CONTINUITY HYPOTHESIS

for bass flute, bass clarinet, violoncello, digital keyboard and Max signal processing patch

Composed by Erkki Veltheim

2017

GENERAL REMARKS

This piece is named after the continuity hypothesis in linguistics that assumes that babbling is a constitutive and continuous part of infant language acquisition. It was composed at the invitation of André de Ridder for a concert by defunensemble at the 2017 Musica nova Helsinki.

Seating:

bass Flute

bass clarinet violoncello

The digital keyboard may be placed at some distance on either side of this trio.

The digital keyboard should have both its own audio engine and MIDI out capability. It acts as a midi controller for a Max signal processing patch, and thus needs to be connected to the computer running this patch via USB or a MIDI interface. The keyboard volume should be muted, or routed only to the keyboard player's headphones.

The bass flute, bass clarinet and violoncello should be close-miked and their signal routed to a mixing desk (for amplification) and the audio interface attached to the computer running the Max patch (for signal processing). The audio interface needs at least 3 inputs, one for each instrument, and 4 outputs, to be routed to the main mixing desk.

Input 1 = bass clarinet
Input 2 = bass flute
Input 3 = violoncello
Output 1+2 = prerecorded tape part, to be routed left+right
Output 3+4 = live signal processing, to be routed left+right

The bass clarinet should be panned hard left, the bass flute in the middle, and the violoncello hard right. The live instruments, the prerecorded tape part and the live signal processing should all be generally the same volume in the live mix.

This project has been assisted by the Australian Government through the Australia Council, its arts funding and advisory body.

Australian Government | Australia Council for the Arts

PERFORMANCE INSTRUCTIONS

The beginning and the end of the piece should be synchronised by all musicians. All other section changes are somewhat freer, and each musician may decide individually when to change sections within a +/-5" margin of the given section change time.

The entire piece should be played somewhat 'sotto voce', with a persistent feeling of nervous energy and mechanical rhythmic propulsion. The live instrumental sounds should blend more or less evenly with the tape and electronic parts, occasionally emerging momentarily out of this general texture.

In each section, the musicians are given a vocabulary of pitches and at times rhythmic patterns, with written instruction on how to use these to choose the specific materials to be played. Any group or pattern of notes should be repeated at least once, either immediately or after some time. If the musician feels that they receive positive feedback from the electronics and the other musicians in the group, they may keep repeating a group or pattern until they receive negative feedback, at which point they should move to a different group or pattern of notes. In general, the feeling of positive feedback should elicit more repetitions and uniformity of materials, and the feeling of negative (or no) feedback should elicit less repetitions and more variation of materials. It is not necessary to play all the pitches or patterns given in each section.

Any pitch may be played as a natural or artificial harmonic, sounding at the notated pitch. All pitched material should have a somewhat indistinct quality. These materials should emerge out of and disappear back into the continuous rhythmic pitchless breath tones that are a constant throughout the work, and may be freely modulated timbrally to increase or decrease the partial and noise content in the sound. Articulation, emphasis and attack may also be varied within the general overall 'sotto voce' dynamic and specific guidelines given in each section.

Breaks may be taken from the continuous breath tones if necessary.

The bass clarinet part is composed for an instrument with an extension at least down to D3 (sounding C2), and the bass flute part is composed for an instrument with a low B extension. If these are lacking, omit any pitches that lie below the playing range of the instrument.

The keyboard player should select and play any number of preludes and fugues from book 1 of "Das Wohltemperierte Klavier" by JS Bach for the entire duration of the piece. The keyboard's external volume should be muted, but the player may listen to the keyboard audio via headphones. The keyboard controls the events on the Max patch, and also triggers the start of the tape part at the beginning of the piece.

The Max patch should load the tape part automatically, but failing this, it can be loaded manually as per the instructions on the patch. The processing and the tape part start automatically when the keyboard player presses any key on the keyboard. They can also be started by pressing the space bar or with a mouse on the patch itself. The patch can be paused by pressing the space bar, and can be started at any time point as per the instructions on the patch. The patch reports the input signal from the three acoustic instruments, but the input volume cannot be controlled in the patch, and so should be set externally. The output volumes of the tape part and the processed instruments can be adjusted individually. The "instrument processing signal level scale" can be used to scale the signal level of the processed instruments before being summed in the output. It is preset to 0.5 to prevent overloading the output signal, but can be adjusted to an optimal level. If using a full version of Max, any changes to the output volumes and instrument processing signal level scale settings can be saved by saving the patch before closing.

00:00 SECTION 1: ♩ = 90-150

Continuous lightly marked, sustained pitchless breath tones in ♩, optionally with slight accel/rit (in the range ♩= 90-150) and cresc/dim (in the range o < p) envelopes, interrupted by:

- occasional isolated sustained notes in ♩ using pitches from a) and b). These notes, and all subsequent pitch materials throughout the work, should be somewhat indistinct, emerging out of and disappearing back into the breath tones.

01:00 SECTION 2: ♩= 90-150

Continuous lightly marked, sustained pitchless breath tones in ♩, as in section 1, interrupted by:

- occasional isolated sustained notes in ♩ using pitches from b), as in section 1, and;

- occasional groups of sustained and somewhat indistinct notes using 1-2 pitches from a), each pitch played as 1-3 x ♩.

02:00 SECTION 3: ♩= 90-150

Continuous lightly marked, sustained pitchless breath tones in ♩, interrupted by:

- occasional isolated sustained notes in ♩ using pitches from b), and;

- occasional groups of sustained and somewhat indistinct notes using 1-3 adjacent pitches from a), each pitch played as 1-3 x ♩, as in section 2, and;

- occasional groups of slightly marked but somewhat indistinct notes in patterns starting with 1 x ♪ using any pitch from a) and followed by 1-3 x ♩ using any adjacent pitches from b).

03:00 SECTION 4: ♩= 90-150

Continuous lightly marked, sustained pitchless breath tones in ♩, interrupted by:

- occasional isolated sustained notes in ♩ using pitches from b), and;

- occasional groups of sustained and somewhat indistinct notes using 1-3 adjacent pitches from a), each pitch played as 1-3 x ♩, and;

- occasional groups of slightly marked but somewhat indistinct notes in patterns starting with 1 x ♪ using any pitch from a) and followed by 1-3 x ♩ using any adjacent pitches from b), as in section 3, and;

- occasional groups of sustained and somewhat indistinct notes using 1-3 adjacent pitches from a), each pitch played as 4 x 𝅘𝅥𝅯.

04:00 SECTION 5: ♩= 90-150

Continuous lightly marked, sustained pitchless breath tones in ♩, interrupted by:

- occasional isolated sustained notes in ♩ using pitches from b), and;

- occasional groups of slightly marked but somewhat indistinct notes in patterns starting with 1 x ♪ using any pitch from a) and followed by 1-3 x ♩ using any adjacent pitches from b), and;

- occasional groups of sustained and somewhat indistinct notes using 1-3 adjacent pitches from a), each pitch played as 4 x 𝅘𝅥𝅯, as in section 4.

05:00 SECTION 6: ♩= 90-150

Continuous lightly marked, sustained pitchless breath tones in ♩, interrupted by:

- occasional isolated sustained notes in ♩ using pitches from b), and;

- occasional groups of sustained and somewhat indistinct notes using 1-3 adjacent pitches from a), each pitch played as 4 x 𝅘𝅥𝅯.

06:00 SECTION 7: ♩= 80-140

Continuous lightly marked, sustained pitchless breath tones in ♩, interrupted by:

- repeated slurred and somewhat indistinct groups of notes in 𝅘𝅥𝅯 using 2 alternating adjacent pitches in the given set.

Begin with the lowermost pitches and very gradually introduce new pitches.

07:00 SECTION 8: ♩= 80-140

Continuous lightly marked, sustained pitchless breath tones in ♩, interrupted by:

- repeated slurred and somewhat indistinct groups of notes in 𝅘𝅥𝅯 using 2 alternating adjacent pitches in the given set, and;

- repeated slurred and somewhat indistinct groups of notes in 𝅘𝅥𝅯 using 3 alternating adjacent pitches in the given set

Begin with the lowermost pitches and very gradually introduce new pitches.

08:00 SECTION 9: ♩= 80-140

Continuous lightly marked, sustained pitchless breath tones in ♩, interrupted by:

- repeated slurred and somewhat indistinct groups of notes in 𝅘𝅥𝅯 using various patterns of 2 and 3 alternating adjacent pitches in the given sets.

Freely alternate between sets a) and b).

Begin with the lowermost pitches and gradually introduce new pitches and patterns.

09:00 SECTION 10: ♩= 80-140

Continuous lightly marked, sustained pitchless breath tones in ♩, interrupted by:

- repeated slurred and somewhat indistinct groups of notes in 𝅘𝅥𝅯 using any of the given cells.

Freely alternate between cells in sets a) and b).

10:00 SECTION 11: ♩= 80-140

Continuous lightly marked, sustained pitchless breath tones in ♩, interrupted by:

- repeated slurred and somewhat indistinct groups of notes in 𝅘𝅥𝅯 using various patterns of 2, 3 and 4 alternating adjacent pitches in the given sets.

Freely alternate between sets a), b), c) and d).

Begin with the lowermost pitches and introduce new pitches at a rapid rate. When the top pitch in any set is reached, begin again from the second-lowest pitch (of any set), and thereon begin each successive cycle on a higher pitch than the preceding one.

11:00 SECTION 12: ♩= 80-140

Continuous lightly marked, sustained pitchless breath tones in ♩, interrupted by:

- patterns of 1-3 sustained and somewhat indistinct notes in different combinations of ♩ and 𝅗𝅥, using the given pitch.

12:00 SECTION 13: ♩= 80-130

Continuous lightly marked, sustained pitchless breath tones in ♩, interrupted by:

- any of the patterns in the given cells read forwards, slightly marked but somewhat indistinct. Each pattern may be repeated any number of times immediately or after some time.

13:00 SECTION 14: ♩= 80-130

as per section 13

14:00 SECTION 15: ♩= 80-130

Continuous lightly marked, sustained pitchless breath tones in ♩, as in section 1, interrupted by:

- any of the patterns in the given cells, or a continuous fragment of a cell that contains at least one ♪, read forwards, slightly marked but somewhat indistinct. Each pattern may be repeated any number of times immediately or after some time.

15:00 SECTION 16: ♩= 80-130

as per section 15

16:00 SECTION 17: ♩= 80-130

Continuous lightly marked, sustained pitchless breath tones in ♩, interrupted by:

- any of the patterns in the given cells, or a continuous fragment of a cell that contains at least one ♪, read forwards or backwards, slightly marked but somewhat indistinct. Each pattern may be repeated any number of times immediately or after some time.

17:00 SECTION 18: ♩= 80-130

as per section 17

18:00 SECTION 19: ♩= 80-130

Continuous lightly marked, sustained pitchless breath tones in ♩, interrupted by:

- any of the patterns in the cells, or a continuous fragment of a cell, given in a) read forwards or backwards, slightly marked but somewhat indistinct. Each pattern may be repeated any number of times with a minimum of 𝅘𝅥𝅯 rest between repetitions, and;

- repeated slurred and somewhat indistinct groups of notes in 𝅘𝅥𝅯 using various patterns of 2, 3 and 4 alternating adjacent pitches in sets b1) and b2).

Freely alternate between sets a), b1) and b2).

19:00 SECTION 20: ♩= 80-130

as per section 19

20:00 SECTION 21: ♩= 80-130

as per section 19

21:00 SECTION 22: ♩= 80-130

as per section 19

22:00 SECTION 23: ♩= 80-130

Continuous lightly marked, sustained pitchless breath tones in ♩, interrupted by:

- any of the patterns in the cells, or a continuous fragment of a cell, read forwards or backwards, as in section 19.

23:00 SECTION 24: ♩= 80-130

Continuous lightly marked, sustained pitchless breath tones in ♩, interrupted by:

- repeated slurred and somewhat indistinct groups of notes in 𝅘𝅥𝅯 alternating the 2 pitches in the given set.

