

Hilmar Thórdarson

Kuuki no Sukima

Between the air

For interactive conducting,
nine instruments and live electronics

Instructions

Submitted as Fulfilment of the Requirements for the:

Norwegian Artistic Research Program
at

NTNU - Norwegian University of Science and Technology
Department of Music

Commisioned by Trondheim Sinfonietta with support from Norwegian Cultural Fund



NORSK
KULTURFOND
Kulturrådet



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Prologue

Kuuki no Sukima

ConDiS - Conducting Digital System

Kuuki no Sukima is written explicitly for the ConDiS system. This system gives conductors the ability to control in realtime, electronically generated sounds. The sounds are governed in the same way as a conductor directs performers in an ensemble. With a special conducting glove, ConGlove, the conductor interacts with a computer that receives directions about tempo, volume and score following.

The conductor can, by closing the ConGlove or showing the fist indicate that the volume is about to change. By lifting or lowering his/her arm, the volume gets louder or softer. Once reaching the correct volume, the conductor opens the hand (the glove) and disconnects the interaction with the computer.

Although Kuuki no Sukima is composed with the intention of demonstrating the usefulness of these new possibilities for conductors in controlling electronic sound live on stage with real-time interaction, it is by no means written as a "Demo piece."

There are no compromises or showcases to demonstrate or illustrate the features of ConDiS project. Its emphasis concentrates upon the composer's artistic goal of composing music. The music itself is the priority, while the use of technology is secondary. The aim was to make the latter as normal and unobtrusive, or as invisible as possible. With this in mind, the conductor is given a musical tool which expands and explores new possibilities of conducting live electronics most simply and naturally. A goal achieved in performance without the constraint of technology.

Kuuki no Sukima is an uncompromising composition which makes great demands upon the conductor and performers through its endless search for new sonorities and a new sonic spectrum. Now realized vis-a-vis the controlling features of ConDiS. The title can be transcribed literally as "the gap of the air" or even, "in between the air." Both these phrases reflect the composer's vision of creating a sonic landscape of sounds that lie somewhere out "there," or "in-between" the gap of a sound or pitched note. If sonority is a vibration of traveling air pressure, could such a gap exist? Could such a sonic world exist somewhere out "there" or "in-between" the air?

The conducting glove "ConGlove" buttons, the musical score, and the automated electronic effects written by the computer digital audio workstation (DAW) can be synchronized with precision. With the use of new musical graphics, the composer can indicate precisely on the score and DAW where he wants to increase or decrease the intensity of different effects.

With use of the "ConGlove" metronome (tempo) button the conductor can synchronize the score and the DAW tempo.

With the use of the "ConGlove" acceleration meter the conductor can adjust the overall volume of the electronic and acoustic mix. The composer can take advantage of the new opportunities which ConDiS offers.

Through ConGlove synchronization the composer can also express him/herself in a personal way through synchronization and precision, free from the constraint of technology. The composer can also explore possibilities for innovative external use of live electronics through the conductor. In this way, Kuuki no Sukima can be realized.

With support from the Norwegian Culture Fond the Norwegian Artistic Research Program and Norwegian University of Science and Technology (NTNU), Kuuki no Sukima was composed during the autumn of 2016 to winter of 2017 for the Trondheim Sinfonietta and conductor Halldis Rønning.

After a work in progress performance at the Virtuoso Listener Festival in Trondheim, November 2017 a revised version was premiered during Trondheim Sinfonietta's Nordic Tour of Iceland, Faeroe Islands and Denmark in January/February 2018.

My sincere thanks to the Trondheim Sinfonietta and conductor Halldis Rønning; without your extremely positive and professional approach, the unique sonority and musical expressions of Kuuki no Sukima would never have been crystallized.

Trondheim 23. April. 2018

Hilmar Thordarson, composer.

Kuuki no Sukima Movements

Kuuki no Sukima - Between the air/The gap in the air

The title can be transcribed literally as "the gap of the air" or even "in between the air" both very suitable for the composer's vision of creating a sonic landscape of sounds that are somewhere there, in-between or in the gap of being a sound or a pitched note. If sonority is a vibration of a traveling air pressure, could there be a gap? Could there be a sonic world somewhere there in-between the air?

1st. movement

Niōur - Murmur - せせらぎ

Duration c.a. 9'00''

A soft, indistinct sound made by a person or group of people speaking quietly or at a distance. Could also be linked to nature sounds such as a low continuous sound of the wind murmuring through the trees or an atmospheric sound of a river.

2nd. movement

Hviss - Hiss - ビュービュー

Duration c.a. 5'30''

A soft but still loud gust of wind hissing over the rooftops. Could also be a sound of an object passing by with a sharp short hissing sound. According to English dictionary it means as a noun: "a sharp sibilant sound" or as a verb: "make a sharp sibilant sound as of the letter S"

3rd. movement

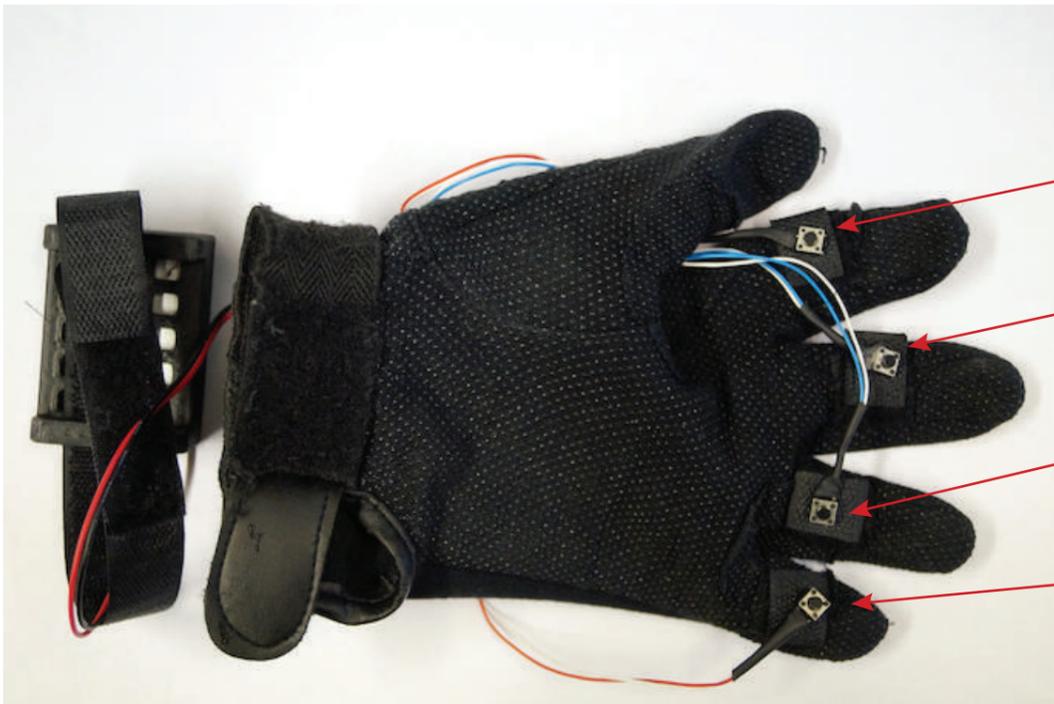
Suō - Buzz - ハミング

Duration c.a. 8'45''

A very soft sound like a buzzing sound from an electronic hardware like refrigerator or from electric light-bulb. English dictionary mention "the buzz of the bees" which is not quite the right explanation since the bee-buzz is in this case too loud and variant. Here the buzzing sound has more a humming sonority.

Total duration c.a. 23'15

Condis Glove - ConGlove



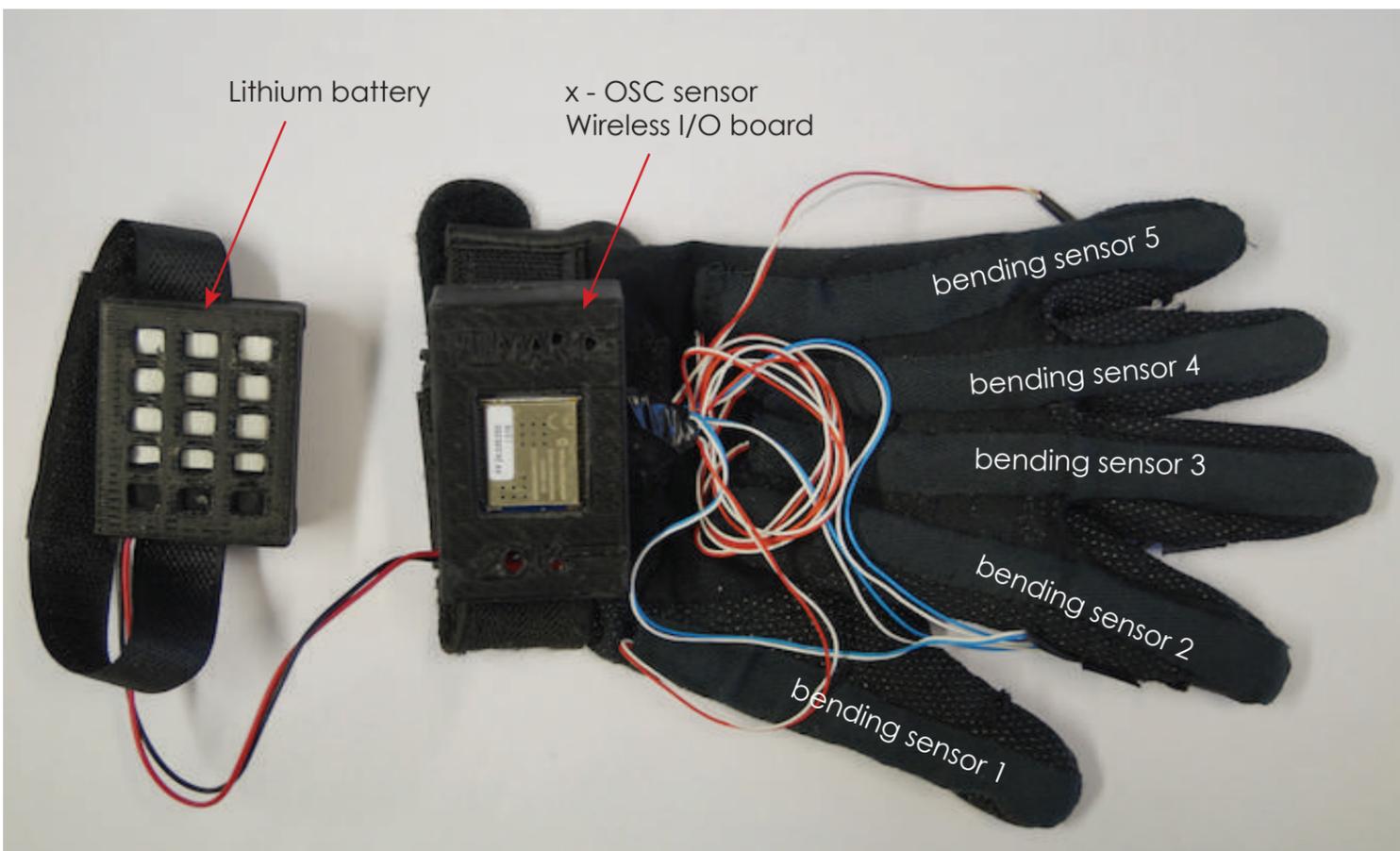
Button 2: click to set metronom speed.

Button 3: click to start and stop play.

Button 4: click to jump to next marker.

Button 5: click to jump to previous marker. Click fast four times to go to the beginning.

There are four buttons on the inside of the ConGlove, each with a designated function shown to the right.



