

The Potbelly Hill

for violin, cello, bass clarinet in B♭ and prepared piano

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2017



PERFORMANCE NOTES

PIANO



This symbol is used to show the location of the hand movement inside the piano.

Staffs: 4 or 5 staves are used where the top staff stands for voice of the player. Each hand has two ordinary staff and one additional staff for the actions inside the piano. Most of the time the extra staff for the left hand is not there since the left hand usually plays on the keyboard.

Visualisation: There are three different kind of visualisations on the score, which are action, location and results.

(action) touch the node

(sound)

(action)

Multiphonics:
The right hand finger touches the node which lies at the given percent of the string (top staff), then lifts after playing the given note in the left hand (bottom staff) so that overtones occurs (middle staff). This technique should be performed like a guitar harmonic playing technique.

pluck

Pluck on the string:

The right hand holds the plectrum and plucks the string (top staff) on the given string (middle staff). At the bottom staff the note is an ordinary note which is played on the keyboard.

granulation with a plectrum

Plectrum granulation:
The right hand holds the plectrum and makes a horizontal glissando (top staff) on the given string (bottom staff) which causes granulation (bottom staff).

Tube Rubing:
Rub the given strings (bottom staff) inside the piano (top bottom).

Tube Rubing:
Rub the given strings (bottom staff) inside the piano (top bottom).

plectrum granulation on the treble bridge

Plectrum granulation:
The right hand holds the plectrum and makes a glissando (top staff) on the treble bridge string.

L.H.

R.H.

tr.

mp

A glass or a glass bottle, which should be so long to cover a tritone interval, which should be placed on the given strings (bottom staff). The glass should be moved then horizontally. Occasionally the glass can be moved also vertically as it can be seen on the left (bottom staff). While right hand is acting inside the piano, the left hand plays the given notes (bottom staff) with cross note-heads.

Auxiliary Objects



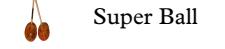
Book A4 size



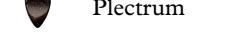
Bike Tube



Glass Bottle



Super Ball



Plectrum



Book damped:

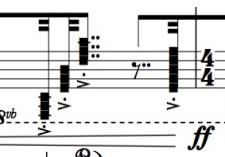
place the book between given strings!



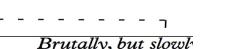
Superball Rubing:

pp

Ped.



Cluster:
A chromatic cluster is played on the keyboard.



Horizontal Glissando

All chromatic tones should be played between the given notes with a plectrum inside the piano towards the given direction.



List of piano multiphonics

How to Play the Multiphonics

- 1) A light and small object (a node-obstacle) such as a plectrum is put on a mono-chord string, to rest on a slot of the copper winding. (kept in the right hand)
- 2) The corresponding key is hit quite loudly and held pressed. (left hand)
- 3) The plectrum is soon released upwards away from the string (right hand)
- 4) The key is released at latest after the sound has faded completely, or earlier (left hand). Also, the pedal can be used, in which case the decay can be regulated more.

For more information about playing the multiphonics on the piano visit the following page to download the thesis regarding the multiphonics:

http://ethesis.siba.fi/files/vesikkala_thesis_2016_fulltext.pdf

STRINGS**Quarter tones**

- # one quarter tone higher
- # semi tone higher
- # three quarter tone higher
- one quarter tone lower
- semi tone lower
- three quarter tone lower

Cello Positions

tp : tail piece
ws : wrapped strings
bb : behind the bridge
msp: molto sul ponticello
sp : sul ponticello
ord : ordinario
st : sul tasto
mst : molto sul tasto

Bow pressure levels

- : under pressure
- ORD: ordinary pressure
- : partially over pressure, halfway between "ordinary" and "over pressure"
- : over pressure
- : noise symbol for over pressure

List of cello multiphonics used in this piece

The score includes four staves of musical notation. Staff 1: 8va, [6+11+5], M III (sul G) B: +47e. Staff 2: 8va, [7+10+13+3], M I (sul A) E: +37e. Staff 3: 8va, [5+9+13+4], same on IV IIIth string. Staff 4: 8va, [5+9+13+4], M II (sul D) F# +55e.

