

Bach's 6th Suite for Solo Cello: From Five Strings to Four

by

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BACH'S 6<sup>TH</sup> SUITE FOR SOLO CELLO:  
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Doctor of Musical Arts: Cello Performance

ABSTRACT

The Doctoral Performance and Research submitted by Lindsey Crabb, under the direction Uri Vardi at the University of Wisconsin-Madison, in the fulfillment of the requirements for the degree Doctor of Musical Arts consists of the following:

I. Written Project:

“Bach’s 6<sup>th</sup> Suite for Solo Cello: From Five Strings to Four”

This project contains a CD recording of Bach’s 6<sup>th</sup> Cello Suite on both a modern cello and a 5-string cello. This is accompanied by a written document which explores the ways in which playing the piece on a 5-string instrument can inform a modern cellists’ approach on a 4-string cello. Scores of fingerings and bowings, as well as a color-coded score of the strings used throughout the piece on each cello are included for readers to reference and study.

II. Chamber Music Recital, 2/2/2013, Morphy Hall  
Viola da Gamba Sonata, BWV 1029 – Bach  
Sonata in G minor, Op. 5, No. 2 – Beethoven  
Sonata in F major, Op. 6 – R. Strauss

III. Chamber Music Recital, 4/6/2013, Capitol Lakes  
String Quartet Op. 18, No. 2 – Beethoven  
Microquartet – M. Goleminov  
String Quartet in F Major – Ravel

IV. Solo Recital, 11/9/2013, Morphy Hall  
Suite No. 6 in D Major, BWV 1012 – Bach  
Sonata for Solo Cello – G. Ligeti  
Suite for Solo Cello – G. Cassado

V. Chamber Music Recital, 5/9/2014, Morphy Hall  
Piano Quintet in F minor, Op. 34 – Brahms  
Scenes From the Poet’s Dreams (selections) – J. Higdon

VI. Concerto/Chamber Music Recital, 10/31/2014, First United Methodist Church  
Sonata in A minor for Arpeggione and Piano, D.821 – Schubert  
Schelomo: Hebraic Rhapsody for Solo Cello and Large Orchestra – Bloch

VII. Lecture Recital, 11/14/2015, Morphy Hall  
“Learning from the 5-string cello in Bach’s 6<sup>th</sup> Cello Suite”

An exploration of the ways in which knowledge of how Bach's 6<sup>th</sup> Cello Suite feels, sounds, and lies on the 5-string cello can inform the approach of the same piece on a 4-string cello. Includes performance of the Suite on both a 5-string and a modern cello.

## Introduction

J. S. Bach's Suites for Solo Cello have long been a critical part of the cello repertoire. While there are earlier examples of unaccompanied suites for the violin, these pieces were the first of their kind for the cello, and with them Bach began a tradition of solo works for the cello that has inspired composers and performers for centuries. Through the six suites, Bach explores the sound, range, and possibilities of the instrument, with a clear progression from the first to the sixth of increasing technical difficulty and musical complexity. For this project I focused on the 6th and final suite which Bach wrote for a cello with five strings (e'-a-d-G-C). The range and virtuosity of this suite go far beyond any of the previous suites, even when one takes into consideration the extended range of the instrument. While 5-string instruments were fairly common at the time of the composition of the 6th Suite, they are now more difficult to find and not readily available to the majority of cellists. The majority of players therefore perform the 6th Suite on the modern 4-string instrument, causing numerous technical and musical challenges due mainly to the large range of the piece. As baroque performance practice becomes more prevalent, there are a number of baroque cellists who acquire and play this suite on a 5-string instrument. The resonance, response, and relative ease of playing the piece on five strings create a vastly different experience. Unfortunately, most modern cellists do not have the opportunity to try this themselves.

This project is the culmination of more than a year of working on this Suite on both a 5-string cello and my own modern instrument. It consists of a recording of the 6th Suite on both cellos and this written document about my experience, with which I hope to aid in bridging the gap between those who play this Suite on a 4-string cello and those who play it on five strings. To undertake this project, I borrowed a 5-string violoncello piccolo and began exploring Bach's 6<sup>th</sup> Suite on this instrument. I then tried to transfer what I learned, noticed, heard, and focused on to the modern cello as best I could, allowing my experience on the 5-string cello to inform my own understanding, approach and performance on four strings. I do not intend for this to be purely a study of baroque performance practice or a performance analysis of the 6<sup>th</sup> Suite, but rather an exploration of the similarities and differences



between playing the same piece on these two in some ways extremely different instruments, and seeing what can be learned from the experience to guide the performing and teaching of this piece. The recording is the final product of my work and an aural example of the similarities and differences that become apparent when one performer plays the same piece on these two distinct instruments. The written portion acts as an insight into my process and experience, and an explanation for some of the differences that can be heard.

This portion of the project is broken up into four sections. In the first I explore the question of what instrument Bach intended for the 6th Suite and the way the instruments of that time period would have been different from the ones used today. In the next two sections, in order to give the reader some background on the ideas that helped inform my decisions of bowing, fingerings, articulation, and phrasing, I look into some basic ideas of performance practice, and provide concise analyses for all six movements. The fourth section is devoted to describing my own experience of working with both instruments, and the ways in which my performance on the modern cello changed as I became more familiar with playing the piece on the 5-string instrument.

The final pages included are scores showing my fingerings and bowings for the 6th Suite on both instruments, as well as a color-coding of the strings used throughout. The bowings were originally taken as accurately as possible from Anna Magdalena Bach's copy of the manuscript, but then changed to reflect my own interpretation and ideas, as well as to follow the principles of bowing and its relation to harmony and structure that were brought to light through research and lessons with a baroque cellist. The fingerings for the 5-string cello are also my own, and I tried again to choose them based on my understanding of ideas of Baroque string playing (using primarily lower hand positions and open strings, for example). My fingerings for the modern cello are an attempt at a balance between fingerings that allow ease and efficiency of playing, and fingerings that bring out the musical ideas that became more apparent to me through my work with the 5-string cello. As all cellists know, there are countless editions

and ways to interpret and perform these suites; this is simply my own version based on my experience through this project.

I have also included a score with each string color-coded throughout as a way to depict visually the changes in register and timbre, and the way these differ between the two instruments. I found Bach's careful use of the extreme registers of the cello and the expansiveness that this creates to be one aspect of the piece that is lost to some degree on the modern cello, due to the limitations of having only four strings. Timbre, voicing, and timing are all affected in various ways throughout by the changes in register, and so a careful study of the way Bach uses extreme ranges (looking, for example, at the times he uses the C string) or quick changes in register can provide more insight into how these passages could be approached to maintain the pacing and change in color of a performance on the original instrument. This subject will be explored in more detail in the fourth section.

### The Instrument

This project is focused around the question of how this Suite is approached and performed based on the experience of playing it on an instrument that more closely resembles the type of cello Bach would have had in mind while composing it. We must therefore first look at the origins of the cello and the instruments that would have been in use in the 1720's to understand more accurately what Bach intended and how it would have felt and sounded to perform this piece when it was written.

The instrument known today as the violoncello first appeared in the 15th and 16th century as the bass member of the violin family. The term "violoncello" became common first in the 17th c. in Italy, and was adopted throughout the rest of Europe in the 18th century.<sup>1</sup> Even after the name violoncello became more widely used, many other terms were used to describe the instrument, and the instruments themselves varied greatly from country to country, region to region, and maker to maker. These instruments varied in size, number of strings, and the technique with which they were played.

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<sup>1</sup> Schwemer and Woodfull-Harris, eds., *6 Suites a Violoncello Solo senza Basso: Text Volume*, 14.



Figure 1. Bernard Picart, *Print of a Musician (detail)*, 1701.

There was, therefore, no one standard ‘Baroque cello.’ Musicians and musicologists of today are often too quick to try to categorize and systematize what was not a uniform instrument. In the first part of the 18th century the cello tended to fall into two general categories: a smaller sized instrument that was used for solo playing and often had 5 or 6 thinner strings, and a larger model with thicker strings that was more appropriate for chamber, orchestral and accompanimental playing. In *Das neu-eröffnete Orchestre* from 1713, Mattheson describe the violoncello, Bassa Viola and Viola da spalla as all being small 5 or 6-stringed bass viols or bass members of the violin family.<sup>2</sup> The smaller versions were often played da

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<sup>2</sup> Johann Mattheson, *Das neu-eröffnete Orchestre*, (Hamburg: Schiller, 1713), 285.

spalla, or on the shoulder, with a violin technique. These could also be suspended across the chest with a belt or button.

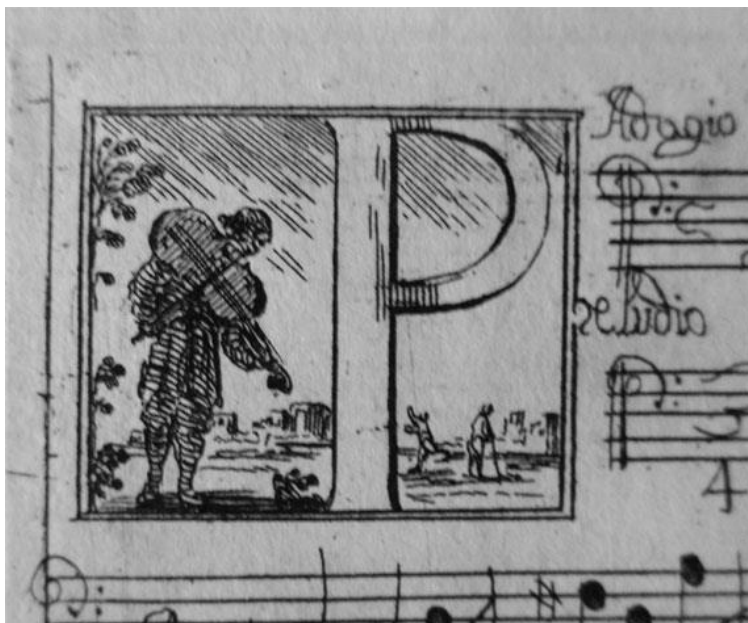


Figure 2. Giuseppe Torelli Op. 4, detail from violoncello partbook, pg. 1, engraved by violoncellist Carlo Buffagnotti.

Others played the instrument vertically, either suspended by a belt, propped on a stool or the floor, or *da gamba* (between the legs) as is now standard.<sup>3</sup> Around 1710, Stradivarius began using measurements of a body length of 75cm, a compromise between the two sizes, which would eventually become the standard length for the cello. Although instruments of various sizes continued to be used, Stradivarius' model of the cello continued to take hold in the second half of the 18th century, and the practice of having five or six strings fell away, according to writings from Leopold Mozart in 1756.<sup>4</sup>

It is therefore difficult to determine accurately which instrument Bach intended for the 6th Suite, due to the wide variety of names and instruments. The only thing specified in the sources that remain

<sup>3</sup> Dmitry Badiarov, "The Violoncello, Viola da Spalla and Viola Pomposa in Theory and Practice" *The Galpin Society Journal* 60 (2007): 134.

<sup>4</sup> Leopold Mozart, *A Treatise on the Fundamental Principles of Violin Playing*, trans. Editha Knoch (New York: Oxford University Press, 1985), 11.

from Anna Magdalena Bach and others is “a cinq cordes” (five strings). There is much scholarly discussion about which type of instrument Bach meant for the suite, what this instrument would have looked like (measurements of body length, rib height, etc.), and how it would have been held.

