

Megan Grace Beugger  
String Quartet No. 2

*Expanse*  
for the JACK quartet



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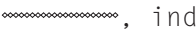

#### I. General

1. Time is not spatially represented in the score. The score is broken into blocks, each representing a single bow movement. The physical space a gesture takes up on a page has no relation to its duration. A single block may last fractions of a second or up to a half minute and occupy the same amount of physical space on the score. There should be no hesitation or additional movements between each of the prescribed bow moments. The duration of each block is determined by the amount of the bow used and the bow speed, both notated in the score. The ensemble must have a consistent idea of what each bow speed (low, medium, high, etc.) is in order to play together. An approximate duration is given for each block. These durations are only guidelines and should not be taken literally. Ideally, the ensemble should align with each other solely as a result of a complete uniformity of each bow speed (very little counting should occur).
2. All strings should be retuned as indicated at the beginning of each part. All open strings are harmonically related to an imaginary fundamental such that the low C-string on the cello is the eighth partial.
3. Each player has two separate staves: one staff notating the bow speed, pressure, and angle, and a tablature staff notating the bow location and the movement of the left-hand.
4. The string quartet should sit in a traditional formation. The violins and viola should play with their instrument between their legs (like the cello), so that each player's instrument is parallel to their body.
5. All physical movements which should occur to produce the gestures are notated in the score. No extraneous movements should occur, including page turns, which should be avoided during performance at all costs. Additionally, neither the bow or the left hand should be lifted from contact with the strings at any time other than when indicated.
6. LH= left hand

#### II. Bow speed, pressure, and angle staff

7. The top staff for each player notates the bow speed, pressure, and angle. Each individual part includes every player's bow speed, pressure, and angle staff. This staff is divided into blocks, each block representing a single bow movement. When all four players start a bow movement together, the line at the start of the block is solid and goes through all players' staves. When a player starts a bow movement independently, it is represented by a dashed line that does not go through the other players' staves (on either the parts or score). When a player sees this type of line, they should not attempt to align with other players,

even if another player has a line in the same horizontal location. When a player starts a bow movement with another player, but not all players, the line at the beginning of the block is a tighter dashed line which goes through only the staves of the player(s) who have a bow movement that align with theirs. When any type of line is bold, it indicates that there is a change in the amount of bow used. The only definite alignment between players is when some type of line goes through multiple players' staves. A given moment for one player which is printed between two solid lines will not necessarily align with what other players have printed in the same horizontal location.

8. Bow direction is indicated with an up or down bow marking at the beginning of each block.
9. The x-axis within each block represents the physical space of the bow. This space is divided with little marks on the bottom of this staff. A block using the full bow will be divided into three sections, each section representing a third of the bow. The piece starts off using the full bow, but uses smaller areas of the bow at some points later in the piece. Each section within a block represents one third of the bow. A block divided into two sections should use 2/3s of the bow, and a block that has no smaller divisions will be played in a third or less of the bow. The specific area of the bow that should be used for any given block is described in text above this staff. The fourth block on the 7th page in the viola part is unique in that it uses 5/6 of the bow and is divided into three sections, with the last section taking half the physical space of either of the first two sections. The two larger sections represent a third of the bow, while the last shorter section represents the remaining 1/6 of the bow. The length of a section within a block is completely dependent on the bow speed indicated. Sections within a single block may be drastically different durations.
10. When the bow remains still or moves only vertically, this staff disappears (the x-axis represents horizontal space of the bow).
11. The y-axis on this staff indicates bow speed. The staff is a three line staff: the bottom solid line represents the lowest possible bow speed, the middle dotted line represents average bow speed, and the top solid line represents highest possible bow speed. The height of the gesture indicates the bow speed. The higher the gesture, the faster the bow should move. A full bow played entirely at its fastest speed should take approximately .5 seconds, a full bow played entirely at its average speed should take approximately 3 seconds, and a full bow played entirely at its lowest speed should take approximately 30 seconds. The ensemble should agree on their exact interpretation of each specific speed so that each performer's part aligns appropriately with the other players.
12. Gesture lines that look like, , indicate silent bowing in the air (always in some manner a few inches away from the strings). The manner in which each silent bow should be executed is described in text above the staff.
13. The gray-scale is used to indicate bow pressure. The darker the gray, the more bow pressure should be used. The highest bow pressure is represented by a pure black line, which should result in a scratch tone. The very lowest bow pressure is represented by a thin dotted black line and should be played with as little bow pressure as possible. The lightest shade of gray, , should have slightly more bow pressure than the thin dotted black line.
14. Bow angle indications are written directly on top of this staff. Bow angle indications carry through until another bow angle indication is given.