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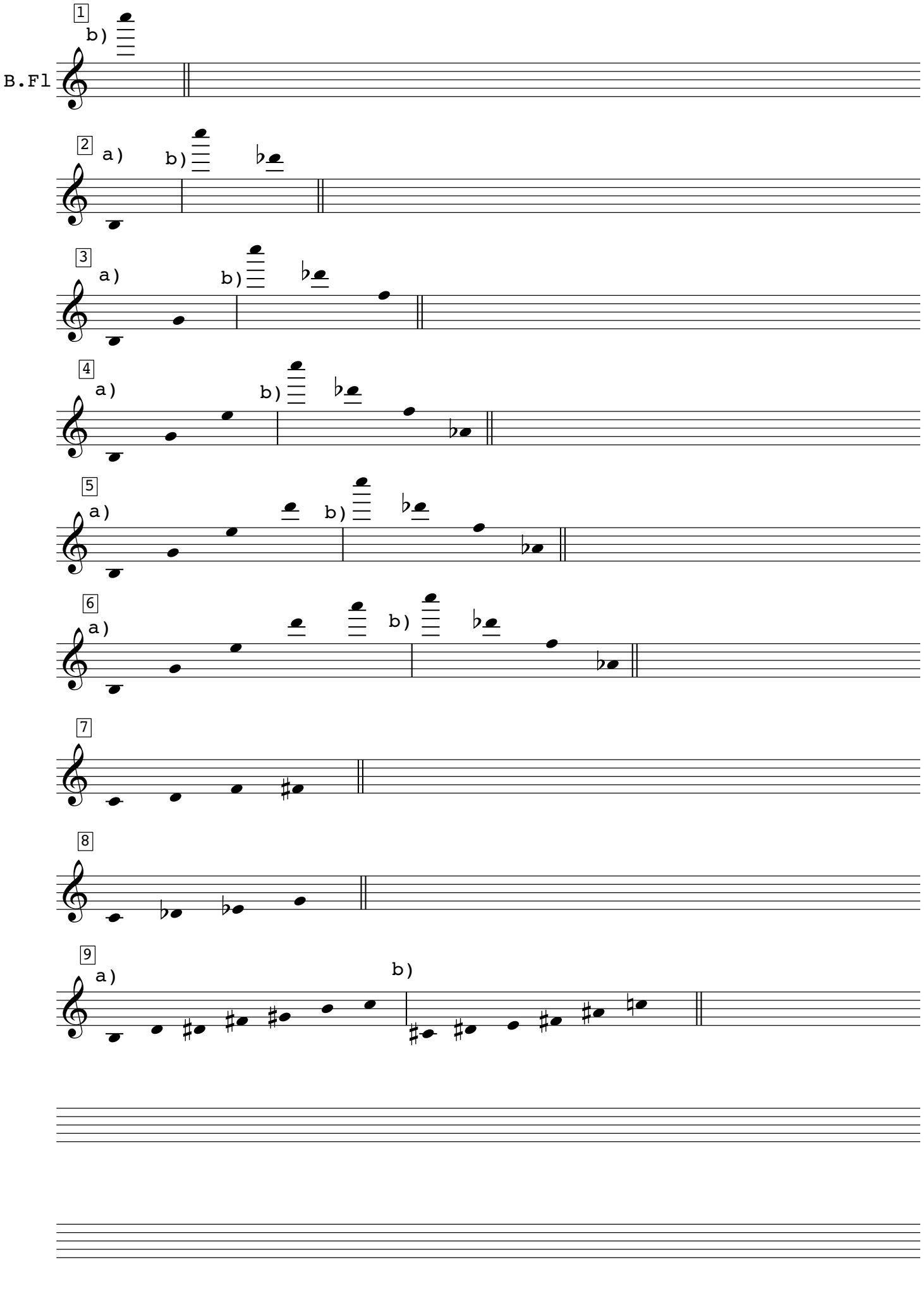
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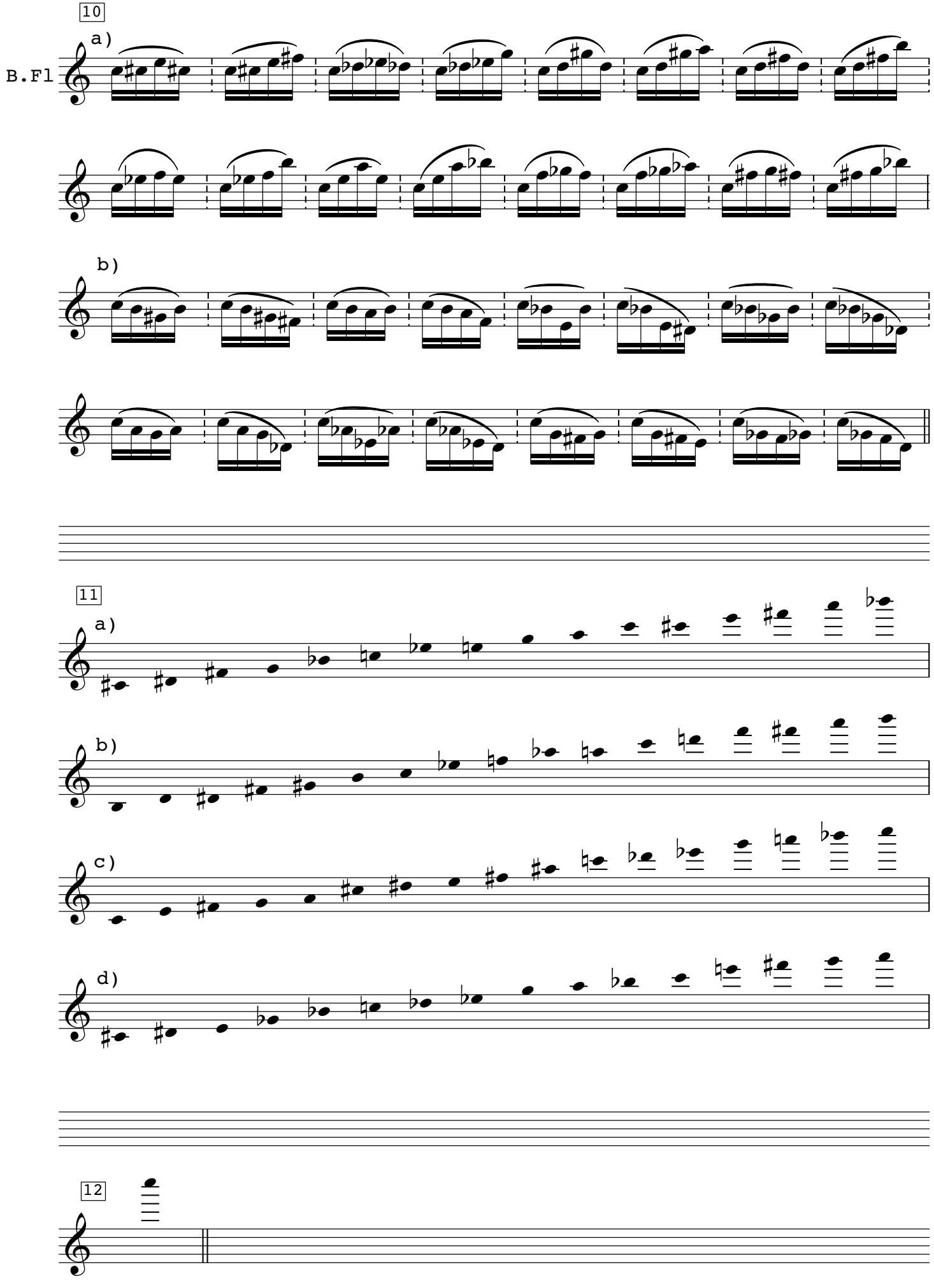
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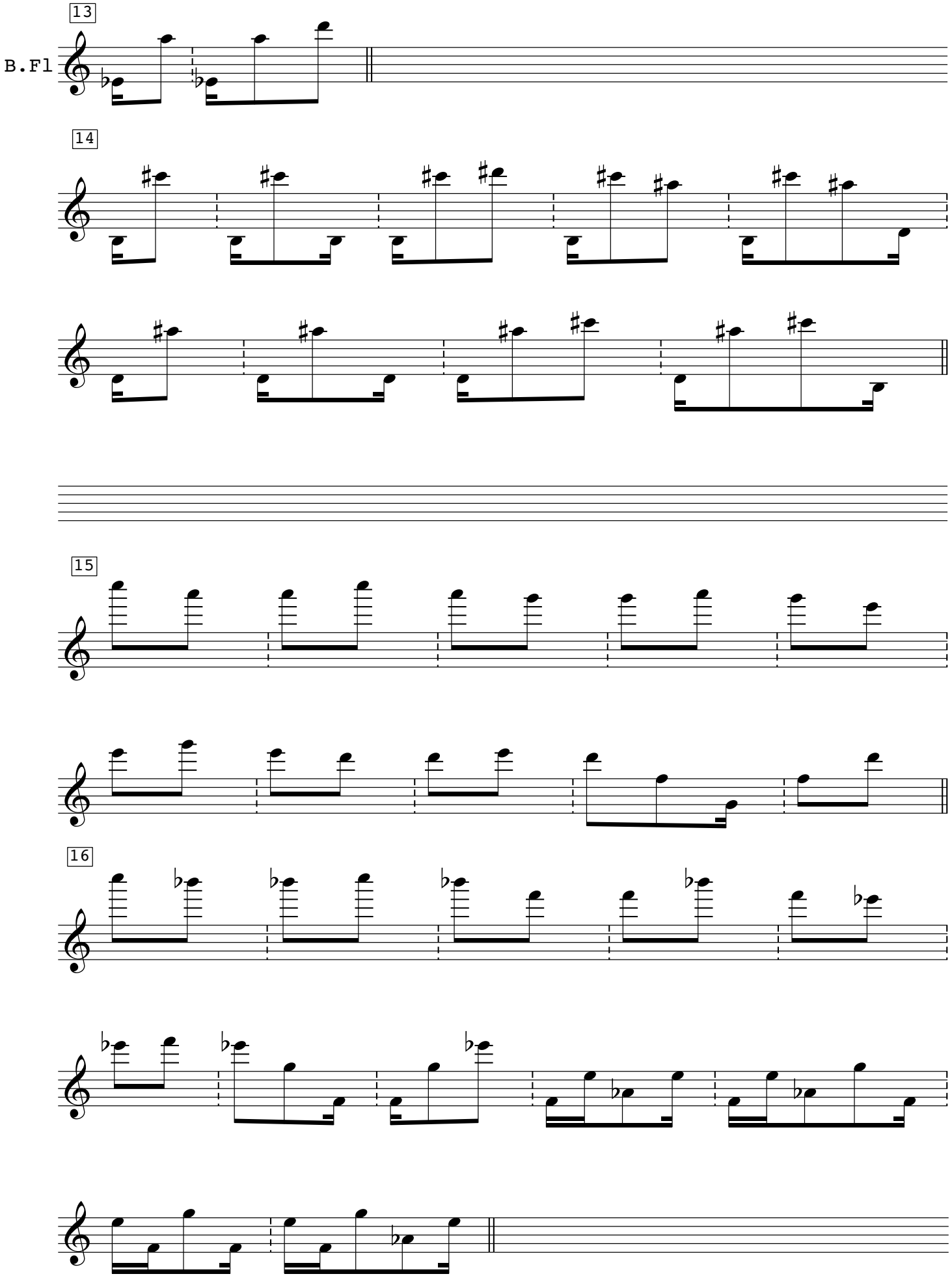
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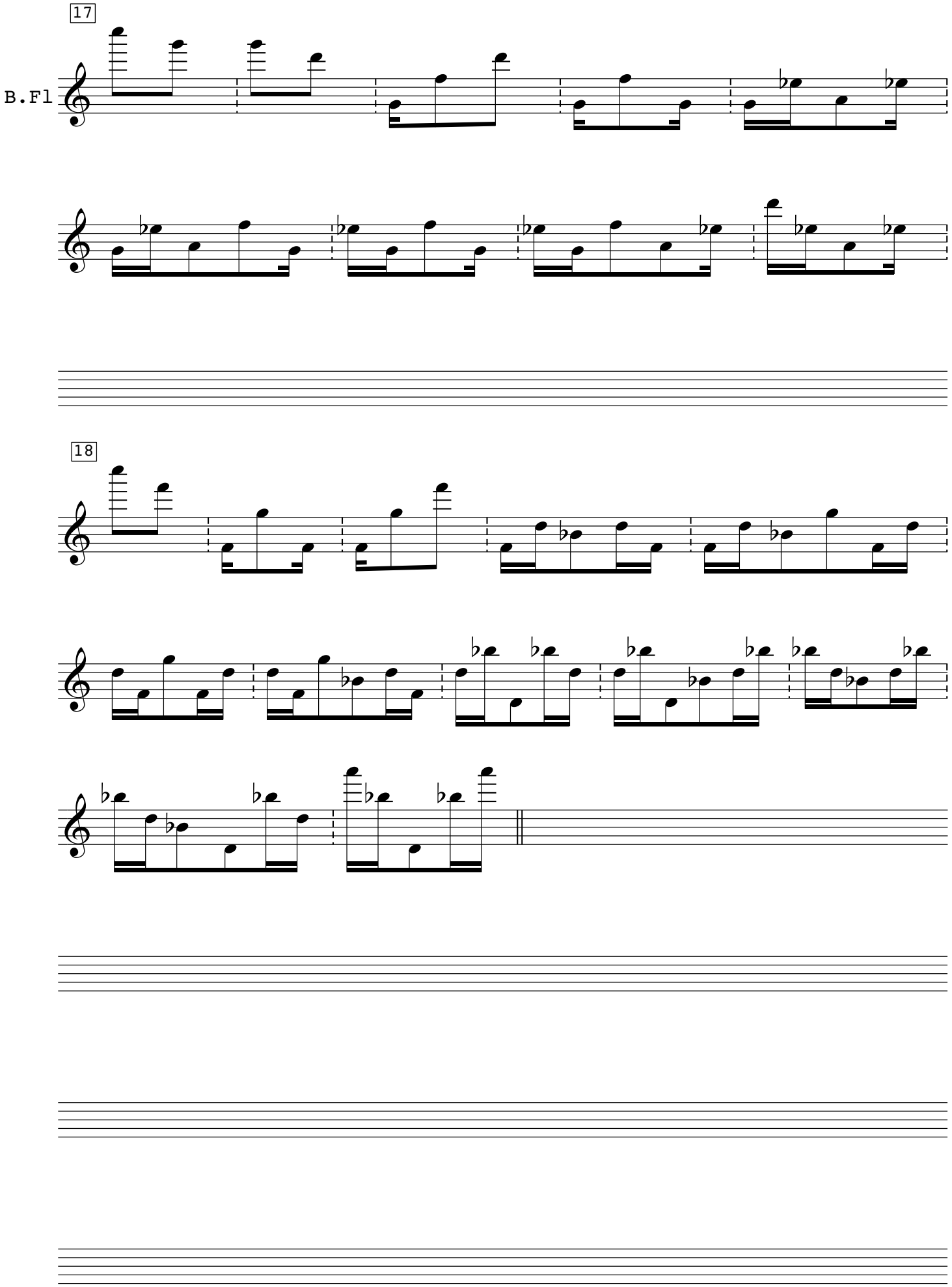
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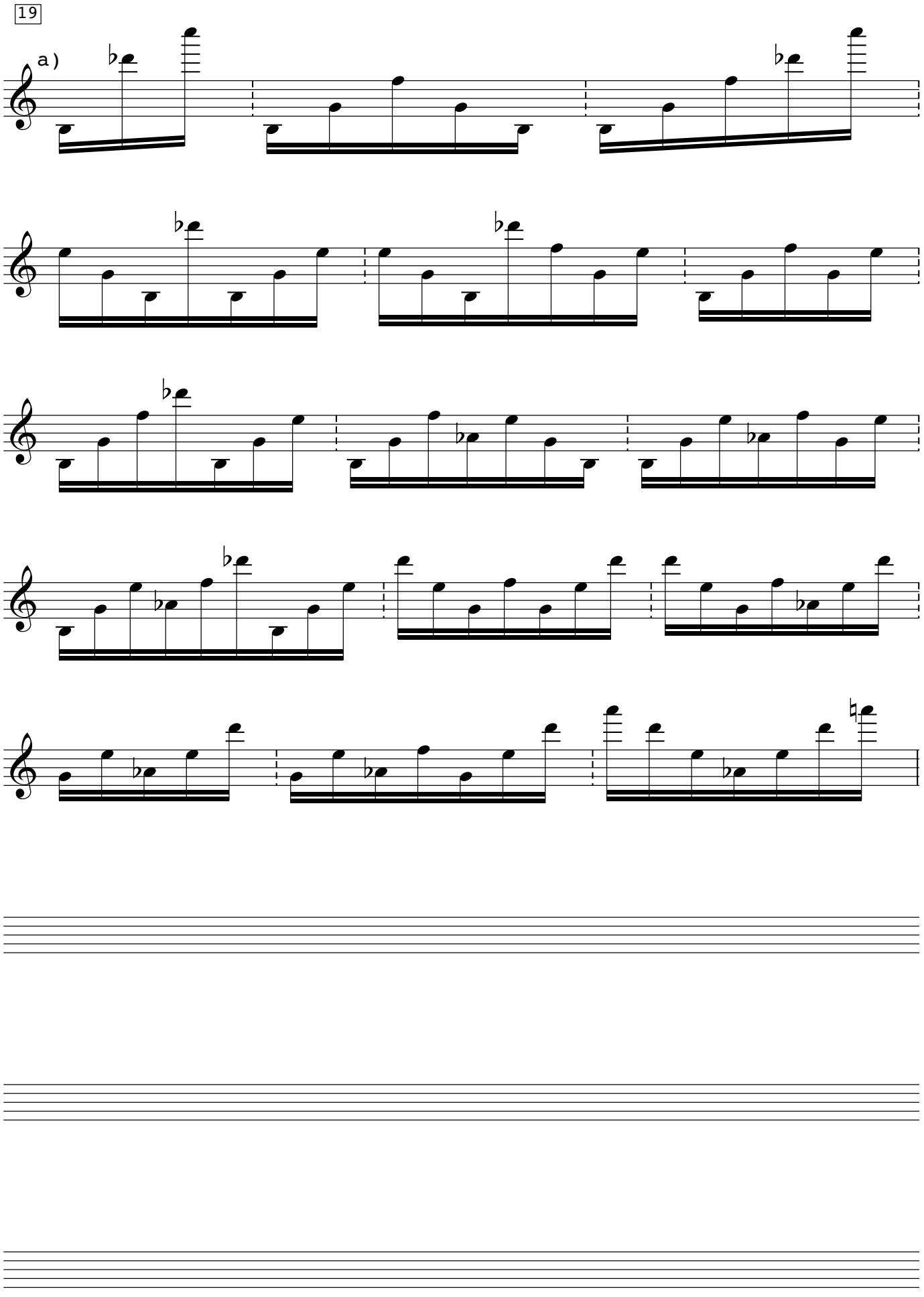
