Spare Change Suite

For Piano or Toy Piano and Computer

Benjamin R. Fuhrman

Circa Ten Minutes.

Prelude

I – Integrated Signals

II – Spare Change

III – Cycle 36

IV – Diversion 1: Dust in the Flask

V – Diversion 2: The Tea Ceremony

VI – Casting the Bones

VII – Ripples in the Spectrum

VIII – Machinations of Chance

A non-repeated statement of the **Prelude** may be inserted between any movements at the discretion of the performer except between **Diversion 1** and **Diversion 2**, which should be separated only by silence.

The computer part requires a microphone, stereo speakers, and a computer with the latest version of the Max/MSP runtime, available at http://www.cycling74.com The audio device and microphone channel can be selected from within the program. The performer should experiment with the mixer section to achieve the best mix between the piano or toy piano, the audio samples, and the convolved output of the computer in order to find the best possible mix in the performance venue.

Program Notes

When I was approached by Ty Forquer in January to write a new piece, I was expecting that I would write a piece for solo percussionist, possibly with live computer processing. I did not, however, expect him to ask me to write a piece for toy piano and computer.

And yet, I wasn't entirely surprised. I had already heard Ty perform John Cage's *Suite for Toy Piano*, and several pieces for percussion and live computer processing. Yet Ty's request for a piece was still a little different. Following with Cage's idea of the prepared piano, but faced with the lack of strings to insert objects into in a toy piano, Ty requested that I create a program to alter the sound of the toy piano in real-time, essentially preparing it (in the Cage-ian sense) by modulating the sounds of the toy piano with pre-recorded samples.

This was a little harder to do than either of us anticipated.

Despite the limited range (sounding C4 – F6), the toy piano produces a remarkable number of overtones for each fundamental, some of which (approximately F4 – F5) are of nearly equal volume to the fundamental. Needless to say, the pitch detection setup I was using to modulate individual tones did not react well to this.

To get over this problem, I programmed in multiple filters to reduce as many overtones as possible. However, it was still too reactive to overtones to allow for a 1|1 key to sample preparation. To get around this, I decided to reduce the number of samples and to create a keyzone for each sample, reducing the number of samples used from thirty to eight. These samples and the live input are then deconstructed using Fast Fourier Transforms with the resulting bands modulated together before being reconstructed. This output is mixed with the unaltered input and samples to produce a sonic hybrid that resembles both sound sources.

The samples chosen for the *Suite* are drawn from two sources. Those that reflect Cage's ideas of chance music and the influence of Zen philosophy on his compositional style (cards being shuffled, dice rolling, coins falling, and a tea kettle boiling), and those that provide conceptual contrast to the toy piano. While the former samples were easy to procure, the latter posed some difficulties: mainly in deciding on what to contrast the toy piano with. Fortunately, while browsing on the internet one day, I stumbled on sound samples from the largest possible sample source – the Large Hadron Collider.

Using these samples that CERN generously put on their website in conjunction with the other samples; I completed the computer programming and set to work on creating the toy piano score. Since I had settled on using eight samples, I decided to write an eight movement suite with an added prelude. Each of the movement's title is reflective of the sample that it most prominently features. To help unify the musical material, the pitch class set [0,4,8] featured in the prelude (and coincidentally corresponding to the first notes of each keyzone) is used in every odd numbered movement, while its compliment [1,2,3,5,6,7,9,T,E] is the basis of each even numbered movement. Time signatures are a reflection of the keyzone that forms the basis of each movement.

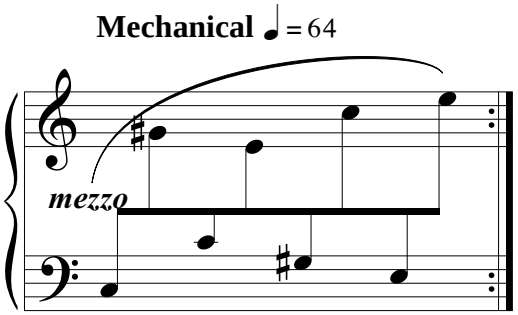
-Benjamin R. Fuhrman
March 11, 2011.