90°= Bow should be perpendicular to the strings (as normal)

- ↘, ↙ = the bow should be at a 45-degree angle with the frog higher than the tip, but be pulled as one would pull a bow that is completely straight and perpendicular to the strings. The bow should not be pulled along the axis of the bow. When done correctly the timbre should be nearly pitchless. The direction of the bow is down and up, respectively.
- ↘, ↙ = the bow should be at a 45-degree angle with the tip higher than the frog, but be pulled as one would pull a bow that is completely straight and perpendicular to the strings. The bow should not be pulled along the axis of the bow. When done correctly the timbre should be nearly pitchless. The direction of the bow is down and up, respectively.
- ↘, ↙ = the bow should be at a 45-degree angle with the frog higher than the tip, and the tip higher than the frog respectively. This marking is used for techniques where bow direction is not specific (silences, trem., etc.).
- ↘-----↙ = gradually change bow angle over the course of the dotted arrow.
- ↘/90°-----↙ = angle trem. Rapidly switch back and forth between 2 angles for the duration of the bracket.

15. **X X X X X X X X X X** = battuto. Drop bow on given string(s) and let bounce naturally. Gesture should exist only in the prescribed area of the bow.
16. Throughout the first half of the piece, a player may occasionally have a thick box around a group of blocks, indicating that those blocks are more distinct than the blocks the other players have at the same time. It is recommended that each player should lead the ensemble during their boxed section.
17. Starting at the second violin trem. on page 5, the second violinist is in charge of keeping the quartet together for the remainder of the piece. The second violinist has a tremolo at the top of the fingerboard using only 2 inches at the tip of the bow. The second violinist gives two full, even bows contained within a thick black box before each moment that the entire ensemble aligns. These two full bows serve as a cue for the rest of the quartet. This cue may occur at various pressures and lengths. The overall length is given above the box containing the two bows. For example, if 4 seconds is written above the box, the cue should take 4 seconds of time, or two 2 second full bows. When the second violinist starts a 4 second cue, the other players should be aware that they have 4 seconds to finish their blocks before they must align with the other players.

### III. Finger and bow location staff

18. This staff is a tablature staff which notates the left hand movement and bow placement. String numbers are written above this staff and carry through until another string number indication is given.
19. A short solid arrow before a string number represents a string skip. This occurs when a player moves to a non adjacent string. The bow should not be lifted from the strings. Instead, the strings in between the starting and ending string should briefly sound as the performer moves the bow to the new string as quick as possible.
20. II+III+IV----->III = over the duration of the dotted arrow, gradually shift from playing on strings II+III+IV to playing on just string III.
21. Each block within this staff is spatially notated. Thus, a given moment in the middle of a block on the finger and bow location staff will not necessarily align with what is printed directly above on the bow speed, pressure, and angle staff. String numbers, vibrato, and string alteration markings are part of the finger and bow location staff and also function spatially.

22. ----- indicates the bow placement. The height of this line indicates where on the instrument the bow should be dragged, hit, or placed, which corresponds to the picture of the string instrument at the beginning of each staff.
23. A solid black line indicates where the left hand fingers should be placed on the strings (fully depressing them). Similarly to the bow placement, the location of the left hand corresponds to the picture of the instrument at the beginning of each staff. The instrument is pictured upsidedown so that when the bow and left hand are in normal orientation, sounds that are higher in pitch will be printed higher on the staff. A solid white line indicates that harmonic pressure should be used. A line like this, =====, indicates that the player should switch back and forth between normal and harmonic pressure as fast as possible.
24. III/II----- = some type of string alteration between string III and II for the duration of the bracket. Specific instructions regarding the manner of the string alterations are given below this staff. A trem. between the two strings as fast as possible is most common.
25. Vibrato and wide vibrato is indicated above this staff. Brackets indicate the duration of the vibrato. Wide vibrato should fluctuate a quarter tone on both sides of the center pitch.
26. Occasionally this staff, along with the bow speed, pressure, and angle staff disappear. This completely empty block indicates silence. Each player should hold their breath and remain completely still and motionless for the duration of the silent block.

### IV. Performers' parts

27. Parts are created so that it is possible to perform the piece without any page turns. In lieu of rehearsal numbers, each part has the same number of pages and the same number of systems on each page. For example, in rehearsal, each performer could start at the second system of page 2 of their individual part and all performers would be starting in the same place in the piece.
28. All parts include every player's bow speed, pressure, and angle staff. It is expected that each player watches the bows of the other players in addition to listening for changes in bow speed and pressure in order for the quartet to play together. The parts are small and lack the finger and bow location staff of the other players in order to create parts which avoid page turns, which is necessary for performance of this piece. Thus, it might be useful to play from the score during early rehearsals of this piece.