Scholars agree that attempting to put these instruments into neat and tidy categories is an impossible task. There was not a clear distinction at the time, and should not be now. As Dmitry Badiarov and David Ledbetter point out, this lack of clarity stems also from the fact that composers often did not give much thought to what size the instrument was or what technique was used. Because of the variety of instruments available, the performers had the flexibility and freedom to choose how and on what instrument pieces were played.<sup>5</sup>

The main instruments given consideration by scholars in this discussion of the 6<sup>th</sup> Suite are the violoncello piccolo, viola pomposa and viola da spalla. The violoncello piccolo seems to have been smaller than the modern cello with four or five strings. Bach wrote parts for the violoncello piccolo in some of his cantatas in 1724-25, around the same time the cello suites were written.<sup>6</sup> The viola pomposa may have been similar to an instrument made by J. C. Hoffmann in Bach’s collection: a large viola with twice the normal rib height for added space inside the instrument, making the lower tuning possible. Although the viola pomposa was fairly common, it was never directly specified by Bach in any music.<sup>7</sup> Scholars believe that this type of instrument would have been held on the chest or arm, and that its size and dimensions allowed for a fast and accurate response and a greater dynamic range.<sup>8</sup> Marc Vanscheeuwijck on the other hand, dismisses the viola pomposa outright as an instrument and believes that the violoncello piccolo was interchangeable with the violoncello da braccia.<sup>9</sup> The viola da spalla was most likely similar to the viola pomposa: a large viola-like instrument with a body length anywhere

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<sup>5</sup> Badiarov, 136.

<sup>6</sup> Marc Vanscheeuwijck, “Recent re-evaluations of the Baroque cello and what they might mean for performing the music of J. S. Bach,” *Early Music* 38, no. 2 (2010): 185.

<sup>7</sup> David Ledbetter, *Unaccompanied Bach: Performing the Solo Works* (New Haven: Yale University Press, 2009) 43.

<sup>8</sup> Badiarov, 132.

<sup>9</sup> Vanscheeuwijck, 187.

between 70 and 124 cm, held across the chest.<sup>10</sup> The copy of the Suites from Johann Kellner also calls for a Viola de Basso, which was a term used in Arnstadt in the 1690's to refer to the largest size of viola. All of this, along with the range of the piece (a tenth above the top string, as opposed to just an octave in the other suites), and the chord in m. 6 of the Sarabande points to an instrument with the characteristics of a cello, but the size and technique of a large viola.<sup>11</sup>

Despite all of the blurred lines surrounding the specific type of instrument Bach intended for the 6th suite, there are some general traits of baroque instruments in the violin family that affect how the suite would have been played and heard on any type of violoncello instrument. At the beginning of the 18th century, string instruments were fitted with shorter, wider necks than are seen on modern instruments that ran parallel to the instrument. The bridges were shorter and had less of an arch, and the bass bar and soundpost were both smaller and lighter. All of these fittings changed gradually into the forms we know today over the course of the 18th and 19th centuries to accommodate increased pressure and tension on the instrument caused by the desire to boost volume to fill bigger halls. This was reflected also in changes in strings, bringing us to the use of steel strings in the 20th century, and the evolution of the bow which transitioned from the Baroque bow to the Tourte bow that is used today. These changes have increased the volume produced by string instruments, but have come at the expense of the vibrancy, resonance and physical ease of playing associated with baroque instruments.

The instrument I played for this project is a 5-string cello on loan from Lowell Creitz. He had it made by Bruce Carlson in 1979 as a copy from Stradivarius patterns of a 1684 viola da gamba. In shape, it resembles a gamba, but in all other respects it is a cello. The body length is 70 cm, making it slightly smaller than a standard modern cello. I used steel strings (Dominant strings with a synthetic core for the A, D, G, and C, and a Larsen E string), 415 tuning, and played with a baroque bow.

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<sup>10</sup> Badiarov, 127.

<sup>11</sup> Ledbetter, 43.

## Performance Practice

Just as this Suite would have been played on an instrument that differs greatly from those used today, the style and technique would have been different as well. Basic ideas of Baroque performance practice are crucial to understanding how this piece would have originally been played and heard, and can lead us to more effective techniques and approaches on modern instruments as well. These ideas can greatly influence the aspects of the music that the performer focuses on and listens for, such as harmony and phrasing, and the ways in which he/she chooses to highlight these aspects through choices of fingerings, bowings, and articulation. The following are some of the key points that I found to be most helpful in my own process of studying this piece, but are in no way a comprehensive discussion of Baroque string playing style. This is only a starting point for subjects that could be, and often have been, projects in and of themselves.

One of the most common themes of writings on Baroque performance style is the connection of music with rhetoric. Musicians at the time were viewed as having the same responsibility as orators to communicate with and move their audience. All of the tools and rules used in rhetoric were applied to musical techniques, such as articulation, phrasing, dynamics, affect (in the sense of feeling or emotion), and tempo. These tools were to be put to use to make the emotion and structure of the piece clear, stirring, and varied.

If music is like rhetoric, then good articulation, the way in which we pronounce each note and phrase, is just as important as good diction for clarity of meaning. It is what gives the music life and variety. Unlike a Romantic bow technique that favors sustained lines and a full dramatic sound, Baroque instruments and style call for shorter strokes that create crispness and rhythmic vitality. Baroque violinist Jaap Schröder compares the Baroque bow technique to modern technique as using a pen instead of a paintbrush—all strokes are smaller and more precise.<sup>12</sup> With that comes the ability to vary the

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<sup>12</sup> Jaap Schröder, *Bach's Solo Violin Works: A Performer's Guide*, (New Haven: Yale University Press, 2007), 12.

articulation more, as the palette of options becomes wider, ranging from very short and dry to longer and smoother.

This highly varied articulation should reflect the affect of each section and should be used to demonstrate the structure of the composition. The performer must first start with individual notes that then connect as phrases, and eventually as entire sections of a composition.<sup>13</sup> The articulation should show the various phrase lengths and demonstrate the changes in section and affect, just as a speaker speaks clearly and distinctly, following the structure of sentences and paragraphs.<sup>14</sup> This is why a good knowledge of the structure of the piece is so important. This must guide the performer's choices and be made clear to the listener.

Judy Tarling also ties dynamics into the ideas of rhetoric. Rather than thinking in terms of stark changes from forte to piano, the dynamics should vary with the line, much as an orator's voice would ebb and flow as he speaks to reflect the words he is saying.<sup>15</sup> The general dynamics are the choice of the performer (although they should be in good taste and well-informed), but changes in harmony and the hierarchy of beats provide some guidelines. Especially in dance movements, the first beat of every bar is the most important, followed by the middle of the bar.<sup>16</sup> This can be applied on a larger level as well, with more emphasis on some downbeats than others, particularly in fast movements where a multi-bar phrase is implied. Dynamics should also underline the harmonies to bring out dissonances or unexpected harmonic shifts.<sup>17</sup> The performer must marry the inherent inequality of the up and down bows of the Baroque bow to these ideas, so that the bowings reflect the structure and emphasize the notes and chords that are to be brought out of the texture.

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<sup>13</sup> Judy Tarling, *Baroque String Playing for Ingenious Learners*, (St. Albans, UK: Corda Music Publications, 2001), 9.

<sup>14</sup> Tarling, 11 and 17.

<sup>15</sup> Tarling, 18.

<sup>16</sup> Tarling, 19.

<sup>17</sup> Tarling, 20.



While the articulation is often short and crisp, Baroque string playing requires freedom of motion in order to attain resonance and fluency. The instruments were built with less tension and therefore require less effort to play, which means a more relaxed technique allows for a better response from the instrument. This should not correspond with a loss of musical tension, but implies rather an ease and fluidity of movement.<sup>18</sup> The bow, since it requires less pressure, should move lightly and swiftly with separate but uninterrupted motions.<sup>19</sup> This allows for more resonance, as notes are never cut off but allowed to ring as the movement of the bow continues off the string, moving fluidly from one note or chord to the next.<sup>20</sup>

Tempo should also be chosen with rhetoric in mind. Many historical sources warn against excessive speed and rushing for an effective performance, just as speaking too fast renders speech unintelligible.<sup>21</sup> In dance movements especially, a steady and constant tempo is desired. Writings about tempo often refers to the *tactus*, a regular moderate beat that could be compared to the heartbeat. Most tempi are based around this, and going in either direction to the extreme was unusual. In order to determine the correct tempo, the main beat should be easily maintained, especially in slow movements, such as the *Allemande* of this *Suite*. If the beat is felt with subdivisions then the tempo is too slow. The rate of harmonic change is another clue to an appropriate tempo: the slower the change in harmony, the faster the beat should be and vice versa.<sup>22</sup>

A study of the dance movements of the suite would not be complete without taking into consideration aspects of the dances that would have originally accompanied these forms. Ideas of Baroque dance can help clarify the type of motion and character that would have been associated with each dance, the pulse or beat that dancers would have based their movements on, and the phrasing and grouping of notes and steps that correspond to the musical phrases.

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<sup>18</sup> Schröder, 8.

<sup>19</sup> Schröder, 15.

<sup>20</sup> Schröder, 17.

<sup>21</sup> Tarling, 135.

<sup>22</sup> Tarling, 25.

Baroque dance is made up of steps, jumps, and other means of transferring weight (gliding, hopping etc.). The basic opening dance step for most dances are a plié (bending of the knees) followed by an élevé (rise) or a jump. Generally the plié is done on the upbeat with the élevé landing on the downbeat. This is accompanied by carefully choreographed arm gestures, creating a sense of elegance and balance. Knowing even this basic motion—the preparation for the downbeat and the elegant rising gesture rather than a heavy landing on the downbeat—can give the musician a better feel for the choreography of this music. The way in which these motions are done and the types of steps or leaps used help to determine and define the character of the dance.

Baroque dance, like music, groups individual steps together into units and phrases. Two, three, or sometimes four steps are grouped into a step-unit which normally fits into one measure of music.<sup>23</sup> Step-units are then grouped together to create longer dance phrases. At every level there is a combination of arsis (motion) and thesis (repose), providing balance to the phrases. These phrases and periods of motion and repose match the phrases and harmonic motion of the music.<sup>24</sup> Thinking in terms of these motions and their groupings can be another way to be sure that the structure and phrasing of each movement is clear to the musician.

Each dance naturally has its own characteristics which make it unique. The Gavotte, for example, is known for its balanced structure and 4+4 phrasing. Unlike the Bourree, which has the same phrase structure, the first dance beat (the half-note being the beat in the Gavotte) begins in the middle of the bar with the two quarter note upbeats, meaning that the pairing of beats occurs across the barline.<sup>25</sup> The Sarabande, on the other hand, is known for often having the emphasis on the second beat of a bar, rather than the first. For this, dancers would plié on the downbeat and élevé on the second beat to give it more

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<sup>23</sup> Meredith Little and Natalie Jenne, *Dance and the Music of J. S. Bach*, (Bloomington: Indiana University Press, 2001), 21.

<sup>24</sup> Little, 25.

<sup>25</sup> Little, 49.

emphasis.<sup>26</sup> Details such as these can provide another level of clarity and understanding for these dance forms. Musicians able to study Baroque dance, learn the movements, or watch Baroque dancers can gain insight into the ways the movements, steps, and phrases of these dances inform the dance movements of the suite.