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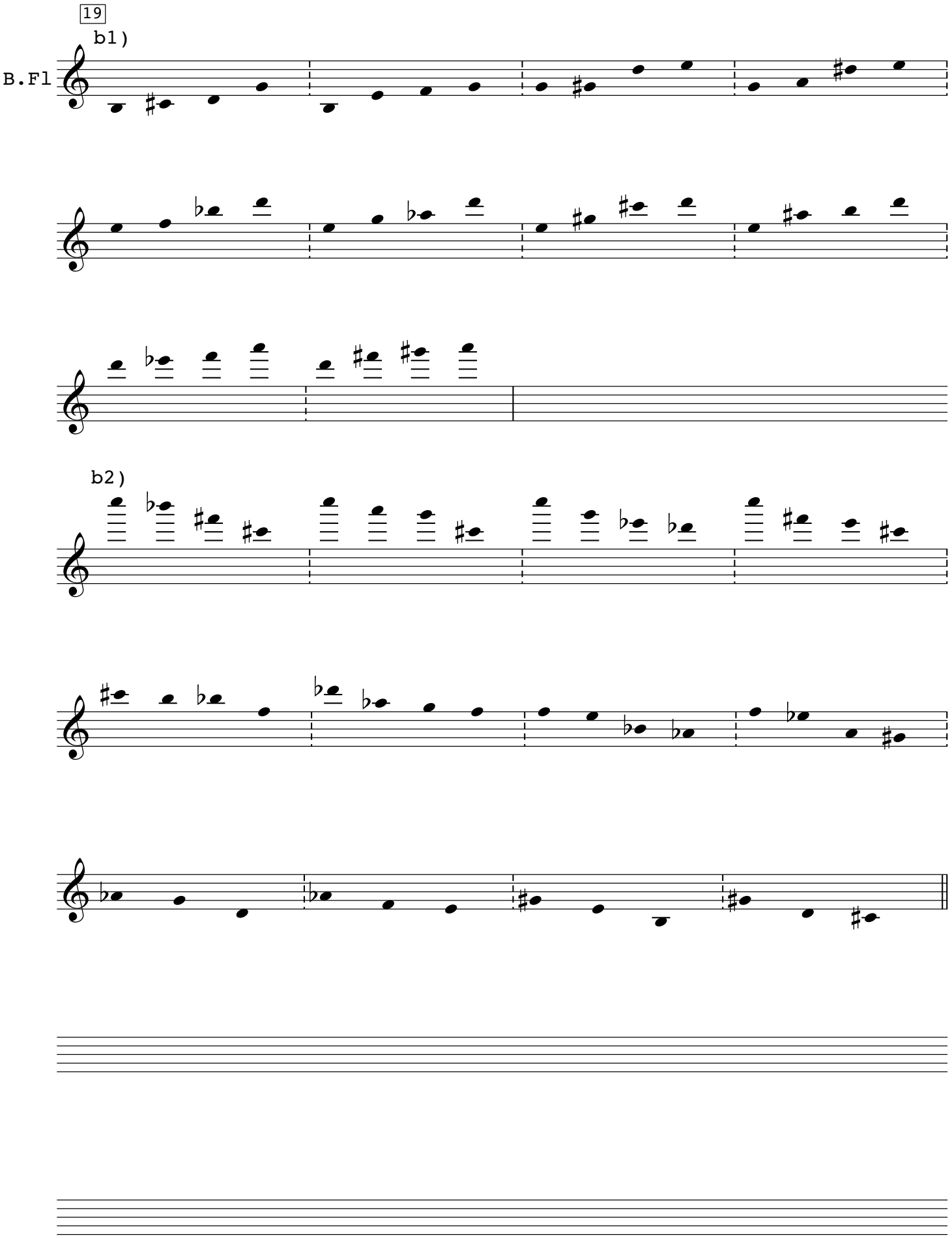
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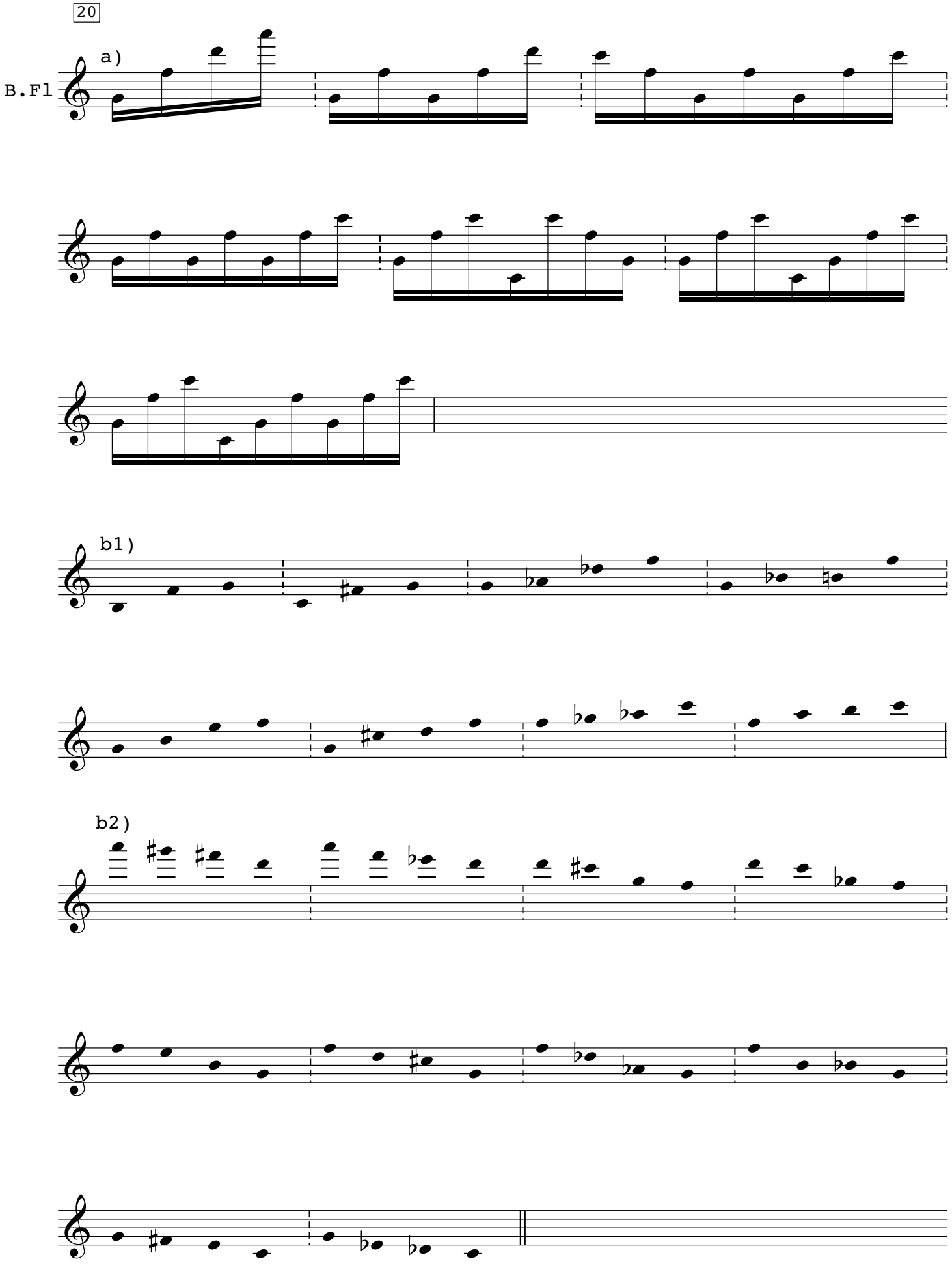
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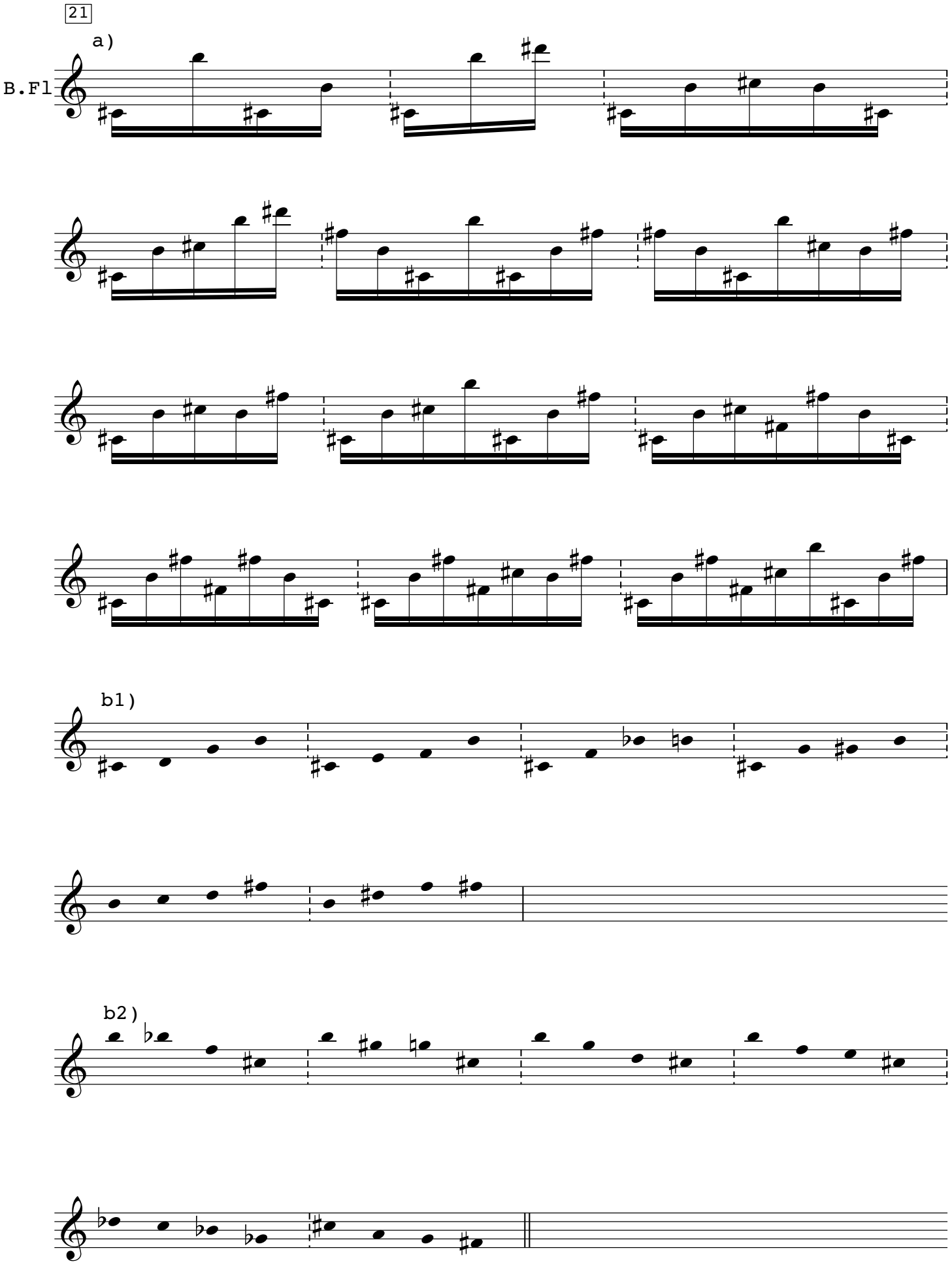
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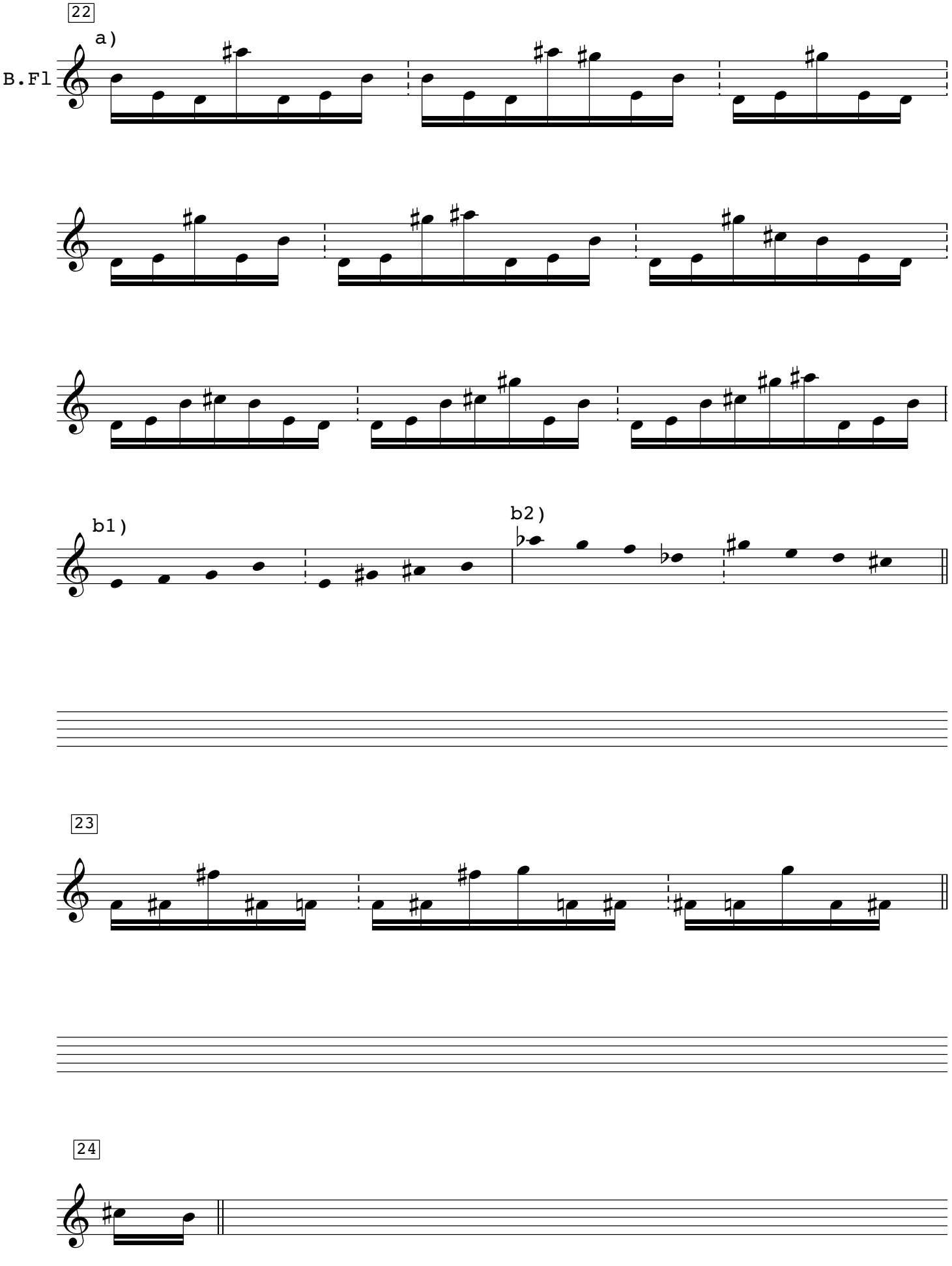
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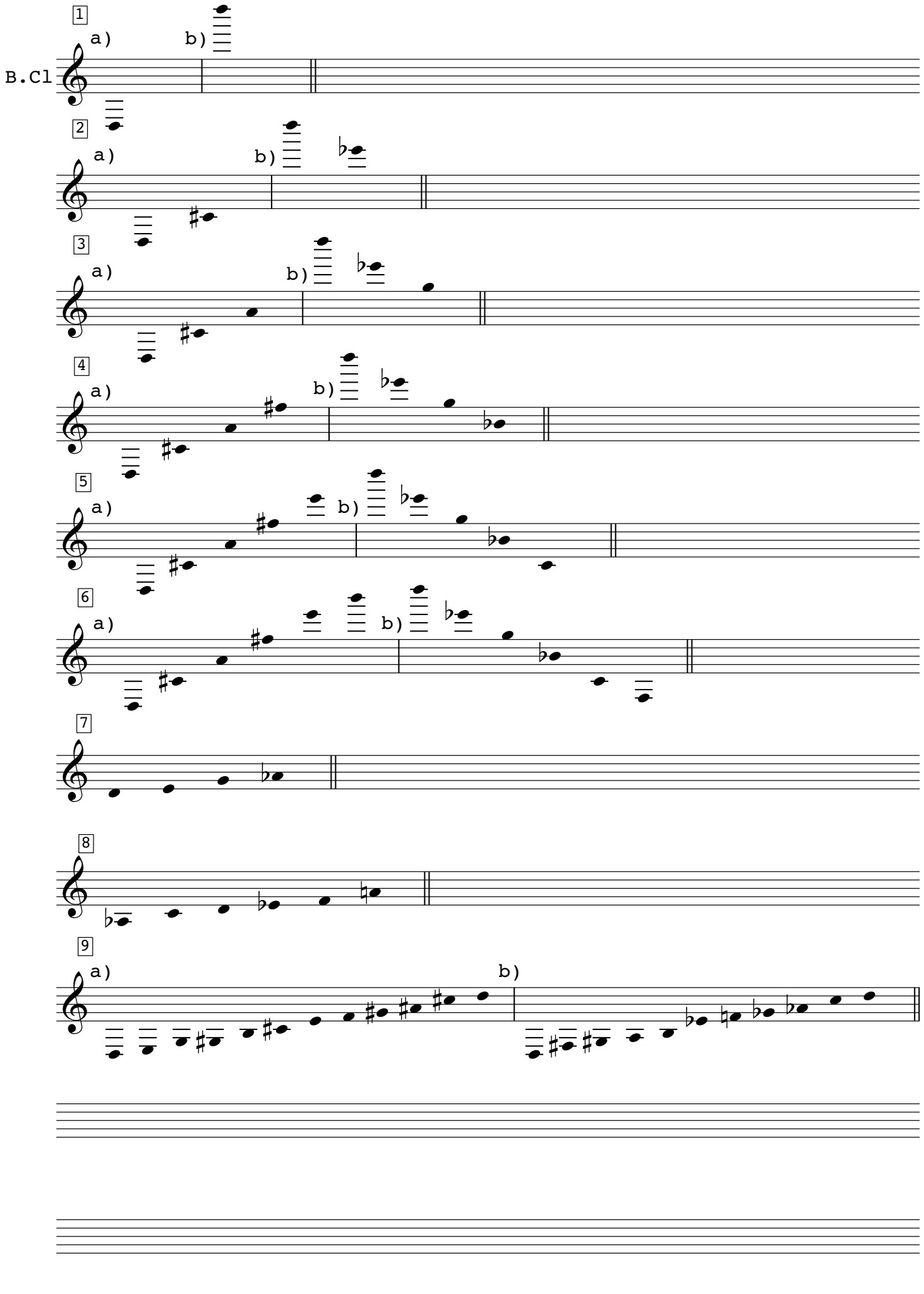
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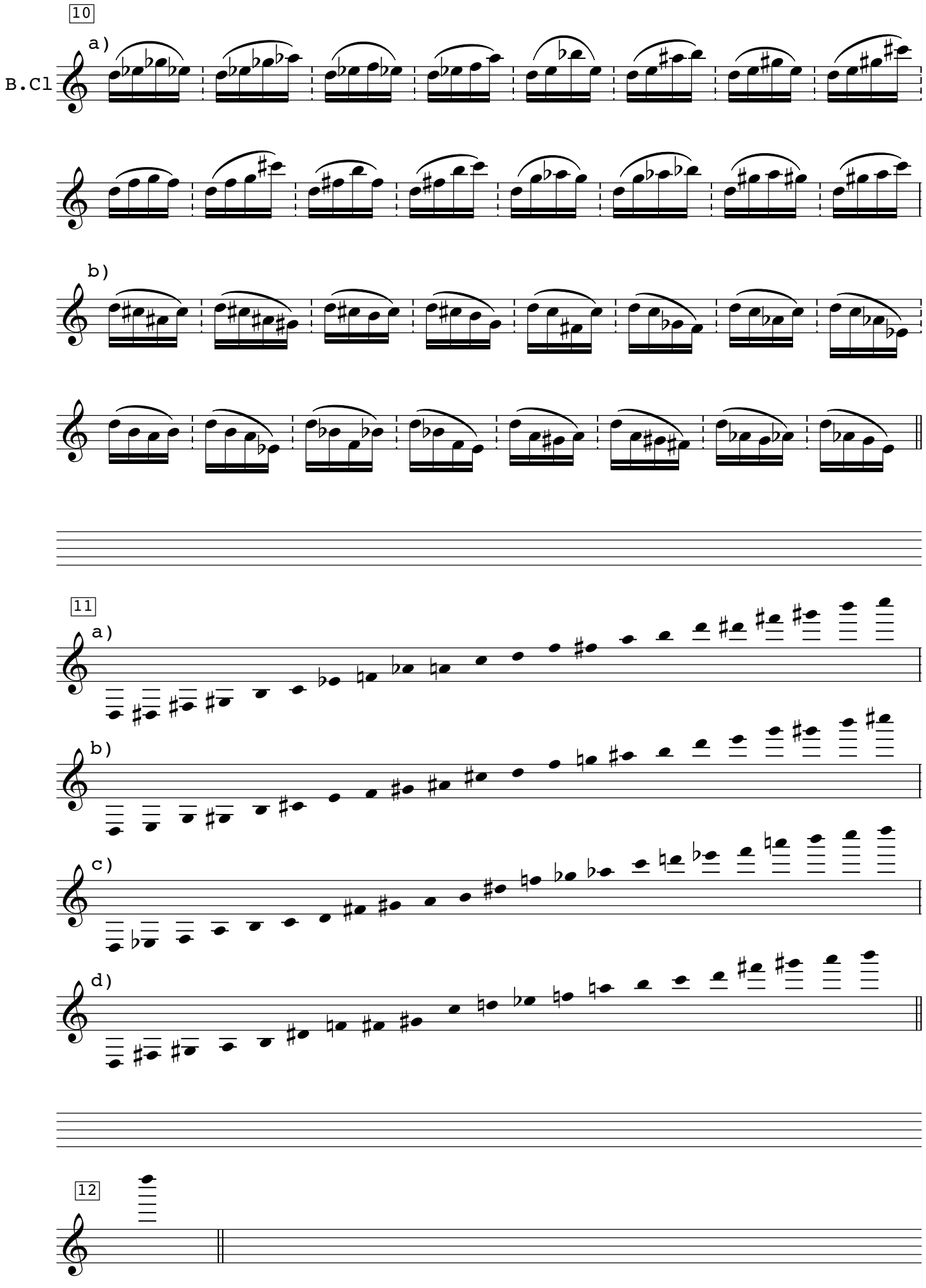