### V. Repeated sections

29. Several times in the piece, a group of 2 blocks are repeated multiple times to create a desired effect. The specific manner in how these repeated blocks are executed varies and is described in both the score and the parts. In all instances however, the physical space used to create the gesture gets smaller for each repeat of the gesture, decreasing to a mere click for the last repeat. The space decreased is always taken from the middle of the bow: the mere click is always either at the tip or at the frog of the bow.
30. The repeated section that occurs on the second block of the eighth system of the piece is unique in that all repeats of the gesture must align with all other players. All of the other repeated sections in the piece are more aleatoric in that the players do not attempt to align their repeated gesture with the other players.

31. The repeated section that occurs on the eighth block of the eighth system in viola and cello parts of the piece is also unique in that it is only the bow speed, pressure, and angle staff that is repeated. What is printed in the finger and bow location staff should occur only once, and functions spatially over the course of 20 seconds, or the entire duration of the repeated section.

**VI. Examples-** the following are specific examples from the quartet that help to further explain the previously stated points. The number at the beginning of an example or group of examples correlates to the point previously in the performance notes that the example is attempting to help clarify.

7. System 3 block 2- block begins with a bold solid line going through every all player's staff. All players should begin block at the same time. Additionally, the bold indicates a change in the amount of bow used: in this case from a mere click to a full bow.
- System 1 block 6- dashed line going through just the viola staffs indicates vla that particular viola bow movement does not align with other players.
- System 1 block 6- vln. 1, vln. 2, and vc. should align while the vla. sustains a vln 1, vln 2, vc previously started block.
- System 10 block 7- the start of this block is the last time that any player all aligns with another player.
9. System 1 block 2- three sections within one block indicates to use full bow.
- System 2 block 3- two sections within one block indicates to use 2/3s of the vln 1, vln 2 bow, in this case starting at the tip of the bow.
10. System 5 block 3- bow speed, pressure, and angle staff disappears because no horizontal bow movement occurs. Bow should be lifted off string and placed behind the LH.
11. System 1 block 2- bow a full up bow at an average speed.
- System 2 block 1- with full bow, start bowing as fast as possible and gradually vln 2 slow down the speed of the bow, moving the bow quite slowly as the player bows close the frog.
- System 1 block 3- starting at the frog, bow 2/3s of the bow at a very slow vln 1 speed, then bow the remaining third of the bow as fast as possible.
13. System 2 block 6- start block with high pressure, producing a scratch tone. (ca 7") Throughout the course of the block, gradually release bow pressure, ending the block with bow pressure as light as possible.
16. System 2 block 10- cello boxed section. During this section, the cello plays the most distinct and soloistic part. It is recommended that the violins and viola follow the cello throughout this boxed section.

19. System 2 block 3- when the cellist moves from string IV to string II, the bow vc should not be removed from the strings. Instead, string III should briefly sound as the bow is moved to string II as quick as possible.
22. System 1 block 2- regular bow placement.
- System 5 block 4- bow cello at the start of the fingerboard (nearest the scroll).
23. System 1 block 3- Left hand should fully depress the string and start at the bottom of the fingerboard and move to the top of the fingerboard over the course of the block. The speed of the glissando for the violins should get increasingly slower. The speed of the glissando for the viola and cello should get progressively faster.
- System 1 block 13- use full finger pressure for the first and last third of the vln 1 glissando. Use harmonic pressure for the middle third of the gliss., which should last roughly 1.7 seconds.
- System 9 block 6- switch between regular and harmonic finger pressure. The vla alteration of finger pressure should start fairly slowly but quickly increase in speed. For the last 3/4s of the block, about 3 seconds, switch between regular and harmonic finger pressure as fast as possible.
24. System 5 block 8- The entire block should last ca 12 sections. For vln 1 approximately the last 4 sections, trem. between strings II and III as fast as possible.

Megan Grace Beugger **String Quartet No. 2 *Expanse*** for the JACK string quartet

I= D $\flat$ , II= G $\flat$ , III= D $\flat$ , IV= G $\sharp$  (ca 3" ca 15" ca 9" ca 24" ca 27" ca .5" ca 1" ca .75" ca 30" ca 30" ca 5" )

**vln. I**  
 bow speed, pressure, and angle  
 set bow afap  
 use full bow 90°

I= D $\flat$ , II= G $\flat$ , III= D $\flat$ , IV= G $\sharp$

**vln. II**  
 bow speed, pressure, and angle  
 set bow afap  
 use full bow 90°

I= D $\flat$ , II= G $\flat$ , III= D $\flat$ , IV= G

**vla.**  
 bow speed, pressure, and angle  
 set bow afap  
 use full bow 90°

I= G $\flat$ , II= D $\sharp$ , III= G $\flat$ , IV= C $\sharp$

**vc.**  
 bow speed, pressure, and angle  
 set bow afap  
 use full bow 90°

I= A $\flat$ , II= B $\flat$ , III= G $\flat$ , IV= C

The score consists of four staves, each with a bowing diagram and fingering notation. The bowing diagrams show the bow's position and speed over time, with vertical lines indicating bow changes and horizontal lines indicating sustained bowing. The fingering notation includes finger numbers (I-IV) and combinations (e.g., III+IV, I+II). The score is divided into measures by vertical lines, with a central dashed vertical line. The bowing diagrams are annotated with '90°' and '>90°' to indicate bow angle. The fingering notation is placed above the notes in the staff.