<http://www.celomap.com/index/the-string/multiphonics-and-other-multiple-sounds.html>

Controlling Loudness and Overtone Content

The scope for varying bow pressure, bow speed and point of contact in multiphonics is limited compared to normal playing, and even compared to performing harmonics. In general, these factors control the loudness and noisiness of a multiphonic. However, they also influence which harmonics take part in a multiphonic and can block high/low components. Therefore, when trying to change the loudness or colour of a multiphonic, it is very easy to 'break up' the multiphonic and find yourself playing a single harmonic. A balance between flexibility of colour/loudness and reliability of multiphonics is difficult to achieve. In summary:

-Increasing bow pressure increases loudness and encourages a distortion-like sound. High bow pressure favours the lower harmonics, making them loudest in the mix of harmonic components. It also encourages the open string ('first harmonic') to contribute to the sound and can restrict high harmonics.

-Decreasing bow pressure makes a multiphonic sound quieter and 'purer'. Low bow pressure can restrict the lower harmonics in a multiphonic.

-Increasing bow speed increases loudness and encourages higher harmonics, eventually cutting out lower harmonic components.

-Decreasing bow speed decreases loudness and encourages lower harmonics, eventually cutting out higher harmonic components.

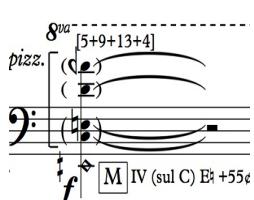
-Contact points quite close to the bridge encourage noisiness and favour low components, sometimes restricting high harmonics and allowing the open string to sound.

-Contact points very close to the bridge produce a 'purer' sound and favour high components, sometimes restricting low harmonics.

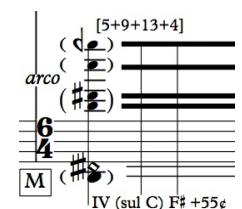
<http://www.celomap.com/index/the-string/multiphonics-and-other-multiple-sounds/further-examples-of-multiphonics.html>

Pizzicato Multiphonics

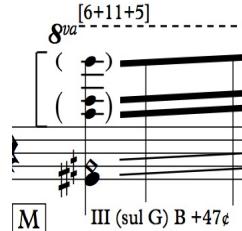
The open string is much more present in the sound than for bowed multiphonics. The mid-high harmonics are weak; harmonics above the 10th seem to be inaudible. The multiphonic effect is notably more pronounced on the lower strings.

**Artificial Multiphonics**

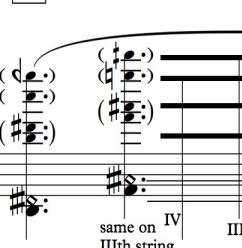
These function in a same way as pure multiphonics but they are produced as stop multiphonics. The principle is the same.

**Artificial Multiphonic Glissando**

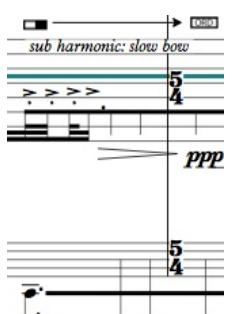
The same artificial multiphonics are played with glissandi. It is difficult to sustain a consistent multiphonic effect, but reliability improves with practice.

**Double Stopped Multiphonics**

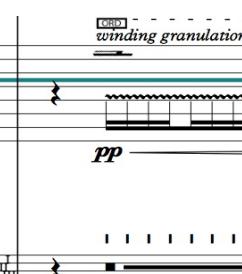
In general, it is quite problematic to play multiphonics simultaneously on two strings. This is because the bow position and speed are very specific in the case of multiphonics; slight alterations cause them to 'break up' into single harmonics. The most reliable way of double stopping multiphonics is to choose two multiphonics that are in parallel positions on two strings. The sound is distorted and difficult to sustain consistently.