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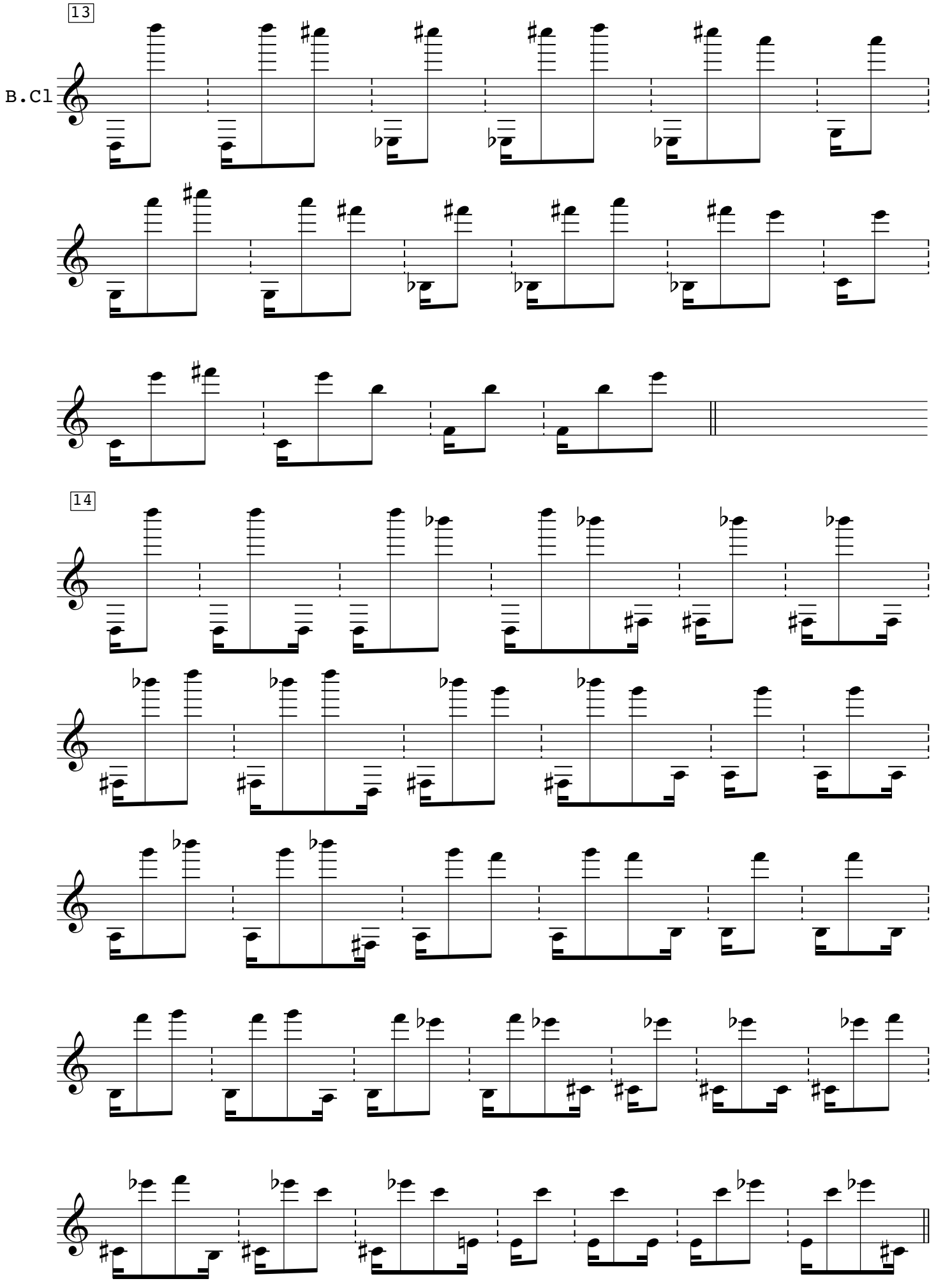
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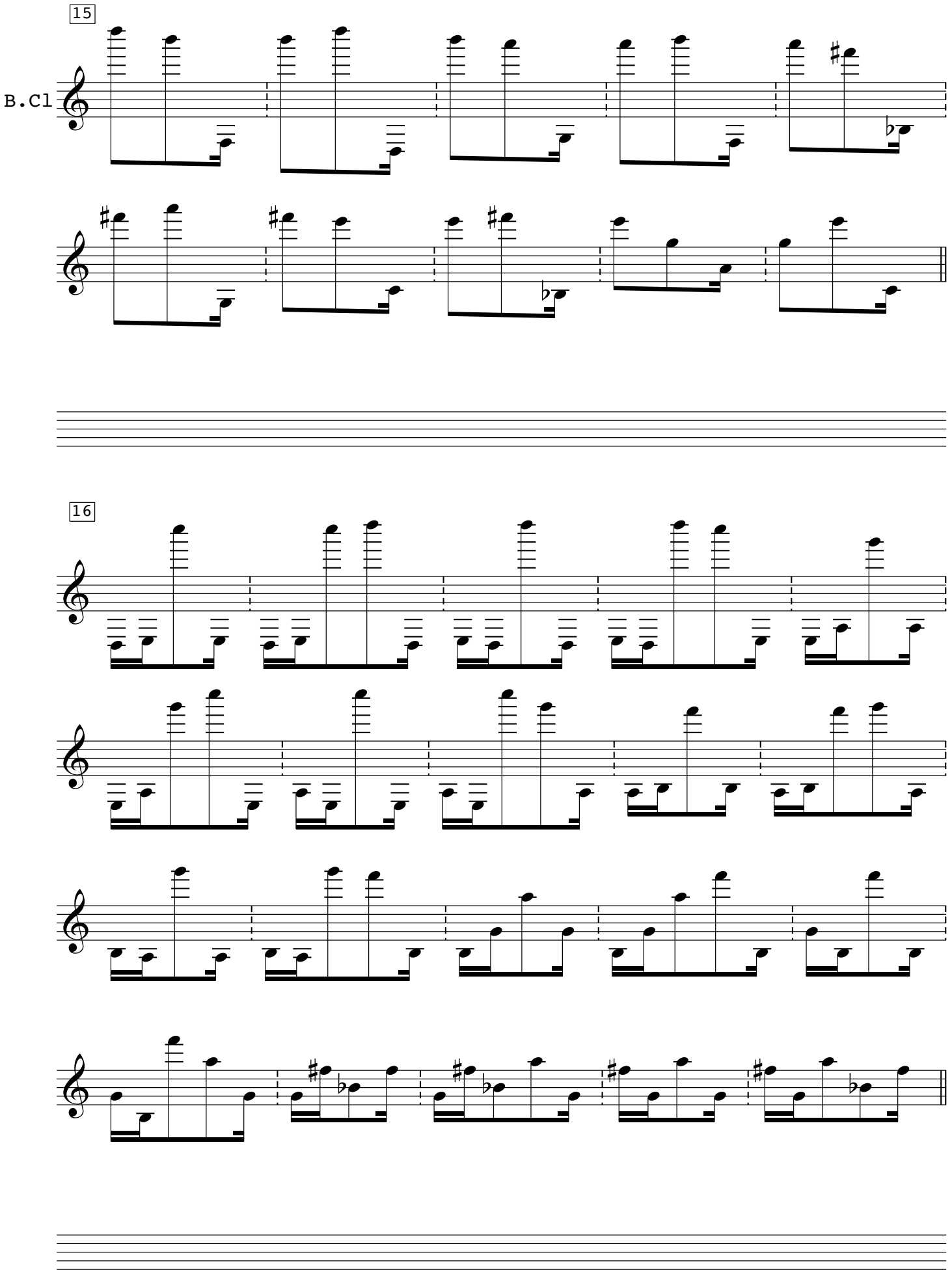
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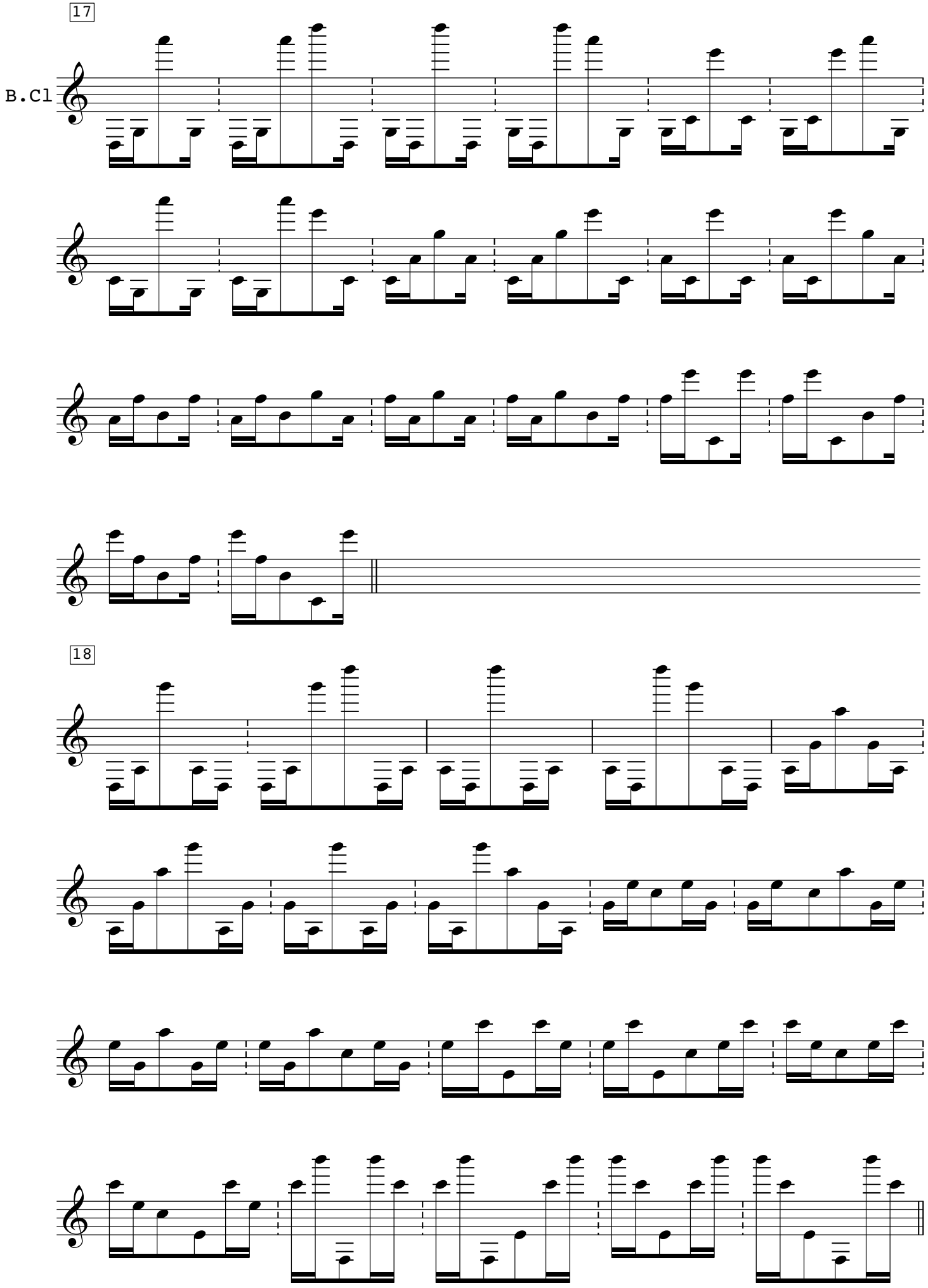
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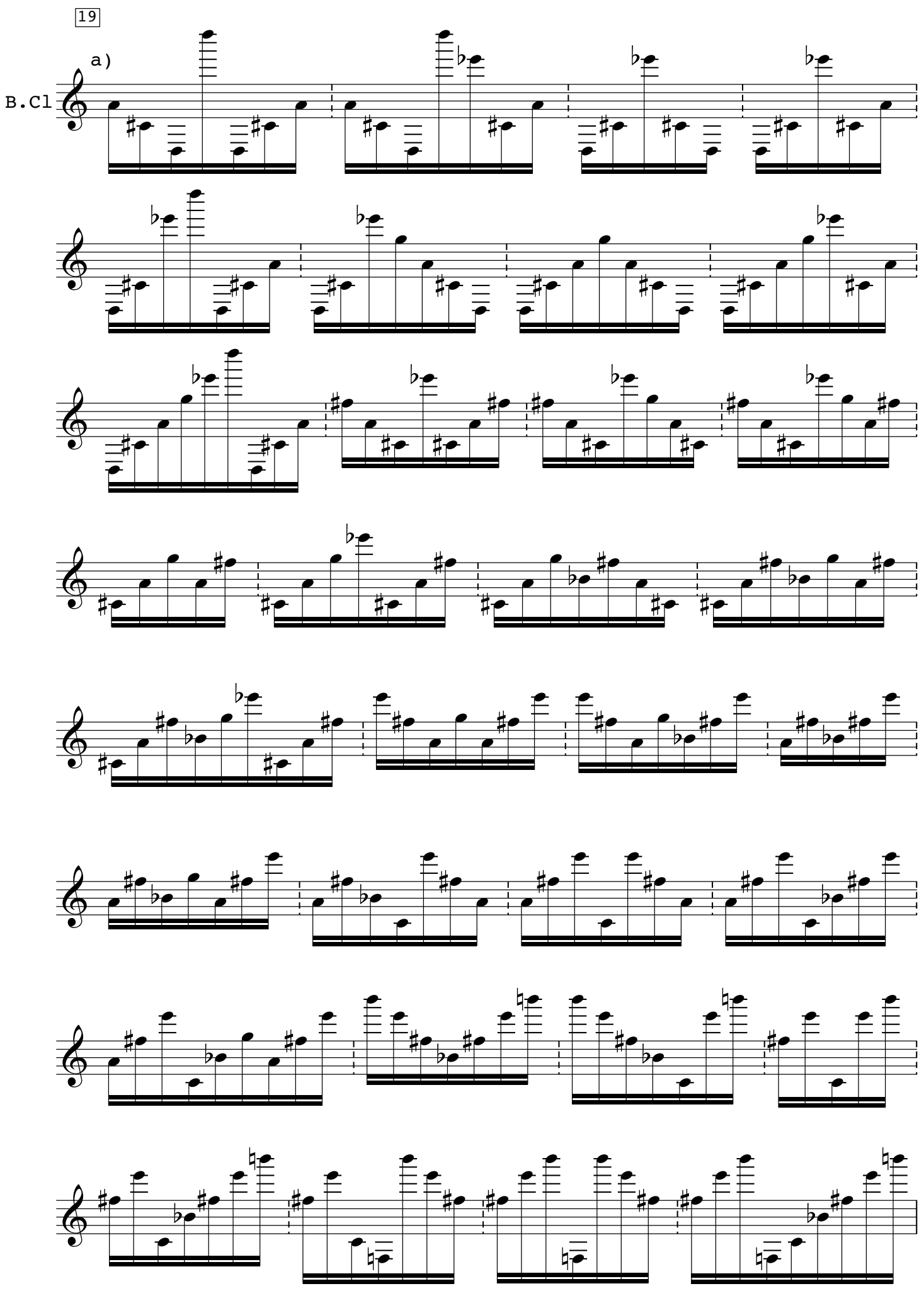
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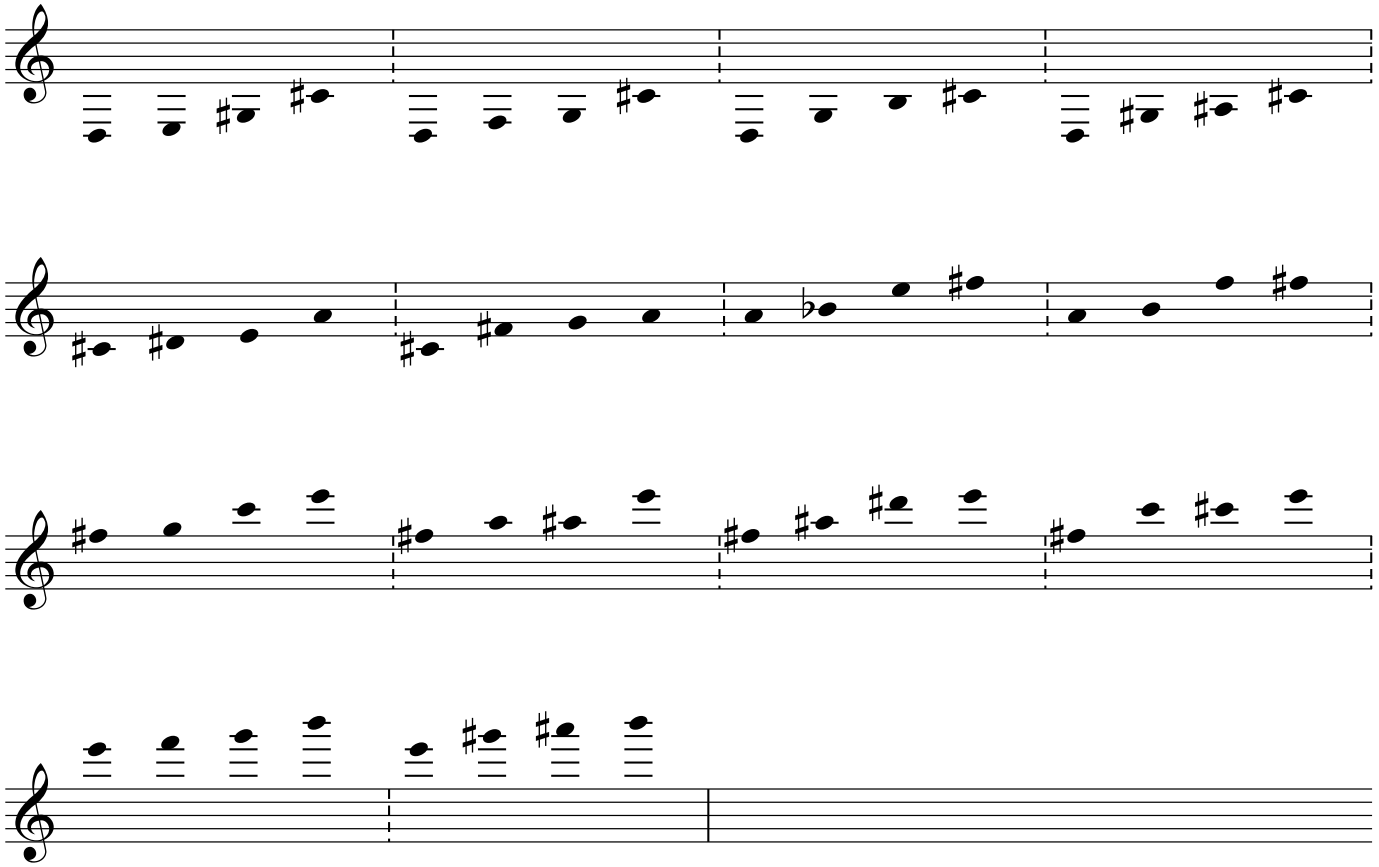
19

