected in the arrangements of lute music on the harpsichord in the

17th century. The dissonant appoggiatura (*c#'*) on the first beat of measure 127 is prepared in the preceding chord. The improvised *Nachschläge* (*d'-b*) enliven the expression of the preceding appoggiatura. Moreover, in anticipation for the harmony on the following beat, these *Nachschläge* are executed using open strings to create a resonance that lingers to enrich the sonority of the following chord. The added mordent in the alto voice on the second beat of the same measure continues the momentum created by the *Nachschläge*.

The improvised *Nachschläge* on the first beat of measure 131 (Example 4.10) fill the interval of the consonant major third. The design of this ornament resembles the dactylic slide mentioned by Neumann, though in descending order.¹⁰⁵ The second *Nachschlag* note *a* creates a dissonant suspension on the second beat of measure 131, which delays the arrival of the resolution. This improvised ornament, besides intensifying the harmony, also foreshadows the rhythm of the following fragmentations of eighth notes toward the cadence.

d. *Schleifer*

Schleifer (slide) as a Baroque ornament should be distinguished from the portamento and glissando, expressive idioms that developed later in the Romantic era. A Baroque slide is typically used to connect the interval of a third. Example 4.11 showcases an on-beat slide added by Bach in his arrangement of the Violin Sonata BWV 1003 for the harpsichord. This slide exemplifies the Baroque manner of imitating the portamento of a singer, a vocal glissando that portrays sentimentality in cantabile movements.

¹⁰⁵ Neumann, *Ornamentation*, 204.

Example 4.12 demonstrates an improvised on-beat slide in the repeat of the *Sarabande*. As opposed to the one in Example 4.11, the one in Example 4.12 provides a variation on the recurring melodic figures and adds more directionality to the dominant harmony prior to the onset of the diminished $4/2$ chord and the passing $6/4$ chord in measure 21.

Example 4.11. Bach's spelled-out on-beat slide (*Andante* BWV 1003/964, mm. 12–13)

Violin

Harpsichord

on-beat slide

Example 4.12. Employment of slide in the repeat (*Sarabande* BWV 1004, mm. 19–21)

Scordatura: ①=d', ③=f#

on-beat slide

B minor: $vii^{\circ} 4_2$ $i 6_4$

8 1 2 3

3 2 0 4 4 0 3 2 3 0 5 4 7 0 4 2 5 2 2 1 1 2 4 2 2 0 0 0 2 2 3 2

2. Arbitrary Ornaments

The nature of arbitrary ornaments is incompatible with the functional purpose of notation, since the more accurate the notation is, the more it undermines and contradicts the arbitrary qualities of this type of ornamentation. As such, this issue of teaching ornamentation through notation and words has been widely discussed by Baroque theorists and composers.¹⁰⁶ Notation becomes even less functional when dealing with an elaborated cadenza, where complete freedom has been granted to the performer. As improvisation is an essential part of the Baroque sensibility, this is typically best taught through listening and imitation, evidenced by overly complicated notation for the spread chord, figurate arpeggio, *tirata*, and compound ornaments.

By developing a comprehensive understanding of the improvisatory nature of the arbitrary ornaments, this can potentially influence the attitude of modern performers toward the flexibilities of their executions. The dangers and shortcomings of definitiveness has long been argued by Chinese philosopher, Laozi, who wrote: “The Tao that can be spoken of is not the eternal Tao; the name that can be named is not the eternal name.”¹⁰⁷ Essentially, establishing definitions—in this case, musical notations—imposes limitations to what can be created or done. When arbitrary ornaments are delineated in notation, their flexibilities are instantly excluded. Therefore, Baroque writers deliberately chose to neglect this aspect of ornamentation for this very reason.

¹⁰⁶ Ibid., 10–12.

¹⁰⁷ Xiqin Cai, ed., *Lao Zi Interpreted—Sayings of Lao Zi*, 1st ed. (Beijing: Sinolingua, 2009), 3. In Chinese philosophy, Tao is the absolute principle underlying the universe, combining within itself the principles of yin and yang and signifying the way, or code of behavior, that is in harmony with the natural order.

Bach's ornamental writing is irrefutably accurate and detailed. The notation of rhythm in some of his written-out diminutions is accurate to 64th note as can be observed in the initial movements of BWV 1001 and BWV 1003 among others. Nevertheless, after having identified the nature of arbitrary ornaments, the execution of such diminutions serving a subordinate structural function should convey a feeling of *sprezzatura*—the studied carelessness.¹⁰⁸

Endeavors to shed light on this deliberately neglected aspect of ornamentation have been attempted in this study. The focus here is placed on the arbitrary ornaments that are not written but could be applied to elaborate cadences or to provide variations when a section is repeated. The examples are notated in the closest proximity to their actual executions to avoid misinterpretation. Nevertheless, a moderate degree of rhythmic flexibility and freedom must be automatically assumed, as this is the inherent nature of arbitrary ornaments, even when they are notated with considerable accuracy.

a. Spread chords

The spread chords directly associated with the lute idiom potentially influenced the keyboard style in the 17th century as demonstrated in the works of Louis Couperin.¹⁰⁹ This manner of breaking the chords on the lute exemplifies the narrow definition of the *style brisé* as discussed in Chapter III. Tamayo's improvised ornaments in the cadenza of the *Fuga* BWV 1001 using the semi-lute scordatura reveal the charming essence of lute style in its genuine form. The original cadenza with Bach's rigidly written diminutions in

¹⁰⁸ Peter Croton, *Performing Baroque Music on the Classical Guitar: A Practical Handbook Based on Historical Sources*, ed. Roger Harmon, 4th ed. (San Bernardino, California: Create Space, 2017), 162.

¹⁰⁹ Ledbetter, *Harpsichord and Lute*, 93.

regular patterns is shown in Example 4.13a. Example 4.13b demonstrates Tamayo's improvised ornaments in unmeasured notation. The horizontal lines in the tablature borrow the function of the *tenue* lines in the lute tablature to indicate the duration for sustaining notes.