**Sub Harmonics**

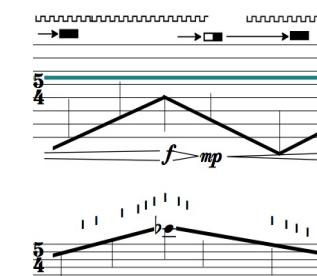
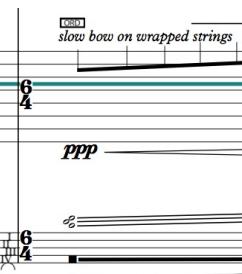
Undertones (or subharmonics) are pitches below the fundamental frequency of a string. The pitch is usually a minor seventh below the fundamental but can vary. Several different pitches might be possible. Undertones require high bow pressure and a very consistent bow speed at the lower end of 'normal' playing. In general they are easier to produce when the point of contact is not very close to the bridge.

**Winding Granulation**

It is played with the winding metal (top staff) of the bow on the given (bottom staff) open string. It causes rattling sound.

**Wrapped Strings' Sound**

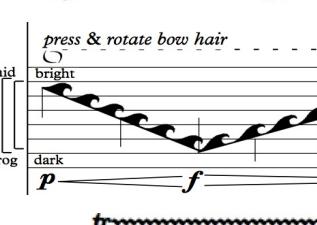
It is played on the wrapped part of the string behind the bridge. If you move the bow vertically towards the fine tuning screws, the sound gets higher and brighter.

**Bowing Directions and Pressure**

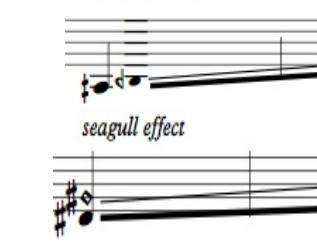
The bow moves vertically on the string and in this particular left hand makes also large glissando while partially over pressure to full over pressure of the bow is applied. There should be rattling sound.

**Pizzicato on Two Strings**

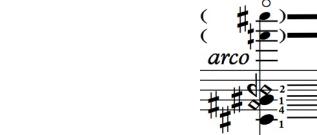
Pizzicati are applied on the given strings by using two fingers, one finger or each string while making a glissando.

**Chewing the Bow Hair**

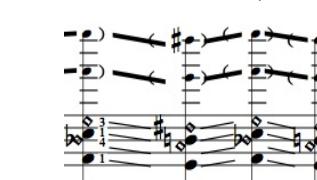
Turn the backside of the instrument. Bow the back plate of the instrument and pressing down on the hair of the bow, making rotation motions. If the middle part of the bow is used, the sound quality will be bright. If the frog part used, the sound will be darker.

**Trill with growing interval**

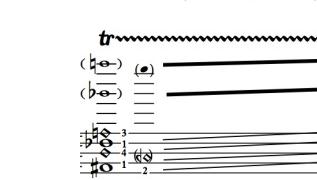
Trilling finger goes further away from the lower finger while the overall glissando.

**Seagul effect**

The effect is performed so that the left hand interval should be kept fix between the stopped and harmonic fingers while making the glissando. As a result broken upwards glissandi are heard.

**Double stop harmonics**

Two different harmonics on the neighbour strings are played simultaneously.

**Double stop glissado**

Two different harmonics on the neighbour strings make glissando simultaneously.

**Double stop trill**

Two different harmonics on the neighbour strings are played simultaneously, but one of them make trill with another harmonic of the same string.

**Double stop tremolo**

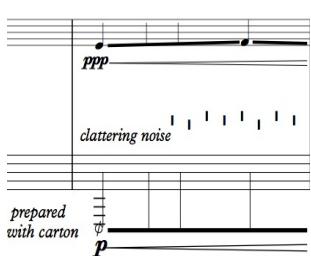
Two different harmonics are played on different strings one after another with the given bow change.

For more information about playing techniques for strings visit the following page:

<http://www.celomap.com>

BASS CLARINET

Carton Preparation



This preparation is a sheet of card. It's fixed to the bass clarinet's bell opening with a bulldog clip (the bass clarinet can be protected by gluing felt to the metal edges of the clip or by using bluetack). It's actually not so easy to find the right balance of the carton, so having a few different thicknesses to try is probably not a bad idea. When you make a crescendo on the lowest note "C" at some point it begins to make a clattering noise. These can be combined with singing, flutter tongue and overblown spectral multiphonics. For more information and how to produce them visit:
<https://heatherroche.net/2014/03/24/on-bass-clarinet-preparations/>

List of clarinet multiphonics

List of clarinet dyads

Please find these dyads on the Heather Roche's webpage with the numbers below them!!!

