

instrumentation

Violin I

preparation (see performance notes)



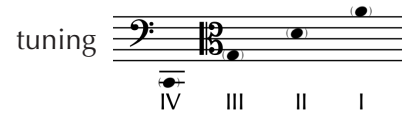
Violin II

preparation (see performance notes)

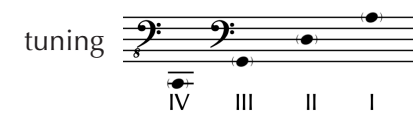


Viola

preparation (see performance notes)



Cello



technical requirements

mixer

2 to 4 loudspeakers and 1 or more subwoofer(s) for fixed electronics playback

instrument amplification

2 loudspeakers
(placed close to and show the direction of the instruments)

4 to 8 microphones

stand lights for performers
(the surrounding space should be completely dark)

headphones and amp
(all performers require click tracks)

reverb is recommended
(depending on how reverberant the space itself is)

performance notes

audio and video performance notes: <https://drive.google.com/drive/folders/1OSMhajcU02TqirX7tGlrInbNu-u1ldwN?usp=sharing>

preparation



for violins and viola, attach 1 circular paper clip on each string right next to the bridge

below is the link to the ones i used, their size is 1 x 1 x 0.5 inches:

https://www.amazon.com/dp/B0057EZDL0?ref=ppx_yo2ov_dt_b_product_details&th=1
please look for the ones in the same size or i could provide them

you can find a video of me attaching them and the sounding result after attachment in the sound lexicon

the open strings will be raised by approximately a half step, please retune the strings according to the tuning specified under "instrumentation" as close as possible

notation system



top level: bow speed, pressure, and position

middle level: sounding pitches and left hand pressure
bottom level: fingering

same fingering when bowing close to the paperclip, the pitch indicated by the circular notehead with a dot will be obtained
when bowing close to the fingerboard, it will be the higher pitch indicated by either ordinary notehead, diamond notehead or half diamond notehead
and when bowing in the middle, it will be a kind of multiphonic sound containing both pitches

microtonal symbols

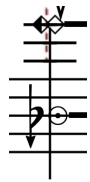


i use microtones to document the pitches i obtained during experimenting with the prepared instruments

the accuracy of pitch is not the goal, instead, allow instability and unpredictability since slightly changes of the placement of the paper clips will effect the pitches

follow the fingerings and it's okay if the sounding pitches differ from the ones notated

noteheads



circular + dot: pitch obtained when bowing close to the paper clips
 half diamond: half pressure
 diamond: slightly touching / almost no pressure
 half diamond + diamond: inbetween half and no pressure



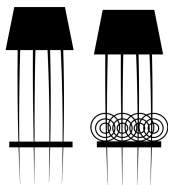
crossed notehead: distorted / inaccurate pitch

bowing instruction

the wideness of the line indicates pressure, below is an example from almost no pressure to over pressure



3 types of fill indicates speed, no fill / hollow: very still and slow bow, striped: ordinary speed, filled: fast bow
 below is an example from slow bow to ordinary to fast



A.S.t

A.S.P or bow very near the paper clips

♩ = 60

0" 2" 4" 6" 8" 10" 12" 14"

2/4



Violin I

Musical staff for Violin I, showing notes and dynamics like *pppp* and *pp*.

Violin I clef and key signature (F major).

2/4



Violin II

Musical staff for Violin II, showing notes and dynamics like *pppp* and *pp*.

Violin II clef and key signature (F major).

2/4



Viola

Empty musical staff for Viola.

2/4

Empty musical staff for Viola.

2/4

Empty musical staff for Viola.

Violoncello

Empty musical staff for Violoncello.

2/4

Empty musical staff for Violoncello.

Fixed Media

Empty musical staff for Fixed Media.

2/4

Empty musical staff for Fixed Media.

This musical score page features two staves, Violin I (Vln. I) and Violin II (Vln. II), with corresponding red performance diagrams above them. The Violin I staff begins with a *ppp* dynamic marking and includes a first ending bracket at the 24" measure. The Violin II staff also starts with *ppp* and includes an 8va marking at the 24" measure. Both staves conclude with a *pp* dynamic marking. The Viola (Vla.), Violoncello (Vc.), and Fagotto (F.M.) staves are present but contain no notation. The score is divided into measures by vertical lines, with time markers at 16", 18", 20", 22", 24", 26", 28", and 30".