Example 4.13a. Original cadenza passage (*Fuga* BWV 1001, mm. 91–94)

Example 4.13b. Example 4.13a with improvised ornaments by Tamayo using semi-lute scordatura

Scordatura: ①=d', ③=f♯

ad libitum

In the elaborated version (Example 4.13b), Tamayo embellishes the top stepwise descending 16th notes in measure 91 and 92 with *Halbcirkel* (half-circle) and trills taking the model directly from Bach's spelled-out *Halbcirkel* on the last two beats of measure 92 (*d'-c'-b#-c'*).¹¹⁰ The *campanella* and cross-string techniques are used for the executions of these rapid embellishments. The dominant seventh chord on the first beat of measure 93 is spread in an irregular order to highlight its seventh note. In the following sequence, the ascending slides which gradually shift downward are interrupted by an alternative diminution figure that is executed using the *campanella* technique. The initial chord in measure 94 is an example of a simple spread chord, which is followed by another slowly broken chord blended with the upper cadential trill. Although plucking open strings with the right hand while the left hand is playing an extended trill is evident in Johann Christian Beyer's ornament table for the lute, the combination of the broken chord with cross-string trill displays more of a harpsichord sonority.¹¹¹ The last spread chord in Tamayo's rendition is derived purely from the lute style as it introduces a fourth suspension at the end of the broken chord, whose resolution is elaborated with a lower neighbor tone blended into the repeated upper members (*b-e'*) from the spread chord. This manner of repeating notes in a spread chord and slowing down at the end of the piece exemplifies the 17th-century lute style, which was later incorporated into common practice on the harpsichord.¹¹²

¹¹⁰ Mozart, *Violinschule*, 304–305. The *Halbcirkel* is a turn-like figure described by L. Mozart in his violin treatise. It is a typical diminution figure for embellishing ascending or descending steps.

¹¹¹ Amos, 125–127.

¹¹² Ledbetter, *Harpsichord and Lute*, 97.

In general, Tamayo's improvised ornaments exhibit more of a harpsichord sonority for their *campanella* and cross-string designs. The spread chords blur the location of beat and lubricate the connections between the chords. Combined with the additions of suspension, passing tone, and neighbor tone, these ornamentations portray a sense of unpredictability, highlighting the charms of the improvisatory lute style. Taking Tamayo's use of spread chords as a model, the following paragraphs demonstrate how these stylistic features could be employed in the first return of the main theme in the *Chaconne* to intensify the musical expression toward the cadence of the minor section.

Example 4.14a. Return of the main theme (*Chaconne* BWV 1004, mm. 126–132)

Scordatura: ①=d', ③=f♯

The musical score for Example 4.14a is presented in two systems. Each system consists of a treble clef staff with a key signature of one sharp (F#) and a guitar staff below it. The guitar staff shows fingerings and string numbers for each note. The first system covers measures 126-131, and the second system covers measure 132. The notation includes chords, single notes, and trills. The guitar staff shows fingerings and string numbers for each note.

The appearance of the tonic triad in major in measure 129 of the *Chaconne* (Example 4.14a), foreshadowing the upcoming major section, is veiled by the

appoggiatura *e'* to delay this unexpected modal change. However, the repeated block chords make it difficult to achieve legato between the appoggiatura *e'* and its resolution *d#'*. The use of a downward-spread chord, a common lute idiom, not only dissolves the unidiomatic block chords into the more fluid arpeggios, but also softens the resolution *d#'* by blending it into the resonance of the spread notes (Example 4.14b). This lute idiom was also used on the harpsichord shown in the pieces of Louis Couperin.¹¹³

Example 4.14b. Employment of spread chords in Example 4.14a

Scordatura: ①=d', ③=f#

The image displays two musical staves with guitar tablature. The top staff features a sequence of chords and a 'downward-spread chord' indicated by a bracket and label. The bottom staff features a 'tremblement lié' indicated by a bracket and label. The tablature consists of six lines representing guitar strings, with numbers indicating fret positions.

Downward-spread chord: The tablature for this chord is as follows: String 6: 2, 5; String 5: 1, 4; String 4: 2, 2; String 3: 0, 2; String 2: 0, 2; String 1: 0, 2.

Tremblement lié: The tablature for this trill is as follows: String 6: 0, 2; String 5: 2, 3; String 4: 0, 3; String 3: 1, 2; String 2: 0, 2; String 1: 0, 2.

The slowly spread chord in measure 132 of Example 4.13b is combined with a *tremblement lié* (tied trill), a trill whose auxiliary note is tied to the preceding note in the manner of a suspension. The execution shown in Example 4.14b is supported by German

¹¹³ Ibid., 93.

sources despite its French name. As Neumann points out, the French documentation for this suspension design is found only in Corrette's treatises.¹¹⁴ Neumann further elaborates that this suspension design only makes sense when there is another voice articulating the beat over which the upper note is to be tied.¹¹⁵ The second beat in measure 132 of Example 4.14b is marked by the first bass note of the spread chord, which complies with Neumann's rule.

Although it has been discussed before, it is worth restating the rule of F. Couperin that the trills "should, however, begin more slowly than they end; but this gradation should be imperceptible."¹¹⁶ The trill in Example 4.14b is notated with a gradual acceleration in the repercussions and an *aspiration* indicated by the 32nd rest after the *point d'arrêt* (stopping point). The slowly spread chord under the trill should be played in an arbitrary manner so that no pattern is formed in relation to the repercussions of the trill. Hence, the notation here serves merely as guidance and should not be interpreted literally.

b. *Notes séparées*

The *notes séparées* (disjunct notes) indicated with a diagonal line between two letters in the lute tablature are struck one after another. This typical lute effect was mentioned and explained by French lutenists Denis Gaultier and Perrine; the latter gave a

¹¹⁴ Neumann, *Ornamentation*, 283.