b1)

B.Cl



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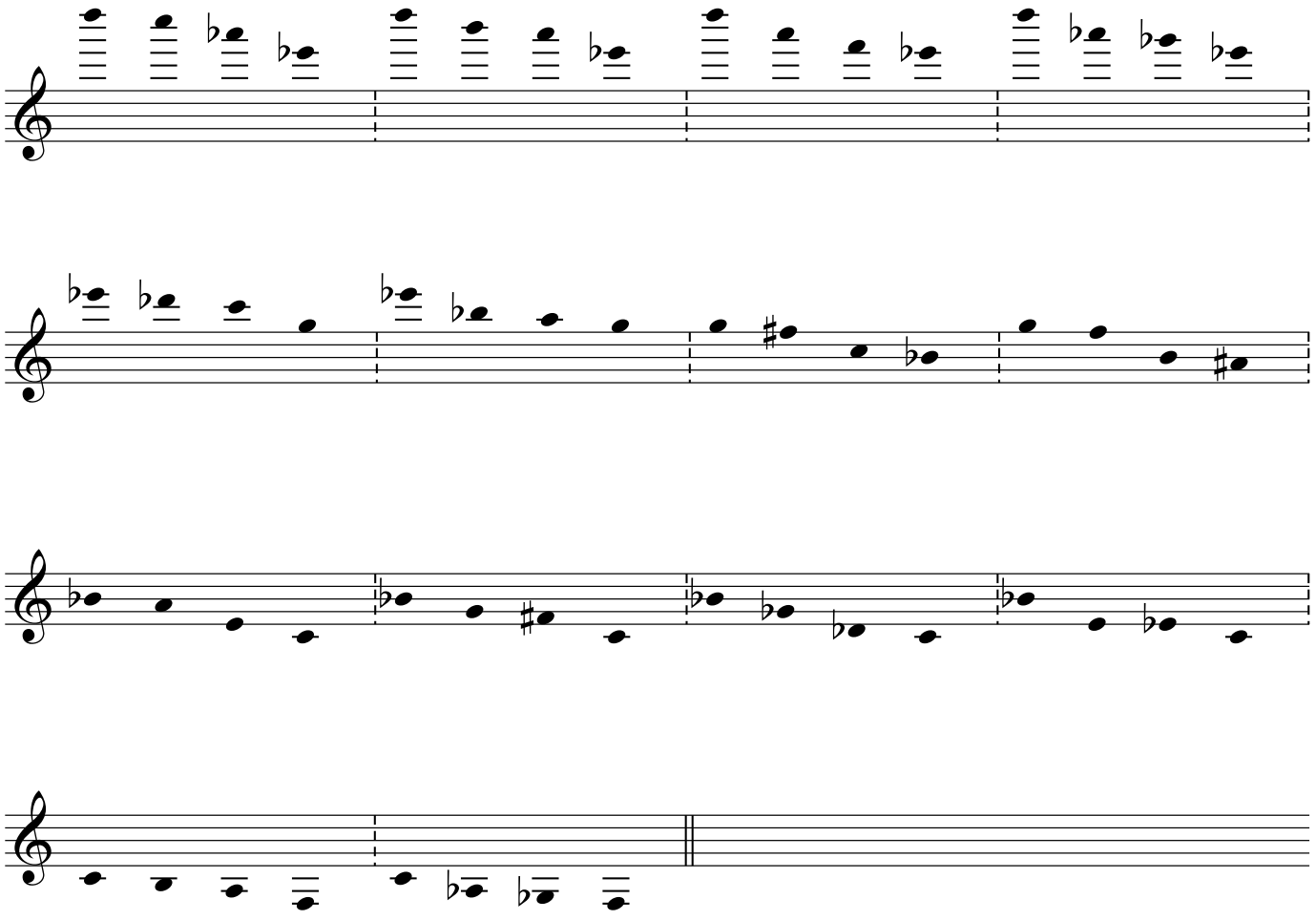

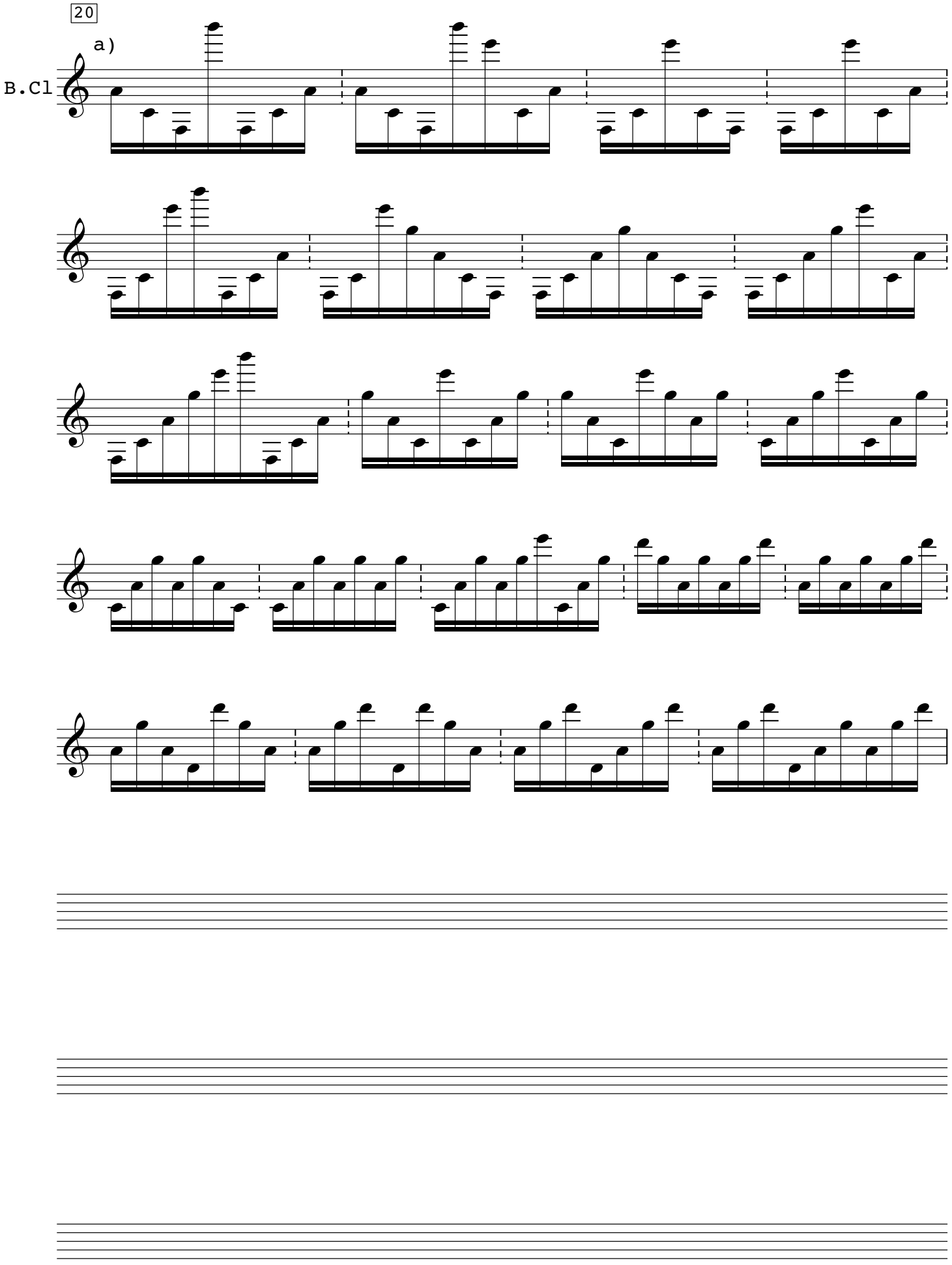
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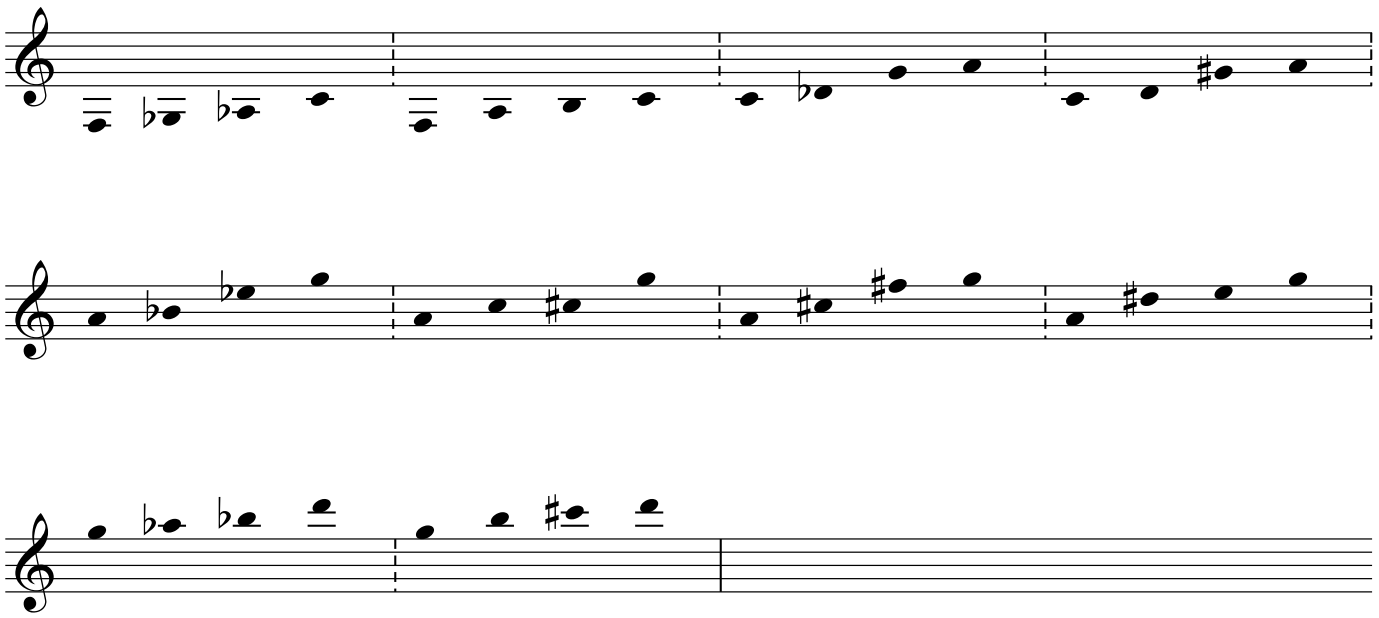

