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Deconstructing Piatti: Exploring Underlying Physiological Challenges in the 12 Caprices for Solo Cello

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DECONSTRUCTING PIATTI: EXPLORING UNDERLYING PHYSIOLOGICAL CHALLENGES IN THE 12 CAPRICES FOR SOLO CELLO

A Dissertation

Submitted to the Graduate Faculty of the Louisiana State University and Agricultural and Mechanical College in partial fulfillment of the requirements for the degree of Doctor of Musical Arts

in

The School of Music

by

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ABSTRACT

Composed in 1865 and first published in 1874, Alfredo Piatti’s *12 Caprices for Solo Cello, Op.25* have become one of the most widely-used volumes of technical studies for cello students. A virtuoso cellist, influential teacher, and prolific composer dubbed “The Paganini of the Cello” by Franz Liszt, his complete command of the cello allowed him to push the limits of the instrument in an era when the virtuoso solo cello repertoire was just starting to flourish. To this day, the study of the *Caprices* is still tremendously helpful—and often required by teachers as material for developing the highest level of technical proficiency.

The goal of this study is to use the *Caprices* as a means rather than an end in order to understand, through their detailed study and preparation, general principles of cello playing, body movement and their execution that can, or may be applied to any work from the standard repertoire, for that matter. Furthermore, one of the main focuses of this study is to not only survey the *Caprices* from a technical perspective, but also to apply strategies conducive to a more relaxed, coordinated, and tension-free performance unhindered by pain or stiffness.
BIOGRAPHY

Carlo Alfredo Piatti was born on January 8, 1822 in Bergamo, Italy, the son of a violinist, Antonio; and Mariana, a seamstress. He was not particularly interested with music at first, and reluctantly began studying cello at an early age with his father, who would make the young Alfredo practice for no less than ten hours per day.\textsuperscript{1} At age five he began receiving lessons from his great-uncle Gaetano Zanetti and at eight he was allowed to play in the theatre orchestra for three months until Zanetti’s death the following season. Piatti became his great-uncle’s successor in the orchestra and remained in Bergamo until the age of ten. During this time Johann Simon Mayr who was Maestro di Capella was so impressed by young Alfredo that, during a music festival in Caravaggio, he allowed him to play a cello solo that was expected to be played by Vincenzo Merighi, a professor at the Milan Conservatory.\textsuperscript{2} Perhaps due to this incident Merighi rejected Piatti’s admission to the conservatory at first, although subsequently accepted him as a student in 1832. Piatti made his debut at the age of fifteen on September 21, 1837 at the Conservatory playing his own concerto and was given the instrument which he played as a prize.

The following year, Piatti began touring all over Europe with great success. Unfortunately he was forced to sell his cello after falling ill in Pest, and having run out of funds he had no choice but to return to Bergamo. He was aided by a friend to meet the expenses of the trip back home. On the way to his hometown, Piatti made a stop in Munich where he received an invitation to play in a concert given by Liszt. He received a warm reception, being recalled to the stage three times and

\begin{footnotesize}

\end{footnotesize}
was embraced in front of the audience by the piano virtuoso. Liszt encouraged Piatti to visit Paris, where he debuted in 1844 on a borrowed instrument. During his stay in France, Liszt generously gave Piatti a cello by Nicolò Amati which he kept until the end of his life. Piatti debuted in London on May 31 of the same year at the Annual Grand Morning Concert given by Mrs. Anderson at Her Majesty's Theatre. While in London, he had the opportunity to play with Felix Mendelssohn for the first time on June 24, 1844. The Times spoke of him as “a masterly player. In tone, which foreign artists generally lack, he is equal to Lindley in his best days; his execution is rapid, diversified, and certain, and a false note never by any chance is to be heard.” Mendelssohn even suggested the possibility of writing a concerto for Piatti and according to Latham, completed the first movement, but the manuscript, (if ever composed) has been lost.

During 1844-45, Piatti embarked on a tour of Russia along with Theodor Döhler, which led to great acclaim. While visiting Moscow, he met Adrién-François Servais, another influential cellist of the time, and the two virtuosi later played together during a visit to the Kremlin. Piatti returned to London in 1846 where he established an influential career as a teacher and performer. In 1847 Verdi visited England for a production of *I Masnadieri* where Piatti performed the *obbligato* cello part to much acclaim. After settling in London, Piatti performed as a soloist and

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6. Ibid. 71
in quartet recitals along with H.W. Ernst, Joseph Joachim and Henryk Wieniawski, and after 1859 regularly played quartet recitals in the London Popular Concerts with Joachim Reiss and Louis Strauss. He continued performing until 1897, and continued playing alongside the finest musicians of his era such as Anton Rubinstein, Arabella Godard, Clara Wieck, Hans von Bülow, Edward Grieg, Bernard Molique, Joseph Joachim and many others. 

Piatti studied composition under Molique and was a prolific composer of cello and vocal pieces. His works for cello include 2 concertos, 1 concertino, 6 sonatas, and the 12 caprices. McGregor adds that he “also published a good method (London, 1878), and editions of many previously neglected 18th-century works which have now become part of the standard musical repertory.” After 1867 he played on a 1720 Stradivarius which later became known as ‘The Piatti’ and is now on loan to the winner of the Violoncello Society of New York’s triennial Gregor Piatigorsky Award. He played “with a low elbow, with the cello held between the knees and not supported by an endpin.”

Piatti was unhappily married to Mary Ann Welsh and subsequently separated. During the final years of his life he moved back to his home country near Cadenabbia on Lake and his last months were spent along his daughter, Countess Lochis in her residence near Bergamo. Piatti died on July 18, 1901. Latam writes:

“The Prefect, the Mayor, members, of Parliament, representatives of the leading Musical Societies attended and notwithstanding the tempestuous weather hundreds of townsfolk and people from the neighbouring provinces came to do homage to their great countryman.

7. Barzanò, and Bellisario. Signor Piatti. 208
Four professors played the Andante from Schubert's Quartet in D minor, according to Piatti’s express wish, and a week later visited the Lochis chapel again, and made a compact to perform the Quartet annually on the anniversary of the master’s death.”

The Caprices and Piatti’s Technique

Dedicated to Bernard Cossmann, the 12 Caprices bear the autographed date of June 26th, 1865, and were first published in Berlin in 1874. They were “the fruit of long and constant research” and have enjoyed sustained popularity among multiple generations of teachers and students. Although there is no record of the two ever meeting, it is very possible that Piatti was inspired by Paganini when composing his virtuosic set of caprices, as by the time Piatti was admitted to the Milan Conservatory, Paganini was one of if not the most influential musician for young players in Italy. His knowledge of the violin technique also came through the study and transcriptions of violin pieces by composers such as Tartini, Geminiani, Valentini, and Locatelli whom Piatti considered to be the predecessor of Paganini. Nevertheless, Piatti’s style is not purely technical and it would be impossible not to recognize the influences of the bel canto tradition in his compositions. Many arias of Donizetti, Bellini, Verdi and Pacini served as inspiration for Piatti’s works and the expressive melodic treatment of the cello in the Caprices is no exception. August Franchomme and Adrien-François Servais, two prominent cellists of the same era also published their own sets of caprices for solo cello (published in 1835 and 1851 respectively), but they generally do not share the same operatic approach, use of chords and bowing gestures featured in Piatti’s set.