¹¹⁵ *Ibid.*

¹¹⁶ Couperin, *Clavecin*, 38.

detailed account of the *notes séparées* regarding the rhythmic disposition of the notes in a chord.¹¹⁷

It is advisable to play the minor-second chord in measure 179 of the *Chaconne* separately as they would be treated on the lute to highlight its dissonant quality (Example 4.15). Moreover, this separation, by delaying the arrival of the upper note *a* ♭, creates a short rest before it which produces an illusionary effect of swell on the note *a* ♭. This articulation of silence, named as *suspension* by F. Couperin in his treatise, was advocated as a way to imitate the swell of a sustained note on the harpsichord by slightly delaying the attack of a note.¹¹⁸

Example 4.15. Minor second chord executed as *notes séparées* (*Chaconne* BWV 1004, mm. 178–179)

Scordatura: ①=d', ③=f♯

notes séparées

4	2	2	4	2	2
5		5		5	
6	5	3	4	7	6

c. Figurate arpeggio

As explained by Saint Lambert in his treatise (1702), the *harpégé figuré* (figurate arpeggio) as opposed to the *harpégé simple* (plain arpeggio), is decorated with passing

¹¹⁷ Perrine, *Pieces de luth en musique avec des regles pour les toucher parfaitement sur le luth et sur le clavessin*, ed. Paola Erdas (Bologna: UT ORPHEUS snc, 1995), XVII.

¹¹⁸ Couperin, *Clavecin*, 13.

tone(s) or neighbor tone in its upper members.¹¹⁹ The non-harmonic notes inserted as *Zwischenschläge*—ornaments that occur in between two parent notes as defined by Neumann—are not sustained.

Example 4.16a. Original passage (*Fuga* BWV 1001, mm. 22–24)



Example 4.16b. Tamayo's employment of figurate arpeggios in Example 4.16a

Scordatura: ①=d', ③=f#

Example 4.16a shows the original passage of the *Fuga* BWV 1001, which is embellished with figurate arpeggios by Tamayo in Example 4.16b. The figurate arpeggio at the beginning of measure 23 contains a passing tone anticipated in the preceding chord. The slur connecting the passing tone to the chordal tone on the same string exemplifies a typical lute manner. The spread chord on the third beat of the same measure contains an incomplete neighbor tone, which has already been introduced as a cross-string

¹¹⁹ Neumann, *Ornamentation*, 495.

acciaccatura on page 99 and 100. Worth noting is the harmonic slide on the fourth beat of measure 22, an ornament named as *tierce coulée en montant* (ascending third slide) by F. Couperin in his treatise. This stylistic ornament on the keyboard can be understood as a figurate arpeggio for their identical ornamental design. The employment of figurate arpeggios in Tamayo's rendition thicken the texture toward the cadence in measure 24.

The semi-lute scordatura offers a possibility to add a figurate arpeggio in measure 5 of the *Chaconne* as shown in Example 4.17. This figurate arpeggio with *campanella* design creates an enlarged feeling on the spread chord, which resembles the harpsichord sonority. The arpeggiated notes must take the time from the preceding note *B* so that the top note *f#* can arrive on the downbeat. The bass note *B* in the figurate arpeggio tied with its anticipation lingers longer and the rest of the arpeggiated notes must be executed as rapidly as possible to the beat.

Example 4.17. Employment of figurate arpeggio (*Chaconne* BWV 1004, mm. 4–5)

Scordatura: ①=d¹, ③=f[#]

d. Arpeggios in regular rhythm

The regular rhythm arpeggios have a determined pattern. The *Chaconne* contains two arpeggio passages: the first one in measures 89–120 builds up tension toward the cadence of the minor section; the second one in measures 201–208 at the end of the major

section functions as a “retransition” back to the minor mode. Bach wrote out the arpeggio pattern only for the quarter beat at the beginning of the first arpeggio passage. The rest of the passage indicated with the word “arpeggio” was notated in a three- or four-part chordal progression without specific rhythm indications. While it could be easily assumed that the rest of the arpeggio just follows the initial rhythm design prescribed by Bach, many editors, performers, and arrangers have understood it as merely a suggestion by the composer. Even violinists have been shown to use varied patterns for the first extensive arpeggio section as a means to build up tension toward the return of the main theme. The arpeggio patterns change even more radically when being performed on the piano or guitar in order to adapt to the idiosyncrasies of the instruments.

Example 4.18. Variation of arpeggio in regular rhythm (*Chaconne* BWV 1004, mm. 205–208)

Scordatura: ①=d', ③=f♯

The image displays two systems of musical notation for a guitar piece. Each system consists of a standard musical staff with a treble clef and a key signature of three sharps (F#, C#, G#), and a corresponding guitar tablature staff below it. The first system covers measures 205-207, showing a sequence of arpeggiated chords. The second system covers measures 208-210, continuing the arpeggiated pattern and ending with a trill (tr) in the final measure. The tablature includes various fretting instructions such as '2', '4', '6', '3', and 'tr'.

Necessary rearrangement of voices has been done in both arpeggio sections in order to adapt them to the key transposition and the semi-lute scordatura. Example 4.18 displays a pattern variation used to underscore the motions in the inner voices.

e. *Tirata*

The *tirata*, a series of adjacent notes used as arbitrary ornament to fill the space of large intervals, has been introduced in the previous chapter (pages 65–67). The large gap between the *f#'* and *a#'* in Example 4.19a lends itself perfectly to a *tirata* to fill both the interval and time. As shown in Example 4.19b, the *tirata* in combination with an *échappée* note is used to elaborate the melody in the repeat. The *tirata* in this passage is executed using the *campanella* technique to imitate the harpsichord sonority.