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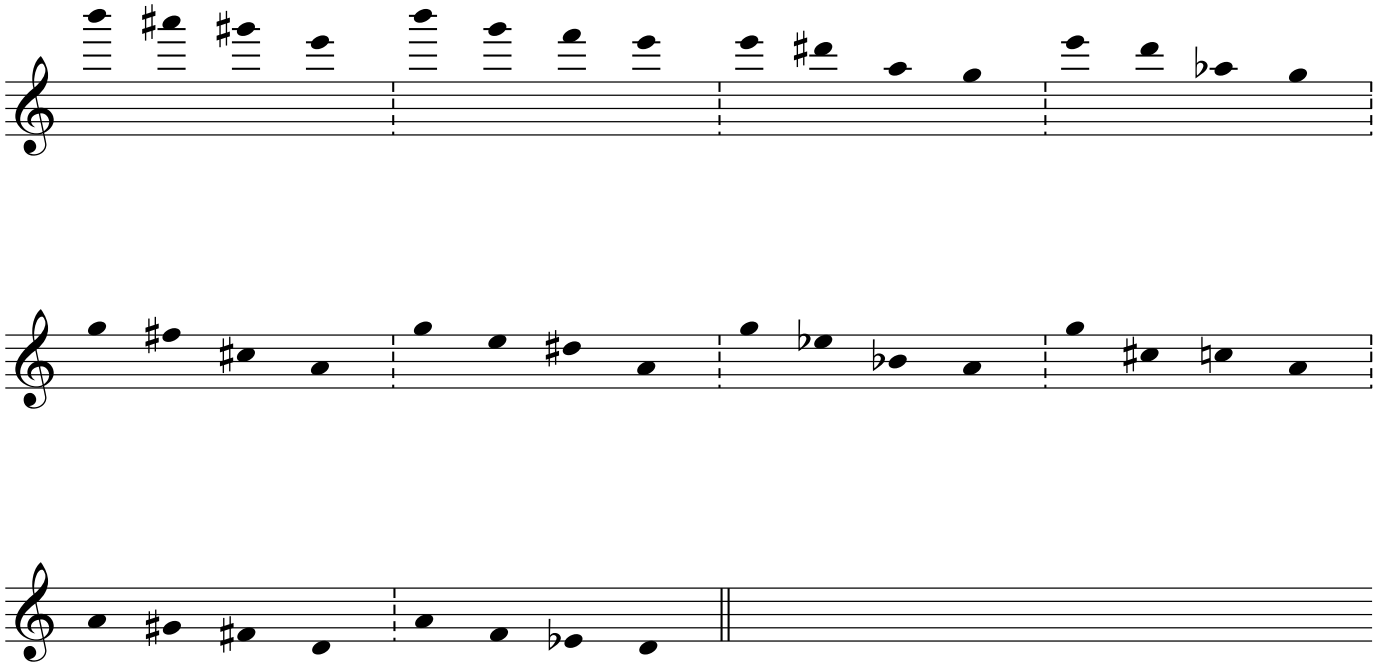

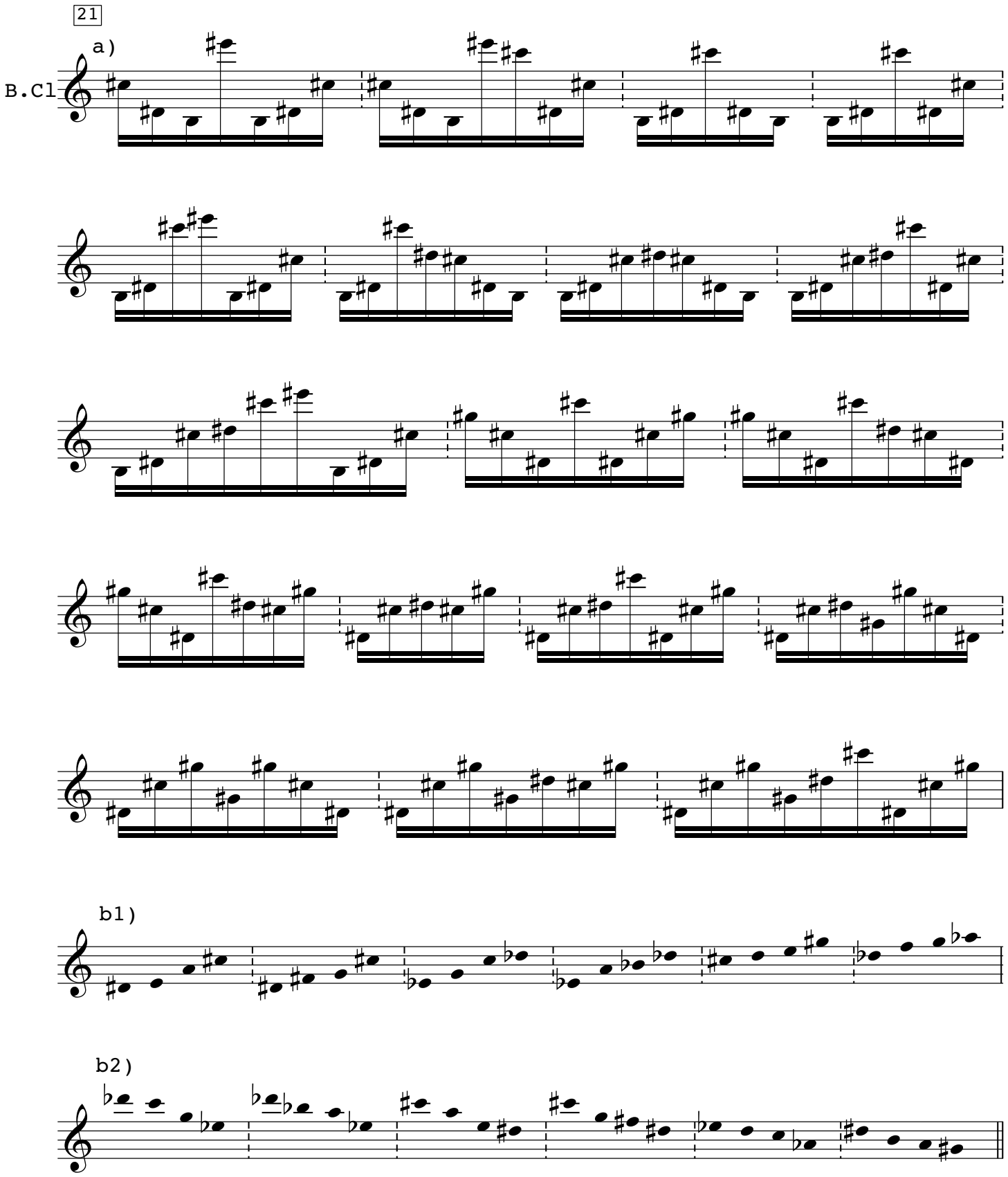
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B.Cl
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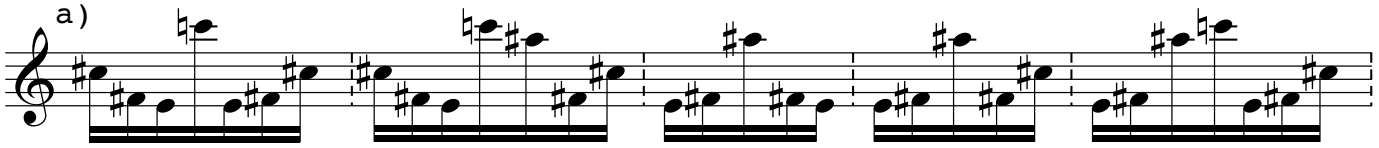
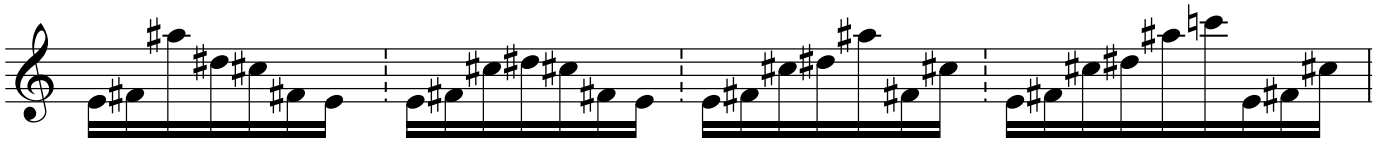
22

a)

B.Cl





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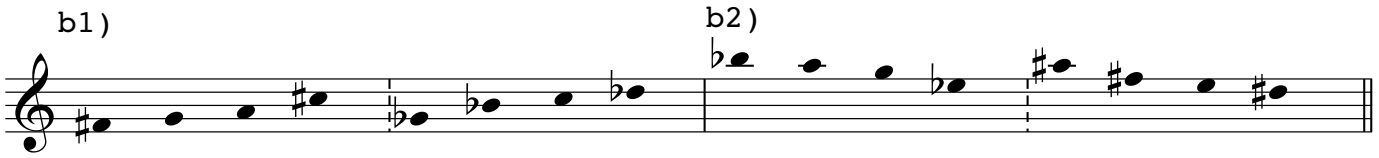

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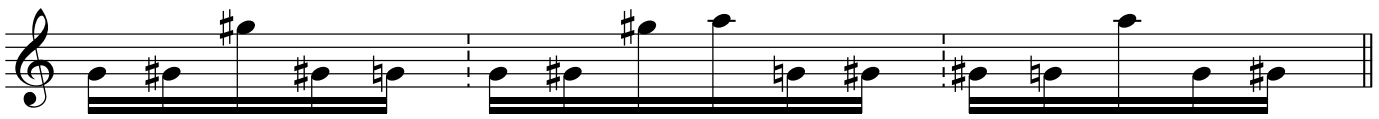

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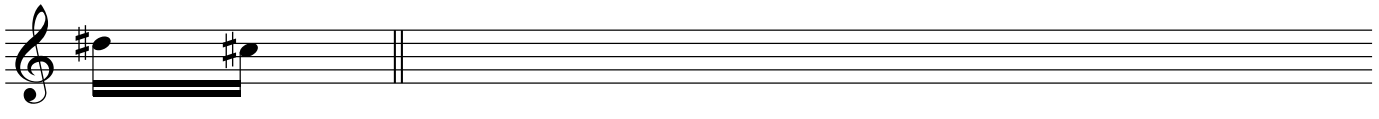