11. Barzanò, and Bellisario. Signor Piatti. 249
12. Ibid. 248
Piatti’s own cello method also offers a glimpse into his technique and pedagogical influences, as it includes pieces by Dotzauer, Kummer, Lee, Duport and Romberg as musical examples. The technique proposed by Piatti in his method is outdated by modern standards, but it is nevertheless interesting to consider from a historical perspective. He famously played without an endpin although some of his contemporaries like Servais adopted it at the same time. Walden writes that “Among nineteenth-century players, its use [of the endpin] had decidedly amateur or womanish overtones and professional musicians probably regarded it as an affront to their male pride.”\(^{13}\) Piatti’s bowing technique also would have looked markedly different from modern players. In his method, he writes that “The bow must be placed two inches from the bridge. […] The change from one string to another ought to be made from the wrist.”\(^{14}\) As well as “If the whole length of the bow has to be used […] The upper part of the arm should always be close to the body and the fore-arm must execute all movements of the bow, the upper part of the arm and shoulder remaining almost immovable.”\(^{15}\)


\(^{15}\) Ibid, 3.
INTRODUCTION

It is often said that a good performance is the one that seems *effortless* which, although valid in itself does not help to understand the way in which said relaxation is achieved. Cello students generally develop their technique through études in order to reach the level necessary to play their pieces, but in the process relaxation and body awareness are often sacrificed in favor of attempting to play such difficult passages at all costs, ultimately leading to a progressive accumulation of tension and possibly to the development of a handicapped technique. This degenerative process develops slowly over years, often making it difficult to address properly until it has reached a point where either significant backtracking must be done in order to ‘undo’ the problem or even worse, an injury develops, hindering the player’s further progress.

Piatti’s *12 Caprices* are regarded by most students as technique-building études and as such may not always be studied to their full potential as concert pieces. Most advanced cellists exploring the caprices should already have strategies to solve the technical challenges that the pieces present and therefore it is not my intention to reiterate what has been already discussed by teachers or other academic works (Ryan-Kelzenberg, 2009; Shen, 2009; Hagel, 2012). Rather, I would like to present the reader with an alternative approach that centers on analyzing the *processes* conducive to a healthy technique, with an emphasis on the physiological reasons behind certain movements and a further development of body awareness as the main objectives, in order to achieve a more rewarding performance experience.
PRELIMINARY CONCEPTS

Although each of the Caprices present their own particular challenges, there are general principles that if applied to cello playing altogether can facilitate all of these studies. Below are a few concepts worth being aware of from the start, as their understanding will help achieving a more fluid performance of the 12 Caprices.

Breathing

Unlike wind payers or vocalists, many string players are not introduced to proper breathing techniques at the start of their instrumental development. Miranda Wilson explains very succinctly that “one of the main reasons cellists miss big shifts in performance–regardless of how well they went in the practice room–is the wide-spread tendency to hold the breath before executing a difficult technique such as shifting.”16 String players tend not to take time to reflect on–or practice–their breathing while they play and instead take the process for granted. The performance of these pieces will feel exponentially less fatigued, inhibited, or restricted if there is always enough oxygen reaching one’s brain so we must learn every phrase, gesture and movement with correct breathing patterns, or intervals. The breathing process must reflect not only the character but also the rhythmic structures and phrasing. Of course it is always useful to sing every phrase that we need to play and determine the force, timing, frequency and character. Only then we can breathe according to the expressive needs of each phrase.

**Left Arm Angle**

Throughout this study, the motion of the left elbow is discussed multiple times as it plays a major role in the tuning of double stops and chords as well as position changes. When playing more than one voice the left arm may dynamically change its angle in order to keep the fingers from stretching unnecessarily. As such, its placement within a double stop or chord will be at a median point between the furthermost fingers of the sonority. This also means that in many caprices that feature successive position changes (whenever the hand is to move in blocks) the left elbow flexibility will have to adjust, sometimes on every beat. Moreover, as the left elbow initiates the motion during position changes, there are many instances in which the left arm must coordinate two different planes at the same time: height and angle. Even though the arm motion will be more active, thus requiring additional energy expenditure, the benefits in intonation and coordination that these motions offer make the extra effort worthwhile for a better preparation of position changes and a more fluid performance.

**Arm Weight**

Instead of thinking in terms of ‘pressure’ of either the left hand fingers or the grip of the right hand on the bow, substituting this idea with the feeling of weight from larger body parts is of critical importance. Simply put, every note that we play on the cello should be performed in a position that one ‘could literally sleep in’. That is to say that the arms have found balance and gravity and the proper height to perform the task without any excessive or unnecessary elevation, that they are in their most relaxed positton, and that the only time these positions may become higher is when we are traveling from one position to the other in the left hand, which will remove the weight stemmed by the mass of both of our arms between one stop and the next. It is not the fingers that press down on the string, but instead it is the arm that, through being in a relaxed
position, transfers its weight to the hand and from finger to finger(s), if that is the case. Similarly a healthy sound will depend on the correct transfer of weight from the arm to the bow so that the string can resonate with an optimal tone and color, regardless of string elevation and dynamics. Controlling and adjusting the level of weight transferred to the bow in order to compensate for variables such as range and amplitude is fundamental for finding a consistent and satisfactory tone on the cello.

**Intonation**

The *Caprices* present a wide array of keys that must be understood in agreement with the harmonics of the cello and the possibilities of sympathetic resonance available to each key. As these are solo pieces, knowing which open strings and harmonics work in conjunction with each particular key will ensure that we are always playing in tune. E minor for example, will require the use of the open G string in order to correctly resonate; A minor will be found with the open C string. The corresponding parallel major keys of E and A major alter only the third degree, not the root or the fifth, which remain the pillars of the keys regardless of modal change. In the case of F#, major or minor, the open a string is part of its arpeggiation (in minor mode), and therefore can and must determine the pitch levels of the F#, C# and all other pitches within the scale of F# major or minor. In the case of a flat tonic, such as Eb major,, the G string and its harmonics rule the rest of the scale, and Eb and Bb (root and fifth) must agree with the G string, not the other way around. Similarly, Ab major or minor must agree with the C string, etc.
Dynamic Variation

The caprices demand an advanced knowledge of bow possibilities regarding sound production, but it is still important to consider the variables involved when looking for different colors and dynamic intensity. Generally, the three main variables at play are speed, pressure (weight) and contact point. Gerhard Mantel explains that any change in one of these variables should be compensated by a change in at least one of the two others.\textsuperscript{17} However, all notes will require combinations of these elements to achieve an optimal sound. Generally speaking the lower the string and frequency the greater clarity and volume can be achieved with more economy of bow and with a contact point that is closer to the bridge.