There are five bending sensors on the outside of the ConGlove, each with a designated function. Different combination of finger signs is used to activate various conducting control. The x-OSC is a wireless I/O board that communicates through Open Court Control (OSC) protocol. It has three onboard inertial sensors; gyroscope, accelerometer, magnetometer and provides acces to 32 high-performance analouge/digital channels.

Conducting instruction I



Ok sign for activate
Volume control

To activate the Volume control feature the conductor has to make an OK sign by bending thumb and index finger.



Closed fist to activate
all control

To adjust the Volume level the conductor has to close his/her fist.



All fingers to
deactivate all control

To deactivate the Volume level adjustment feature the conductor has to open his/her fist.

**Finger numbering the same as for piano.
Thumb = 1, Index finger = 2 etc.**



Click button on Middle finger.
Set metronome.

Click the button on the Middle finger to set the tempo of the computer DAW. Needs to be clicked more than once to set the tempo.



Click button on Index finger.
Start and Stop button

Click button on the Index finger to start and stop the computer DAW play.



Click button on Ring finger.
Jump forward

Click button on the Ring finger to jump forward to next marker on computer DAW.



Click button on Little finger.
Jump Backward

Click button on Little finger to jump back to next previous marker on computer DAW. Click fast 4 times to jump to the beginning.



 Jump to marker
number 3 and
start play at
measure 29.

Click button on the Ring finger to jump forward to marker number 3 on computer DAW.

X 4



Click button on Middle finger.
Three times to set the average
metronome

Click button on Middle finger.
X 4 means that button should be clicked four times in given tempo to set the metronome speed.

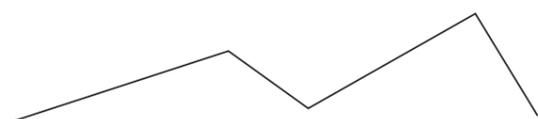


Spatial motion. Sound moving
from left back to right front.

Spatial motion or panning of the sound is indicated with circular signs arrowheads and lines.



Spatial motion. Sound moving counter-clockwise from right front to left front.



With Volume level control activated (closed fist) raise or lower the arm according to the line contour.

With Volume level control activated (closed fist) raise or lower the arm according to the line contour.

Conducting instruction II

Press 3rd button to start the piece

Press 2nd button four times to set metronome

Conductor starts the piece by clicking 3rd button on the first downbeat before clicking the 2nd button four times to set the metronome speed.

close fist to activate volume value control

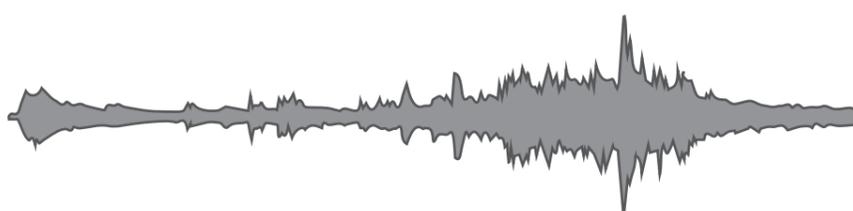
raise arm to increase volume value

Conductor increases the electronic sound level (volume) by closing his/her fist and raise her arm till she has reached the desired electronic volume value.

The conductor opens up her fist to deactivate volume value control

When the electronic volume value has been set the conductor deactivates her control by open up her fist.

At given points the conductor presses the third button to stop the computer DAW play. Thereafter she presses the fourth button to jump forward and start the computer at a written marker point written in the DAW. In this example the playhead jumps to "Marker 1" and starts playing from there when button 4 is pressed. That way the computer and the written score are synchronized.



Graphic layout of the audio levels is written in the score. It indicates the overall volume of both the instruments and electronics.

Electronic notation

Pan - Spacial location



Spatial motion or panning of the sound is indicated with circular signs arrowheads and lines.



Spatial motion. Sound moving counterclockwise from right front to left front.



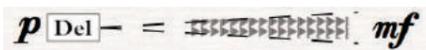
Spatial motion. Sound moving from back right to left front.

Volume control

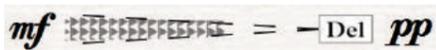


With Volume level control activated (closed fist) raise or lower the arm according to the line contour. Deactivate (open fist) when done.

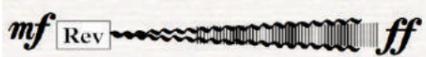
Effect volume



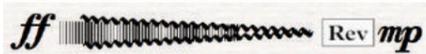
Crescendo delay from approx 30% - 55%



Diminuendo delay from approx 55% - 20%



Crescendo reverb from approx 55% - 85%



Diminuendo reverb from approx 85% - 45%



Crescendo feedback from approx 10% - 45%



Diminuendo feedback from approx 100% - 45%

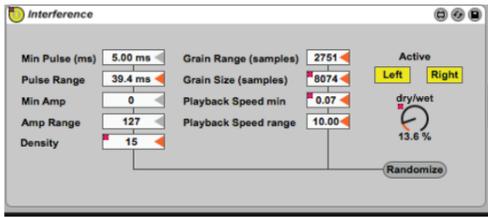


Crescendo granulation from approx 30% - 70%

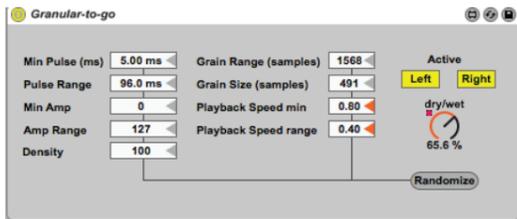
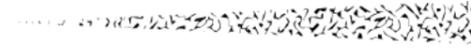


Diminuendo granulation from approx 100% - 85%

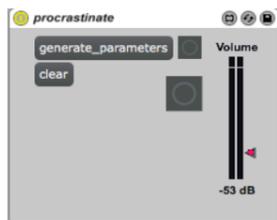
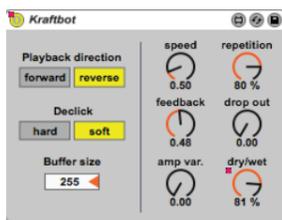
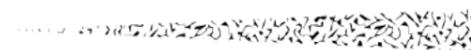
Effect plugins in Kuki no Sukima



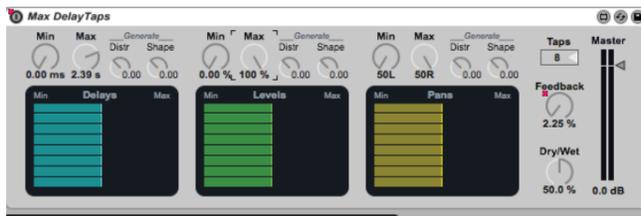
Granular effect



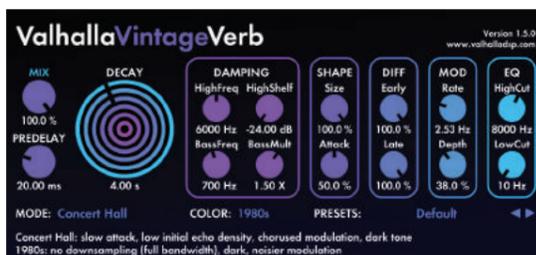
Granular effect



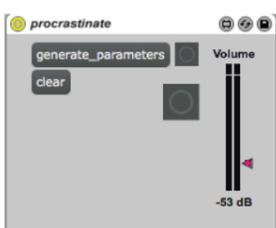
Granular effect w. feedback



Delay effect



Reverb effect



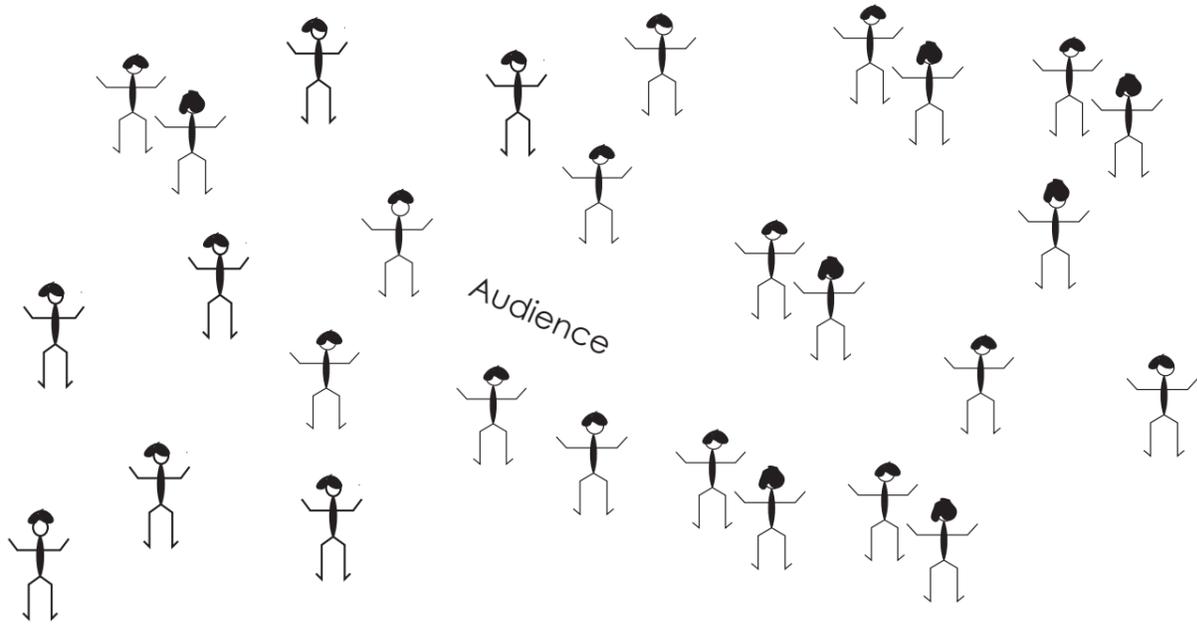
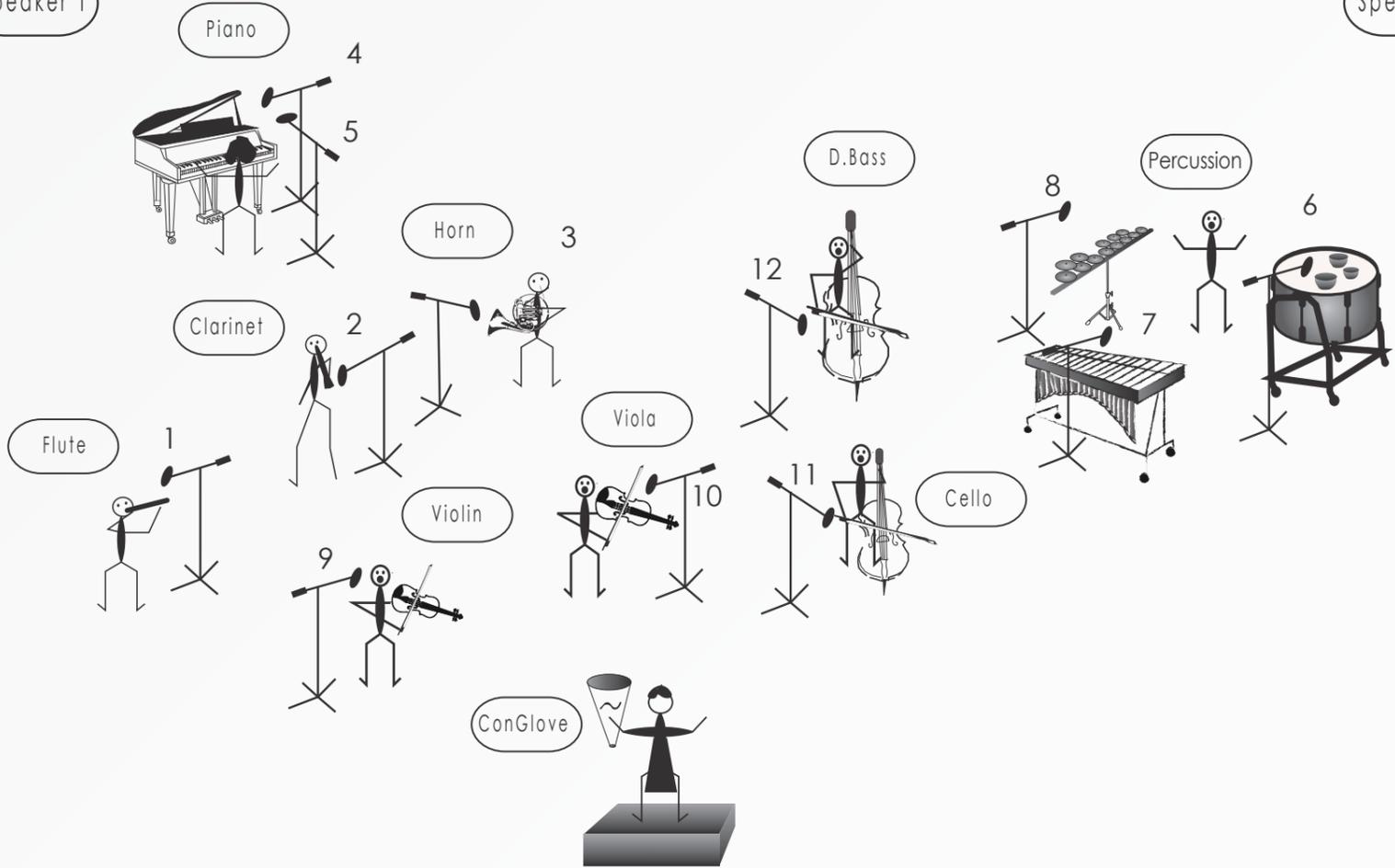
Feedback/Delay + Pitch Shift effect



