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Schrödinger's Violin

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SCHRÖDINGER'S VIOLIN

FOR TWO VIOLINS

(2019)

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Schrödinger's Violin

for two violins

Xavier Shuang Xu (b.1988)

Adagio (♩ = ca. 60)

Violin I

Violin II

arco

c.l.b.

arco

c.l.b.

sul II

p *mf* *ppp* *p* *mf* *ppp*

p *mf* *f ten.*

fast possible

3

3

Violin I and Violin II staves in 4/4 time. Violin I starts with *p*, *mf*, *ppp* dynamics and includes *arco*, *c.l.b.*, and *fast possible* markings. Violin II features triplets and *f ten.* dynamics.

Violin I

Violin II

arco

pizz.

c.l.t.

arco

sul I

sul II

mp *sf* *sf* *f* *mf*

1/3 (vertical bowing only, keep close to finger stop, ca. 1 whole tone)

3

3

5

Violin I and Violin II staves in 4/4 time. Violin I includes *arco*, *pizz.*, *c.l.t.*, and *arco* markings, along with *mp*, *sf*, *f*, and *mf* dynamics. Violin II features triplets and a quintuplet. A performance instruction is provided for the first measure of this system.

(gradually add bow pressure while keep each note short)

8

p *ff* *f* *ten.*

p

(gradually increase duration of each note)

(gradually reduce gap between notes)

(next to left hand) *pizz.*

arco

11

mf *p* *mf* *f* *ten.*

(use full bow)

marcato non troppo

(still on both strings)

14

ff *mf* *fp* *f*

mf

Più mosso (♩ = ca. 72)

□ : 1/12 - 1/6



simile

19

sweep bow like wiper al

III +
mp

con sord.
(rubber ultra practice mute)

p mp

22

III +
mp

24

simile

III +
IV +
mp

(\square : 1/12) upbowing at very slow and even speed

beam denotes sweeping speed modulation (relative)

26 7

⊕ sweep range widens

sweep between fingerboard edge and middle of the string (still on both strings)

(\square : 1/3)

28

(same sweeping range)

* finger and bow shift to new strings without interruption

(\square : 2/3)

30

(same sweeping range)

32 H

stop horizontal bowing V :11/12 (near frog)

sweeping range narrows

(sul I)

reduces to brushing near fingerboard edge

finger slides to near bow point (fingerboard edge)

p

35 H

(brush across the bridge)

legno balzando

sf

* bounce to the next string in one stroke

*IV - - - III V

*II - - - I

mp

3:2

pp

38 H

legno balzando

sul III

sul IV

sul II

mf

3:2

f

arco

mf

42 **H**

sul I sul II
 III

mp

3 *dim.* 3

46 **H**

p

3:2

50 **H**

A tempo
(♩ = ca. 60)

legno balzando

sul III

3:2 *f* *dim.*

senza sord.
(remove mute completely from violin)

p

53

arco

legno balzando

pp

f

dim.

mf

pp

p

55

arco

pp

mf

pp

56

legno balzando

sul IV

sul III

p

cresc.

mp

cresc.

f ten.

57

arco

sul II

3:2

mf cresc.

fff

3

58

legno balzando

arco

sul I

3

f

5:4

fff

59

legno balzando

arco

sul I

3:2

ff

fff

6

61

pp

p

leggiero

64

arco

thumb

pp

p

6

3

67

arco

thumb

sul IV

pp

p

6

7

7

7

7

70

keep necessary bowing speed and pressure to make continuous sound for ca. 30"

start loosening the tuning peg until tension is completely gone and continuous sound becomes impossible


74

keep "gagging" until silence


keep playing and end at the same time

Performance notes to Schrödinger's Violin

General

This score is in three staves - the first and the second are for the first violin and the third for the second violin. The two violinists may choose to switch their parts at any one or more of the locations where  appears - make the arrangement ahead of performance.

Optional stage effects: the two violinists are suggested to be standing at least 10 meters apart and wear the same masks (preferably of a cat).

Due to the extensive use of extended techniques, many inline notes are provided when space is available. At some places, a "reference" symbol  reminds the performer to look up the corresponding **bar numbers** in the following sections for detailed and systematic description of the employed symbols and techniques.