(ca 10"   ca 2"   ca 3"   ca 2"   ca 20"   ca 7"   ca 5"   ca 3"   ca 3"   ca 2"   ca 1"   ca 9")

**vln. IV**  
bow speed, pressure, and angle

rapidly switch between 2 given bow angles 90°

only use 2/3s of the bow: start at tip 90°

only use 2/3s of the bow: omit the third of the bow nearest the frog

only use 1/3 of bow nearest the tip

**vln. II**  
bow speed, pressure, and angle

only use 2/3s of the bow: start at tip 90°

only use 2/3s of the bow: omit the third of the bow nearest the frog

only use 1/3 of bow nearest the tip

**vla.**  
bow speed, pressure, and angle

only use 2/3s of the bow: start at tip 90°

only use 2/3s of the bow: omit the third of the bow nearest the frog

rapidly switch between 2 given bow angles

only use 1/3 of bow nearest the tip

**vc.**  
bow speed, pressure, and angle

only use 2/3s of the bow: start at tip 90°

only use 2/3s of the bow: omit the third of the bow nearest the frog

only use 1/3 of bow nearest the tip

trem. between strings III+IV and I+II as fast as possible

trem. between strings III+IV and I+II as fast as possible

bow all strings when pressure is high, but only II+III when pressure is low

bow all strings when pressure is high, but only II+III when pressure is low

cello block should be slightly longer than the vlns and vla blocks

as quick as possible

as quick as possible

lift bow and left hand off the instrument: move to new positions (bow to normal playing location and LH to top of fingerboard)

(ca 3")

lift bow and left hand off the instrument: move to new positions while silently bowing in the air over the strings

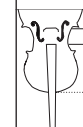
(ca 3")

only use 1/3 of bow nearest the tip

ca 15"

ca 9"

vln. I  
bow speed,  
pressure,  
and angle



Finger and bow location

as quick as possible

lift bow and left hand off the instrument: move to new positions (bow to normal playing location and LH to top of fingerboard)

use entire bow from tip to frog

lift bow and left hand off the instrument: move to new positions while silently bowing in the air over the strings

only use 1/3 of bow nearest the tip

vln. II  
bow speed,  
pressure,  
and angle



Finger and bow location

as quick as possible

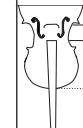
lift bow and left hand off the instrument: move to new positions (bow to normal playing location and LH to top of fingerboard)

use entire bow from tip to frog

lift bow and left hand off the instrument: move to new positions while silently bowing in the air over the strings

only use 1/3 of bow nearest the tip

vla.  
bow speed,  
pressure,  
and angle



Finger and bow location

as quick as possible

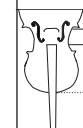
lift bow and left hand off the instrument: move to new positions (bow to normal playing location and LH to top of fingerboard)