Finally, I want to touch briefly on chords because they are so prevalent in this Suite. In this especially, it is important that harmony rule all choices in how the chords are played and to what degree they are emphasized. The bass note is most important and should be played strongly and almost always on the beat. The pace and playing of the rest of the chord can vary, depending on the affect and the role of the chord in the structure of the piece. On modern instruments it is especially important to take care that chords are not automatically loud or aggressive, but rather that they truly fit the character of the music.<sup>27</sup>

All of these principles can easily be applied to modern cello playing in order to reflect the Baroque style more accurately without changing the player's instrument or basic technique. By incorporating these ideas, the modern cellist can get a better sense of the piece both physically and musically, and can therefore create a more effective performance. In the following sections I will discuss practical applications of some of these ideas within the 6th Suite.

### Analysis

As can be seen, an understanding of the structure and harmony of the music is vital, as all musical choices should be made in order to highlight and clarify these aspects for the listener. I will now touch briefly on some of the existing writings pertaining to the analysis of the 6th Suite. This is meant to be a starting point for becoming more familiar with the structure and harmony of the Suite—aspects which should guide all choices of bowings, fingerings, and phrasing. This analysis comes from Allen Winold's

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<sup>26</sup> Little, 107.

<sup>27</sup> Tarling, 149-150.

two volume book on the Cello Suites and David Ledbetter's *Unaccompanied Bach*. Both books include their analysis as a part of a larger discussion of all six suites.

In my research I was able to find a wide array of analyses, but I found Winold and Ledbetter to have the most informative writings, as they looked at the Suite in its historical context, avoiding much of the more recent music theory systems (such as Roman numeral analysis or Shenkerian analysis) that would not have had any bearing on Bach's own compositional process or the performance of Baroque players. Winold uses functional chord classification to label chords as tonic, dominant, subdominant and linear; a system which is much more appropriate than the Roman numeral system, but is still easily accessible to modern cellists familiar with basic music theory. In his volume of musical examples he indicates tonal regions, often includes a harmonic reduction, labels important non-chord tones, and highlights melodic gestures and traces how they are repeated and changed throughout a movement. Ledbetter includes figured bass abstracts for many of the movements, which provides another perspective for analyzing the harmonic structure of the Suite. He also discusses key features of the formal structure of each movement, helping to clarify unifying features throughout each movement and the Suite as a whole. For my discussion here, I will talk briefly about each movement, providing some of the information that I most interesting and helpful in determining my bowings, fingerings, articulation and phrasing, but I highly recommend either book for a more in-depth analysis.

### Prelude

The Prelude is a fitting introduction to this joyous and virtuosic piece. Bach explores the whole range of the instrument, leaving the listener with an overwhelming impression of expansiveness and space. The movement is divided into two large parts of almost equal length. Mm. 1-53 alternates between main thematic statements which are harmonically stable, have a slower harmonic rhythm, and are made up of melodic gestures and passages that are transitional and often modulate. The second half, mm. 54-104, begins with the lowest bariolage passage and climbs to the highest range in the whole Suite.

This is followed by a rapid descent, a cadenza-like flurry of 16th notes, and a coda which takes us on a final sweep through the three-octave range that this Suite generally stays in.<sup>28</sup>

As is common in Bach's music, many seeds of the main melodic ideas can be found in the first section of music, an aspect made clearer by the way these gestures lie on the 5-string cello. This practice of creating small gestures that are then expanded and developed is used by Bach frequently.<sup>29</sup> There are five gestures in the first eleven bars that provide building blocks for the rest of the movement: mm. 1-2, 3-4, 5-7, 8-9, and 10-11. These are brought back in various forms throughout the Prelude.<sup>30</sup> The opening bariolage motif is especially important. Bach writes the movement around it, repeating the gesture on every possible open string (e', a, d, and G). This technique creates a pedal effect which is used in other ways in this movement—for example, the opening and closing gestures of the first section (mm. 1-4 and mm. 10-11), and the long dominant pedal starting in m. 70—and other dances throughout the Suite.<sup>31</sup> Modern cellists must be especially aware of these gestures and their unifying effect throughout the movement due to changes in fingerings made necessary by the lack of a fifth string that can make the relationship between the ideas less apparent. In order to create the expansive feeling inherent in this Prelude, one must keep in mind both the larger structure and these smaller motifs that unify the movement.

### Allemande

The Allemande of the 6th Suite is based on the form of a concert allemande rather than a dance allemande, signaling a slower and more elaborate piece.<sup>32</sup> That being said, it should not be played so slowly that a sense of steady harmonic motion and a quarter note pulse cannot be maintained throughout,

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<sup>28</sup> Winold, 32.

<sup>29</sup> Ledbetter, 228.

<sup>30</sup> Winold, 33.

<sup>31</sup> Ledbetter, 227.

<sup>32</sup> Winold, 34.

as no tempo in Baroque music should be subdivided. This motion paired with the surface of flourishes and embellishments played freely, as if improvised, creates the duality of motion that makes this Allemande so expressive:<sup>33</sup> a blend of complexity and serenity.<sup>34</sup> Playing this movement on the 5-string cello helps to bring out these ideas: the agility and quick response of the 5-string cello allows for the ornamental writing to be played more quickly and lightly, while the resonance of the instrument and the many open strings utilized in the chords allows for the harmony to be more apparent and sustained.

Each part of the binary form contains three sections. The first is the most melodic and stays in a single tonal region. The second section modulates: to the dominant in the first half, and to F# minor in the more developed second half. Similar closing material can be found in both halves, followed by a post-cadential gesture whose harmonic structure echoes that of the closing bars of the Prelude.<sup>35</sup> Clarity of this harmonic motion and structure can allow the movement to maintain a steady pulse, and a dance-like and improvisatory character.

### Courante

The Courante of the 6th Suite is in the Italian style of the dance (i.e. Corrente), giving it its fast and athletic character. Its range of two octaves and a sixth, and its length of 72 bars sets it apart from the Courantes of the other suites as more virtuosic and grand in scope.<sup>36</sup>

The harmonic motion is relatively straightforward, and each half is again segmented into an opening statement, a modulating section, and a closing statement. Like the Prelude, the Courante begins by arpeggiating the tonic. This gesture, along with the rising fourth from D to G in m. 2 to m. 3 (the G chord being in first inversion on the downbeat of m. 3) and falling thirds found in mm 3-6 (C#-A-F#-D-B-G) provide seeds for the rest of the movement. Bach also includes the entire range of the movement in

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<sup>33</sup> Ledbetter, 231.

<sup>34</sup> Winold, 34.

<sup>35</sup> Ledbetter, 232.

<sup>36</sup> Winold, 53.

this first phrase: from a high B which will only be seen again at the highest point of tension in m. 40, to a low D that will eventually close out the movement.<sup>37</sup> After staying firmly in D major for the first 11 bars, we are finally given the G# that signals the move into the dominant in m.12, along with another pedal on E. This is broken by a string of 16th notes, again outlining falling thirds, that establish us in A major. The closing statement is marked by another 16th note pattern, this one rising and rhythmically more active. The second half of the movement begins with the inverted form of the opening arpeggiation, followed by the 16th note passage from the modulating section, now with an outline of rising thirds.<sup>38</sup> Bach continues to develop and expand on ideas from the first half of the movement until the closing material returns to signal the final bars.

. In this movement too, it is important to note and signal to the listener what is happening structurally and harmonically in the music. When playing this movement on the 5-string cello, the structure and gestures become more apparent, as the notes travel from one end of the instrument to another through arpeggiation, large leaps, or running sixteenth notes. The fingers and bow move from left to right and back across the five strings, whereas so much more vertical motion up and down the fingerboard is needed on the 4-string instrument that the shape of the line is not felt as clearly. Regardless of the instrument, it is not enough simply to play all of the notes—the performer should take the audience along as though narrating the structure of the piece.

### Sarabande

The Sarabande is characteristically known to have the emphasis on the middle beat of the bar, and of the six Sarabandes in the Cello Suites, this is one more true to this principle than many others. The opening half note motion with an agogic accent on beat two is paired with a sighing quarter note gesture

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<sup>37</sup> Ledbetter, 232-233.

<sup>38</sup> Ledbetter, 234.

to form the basis of this movement.<sup>39</sup> The 3/2 time signature, typical of a French Sarabande, signifies broadness and expansion of motion, not necessarily a slow tempo, and the somber character and sighing gestures bring to mind a major-key lament, such as 'Lascia ch'io pianga' from Handel's *Rinaldo*.<sup>40</sup> The movement is harmonically simple, and Bach's use of non-chord tones, especially anticipations, allows it to flow elegantly throughout.<sup>41</sup>

The first eight bars that make up the first section contain a falling third and cambiata shape in m. 2, a slurred step down in m. 4, and a falling quarter note gesture in m. 7 that become the building blocks for the movement.<sup>42</sup> The second part, which is significantly longer than the first, expands on these ideas, beginning again with the stately half note motion with the emphasis on beat two. The sighing quarter notes then take over, building to the end where faster note values in m. 28 and m. 29 create an urgency that juxtaposes the calm and expansiveness of the closing.<sup>43</sup>

Aspects of the harmony and pulse become clearer on the 5-string cello because of the resonance of the instrument, Bach's use of open strings in the bass line, and the ability to play chords more smoothly due to less curvature in the bridge. This allows for more of a sense of broadness and expanse. The use of the Baroque bow and bowings such as two down bows in the first measure also lends itself to feeling the pulse and the dance character of the Sarabande.

### Gavottes I and II

Gavotte I, with its many full chords and large range is virtuosic, bold, and stately, although it retains its rustic air with the characteristic two quarter note upbeats. The tonal and formal structure are

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<sup>39</sup> Winold, 65.

<sup>40</sup> Ledbetter, 234.

<sup>41</sup> Winold, 66.

<sup>42</sup> Ledbetter, 234.

<sup>43</sup> Winold, 66.



generally straight-forward and typical for the movement.<sup>44</sup> This seeming simplicity can often be masked by the many chords in this piece, which can be technically challenging on the modern cello. When played on the 5-string cello the chords lend an elegant character to the otherwise unembellished structure.

The second Gavotte is more simple and rustic, with an unassuming melody and straightforward harmonic and four-bar phrasing structure. The bagpipe-like drone section in mm. 13-19 especially emphasizes the rustic, pastoral character. This movement also combines the binary and rondeau forms, with a recurrence of the opening four-bar statement in the middle and end of the second section.

### Gigue

This movement provides a rousing and fitting end to this suite, and also the Six Suites as a whole. In a piece where the tonic triad is prominently highlighted, it only seems appropriate that the Prelude and Courante begin on the root, the Allemande, Sarabande, and Gavottes on the third, and the Gigue completes the triad by beginning on the fifth. The movement is quite athletic, full of large leaps and string crossings, made even more prominent by the larger string crossings required on the 5-string cello due to the fifth string and wider, flatter bridge. A hunting character comes through in mm. 5-8 and mm. 36-40, which employs the pedal motif that Bach has used at various points throughout the Suite. The pedal also comes into use in the closing section of both halves in mm. 24-26 and mm. 65-66. This final pedal section further helps to tie the whole Suite together as we are taken from the high d" down to the lowest D on the instrument, covering the three-octave range that has been the base range of the Suite.<sup>45</sup>

## From Five Strings to Four

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<sup>44</sup> Winold, 74.

<sup>45</sup> Ledbetter, 237.