<https://heatherroche.net/2014/08/08/on-close-dyad-multiphonics-for-bass-clarinet/>

Overblown Spectral Multiphonics

These sounds are produced on the lowest register of the instrument. These are basically the overtone series of the instrument. These effect can be combined with other effects like singing, flutter tongue, etc. For more information and how to produce them visit:

<https://heatherroche.net/2016/09/26/spectral-multiphonics-bb-and-bass/>

Slap tongue & Multiphonic

The slap tongue sounds emanates from a vacuum created between the reed and the mouthpiece. We create and release this vacuum by pressing the tongue to the reed, creating a suction, moving the reed back from the mouthpiece facing and then releasing our tongue. This snapping back to the mouthpiece creates that fantastic slap sound. if you slap tongue on a multiphonic fingering, you get a chord. For more information and how to produce them and also see the video of it, visit:

<https://heatherroche.net/2014/04/04/on-clarinet-articulation/>

<https://heatherroche.net/2014/08/25/how-to-slap-tongue/>

Reed Tapping Granulation

This technique involves flicking or tapping the reed with the right hand while holding down different keys with the left hand, producing short articulated pizz-style sounds. For more information and how to produce them and also see the video of it, visit:

<https://heatherroche.net/2017/01/08/reed-tapping-articulation/>

For more information about playing techniques for strings visit the following page:

<https://heatherroche.net>

VOICE

Closed Mouth

The given note should be sang while mouth is closed by saying "hmm". Black circle on the top of the note indicates that mouth should be closed.

Mouth Closed to Open

The given note should be sang while mouth is closed then on the given beat it begins to open. When it becomes fully open, a vowel is indicated. Black circle on the top of the note goes yo open circle means it gets open.

Airy Whistle

Don't be too loud and be carefull not dominate the other sounds. The quality of the whistle should be airy. It can be combined with glissando or trill.

Whistle Trill

Don't be too loud and be carefull not dominate the other sounds. The quality of the whistle should be airy. The interval of the trill is an minor 2nd.

Changing Vowels

The vowels are changing rapidly when the moth becomes open.

Vocal Fry Granulation

Vocal Fry is the lowest vocal register and is produced through a loose glottal closure which will permit air to bubble through slowly with a popping or rattling sound of a very low frequency.

For more information about the techniques please see the book called "**The Techniques of Singing**" by Nicholas Isherwood.

If you have question, please do not hesitate to write me. My e-mail adres is

dulger@bu.edu

The Potbelly Hill

for violin, cello, bass clarinet in B \flat and prepared piano

CREED

1'17" 1'23" 1'29" 1'34" 1'39" 1'43" 1'48" 1'53" 1'55" 2'00"

3

17
Voice
Vc.
mst
st
ord
sp
msp
bb
ws
tp

18
ppp
hm

19
20
21
22
23
24
25
26

1'17" 1'23" 1'29" 1'34" 1'39" 1'43" 1'48" 1'53" 1'55" 2'00"

bow speed: increase decrease granulation: very slow bow

17
Voice
Vc.
tp
ws
bb
msp
sp
ord
st
mst

18
ppp

19
hm

20
ORD

21
22
23
24
25
26

1'17" 1'23" 1'29" 1'34" 1'39" 1'43" 1'48" 1'53" 1'55" 2'00"

17
Voice
Vc.
tp
ws
bb
msp
sp
ord
st
mst

18
ppp

19
hm

20
ORD

21
22
23
24
25
26

1'17" 1'23" 1'29" 1'34" 1'39" 1'43" 1'48" 1'53" 1'55" 2'00"

17
Voice
B. Cl.

18
ppp

19
IV (sul C)

20
II (sul D)

21
22
23
24
25
26

1'17" 1'23" 1'29" 1'34" 1'39" 1'43" 1'48" 1'53" 1'55" 2'00"