Stage

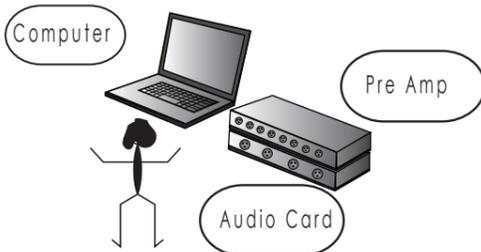
Speaker 1

Speaker 2



Speaker 4

Speaker 3

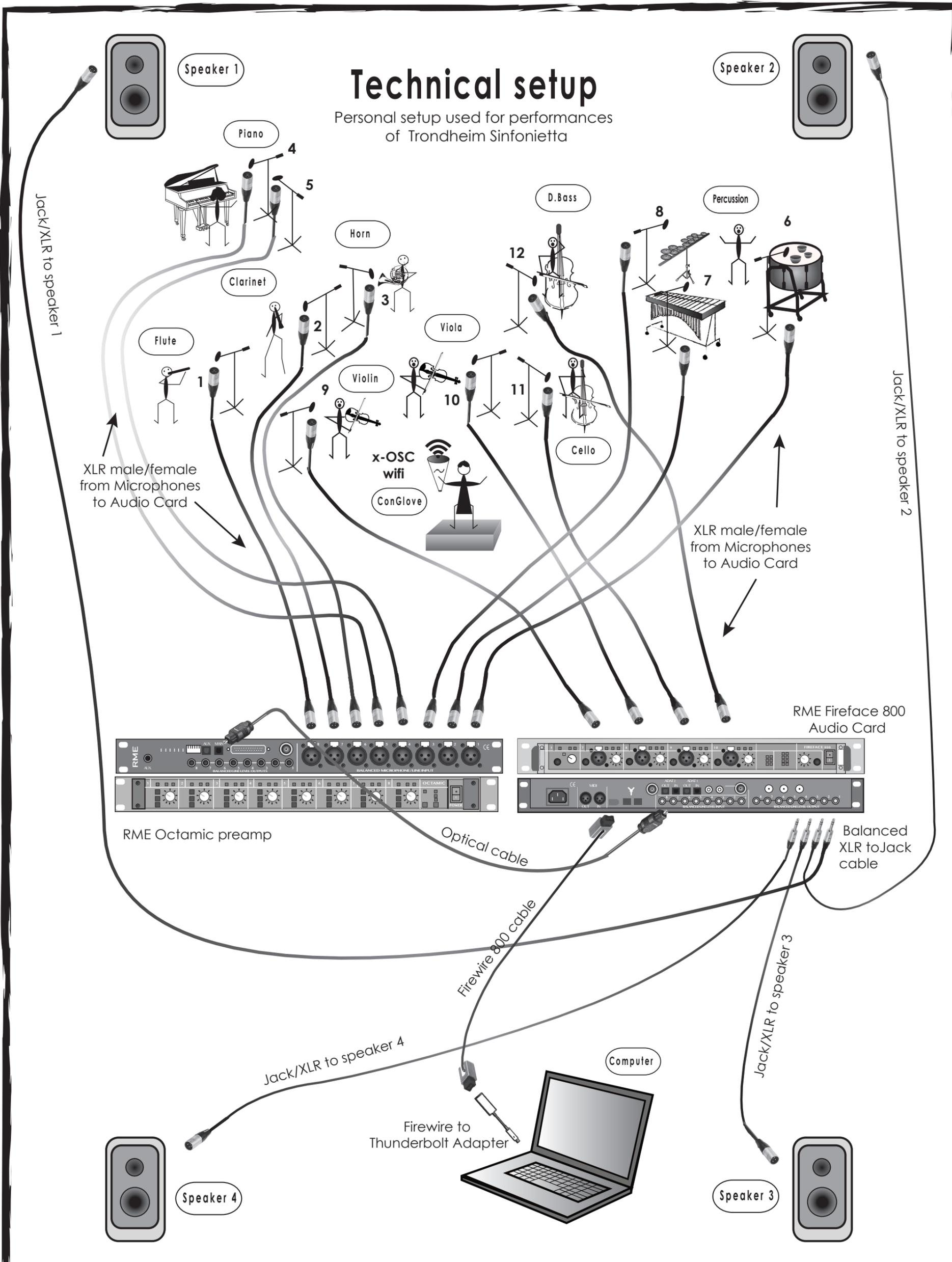


For the best result, the front loudspeakers should be located behind the ensemble and the back speakers behind the audience. The conductor should be as close to the middle as possible although the back speakers will always be in more distance.

Technician (composer) watching the computer and the audio card can be located anywhere in the hall but should be as invisible to the audience as possible. The computer screen should not distract the audience from listening to the performance.

Technical setup

Personal setup used for performances of Trondheim Sinfonietta



There are 12 microphones that need to be plugged into the audio card and preamp. 1-8 are connected to RME-Octamic preamp and 9-12 to RME 800 Fireface (mic input 7-10).

Octamic and 800 Fireface are connected via optical cable so that Fireface is a slave to Octamic.

Audio goes out to the speakers from the Fireface 800 balanced line outputs 1-4.

Technical Instruction II

Computer		Any type of computer can be used although Mac Book Pro laptop is preferred. It should be able to run Ableton Live digital audio workstation (DAW) and fast enough to do multichannel live sound processing.
Software	Ableton Live/Max4Live	Version 9.7 or later is preferred.
	ConDiS	Conduction Digital System comes as separate bundle with the Kuuki no Sukima score.
Audio Card(s)	12 mic/line inputs	There might be a need for more than one audio cards to get the 12 inputs.
	4 outputs	
	12 condenser microphones	Preferred to have clip on mics for the String and wind instruments. DPA Microphones d:vote 4099 instrument microphones work very well with their superior gain-before-feedback. They also ensure superior isolation when used on stage.
Loudspeakers	4 positive speakers preferred	Preferred to have clip on mics for the String and wind instruments. DPA Microphones d:vote 4099 instrument microphones work very well with their superior gain-before-feedback. They also ensure superior isolation when used on stage.
Monitors	? depending	Depending on individual needs.
Cables	12 suitable cables for the microphones	Depending on the type of audio inputs of the audio card. The plugs could be XLR or Jack even Tulip (RCA).
	4 suitable cables for the loudspeakers	
	1 Cable from computer to audio card	Depending on the inputs and outputs of the computer and audio card.

Instrumentation

Flute

Clarinet in Bb - Bass Clarinet in Bb

French Horn in F - Paxman model 23 preferred

Percussion:

Bass Drum

Vibraphone

Crotales

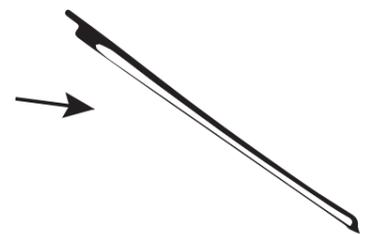
3 - large, medium and small

Tibetan Temple Bowls or Japanese Temple Bowls

Temple Bowls
placed on top of
Bass Drum



Double Bass Bow
for bowing Temple Bowls



Grand Piano

Violin

Viola

Violoncello

Double Bass

Flute - Notation



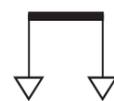
key slap



key slap with sound



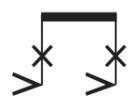
breath and sound



only breath sound



tongue pizzicato



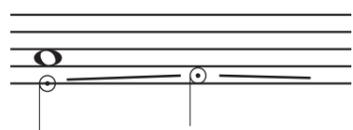
tongue pizz. and key slap



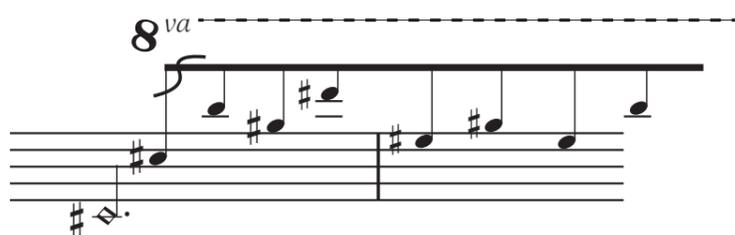
Given notes played in rhythm.
As fast as possible.



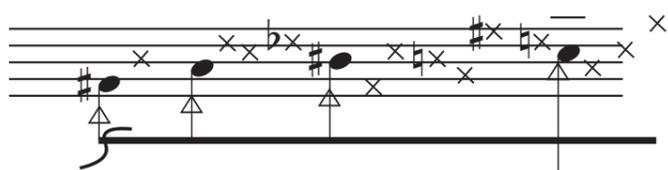
Given notes played with irregular rhythm.
As fast as possible.



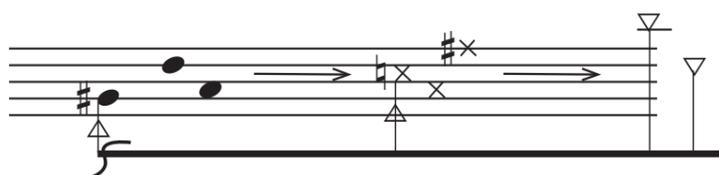
Play the whole note while singing the
half notes with glissando. Sing sound as
written for female voice an octave lower
for a male voice.



Whistle tones overtones from given note.
played ad lib. Irregular (free) rhythm.



Combination of breath and sound notes
and key klap. Irregular (free) rhythm.



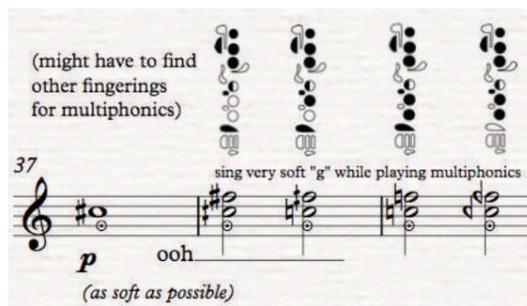
Gradually moving from one way of
playing to next. Irregular (free) rhythm.