In this section, I will focus on my own personal experience with the 6th Suite on the 5-string cello and my own modern instrument. My work with the 6th Suite began a year before I started this project when I prepared it for a solo recital on my cello. Throughout that preparation process, I focused primarily on the technical difficulties of the piece rather than thinking about how its performance on the original instrument could affect my approach (aside from being jealous that it must be so much easier!). A semester later I decided on the focus of this project and picked up a 5-string cello for the first time. Over the course of the next year I studied the 6th Suite with my teacher at UW-Madison, Uri Vardi, and baroque cellist Martha Vallon, exploring the piece both physically and musically. I tried to work primarily from the 5-string cello to the modern cello, in order to glean as much information from the original form as possible. Inevitably, I am sure much of my experience on the 5-string cello was also informed by technique, phrasing, and pacing that I was already accustomed to on my own cello, but I tried as often as possible to catch these habits in order to find a new way of playing or hearing the piece.

In order to open my ears to different interpretations of the piece and avoid getting stuck in habits, I also listened regularly to a variety of recordings. My listening habits were in no way systematized or comprehensive, but they did focus on those recordings I could find where the piece was performed on an instrument with five strings (for example, recordings by Jaap ter Linden, Anner Bylsma, Peter Wispelwey, and Paolo Beschi). By doing this, I was able to hear the variety of ways in which performers chose to articulate different sections and characters, how they approached chords, and how they brought out the harmonic and formal structure of each movement. As with any piece, but especially these suites, the scope of interpretations and performances is remarkable and well worth exploring to open one's ears to new ideas and possibilities.

My first days with the 5-string cello were predictably riddled with the challenges of getting used to a new instrument. I had to remind myself constantly which string was which, and the extra string, paired with far less curvature in the bridge, meant my bow arm had to adjust to different string levels.

The smaller instrument translates to smaller spacing for the left hand as well. I learned quickly, though, that the build of the instrument, the 415 tuning, and the fifth string allow for far more resonance than the modern cello, and so good intonation was rewarded with a beautiful ringing throughout the instrument. My fingers and arms also benefitted from the decrease in tension, and I found myself to be playing with a much more relaxed and balanced left hand. The baroque bow required some adjustments as well. Much more release was needed, along with a clearer sense of pushing and pulling in the upper arm and a contact point much closer to the bridge, to create the resonance, focus and clarity of sound that I wanted.

Once I got used to the instrument I was able to delve more deeply into certain aspects of the musical ideas and physical playing of the piece that became more apparent or changed as I moved from one instrument to the other. Many of these ideas are closely intertwined, but I have attempted to split them into five sections: chords, tempo and pulse, focus and attention, the way the notes lie on the instrument, and tension.

### **Chords**

The many chords in this piece create some of the most challenging hurdles for performers on the modern cello. They are in unfriendly registers, require quick changes to unfamiliar hand positions, and are often difficult to tune. For the bow, they require finesse, coordination, and anticipation to maintain the pulse and create a warm, resonant sound while simultaneously bringing out the various voices and not playing unnecessarily loudly or harshly. These same chords on a 5-string cello can most often be played with an ease and resonance that provides clarity and structure to the movement, and allows many options for the performer for the breaking and timing of the chord.

Many of these differences are obvious: the strings are closer together so the bow does not need to travel as far to play all three or four strings. The chords often include open strings or are in lower hand positions which lend ease and clarity to the left hand and the sound; and in general, the 5-string instrument is more resonant and therefore notes ring longer than on a modern instrument.

Clearly, not all of this can be recreated on a 4-string cello, but it can be incredibly informative for the way one approaches chords on a modern instrument. The bow, even though it must work harder to achieve the same effect, can come closer to the desired fluency of the chords by combining anticipation in the right arm with a focus on the horizontal as opposed to the vertical movement of the bow. Looking, for example, at the beginning of the Sarabande, in order to move from the high B at the end of m. 2 to the low A, played on the C string in a way that does not break the line, one has to anticipate the string crossing, maintain the horizontal motion of the bow and movement of the arm, and lower the elbow towards the C string level as the B is still being played. If the motion starts too late and becomes too vertical, there will be a break in the sound and the bottom notes of the chord will be late. This necessitates a large amount of bow for the string crossing itself, as the bow passes over the middle strings. Once the low A has been sounded, the horizontal motion of the bow continues as the elbow begins to now move up in a circular motion (in this case, assuming an up bow on the B and a down bow on the chord, the circular motion would be counter-clockwise). It is all too easy to get fixated on the vertical motion of the bow as we attempt the extreme string crossings required for these chords, but it is the continuation of the horizontal motion that will bring fluidity to the motion. This also reflects the ideas discussed above of using an uninterrupted bow motion in the Baroque style for added resonance and fluency.

The bow is not alone in this effort though, and without fluidity and ease in the left hand, the bow can only do so much. The left hand must also anticipate these chords and difficult hand positions. Because of the physical ease of playing on the 5-string cello and the lack of tension in the instrument, I was able to feel more than ever the concept of balancing the hand and having weight only in the tips of my fingers, while my arm moved easily from position to position. It is difficult in the midst of the technical challenges of the 6th Suite to focus on relaxation and ease of motion, but I have found time spent on this to be infinitely more effective than drilling one shift or one change in hand position to reach a particularly uncomfortable chord. Once the arm is able to move freely and find the most accommodating position for the hand, the hand and fingers will find that placement with as little tension

and as much consistency as possible. Practicing anticipating the placement of the fingers before the bow can help provide more security and better coordination between the hands as well.

The other pieces of the puzzle are resonance and the role of the chords in the music. Chords on the 5-string cello are much more resonant because of their register (lower positions mean more string length to vibrate), the use of open strings, and the way the instrument is built. This, along with the relative ease of playing them, allows for them to be structural points in the movement, providing a resonant bass voice and pillar of the harmony, while not disrupting the pulse and flow of the movement. While it is simply not possible to reproduce some of these aspects on the modern cello, we can help the situation by emphasizing the bass notes slightly with the bow and holding on as long as possible with the left hand so that the string is able to continue ringing. Whenever possible, I tried to find fingerings that would allow me to hold onto the bass note throughout the duration of the chord, often by using the thumb, such as in m. 8 of the Sarabande or m. 8 of the Gavotte II in my score.

As discussed in the analysis and performance practice sections, it is important to be aware of the harmony of the chord and its role in the harmonic motion, so that not all chords are emphasized in the same way. In the first Gavotte, for example, many difficult four-note chords land on the middle of the measure (m. 3 for example). Rather than landing heavily on these in order to play all four notes successfully, one must still hear them as light up-beats to the heavier downbeat characteristic of the Gavotte dances. In the Gigue also, it is easy to emphasize, for example, the downbeat of m. 24 as one jumps to the chord, but it is really the landing on the dominant chord of next measure that is most important.

### **Tempo and Pulse**

Tempo is another aspect of the Suite that was changed by my experience with the 5-string cello. The relative agility of the 5-string cello sent me initially into a frenzy of significantly faster tempi. While these fortunately settled into more reasonable speeds, they were especially useful in finding more motion

in the slow movements and breadth in the faster movements. This, along with the baroque bow's naturally stronger down bows and lighter up bows, allowed for a clearer sense of the pulse and bigger gestures.

This shift was most noticeable in the Allemande and Sarabande. When I was first working on the Allemande, the ornamentation and slow tempo manifested themselves in a wandering melody and often a lack of a consistent pulse. The Sarabande, too, was a series of beautiful chords and an attempt at a long melodic line when I was initially playing it. Once I was able to play both movements faster and with more ease, giving more emphasis to the overall harmonic structure and less weight to the chords and little notes, the pulse became apparent, and with it, the dance. In the Allemande, the 16<sup>th</sup> and 32<sup>nd</sup> notes are not a melody as much as large ornamental gestures, simply a means to get to the next chord that marks the harmony, and therefore the overall structure of the movement. This allows not only the dance character to come through, but also the harmonic motion—first slow, moving mostly in half bars, and then faster with the circle of fifths sequence changing the harmony on every beat in mm 5-6. Practicing this movement with just the chords in order to hear, understand, and shape this harmonic outline is essential for clarifying this structure.

In the Sarabande, as discussed in the analysis, there is a strong emphasis on beat two in many measures, a common characteristic of the dance. In order for this pulse and meter to come through, the performer must have a strong feeling of “weak, strong, weak | strong, less strong” in the opening section. This pulse is facilitated by the bowing “down, down, up | down, (up) down.” The retakes and light up bows help to give breath and life to the line. If we lose this pulse in a string of heavy or sustained chords, we lose the dance and the elegance of the structure.

The pulse can often take shape through the natural inequality of the down bow over the up bow when using a Baroque bow. In the previous example of the Sarabande, a light up bow on each of the quarter note up-beats allows the emphasis to fall on the half note down bows, moving the line forward. In the Prelude, as well, once one starts thinking in terms of lighter up bows and heavier down bows, the

sound and texture are immediately thinned out, allowing the larger structural shape to emerge out of what can otherwise easily become a long string of eighth notes. In m. 3 for example, with a slur over every three eighth notes throughout the measure, we hear clearly a stronger emphasis on the first and third beats of the measure, highlighting the only two notes that differ, marking the change in harmony and allowing the repetition in the second and fourth beats to fall away. In addition to clearing the texture, this lends a lightness to the bowing and musical line. Few of these dances have singable melodic lines, so it is unnecessary and somewhat misleading to sustain a line as though it were one. Instead, the unevenness of bowing should be used to bring out the harmonic and formal structure of each movement. This inequality is inherent in the Baroque bow, but the build of the Tourte bow and modern training favors a sustained and even bow technique. In order to achieve a similar feeling with my modern bow, I held the bow a few inches higher than normal for a lighter and more agile touch.

In the faster movements, the idea of working in larger units is just as important. Here, rather than thinking beat by beat, a focus on larger gestures helps to keep connected sections flowing and show the start of new phrases. In the Courante, for example, thinking in one rather than three encourages the performer to hear the first two-bar phrase as a unit, followed by a sequence of one-bar units. These bars then add up to one unified section. Thinking in this way allows one to maintain a quicker tempo but with space and breath, as well as good motion. The less vertical the motion is, the easier the phrases flow, allowing the overall structure to be heard.

In all of these instances, the most important aspect is the harmony. The structure of the movements is built through the changes in harmony, and the chords that act as pillars in this structure. In the Prelude, this is seen in its largest-scale form as the four bariolage sections that occur on each of the open strings, marking the main structural points of the movement. On a smaller scale, the harmony generally changes in half-bar, or one- and two-bar sections, depending on the type of passage. For example, at the beginning, a measure outlining D major is repeated, followed by two measures of G alternating with D on the half bar. This leads to a full measure of a dominant 7<sup>th</sup> chord, a full measure of

D, and then two bars of a dominant 7<sup>th</sup> leading to A major. Hearing the opening in these larger harmonic structures instead of beat by beat, or even bar by bar, helps to feel bigger picture of the movement, and to notice the unifying features that are then repeated in the A major section.

### **The way the notes lie on the instrument**

Playing the 6th Suite on a 5-string cello brings out many aspects of the melody and polyphony that become easily lost on the modern cello due to the way the notes lie on the instrument. Bach was intimately familiar with the inner workings of string instruments as a violinist and violist himself, and it is clear that he wrote the piece to fit well in the geography and layout of the instrument. He uses register and the changes of timbre that come with it to emphasize certain notes and harmonies, and to distinguish voices from one another.

This use of change of register is clearest in sections where the line shifts between two or more voices. Because most of the piece, except for passages in the highest registers, can be played in the lower positions on the 5-string cello, the notes lie on different strings when the voicing changes from one register to another. In most cases in the middle registers, the effect is similar on the modern cello. It is Bach's use of extreme registers, especially his careful use of the low range to emphasize surprising or interesting harmonies, that we often lose on the modern cello.