Example 4.19a. Demonstration of large interval (*Sarabande* BWV 1004, m. 6)

Scordatura: ①=d', ③=f#'

The musical notation for Example 4.19a shows a treble clef with a key signature of one sharp (F#). The first measure contains a quarter note G4 (fingered 4) and a quarter note A#4 (fingered 4). The second measure contains a quarter note B4 (fingered 5) and a quarter note C5 (fingered 4). A bracket above the second measure is labeled "large interval". The guitar fretboard diagram below shows the following fingerings: 0 (open), 4 (4th fret), 4 (4th fret), 5 (5th fret), 4 (4th fret), 0 (open), 4 (4th fret), and 2 (2nd fret).

Example 4.19b. Employment of *tirata* to fill the large interval in Example 4.19a

Scordatura: ①=d', ③=f#'

The musical notation for Example 4.19b shows the same treble clef and key signature as Example 4.19a. The first measure is identical. The second measure contains a quarter note B4 (fingered 5), followed by a *tirata* consisting of a series of eighth notes: C5 (fingered 0), D5 (fingered 2), E5 (fingered 5), F#5 (fingered 2), G5 (fingered 5), and A#5 (fingered 2). The *tirata* is bracketed and labeled "tirata". The final note of the second measure is a quarter note C5 (fingered 2), which is labeled "échappée" with a wavy line above it. The guitar fretboard diagram below shows the following fingerings: 0 (open), 4 (4th fret), 4 (4th fret), 5 (5th fret), 4 (4th fret), 0 (open), 5 (5th fret), 2 (2nd fret), 5 (5th fret), 2 (2nd fret), and 4 (4th fret).

To exemplify the application of the essential and arbitrary ornaments discussed in this chapter, improvised ornaments in the *Chaconne* and *willkürliche Veränderungen* (arbitrary variations) for the repeats of the *Sarabande* can be found respectively in Appendix B and Appendix C of this document.

Conclusion

The use of the semi-lute scordatura to perform Bach's Violin Partita BWV 1004 on the guitar brings to light the spontaneity of expression inherited from the Baroque performance practices of the lute and harpsichord. This is achieved as more usable open strings are created when using the semi-lute scordatura, which not only enriches the resonance of the guitar but also promotes the use of lower positions and mitigates technical challenges encountered in standard tuning. Derived partially from the D minor lute tuning, the semi-lute scordatura allows guitarists to directly access the idiomatic resources of the lute, such as *campanella* scales and *style brisé*, as well as to incorporate ornamentation of the lute and harpsichord into the guitar.

In the Baroque era, the composer and performer were often the same person; Bach is an exemplary case. Known for his extraordinary abilities on the violin, harpsichord, and organ, this musical dexterity allowed him to be aware of the idiomatic resources as well as the technical limitations of the instruments for which he composed.¹²⁰ While Bach's music is often complex, this complexity should not be evident in the performer's execution. However, as guitar is not directly associated with Bach's compositional idiom, problems arise as modern guitarists interpret his music. As demonstrated through the examples in this document, guitarists are constantly confronting technical challenges to ensure the legato and sustainment of certain voices.

Using the semi-lute scordatura, not only can these issues be resolved, but furthermore, allows guitarists to perform Bach's music idiomatically without having to

¹²⁰ The instrumentation of Bach's lute works is under debate. The facts that some of his lute works are incompatible with the D minor lute tuning and none of them survived in lute tablature with his autograph raise the question whether they were written for the lute or lute-harpsichord.

learn the lute or harpsichord. However, it is important to note the disadvantages of using the semi-lute scordatura, such as the limited choices of keys and the reduced range. Considering this, the ultimate goal of this study is not to advocate this strategy as a blanket solution for all Bach's works which are challenging on the guitar, but to provide guitarists with more extensive resources to better tackle his compositions. Rather, this study attempts to provide a foundational model to demonstrate how Bach's works could be more fully realized on the guitar, in addition to a strategy to promote the technical ease and the spontaneity of expression on the guitar through a retuned rendition of the Partita BWV 1004.

This study also develops recommendations to address technical issues encountered in standard tuning on the guitar when performing other Bach's works. There are several questions that can be asked during this troubleshooting process: (1) Is this the right choice of key for the piece? Does the choice of key create any open strings which can be used to mitigate technical challenges such as position shift and left-hand bar? (2) Is the technical issue a result of the idiomatic differences between the original instrument and the guitar? If yes, which strategies can be used to convert it into the language of the plucked string instruments? (e.g., block chords to *style brisé*) (3) Are there any ornaments that can be employed to disguise a technical issue? When an open string can be used as the auxiliary note of an ornament, it mitigates a challenging position shift. (4) Are there any articulation tools that can be used to make an undesired break of resonance (caused by a shift or a bar) sound like part of the musical expression? Under appropriate circumstances, an *aspiration* or staccato may be used to shorten the duration of a note, thus winning more time to perform a technical challenge. By considering the

aforementioned questions, many of the principles discussed in this study can be applied to standard tuning to mitigate or solve technical issues that arise when playing Bach's music on the guitar.

While it is not uncommon to use scordatura to perform Bach's music, whether on the lute or on the guitar, few scholarly studies have revealed the reasons for this decision. In attempt to fill this void, this study answers this crucial question using persuasive examples from a retuned rendition of Bach's Violin Partita BWV 1004. Through examination of treatises from Bach's contemporaries and modern scholars, in combination of methodical inquiries into scordatura tuning and idiomatic features and ornamental practice of the lute and harpsichord, this study demonstrates the practicality of extant theoretical research and informs modern arrangers of new possibilities in crafting a more satisfying performance of Bach's music on the modern guitar. Lastly, I hope that this study will inspire fellow guitarists to seek solutions for Bach's other solo string and keyboard works and to apply the principles in this study to the works of other Baroque composers.