Flute - Instruction I

Ist. movement



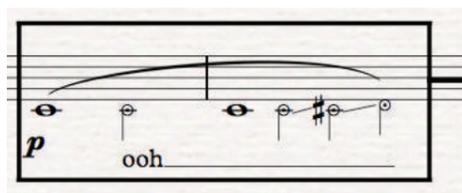
Play "mordent" or rapid alternation of a note with the note immediately below or above it. The note should be the "harmonic" B played from E with a sound combination of breath and sound.



While singing the note "G" play the following multiphonics. Use different fingering if necessary.



While singing the note "G" play the following overtones (g# and d#).



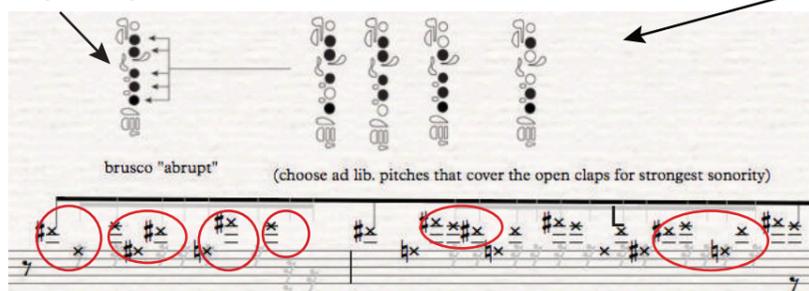
While playing the note "c" sing with glissando notes between c and d.

2nd. movement



Key slap with sound to breath sound.

Open claps.



Possible finger combinations for pitches that cover the open claps.

Play abruptly or with irregular rhythm. Keep the approx. tone grouping

Key slap with sound. abrupt and irregular rhythm with short rests of varying length between notes or note groups. Red circles showing one possible interpretation. Feel free to make your own.



Key slap + tongue slap pitches. Abrupt and irregular rhythm with rests of varying length between notes or note groups.

Flute - Instruction II

3rd. movement

Repeat with short var. length rests

ppp

Play the motive with irregular rhythm and various length of rests between repetition. Combination of breath and sound.

air sound with flutter

pp *mp*

Breath into the instrument while playing given pitch g# with flutter tongue.

irregular rhythm, molto airy (mye luft)

pp

Written out an irregular rhythm with a combination of key slap + sound notes and key + tongue slap notes. Play as written.

breath and rests ad. libitum

p

Written out an irregular rhythm with a combination of breath + sound and key slap + sound notes. Play as written.

Use various fingerings to play microtones between Bb and A and sing with glissando between 3rd to 6th below.

mp

Play microtones between Bb and A with breath + sound. while singing with glissando pitches between 3rd. and 6th. below played pitch.

wind pitch --> sound --> whistle tones

mp

Gradually go from very airy sound to more pitched sound to whistle tone sound.

play harmonics ad lib.

mp

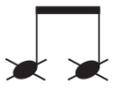
Play harmonics from the note c#. Tempo floating or ad libitum.

Notation

Clarinet in Bb/Bass Clarinet



key slap



key slap with sound



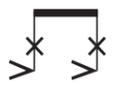
breath and sound



only breath sound



tongue slap



tongue slap and key slap



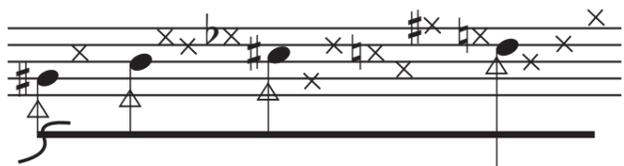
Given notes played in rhythm.
As fast as possible.



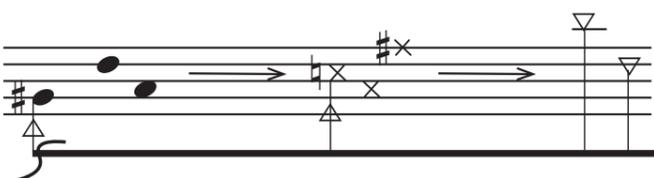
Given notes played with irregular rhythm.
As fast as possible.



Singing a different pitch
from the one played.



Combination of breath and sound notes
and key klap. Irregular (free) rhythm.

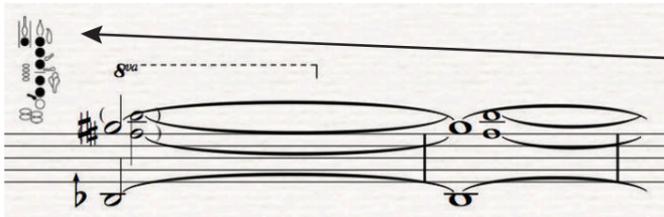


Gradually moving from one way of
playing to next. Irregular (free) rhythm.

Instruction I

Clarinet in Bb/Bass Clarinet

1st. movement



Play multiphonics using the given grip.
Feel free to use alternate grip if necessary.



Play irregular quartertone trill and make as loud key slap sound as possible.



Repeat given multiphonics for the length of the arrow.
Duration of each multiphonic can slightly vary.



Play this multiphonics using given grips.
Alternate if necessary.
Duration of each multiphonic and rests can slightly vary.



Play tremolo like with as much key slap sound as possible.

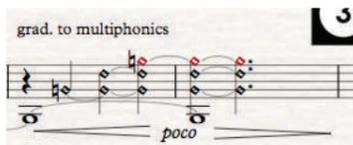
Instruction II

Clarinet in Bb/Bass Clarinet

2nd. movement



Play key slap with sound. Make as much key sound as possible during the trill.



Gradually move from one harmonic overtone to another in the harmonic series starting on low G. Duration of each harmonic can vary.



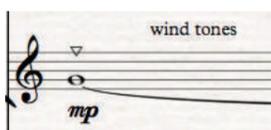
Gradually move from one harmonic overtone to another in the harmonic series from C. Duration of each harmonic can vary.



Play abruptly or with an irregular rhythm. Keep the approx. visual tone grouping.



Use various fingerings to play breath sounding microtones between G# and B. At the same time and sing with glissando notes between 3rd and 6th below. Free in duration and breath when needed.



Blow air through instrument with no valves down (as when playing G).



Key slap with sound. While playing, try to make as much key slap sound as possible.

Instruction III

Clarinet in Bb/Bass Clarinet

3rd. movement

Repeat with short var. length rests

Musical notation showing a series of notes with 'x' marks above them, indicating key slaps. The notes are separated by short rests. The dynamic marking is *ppp*.

Key slap + tongue slap pitches.
Abrupt and irregular rhythm with rests of varying duration between note groups.

Musical notation showing a series of notes with 'x' marks above them, indicating key slaps with sound. The notes are separated by rests. The dynamic marking is *ppp*.

Key slap with sound. Abrupt and irregular rhythm with rests of varying length.

Breath and trill on given pitch

Musical notation showing a trill on a given pitch, indicated by a wavy line above the note. The dynamic marking is *p*.

Breath into the instrument and same time make a trill on g#.

Musical notation showing a series of notes with a beating effect, indicated by a wavy line above the notes. The dynamic marking is *p*. The instruction says: *P sing pitches very close to actual pitch (for beating effect)*.

Play C with very breathy sound and simultaneously sing a pitch very close to the actual pitch. Not the same but close for a beating sounding effect.

Musical notation showing an irregular rhythm with key slaps. The notes are separated by rests. The dynamic marking is *p*. The instruction says: *irregular rhythm* and *key slap*.

Key slap with sound. Abrupt and irregular rhythm with short rests of varying length between notes or note groups. Red circles showing one possible interpretation. Feel free to make your own.

Musical notation showing two note groups, each circled in red. The notes are separated by rests. The dynamic marking is *pp* for the first group and *p* for the second. The instruction says: *Note group*.

Combination of key slap and tongue slap pitches with key slap and sound in between. Abrupt and irregular rhythm with rests of a varying length between note groups. Red circles showing one possible interpretation. Feel free to make your own.

Musical notation showing an irregular rhythm with a combination of key slap + sound notes and key + tongue slap notes. The dynamic marking is *pp*. The instruction says: *irregular rhythm but try to follow the given one*.

Written out irregular rhythm with a combination of key slap + sound notes and key + tongue slap notes. Play as written.

Musical notation showing a series of notes with a combination of breath + sound notes and key slap + sound notes. The dynamic marking is *pp*.

Written out irregular rhythm with a combination of breath + sound notes and key slap + sound notes. Play as written.

Horn in F - Notation I



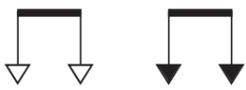
key slap



key slap with sound



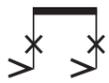
breath and sound



only breath sound



tongue slap



tongue slap and key slap

mouthpiece backwards

Take mouthpiece out turn it backward and blow air through to get max airy sound.



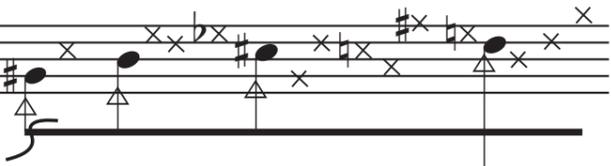
Given notes played in rhythm. As fast as possible.



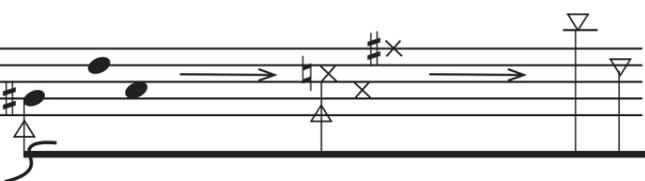
Given notes played with irregular rhythm. As fast as possible.



Sing a different pitch from the one played.



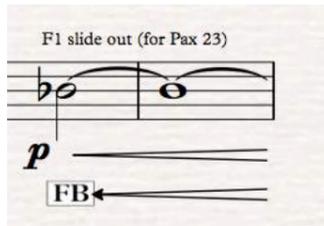
Combination of breath and sound notes and key slap. Irregular (free) rhythm.



Gradually moving from one way of playing to next. Irregular (free) rhythm.

Horn in F - Instruction I

1st. movement



Feedback added to instrumental sound.

Take out the F1 slide and play a note that sends air out the open slide hole. To get an airy sounding pitch. Pitch does not need to be exact.



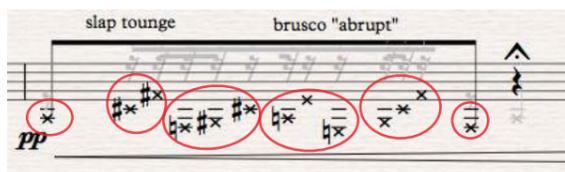
Feedback and Delay added to the instrumental sound.

Play overtones based on the 1st valve so that airy overtone gliss is recognized.

2nd. movement

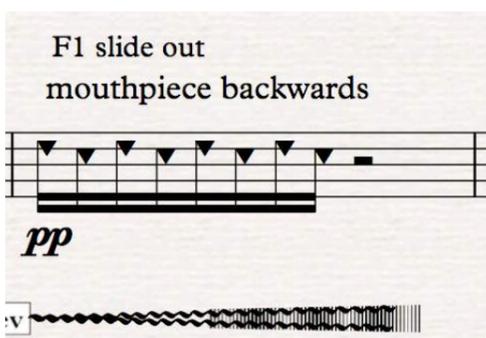


Play airy sounding notes (breath+sound). Probably use loose embouchure.



Play abruptly with slap tongue. Irregular rhythm but group notes according to visual spacing of notes.