The most striking example is the low C natural in m.11 of the Allemande. When played on the modern cello, we use the C string at various points in the movement to cover the 4-note chords. On the 5-string cello, that note, which comes half-way through the movement, is the first time the C string is played. The only other time we hear it is at the final cadence. The register and timbre is therefore striking since we do not hear that kind of depth elsewhere in the movement. In general in this Suite, the low register and C string are used only for dramatic moments, like the low E in m.82 of the Prelude, taking us from the highest range down to the lowest for a dramatic dominant chord. Much of this drama becomes subdued on the modern cello because we hear the timbre of the C string throughout in various



chords or bass lines. This can be seen visually in the color-coded scores at the end of this document by tracking the relative use of the C string on either instrument. It is true that not much can be done in terms of changing fingerings—in most cases, the C string is used out of necessity. If the performer is aware of these moments though, care can be taken to set them apart through other means, whether it be timing or a purposeful change in color.

This dramatic change in register is also important for the timing that it creates. Because the range of the instrument is so much greater, and the notes are generally played in the lower positions of all five strings, any jump from a high note to a low note is significantly farther away. For example, if there is a high note that on the modern cello is played on the A string, but is played on the E string on the 5-string cello, the jump from that note to a note on the G or C string is greater, and more strings have to be passed over. This necessary extra breath of time is a very effective way of setting the voices apart and showing the dialogue within the piece.

This is most apparent in passages in the Courante and Gigue. The structure of these faster movements becomes clearer when the time is taken to jump from string to string, voice to voice, giving the music more character and shape. Sections like mm. 47-48 in the Courante and mm. 44-52 in the Gigue come to life when we hear the stark difference between the bright A and E strings, and the darker lower strings. The time taken to travel the distance brings breath and poise to the movement as well. These differences in the strings used can also be observed in the color-coded scores of Appendices III and IV.

The timbre of the strings is interesting to note in other passages, due to the character it lends them. The most interesting to me was the bagpipe-like drone section in the second Gavotte. The D drone necessitates the melody be played in the higher register of the A string. On the modern cello this area is used often, but on the 5-string cello, it is a new sonority, as most of the notes in that register can easily be played on the E string. It is naturally darker in timbre than the E string and therefore lends itself differently to the pastoral character than the color normally achieved on the A string of the modern cello.

The choice of color and affect is still up to each individual performer, but this knowledge can provide a new perspective or approach to this and other passages.

Often the difference between the way the notes lie on the 5-string cello and the 4-string cello is not just a matter of bringing out various lines, voicings, or changes in register, but a matter also of ease. In passages in the higher register, some of this can be experienced by transposing sections down a fifth. This can allow the player to feel what it is like to play on the 5-string cello, and is especially effective in sections such as the bariolage passage on the E string in the Prelude (starting in m. 23). The opening of the Sarabande and Gavotte I can also be played a fifth lower to play the chords in the first position and using many open strings, as it is played on the 5-string cello.

### **Focus and Attention**

Perhaps the most interesting change for me throughout the process was the way my attention and focus shifted from one aspect of playing the piece to another throughout the process, and the way this shift affected my performance. By becoming more and more familiar with the piece on the 5-string cello, I was able to hear and feel the piece differently on my own cello as well, despite the fact that the technical challenges remained the same. Passages that were unclear in my ear because I was so intent on technical issues became suddenly easier when I was focusing on continuing the musical line or bringing out a shift in harmony instead.

Due to the relative ease of playing the piece on a 5-string cello and the way that the notes fall more logically on the instrument, it is only natural that some sections would become musically clearer. As I worked on the 5-string cello I could hear lines, connections and voicings that had not been apparent to me before. The more familiar I became with the piece apart from the technical challenges presented on the modern instrument, the more these musical aspects were the focus of my attention, drawing me away from my fear of various technical hurdles. It is a fine line between focusing on getting your hand in the correct position for an awkward chord, and listening for a continuation of a melody or bass-line which

requires you to get your hand in the correct position for an awkward chord. In most cases, though, I found the focus on the melodic line or harmony to be far more successful. It can be difficult to find this shift of attention when there are so many challenges that insist on being at the forefront of our brains. Because most do not have access to a 5-string cello, it is important to spend time away from the instrument doing mental practice (where technique is not an issue), or listening to recordings to open our ears to the many possibilities and interpretations.

Some of the most interesting times for me were when I caught myself transferring the lack of musical clarity in passages that gave me trouble on my own cello to my performance on the 5-string cello. I struggled a great deal with mm. 40-41 of the Courante on the modern cello, for example, and it was not until well into my work on the 5-string cello that I realized I was still playing it sloppily and without a clear sense of what was happening musically, despite the fact that it was not nearly as difficult on the 5-string cello. Once I was able to define the line and pulse that I wanted more clearly, it allowed me to direct my practice on the modern cello, and led me to change my fingering to one that I felt better reflected the musical line, but included such a large leap in the middle of a group of 16th notes that I had not considered it before.

This really brought home to me the idea that whatever we hear in our heads is what we will most likely reproduce. Any passage that has been made vague by a concern purely for technique will remain that way until it has become musically clear in our mind. The sooner this is accomplished, and with as little regard to the technique as possible, the more directed and clear the practice can be, as one focuses not just on the technical demands and challenges as things to be overcome, but rather directs one's attention to the musical ideas that may require a special technique.

### **Tension**

The added tension in modern instruments from those of the baroque era account for many of the differences between playing the 6th Suite on a more historical 5-string instrument and a modern cello,

such as the added resonance and relatively low amount of effort needed to play the piece. I was amazed during the recording process by how much more quickly I was physically tired, especially in my fingers, when playing on my own cello. This particular aspect of playing cannot be changed. Given the equipment we are using, there is simply going to be more effort and physical exertion involved for the fingers and arms on the modern cello. What is important is that we are aware of the effort required, that we minimize it, and that we are smart about how we use our bodies.

At first, delighted with the light left hand touch needed for the 5-string cello, I found myself trying to use the same amount of finger weight on my own cello to keep the strings down, and was greeted with squeaky and fuzzy notes. Having spent the past three years working with a teacher who is also a Feldenkrais practitioner, I tried to pull all I had learned about directing weight into my fingertips. I found I was most successful when I was able to balance my hand and lean into the fingers while keeping the rest of the arm and joints loose and flexible. When my arm was responsible for any shifting or repositioning of the hand, my fingers were able to move freely and find their notes, even for the most uncomfortable chords.

In addition to focusing on the freeness of my arm and fingers, I tried to direct attention to other parts of my body where I am aware of often holding tension, such as my legs, pelvis, jaw and neck. In an effort to stay grounded so that my arms could move freely and with more power, I tried to focus on sitting with a good connection to my seat and the floor. Pushing off of either foot was often helpful to reinforce that feeling of strength from my core and the ground. For my mouth and neck, I practiced either focusing on breathing (humming while playing can do wonders) or with a piece of folded paper hanging out of my mouth, stuck in between my upper lip and gum. It sounds silly, and feels silly, but doing this forces one to keep one's mouth free of tension—a feeling which then affects other areas of the face, neck and arms as well. Practice with an eye on relieving and preventing tension was some of the most effective work that I was able to do to recreate the feeling of ease that I was able to achieve on the 5-string cello.

While it was freeing and illuminating to play on the 5-string cello, there came a point during my process when I had to accept that it is not possible to get the same results on each instrument. It will never be as resonant, the same tempos will not always work, and there is simply more effort involved. It is one dance performed by two different dancers--a heavy dancer and a light dancer. They can both be elegant, graceful, and full of character, but the motions and the feel will be different, altered to fit the type of dancer doing the movements. The characters and style can be retained, but in the end, it is truly a different instrument, and performers must work with the instrument that they have to create their own version of the Suite.

### Conclusion

The 6th Suite alone could provide a lifetime of study. Through this project, I aimed to provide a guide for modern cellists and teachers to find new avenues and ways of approaching this daunting piece. Knowing the context of any piece is important to understanding its character and structure, and it is remarkable to me that many cellists—myself included, when I initially worked on the piece—do not think critically about the practical implications of playing this Suite on a 5-string cello, as was originally intended. By undertaking a journey of studying this piece and performing it on a 5-string cello and analyzing my own process, I hope that other cellists and musicians may be better informed about the analysis, historical style, and specific physical and musical aspects of playing the piece that are altered when working with a 5-string cello. Approaching the practice and performance of the 6<sup>th</sup> Suite with the fifth string and with a stronger knowledge of the structure and harmony of the piece, as well as the integration of certain ideas of performance practice (such as the inequality of bowings or the use of articulation), provides clarity to much of the phrasing, voicing, and harmony that is often shrouded by technical complexities on the modern cello. Using the 5-string cello, as originally intended, also allows the player to shift his/her focus to other aspects of the piece, providing the performer a fresh, new experience which can then be applied to the modern 4-string cello as well. For those players who may not

have access to an instrument with five strings, I hope to give a glimpse into the world of the 5-string cello and provide a means to achieve some of the same clarity on their own instrument.

Along with this written documentation of my experience, my recording of the Suite on both instruments serves as the synthesis and final product stemming from this written work, giving listeners an aural example of performance techniques, such as my approach to articulation, chords, and tempi. The recording can also be used as a way to systematically compare one cellist's interpretation on both instruments, and hear how the instrument itself alters the performance. In particular, the ways in which the differences in instrument construction can significantly impact resonance and tempi, as well as more subtle aspects of the performance, such as pacing and timbre.

My hope is that this exploration of a piece that can often seem daunting can be applied to other pieces as well. By approaching challenging technical hurdles with a focus on the musical ideas, the historical style, and with a strong sense of the structure of the piece it becomes easier to find new solutions and direct one's practice to create a more effective performance.

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4-string

45

*Suïtte*  
6.me a cinq accords

*Prelude*  $\text{B}\sharp$   $\frac{12}{8}$

*Tutti Subito*

46

Handwritten musical score for guitar, measures 33 to 69. The score is written on ten staves, alternating between treble and bass clefs. The key signature is one sharp (F#). The notation includes various guitar-specific techniques such as fingerings (1-4), slurs, and accents. Measure numbers 33, 36, 39, 42, 45, 48, 51, 54, 57, 60, 63, 66, and 69 are indicated at the beginning of their respective staves. The score concludes with a double bar line and a repeat sign at the end of measure 69.

Handwritten musical score for guitar, measures 72-102. The score is written on ten staves, alternating between treble and bass clefs. The key signature is one sharp (F#). The time signature is 12/8. The notation includes various musical symbols such as notes, rests, and accidentals. Fingerings are indicated by numbers 1-4 above or below notes. Phrasing slurs are used to group notes. Measure numbers 72, 76, 78, 80, 83, 85, 87, 89, 91, 94, 96, 99, and 102 are written at the beginning of their respective staves. The score concludes with a double bar line and a repeat sign in measure 102.

48

(Pedagio)

Allemande

8 (Adagio)

Allemande

49

Handwritten musical score for a single melodic line, measures 11 to 20. The music is in 3/8 time with a key signature of one sharp (F#). The notation includes various rhythmic patterns, such as eighth and sixteenth notes, and includes fingerings, slurs, and trills.