Use of the Legs and Torso

When playing the cello the arms and hands do not function alone. Rather, it is the entire body that is constantly adjusting to the arms’ needs in order to maintain ideal balance. Since the joints of the arm have considerably less mass than the trunk and legs, we can initiate the arm movements (e.g., a position change or a bow stroke) with a small rotation of the trunk (from the waist) thus requiring less effort from the smaller joints. Similarly, the position of the legs will provide balance and stability when required in order to compensate for the outer strings, and can provide additional power to a particular bow stroke. In any case a fluid technique that can adapt to different positions of the arm is preferable to a stiff torso and legs which can take away from one’s playing rather than enhancing it. The waist is the largest axis that we have; adjusting (rotating) to the angle of each string reduces the strain of the smaller joints and the responsibility of the

shoulders to a minimum. When the torso adjusts in this way, it is supported by the legs, allowing us to achieve a better balance with the stroke that is being employed. It is safe to say that no physical activity happens in a frozen position, and the flexibility of the body is no different when applied to cello playing.
THE 12 CAPRICES

Caprice No. 1

Allegro quasi Presto.
Sotto pizzato d’arco

The first caprice of the set consists of a sixteenth-note motive in perpetual motion built upon string crossings that help develop the flexibility of the bow arm. In order for it to be performed calmly, especially in the right shoulder, one needs to first view the path of the right arm as it crosses the strings.

Figure 1, notice the reduction of movement necessary to keep the arm stable with each diminution.

Starting at the tip of the bow, the execution of the example in figure 1 helps show that revolution in the path of the bow will be circular whether in the larger note values or the faster smaller ones. What will vary and diminish will be the size of the circular gesture. Most cellists attempt to change bows through the application of a looping (∞) motion of the right arm. If one were to apply this trajectory to figure 1 with the same amplitude of movement in the elbow, the range of motion of the arm at the sixteenth-note level would be impractical and impossible. Instead, we must diminish the amplitude of the arm motion in proportion to tempo and size of the gesture, and as we do this the right arm—more specifically the elbow—progressively moves back and forth in a clockwise circular motion rather than a loop.
There are a few things regarding this stroke that one can consider to avoid any possible stiffness in the right arm. As the motion gets smaller, it will require finer control and stabilization from the arm muscles in a fixed elevation according to the strings being engaged. Failure to maintain the shoulder in a low, neutral position may lead to accrue tension in the arm and a loss of the natural weight of the arm as we implement this stroke, as the body tries to compensate for the potential loss of weight or traction resulting from being in the lighter part of the bow (Sulla punto d’arco). Keeping the right shoulder in a low, relaxed position will help to keep the center of balance in a neutral place so that it can reach any string comfortably while maintaining the circular motion required by this study.

Although Piatti asks for this caprice to be played at the tip, there is no reason that the placement of the bow cannot move slightly towards the frog during the stronger dynamic passages, as one of the goals that we strive for is to achieve equal and balanced sounds across the entire range of the instrument. From a physiological point of view, loud dynamics attempted at the tip are more awkward to perform due to the loss of contact caused by the prolonged, extended position of the right arm at this distance from the balance point. Moving the bow even inches towards the frog will enable greater ease of sound production when the music requires it.¹⁸

Likewise, relative bow length is a significant factor in emphasizing the more important notes. When we do not hear clear and focused sounds there is a good chance that the appropriate amount of bow has not been spent. As mentioned earlier, every time the tension of the string changes there should be a corresponding adjustment, however microscopic, in the amount of bow used. Piatti places the melodic note of this study in the lower voice, and on the ‘weaker’ up-bow

¹⁸ See Caprice No 7 for more discussion on increasing lengths of bow on higher registers.
stroke. Even in this very restricted texture the principle of bow length adjustment is helpful in elevating the melodic line and highlighting these notes in favor of the repeated, sixteenth notes.

There are many ways to economize one’s energy expenditure in this caprice. As mentioned before, we can give the melody more presence if we use slightly more bow on the up-bow notes. Additionally, we can take advantage of the momentum produced by said impulse to allow the bow to spring backwardly to the frog and ‘rest’ on the down-bows. It is also imperative to match the angle of the cello with the body’s center of gravity to get the best tone quality with the least effort for the pairs of strings being played. This means that in general, A–D will require for the cello to gyrate to the right while the opposite is true for G–C. The task is shared with the waist, which also can turn towards the upper strings when necessary in order to meet the cello at a middle, comfortable point. Rotating the cello in this way allows us to maintain an equal balance, so that the bow can stay in an optimal plane for both the cello and the right arm. Doing so will allow us to maintain the same feeling on any pair of strings without having to feel extremely different balances when different pairs of strings are performed.

It is also important to bear in mind that this caprice may generate tension in the left hand due to its having to secure more than one note at a time. We must be aware of the median point for each interval and place the fingers in an averaged position relative to each other to discover the median angle allowing comfort of the left arm in all combinations. Doing so should improve intonation and unnecessary stretching reduce to a minimum.19

19. This issue is discussed further in Caprice No. 2
Caprice No. 2

The same positioning and flexibility of the left arm discussed in the previous caprice has a tremendous influence on the tuning and relaxation of double stops. The comfort of this caprice will also be related to this understanding of how the arm aids the fingers in finding the most relaxed angle according to each configuration of notes. This piece is a compendium on angles of the left arm since much of the piece occurs in double stops.

Caprice No. 2 begins with a lyrical chorale-like section in double and triple stops that demand careful control of the bow distribution and speed for an evenness of tone quality. Although it is not possible to sustain the sound of triple-stops throughout their entire value in this tempo, the continuation of the sound is implied, similar to many movements of the Bach Suites. Even though we may only have two half notes to play in the first measure, the amount of bow given to each one is not necessarily equal. In order to sustain and equalize the latter pair of notes (since they go higher), the division of the bow for each note will be closer to 40%/60% rather than an equal 50/50. Otherwise we would be at risk of losing quality on the second pair of notes. Of course, playing them equally (50/50) is possible but would require more effort on the part of the player and would receive less help from the acoustic resonance of the cello. Moreover, the bow’s instinct is to mirror the conditions of the measure it is playing in the next stroke. We must instead anticipate the next measure at the very last moment of the preceding bow. That is to say that the very end of the first bow will need to match the speed of what the next bow needs to do or find a contact point that can
accommodate what happens in the next bar to maintain an appropriate sound. It is what happens at the very end of a bow that will determine whether or not the next bow will be successful.

![Figure 2, m. 12.]

If the left arm were to stay at the same angle throughout the entire segment, the fingers would have no choice but to stretch unnaturally in an effort to properly tune each double stop. We can tune much less painfully by simply changing the plane of the left arm according to the intervals needed. For example, in Figure 2 the elbow progressively moves forward so that the final C–Eb can be reached comfortably.

![Figure 3, mm. 27–28.]

In the agile B section, Piatti highlights the melody with *espressivo* accents. This implies that the other notes are *accompagnato* and therefore we must release the weight after the melodic notes so that the pressure and intensity of the faster notes is *not* equal. Although the rhythmic pattern is constant throughout this section, the amount of bow spent on each note is not. Rather than focusing on keeping a constant speed in the bow, we can implement a subtle *tenuto* over the melodic line, and distribute the bow according to the acoustic needs of each phrase. This means that the *espressivo* treble notes may be played with greater speed to allow them to sing. Meanwhile
the lower accompanying notes must maintain contact at all times at a slower bow speed as they hug the curves of the frequent string changes.