use entire bow from tip to frog

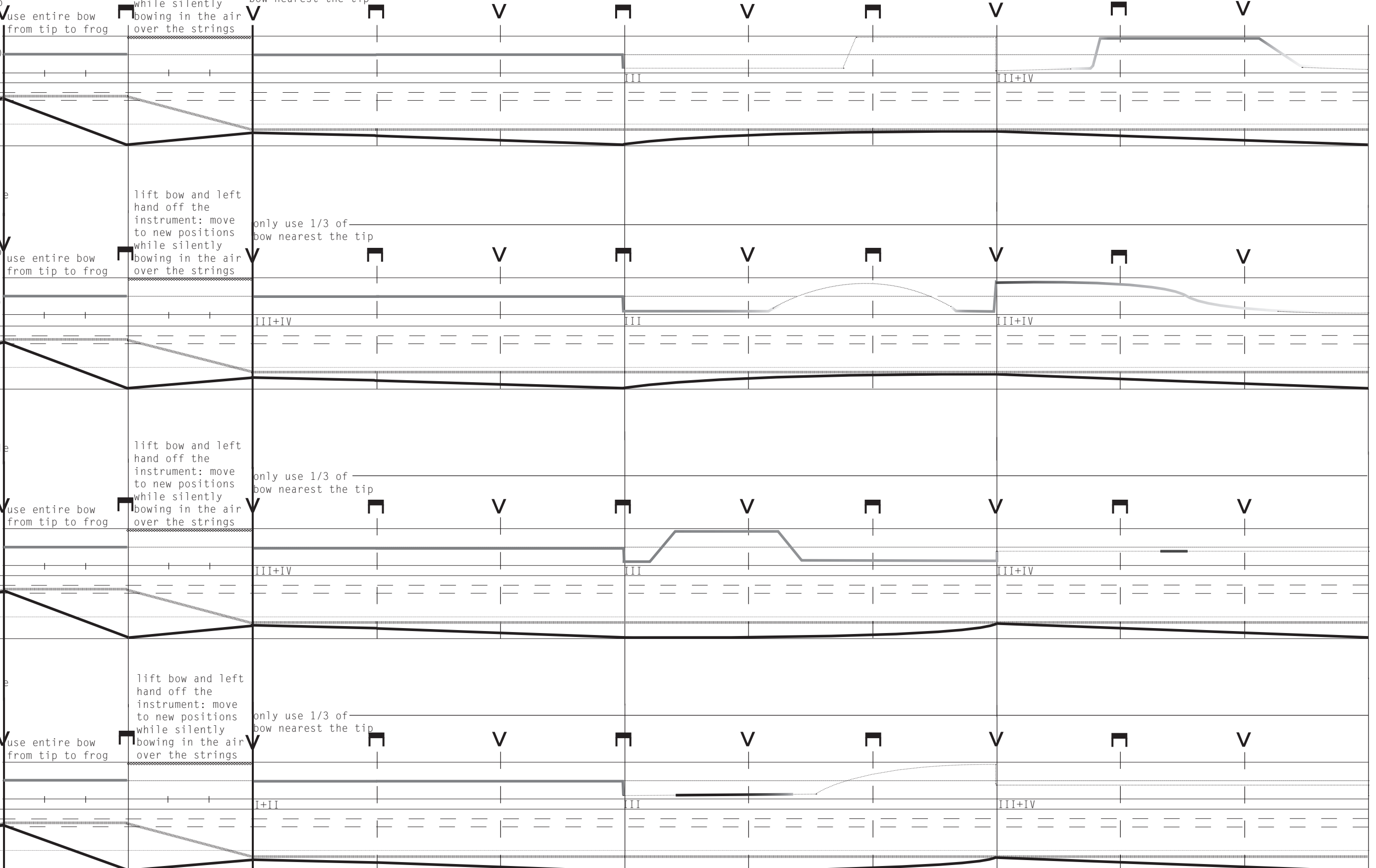
lift bow and left hand off the instrument: move to new positions while silently bowing in the air over the strings

only use 1/3 of bow nearest the tip

vc.  
bow speed,  
pressure,  
and angle



Finger and bow location





(ca 3"

ca .75"

ca .75"

ca .5"

ca .5"

ca .25"

ca .25"

Repeat multiple times for 2-4"  
) Decrease length of bow each up bow until scratch becomes a single click: Up bows should always start at the tip. Players should begin together, but not attempt to align with each other for subsequent scratch tones. Once single click is reached, player should leave bow on strings and remain still until single click is reached by all players

(ca 3"

ca < .1"

Diagram showing four rows of musical notation (vln. I, vln. II, vla., vc.) with bow speed, pressure, and angle graphs, and finger and bow location diagrams. The notation includes a series of notes with stems pointing down, indicating a specific bowing technique. The graphs show a decrease in bow length over time, with labels such as "Decrease length of bow by 1.5 inches: Start at tip and end 1.5 inches before the the end of the third of the bow nearest the tip". The finger and bow location diagrams show the bow moving from the tip towards the frog.

Hold position completely still and motionless for 2 seconds

Hold position completely still and motionless for 2 seconds

Hold position completely still and motionless for 2 seconds

Hold position completely still and motionless for 2 seconds

Diagram showing four rows of musical notation for the same instrument parts, focusing on the final part of the exercise. The notation includes notes with stems pointing down, and labels such as "bow in air over strings (silent)" and "1 click of the bow at the frog". The graphs show a decrease in bow length over time, with labels such as "Decrease length of bow by 1.5 inches: Start at tip and end 1.5 inches before the the end of the third of the bow nearest the tip". The finger and bow location diagrams show the bow moving from the tip towards the frog.

Hold position completely still and motionless for 2 seconds

Hold position completely still and motionless for 2 seconds

Hold position completely still and motionless for 2 seconds

Hold position completely still and motionless for 2 seconds

as quick as possible

lift bow off the instrument: bow silently in air over strings to the tip (ca < .1")