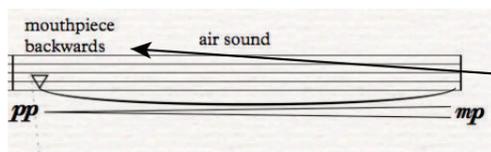
3rd. movement



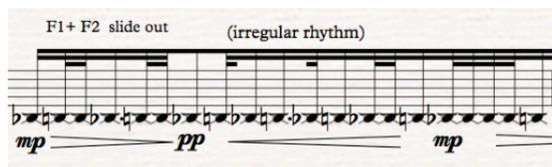
Reverb added to the instrumental sound.

Take out the mouthpiece and turn it upside down. Then play airy sound pulling down first and no claps.

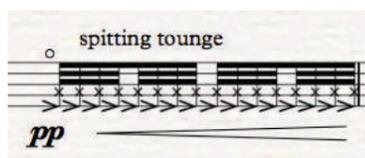
Horn in F - Instruction II



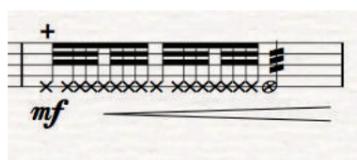
Take out the mouthpiece and turn it upside down. Then play airy sound by breathing through the instrument.



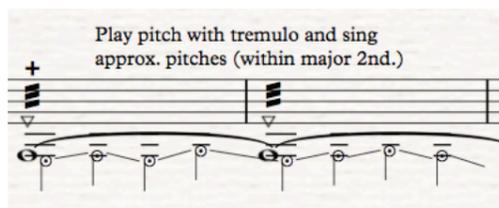
F1 and F2 slide out (probably all slide out?). Play notes with a little bit of slapped tongue like a mixture of a slapped tongue and normal note.



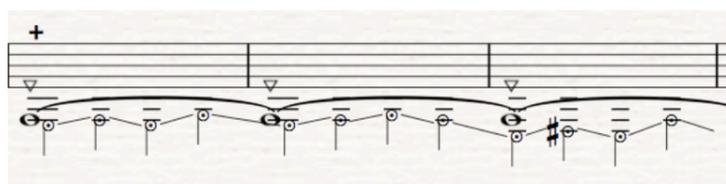
Play spitting tongue with an open bell. No exact pitch more the effect of the short attack of the tongue.



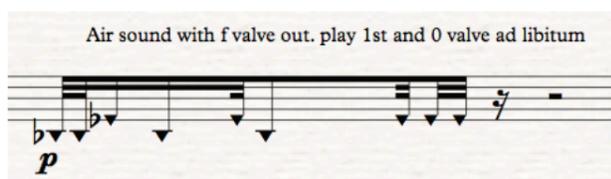
Play slap tongue with a closed bell. No exact pitch more the effect of the short attack of the tongue.



Play with flutter tongue a very airy sustained C while singing right above or below it. Gliss between the singing notes.



Play a very airy sustained C while singing right above or below it. Gliss between the singing notes.

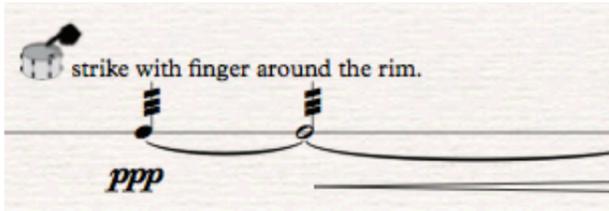


Very airy sound with all valves out. Play irregular rhythm ad libitum.

Percussion - Instruction I

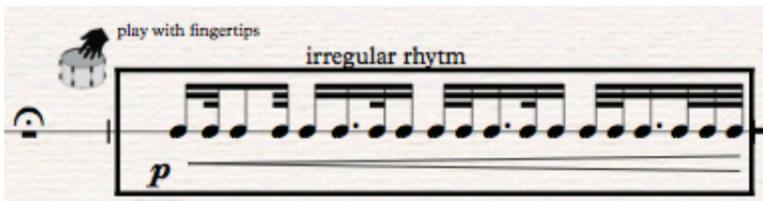
1st. movement

Bass Drum



Use finger, index or thumb to strike the surface of the Bass Drum.
Move in circle about 5 cm. from the rim.

Bass Drum



Play with fingers on the Bass Drum.
Written rhythm is there to indicate irregular and abrupt rhythm and should be played freely as long as the arrow indicates.

2nd. movement.

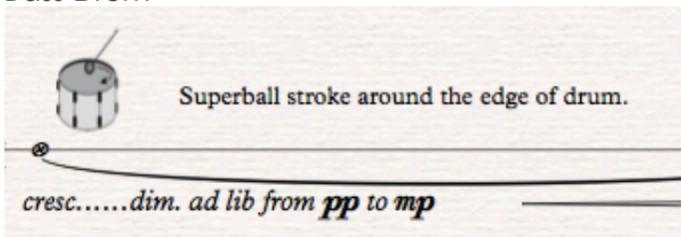
Vibraphone



Repeat the written phrase as long as the arrow indicates.

3rd. movement.

Bass Drum



Use a superball stick to strike around the rim of the Bass Drum.

Percussion - Instruction II

Any type of Temple Bowls for low, medium, high pitches (Tibetan bowls, Japanese Cup Bells etc.), placed Bass Drum (make a slight glissando with timpani pedal) Use appropriate mallet for best sounding solution.



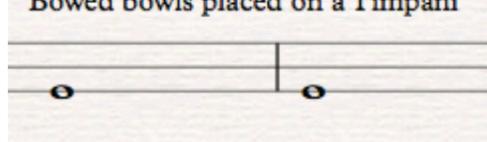
p (adjust to overall volume)

The image shows a musical staff with five measures. Each measure contains a single note with a glissando line above it, indicating a slight pitch bend. The notes are positioned on different lines of the staff to represent low, medium, and high pitches. The first measure is on the first line, the second on the second line, the third on the third line, the fourth on the fourth line, and the fifth on the fifth line. The dynamic marking *p* is written below the first measure.

Use three different size bowls for low, medium and high pitches. Preferred bowls would be either Tibetan Temple bowls or Japanese Cup Bells. They should be placed on top of the Bass Drum and a bit of pitch bend should be made by gently pull the bowls down while playing. Use appropriate mallet or bow for the best sounding solution.

Temple Bowls

Bowed bowls placed on a Timpani

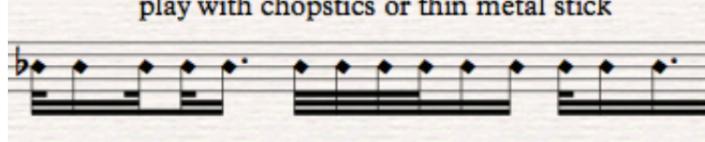


The image shows a musical staff with two measures. Each measure contains a single note with a horizontal line above it, indicating that the bowls are bowed. The notes are positioned on different lines of the staff to represent low and high pitches. The first measure is on the first line and the second is on the fifth line.

Bow the Temple bowls placed on top of the Bass Drum. Let them vibrate.

Temple Bowls

play with chopsticks or thin metal stick



The image shows a musical staff with three measures. Each measure contains a series of notes with stems pointing upwards, indicating that the bowls are played with chopsticks or a thin metal stick. The notes are positioned on different lines of the staff to represent low, medium, and high pitches. The first measure is on the first line, the second on the second line, and the third on the third line.

Play with hard mallet.

Temple Bowls



p

The image shows a musical staff with three measures. Each measure contains a series of notes with stems pointing upwards, indicating that the bowls are played with a small wooden mallet. The notes are positioned on different lines of the staff to represent low, medium, and high pitches. The first measure is on the first line, the second on the second line, and the third on the third line. The dynamic marking *p* is written below the first measure.

Play with a stick of a small wooden mallet for less resonant sound. Chopsticks could also be used.

Piano - Instruction

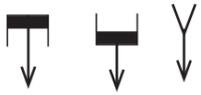


Phrase to be repeated as long as the arrow indicates.

Strings notation instructions I



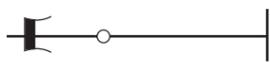
Arco normale - Plain bowing - at the frog, at the tip.



Arco al ponte - Bowing on the bridge or very close to the bridge if more sound needed.



Bow beneath the strings. Hair on the I and IV string. Put the bow underneath the strings and play the I and IV string accordingly.



Bow midway between the bridge and the fingerboard. Finger position above the bow very close to the bridge. Finger position needs to be adjusted to get a sound rich in overtones.



Move the bow in a circular movement, tempo and diameter ad lib.



Keeping the bow horizontal, hair on the string, move it up vertically from the bridge to the fingerboard.



Keep the bow horizontal, wood on the string, move it up vertically from the bridge to the fingerboard.



Keep the bow horizontal, half hair and half wood, move it up vertically from the bridge to the fingerboard.



Keep the bow horizontal, hair on the string, move it fast up and down vertically from the bridge to the fingerboard. Very much like a vertical tremolo.



Keep the bow horizontal, wood on the string, move it fast up and down vertically from the bridge to the fingerboard. Very much like a vertical tremolo.



Keep the bow horizontal, half hair and half wood on the string, move it fast up and down vertically from the bridge to the fingerboard. Very much like a vertical tremolo.



Holding the position with the right hand thumb, do pizzicato with the nail of the middle finger.



Bartók pizzicato

Strings notation instructions II



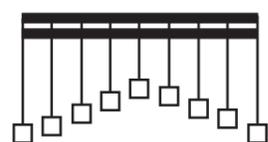
Right hand pizzicato on the bridge wood with the nail of the middle finger.



Use the frog of the bow. Usually used to scratch (gliss) the frog on a given string. If written with sul A, meaning the frog should be scratched on the A string. Use vertical movement in either direction (or both) between bridge and fingerboard.



Glissando with the thumb nail (right hand or left hand) on the string. Positions are indicated in brackets. Very similar to the use of the frog. Use of plectrum can be substituted with use of fingernail.



"Flautando notes". Perform the gesture, scarcely skimming the strings. Very soft and airy sound.



Behind the bridge.



Natural harmonic.



Artificial harmonic.



Open string.



The small notes in brackets indicate on which string the sound will be entablatured.



Vibrato.

Sul G

Indicates the string the given notes should be played.



Vertical tremolo moving the bow ad lib. between the bridge and the fingerboard.



Tremolo and glissando with vertical motion while doing glissando

Violin - Instruction I

1st. movement



Play G# on E string

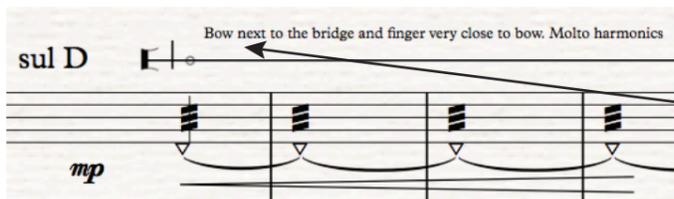


Artificial harmonics on the 3rd string.
Sounding D two octaves and a third above.

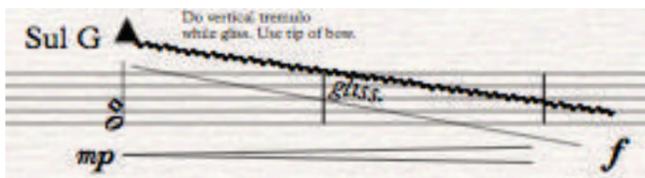
2nd. movement



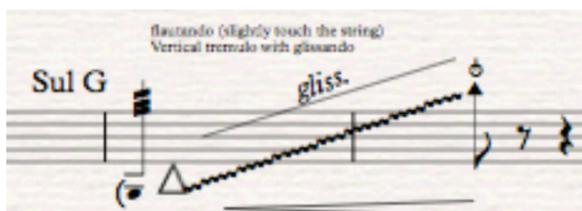
While playing battuto move the bow slightly touching the strings.
Sound should be very airy and rich of overtones (sul pont).
Phrase repeated as long as the arrow indicates.