Appendix A

Arrangement of *Chaconne* with Semi-Lute Scordatura in C Minor

23

23

28

28

32

32

36

36

39

39

42

42

0 4 2 1 0 3 3 1 3 0 | 1 2 0 3 2 0 2 1 0 | 4 2 0 0 0 4

2 4 2 1 0 3 3 1 3 0 | 2 2 0 3 2 0 2 1 0 | 2 2 0 2 0 4 2 2 4

45

45

2 2 3 4 0 3 1 0 2 0 4 2 | 1 0 2 1 0 2 0 3 0 2 | 3 0 2 3 0 2 4 1 2 4 5 4

2 2 3 4 0 3 1 0 2 0 4 2 | 1 0 2 1 0 2 0 3 0 2 | 3 0 2 3 0 2 4 1 2 4 5 4

48

48

3 4 4 0 2 1 2 0 4 1 | 2 0 2 0 4 2 0 3 2 0 | 4 2 0 4 2 0 3 0 3

3 4 4 0 2 1 2 0 4 1 | 2 0 2 0 4 2 0 3 2 0 | 4 2 0 4 2 0 3 0 3

51

51

1 0 3 2 0 3 2 0 4 2 | 1 2 1 4 4 2 0 4 | 0 0 0 0 5 4 5

1 0 3 2 0 3 2 0 4 2 | 1 2 1 4 4 2 0 4 | 0 0 0 0 5 4 5

54

54

2 0 4 2 3 2 3 0 3 2 4 | 0 0 1 0 1 0 2 3 5 | 4 4 4 2 2 4 8 11 0 2

0 4 2 2 3 0 0 3 2 4 | 3 2 0 0 1 0 2 4 | 4 4 4 2 2 4 8 11 0 2

71

71

0 5 4 2 0 2 0 3 1 0 2 0 4 2 1 4 2 4 1 2 4 0 2 4

3 5 2 0 2 3 2 0 2 4 1 3 0 2 0 2 4 2 0 4 2 1 4 2 4 1 2 4 0 2 4

Detailed description: This system contains two staves. The top staff is a treble clef with a key signature of one sharp (F#) and a common time signature. It shows measures 71 and 72. Measure 71 features a melodic line with eighth notes and a bass line with eighth notes. Measure 72 continues the melodic line with a slur and a fermata over the final notes. The bottom staff is a guitar fretboard diagram with two lines. It shows the fret numbers for each string in measures 71 and 72. Measure 71 frets are: 0, 3, 5, 2, 0, 2, 3, 2, 0, 2, 4, 1, 3, 0, 2, 0, 2, 4. Measure 72 frets are: 4, 5, 4, 2, 0, 2, 0, 3, 1, 0, 2, 0, 4, 2, 1, 4, 2, 4, 1, 2, 4, 0, 2, 4.

73

73

0 2 4 0 2 4 2 4 5 2 4 5 2 3 2 4 5 2 0 3 0 2 4 1 2 0 1 3 0 5 3 0 2 4 2 4 0 3 2

Detailed description: This system contains two staves. The top staff is a treble clef with a key signature of one sharp (F#) and a common time signature. It shows measures 73 and 74. Measure 73 features a melodic line with eighth notes and a bass line with eighth notes. Measure 74 continues the melodic line with a slur and a fermata over the final notes. The bottom staff is a guitar fretboard diagram with two lines. It shows the fret numbers for each string in measures 73 and 74. Measure 73 frets are: 0, 2, 4, 0, 2, 4, 2, 4, 5, 2, 4, 5, 2, 3, 2, 4, 5. Measure 74 frets are: 2, 0, 3, 0, 2, 4, 1, 2, 0, 1, 3, 0, 5, 3, 0, 2, 4, 2, 4, 0, 3, 2.

75

75

3 2 4 1 2 0 1 3 0 2 0 1 3 0 2 1 2 4 5 4 2 3 2 0 4 4 2 0 2 0 4 2 0 2 4 0 2 0 2 4 5 2 2 4 0 2 0 4

Detailed description: This system contains two staves. The top staff is a treble clef with a key signature of one sharp (F#) and a common time signature. It shows measures 75 and 76. Measure 75 features a melodic line with eighth notes and a bass line with eighth notes. Measure 76 continues the melodic line with a slur and a fermata over the final notes. The bottom staff is a guitar fretboard diagram with two lines. It shows the fret numbers for each string in measures 75 and 76. Measure 75 frets are: 3, 2, 4, 1, 2, 0, 1, 3, 0, 2, 0, 1, 3, 0, 2, 1, 2, 4, 5, 4, 2, 3, 2, 0. Measure 76 frets are: 4, 4, 2, 0, 2, 0, 4, 2, 0, 2, 4, 0, 2, 0, 2, 4, 0, 2, 0, 2, 4, 5, 2, 2, 4, 0, 2, 0, 4.

77

77

0 0 2 0 1 0 2 0 0 0 3 2 3 0 2 1 0 3 1 3 2 1 0 1 2 0 4 2 1 4

Detailed description: This system contains two staves. The top staff is a treble clef with a key signature of one sharp (F#) and a common time signature. It shows measures 77, 78, and 79. Measure 77 features a melodic line with eighth notes and a bass line with eighth notes. Measure 78 continues the melodic line with a slur and a fermata over the final notes. Measure 79 continues the melodic line with a slur and a fermata over the final notes. The bottom staff is a guitar fretboard diagram with two lines. It shows the fret numbers for each string in measures 77, 78, and 79. Measure 77 frets are: 0, 0, 2, 0, 1, 0, 2, 0, 0, 0. Measure 78 frets are: 0, 3, 2, 3, 0, 2, 1, 0, 3, 1. Measure 79 frets are: 3, 2, 2, 1, 0, 1, 2, 0, 4, 2, 1, 4.