1 click of the bow at the tip

lift bow off the instrument: silently move bow behind the left hand

use entire length of bow

ca 15"

ca 9"

ca 9"

ca 12"

ca 3"

ca 2"

use entire length of bow

90°

\*single click of the bow

bow in air over strings

as quick as possible

lift bow off the instrument: bow silently in air over strings to the tip

1 click of the bow at the tip

lift bow off the instrument: silently move bow behind the left hand

use entire length of bow

as quick as possible

lift bow off the instrument: bow silently in air over strings to the tip

1 click of the bow at the tip

lift bow off the instrument: silently move bow behind the left hand

use entire length of bow

90°

trem. between strings II and III as fast as possible

bow all strings when pressure is high

trem. using only 2 in. of bow nearest the tip

4" CUE

trem. using only 2 in. of bow nearest the tip

90°

90°

1" CUE

bow in air over strings

as quick as possible

lift bow off the instrument: bow silently in air over strings to the tip

1 click of the bow at the tip

lift bow off the instrument: silently move bow behind the left hand

use entire length of bow

\*single clicks of the bow

rapidly switch between 2 given bow angles 90°

use one third of bow nearest the frog

rapidly switch between 2 given bow angles 90°

bow in air over strings 90°

as quick as possible

lift bow off the instrument: bow silently in air over strings to the tip

1 click of the bow at the tip

lift bow off the instrument: silently move bow behind the left hand

use entire length of bow

\*single click of the bow

single clicks of the bow

Hold position completely still and motionless

\*Single click should sometimes only be attempted and is impossible to literally achieve under given physical conditions

bow all strings when pressure is high

trem. between strings IV and III as fast as possible

\*bow all strings when pressure is high

trem. between strings I+II and III+IV as fast as possible





as quick as possible

as quick as possible (ca < .1"

) as quick as possible (ca .5"

ca 20"

use full bow  
Lift bow and left hand. Silently bow in air over strings and move to new placement as quick as possible

Repeat 18 times ca 5-7"  
Decrease length of bow each down bow until scratch becomes a single click: Down bows should always start at the frog. For each repeat, the LH should start closer to the scroll until downwards gliss. turns into vibrato. Align with other players.

use full bow

lift bow off the instrument: bow silently in air over strings to the tip  
one click of the bow at the tip (does not need to align with other players)

Lift bow move to new placement as quick as possible

use full bow

Lift bow and left hand. Silently bow in air over strings and move to new placement as quick as possible

90°

(ca 5" ) (ca 15"

as quick as possible (ca 1"

) use 2/3s of bow nearest the tip  
bow silently in air over strings while moving to new position

Hold position completely still and motionless for 1 second

vln. I  
bow speed, pressure, and angle



Finger and bow location

vln. II  
bow speed, pressure, and angle



Finger and bow location

vln. a.  
bow speed, pressure, and angle



Finger and bow location

vc.  
bow speed, pressure, and angle



Finger and bow location

use full bow  
Lift bow and left hand. Silently bow in air over strings and move to new placement as quick as possible

Repeat 18 times ca 5-7"  
Decrease length of bow each down bow until scratch becomes a single click: Down bows should always start at the frog. For each repeat, the LH should start closer to the scroll until downwards gliss. turns into vibrato. Align with other players.

use full bow

lift bow off the instrument: bow silently in air over strings to the tip  
one click of the bow at the tip (does not need to align with other players)

Lift bow move to new placement as quick as possible

use full bow

Lift bow and left hand. Silently bow in air over strings and move to new placement as quick as possible

90°

Trem. between strings I+II and III+IV. Start trem. as fast as possible and decrease speed until trem. ends at the next string number indication

Hold position completely still and motionless while other the players move to bow and left hand positions

Hold position completely still and motionless for 1 second

use full bow  
Lift bow and left hand. Silently bow in air over strings and move to new placement as quick as possible

Repeat 18 times ca 5-7"  
Decrease length of bow each down bow until scratch becomes a single click: Down bows should always start at the frog. For each repeat, the LH should start closer to the scroll until downwards gliss. turns into vibrato. Align with other players.

use full bow

lift bow off the instrument: bow silently in air over strings to the tip  
one click of the bow at the tip (does not need to align with other players)

Lift bow move to new placement as quick as possible

use full bow

Repeat bow staff 6-8 times for ca 20 seconds. Start at the frog and bow 1/3 of the bow. Each subsequent down bow should use half the bow space as the previous one. The last repeat should be a mere click. Up bows should always go to the frog. The left hand part is not repeated. One downwards gliss. should fill up the entire time of the repeated bowings.

use 1/3 of bow nearest the frog  
bow silently in air over strings while moving to new position

Hold position completely still and motionless for 1 second

use full bow  
Lift bow and left hand. Silently bow in air over strings and move to new placement as quick as possible

Repeat 18 times ca 5-7"  
Decrease length of bow each down bow until scratch becomes a single click: Down bows should always start at the frog. For each repeat, the LH should start closer to the scroll until downwards gliss. turns into vibrato. Align with other players.

use full bow

lift bow off the instrument: bow silently in air over strings to the tip  
one click of the bow at the tip (does not need to align with other players)

Lift bow move to new placement as quick as possible

use full bow

Repeat bow staff 6-8 times for ca 20 seconds. Start at the frog and bow 1/3 of the bow. Each subsequent down bow should use half the bow space as the previous one. The last repeat should be a mere click. Up bows should always go to the frog. The left hand part is not repeated. One downwards gliss. should fill up the entire time of the repeated bowings.

use 1/3 of bow nearest the frog  
bow silently in air over strings while moving to new position

Hold position completely still and motionless for 1 second

I+II+III+IV

vib.