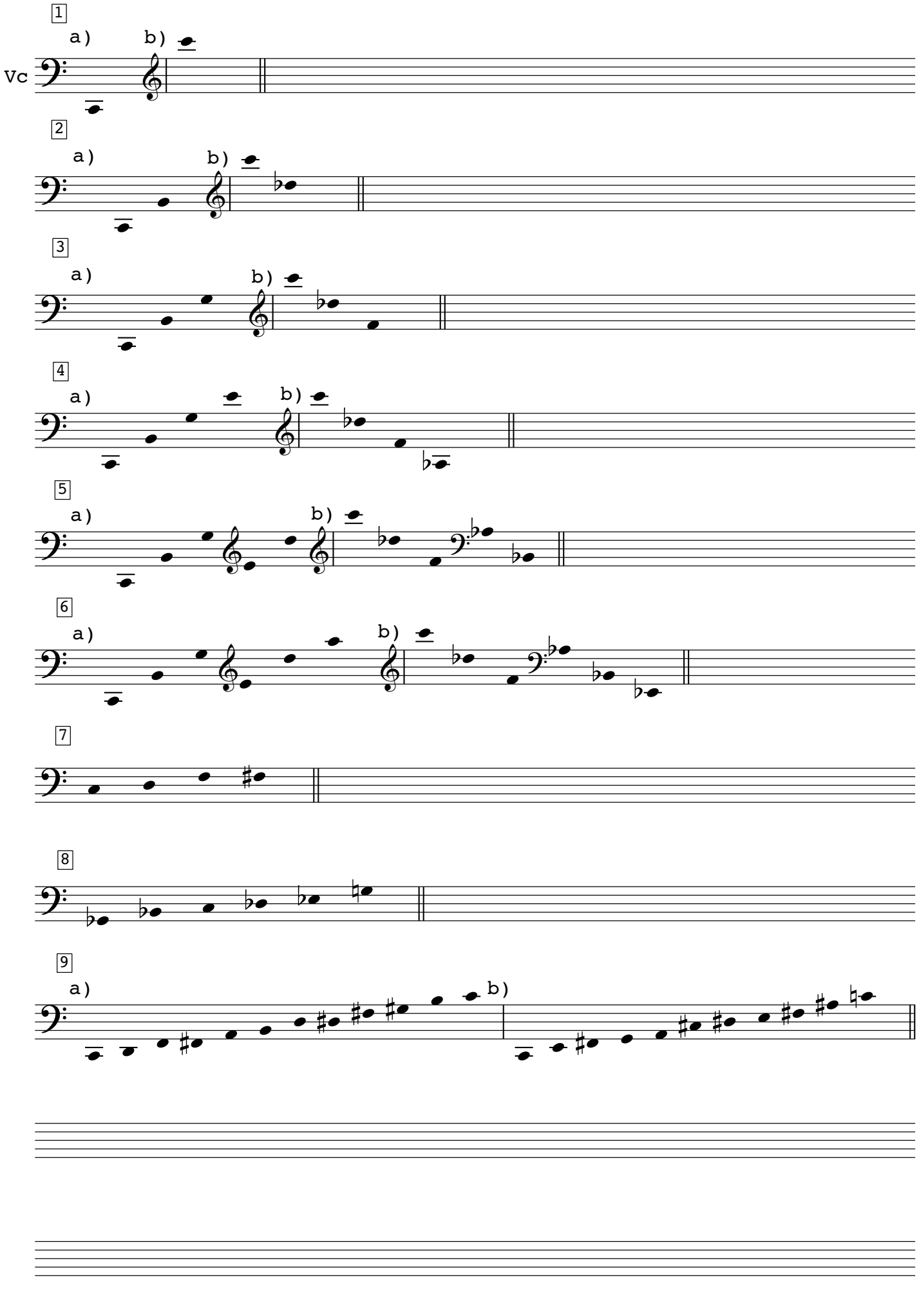
Vc
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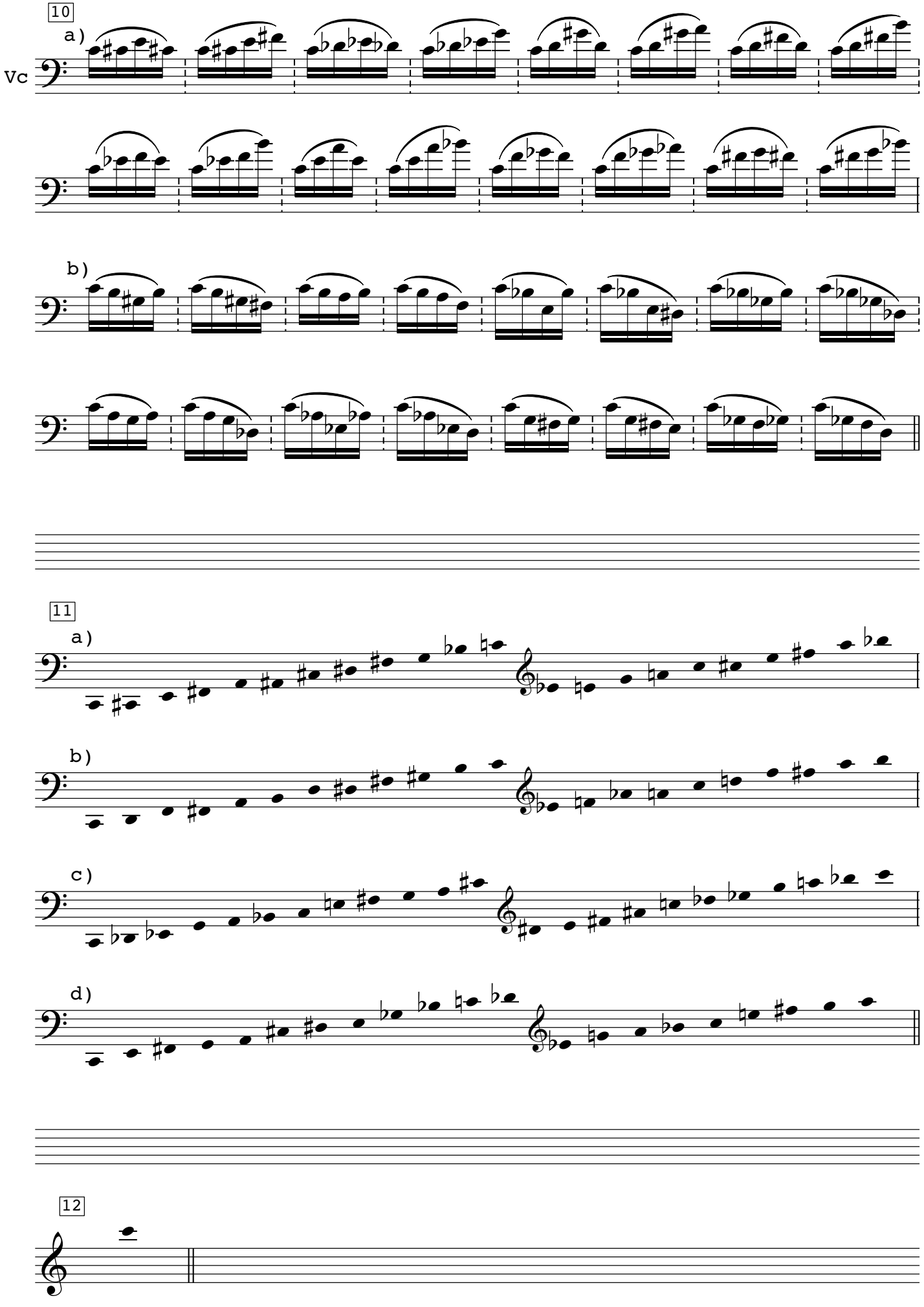
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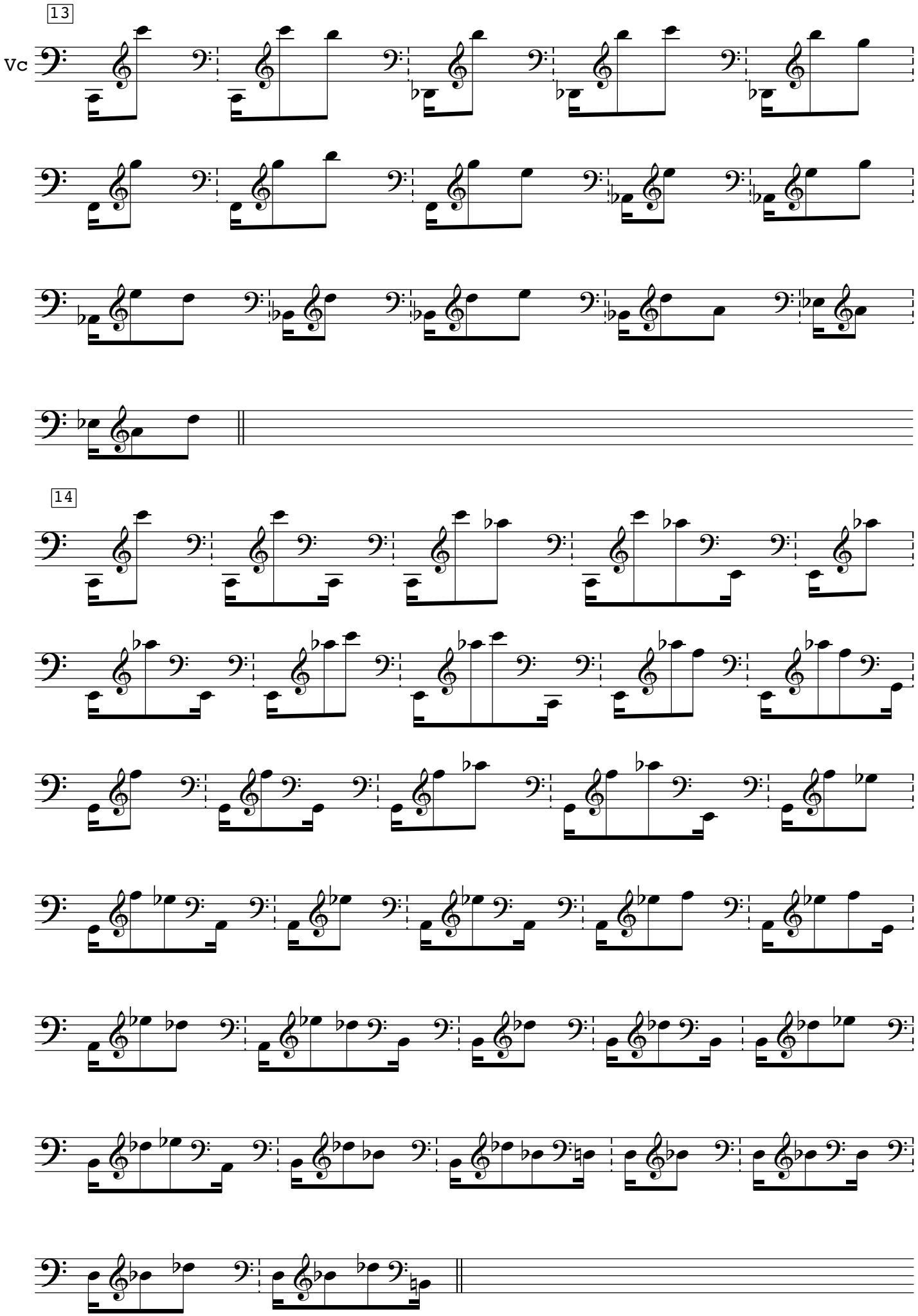
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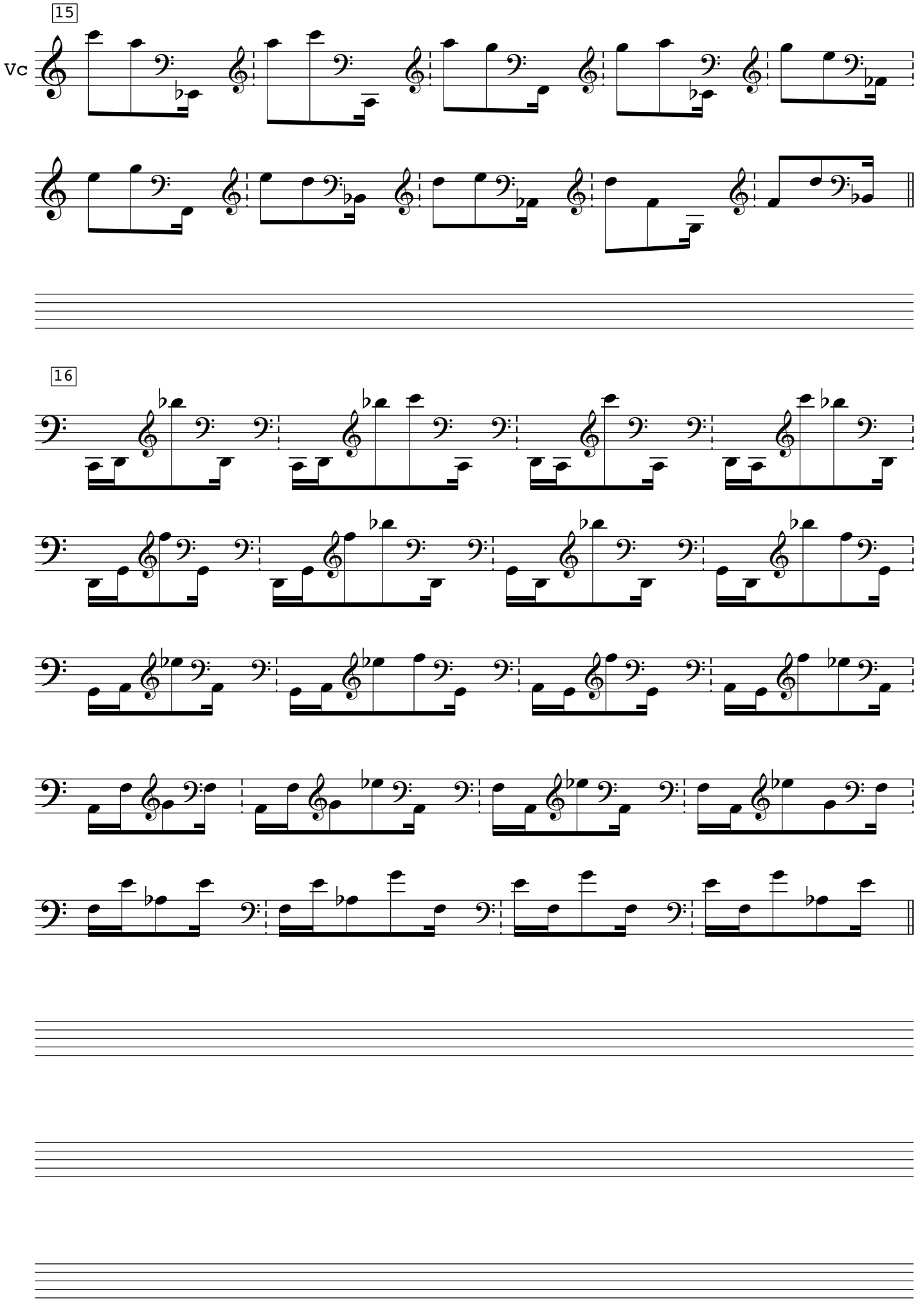
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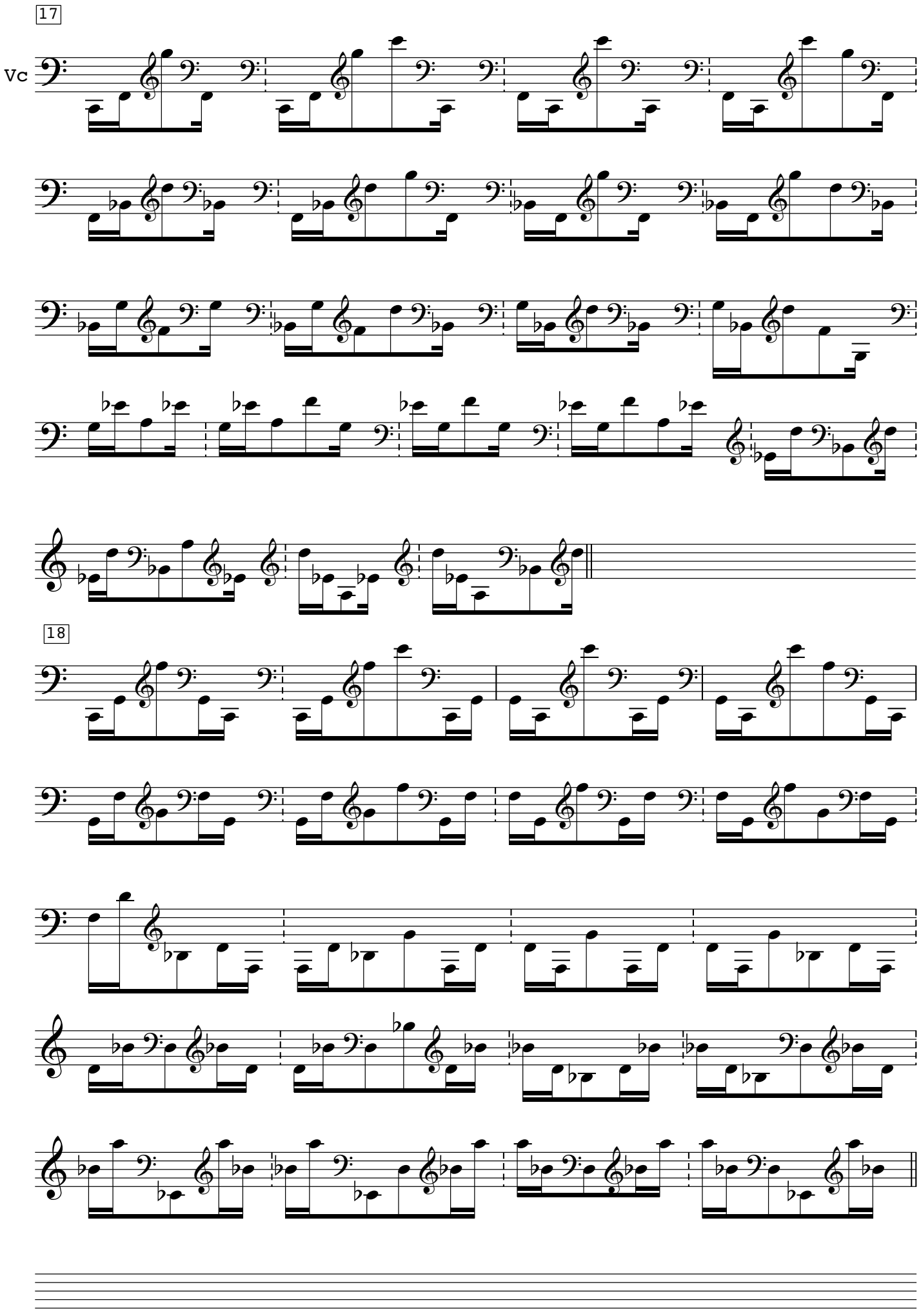
Vc
16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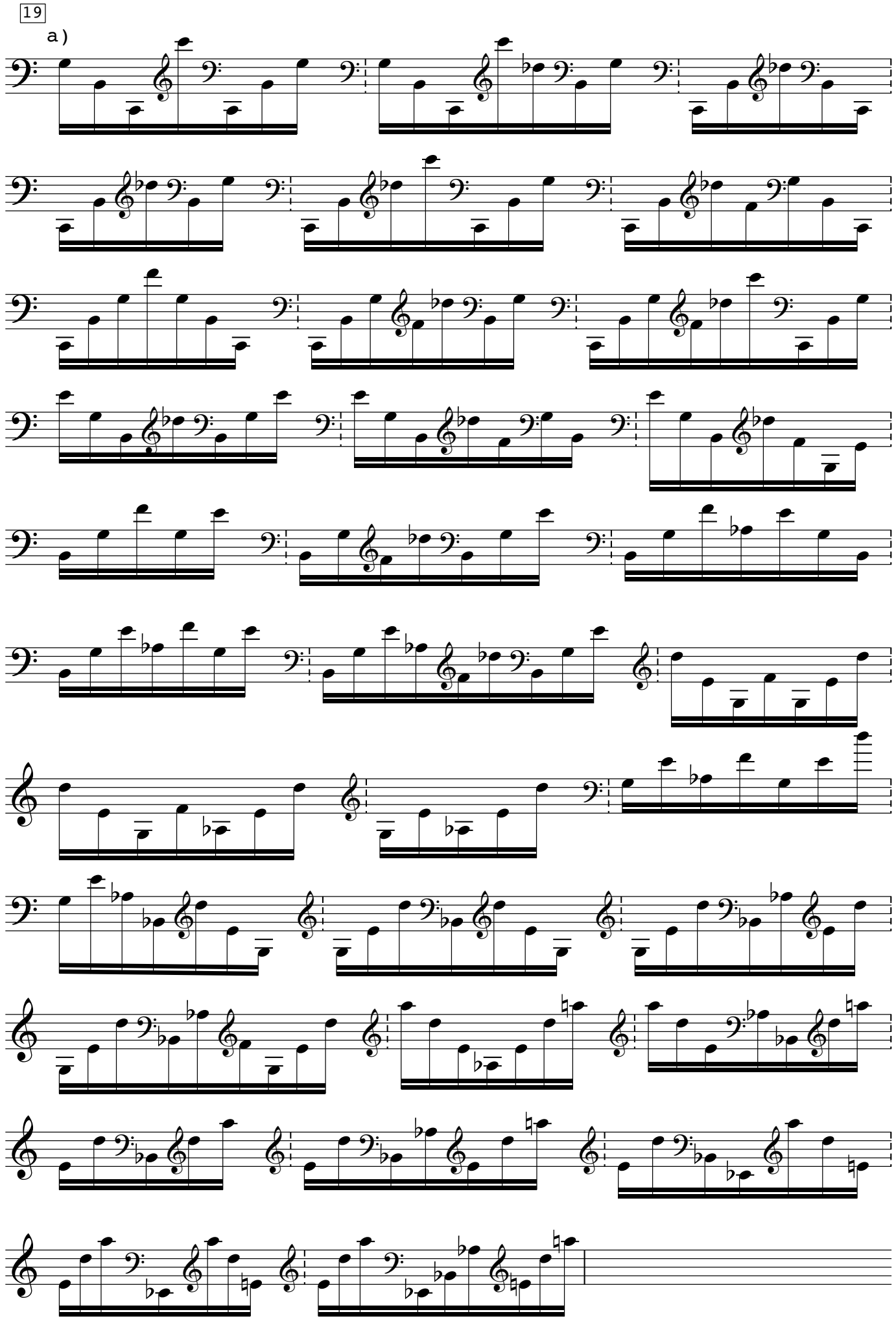