Since the bow is constantly moving across strings in this B section, it may seem more natural to rely on the wrist for playing the thirty-second groups. However, involving the larger, more stable joints of the elbow and forearm on the movement can be helpful in better controlling the broken arpeggiated chords. There is a risk of angular displacement when one depends solely on the wrist for string crossings and contact loss. Although one can imagine performing string crossings comfortably with a wrist-driven movement, engaging larger joints may also allow us to think in macro shapes of the arm without needing to be concerned with every change at the hand and finger joint level. The upper arm is more efficient at changing planes between strings, and the forearm can act as a counterweight to continually rebalance the bow at all points from the frog to the tip.

The numerous successive position changes require the left arm to begin moving before the bow changes. Rather than merely moving to the first note of each new position and placing the remaining fingers immediately after, we can instead treat each of these note groups as double stops as we move from position to position, allowing the melodic note to be closer to where it needs to be next, initiating the left arm movement from the elbow while anticipating the arrival to the next position. Again, the angle of the left arm is crucial for the correct tuning of the double stops, and while its axis will vary depending on the physiology of each individual, it is important to practice the succession of configurations for each position so that each position change can be prepared smoothly, accurately and with a plan for safe arrival in the next station.20

20. See Caprice No. 4 for a more detailed discussion on left arm angles.
Fundamentally, Caprice No. 3 is about the octave. The study moves frequently from station to station, and maintains the structure of the octave between the thumb and the third finger for the entire two pages. One may find this to be a tiring endeavor, and precaution must be taken to ensure that the hand remains relaxed and that excessive pressure from the fingers is not applied incorrectly.

As the octave formation is the most important spatial relationship to understand between any two fingers, this study gives ample opportunity to discover the increasing and decreasing distances of the two fingers involved forming the octave at various levels of the fingerboard. This is not to say that one can simply remember the incremental, microscopic distances that exist as one climbs or descends, but a general familiarity will of course instill itself with such over exposure to this position of the hand throughout the study.

Moreover, with the use of the octave, one is able to train several new essential location and detection devices that are certainly not exclusive to the performance of octaves, but that can greatly assist in illuminating the guesswork from any position changing task.

First and most importantly is the acceptance of the fact that the left-hand must always precede the bow in its articulation of anything that we play. To do otherwise is a lack of coordination that would result in audible slides to and from each position. Of course on a musical level this would be unacceptable, and so is the case even in technical studies. Therefore at any
moment that the left-hand is required to move to a new position—which happens sometimes even on each eighth note beat—the actual position change is occurring on the bow stroke of the last note(s) before the change occurs. The first example of this would be in the fourth measure, as the position changes from B-flat octaves through the D octave a major 3rd above. The actual position change should occur on the down bow stroke at the end of the first eighth note of the bar. In a very light fashion, the arrival to the D♮ octave is audible (if only to the performer), and gives confidence to the knowledge that the proper intonation for the D♮ octave has been reached. This is as fundamental as putting on one’s socks before one’s shoes, but this process must be trained from the very first attempts to play this study (or any other) and if such a habit is conditioned, there is the greatest chance to correct any faulty distances, or arrivals before the actual notes are played. It is in a sense a manner of foreshadowing, or ‘forehearing’ everything that we play. The only exception to this rule may occur during expressivo passages when a portamento is desired to imitate a singing gesture.

Within the octave structures, the second finger and the thumb must determine the spacing of the thirds that separate these octaves within the phrase, and according to the lengths of one’s fingers, a certain amount of angular freedom may be helpful in tuning these intervals.

As the performance of the octaves eventually becomes separated (See figure 4), we can understand that one or the other of these fingers may be more helpful in arranging well-tuned
octaves depending on the configuration, lower to higher note or higher to lower note. In this case, as the thumb plays first, and the third finger follows, the ear and the hand or left with only a reference from the upper note. It is therefore of the upper note in such a passage that must assume responsibility for its audible arrival to the next octave station. From that secure arrival, we can decipher and determine the appropriate measurement of the thumb behind the third finger. The third finger is the only finger with any useful information in such a passage.

What can present a tiresome endeavor throughout the study is if the weight of the left arm remains constant on the fingerboard. So at every micro-change, whether a half a step or a whole step, the left arm must maintain buoyancy and lightness and aid the movement of the left hand as if it were a pogo stick, or as if it had some sort of springing motion underneath it thereby releasing the string to at least harmonic level pressure as we move from place to place. To not do this, can cause fatigue, and eventually damage to the left hand, and the muscles in the left arm. Depending on the actual distances one would travel, the amplitude of this gesture will vary in its size.

Depending on the height and arm length of the individual player it may become necessary in certain situations to increase the perpendicularity of the left arm to the fingerboard, but as a rule there can be and angular relationship here if this is comfortable for the finger’s lengths in finding the exact thumb three distance at any position on the fingerboard. Naturally as the octaves move to the lower strings, greater rotation of the upper torso in that direction will assist in reaching these figures, and this rotation can occur at the waist. To try to make this happen
from the shoulders alone is a possible catalyst for strain, tension and ultimately damage to nerves, and muscles.21

Caprice No. 4

Double stops, three and four-note chords are the main features of this active caprice. Generally speaking, the left arm should remain in a consistent direction when playing individual notes (slightly inclined upward on the fingerboard), thus preventing the need to change this angular relationship from the early positions when we enter the ‘so-called’ three note positions, and ultimately arrive in the octave positions using the thumb still in the same direction. As soon as more than one note is involved, this can change and if necessary one must compromise the direction of the arm. Each particular chord configuration that occurs in this piece requires the left arm to adapt to a different position and posture according to each individual’s finger lengths in order to avoid tension buildup. This will assist with a more accurate intonation.

As previously discussed in Caprice No. 2, it is not just the fingers that are involved in the execution of chords. The arm plays an important role in ensuring that the fingers can reach their notes without over-stretching. The angle of the arm will help the fingers compensate for the intervallic relationships within the chord and it must change its position according to the distances

21. See Caprice No. 8 for further discussion on the execution of parallel octaves.
between each note in order to play in tune. We can compare the two distinct positions in each beat of m. 14:

![Figure 5. m. 14.](image)

If these two chords were to be played with the left arm at the same angle, changing only the placement of the fingers would require them to stretch unnaturally, and the aperture and shaping of the hand would be strenuous. This can be lessened by always involving the arm in the process. The first chord in figure 5, consists of two fifths played with the first and third fingers respectively. When transitioning from F–C to A–E the entire arm shifts its weight from finger 1 to 3 while also weighting itself towards the top two strings in their search for the angle that tunes the upper fifth.

Both of these intervals are perfect fifths, and therefore just rotating the arm is not enough. We also need the arm to compensate for the change in tactile quality created by finger 3, which will differ from finger 1 according to each individual’s hand shape. Moving into the next chord, the left arm must change its angle outwards in order to aid the finger in reaching for the major seventh (B♭–A) and fourth (A–D) respectively. Being aware of the arm placement ensures that the fingers can be as free—and arrive as closely to their targets—as possible when stretching into uncomfortable positions.