Measures 11-20:

- Measure 11: Starts with a trill on F#4, followed by eighth notes G#4, A4, B4, C5, D5, E5, F#5, G#5, A5, B5, C6, D6, E6, F#6, G#6, A6, B6, C7, D7, E7, F#7, G#7, A7, B7, C8, D8, E8, F#8, G#8, A8, B8, C9, D9, E9, F#9, G#9, A9, B9, C10, D10, E10, F#10, G#10, A10, B10, C11, D11, E11, F#11, G#11, A11, B11, C12, D12, E12, F#12, G#12, A12, B12, C13, D13, E13, F#13, G#13, A13, B13, C14, D14, E14, F#14, G#14, A14, B14, C15, D15, E15, F#15, G#15, A15, B15, C16, D16, E16, F#16, G#16, A16, B16, C17, D17, E17, F#17, G#17, A17, B17, C18, D18, E18, F#18, G#18, A18, B18, C19, D19, E19, F#19, G#19, A19, B19, C20, D20, E20, F#20, G#20, A20, B20, C21, D21, E21, F#21, G#21, A21, B21, C22, D22, E22, F#22, G#22, A22, B22, C23, D23, E23, F#23, G#23, A23, B23, C24, D24, E24, F#24, G#24, A24, B24, C25, D25, E25, F#25, G#25, A25, B25, C26, D26, E26, F#26, G#26, A26, B26, C27, D27, E27, F#27, G#27, A27, B27, C28, D28, E28, F#28, G#28, A28, B28, C29, D29, E29, F#29, G#29, A29, B29, C30, D30, E30, F#30, G#30, A30, B30, C31, D31, E31, F#31, G#31, A31, B31, C32, D32, E32, F#32, G#32, A32, B32, C33, D33, E33, F#33, G#33, A33, B33, C34, D34, E34, F#34, G#34, A34, B34, C35, D35, E35, F#35, G#35, A35, B35, C36, D36, E36, F#36, G#36, A36, B36, C37, D37, E37, F#37, G#37, A37, B37, C38, D38, E38, F#38, G#38, A38, B38, C39, D39, E39, F#39, G#39, A39, B39, C40, D40, E40, F#40, G#40, A40, B40, C41, D41, E41, F#41, G#41, A41, B41, C42, D42, E42, F#42, G#42, A42, B42, C43, D43, E43, F#43, G#43, A43, B43, C44, D44, E44, F#44, G#44, A44, B44, C45, D45, E45, F#45, G#45, A45, B45, C46, D46, E46, F#46, G#46, A46, B46, C47, D47, E47, F#47, G#47, A47, B47, C48, D48, E48, F#48, G#48, A48, B48, C49, D49, E49, F#49, G#49, A49, B49, C50, D50, E50, F#50, G#50, A50, B50, C51, D51, E51, F#51, G#51, A51, B51, C52, D52, E52, F#52, G#52, A52, B52, C53, D53, E53, F#53, G#53, A53, B53, C54, D54, E54, F#54, G#54, A54, B54, C55, D55, E55, F#55, G#55, A55, B55, C56, D56, E56, F#56, G#56, A56, B56, C57, D57, E57, F#57, G#57, 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E314, F#314, G#314, A314, B314, C315, D315, E315, F#315, G#315, A315, B315, C316, D316, E316, F#316, G#316, A316, B316, C317, D317, E317, F#317, G#317, A317, B317, C318, D318, E318, F#318, G#318, A318, B318, C319, D319, E319, F#319, G#319, A319, B319, C320, D320, E320, F#320, G#320, A320, B320, C321, D321, E321, F#321, G#321, A321, B321, C322, D322, E322, F#322, G#322, A322, B322, C323, D323, E323, F#323, G#323, A323, B323, C324, D324, E324, F#324, G#324, A324, B324, C325, D325, E325, F#325, G#325, A325, B325, C326, D326, E326, F#326, G#326, A326, B326, C327, D327, E327, F#327, G#327, A327, B327, C328, D328, E328, F#328, G#328, A328, B328, C329, D329, E329, F#329, G#329, A329, B329, C330, D330, E330, F#330, G#330, A330, B330, C331, D331, E331, F#331, G#331, A331, B331, C332, D332, E332, F#332, G#332, A332, B332, C333, D333, E333, F#333, G#333, A333, B333, C334, D334, E334, F#334, G#334, A334, B334, C335, D335, E335, F#335, G#335, A335, B335, C336, D336, E336, F#336, G#336, A336, B336, C337, D337, E337, F#337, G#337, A337, B337, C338, D338, E338, F#338, G#338, A338, B338, C339, D339, E339, F#339, G#339, A339, B339, C340, D340, E340, F#340, G#340, A340, B340, C341, D341, E341, F#341, G#341, A341, B341, C342, D342, E342, F#342, G#342, A342, B342, C343, D343, E343, F#343, G#343, A343, B343, C344, D344, E344, F#344, G#344, A344, B344, C345, D345, E345, F#345, G#345, A345, B345, C346, D346, E346, F#346, G#346, A346, B346, C347, D347, E347, F#347, G#347, A347, B347, C348, D348, E348, F#348, G#348, A348, B348, C349, D349, E349, F#349, G#349, A349, B349, C350, D350, E350, F#350, G#350, A350, B350, C351, D351, E351, F#351, G#351,



50

*Corrente*

4

8

12

15

18

21

25

/29

33

37

40

43

47

51

55

58

62

66

69

52

*Sarabande*  $\text{3/8}$   $\text{F\#}$

5 9 13 17 21 25 29

*Garrotte*  $\text{3/8}$   $\text{F\#}$

re

4



53

8/

13

17

21

25

Gavotte 2de

4/

8/

13

17

Gavotte Da Capo

54

37 2 1 1 9 3 4 3 2 2

42 1 4 V V V

46 1 1 2 1 2 3 2 3 3

49 1 3 1 9

52 tr 1 4 0 1 2

56 3 1 4

59 4 1 3 1 0 1 1

63 1 2 2 4 2 1 9 3 2 9 2

66 9 3 9 9 3 1 0 3 4 4 2

La Fin des Suisses

5-string

45

*Suñlle*  
6.me *a cinq acordes*

*Prélude*

Measures 1-30 are shown, including fingerings (0, 1, 2, 3, 4) and dynamic markings (*p.*, *f.*).

*Volti Subito*





Musical score for "The Rose Tree" in G major, 3/4 time. The score is written for voice and piano. The piano part features a complex, flowing melody with many triplets and sixteenth notes. The voice part consists of a single line of lyrics. The score is divided into systems, with measures numbered 72, 75, 78, 80, 83, 85, 87, 89, 91, 94, 96, 99, and 102. The key signature has one sharp (F#), and the time signature is 3/4. The score ends with a double bar line and a repeat sign.

48

(Adagio)

Allemande

1 0 0 1 2 4 2 3

2 1 4 V 2 1 2 0 V

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

4 3 1 2 1 0 2 3 0 tr 2

5 4 1 0 3 2 1 0 7 tr

6 2 3 tr 0 4 4 1

7 4 4 3 4 1 0 2 0

8 0 tr 0 4 3 4

9 1 0 1 3 4

10 tr 2

49

11

12

13

14

15

16

17

18

19

20



*Courante*

4

8

12

15

18

21

25

/29

33

37

40

43

47

51

55

58

62

66

69

52

*Sarabande*  $\text{3/8}$   $\text{F\#}$

5 9 13 17 21 25 29

*Gavotte*  $\text{3/8}$   $\text{F\#}$

1 re 4

53

8/

13

17

21

25

Gavotte 2de

4/

8/

13

17

Gavotte 1re Capo

The image shows a musical score for guitar, page 53. It consists of several staves of music. The first five staves are numbered 8, 13, 17, 21, and 25. The sixth staff is labeled 'Gavotte 2de' and has a key signature of one sharp (F#) and a time signature of 2/4. The seventh staff is numbered 4/ and has a key signature of one sharp (F#) and a time signature of 4/4. The eighth staff is numbered 8/ and has a key signature of one sharp (F#) and a time signature of 4/4. The ninth staff is numbered 13 and has a key signature of one sharp (F#) and a time signature of 4/4. The tenth staff is numbered 17 and has a key signature of one sharp (F#) and a time signature of 4/4. The eleventh staff is labeled 'Gavotte 1re Capo' and has a key signature of one sharp (F#) and a time signature of 4/4. The score includes various musical notations such as notes, rests, and fingerings.

The image shows a page of musical notation for a piece titled "Gigue". The music is written in 3/8 time, indicated by the "3/8" time signature. The key signature is one sharp (F#), and the piece is in G major. The notation is arranged in a single system with a treble staff and a bass staff. The piece begins with a treble staff and a bass staff, both containing musical notation. The notation includes various notes, rests, and fingerings. The piece is marked with a "Gigue" title and a "3/8" time signature. The notation is written in a clear, legible style, with notes and rests clearly defined. The piece is a short, lively dance, and the notation reflects this character. The piece is written in a single system, and the notation is arranged in a way that is easy to read and play. The piece is a good example of a short, lively dance in 3/8 time.

Handwritten musical score for guitar, measures 37 to 66. The score is written on ten staves, alternating between treble and bass clefs. The key signature is one sharp (F#). The time signature is 13/8. The notation includes various musical symbols such as notes, rests, accidentals, and dynamic markings. Fingerings are indicated by numbers 1-4 above or below notes. Slurs and ties are used to group notes. A trill (tr) is marked in measure 52. The score concludes with a double bar line and a repeat sign in measure 66.