I+II/III+IV

I+II+III+IV

I+II+III+IV

I+II+III+IV vib.

lots of vib.

rapidly switch between 2 2" given bow angles

CUE

90°

**Violin I (vln. I)**  
 Left hand and bow position should remain the same. Angle the bow 45° and then immediately back to a 90° angle at the same time as the other players  
 use 2/3s of the bow nearest the tip  
 rapidly switch between 2 given bow angles  
 Lift bow and left hand off instrument and move to new placement as quick as possible  
 use full bow  
 rapidly switch between 2 given bow angles  
 lift bow off the instrument: bow silently in air over strings as directed  
 only use 1/3 of bow nearest the tip  
 rapidly switch between 2 given bow angles  
 Remove LH from fingerboard. Move bow to frog and new position as quick as possible

**Violin II (vln. II)**  
 Left hand and bow position should remain the same. Angle the bow 45° and then immediately back to a 90° angle at the same time as the other players  
 trem. between strings I+II and III+IV as fast as possible  
 trem. using only 2 in. of bow nearest the tip  
 rapidly switch between 2 given bow angles  
 Lift bow and left hand off instrument and move to new placement as quick as possible  
 use full bow  
 lift bow off the instrument: bow silently in air over strings as directed  
 silently trem. over strings using only 2 in. of bow nearest the tip  
 only use 1/3 of bow nearest the tip  
 trem. using only 2 in. of bow nearest the tip  
 rapidly switch between 2 given bow angles  
 Remove LH from fingerboard. Move bow to frog and new position as quick as possible

**Viola (vln. a.)**  
 Left hand and bow position should remain the same. Angle the bow 45° and then immediately back to a 90° angle at the same time as the other players  
 use 2/3s of the bow nearest the tip  
 rapidly switch between 2 given bow angles  
 Lift bow and left hand off instrument: bow silently in air over strings to the tip while moving to new position  
 use full bow  
 lift bow off the instrument: bow silently in air over strings as directed  
 Point tip of bow outwards towards the audience gradually over the second half of the bow movement.  
 Point tip of bow to the left (as normal)  
 only use 1/3 of bow nearest the tip  
 rapidly switch between 2 given bow angles  
 Lift bow and LH off instrument: move to new position as quick as possible  
 Remove LH from fingerboard. Move bow to frog and new position as quick as possible

**Violoncello (vc.)**  
 Left hand and bow position should remain the same. Angle the bow 45° and then immediately back to a 90° angle at the same time as the other players  
 use 2/3s of the bow nearest the tip  
 Lift bow and left hand off instrument and move to new placement as quick as possible  
 use full bow  
 lift bow off the instrument: bow silently in air over strings as directed  
 only use 1/3 of bow nearest the tip  
 bow all strings when pressure is high and II+III when pressure is low

**Performance Notes:**  
 - Tremolo (trem.) between strings I+II and III+IV as fast as possible.  
 - Wide vibrato (wide vib.) and vibrato (vib.) markings.  
 - Bowing diagrams showing bow speed, pressure, and angle (90°).  
 - Finger and bow location diagrams for each instrument.

(ca 1" )as quick as possible as quick as possible (ca 1.5" ca .5" ) as quick as possible (ca .75" ca .75" ca .5" ca .5" ca .25" ca .25"



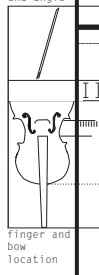
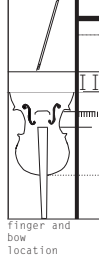
only use 1/3 of bow nearest the frog