This musical score page features five staves: Violin I (Vln. I), Violin II (Vln. II), Viola (Vla.), Violoncello (Vc.), and Fagotto (F.M.). The score is divided into two sections by a vertical bar at the 40-second mark. Above the staves, time markers are placed at 32", 34", 36", 38", 40", 42", 44", and 46".

Violin I (Vln. I): The first section (32"-38") contains a red-outlined trapezoidal shape. The second section (40"-46") begins with a *pp* dynamic marking. The staff contains a melodic line with notes marked with a circled 'd' and a fermata at the end.

Violin II (Vln. II): Similar to Vln. I, it has a red-outlined trapezoidal shape in the first section. The second section starts with a *ppp* dynamic marking and features a melodic line with notes marked with a circled 'd' and a fermata.

Viola (Vla.): The first section is empty. The second section begins with a *pp* dynamic marking and contains a melodic line with notes marked with a circled 'd' and a fermata.

Vc. and F.M.: Both the Violoncello and Fagotto staves are empty throughout the entire score.

This musical score page features five staves: Violin I (Vln. I), Violin II (Vln. II), Viola (Vla.), Violoncello (Vc.), and Fagotto/Musica Fidele (F.M.). The score is divided into two main sections by a vertical line at the 50" mark. The first section, from 48" to 50", contains musical notation for Vln. I and Vln. II, both marked *mp*. The second section, from 50" to 102", contains musical notation for Vln. I, Vln. II, Vla., Vc., and F.M., all marked *p*. Above the staves, rehearsal marks are indicated by vertical lines and labels: 48", 50", 52", 54", 56", 58", 100", and 102". Red hatched areas above the Vln. I and Vln. II staves indicate specific performance techniques or dynamics. The Vc. staff includes a double bar line and a fermata at the 100" mark. The F.M. staff includes a double bar line and a fermata at the 100" mark.

1'04" 1'06" 1'08" 1'10" 1'12" 1'14" 1'16" 1'18"

Vln. I

Vln. II

Vla.

Vc.

F.M.

The image displays a musical score for five parts: Violin I, Violin II, Viola, Violoncello, and F.M. The score is organized into measures with time markers at the top: 1'04", 1'06", 1'08", 1'10", 1'12", 1'14", 1'16", and 1'18". Each part has a main staff and a lower staff for bowing or fingering. The Violin I and II parts feature dynamic markings of *ff*, *mf*, and *f*. The Viola part starts with a *p* dynamic. The Violoncello part starts with a *pp* dynamic. The F.M. part is represented by a blacked-out area with a red arrow pointing to it. The score includes various musical notations such as slurs, accents, and performance instructions like "freeze" and "Sov".

	1'20"	1'22"	1'24"	1'26"	1'28"	1'30"	1'32"	1'34"
Vln. I								
Vln. II								
Vla.								
Vc.								
F.M.								

1'36" 1'38" 1'40" 1'42" 1'44" 1'46" 1'48"

Vln. I

Vln. II

Vla.

Vc.

F.M.

The image displays a page of a musical score for a string quartet, specifically measures 1'36" through 1'48". The score is arranged in five staves: Violin I (Vln. I), Violin II (Vln. II), Viola (Vla.), Violoncello (Vc.), and a section labeled F.M. (likely Flute Mute). Above the staves, red hatched areas indicate dynamic envelopes for the strings. The Violin I and II parts feature complex rhythmic patterns with dynamic markings ranging from *ff* to *mp*. The Viola part has a more melodic line with dynamics from *p* to *f*. The Violoncello part is primarily sustained with dynamics from *f* to *mf*. The F.M. section is mostly obscured by a black redaction box. Performance instructions include *sim.* (sustained) and *swr.* (sustained) markings, along with first and second endings. The page number '7' is located in the top right corner.

1'50" 1'52" 1'54" 1'56" 1'58" 2'00" 2'02" 2'04"

Vln. I

Vln. II

Vla.

Vc.

F.M.

2'06" 2'08" 2'10" 2'12" 2'14" 2'16" 2'18"

Vln. I

Vln. II

Vla.

Vc.

F.M.