To Ty Forquer

Spare Change Suite

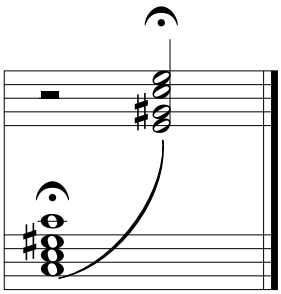
Prelude

Benjamin R. Fuhrman



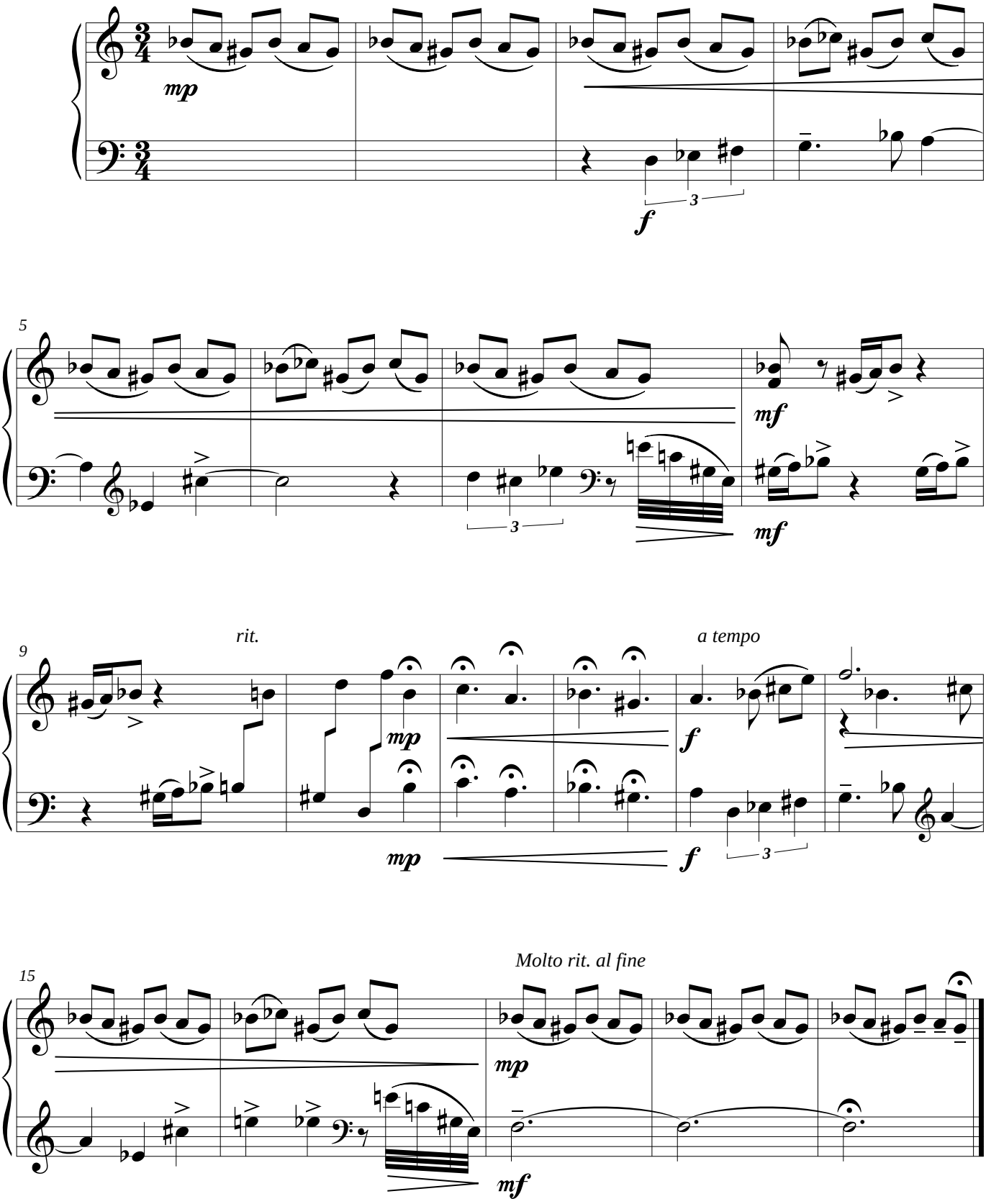
If performing on piano, do not use the sustain pedal throughout. Let each note decay naturally.