The left and right arm should aim to coordinate so that even when playing a fast chord, there is a release of pressure from the bottom interval to the top, rather than attempting to keep the weight on all fingers involved. Even a first position D Major chord can feel more tense and will
be tuned with greater difficulty if one assumes that all fingers possess the exact curves and dimensions to play all four notes simultaneously. This is not to say it cannot be done, but the average hand may experience shortcomings, stiffness, and even pain in trying to hold all voices of these chords at once. We may take this concept one step further by allowing micro-movements within the position if necessary: After D–A are played, the hand will then adjust to the next interval, A–F# and subsequently move ever-so-slightly forward to F#–D after releasing the first finger, pivoting towards the last interval, which can improve intonation while maintaining comfort in the hand. This idea can be applied to many varying combinations of notes, but it is important to keep in mind in this caprice ripe with uncomfortable chords.

![Figure 6. mm 31–32.](image)

![Figure 7. mm 33–34.](image)

The principles discussed above are just as important in the *Poco meno* section (Fig. 6), however, they occur in a different context. Rather than the more vertical and detached texture of the first section, Piatti writes a cantabile duet-like melody where the double stops occur as one stationary note against other moving notes. We need to resort to left arm angles that not only accommodate momentary occurrence of a double stop, but also fixed notes against a variety of moving notes. Notice that in m. 33 (Fig. 7) the D must be held against three different notes. This
means that it may require three minimally different arm angles if we are to play these notes with ease. Every combination then becomes a new angular position, which the body remembers even more than the intervals, and thus this section becomes a dance, or choreography of the left arm. In addition, the engagement of the body, turning the upper torso from the waist will guarantee that during these dynamic motions of the arm the whole body is involved, so that its balance remains centered, and the shoulders are not assuming any additional strain. In instances like this, a minimal increase in movement can be more beneficial than keeping the hand into a one-size/one-angle-fits-all configuration. Later in mm. 77-80 (Fig. 8), this flexibility of the angular changes can occur as frequently as each eighth note beat, and if done properly, none of these hand configurations need be much of an effort to execute.

Figure 8. mm 77–80
Caprice No. 5

The execution of an effective up-bow *staccato* on the cello requires us to consider the forces that come into play with this stroke. If we compare the motion to a *non-staccato* gesture, both differences and similarities become apparent in search of the appropriate bow speeds and distribution that most easily and best acoustically execute these notes once played in *staccato*.

First off, even in the arpeggiated groups, each note will involve a slightly different amount of bow in order to speak their best. Generally, and as with every phrase we play, louder and or higher notes demand more speed and bow length. Therefore situations like figure 9 will require the bow to adjust according to the register and acoustic needs. Moreover, awareness of the contact with the string and anticipation of the right elbow before the next group of sixteenth notes (between beats 2 and 3) will help the bow move the smallest possible distance at the moment of string change to reach from C to A strings and vice versa. This can be especially helpful in the beat immediately before a *staccato* descending arpeggio, as it will guarantee an arrival to a bow length that comfortably matches the up-bow descending gesture. Once the ascending group’s speed and
placement has been established in the first beat, the staccato gesture can happen comfortably with enough bow for a good sound quality on each note.

If we consider legato scales, the direction of the bow arm follows a linear, albeit curved trajectory; once the movement starts, the muscles of the right arm exert a continuous impulse towards the tip. The bow’s path is the same in stacatto; however, in order to articulate each note the forearm can create small clockwise circles (or counter-clockwise circles in the down-bow direction) that slightly retrace its steps on each sixteenth-note. This motion can guarantee that each mini-circle has the chance to ‘bite’ the string and then release the pressure of the bow, all the while advancing through the passage. The faster the notes, the more important it is to calibrate the amplitude of this gesture in order to achieve the proper balance between agility and clarity of sound. If in larger dynamics, fewer notes need such articulation, or definition, and a greater amplitude may be useful. With smaller, faster, and more frequent repetitions within a bow, the amplitude and exaggeration of this gesture will not be necessary. What is key to remember is that whether being at the frog or at the tip, the arm must remain low and relaxed, relying on its weight to achieve a proper contact with the string.

It is important to approach this articulation mindfully, avoiding the stiffening of the wrist, shoulder and/or back, and thinking of the bow arm in a macro level as one unit. Involuntary movements or a tensed can block the fluidity of movement as the performer attempts to make it work at all costs. In its most relaxed condition, this stroke is heavily reliant on the dead weight of the right arm. The removal of jerky, stiff, or rigid movements in the right arm may allow greater articulation in the sound, thus maintaining balance and will also helping the left-right hand coordination.
In order to assist the coordination of both hands, anticipating the left hand groupings in each descending scale configuration is also important. As every staccato scale in this piece has a different pattern of fingers and positions, having a pre-vision of the groupings for the left hand for each one is necessary before attempting to combine it with the right hand staccato gesture, which will allow the right arm to move freely, thereby avoiding coordination accidents.\textsuperscript{22}

**Caprice No. 6**

\begin{center}
\textit{Adagio largamente.}
\end{center}

The two modes of A\textsubscript{b} (major and minor) explored in this caprice will only resonate their best if they are found in accordance to the natural overtones of the cello. Therefore we must determine the placement of A\textsubscript{b} as a tonic through the harmonics of the C string. It is the C\textsuperscript{b} that determines the placement of the A\textsubscript{b}–E\textsubscript{b} fifth, and this triangular relationship must resonate cleanly without any acoustic tension or dissonant feeling.

In his cello method, Paul Tortelier describes that “absolute intonation does not exist. What matters is that a satisfactory equilibrium be found in the relativity and the attractiveness of

\textsuperscript{22} The subdivision of note groups into unequal subunits is further discussed in Caprice No. 10
sound.”  

Therefore, at this point it is important to mention the relationship of semitones that exists within this study. In contrast to the arpeggiated nature of the first section in A♭ major, the minor section works chromatically at times and one must determine the type of semitonal relationship(s) at play before adjusting the intonation accordingly. Diatonic semitones (e.g., D♭–E♮) will be felt slightly closer than chromatic semitones (C♭–C♮), which will in turn be wider as they are redefining mode in most cases. Even when we play a chromatic scale is not exactly a well-tempered endeavor, and it is possible that a well-trained ear will perform these relationships instinctively, yet it is important to understand the reasons behind these distinctions so that they can be applied consciously towards a more expressive intonation.

Going back to section A, as the arpeggiated descending *staccato* gestures in the beginning section happen across all strings largely in the same position (Fig. 10), coordinating the timing of the bow with the number of notes performed in each string is vital if they are to be played freely and gracefully. In order to do this, the left hand must send this information to the bow arm so that it can calculate how quickly it must descend to the appropriate plane of the next string. This may vary slightly depending on the arpeggiation of different keys.