use full bow-use less hair by turning bow to the side

Decrease length of bow Start at tip and decrease length of bow stroke by 15%

Decrease length of bow Start at tip and decrease length of bow stroke by 15%

Decrease length of bow Start at tip and decrease length of bow stroke by 15%

<p>vln. I bow speed, pressure, and angle</p>  <p>Finger and bow location</p>	<p>open strings</p> <p>retake bow-to frog</p> <p>1 click of the bow at the frog</p> <p>only use 1/3 of bow nearest the frog</p> <p>III+IV</p>	<p>Keep bow on string and hold position completely still and motionless for ca 1.5"</p>	<p>single click of bow</p> <p>place left hand back on fingerboard and move to new bow position as quick as possible</p>	<p>trem. using only 2 in. of bow nearest the tip rapidly switch between 2 given bow angles</p> <p>rapidly switch between 2 given bow angles</p> <p>90°</p> <p>90°</p> <p>wide vib.</p>	<p>Decrease length of bow Start at tip and decrease length of bow stroke by 15%</p>	<p>Decrease length of bow Start at tip and decrease length of bow stroke by 15%</p>	<p>Decrease length of bow Start at tip and decrease length of bow stroke by 15%</p> <p>vib.</p>
<p>vln. II bow speed, pressure, and angle</p>  <p>Finger and bow location</p>	<p>open strings</p> <p>retake bow-to frog</p> <p>1 click of the bow at the frog</p> <p>only use 1/3 of bow nearest the frog</p> <p>III+IV</p>	<p>Keep bow on string and hold position completely still and motionless for ca 1.5"</p>	<p>single click of bow</p> <p>place left hand back on fingerboard and move to new bow position as quick as possible</p>	<p>trem. using only 2 in. of bow nearest the tip rapidly switch between 2 given bow angles</p> <p>rapidly switch between 2 given bow angles</p> <p>90°</p> <p>90°</p> <p>wide vib.</p>	<p>Decrease length of bow Start at tip and decrease length of bow stroke by 15%</p>	<p>Decrease length of bow Start at tip and decrease length of bow stroke by 15%</p>	<p>Decrease length of bow Start at tip and decrease length of bow stroke by 15%</p> <p>vib.</p>
<p>vla. bow speed, pressure, and angle</p>  <p>Finger and bow location</p>	<p>open strings</p> <p>retake bow-to frog</p> <p>1 click of the bow at the frog</p> <p>only use 1/3 of bow nearest the frog</p> <p>III+IV</p>	<p>Keep bow on string and hold position completely still and motionless for ca 1.5"</p>	<p>single click of bow</p> <p>place left hand back on fingerboard and move to new bow position as quick as possible</p>	<p>trem. using only 2 in. of bow nearest the tip rapidly switch between 2 given bow angles</p> <p>rapidly switch between 2 given bow angles</p> <p>90°</p> <p>90°</p> <p>wide vib.</p>	<p>Decrease length of bow Start at tip and decrease length of bow stroke by 15%</p>	<p>Decrease length of bow Start at tip and decrease length of bow stroke by 15%</p>	<p>Decrease length of bow Start at tip and decrease length of bow stroke by 15%</p> <p>vib.</p>
<p>vc. bow speed, pressure, and angle</p>  <p>Finger and bow location</p>	<p>open strings</p> <p>retake bow-to frog</p> <p>1 click of the bow at the frog</p> <p>only use 1/3 of bow nearest the frog</p> <p>III+IV</p>	<p>Keep bow on string and hold position completely still and motionless for ca 1.5"</p>	<p>single click of bow</p> <p>place left hand back on fingerboard and move to new bow position as quick as possible</p>	<p>trem. using only 2 in. of bow nearest the tip rapidly switch between 2 given bow angles</p> <p>rapidly switch between 2 given bow angles</p> <p>90°</p> <p>90°</p> <p>wide vib.</p>	<p>Decrease length of bow Start at tip and decrease length of bow stroke by 15%</p>	<p>Decrease length of bow Start at tip and decrease length of bow stroke by 15%</p>	<p>Decrease length of bow Start at tip and decrease length of bow stroke by 15%</p> <p>vib.</p>

Repeat ca 2" (ca 5" ca 32")  
 Decrease length of bow each up bow until scratch becomes a single click: Up bows should always start at the tip. Players should not attempt to begin together or align with each other.

Keep bow still on string. Keep left hand on the string and continue to vibrate

Hold position completely still and motionless for the duration of the piece

vln. I  
 bow speed, pressure, and angle

cont. vib.

Finger and bow location

(ca 2" ca 5" ca 20")

(cont. trem.)

vln. II  
 bow speed, pressure, and angle

rapidly switch between 2 given bow angles

(wide vib.) wide vib. wide vib. wide vib. wide vib. no vib. wide vib. no vib. wide vib. no vib. wide vib.

Finger and bow location

Hold position completely still and motionless

(ca 5" )

(cont. trem.)  
 As pressure is increased, allow trem. to naturally slow down. Decrease space of trem. until a single click is reached. (ca 7" )

Repeat ca 2" (ca 5" )  
 Decrease length of bow each up bow until scratch becomes a single click: Up bows should always start at the tip. Players should not attempt to begin together or align with each other.

Keep bow still on string. Keep left hand on the string and continue to vibrate

Hold position completely still and motionless for the duration of the piece

vln. I  
 bow speed, pressure, and angle

cont. vib.

Finger and bow location

Repeat ca 2" (ca 5" ca 7" )  
 Decrease length of bow each up bow until scratch becomes a single click: Up bows should always start at the tip. Players should not attempt to begin together or align with each other.

Keep bow still on string. Keep left hand on the string and continue to vibrate

Hold position completely still and motionless for the duration of the piece

vc.  
 bow speed, pressure, and angle

cont. vib.

Finger and bow location