On A string put finger as close to the bridge as possible and then do bowing very close to the finger.
Might have to adjust position accordingly to get the best sound.
Sound should be very bright and rich in overtones.
The triangle shape notes indicate that the sound is very airy.

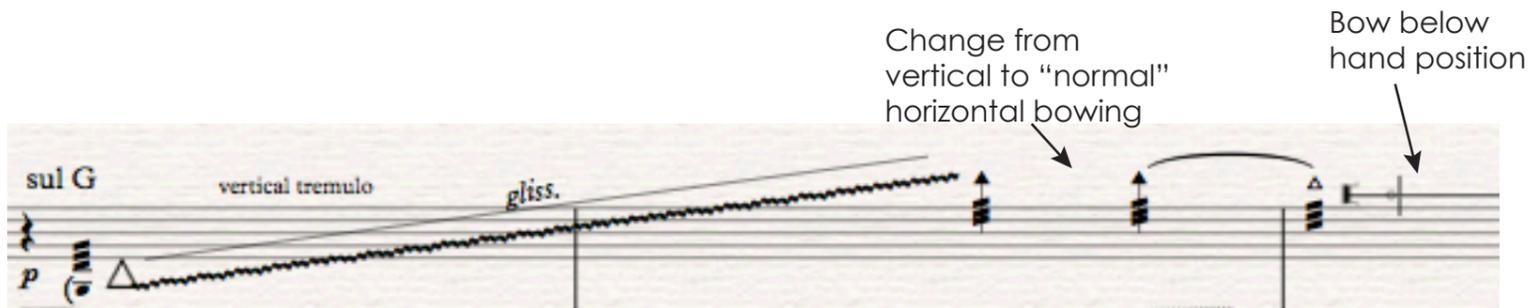


Harmonics on G strings then vertical tremolo on G string using the wood and little bit of the hair of the bow.
Slightly touch the string and make a glissando + tremolo from fingerboard (sul tasto) to the bridge.



Vertical tremolo on G string using the hair of the bow (col legno tratto). Slightly touch the string and make a glissando + tremolo from fingerboard (sul tasto) to the bridge.
Bartok pizzicato at the end below position.

Violin - Instruction II

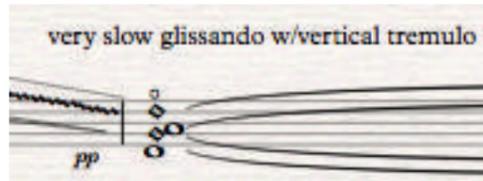
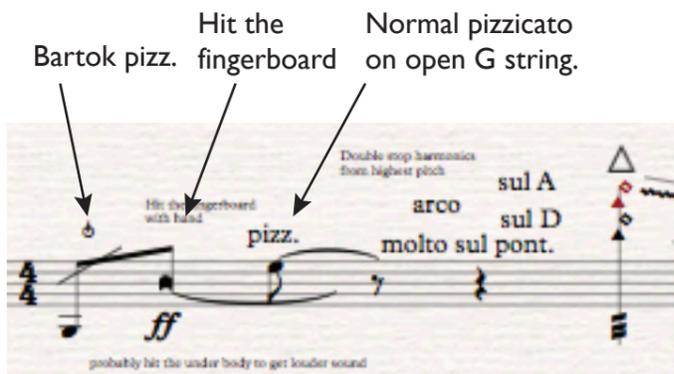


Vertical tremolo on G string with hair on the string. Starting at fingerboard up to the bridge. At the top note change to "normal" horizontal tremolo while changing bow and hand position such as the bow is below the hand position.

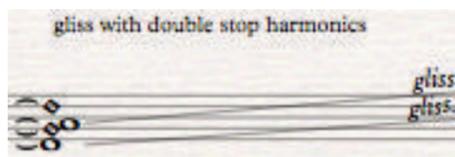


Finger position as close to the bridge as possible bowing the G string very close to the finger. Use normal horizontal tremolo bowing. Then shift the bow to the other side of the grip and do a vertical glissando from that highest pitch down the string to the fingerboard.

2nd. movement



Play harmonic doublestop on highest notes of the D and A string. With hair on the string (Arco) gradually do a vertical tremolo with glissandi holding finger position. Molto sul pont. for rich sonority.

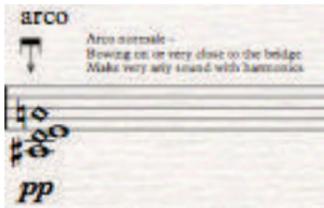


While holding the position for double stop harmonics do glissando to the highest note.

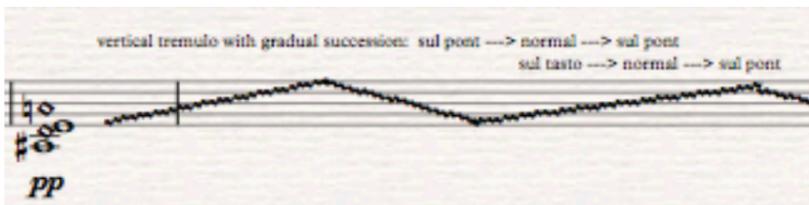


While playing the highest possible notes on A and D string change finger and bow position so that the finger is as close to the bridge as possible and the bow below very close to the finger.

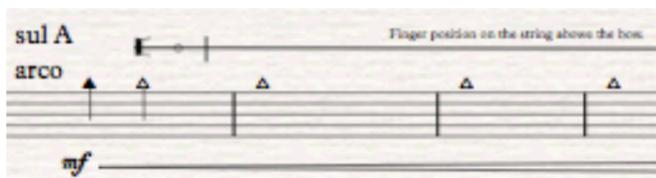
Violin - Instruction III



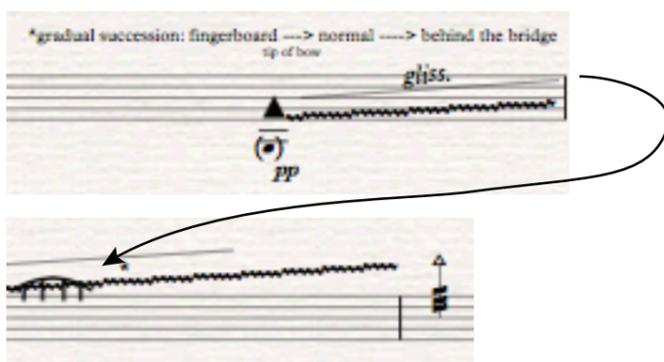
Play double harmonics with the very tip of the bow. Place the bow on top of the bridge or very close to the bridge for more airy sounding effect.



Play double harmonics and move the bow up and down (sul pont - normal - tasto) while doing vertical tremolo.



On A string put finger as close to the bridge as possible. Then do bowing very close to the finger. Might have to adjust position accordingly to get the best sound. Sound should be very bright and rich of overtones. The triangle shape notes indicate very airy sound.

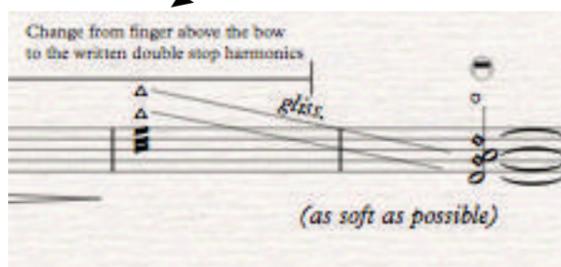


Vertical tremolo on G string with glissando from the fingerboard to up towards the bridge. Use a combination of wood and hair at the tip of the bow.

Continuation of vertical tremolo on G string with glissando going behind the bridge still playing the G string behind the bridge. At the end of the measure go back over the bridge and play highest possible note with reversed finger and bow position. The finger is as close to the bridge as possible and the bow very closet to the finger. Change bowing tremolo from vertical to horizontal (normal) arco bowing.



Double stop at the highest possible note with changed finger and bow position so that the finger is as close to the bridge as possible and the bow very closet to the finger. Use "normal" bowed tremolo.

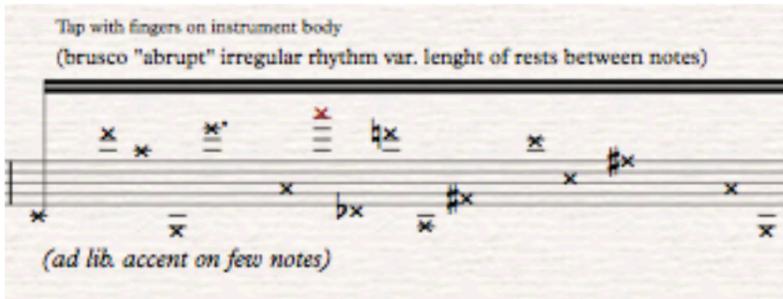


Start to gliss down from the double stop at highest possible note using vertical tremolo to the written doublestop harmonics. When reached the harmonics do circular bowing.

Violin - Instruction IV



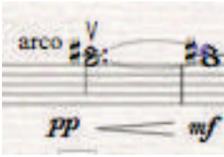
Slap with right-hand fingers on the strings in circular motion while playing given pitches. Make short rests either at the end of the phrase or between notes ad libitum.



Hold the Violin in an upright position on your lap. Tap with fingers on instrument body. Higher written pitch should be tapped close or on the edge of the body or where higher pitched sound occur. Lower pitches are closer to the middle of the body etc.

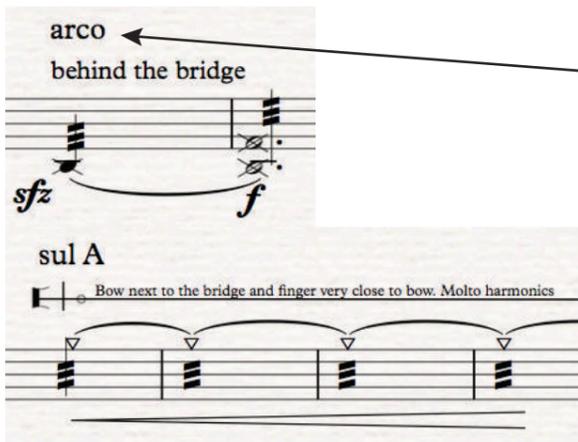
Viola - Instruction I

1st. movement.



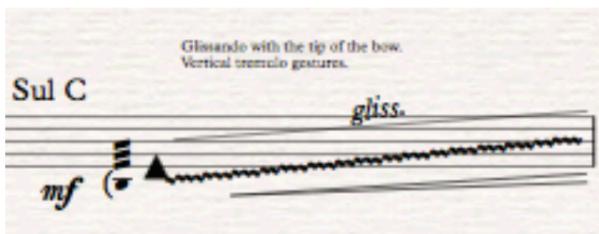
Harmonics, sounding C# two octaves above.

2nd. movement.

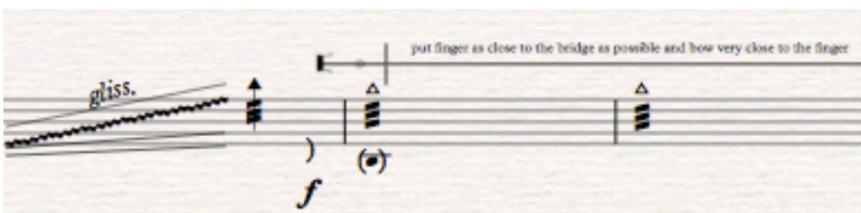


Play arco with tremolo on C string behind the bridge then add tremolo on G string behind the bridge.