The score is divided into five systems. The first system (Vln. I) features a red hairpin starting at 2'06" and ending at 2'18". The second system (Vln. II) has a similar red hairpin. The third system (Vla.) includes a red hairpin and dynamic markings: *f*, *ffz*, *pp*, *mf*, *pp*, *mp*, *ppp*, *mp*, and *p*. The fourth system (Vc.) has a red hairpin and dynamic markings: *f*, *pp*, *mf*, *pp*, *f*, and *pp*. The fifth system (F.M.) shows a black waveform with two red triangles at 2'06" and 2'18".

2'20" 2'22" 2'24" 2'26" 2'28" 2'30" 2'32" 2'34"

Vln. I

Vln. II

Vla.

Vc.

F.M.

The score consists of four staves for Violin I, Violin II, Viola, and Violoncello, and a fifth staff for F.M. (likely a field recording or microphone). Above the staves, a red line with 'X' marks indicates a specific performance or recording parameter. The Violin I staff includes dynamic markings: *pp*, *mf*, *ff*, *pp*, *f*, *ff*, *pp*, and *fff*. The Violin II staff includes *f*, *ff*, *pp*, *f*, *ff*, *pp*, *ff*, and *ff*. The Viola staff includes *ppp*, *mf*, *p*, *ppp*, *f*, *p*, *ppp*, and *ff*. The Violoncello staff includes *mf*, *pp*, *f*, and *pp*. The F.M. staff shows a dark, textured waveform. Vertical dashed lines mark time points at 2'20", 2'22", 2'24", 2'26", 2'28", 2'30", 2'32", and 2'34".

2'36" 2'38" 2'40" 2'42" 2'44" 2'46" 2'48" 2'50"

Vln. I

Vln. II

Vla.

Vc.

F.M.

The image displays a page of a musical score for a string quartet, specifically measures 2'36" to 2'50". The score is arranged in five staves: Violin I (Vln. I), Violin II (Vln. II), Viola (Vla.), Violoncello (Vc.), and a spectrogram (F.M.).

- Vln. I:** Features a melodic line with dynamic markings *p*, *ff*, *mp*, and *p*. It includes performance instructions *Sv* and *V*. A red shaded area above the staff indicates a specific performance technique or bowing pattern.
- Vln. II:** Remains mostly silent until the 2'48" mark, where it enters with a melodic phrase and dynamic markings *mp* and *ff*. It also includes *Sv* and *V* instructions.
- Vla.:** Remains silent until the 2'44" mark, where it enters with a melodic phrase and dynamic markings *mp* and *ff*. It includes *Sv* and *V* instructions.
- Vc.:** Provides a harmonic accompaniment throughout. Dynamic markings include *f*, *pp*, *p*, *pp*, *mf*, *pp*, *mf*, *sfz*, and *pp*. It includes performance instructions *Sv*, *V*, *V sim.*, and *Sv*.
- F.M.:** A spectrogram at the bottom of the page, showing the frequency spectrum of the music. A red arrow points to a specific time point at 2'44" on the spectrogram.

2'52" 2'54" 2'56" 2'58" 3'00" 3'02" 3'04" 3'06"

Vln. I

Vln. II

Vla.

Vc.

F.M.

The image displays a musical score for a string quartet, specifically focusing on the Violin I, Violin II, Viola, and Violoncello parts. The score is presented in a multi-staff format, with time markers at the top indicating specific moments: 2'52", 2'54", 2'56", 2'58", 3'00", 3'02", 3'04", and 3'06".

Violin I (Vln. I): The first staff shows a melodic line with dynamic markings including *p < ff*, *mp*, *p < ff*, *mp*, *p < fff*, *mf < fff*, *p < ff*, and *mp*. It includes articulation marks like accents and slurs, and a *S^{tra}* (Sustained Tremolo) section indicated by a bracketed box.

Violin II (Vln. II): The second staff is mostly silent, with a *S^{tra}* section and dynamic markings *mp < ff* appearing between 3'02" and 3'04".

Viola (Vla.): The third staff is mostly silent, with a *S^{tra}* section and dynamic markings *mp < ff* appearing between 3'02" and 3'04".

Violoncello (Vc.): The fourth staff features a complex rhythmic and harmonic accompaniment. Dynamic markings include *f p*, *ff p*, *ff*, *fff*, *pp*, and *f p*. It includes a *S^{tra}* section and various articulation marks.