![Figure 10. m. 2.](image)

Anticipation of each thumb position plays an important role in the Ab minor section (Fig. 11) since it is the thumb that needs to move ahead of time in order to feel—and hear—the target note of the next position included in the bow before the change occurs. The rest of the hand can now realign in relation to the reference point established by the thumb. If the process were to be reversed and the arrival finger were first used to shift, it would be left alone judging the information needed to reach the new position, leaving the outcome of the shift to chance. Just as in Caprice No. 3 it is the arm that transfers the weight to the new thumb position, and again, we must be careful to release pressure from the thumb before each shift, allowing it to simply rest lightly on the string, without lifting completely or applying full weight when it is not needed.
Caprice No. 7

The active harmonic rhythm and broken arpeggiated groupings of this caprice may lead to the conclusion that the hand is required to move in blocks from beat to beat. Some cellists may possess the strength and exact shape of fingers to secure these positions with all three fingers at once; however, reducing the constraint of sustaining three notes may be beneficial for others. Understanding the possibilities of rebalancing the hand within each position as each three-note group is rolled may relieve tension for the fingers not being utilized at that moment. If all three fingers are to be held down simultaneously as a chord with equal weight, the opportunities of angle adjustment of the left arm, which are helpful for the proper intonation of each individual group, would be inhibited. Instead of keeping the hand stationary during each position, we can shift and rock the weight of the arm across strings in relation to the notes being played so that the left arm follows the bow as it changes planes from one string to the other. The left and right arms must move in a similarly coordinated motion that may require some getting used to if the player is not accustomed to the gesture. In turn, the hand will feel freer, only needing to judge the relationship between two notes at a time instead of three.

With the indication Ben marcato il basso, Piatti implies that the main melody is in the bass. The speed of the caprice and the motion of the right arm work best closer to the point of balance in the bow, which will then take the least effort to control. Yet if the melodic line is to be
emphasized, we must ensure that each ‘quarter note’ increases ever-so-slightly in length or depth of stroke in order to stand out within the texture. It is important to note that this ‘accent’ is very subtle and must not interfere with the evenness and rhythmic integrity of each beat and measure. We can then return to the starting point through a rebound motion of the arm on down-bow with minimal energy expenditure.

In the case of this particular bowing gesture, one should consider that the driving force originates from the legs, transfers to the torso, waist, and finally to the bow arm. The feeling of support from the legs and the torso is not unique to this piece, but when the bow quickly oscillates as it does here, this sensation becomes more apparent as the body’s mass is constantly shifting back and forth. If we utilize the legs as a counterbalance for the bow the left hand is free to move without having to adjust for weight changes within the body. Being aware of these forces and taking advantage of the strength that our large muscle groups provide can make a dramatic difference in the amount of fatigue the player may experience when performing this piece and will save the player precious energy during performance.

![Figure 12. m. 36.](image)

Generally, when playing passages that require successive position changes (i.e.: fast scales), the left arm is normally expected to move at a consistent angle in relation to the fingerboard. The
opposite is true for this caprice\textsuperscript{24}: the arm must adapt its angle relative to the fingerboard from the very first chord and adjust with each new position to produce a consistent intonation and enable the hand to focus on each note and adjust depending on the sonority and function. Because each figure \textit{is} chordal, the bow stroke should not move across strings in straight line but instead a curve that can hug the angles of the bridge. This will help the bow articulate the execution of each string with the proper focus and clarity.

\textbf{Caprice No. 8}

\begin{center}
\begin{music}
\hspace{-1cm}
\placement{\textit{Moderato ma energico.}}
\hspace{1cm}
\end{music}
\end{center}

The success of this caprice relies on bow placement control so that one is able to play triple-stops cleanly and effortlessly. The \textit{energico} character, in addition to the dynamics and successive accents over each chord may lead one to conclude that No. 8 demands considerable bow speed, length and pressure. However, in this case less is more, particularly due to the low register of this opening section.

As these chords are more horizontal than they look, the place of contact of the bow on the string is crucial for clarity and its adjustment is related to the elbow. The faster the tempo, the more energy is needed to keep the oscillating motion of the bow under control. If the chords were to be

\textsuperscript{24} See Caprice No. 4 for a more detailed explanation on left arm angle.
broken, or rolled at this speed, they would require a larger range of motion from the right arm and elbow, and run at risk of slowing down the gesture. Playing three notes simultaneously instead of rolling each chord changes the up-bow trajectory of the right arm from to and allows us to economize the amount of bow used on each triple-stop. When this happens after a trill, an additional impulse will be necessary to set the bow up in order to reach all three notes in the slurred chord.

The curvature of the bridge and the tension of the strings make it more difficult to play three notes simultaneously. The closer the bow is to the bridge, the more resistance from the string and the greater the curve between strings. In order to perform this gesture effectively, the bow should aim for the middle note and play the chords closer to the fingerboard. At this height the string bends more easily, allowing the middle string of the chord to drop to a level where the two adjacent strings are at a level that can make contact with the bow hair. Doing so will still require slightly more vertical pressure compared to a rolled chord and thus careful calibration of the arm weight is important for a full and clean sound.

The advantage in this case is that when we are confined to the frog region as these chords demand, we have the exclusive use of the entire arm swinging in a pendulum motion. It is not until moves further towards the tip that the elbow may start opening, depending on the length of each person’s arm. Having said that, the general height of the arm must be elevated to balance the height of the strings, whether they are three-note or four-note chords. Any quick attempts to break a chord with the wrist are a missed opportunity to take advantage of the larger arm muscles.

It is important to keep in mind, however, that although the motion of the arm must be aimed at the middle string, not all notes in each chord are equal. When executing these blocks of stacked
notes, there should still be an awareness of where the melody is, so that it can be emphasized accordingly.

The middle section of this caprice requires similar decisions regarding octave preparation as found in Caprice No. 3. Both parallel and broken octaves occur in this piece in different scenarios. As previously discussed, the next position must be heard before the bow change occurs and will depend audibly on the last finger before the shift. In figure 13, the next octave position must be located with the thumb, being the finger that holds the information necessary to arrive to the next position. Figure 14 requires a different prescription. Here, the parallel octaves in m. 24 will be tuned simultaneously, yet the intonation of the next octave position is still located with the thumb as it is the lower note as we should build our acoustic structures from the bottom up. Finally, in m. 25 the process is reversed, as here it is the third finger that can be heard moving to the next position. In this instance, anticipating each position with the third finger and then finding the lower octave after the top note has been heard (before changing bows) can produce better results for intonation.

![Figure 13. m. 14.](image1)

![Figure 14. m. 24–25.](image2)
In order to perform the articulation that Piatti requests in this playful and light caprice it is vital for the bow arm’s height to remain in a median point between the three strings involved, thus avoiding excessive distances between them. The initiation of the movement can then be delegated to the torso in order to unify the motion and reduce the right arm’s activity, or radius to a minimum.

This median point or center of balance of the bow will of course vary depending on acoustic needs, and thus being aware of the melodic or moving voice is essential if we are to highlight the most interesting voice in each phrase. The A string note in the beginning measures will require less bow arm weight due to the natural brilliance of the open strings. Such is also the case in m. 24 (Fig. 15) where the bass moves melodically until the second half of measure 25. Here, the upper voice moves as well and being in a higher register—in a higher string—will need the most focus from the arm. Adjusting the center of gravity of the bow arm to match these conditions will assure that the top voice can be properly heard.