80

80

2 2 0 0 0 0 2 2 4 2 5 5 3 3 3 3 5 5 2 3 4 4 4 1 1 1 1 1 3 3 0 1 2

Detailed description: This system contains two staves. The top staff is a treble clef with a key signature of one sharp (F#) and a common time signature. It shows measures 80, 81, and 82. Measure 80 features a melodic line with eighth notes and a bass line with eighth notes. Measure 81 continues the melodic line with a slur and a fermata over the final notes. Measure 82 continues the melodic line with a slur and a fermata over the final notes. The bottom staff is a guitar fretboard diagram with two lines. It shows the fret numbers for each string in measures 80, 81, and 82. Measure 80 frets are: 2, 2, 0, 0, 0, 0, 2, 2, 4, 2. Measure 81 frets are: 5, 5, 3, 3, 3, 3, 5, 5, 2, 3, 4. Measure 82 frets are: 4, 4, 4, 1, 1, 1, 1, 1, 3, 3, 0, 1, 2.

93

93

0 0 0 0 0 0 | 1 1 1 1 1 1

2 0 0 0 0 0 | 0 1 1 1 1 1

95

95

0 0 0 0 0 0 | 0 0 0 0 4 2

2 2 2 2 0 0 | 0 0 0 0 4 2

97

97

0 0 0 0 0 0 | 2 1 3 1 2 1

2 0 0 0 0 0 | 2 1 2 1 2 1

99

99

5 5 4 4 0 0 | 0 2 0 0 0 0

2 1 2 2 1 2 | 2 2 4 5 4 5

101

101

0 0 0 0 0 0 | 1 1 1 1 1 1

2 2 2 2 2 2 | 3 3 3 3 1 1

103

103

2	2	0	0	2	2	3	3	4	4	4	4
1	1	1	1	0	0	0	0	2	2	2	2
2	2	2	2	1	2	2	2	2	4	4	2
2	2	2	2	1	2	2	2	2	4	4	2

105

105

0	0	3	3	3	3	3	3	2	2	1	1
2	0	0	0	0	4	4	4	4	4	4	4
2	0	2	2	2	4	4	2	2	2	2	0
2	0	2	2	2	4	4	2	2	2	2	0

107

107

1	1	5	5	2	2	4	4	2	2	4	4
0	1	0	0	0	0	0	0	2	2	2	2
3	3	3	3	3	3	4	4	4	4	4	4
3	3	3	3	3	3	2	2	2	2	2	2

109

109

0	0	1	1	1	1	2	2	3	3	3	3
0	0	0	0	0	0	0	0	4	4	4	4
2	2	2	2	2	2	2	2	2	2	4	4
2	2	2	2	2	2	2	2	2	2	4	4

111

111

4	4	7	7	6	6	9	9	9	9	8	8
0	3	3	3	6	6	6	6	0	0	0	0
0	3	3	3	6	6	6	6	8	8	8	8
0	3	3	3	6	6	6	6	8	8	8	8

113

113

9 9 9 9 9 9 | 9 9 8 8 8 8

8 8 8 8 5 8 8 8 8 4 8 8 4 8 8 | 3 7 7 3 7 7 4 7 7 4 7 7 7 7 7

7 7 | 7 7

115

115

0 7 0 0 7 0 0 6 0 0 6 0 0 6 0 0 6 0 0 0 | 5 5 4 4 0 4 0 0 4 0 2 2

6 6 2 2 0 0 | 4 4 4 4 0 0 0 4 4 4 4

6 6 2 2 0 0 | 4 4 0 0 4 4

117

117

5 4 5 5 4 5 3 3 3 3 | 2 2 2 2 1 1 1 1

2 2 2 2 4 4 4 4 2 2 2 2 | 0 2 2 2 2 2 2 2 0 3 0 0 0

2 2 2 2 4 4 4 4 2 2 2 2 | 0 0 0 0 2 2

119

119

0 0 0 0 2 2 2 2 0 0 0 0 | 0 0 5 5 4 4 4 4 4 4 4 4

3 3 3 3 2 2 | 1 4 4 1 4 4 2 4 4 2 4 4 2 4 4 4

3 3 3 3 2 2 | 1 4 4 1 4 4 2 4 4 2 4 4 2 4 4 4

121

121

0 3 2 0 2 0 3 0 3 1 3 1 0 1 3 0 2 0 | 2 0 3 3 1 3 1 0 1 0 2 0 1 3 0 1

0 0 0 0 2 2 | 0 0 0 0 2 2 0 0

123

123

0 3 1 3 1 0 1 0 2 0 2 0 2 0 1 3 0 | 0 2 4 0 0 2 4 0 0 4 2 4 2

3 3 2 0 0 2

125

125

0 0 0 0 1 0 1 2 2 2 2 2 2 3 0 0 5 4 2 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 4 2

4 2 1 2 0 2 0 1 0 1 2 2 2 2 0 0 0 0 0 0 2 0 4 2 2

129

129

2 1 0 0 2 1 1 0 0 0 0 0 0 0 4 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 4 0

2 2 0 4 3 2 3 2 1 2

133

133

0 0 2 2 4 2 4 0 2 2 4 5 4 2 2 4 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

2 2 1 2 4 0 2 1

137

137

4 6 4 5 4 2 2 4 2 4 2 0 2 2 2 1 2 0 4 0 0 4 0 | 5 0 4 4 4 4 0 2 2 2 2 0 4 0 0 4 0

2 2 2 6 4 2 2 4 2 0 0 2 2 2 2 2 2 2 2 2 2

158

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4	0	9	9	9	9	7	7	7	6	6	6	8	9	9	9
5	0	0	0	2	2	4	4	4	0	9	9	9	7	7	9
2	2	2	2	4	4	4	4	2	2	2	2	2	2	2	2
									6	7	7	7	7	7	7

176

176

2	2	2	2	4	4	4	4	2	2	2	2	1	4	4	4	2	2
4	2	2	2	7	5	5	5	2	2	2	2	0	5	4	4	5	2
6	6	6	6	4	4	4	4	2	4	4	4	2	5	4	2	5	2
												2					