Volume Envelope: A prominent red line graph is overlaid on the score, showing the volume level of the ensemble over time. It starts at a high level, drops at 2'54", rises again at 2'56", and shows several other fluctuations throughout the passage.

Spectrogram (F.M.): At the bottom of the page, a black spectrogram labeled "F.M." (Formant Modulation) shows the frequency spectrum of the sound over time, with a red arrow pointing to a specific event at approximately 2'56".

3'08" 3'10" 3'12" 3'14" 3'16" 3'18" 3'20" 3'22"

Vln. I

Vln. II

Vla.

Vc.

F.M.

The image displays a musical score for five parts: Violin I (Vln. I), Violin II (Vln. II), Viola (Vla.), Violoncello (Vc.), and F.M. The score is organized into measures marked with time stamps: 3'08", 3'10", 3'12", 3'14", 3'16", 3'18", 3'20", and 3'22". Above the staves, red dynamic contour lines indicate the volume levels for each instrument. The Vln. I staff includes dynamic markings such as *p*, *fff*, *p*, *ff*, *mf*, *fff*, *f*, and *ffff*. The Vln. II staff features *mp*, *ff*, and *ppp - mf*. The Vla. staff shows *mp* and *ff*. The Vc. staff has *ff*, *fff*, *pp*, *fff*, *p*, *f*, *mp*, and *fff*. The F.M. part is represented by a shaded area at the bottom. The score includes various musical notations such as notes, rests, and slurs, along with performance instructions like *Stra* and *To*.

This musical score page features five staves. The top staff is for Vln. I, the second for Vln. II, the third for Vla., the fourth for Vc., and the bottom for F.M. (likely a field recording). Time markers are placed at the top: 3'24", 3'26", 3'28", 3'30", 3'32", 3'34", 3'36", and 3'38". The Vln. II staff contains musical notation with 'v' and 'c' markings above notes. A dynamic change from *pp* to *f* is indicated by a bracket and a vertical line at the 3'34" mark. The Vln. I, Vla., and Vc. staves are mostly empty, with red X-shaped patterns in the upper portion of each staff. The F.M. staff shows a spectrogram with a red arrow pointing to a change in the sound spectrum at the 3'34" mark.

This page contains a musical score for four string instruments: Violin I (Vln. I), Violin II (Vln. II), Viola (Vla.), and Violoncello (Vc.), along with a Formant Modulation (F.M.) spectrogram at the bottom. The score is divided into measures by vertical dashed lines, with time markers at the top: 3'40", 3'42", 3'44", 3'46", 3'48", 3'50", 3'52", and 3'54".

- Vln. I:** Features a red-shaded area at the top of the staff, indicating a specific dynamic or performance instruction.
- Vln. II:** Contains musical notation with various dynamics, including *pp-f* (pianissimo to fortissimo) and *f* (forte). A red-shaded area is also present above the staff.
- Vla.:** Includes musical notation with dynamics *pp-f* and *f*. A red-shaded area is visible above the staff.
- Vc.:** Shows musical notation with a *pp* (pianissimo) dynamic marking and a red-shaded area above the staff.
- F.M.:** A spectrogram at the bottom showing frequency content over time, with a red arrow pointing to a specific event at approximately 3'46".

This page contains a musical score for four string instruments: Violin I (Vln. I), Violin II (Vln. II), Viola (Vla.), and Violoncello (Vc.). The score is written in treble clef for the violins and viola, and bass clef for the cello. The time signature is 4/4. The score is divided into measures, with time markers at the top: 3'56", 3'58", 4'00", 4'02", 4'04", 4'06", 4'08", and 4'10".

The Violin I and Violin II parts feature a melodic line with dynamic markings *p-fff* and *fff*. The Viola part has a similar melodic line with dynamic markings *p-ff* and *ff*. The Violoncello part has a more rhythmic, wavy line with dynamic markings *ff*. Above the staves, there are red hatched areas indicating performance techniques or dynamics. Below the staves, there is a spectrogram labeled "F.M." (Formant Modulation) showing the frequency spectrum of the instruments over time.

4'12" 4'14" 4'16" 4'18" 4'20" 4'22" 4'24" 4'26"

Vln. I

Vln. II

Vla.