Measures 37-41: Treble clef, 13/8 time. Notes: G4, A4, B4, C5, D5, E5, F#5, G5, A5, B5, C6, D6, E6, F#6, G6, A6, B6, C7, D7, E7, F#7, G7, A7, B7, C8, D8, E8, F#8, G8, A8, B8, C9, D9, E9, F#9, G9, A9, B9, C10, D10, E10, F#10, G10, A10, B10, C11, D11, E11, F#11, G11, A11, B11, C12, D12, E12, F#12, G12, A12, B12, C13, D13, E13, F#13, G13, A13, B13, C14, D14, E14, F#14, G14, A14, B14, C15, D15, E15, F#15, G15, A15, B15, C16, D16, E16, F#16, G16, A16, B16, C17, D17, E17, F#17, G17, A17, B17, C18, D18, E18, F#18, G18, A18, B18, C19, D19, E19, F#19, G19, A19, B19, C20, D20, E20, F#20, G20, A20, B20, C21, D21, E21, F#21, G21, A21, B21, C22, D22, E22, F#22, G22, A22, B22, C23, D23, E23, F#23, G23, A23, B23, C24, D24, E24, F#24, G24, A24, B24, C25, D25, E25, F#25, G25, A25, B25, C26, D26, E26, F#26, G26, A26, B26, C27, D27, E27, F#27, G27, A27, B27, C28, D28, E28, F#28, G28, A28, B28, C29, D29, E29, F#29, G29, A29, B29, C30, D30, E30, F#30, G30, A30, B30, C31, D31, E31, F#31, G31, A31, B31, C32, D32, E32, F#32, G32, A32, B32, C33, D33, E33, F#33, G33, A33, B33, C34, D34, E34, F#34, G34, A34, B34, C35, D35, E35, F#35, G35, A35, B35, C36, D36, E36, F#36, G36, A36, B36, C37, D37, E37, F#37, G37, A37, B37, C38, D38, E38, F#38, G38, A38, B38, C39, D39, E39, F#39, G39, A39, B39, C40, D40, E40, F#40, G40, A40, B40, C41, D41, E41, F#41, G41, A41, B41, C42, D42, E42, F#42, G42, A42, B42, C43, D43, E43, F#43, G43, A43, B43, C44, D44, E44, F#44, G44, A44, B44, C45, D45, E45, F#45, G45, A45, B45, C46, D46, E46, F#46, G46, A46, B46, C47, D47, E47, F#47, G47, A47, B47, C48, D48, E48, F#48, G48, A48, B48, C49, D49, E49, F#49, G49, A49, B49, C50, D50, E50, F#50, G50, A50, B50, C51, D51, E51, F#51, G51, A51, B51, C52, D52, E52, F#52, G52, A52, B52, C53, D53, E53, F#53, G53, A53, B53, C54, D54, E54, F#54, G54, A54, B54, C55, D55, E55, F#55, G55, A55, B55, C56, D56, E56, F#56, G56, A56, B56, C57, D57, E57, F#57, G57, A57, B57, C58, D58, E58, F#58, G58, A58, B58, C59, D59, E59, F#59, G59, A59, B59, C60, D60, E60, F#60, G60, A60, B60, C61, D61, E61, F#61, G61, A61, B61, C62, D62, E62, F#62, G62, A62, B62, C63, D63, E63, F#63, G63, A63, B63, C64, D64, E64, F#64, G64, A64, B64, C65, D65, E65, F#65, G65, A65, B65, C66, D66, E66, F#66, G66, A66, B66, C67, D67, E67, F#67, G67, A67, B67, C68, D68, E68, F#68, G68, A68, B68, C69, D69, E69, F#69, G69, A69, B69, C70, D70, E70, F#70, G70, A70, B70, C71, D71, E71, F#71, G71, A71, B71, C72, D72, E72, F#72, G72, A72, B72, C73, D73, E73, F#73, G73, A73, B73, C74, D74, E74, F#74, G74, A74, B74, C75, D75, E75, F#75, G75, A75, B75, C76, D76, E76, F#76, G76, A76, B76, C77, D77, E77, F#77, G77, A77, B77, C78, D78, E78, F#78, G78, A78, B78, C79, D79, E79, F#79, G79, A79, B79, C80, D80, E80, F#80, G80, A80, B80, C81, D81, E81, F#81, G81, A81, B81, C82, D82, E82, F#82, G82, A82, B82, C83, D83, E83, F#83, G83, A83, B83, C84, D84, E84, F#84, G84, A84, B84, C85, D85, E85, F#85, G85, A85, B85, C86, D86, E86, F#86, G86, A86, B86, C87, D87, E87, F#87, G87, A87, B87, C88, D88, E88, F#88, G88, A88, B88, C89, D89, E89, F#89, G89, A89, B89, C90, D90, E90, F#90, G90, A90, B90, C91, D91, E91, F#91, G91, A91, B91, C92, D92, E92, F#92, G92, A92, B92, C93, D93, E93, F#93, G93, A93, B93, C94, D94, E94, F#94, G94, A94, B94, C95, D95, E95, F#95, G95, A95, B95, C96, D96, E96, F#96, G96, A96, B96, C97, D97, E97, F#97, G97, A97, B97, C98, D98, E98, F#98, G98, A98, B98, C99, D99, E99, F#99, G99, A99, B99, C100, D100, E100, F#100, G100, A100, B100, C101, D101, E101, F#101, G101, A101, B101, C102, D102, E102, F#102, G102, A102, B102, C103, D103, E103, F#103, G103, A103, B103, C104, D104, E104, F#104, G104, A104, B104, C105, D105, E105, F#105, G105, A105, B105, C106, D106, E106, F#106, G106, A106, B106, C107, D107, E107, F#107, G107, A107, B107, C108, D108, E108, F#108, G108, A108, B108, C109, D109, E109, F#109, G109, A109, B109, C110, D110, E110, F#110, G110, A110, B110, C111, D111, E111, F#111, G111, A111, B111, C112, D112, E112, F#112, G112, A112, B112, C113, D113, E113, F#113, G113, 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E160, F#160, G160, A160, B160, C161, D161, E161, F#161, G161, A161, B161, C162, D162, E162, F#162, G162, A162, B162, C163, D163, E163, F#163, G163, A163, B163, C164, D164, E164, F#164, G164, A164, B164, C165, D165, E165, F#165, G165, A165, B165, C166, D166, E166, F#166, G166, A166, B166, C167, D167, E167, F#167, G167, A167, B167, C168, D168, E168, F#168, G168, A168, B168, C169, D169, E169, F#169, G169, A169, B169, C170, D170, E170, F#170, G170, A170, B170, C171, D171, E171, F#171, G171, A171, B171, C172, D172, E172, F#172, G172, A172, B172, C173, D173, E173, F#173, G173, A173, B173, C174, D174, E174, F#174, G174, A174, B174, C175, D175, E175, F#175, G175, A175, B175, C176, D176, E176, F#176, G176, A176, B176, C177, D177, E177, F#177, G177, A177, B177, C178, D178, E178, F#178, G178, A178, B178, C179, D179, E179, F#179, G179, A179, B179, C180, D180, E180, F#180, G180, A180, B180, C181, D181, E181, F#181, G181, A181, B181, C182, D182, E182, F#182, G182, A182, B182, C183, D183, E183, F#183, G183, A183, B183, C184, D184, E184, F#184, G184, A184, B184, C185, D185, E185, F#185, G185, A185, B185, C186, D186, E186, F#186, G186, A186, B186, C187, D187, E187, F#187, G187, A187, B187, C188, D188, E188, F#188, G188, A188, B188, C189, D189, E189, F#189, G189, A189, B189, C190, D190, E190, F#190, G190, A190, B190, C191, D191, E191, F#191, G191, A191, B191, C192, D192, E192, F#192, G192, A192, B192, C193, D193, E193, F#193, G193, A193, B193, C194, D194, E194, F#194, G194, A194, B194, C195, D195, E195, F#195, G195, A195, B195, C196, D196, E196, F#196, G196, A196, B196, C197, D197, E197, F#197, G197, A197, B197, C198, D198, E198, F#198, G198, A198, B198, C199, D199, E199, F#199, G199, A199, B199, C200, D200, E200, F#200, G200, A200, B200, C201, D201, E201, F#201, G201, A201, B201, C202, D202, E202, F#202, G202, A202, B202, C203, D203, E203, F#203, G203, A203, B203, C204, D204, E204, F#204, G204, A204, B204, C205, D205, E205, F#205, G205, A205, B205, C206, D206, E206, F#206, G206, A206, B206, C207, D207, E207, F#207, G207, A207, B207, C208, D208, E208, F#208, G208, A208, B208, C209, D209, E209, F#209, G209, A209, B209, C210, D210, E210, F#210, G210, A210, B210, C211, D211, E211, F#211, G211, A211, B211, C212, D212, E212, F#212, G212, A212, B212, C213, D213, E213, F#213, G213, A213, B213, C214, D214, E214, F#214, G214, A214, B214, C215, D215, E215, F#215, G215, A215, B215, C216, D216, E216, F#216, G216, A216, B216, C217, D217, E217, F#217, G217, A217, B217, C218, D218, E218, F#218, G218, A218, B218, C219, D219, E219, F#219, G219, A219, B219, C220, D220, E220, F#220, G220, A220, B220, C221, D221, E221, F#221, G221, A221, B221, C222, D222, E222, F#222, G222, A222, B222, C223, D223, E223, F#223, G223, A223, B223, C224, D224, E224, F#224, G224, A224, B224, C225, D225, E225, F#225, G225, A225, B225, C226, D226, E226, F#226, G226, A226, B226, C227, D227, E227, F#227, G227, A227, B227, C228, D228, E228, F#228, G228, A228, B228, C229, D229, E229, F#229, G229, A229, B229, C230, D230, E230, F#230, G230, A230, B230, C231, D231, E231, F#231, G231, A231, B231, C232, D232, E232, F#232, G232, A232, B232, C233, D233, E233, F#233, G233, A233, B233, C234, D234, E234, F#234, G234, A234, B234, C235, D235, E235, F#235, G235, A235, B235, C236, D236, E236, F#236, G236, A236, B236, C237, D237, E237, F#237, G237, A237, B237, C238, D238, E238, F#238, G238, A238, B238, C239, D239, E239, F#239, G239, A239, B239, C240, D240, E240, F#240, G240, A240, B240, C241, D241, E241, F#241, G241, A241, B241, C242, D242, E242, F#242, G242, A242, B242, C243, D243, E243, F#243, G243, A243, B243, C244, D244, E244, F#244, G244, A244, B244, C245, D245, E245, F#245, G245, A245, B245, C246, D246, E246, F#246, G246, A246, B246, C247, D247, E247, F#247, G247, A247, B247, C248, D248, E248, F#248, G248, A248, B248, C249, D249, E249, F#249, G249, A249, B249, C250, D250, E250, F#250, G250, A250, B250, C251, D251, E251, F#251, G251, A251, B251, C252, D252, E252, F#252, G252, A252, B252, C253, D253, E253, F#253, G253, A253, B253, C254, D254, E254, F#254, G254, A254, B254, C255, D255, E255, F#255, G255, A255, B255, C256, D256, E256, F#256, G256, A256, B256, C257, D257, E257, F#257, G257, A257, B257, C258, D258, E258, F#258, G258, A258, B258, C259, D259, E259, F#259, G259, A259, B259, C260, D260, E260, F#260, G260, A260, B260, C261, D261, E261, F#261, G261, A261, B261, C262, D262, E262, F#262, G262, A262, B262, C263, D263, E263, F#263, G263, A263, B263, C264, D264, E264, F#264, G264, A264, B264, C265, D265, E265, F#265, G265, A265, B265, C266, D266, E266, F#266, G266, A266, B266, C267, D267, E267, F#267, G267, A267, B267, C268, D268, E268, F#268, G268, A268, B268, C269, D269, E269, F#269, G269, A269, B269, C270, D270, E270, F#270, G270, A270, B270, C271, D271, E271, F#271, G271, A271, B271, C272, D272, E272, F#272, G272, A272, B272, C273, D273, E273, F#273, G273, A273, B273, C274, D274, E274, F#274, G274, A274, B274, C275, D275, E275, F#275, G275, A275, B275, C276, D276, E276, F#276, G276, A276, B276, C277, D277, E277, F#277, G277, A277, B277, C278, D278, E278, F#278, G278, A278, B278, C279, D279, E279, F#279, G279, A279, B279, C280, D280, E280, F#280, G280, A280, B280, C281, D281, E281, F#281, G281, A281, B281, C282, D282, E282, F#282, G282, A282, B282, C283, D283, E283, F#283, G283, A283, B283, C284, D284, E284, F#284, G284, A284, B284, C285, D285, E285, F#285, G285, A285, B285, C286, D286, E286, F#286, G286, A286, B286, C287, D287, E287, F#287, G287, A287, B287, C288, D288, E288, F#288, G288, A288, B288, C289, D289, E289, F#289, G289, A289, B289, C290, D290, E290, F#290, G290, A290, B290, C291, D291, E291, F#291, G291, A291, B291, C292, D292, E292, F#292, G292, A292, B292, C293, D293, E293, F#293, G293, A293, B293, C294, D294, E294, F#294, G294, A294, B294, C295, D295, E295, F#295, G295, A295, B295, C296, D296, E296, F#296, G296, A296, B296, C297, D297, E297, F#297, G297, A297, B297, C298, D298, E298, F#298, G298, A298, B298, C299, D299, E299, F#299, G299, A299, B299, C300, D300, E300, F#300, G300, A300, B300, C301, D301, E301, F#301, G301, A301, B301, C302, D302, E302, F#302, G302, A302, B302, C303, D303, E303, F#303, G303, A303, B303, C304, D304, E304, F#304, G304, A304, B304, C305, D305, E305, F#305, G305, A305, B305, C306, D306, E306, F#306, G306, A306, B306, C307, D307, E307, F#307, G307, A307, B307, C308, D308, E308, F#308, G308, A308, B308, C309, D309, E309, F#309, G309, A309, B309, C310, D310, E310, F#310, G310, A310, B310, C311, D311, E311, F#311, G311, A311, B311, C312, D312, E312, F#312, G312, A312, B312, C313, D313, E313, F#313, G313, A313, B313, C314, D314, E314, F#314, G314, A314, B314, C315, D315, E315, F#315, G315, A315, B315, C316, D316, E316, F#316, G316, A316, B316, C317, D317, E317, F#317, G317, A317, B317, C318, D318, E318, F#318, G318, A318, B318, C319, D319, E319, F#319, G319, A319, B319, C320, D320, E320, F#320, G320, A320, B320, C321, D321, E321, F#321, G321, A321, B321, C322, D322, E322, F#322, G322, A322, B322, C323, D323, E323, F#323, G323, A323, B323, C324, D324, E324, F#324, G324, A324, B324, C325, D325, E325, F#325, G325, A325, B325, C326, D326, E326, F#326, G326, A326, B326, C327, D327, E327, F#327, G327, A327, B327, C328, D328, E328, F#328, G328, A328, B328, C329, D329, E329, F#329, G329, A329, B329, C330, D330, E330, F#330, G330, A330, B330, C331, D331, E331, F#331, G331, A331, B331, C332, D332, E332, F#332, G332, A332, B332, C333, D333, E333, F#333, G333, A333, B333, C334, D334, E334, F#334, G334, A334, B334, C335, D335, E335, F#335, G335, A335, B335, C336, D336, E336, F#336, G336, A336, B336, C337, D337, E337, F#337, G337, A337, B337, C338, D338, E338, F#338, G338, A338, B338, C339, D339, E339, F#339, G339, A339, B339, C340, D340, E340, F#340, G340, A340, B340, C341, D341, E341, F#341, G341, A341, B341, C342, D342, E342, F#342, G342, A342, B342, C343, D343, E343, F#343, G343, A343, B343, C344, D344, E344, F#344, G344, A344, B344, C345, D345, E345, F#345, G345, A345, B345, C346, D346, E346, F#346, G346, A346, B346, C347, D347, E347, F#347, G347, A347, B347, C348, D348, E348, F#348, G348, A348, B348, C349, D349, E349, F#349, G349, A349, B349, C350, D350, E350, F#350, G350, A350, B350, C351, D351, E351, F#351, G351, A351, B351, C352, D352, E352, F#352, G352, A352, B352, C353, D353, E353, F#353, G353, A353, B353, C354, D354, E354, F#354, G354, A354, B354, C355, D355, E355, F#355, G355, A355, B355, C356, D356, E356, F#356, G356, A356, B356, C357, D357, E357, F#357, G357, A357, B357, C358, D358, E358, F#358, G358, A358, B358, C359, D359, E359, F#359, G359, A359, B359, C360, D360, E360, F#360, G3