179

179

2	5	3	4	3	3	6	4	2	1	1	1	1	0	0	0
6	6	6	6	7	6	7	6	8	0	6	4	2	2	0	2
									7	6	4	4	2	1	1
									2	1	2	0	2	1	1

182

182

2	2	2	4	1	6	4	2	1	2	0	4	0	tr	0
2	4	4	2	3	0	2	4	2	2	1	4	4	tr	0
				1	2	0	4	0	2	1	4	4	tr	0
													tr	

185

185

0	0	0	0	0	0	2	2	2	4	0	0	4
0	0	0	0	0	0	2	2	2	2	1	4	2
1	1	1	1	1	1	2	2	2	2	1	4	2
2	2	2	2	0	0	4	4	4	2	2	4	4

189

189

0	1	1	1	1	1	0	2	2	2	0	0
0	0	0	0	0	0	0	0	0	0	0	0
1	2	2	2	0	0	0	2	2	2	1	4
2	2	2	0	0	0	4	1	1	2	4	2

193

193

0	1	1	2	4	4	6	6	9	9	9	11
0	0	0	0	0	0	0	7	9	9	9	10
1	4	2	2	4	6	6	7	8	8	11	11
7	7	7	4	6	6	7	8	8	9	9	10

197

197

9	9	9	8	7	7	6	0	2	2	2	2	6	4	2
7	7	7	7	7	7	5	0	5	5	5	4	4	4	4
7	7	7	4	7	7	0	1	1	2	4	4	4	4	4
7	7	7	4	7	7	0	1	1	2	4	4	4	4	4

201

201

4	1	1	1	1	1	1	1	1	1	4	4	4	4	4
0	0	0	0	0	0	0	0	0	0	2	2	2	2	2
4	2	2	1	1	4	4	4	4	2	2	0	0	0	0
2	2	2	1	1	4	4	4	4	2	2	0	0	0	0

204

204

6	6	2	4	5	5	2	2	1	1	1	1
0	0	5	5	4	4	0	0	0	0	0	0
8	8	2	4	4	4	2	2	2	2	2	2
8	8	2	4	4	4	2	2	2	2	2	2

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0 0 0 0 1 2 3 0 | 4 4 4 4 0 6 8 0 | 9 7 0 5 5 5 5 0

2 4 0 1 2 3 0 | 4 4 4 4 6 8 0 | 10 7 7 5 5 5 0

238

238

5 0 0 4 0 0 0 0 | 4 0 4 0 2 0 2 0 2 0 | 2 0 0 4 0 0 0 0

4 0 5 4 4 2 0 | 2 4 4 2 2 1 2 0 | 1 4 1 2 5 4 6

241

241

0 0 0 0 0 0 0 0 1 0 2 0 5 | 5 5 0 4

2 2 0 0 0 0 1 2 | 4 3 5 4 2 4 2 3 2 3 4 3 0 3

243

243

4 1 1 1 1 0 1 1 1 | 5 0 4 2 2 0 0 2 4 2

2 3 2 0 2 0 0 1 2 1 1 3 | 4 0 2 3 4 5 2 4 2

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Appendix B

Improvised Ornaments in the *Chaconne*

Chaconne BWV 1004, mm. 249–257

Scordatura: ①=d', ③=f#

8

		2	2	2	3	0	3	1	0	2	0	0	2	0	1	0
	0	1	0		0	1		2	0	2	0	0	2	0	0	0
7	0	2	2	1	2	0	3	0	2	1	4	0	2	4	2	0

C. II

8

	0	3	2	2	2	2	1	2	1	0	2	0	0	2	0	2
3	2	6	6	6	6	4	1	2	1	4	2	1	2	0	0	2

tr

tr

Appendix C

Suggestions of Ornamentation for the Repeats of the *Sarabande*

Sarabande

BWV 1004

Johann Sebastian Bach

arr. Bin Hu

Scordatura: ①=d', ③=f#

Capo at 1st fret

8

TAB

0 2 0 0 1 0 1 3 5 3 0 1 2 1 2 0 1 0 1 0 0 0 0 5 5 0 0 0

4

tr

tr

tr

5 4 0 5 0 2 2 4

7

C. II

omit in the repeat

tr

tr

tr

2 3 5 4 4

11

tr

tr

tr

tr

2 3 2 3 2 2 0 5 5 3 1 2 1 2 0 1 1 2 3 0 1 0 3 1 0 2 1 0 7

15

C. V → C. II →

15

18

18

21

21

24

1. 2.

24

26

26

References

- Acosta Zavala, Kathy, and Bin Hu. "Ciaccona." Liner notes for *Ciaccona*, by Johann Sebastian Bach. Performed by Bin Hu. Ediciones Eudora EUD-SACD-1803, 2018. Super Audio CD.
- Altschuler, Eric Lewin. "Were Bach's Toccata and Fugue BWV565 and the Ciacconia [*sic*] from BWV1004 Lute Pieces?" *The Musical Times* 146, no. 1893 (Winter 2005): 77–86.
- Amos, Charles Nelson. "Lute Practice and Lutenists in Germany between 1500 and 1750." PhD diss., University of Iowa, 1975.
- Bach, Carl Philipp Emmanuel. *Essay on the True Art of Playing Keyboard Instruments*. Translated and Edited by William J. Mitchell. New York and London: W. W. Norton & Company, 1949.
- Bach, Johann Sebastian. *Sämtliche Lautenwerke*. Edited by Stefan Lundgren. Munich: Lundgren Musik-Edition, 1984.
- . *Sechs Suiten für Violoncello solo, BWV 1007–1012*. Edited by August Wenzinger. Kassel: Bärenreiter, 1967.
- Bermudo, Juan. *Declaración de instrumentos musicales*. Osuna, 1555.
- Boyden, David D. *The History of Violin Playing, from Its Origins to 1761 and Its Relationship to the Violin and Violin Music*. London: Oxford University Press, 1965.
- Buch, David J. "'Style brisé, Style luthé,' and the 'Choses luthées.'" *The Musical Quarterly* 71 (1985): 52–67.
- Chambers, Mark. "The 'Mistuned' Cello: Precursors to J. S. Bach's Suite V in C Minor for Unaccompanied Violoncello." Doctor of Music Treatise, Florida State University, 1996.
- Couperin, François. *L'art de toucher le clavecin*. Edited and Translated by Margery Halford. 2nd ed. USA: Alfred Pub. Co., 1995.
- Crittenden, David Todd. "Silvius Leopold Weiss's Solo Lute Sonatas 20 and 33 from Dresden Manuscript 2841, V. I in the Sächsische Landesbibliothek: A Transcription from the Tablature and a Critical Edition for Classical Guitar." DMA document, University of Georgia, 1996.