All the extended techniques take place in the first violin's part but are not necessarily played by the same performer as they have the freedom to swap at given locations (or not to). The first violin's part is notated in two staves. The upper staff notates the gestures of the right hand, including bowing positions, bowing techniques and finger motions (plucking, nail, pizzicato, etc.). The stems and beams on this staff notate the timing of the techniques and the transitions. The lower staff notates the finger stops and techniques of left hands in the usual way. The dynamic marks should be interpreted in relative sense due to the different natures of the special sounds.

Bowing techniques

Several parameters of the bowing motion are called out on the score.

The bow **pressure** against the string is notated by symbols tabulated in Table 1.

Table 1

	very light pressure, as playing flautando
	normal pressure
	very heavy pressure (to produce rattling and cracking sounds)

A solid arrow connecting these symbols indicates a smooth transition of bowing pressure.

A marcato (^) on the upper staff means a heavier deviation from the contextual pressure (e.g. Bar 6). Bow pressure symbols are *not* effective when the wood is used (**c.l.b.** = col legno battuto, legno balzando).

The bowing **direction** is notated by the regular symbols ∇ \square . When they are connected by a dashed line, e.g. Bar 14-18, a full (or close to full) bow stroke is expected to be used between turn-arounds.

The contact **point on the bow** is sometimes specified by the phrase $\square : x/y$, where x/y is the proportional bow length to the top of the bow. $x/y = 1/12$ would be very close to the bow tip and $11/12$ be very close to the frog (e.g. Bar 26-33). When it is not specified, use a reasonable solution.

The lines and spaces of the upper staff denote the bowing **position on the string**, which is the primary purpose of this staff. Two kinds of clef are used. Under the treble clef or the *8va* treble clef $\text{tr}\text{e}\text{b}\text{l}\text{e}$, the notes indicate the bowing position which would be the finger stop position for left hand to produce these notes. As for the accuracy of the bowing position, an error of up to a half tone can be tolerated. Note that the notes following the *8va* treble clef are one octave higher than what they normally are after a regular treble clef. The other kind of clef is the bridge clef $\text{b}\text{r}\text{i}\text{d}\text{g}\text{e}$, which is used to illustrate the exact position of the strings near the bridge. Figure 1 and Table 2 explain the corresponding positions on the string defined by this clef.

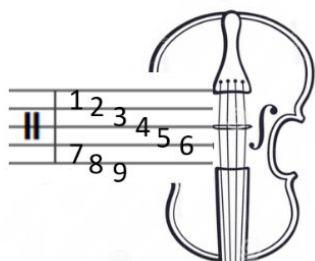


Figure 1

Table 2

1	On the wrapped part of the string behind the bridge
2	On the naked part of the string behind the bridge
3	Behind but close to the bridge
4	Right on the bridge
5	Very close to the bridge (molto sul ponticello)
6	Close to the bridge (sul ponticello)
7	Normal area
8	At the edge of the fingerboard (sul tasto)
9	On the fingerboard (molto sul tasto)

Sometimes the bridge clef is displaced vertically to intuitively illustrate the relative position to an octave treble clef. In these places, up to three lines of the bridge staff (middle, lowest and highest) are extended to the whole system to guide the eyes. For example, in Bar 16 (Figure 2), the bowing position on both strings ascends to very high notes (under treble clef) and continues to move towards the bridge (under bridge clef). Note that the 1st line of the bridge clef, which means the fingerboard edge, is the same line of the high note C of the treble clef, which maintains the geometric consistency. Bar 40 (Figure 2) is another example where the bowing position shifts from the bridge down to the finger position of a very high G note on the third string, which is almost on the fingerboard.



Figure 2

As you might have already figured, the **thick lines** on the upper staff notate the combination of the horizontal motion (along the string) of the bow (i.e. the continuous shift of bowing position on the string) with normal bowing in the vertical direction, which results in an oblique motion. Put what has been described so far together, for example, the bow gesture in Bar 1-2 (Figure 2) should be an upbow on the second string with normal pressure while simultaneously moving from the fingerboard to very close to the bridge (see Figure 3A).

Sometimes the bow shall move only in the horizontal direction, e.g. **Bar 5-6**. It is indicated by **thin lines** and the symbol \updownarrow . Here, the bow slides with the finger and the bowing position is kept approximately one whole tone higher from the finger stop all along (see Figure 3B). Another purely horizontal bowing but with a much shorter and more violent gesture is notated by the triangle note head, as in **Bar 33-34**. Here I would describe the motion as “brushing” near the fingerboard edge. The brushing direction is indicated by the pointing of the triangle. The bow should leave the string between the brushes, except when they are linked by a smooth motion as in **Bar 41-42**.