The unrelenting bowing pattern of non-legato notes and hooked notes can be challenging to coordinate at fast speeds as it requires us to combine two notes on the up-bow and one on the
down-bow. This irregularity will require the bow to stay close to the balance point so that we can take advantage of using the whole arm with a relaxed shoulder. The motion will be a result from the muscle intensification of the entire arm, emanating from the shoulder’s relaxed, swinging movement. Careful practice of this non-legato stroke focused on eliminating excess movement will ensure that this caprice can be played even at very fast speeds. As the bowing pattern remains constant throughout the entire piece, any instance where we need to emphasize certain gestures such as accents and \textit{fp} will necessarily require increasing the stroke using the same musculature without disturbing the flow of the bow arm.

Due to the articulation and the brisk character of the piece, the bow will only be in contact with the string for a fraction of a second on each note, and therefore the variation in the amount of bow we can spend on each note without slowing down will be subtle. Although the majority of the piece stays within the middle register there are a few instances where we need to move towards a higher register, and it is important to make sure that the sound is clear and free of extraneous sounds.

![Figure 16. m. 45–48.](image)

Moving towards the higher passages, the length of the string decreases and the string’s tension increases, therefore the bow must compensate for this by changing its placement on the string ever proportionately closer to the bridge so that the resistance of the string remains adequate. If the bow were to stay at the same distance, or contact point from the bridge as it is in the middle and lower register sections, the bow may find itself in a place where the string has too little tension
to support the pressure exerted on this ‘shorter’ string and the sound would choke. For this reason, the bow must move closer to the bridge, accompanying the left hand as it shortens the string, thereby withstanding the greater pressure, and ultimately resulting in a clearer and more resonant sound.

![Figure 17. mm. 43–44.](image)

As the right arm moves in a cyclical pattern over the same three strings (A, D and G), the left hand must frequently shift from position to position, sometimes on each new sonority. In order to avoid jerky movements in the left arm during shifts, the elbow can begins moving in the new direction on the beat prior to the shift. Sometimes this motion will recur up to four times within the same measure. Since every hand is built differently, the player must adjust the angle of the arm according to their own physiology to play the chords in tune, and therefore the ‘choreography’ of the left arm must also be thoroughly integrated before attempting to bring the piece up to tempo. Releasing the bottom finger immediately before the double stop can alleviate some of the strain caused by awkward combinations (e.g., Fig. 17) and sometimes alternative fingerings can help as well.
Caprice No. 10

Caprice No. 10 may seem more approachable than others in the set with its repetitive bowing pattern, and absence of double-stopping and virtuoso bowing techniques. Aside from the persistent use of a variety of thumb positions in all registers and strings, any additional complexity in this caprice lies in the absence of regular patterns of fingerings and string crossings.

When practicing a piece like this, comprised entirely of straight sixteenth-notes, our intuition tells us to group the sixteenth notes in relation to the pulse. However, the instances in which the hand positions and these actual beats align are rather occasional, and not always something we can take for granted. It becomes necessary then to dissociate our sense of musical time from our physical timing and mentally ‘regroup’ these notes into units that are functional for the left hand based on the location and movement of the position changes.

Figure 18 is a good case in point. In m. 1 all the notes are in the same position and no regrouping is needed. By contrast, m. 2 requires us to shift to a different position in the middle of each four-note group, and therefore needs to be thought of in irregular subunits 2+4+4+3 of

![Figure 18. mm. 1–2.](image)
sixteenth notes\textsuperscript{25} rather than a straight 4+4+4+4. The arm should have a clear idea of how many notes are in each subgroup, so that preparation for shifting can be anticipated properly. In order to do this effectively the shift must be anticipated on the eighth note before the position change actually takes place. This way the fluidity of the left arm motions will not be interrupted by coordination glitches caused by tardy position changes. The new groupings can then temporarily be thought of as ‘regular’ and steady, rather than as anomalous or ‘irregular’. Rather than assuming that all the beating patterns align with the pulse, it is the beating pattern of the arm that propels these motions forward and backward according to the notes’ groupings, wherever they are.

![Figure 19. m. 4.](image)

This caprice presents a few interesting instances of less common left hand configurations in the thumb position. The rare suggestion of the 4th finger for the high E\textsuperscript{♯} in mm. 4 and 48 (Fig. 19) can and should feel perfectly comfortable in this particular case because the thumb is in a contracted position playing A#. Were the thumb on A\textsuperscript{♯} fewer hands might make this reach to the fourth finger comfortably.

\textsuperscript{25} The last group of sixteenth notes carries over to the first note of the next measure.
M. 36 requires an extended aperture to a perfect fifth (Fig. 20), as two strings (A and D) perform a unison F#. This extended feeling to the left hand is, in some sense, exceptional and useful to train for such occasions. Indeed there are a whole series of artificial harmonics that result from this distance between the thumb and the third finger, however infrequently used in the cello literature. This hand position later reoccurs in m. 58, this time over a B natural unison.

In mm. 43–44 (Fig. 21) we are required to execute thumb positions on the C and G strings that for some hands can be rather strenuous due to the increased aperture of the hand in this lower register. Additionally, due to the left hand being in the lower part of the fingerboard in thumb position one may be at risk of a tensed and over-elevated left arm height. Repositioning of the cello’s angle here can reduce this stress and allow the left arm to remain lower and relaxed, and then the only challenge may be to tune that octave. It is essential that for every position we search for on the cello, bizarre as it may be, we attempt to find the lowest possible height for both arms, and balance the body and its activity centrally.
Another anomalous situation occurs in m. 10 (Fig. 22) where things are seemingly normal in thumb position for the first one-and-a-half beats outlining an E minor triad, until the latter part of beat 2, where the third finger is extended a whole step to F# (an irregular and less comfortable distance from the second finger than its normal spatial relationship of a half step). The unusual aperture to a unison G between the thumb and the fourth finger is not as uncomfortable in this case as it may seem due to the fourth finger being close to the third finger F#.

Caprice No. 11

The introductory Adagio section requires us to first find a contact point on the string that can tolerate the weight of the slow tempo and bow speeds. Careful control of these bow’s speeds according to each chord’s length will produce a clean and open sound without straining. As in any chord of multiple sonorities the lower notes will require less speed and bow length and the upper pitches will benefit from receiving the lion’s share of the bow remaining. It would be interesting to consider whether there is even a relationship between the Adagio and Allegro tempi, if only to
realize that the two sections are essentially a similar or related bow speed. This of course, will be up to the performer to decide, but it can make the two sections feel temporally and organically connected.

The Allegro section, makes extensive use of the ‘weaker’ fingers (third and fourth). This imbalance suggests that the creation of such intervals of the left hand should rely on the weight of the fingers lifting independently of the arm. This does not need to be the case as utilizing the arm’s weight is always beneficial. The intensity of the left palm equally distributes strength to the stronger and weaker fingers involved. Finding ways to alleviate the strain caused by these uncomfortable finger patterns and double-stops is essential for both endurance and comfort. Due to the lively tempo of this caprice, one’s first instinct may be to keep the fingers in the upper voice down for safety, even when they are not playing while the lower note releases to allow the open string to sound. This may be possible, but may also suggest to the left arm that it is not necessary to beat each quarter note and would possibly accrue tension during each measure that could instead be released on every beat (Fig. 23). Perhaps the answer lies somewhere in between and a gentle release of the double stop may occur as the alternate, individual notes are played. If the first finger feels such a need to hold the position, for a sense of security, the finger can at least remain as if in a natural, harmonic weight rather than fully depressed to the fingerboard. In contrast, in mm. 32–39 the uppermost voice will be mostly in quarter notes rather than eighths with rests, and therefore
their length and sustaining quality will require the A string note to remain on the string more firmly, even as the D string notes will release (e.g., Fig. 24).