- Croton, Peter. *Performing Baroque Music on the Classical Guitar: A Practical Handbook Based on Historical Sources*. Edited by Roger Harmon. 4th ed. San Bernardino, California: Create Space, 2017.
- Donington, Robert. *The Interpretation of Early Music*. London: Faber and Faber, 1963.
- . *Baroque Music: Style and Performance*. London: Faber Music Ltd, 1982.
- Efrati, Richard R. *Versuch einer Anleitung zur Ausführung und zur Interpretation der Sonaten und Partiten für Violine solo und der Suiten für Violoncello solo von Johann Sebastian Bach*. Zürich: Atlantis Musikbuch-Verlag, 1979.
- Eichberg, Hartwig, and Thomas Kohlhase. *Johann Sebastian Bach neue Ausgabe sämtlicher Werke, Serie V, Band 10: Einzeln überlieferte Klavierwerke II und Kompositionen für Lauteninstrumente, Kritischer Bericht*. Kassel: Bärenreiter, 1982.
- Gantez, Annibal. *L'entretien des musiciens*. Edited by A. Claudin. Paris: n. p., 1878.
- Guhr, Carl. *Ueber Paganini's Kunst die Violine zu spielen*. Mainz, Antwerpen and Brüssel: B. Schott's Söhne, 1829.
- Hopstock, Tilman. *Bach's Lute Works from the Guitarist's Perspective*. Vol. 1, *Suites BWV 995/996*. Translated by Lindsay Chalmers-Gerbracht. Darmstadt: Prim-Musikverlag, 2012.
- . *Bach's Lute Works from the Guitarist's Perspective*. Vol. 2, *BWV 998/999/1000*. Darmstadt: Prim-Musikverlag, 2013.
- Koonce, Frank, and Richard Troeger. "Aspects of Baroque Performance." In *The Solo Lute Works of Johann Sebastian Bach*, edited by Frank Koonce, x–xvii. San Diego: Neil A. Kjos, 1989.
- Ledbetter, David. *Harpsichord and Lute Music in 17th-Century France*. London: The Macmillan Press Ltd, 1987.
- Mozart, Leopold. *Gründliche Violinschule: Erstausgabe der zweiten Auflage von 1769 in Moderner Schrift und angepasster Rechtsschreibung. herausgegeben von Matthias Michael Beckmann, Textübertragung von Gottfried Franz Kasperek*. Salzburg: Kulturverlag Polzer, 2007.
- Neumann, Frederick. *Ornamentation in Baroque and Post-Baroque Music: With Special Emphasis on J. S. Bach*. Princeton, New Jersey: Princeton University Press, 1978.
- Quantz, Johann Joachim. *On Playing the Flute*. A Complete Translation with an Introduction and Notes by Edward R. Reilly. New York: The Free Press, 1966.
- Russell, Theodore. "The Violin 'Scordatura.'" *The Musical Quarterly* 24 (1938): 84–96.

- Sadie, Stanley, and John Tyrrell, eds. *The New Grove Dictionary of Music and Musicians*. 2nd ed. 29 vols. London: Macmillan, 2001.
- Serrano, Renato. "Guidelines for Transcribing Baroque Lute Music for the Modern Guitar, Using Silvius Leopold Weiss's Sonata 36 (From the Dresden Manuscript) as a Model." DMA document, University of Arizona, 2016.
- Smiles, Joan Ellen. "Improvised Ornamentation in Late Eighteenth-Century Music: An Examination of Contemporary Evidence." PhD diss., Stanford University, 1976.
- Tyler, James. *The Early Guitar: A History and Handbook*. London: Oxford University Press, 1980.
- Yates, Richard Sebastian. "The Transcriber's Art: Johann Sebastian Bach Fugue BWV 1001 and Largo BWV 1003." *Soundboard: The Journal of the Guitar Foundation of America* 34, no. 1 (2008): 35–41.
- . "The Transcriber's Art." *Soundboard: The Journal of the Guitar Foundation of America* 23, no. 1 (Summer 1996): 43–47.
- Yates, Stanley. "Bach's Unaccompanied Cello Music: The Nature of the Compound Line and an Approach to Stylistic and Idiomatic Transcription for the Guitar." *Soundboard: The Journal of the Guitar Foundation of America* 22, no. 3 (1996): 9–23.
- . "Bach's Unaccompanied String Music: A New (Old) Approach to Stylistic and Idiomatic Arrangement for the Guitar." *Classical Guitar* 17, no. 3 (1998): 24–29.
- . "Bach's Unaccompanied String Music: A New (Old) Approach to Stylistic and Idiomatic Arrangement for the Guitar." *Classical Guitar* 17, no. 4 (1998): 20–23.
- . "Bach's Unaccompanied String Music: A New (Old) Approach to Stylistic and Idiomatic Arrangement for the Guitar." *Classical Guitar* 17, no. 5 (1999): 20–26.
- . "Bach's Unaccompanied String Music: A New (Old) Approach to Stylistic and Idiomatic Arrangement for the Guitar." *Classical Guitar* 17, no. 6 (1999): 32–36.