Vc.

F.M.

The image displays a musical score for four string instruments: Violin I (Vln. I), Violin II (Vln. II), Viola (Vla.), and Violoncello (Vc.). The score is written in bass clef with a key signature of one sharp (F#). Above the staves, time markers are provided: 4'12", 4'14", 4'16", 4'18", 4'20", 4'22", 4'24", and 4'26". Each instrument part includes a red-shaded area at the top, likely representing a bowing or breath control envelope. The dynamics range from fortissimo (fff) to pianissimo (pp). Fingerings III and IV are indicated for the first two notes of the main melodic line in each part. A red arrow points to the beginning of the spectrogram at the 4'16" mark. The spectrogram at the bottom shows the frequency spectrum of the sound over time, with a dark background and horizontal lines representing the harmonic structure of the instruments.

4'28" 4'30" 4'32" 4'34" 4'36" 4'38" 4'40" 4'42"

Vln. I

Vln. II

Vla.

Vc.

F.M.

mf *p* *mf* *p* *mf* *p* *mf*

p *pp* *p* *pp* *p* *pp* *p*

p *pp* *p* *pp* *p* *pp* *p*

fff *fff* *fff* *fff*

III
IV

III
IV

III
IV

III
IV

III
IV

4'44" 4'46" 4'48" 4'50" 4'52" 4'54" 4'56" 4'58"

Vln. I

Vln. II

Vla.

Vc.

F.M.

Detailed description of the musical score: The score is for a string quartet (Violin I, Violin II, Viola, Violoncello) and a Field Microphone (F.M.). The time stamps are 4'44", 4'46", 4'48", 4'50", 4'52", 4'54", 4'56", and 4'58". The Violin I and II parts feature a rhythmic pattern of eighth notes with dynamic markings of *ffff*, *mp*, *f*, *mp*, *f*, *mp*, *f*, *mp*, *f*, and *mp*. The Viola and Violoncello parts have dynamic markings of *ffff*, *p*, *mf*, *p*, *mf*, *p*, *mf*, *p*, *mf*, and *p*. The F.M. part is represented by a shaded area with a red arrow pointing down at 4'56". The score includes various musical notations such as slurs, accents, and dynamic hairpins.

5'00" 5'02" 5'04" 5'06" 5'08" 5'10" 5'12" 5'14"

Vln. I
mf < f ff mf < f ff mf < f ff mf < f ff

Vln. II
mf < ff mf < f ff mf < f ff mf < f ff

Vla.
mp f mp f mp f mp f mp

Vc.
mf ff mf ff mf ff mf ff

F.M.

Detailed description: This page of a musical score covers the time interval from 5:00 to 5:14. It features four staves for string instruments: Violin I, Violin II, Viola, and Violoncello. Above each staff is a red-shaded area representing the instrument's sound envelope, with vertical dashed lines indicating specific time points. The Violin I and II staves contain rhythmic patterns of eighth and sixteenth notes, often with accents and slurs. The Viola staff has a more melodic line with slurs and dynamic markings. The Violoncello staff features a rhythmic pattern with slurs and dynamic markings. The F.M. (Foley Music) section at the bottom is represented by a black rectangular area. The score includes various dynamic markings such as *mf*, *f*, *ff*, *mp*, and *mp* with hairpins indicating crescendos and decrescendos. There are also performance instructions like 'V' (Violin/Viola) and 'C' (Cello) above notes, and 'ff' (fortissimo) markings.

5'16" 5'18" 5'20" 5'22" 5'24" 5'26" 5'28" 5'30" 5'32" 5'34" 5'36" 5'38" 5'40" 5'42" 5'44" 5'46" 5'48" 5'50" 5'52" 5'54" 5'56"

Vln. I

Vln. II

Vla.

Vc.

F.M.

The image shows a musical score for five parts: Violin I, Violin II, Viola, Violoncello, and F.M. The top of the page features a time scale from 5'16" to 5'56" in two-second increments. Each of the four string parts (Vln. I, Vln. II, Vla., Vc.) has a red X-pattern drawn across the staff, indicating that the music is muted. Each string part also has a bass clef and a dashed line below the staff. The F.M. part at the bottom is represented by a solid black bar, indicating it is silent.