In mm. 72-75 we have the only example of finger combinations that will require relocation at the beat level. Each of these hand positions may best be found individually as their respective angular relationships to the fingerboard may vary severely (e.g., Fig. 25).

Regarding bow distribution, the effectiveness of the Alberti-like Allegro section lies in the understanding of the patterns in which the bow is distributed. Not only is the off-beat repeated note a lower voice—which requires less bow—but we need to sing and to emphasize the melody over the pedal notes. Moreover, as we attempt to get the bow flowing at a comfortable plane for the
upper and lower strings, we need to consider the bow’s expenditure rate for each bar, increasing the amount of bow towards the highest point of the measure or decreasing towards the lowest. In m. 8 for example (Fig. 26) the bow will accelerate towards the last beat, then slow down again before the start of m. 9, resetting the bow speed pattern to enable the continuation of the phrase in the same upward direction. However, in m. 10 this pattern is reversed due to the decrescendo. That is to say that the bow speed becomes slower as we progress through the measure. This will not always be the case, and depending on the changes of register, any two measures may have a mirrored, repeated, or relatively equal distribution of the bow speeds across the measure. Understanding when to accelerate or decelerate will allow smoother bow contact everywhere and will help eliminate sounds that are straining due to superficial, or excessive bow use. When the bow is less strained, somehow so is the left hand and the comfort of one side of the body very often depends on the comfort of the other.
Caprice No. 12

This caprice encompasses many concepts discussed in the previous pieces. The gestures in this piece are analogous to those in Caprice No. 4 (Fast, successive chords) and No. 5 (Up-bow \textit{staccato} over quick position changes).

Because preparation and exact placement of the bow along the stick is needed in order to set the bow up for the \textit{staccato} motion, the up-bow must be in the right place at the right time to play the \textit{staccato} notes with appropriate contact and a healthy, clear sound. Therefore it is essential to make the chords resonate in time, starting from the string and increasing the bow speed towards the top note. While this may be true, an exception to the rule of expenditure according to register may be useful here. Generally, as mentioned many times earlier, the highest notes get the most bow. In this case, however, if we play the chords in this fashion, the conversion to the \textit{staccato} will involve a sudden change of proportions and spending rate. This connection may work better if at the very end of the down-bow stroke the bow speed assimilates the exact conditions of the next up-bow strokes. That is to say, it arrives at the rate/speed of the first up bow \textit{staccato} note before the direction of the bow changes. Staccato is a feat in and of itself already, but to have to convert or change any of the conditions of speed, pressure or length just before beginning a passage can complicate the technique even more. Therefore, the down-bow ending with the exact the same conditions as the subsequent up-bow note can help produce a better graft at these junctions.
The down-bow’s momentum should propel the bow (without lifting) to a stopping point appropriate to perform any number of *staccato* notes immediately after. The down-bow should not leave the string at its end; beginning the up-bow *staccato* notes in the next gesture must be started from the string. Anticipation of each next measure’s pattern, or needs will ensure that the amount of bow spent on the chord is appropriate to what needs to follow.

![Figure 27. mm. 7–9.](image)

Mm. 7–9 (Fig. 27) are an example of a bowing possibility where the first chord may advance the bow far enough from the frog to allow the follow up-bow to return to the frog *poco a poco* with the minor setback of the single down-bow notes at the beginning of each beat.

![Figure 28. mm. 49–50.](image)

The bow principles mentioned earlier still apply to the middle section, but the delicate control of artificial harmonics demands additional nuances. Regarding artificial harmonics, Paul Tortelier states that “when playing harmonics we often rely on luck. Their success depends greatly on the precision required in the movement of the thumb. A sluggish thumb cannot support the third
finger and must not be squashed against the hand.”

26. Not wanting to rely too heavily on luck, placing the bow closer to the bridge will always help the harmonics to speak more clearly, but even this will not be a guarantee unless the third finger is accurately adjusting to the varying distances from the thumb as we move from pitch to pitch. Artificial harmonics are unforgiving, because there is only one spot where they resonate at their best and being just a millimeter off in their placement will produce a less-than-desirable sound quality or worse, no sound at all. Assuring that the left hand moves a fraction of a second ahead of the right arm (anticipation) will allow the ear to hear the pitch ahead of time and correct any miscalculations if needed.

CONCLUSION

The Piatti caprices are some of the most demanding etudes ever composed for the cello, but the challenges they present can be overcome comfortably if they are approached, calmly, creatively and analytically. The principles discussed in this overview have attempted to solve issues that are present throughout the cello literature and as such can be extrapolated to other instances within the repertoire. Of course, this work does not pretend to have all the answers. Cello technique is fluid and varies depending on the player, pedagogical tradition, and many other factors. There are quite possibly cellists who can breeze through these pieces effortlessly, and certainly many of them may have found alternative ways to approach the technical problems than those provided in this study.

Performing the caprices live is an excellent way to apply the concepts discussed, or any others in a more challenging setting. Understanding the problems that the caprices contain is only the first step towards their mastery. The application of the solutions towards actual performance presents challenges of its own that must be accounted for such as endurance, avoidance of tension, nerves, distractions, conditions affecting our concentration, etc. Most cellists will only study the caprices as technical exercises, and therefore never get to experience the ‘rewards’ that playing these difficult pieces at ‘performance’ level can bring.

Naturally, in the performance of any instrument, there can be multiple paths towards the same goal. In this work I have humbly attempted to present the findings that I have learned these past years. It is my hope that this study will help other players in their cello journey to not take as long as I did to discover and experiment with the concepts discussed.
BIBLIOGRAPHY


APPENDIX. VIDEO RECORDING OF THE 12 CAPRICES

A video recording of my performance of the *12 Caprices* is available online at the following link:

https://www.youtube.com/channel/UCoZ1NjBWrmCn9eIfJ_bxUHw
VITA

A native of Chile, Unusdian Errandonea started cello at the Conservatory of the University of Chile, then continued his music education at the College of Charleston where he was awarded a full scholarship. Mr. Errandonea went on to receive a Master of Music degree from Louisiana State University in 2016, and he is currently a doctoral candidate, studying with Dennis Parker. He was a prize winner in the 2010 South Carolina MTNA Young Artists Competition, and he was also a recipient of the Julian Hayes and Clifford Milton Award for Excellence in Strings while at the College of Charleston. He is a member of the Baton Rouge Symphony and regularly performs with regional orchestras around Louisiana. Mr. Errandonea has performed in Chile, Canada, Austria and the United States in both solo and chamber recitals, and featured as a soloist. In addition to playing the cello, he enjoys playing soccer and arranging pop tunes for string quartet.