On A string put finger as close to the bridge as possible and then do bowing very close to the finger. Might have to adjust position accordingly to get the best sound. Sound should be bright and rich in overtones. The triangle shape notes indicate airy sound.



Vertical tremolo on C string using the wood of the bow (col legno tratto). Slightly touch the string with a finger and make a glissando + tremolo from fingerboard (sul tasto) to the bridge. Might have to use a little bit of hair to get a richer sound.



Same as before except the final note is the highest pitch possible on C string. Then change bow position from being below the grip (normal position) to be above the grip with finger next to the bow.



While playing arco normale move the bow slightly touching the strings. Sound should be very airy and rich of overtones (sul pont). The phrase repeated as long as the arrow indicates



Move the bow in circles slightly touching the strings. Sound should be very airy, alternating from dry a sound (sul tasto) to sound rich of overtones (sul pont).

Viola - Instruction II

3rd. movement.

Hit the fingerboard with lead

Bartok pizz.

Hit the fingerboard

Normal pizzicato on open G string.

Double stop harmonics from highest pitch

ff

Play harmonic double stops on highest notes of the D and A string. With hair on string (Arco) gradually do a vertical tremolo with glissandi holding finger position. Molto sul pont. for rich sonority.

glissando w/vertical tremolo

ff

With the same finger position as in the double-stop do a very slow glissando to the given double-stop harmonics.

gliss with double stop harmonics

gliss.
gliss.

With the same finger position as in the double-stop do a very slow glissando up to the highest possible note.

sul D

sul G

Bow A and D string close to the bridge. Finger position on the string behind the bow.

mf

While playing the highest possible notes on A and D string change finger and bow position so that the finger is as close to the bridge as possible and the bow very closet to the finger.

arco

bowing on or very close to the bridge make very airy sound with harmonics

mf

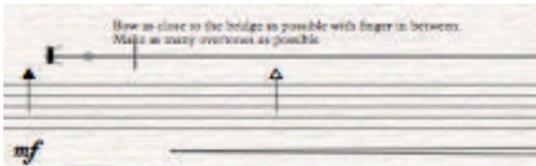
Play double harmonics with the very tip of the bow. Place the bow on top of the bridge or very close to the bridge for more airy sounding effect.

vertical tremolo with gradual succession: sul pont -> normal -> sul tasto

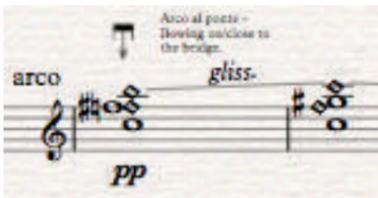
sul tasto -> normal -> sul pont

Play double harmonics and move the bow up and down (sul pont - normal - tasto) while doing vertical tremolo.

Viola - Instruction III



Doublestop at highest possible note with changed finger and bow position so that the finger is as close to the bridge as possible and the bow very closet to the finger. Use "normal" bowed tremolo.



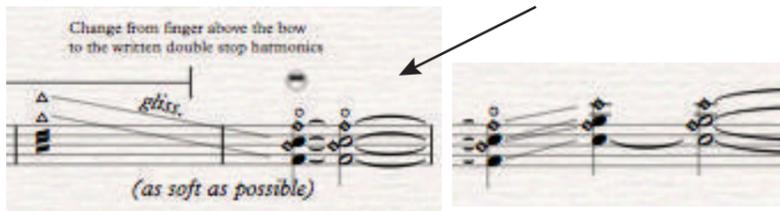
Play double harmonics with the very tip of the bow. Place the bow on top of the bridge or very close to the bridge for more airy sounding effect.



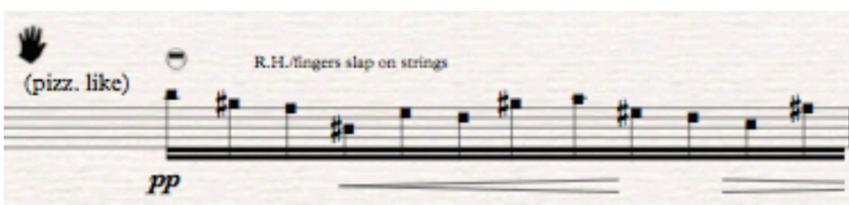
Doublestop at highest possible note with changed finger and bow position so that the finger is as close to the bridge as possible and the bow very closet to the finger. Use "normal" bowed tremolo.

Start to gliss down from the double-stop at highest possible note using vertical tremolo to the written double-stop harmonics.

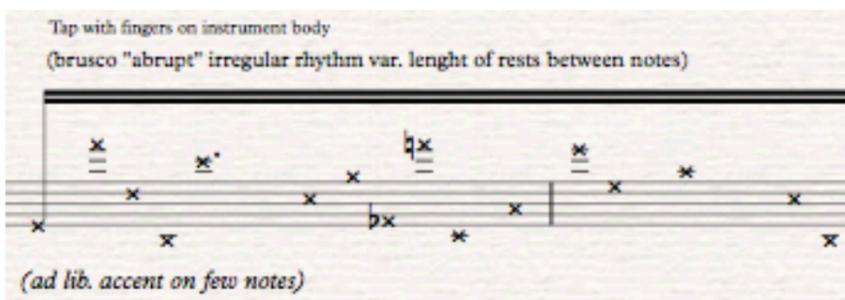
When reaching the harmonics do circular bowing.



Start to gliss up using vertical tremolo to the written double-stop harmonics using circular bowing.



Slap with right-hand fingers on the strings in circular motion while playing given pitches. Make short rests either at the end of the phrase or between notes ad libitum.



Hold the Viola in an upright position on your lap. Tap with fingers on instrument body. Higher written pitches should be tapped close or on the edge of the body or where higher pitched sound occurs. Lower pitches are closer to the middle of the body etc.

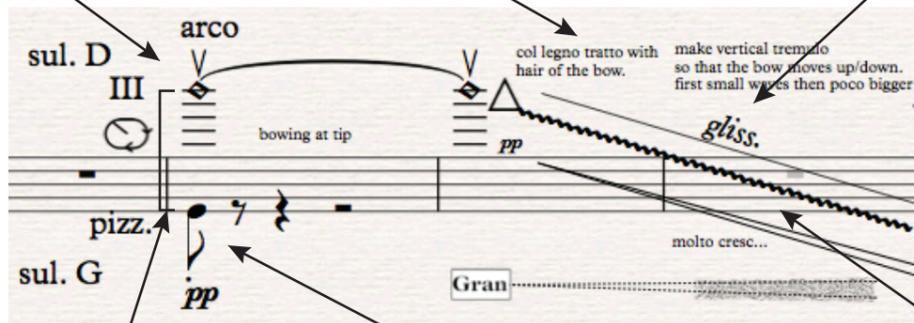
Cello - Instruction I

1st. movement.

Move the bow and hand gradually from being close to the bridge (sul pont) to fingerboard (sul tasto).

Gradually change from bowing at the tip of the bow to bowing closer to the center. At the same time turn the bow so that it goes from the hair of the bow to half hair and col legno.

Tip of the bow



pizzicato on open G string.

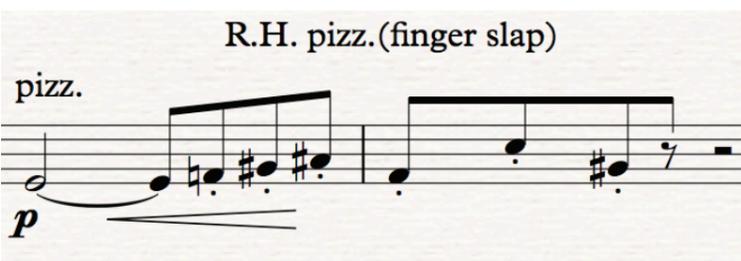
While moving bow and hand make a vertical tremolo. The bow goes up/down instead of the "normal" sideways.

Play the harmonic note arco with the tip of the bow and at the same time pizz. on open G string. Might have to adjust the "tip" accordingly to sound quality.

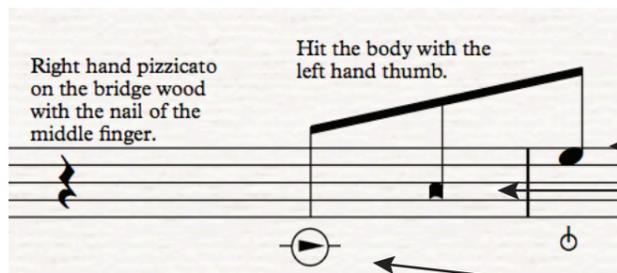
2nd. movement.



Bow very lightly (flautando) over the strings, except the open C note that should sound out. Tremolo should also be very lightly bowed.



Slap with fingers of the right-hand while playing given pitches



Bartok pizzicato.

Hit the body of the instrument with the fist.

Pizzicato on the wood of the bridge. Probably use the middle finger to get the best sound

Cello - Instruction II

Pizzicco on C string making artificial harmonic (sounding B).

A musical staff showing a sequence of notes on the C string. The first note is a half note with a sharp sign and a forte dynamic marking (*sfz*). This is followed by a series of notes marked with diamond symbols, representing a spiccato-like technique. The final note is a half note with a triangle symbol above it, indicating an artificial harmonic, and is marked with a glissando (*gliss.*). Annotations include: "Sul C pizz." pointing to the first note, "Spiccato like skim over strings very airy sound then gradually do vertical tremolo while gliss down." pointing to the diamond notes, "Hair on string." pointing to the triangle symbol, and "vertical tremulo while gliss down." pointing to the wavy line of the glissando.

A musical staff showing a note on the C string with a triangle symbol above it, indicating an artificial harmonic. The dynamic marking is *p*. An annotation reads: "sul C put finger as close to the bridge as possible and bow very close to the finger".

On C string put the finger as close to the bridge as possible and then do bowing very close to the finger. Might have to adjust position accordingly to get the best sound. Sound should be very bright and rich of overtones. The triangle shape notes indicate that the sound is very airy.

A musical staff showing four notes on the C string. The first note is marked with a dynamic of *mf*. The following three notes are marked with a dynamic of *sf*. Annotations include: "L.H. pizz." and "Holding the position with the right hand thumb, do pizzicato with the nail of the middle finger." pointing to the notes.

This pizzicato should be made with the right hand such that the thumb of the right hand is used to make the harmonics while the middle finger of right-hand does the pizz.

A musical staff showing a note on the C string with a triangle symbol above it, indicating an artificial harmonic. The dynamic marking is *mf*. The note is followed by a wavy line representing a glissando, marked with a triangle symbol and the word *gliss.*. Annotations include: "vertical tremulo with wood (col legno) sul C" pointing to the wavy line, "Finger and bow as close to the bridge as possible with finger closer to the bridge. Change of bow position from being below the grip (normal position) to be above the grip with finger next to the bow." pointing to the triangle symbol, and "Play tremolo with the finger as close to the bridge as possible, bowing tightly to the finger." pointing to the wavy line.

Vertical tremolo on C string using the wood of the bow (col legno tratto). Slightly touch the string with finger and make a glissando + tremolo from fingerboard (sul tasto) to the bridge.

Cello - Instruction III

arco battuto (flautando) sul pont.

pp

While playing battuto move the bow slightly touching the strings.
Sound should be very airy and rich of overtones (sul pont).
The phrase repeated as long as the arrow indicates.

Circular bowing.

arco normale (flautando) sul pont.

pp

Very lightly touch the strings while bowing in a circular motion.

3rd. movement.

Knock on instrument. Normal pizzicato on open G string.

Hit the body with fist.

Bartok pizz.

pizz.

arco

sul D

sul G

molto sul pont.

ff

Play harmonic double stop on highest notes of the D and A string. Gradually do a vertical tremolo with glissandi holding finger position. Use wood with a bit of hair. Has to be adjusted for rich sonority.

gliss.

gliss.