17
Voice
B. Cl.

18
ppp

19
f
mp

20
f
mp

21
ff

22
ppp

23
9
8

24
2
4

25
9
8

26
3
4

1'17" 1'23" 1'29" 1'34" 1'39" 1'43" 1'48" 1'53" 1'55" 2'00"

17
Voice
Pno. L.H.
Pno. R.H.

18
ppp

19
hm

20
granulation

21
15th

22
mf

23
ff

24
ppp

25
p

26
touch the node

1'17" 1'23" 1'29" 1'34" 1'39" 1'43" 1'48" 1'53" 1'55" 2'00"

17
Voice
Pno. L.H.
Pno. R.H.

18
ppp

19
hm

20
granulation

21
15th

22
mf

23
ff

24
ppp

25
p

26
touch the node

1'17" 1'23" 1'29" 1'34" 1'39" 1'43" 1'48" 1'53" 1'55" 2'00"

17
Voice
Pno. L.H.
Pno. R.H.

18
ppp

19
hm

20
granulation

21
15th

22
mf

23
ff

24
ppp

25
p

26
touch the node

3'17" 3'21" 3'27" 3'34" 3'40" 3'44"

42 43 44 45 46 47

Voice (3/4) -
pizz.
Vln. (3/4) - arco III (sul G)
mst st ord sp msp bb ws tp
3/4 5/4 6/4
mp f mp f mp f mf ff

Voice (3/4) -
tp ws bb msp sp ord st mst
3/4 5/4 6/4
sub harmonic: slow bow ORD

Vc. (3/4) - pizz. [5+9+13+4]
f M IV (sul C) E \sharp +55¢
[6+11+5] M III (sul G) B \flat +47¢
f M IV (sul C) E \sharp +55¢

Voice (3/4) -
B. Cl. (3/4) - overblow
ppp mp p ff p f

Voice (3/4) -
Pno. L.H. (3/4) - place the book between given strings!
granulation
5/4 6/4
3/4 6/4
p pp f mp f ff

Pno. R.H. (3/4) - tr
mf pp mf & Leo.
5/4 6/4
mf & Leo. ff 15^{mb}
tr 15^{mb} mp f > mp f > mp f > mp f > mf f & Leo. pp & Leo.

3'49" 3'55" 4'02" 4'06" 4'13" 4'17"

48 49 50 51 52 53

Voice: *p* *mf* *mp* *f*

Vln.: *p* *mf* *pizz.* *mf*

mst
st
ord
sp
msp
bb
ws
tp

6 *tr* *[d7, g7]* *[e7, b7]* *[g#7, a7]* *[b7, g7]* *[a7, b7]* *tr* *[a#6, b6]*

6 *ORD* *2* *2* *ORD*

Voice: *p* *f* *mp* *f*

tp
ws
bb
msp
sp
ord
st
mst

slow bow on wrapped strings

6 *hm* *a* *hm*

Vc.: *p* *mp* *p* *mp* *p* *f* *mp* *f* *pizz.* *[5+9+13+4]* *M* *mp* *p* *mf*

Voice: *flutter* *mf* *p*

B. Cl.: *f* *p*

Voice: *f* *p* *i* *hm* *2*

Pno. L.H.: *f* *mp* *tr* *f* *mp*

Pno. R.H.: *f* *tr* *mp* *Reo.* *Reo.*

7

SACRIFICE

This figure shows a page from a musical score for orchestra and piano, page 9, containing measures 62 through 64. The score includes parts for Voice, Vln., mst, tp, Vc., B. Cl., Pno. L.H., and Pno. R.H. The notation is in 2/4 time, with various key signatures and dynamic markings such as *pizz.*, *ffff*, *ff*, *slap*, *mf*, *f*, and *p*. The vocal part includes lyrics like "tr", "f", "62", "63", "64", "5'08\"", "5'12\"", "5'15\"", "5'22\"", and "9". The piano parts show complex rhythmic patterns with various pedaling instructions.

5'27" 5'34" 5'38" 5'43" 5'50" 5'57"

65 66 67 68 69 70

Voice Vln. mst st sp msp bb ws tp

tp ws bb msp sp ord st mst

Vc.

B. Cl.

Pno. L.H.