18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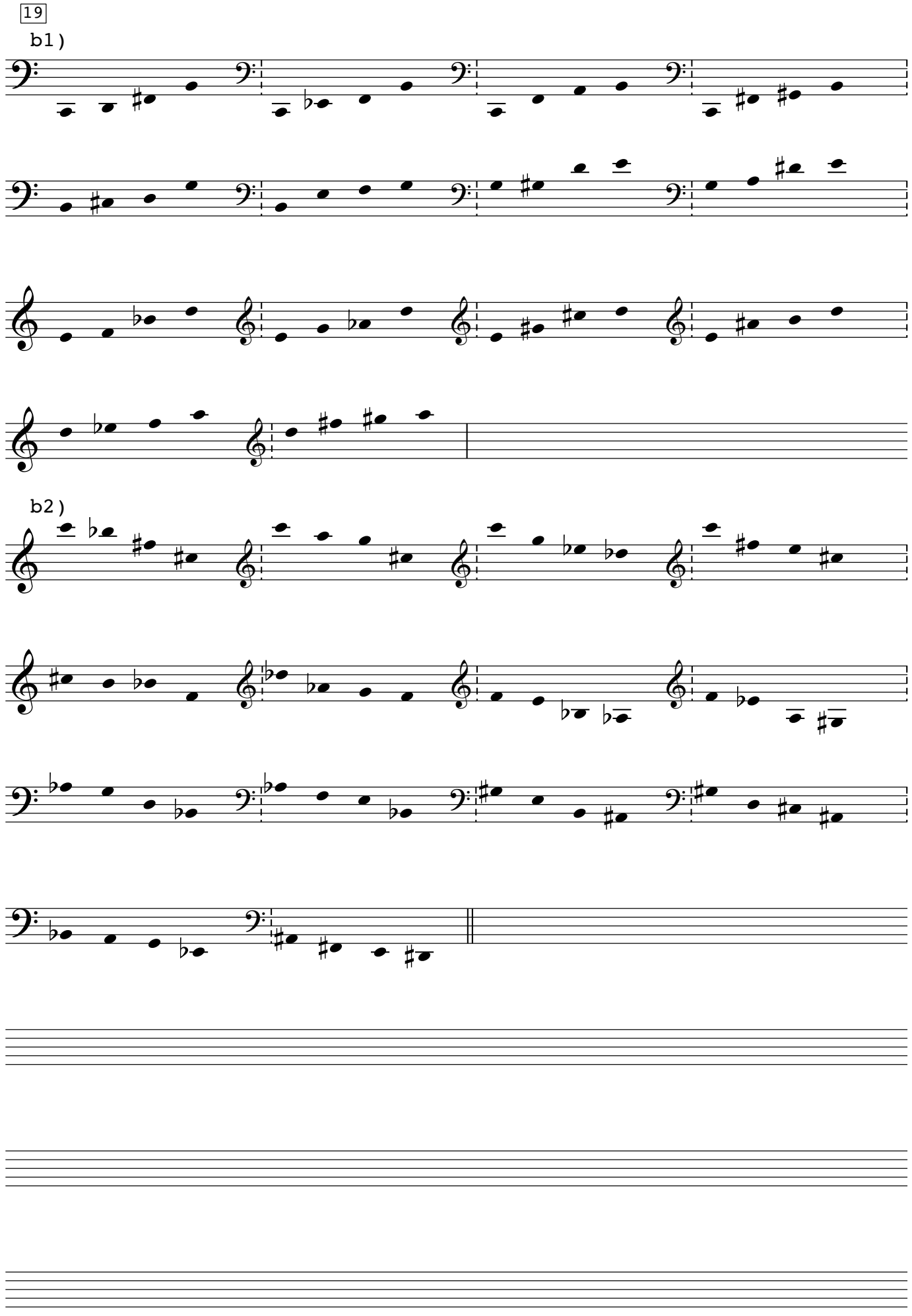
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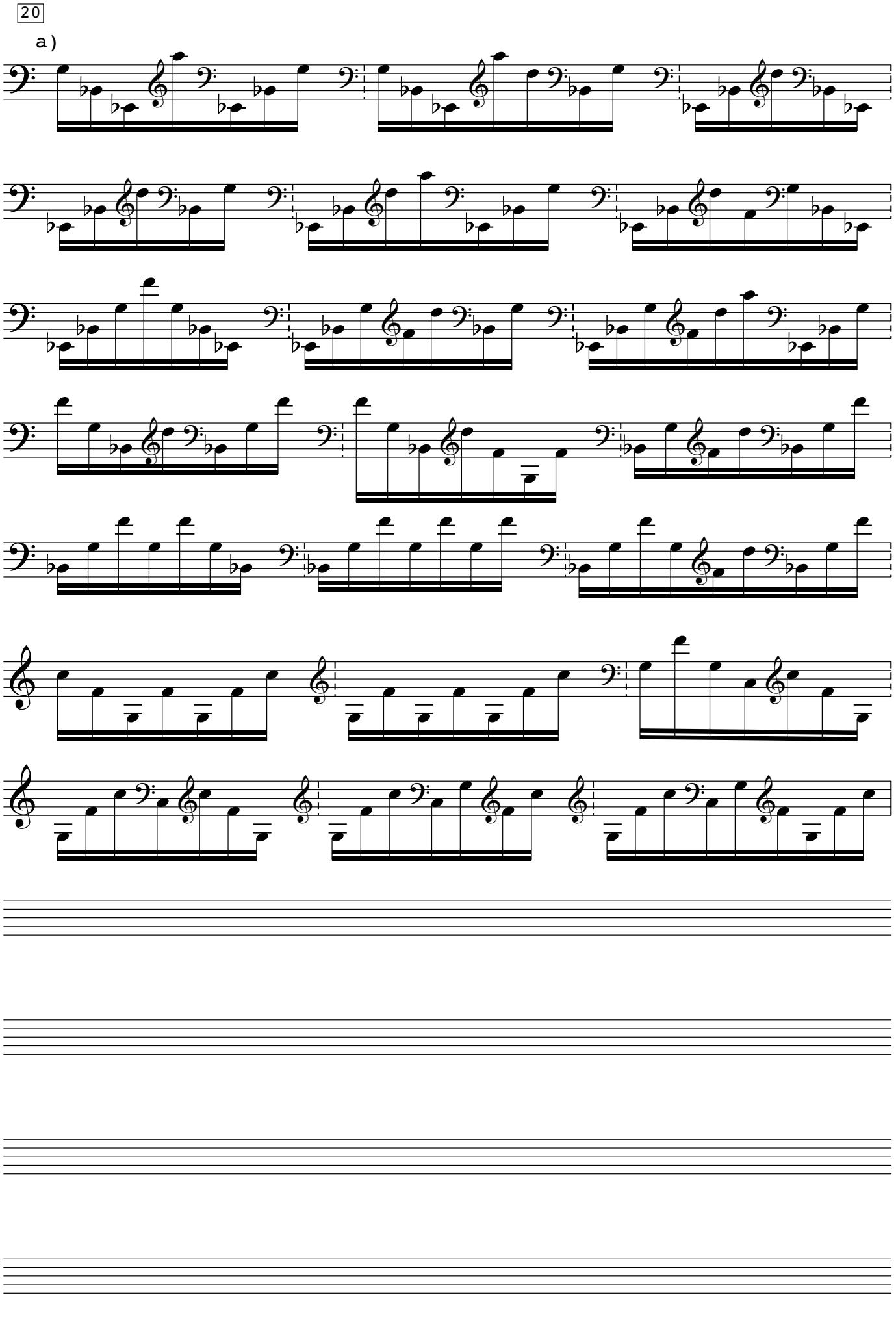
Vc
b2)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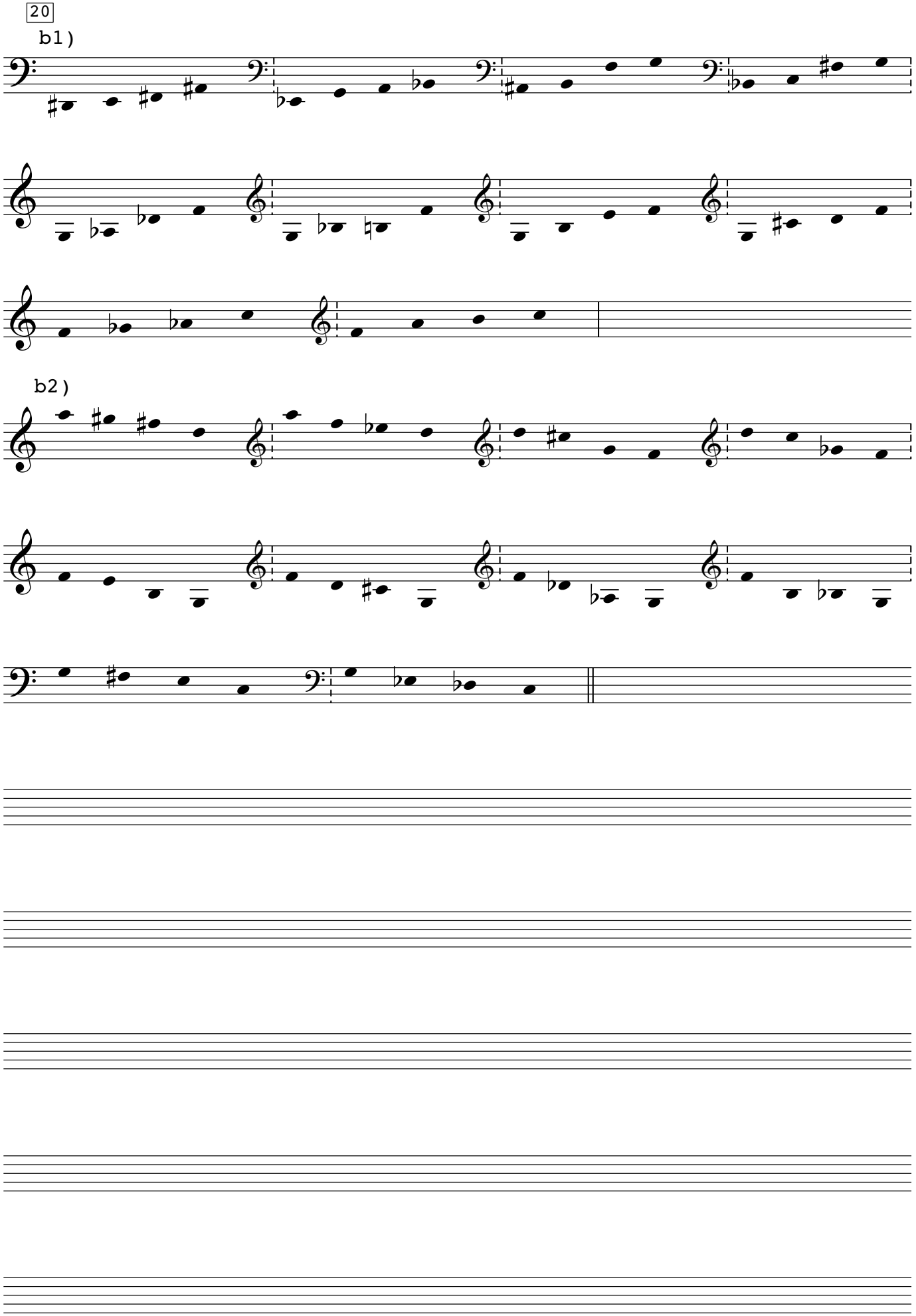
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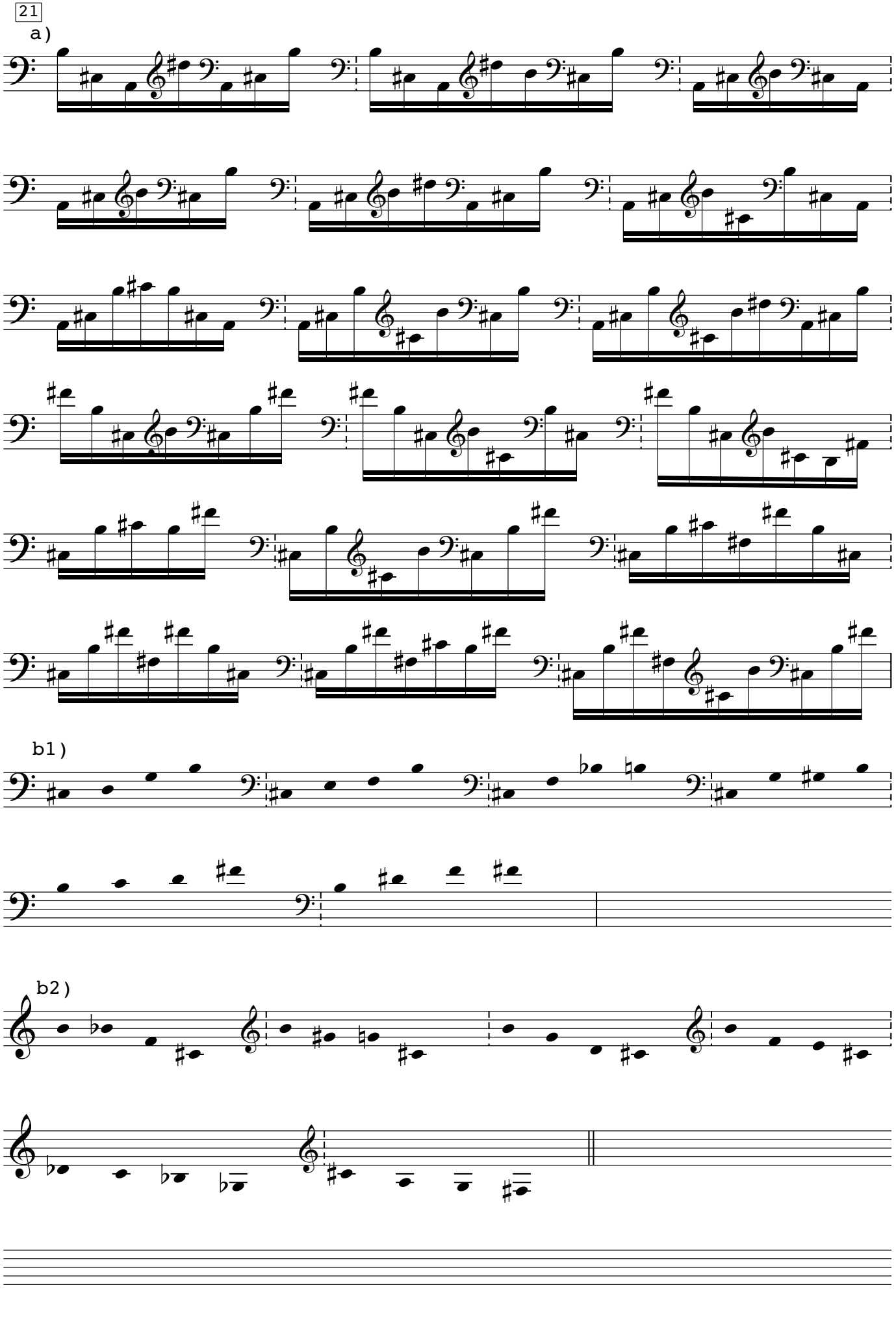
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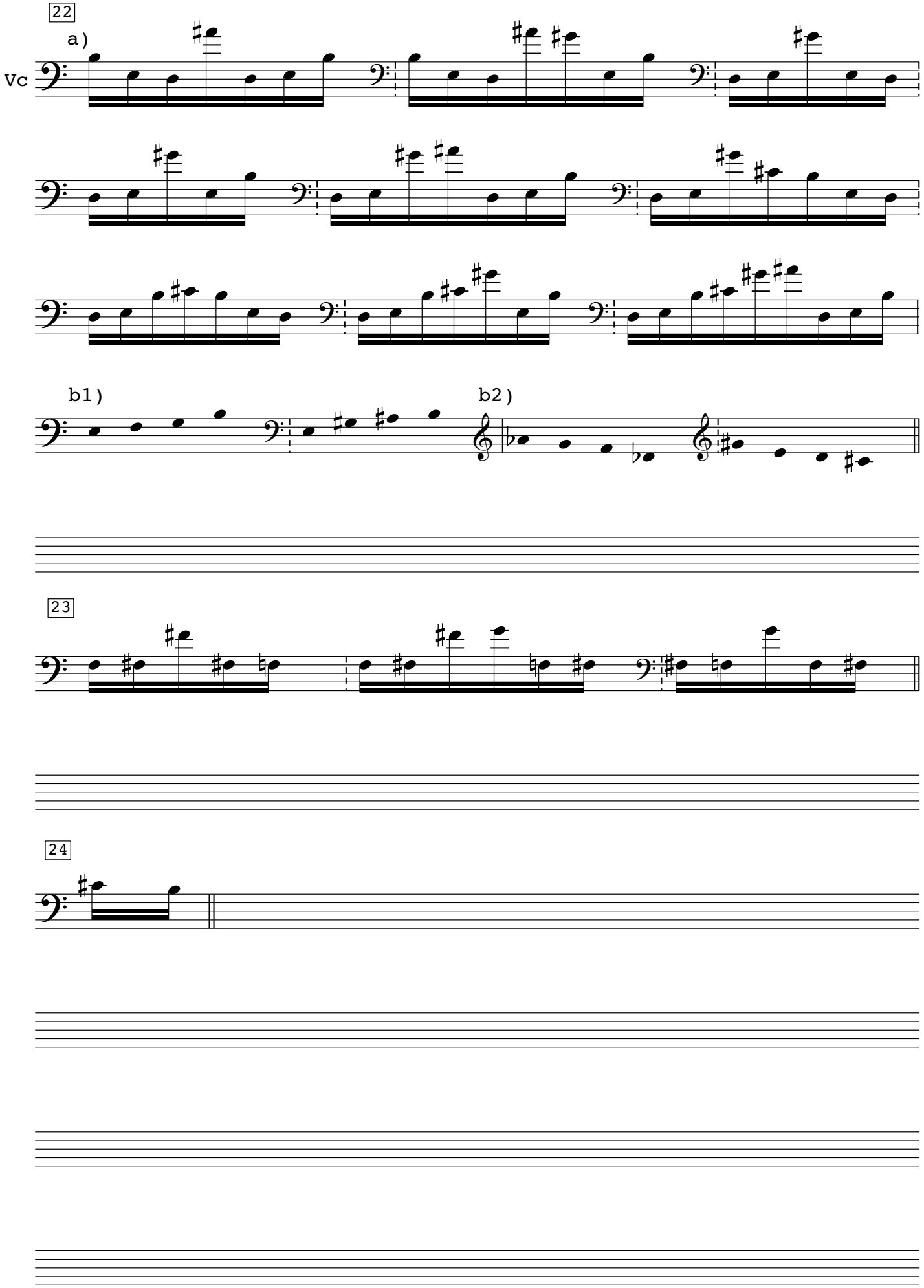
b1)
b2)


22
a)
Vc
b1)
b2)
23
24