Play doublestop harmonics on A and D string.

Holding the position of the double stop harmonics gliss to the highest note on A and D string.

sul D

sul A

Bow A and D string close to the bridge.
Finger position on the string behind the bow.

ff

Finger position as close to the bridge as possible bowing the A and D strings very close to the fingers. Might have to adjust to get a rich harmonic spectrum.

41 arco

Punta dell'arco - tip of bow
Bowling on or very close to the bridge
Make very airy sound with harmonics

ff

Play double harmonics with the very tip of the bow. Place the bow on top of the bridge or very close to the bridge for more airy sounding effect.

vertical tremolo with gradual succession: sul pont --> normal --> sul pont --> sul tasto --> normal --> sul pont --> behind bridge

ff

Play double harmonics and move the bow up and down (sul pont - normal - tasto) while doing vertical tremolo.

Cello - Instruction IV

flag. on IV
arco

Bow below the strings.
Hair on the I and IV string all the time.
Diamant = Sounding flag. pitch

gliss.

Play with the bow underneath the strings touching strings I and IV.

The diamond-shaped note should be performed on I string (A string) with glissando between given harmonic sounding pitch while IV string (C string) is sounding like a drone.

flag. on I

Play with the bow underneath the strings touching strings I and IV.

Play the given diamond-shaped notes on I string (A string) while IV string (C string) is sounding like a drone.

flag. on IV

Play with the bow underneath the strings touching strings I and IV.

Play the given diamond-shaped notes on IV string (C string) while I string (A string) is sounding like a drone.

arco

sul A

sul D

Play with finger as close to the bridge as possible and bow next to the finger touching A and D strings.

Keep the bow as close to the finger as possible.

gliss.

Play with finger as close to the bridge as possible and bow regular tremolo next to the finger touching A and D strings.

Then start to gliss towards the given double harmonics. When reaching the double harmonics start to move the baton in circular motion.

(pizz. like)

R.H./fingers slap on strings

pp

Slap with right hand fingers on the strings in circular motion while playing given pitches. Make short rests either at the end of phrase or between notes ad libitum.

Tap with fingers on instrument body
(brusco "abrupt" irregular rhythm var. length of rests between notes)

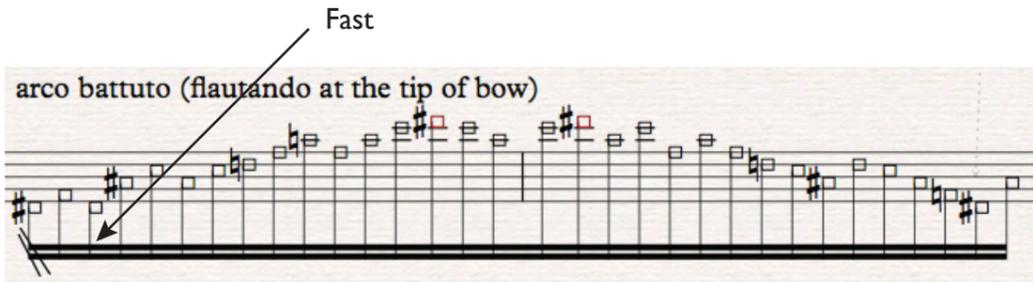
(ad lib. accent on few notes)

Tap with fingers on instrument body.

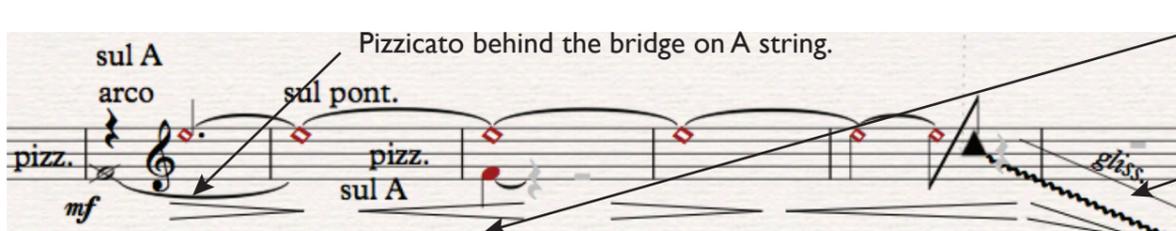
Higher written pitches should be tapped on the edge of the body or where higher pitched sound occur. Lower pitches are closer to the middle of the body etc.

Double Bass - Instruction I

1st movement



Play relatively fast and very lightly over the notes using the tip of the bow. Should give a airy sounding effect. Might even need a little bit of the bow plastic end to get the right sound.

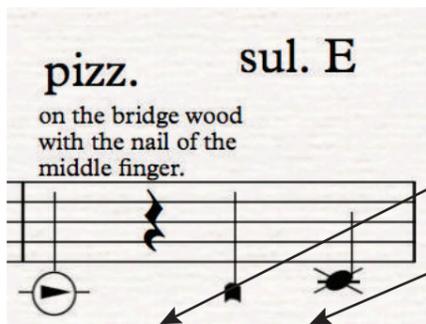


Pizzicato on open A string.

Move the bow and hand gradually from being close to the bridge (sul pont) to fingerboard (sul taste).

Play pizzicato behind the bridge and then arco a natural harmonic on A string. While holding the natural harmonic play pizzicato on open A string. At the black triangle, use the wood of bow with very little hair to make a vertical glissando.

While moving bow and hand make a vertical tremolo. The bow goes up/down instead of the "normal" sideways



Pizzicato on the bridge wood. Use the nail of middle finger to get the best sonic result.

Knock on the body of instrument. Choose deep and resonant placement of instrument.

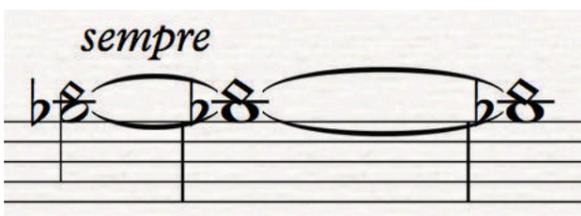
Pizzicato on E string behind the bridge.



Pizzicato on E string behind the bridge. Start slow and accelerate and back to slow again. accelerando -> ritardando -> accelerando



Play natural harmonic A on E string. Then change to a artificial harmonic getting sounding E two octaves and a fifth above.



Play artificial harmonic getting sounding D, two octaves and a major 3rd above.

Double Bass - Instruction II

2nd movement

This pizzicato should be made with the right hand such that the thumb of right hand is used to make the harmonics while the middle finger of right-hand does the pizz.

Artificial harmonics on E string. Should create a note two octaves higher.

Gradually start to make vertical tremolo with the bow and at the same time gliss with finger position of the harmonics. Use hair of the bow.

Play highest possible pitch on A string and make slow glissando with the finger down to fingerboard. Kepp bow position at sul pont.

Sfortzando pizzicato on open E string. Let vibrate.

Play tremolo on G string with the bow above the left hand. Left-hand plays the given pitches that should give sound mirroring the written notes.

Last note should be played as high as possible with the finger as close to the bridge as possible and the bow close to the finger.

Might have to adjust the bow for rich overtone sonority.

While playing battuto move the bow in circular motion slightly touching the strings.

Double Bass - Instruction III

3rd movement.

Knock on instrument. Normal pizzicato on open G string.

Play harmonic double stop on highest notes of the D and A string. Gradually do a vertical tremolo with glissandi holding finger position. Use wood with a bit of hair. Has to be adjusted for rich sonority.

Play double stop harmonics on A and D sting.

Play double harmonics with the very tip of the bow. Place the bow on top of the bridge or very close to the bridge for more airy sounding effect.

Play with the bow underneath the strings touching strings I and IV. The diamond-shaped note should indicate harmonic sounding pitch.

Play with the bow underneath the strings touching strings I and IV. Play the given diamond-shaped notes on I string (G string) while IV string (E string) is sounding like a drone.

Play with the bow underneath the strings touching strings I and IV. Play the given diamond-shaped notes on IV string (E string) with glissando while I string (G string) is sounding like a drone. Make a vertical tremolo from last note lowest possible note on E string with the bow underneath the string.

Play with bow underneath the strings touching strings I and IV. Play the given diamond-shaped notes on IV string (E string) with glissando while I string (E string) is sounding like a drone. Make a vertical tremolo from last note lowest possible note on E string with bow underneath the string.

Double Bass - Instruction IV

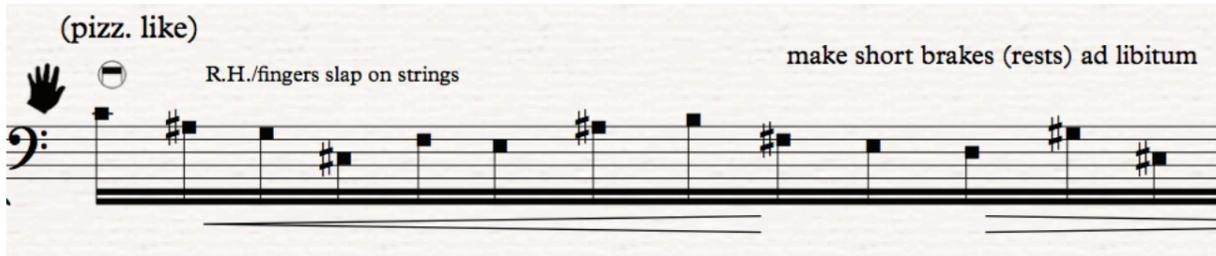
3rd movement.

Slap with right-hand fingers on the strings in a circular motion while playing given pitches. Make short rests either at the end of the phrase or between notes ad libitum.

(pizz. like)

R.H./fingers slap on strings

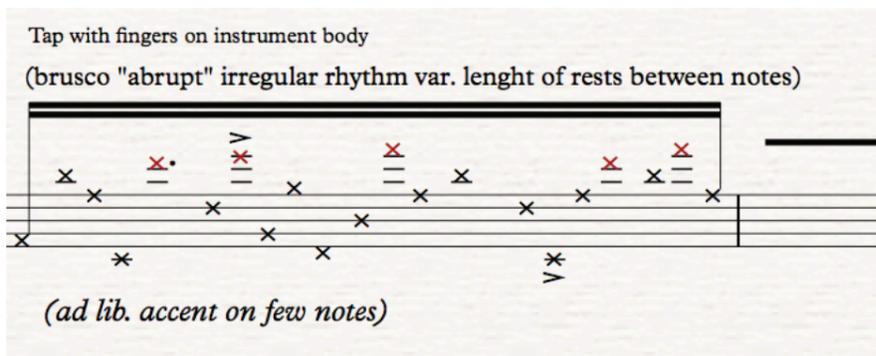
make short brakes (rests) ad libitum



The image shows a musical staff with a bass clef. Above the staff, there is a hand icon with fingers pointing down, a circle with a slash, and the text 'R.H./fingers slap on strings'. The staff contains a sequence of notes with sharp signs (#) on the first, third, fifth, and seventh lines. Below the staff, there are horizontal lines indicating rests. To the right, the text 'make short brakes (rests) ad libitum' is written.

Tap with fingers on instrument body

(brusco "abrupt" irregular rhythm var. length of rests between notes)



The image shows a musical staff with a bass clef. Above the staff, there is a hand icon with fingers pointing down and the text 'Tap with fingers on instrument body'. The staff contains a sequence of notes with sharp signs (#) on the first, third, fifth, and seventh lines. Below the staff, there are horizontal lines indicating rests. Some notes have a red 'x' above them, and some have a red 'x' below them. The text '(ad lib. accent on few notes)' is written below the staff.

Tap with fingers on instrument body. Higher written pitches should be tapped on the edge of the body or where higher pitched sound occur. Lower pitches are closer to the middle of the body etc.