Pno. R.H.

6'53" 6'59" 7'06" 7'11" 7'17"

80 81 82 83 84

Voice: *mp* → *ff* *mf* → *fff*

Vln.

mst
st
ord
sp
msp
bb
ws
tp

ORD → **ORD** → **ORD**

arco (\sharp) [g \sharp 6, a6]

II-III

mp → *ff* *mf* → *fff*

Voice: *f* *mp* → *ff* *mf* → *fff*

tp
ws
bb
msp
sp
ord
st
mst

ORD → **ORD** → **ORD**

Vc.

M III (sul G) B \flat +47c

Voice: *f* *mp* → *ff* *mf* → *fff*

B. Cl.

slap

Voice: *p* → *f*

Pno. L.H.

8va

mp → *ff*

p → *f*

p → *f*

plectrum granulation on the treble bridge

Pno. R.H.

8va

mp → *f*

ff

ff

7'23" 7'26" 7'29" 7'35" 7'39"

13

vocal fry granulation: imitate the violin

85 86 87 88 89

Voice

Vln.

mst
st
ord
sp
msp
bb
ws
tp

granulation: very slow bow

85 86 87 88 89

Voice

tp
ws
bb
msp
sp
ord
st
mst

vocal fry granulation: imitate the violin

85 86 87 88 89

Vc.

pizz. [5+9+13+4] [6+11+5] [5+9+13+4] [5+9+13+4] [7+10+13+3]

[M] IV (sul C) E \natural +55¢ [M] III (sul G) B \flat +47¢ [M] II (sul D) F \sharp +55¢ [M] I (sul A) E \flat +37¢

mp p mp p p

winding granulation ORD

winding granulation ORD

arco

85 86 87 88 89

Voice

B. Cl.

slap

reed tapping granulation: imitate the violin

85 86 87 88 89

Voice

Pno. L.H.

ppp mf fff p

plectrum granulation on the treble bridge

85 86 87 88 89

Pno. R.H.

f ff fff 15^{mb} Ped.

7'42" 7'47" 7'51" 7'56"

90 91 92 93

Voice

Vln.

mst
st
ord
sp
msp
bb
ws
tp

Voice

Vc.

tp
ws
bb
msp
sp
ord
st
mst

Voice

vocal fry granulation: imitate the violin

B. Cl.

vocal fry granulation: imitate the violin

**Pno.
R.H.**

COVENANT

15

This figure shows a detailed musical score page from page 15. The score is organized into six systems, each containing multiple staves for different instruments. The instruments include Voice, Vln. (Violin), mst (Metaphysical String), tp (Timpani), Vc. (Double Bass), B. Cl. (Bassoon), Pno. L.H. (Piano Left Hand), and Pno. R.H. (Piano Right Hand). The music spans measures 94 to 103. The score features complex rhythmic patterns, including eighth-note and sixteenth-note figures, and various dynamic markings such as *p*, *mf*, *ppp*, *fff*, and *ffff*. Articulations like *hm*, *i*, and *hm* are also present. Performance instructions like "granulation: very slow bow" and "slow bow on wrapped strings" are included. The score uses a mix of common time (2/4, 3/4) and compound time (6/4). Key signatures change frequently, with labels like [g#6, a6], [a#6, b6], and [6+11+5]. Measure numbers 94 through 103 are indicated above the staves. The page number 15 is located at the top right.

8'40" 8'44" 8'49" 8'54" 8'58" 9'03" 9'08" 9'12" 9'19"

104 105 106 107 108 109 110 111 112

Voice Vln. mst st ord sp msp bb ws tp

104 105 106 107 108 109 110 111 112

tp ws bb msp sp ord st mst

Vc. [6+11+5] 8' [III (sul G) Bb +47¢] M

Voice B. Cl.

Voice Pno. L.H.

Pno. R.H.

flutter

mid bright back plate frog dark

press & rotate bow hair

seagull effect

[10+13+3] [9+13+4] granulation (location)

%30,8 %23,1

Brutally, but slowly and equally

(8) E♭ +37¢ M E♭ +55¢ 15mb ff

Reed. Reed. Reed. Reed.