A sweeping (or windshield wiper) motion is invoked In **Bar 20-26**. Refer to Figure 3C.

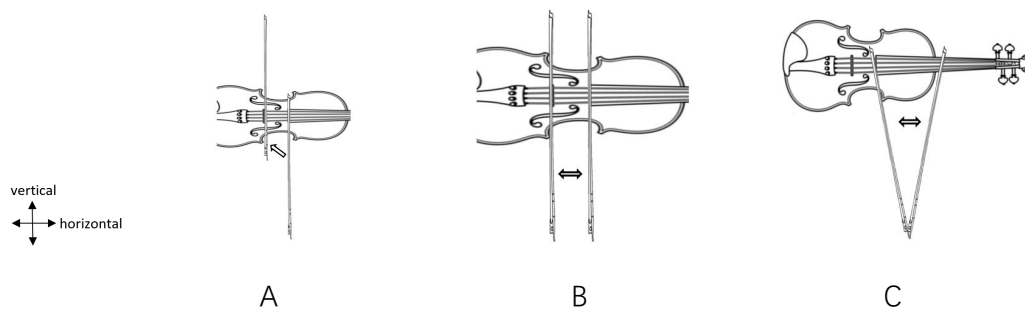


Figure 3

All notations for bowing pressure and contact points are effective regardless of the bowing directions or motion characters.

Legno balzando is to bounce of the wood of the bow against the string. It should be initiated by a gentle downbow close to the tip of the bow and carried out by the bow's weight, resulting in a natural accelerando. The duration of this gesture can be controlled by the initial impact. It can involve bouncing to a different string, as in **Bar 37**, by adjusting the bow angle when it is bouncing.

Other right hand techniques

When performing **pizzicato**, pluck the string at the position notated the same way as is bowing position (Bar 6 and 12).

The nail symbol \wedge in **Bar 12** means sweeping the strings with the back of the thumb nail (see Figure 4A).

In **Bar 64 and 67**, the square-headed notes are performed by using the thumb to sweep the strings in the peg box (see Figure 4B).

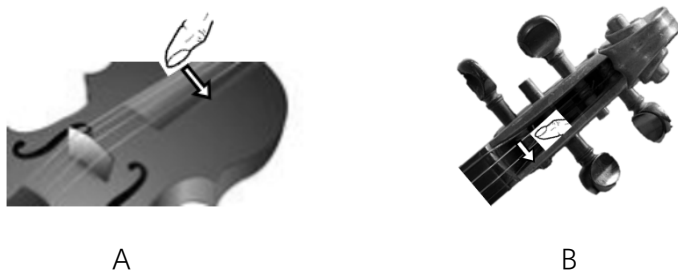


Figure 4

Left hand techniques

The second staff notates the left hand actions, mainly stopping and pizzicato.

The note head type denotes the **finger pressure** as described in Table 3.

Table 3

●	Normal, firm finger stopping
◆	Between normal and harmonic playing, press the string half way down, more like a mute effect. In Bar 12 , the left hand mutes all four strings at the middle.
◇	Slight touch, as playing harmonics


A long thick line following a note replaces the ties to notate the sustaining of the stop position of that note. The stems on these thick lines aid the beat counting if there are actions. The finger pressure may vary where a solid arrow linking these note heads suggests a gradual transition (e.g. Bar 44-47). The finger pressure modulation in **Bar 9** should result in short and sudden harmonics between the rustling sounds.

A solid, thin line between notes means **portamento**, and the passing notes in parenthesis are approximate milestones.

Left hand pizzicato is notated by the usual symbol **+**, which appears in **Bar 20-25**.

Here, the cross note head denotes the position where the designated string should be

plucked: 

Open string with absolutely no left hand actions is explicitly noted by a circle: 

In the end the left hand should slowly loosen the G string while the bowing should keep making continuous sound by adjusting the speed and pressure until it becomes impossible to sustain. Practice the speed to loosen the string such that the continuous sound can last 30 seconds. The performer should continue loosening the string and try to make some intermittent, unstable sounds with the bow until no sounds can be produced any more. The second violin should wait for the first violin to give up so both violins stop at the same time.