## Appendix III: Color-coding of Strings for 5-String Cello

45

*Suite*  
6.me

*a cinq cordes*

*Prélude*

12

*p.*

3

*f.* *p.* *f.*

6

9

12

15

*p.*

18

21

24

27

30

The image shows a musical score for a 5-string cello, titled "Suite 6.me" and "Prélude". The score is written in bass clef with a key signature of one sharp (F#). The time signature is 12/8. The notes are color-coded: red, blue, green, and yellow. The score is divided into measures, with measure numbers 12, 15, 18, 21, 24, 27, and 30 indicated. Dynamic markings include *p.* (piano) and *f.* (forte). The score ends with the instruction "Tutti Subito".

Tutti Subito

46

33 36 39 42 45 48 51 54 57 60 63 66 69

This musical score is for page 46, covering measures 33 through 69. The music is written in 3/8 time with a key signature of one sharp (F#). The notation is presented on ten staves, each beginning with a measure number. The notes are color-coded: red, blue, yellow, green, and purple. The score includes various musical notations such as eighth notes, quarter notes, and rests. The first staff (measure 33) starts with a treble clef and a key signature of one sharp. The subsequent staves (measures 36, 39, 42, 45, 48, 51, 54, 57, 60, 63, 66, 69) all use a bass clef. The notation is consistent throughout, with notes placed on the staff lines and stems indicating the rhythm and pitch.



72

75

78

80

83

85

87

89

91

94

96

99

102

48

(Adagio)

Allemande

5

3

4

5

6

7

8

9

10

11 *tr*

12

13 *tr*

14 *tr*

15 *tr*

16

17

18

19

20 *tr*

The musical score consists of ten measures, numbered 11 to 20, written in 3/8 time. The key signature has two sharps (F# and C#). The notes are color-coded: red, blue, yellow, green, and purple. Trills are indicated by the 'tr' symbol above certain notes. The measures are as follows:

- Measure 11: Starts with a purple note, followed by a red note, then a trill on a red note, and ends with a green note.
- Measure 12: Starts with a green note, followed by a yellow note, then a red note, and ends with a blue note.
- Measure 13: Starts with a red note, followed by a blue note, then a trill on a blue note, and ends with a green note.
- Measure 14: Starts with a yellow note, followed by a red note, then a trill on a yellow note, and ends with a red note.
- Measure 15: Starts with a red note, followed by a blue note, then a trill on a red note, and ends with a yellow note.
- Measure 16: Starts with a red note, followed by a blue note, then a red note, and ends with a blue note.
- Measure 17: Starts with a yellow note, followed by a red note, then a blue note, and ends with a red note.
- Measure 18: Starts with a red note, followed by a yellow note, then a blue note, and ends with a red note.
- Measure 19: Starts with a blue note, followed by a red note, then a blue note, and ends with a red note.
- Measure 20: Starts with a blue note, followed by a red note, then a blue note, and ends with a trill on a blue note.

50

*Courante*  $\text{B}\flat$   $\frac{3}{4}$

4

8

12

15

18

21

25

/29

33

37

40

43

47

51

55

58

62

66

69

52

The image displays two musical pieces, *Sarabande* and *Gavotte*, with their respective figured bass notation. The notation uses colored circles (yellow, red, blue, green) to represent specific notes and accidentals, with numbers 1-7 indicating fingerings. The *Sarabande* section is in 3/8 time and consists of 32 measures. The *Gavotte* section is in 3/4 time and consists of 4 measures. The *Gavotte* section begins with the instruction *re*.

**Sarabande**

Measures 1-32:

1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13. 14. 15. 16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26. 27. 28. 29. 30. 31. 32.

**Gavotte**

Measures 1-4:

1. 2. 3. 4.



8/

13

17

21

25

Gavotte 2de

4/

8/

13

17

Gavotte 1re Capo

The image displays a musical score for a piece titled "Gavotte 2de". The score is written on a grand staff, consisting of a treble clef staff and a bass clef staff. The key signature is one sharp (F#), and the time signature is 3/4. The score is divided into measures, with measure numbers 8, 13, 17, 21, and 25 indicated. The notes are color-coded: yellow for the right hand (treble clef) and blue for the left hand (bass clef). Some notes are red, indicating fingerings. The score includes a repeat sign and a double bar line. The piece concludes with a double bar line and a repeat sign. The title "Gavotte 2de" is written below the staff. The score is followed by a section labeled "Gavotte 1re Capo".

54

*Gigue* 13/8 6

5

10

13

17

22

25/

/29

33



A musical score for a piece titled "La Fin des Suites". The score is written on ten staves, each beginning with a measure number (37, 42, 46, 49, 52, 56, 59, 63, 66) and a key signature of one sharp (F#). The time signature is 13/8. The notation is highly stylized, featuring various colored circles (red, blue, yellow, green, purple) and ovals placed on and around the notes. Some notes are enclosed in ovals, and some are placed outside. The score includes a trill (tr) in measure 52. The piece concludes with a double bar line and a repeat sign in measure 66.

*La Fin des Suites*

*Suite* a cinq cordes

6.me

*Prélude* 12/8

*p.*

*f.* *p.* *f.*

*p.*

21

24

27

30

Tutti Subito

46

33 36 39 42 45 48 51 54 57 60 63 66 69

72

75

78

80

83

85

87

89

91

94

96

99

102

48

(Adagio)

Allemande

The musical score is written on a single staff in 3/8 time, with a key signature of one sharp (F#). The tempo is marked (Adagio). The piece is titled 'Allemande'. The notation includes various musical symbols: eighth notes, quarter notes, and half notes. Red ovals highlight specific melodic lines, while blue and green circles mark other notes. Trills are indicated by 'tr' above certain notes. The score is divided into measures, with measure numbers 1 through 10 indicated on the left. The piece concludes with a double bar line and repeat dots.

1 2 3 4 5 6 7 8 9 10



This musical score consists of ten staves, numbered 11 through 20, representing measures of a single melodic line. The notation is written on a single five-line staff with a bass clef and a key signature of two sharps (F# and C#). The time signature is 13/8, indicated by a '13' over the staff. The notes are color-coded: red, blue, green, and purple. Many notes are grouped within red or blue oval shapes. Trills, marked with 'tr', are present in measures 11, 13, 14, 15, and 20. The piece concludes with a double bar line and a repeat sign at the end of measure 20.

50

*Courante*  $\text{B}\flat$   $\frac{3}{4}$

4

8

12

15

18

21

25

29

33

37

40

43

47

51

55

58

62

66

69



52

The image displays two musical pieces, *Sarabande* and *Gavotte*, in D major (one sharp) and 3/4 time. The notation is presented on a grand staff with a treble and bass clef. The notes are color-coded: red for the right hand, blue for the left hand, and green for the bass line. The *Sarabande* piece consists of 32 measures, with measure numbers 5, 9, 13, 17, and 21 indicated at the start of their respective staves. The *Gavotte* piece consists of 4 measures, with the measure number 4 indicated at the start of its staff. The *Gavotte* staff is marked with a 're' (recapitulation) symbol. The score is written on a white background with black musical notation and colored note heads.

8/

13

17

21

25

Gavotte 2de

4/

8/

13

17

Gavotte 1re

Capo

The image displays a musical score for a piece titled "Gavotte 2de". The score is written on two staves, treble and bass, with a key signature of one sharp (F#) and a 3/4 time signature. The music is characterized by a series of chords, many of which are marked with red, blue, and green circles, likely indicating fingerings or specific chord voicings. The score is divided into measures, with measure numbers 8, 13, 17, 21, and 25 indicated. The piece concludes with a double bar line and a repeat sign. Below the main score, there is a section labeled "Gavotte 1re" and "Capo", suggesting a first ending or a capo position. The notation includes various musical symbols such as notes, rests, and bar lines.

54

*Gigue* 13/8 6

5

10

13

17

22

25/

/29

33

A musical score for a piece titled "La Fin des Suites". The score is written on ten staves, each beginning with a measure number (37, 42, 46, 49, 52, 56, 59, 63, 66) and a key signature of one sharp (F#). The time signature is 13/8. The notation includes various note values, rests, and dynamic markings. The notes are color-coded: red for the upper voice, blue for the lower voice, green for the bass line, and purple for the final notes. The score concludes with a double bar line and a repeat sign.

37

42

46

49

52

56

59

63

66

*La Fin des Suites*