Repeat between six and twelve times, accenting a different, non-sequential note each time.



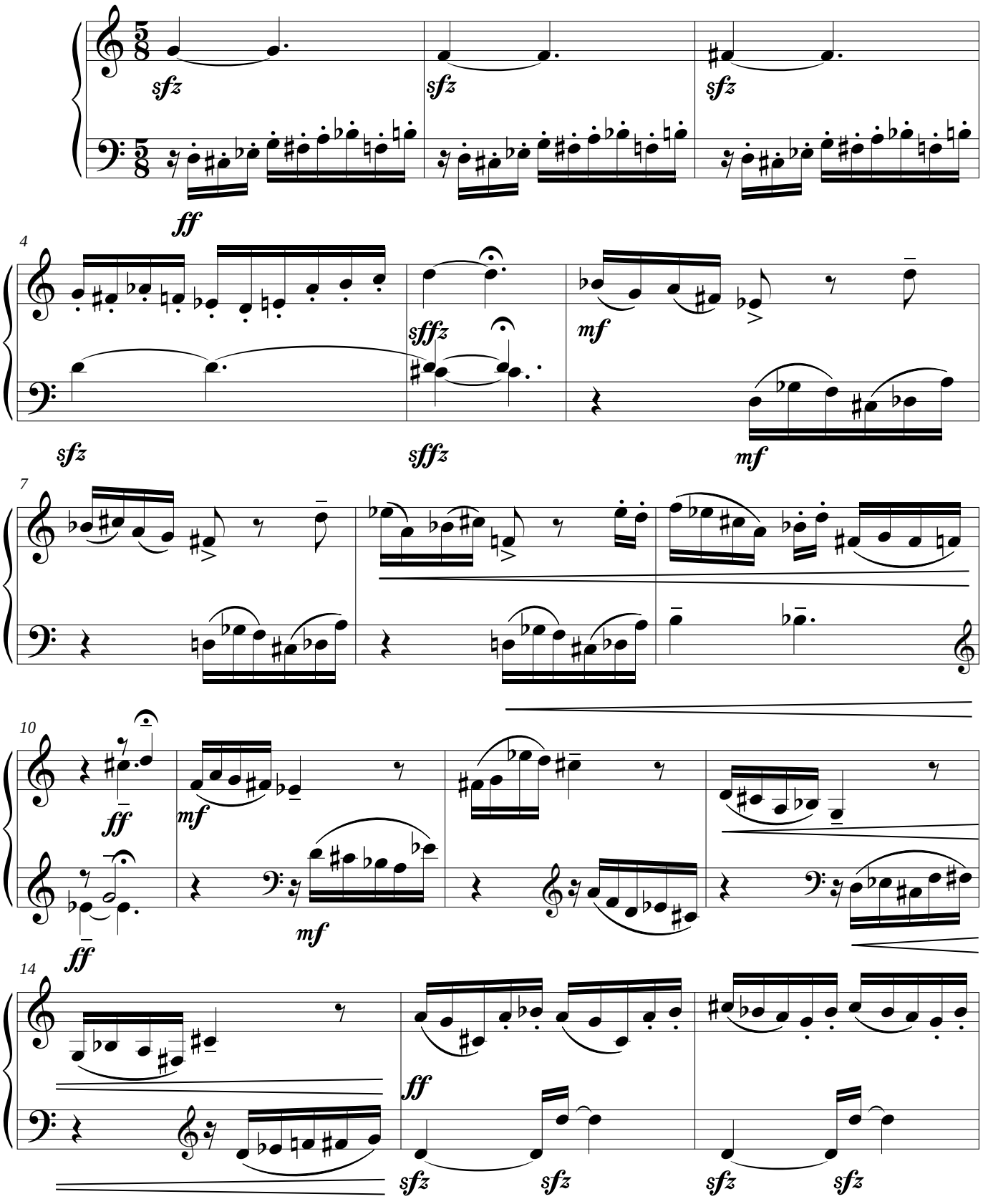
I - Integrated Signals

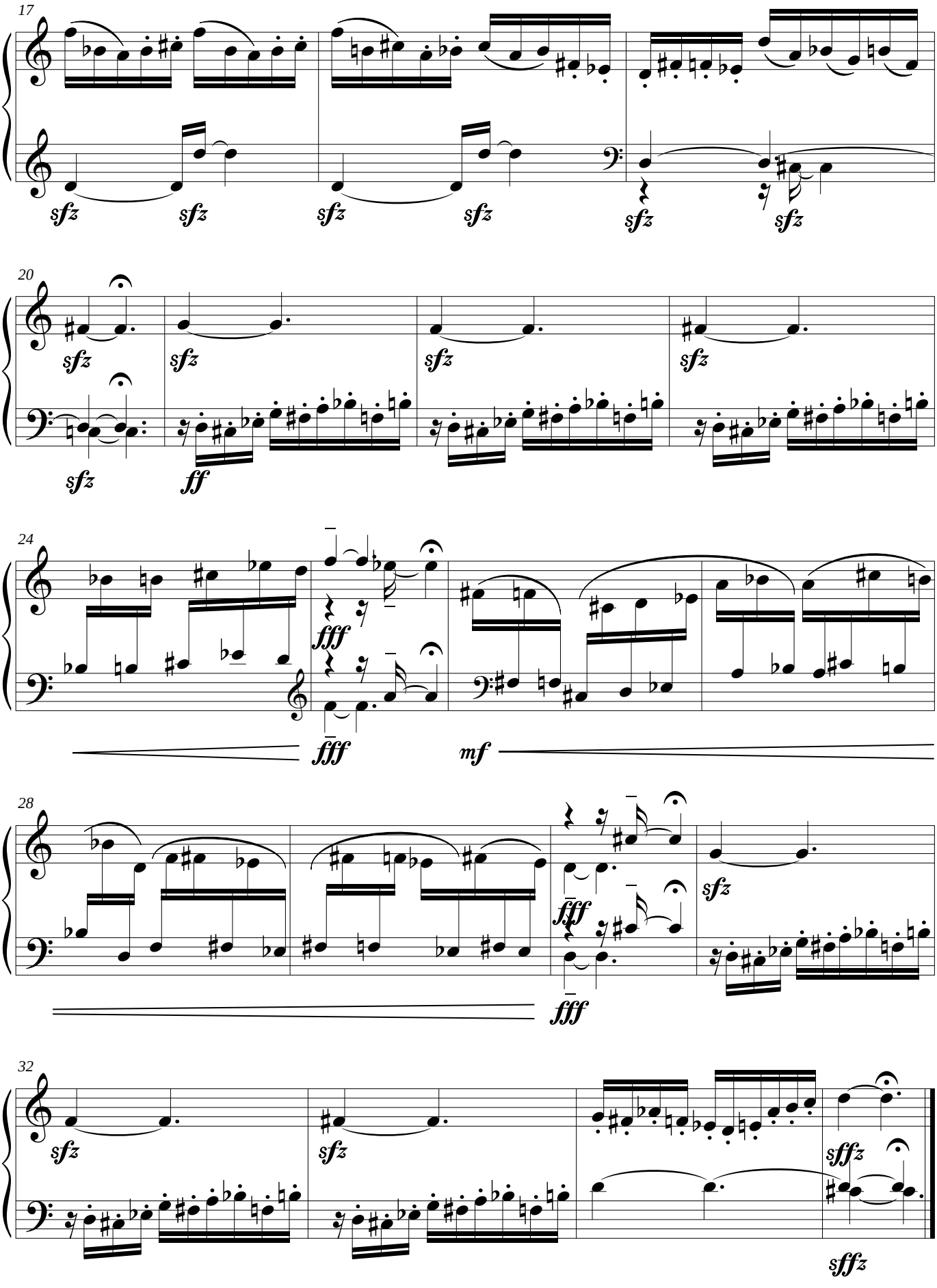
Flowing ♩ = 70



II - Spare Change

Firey ♪ = 208

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sfz
sfz
sfz
sfz
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sfz
sfz
sfz
sfz
ff
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fff
mf
28
fff
fff
sfz
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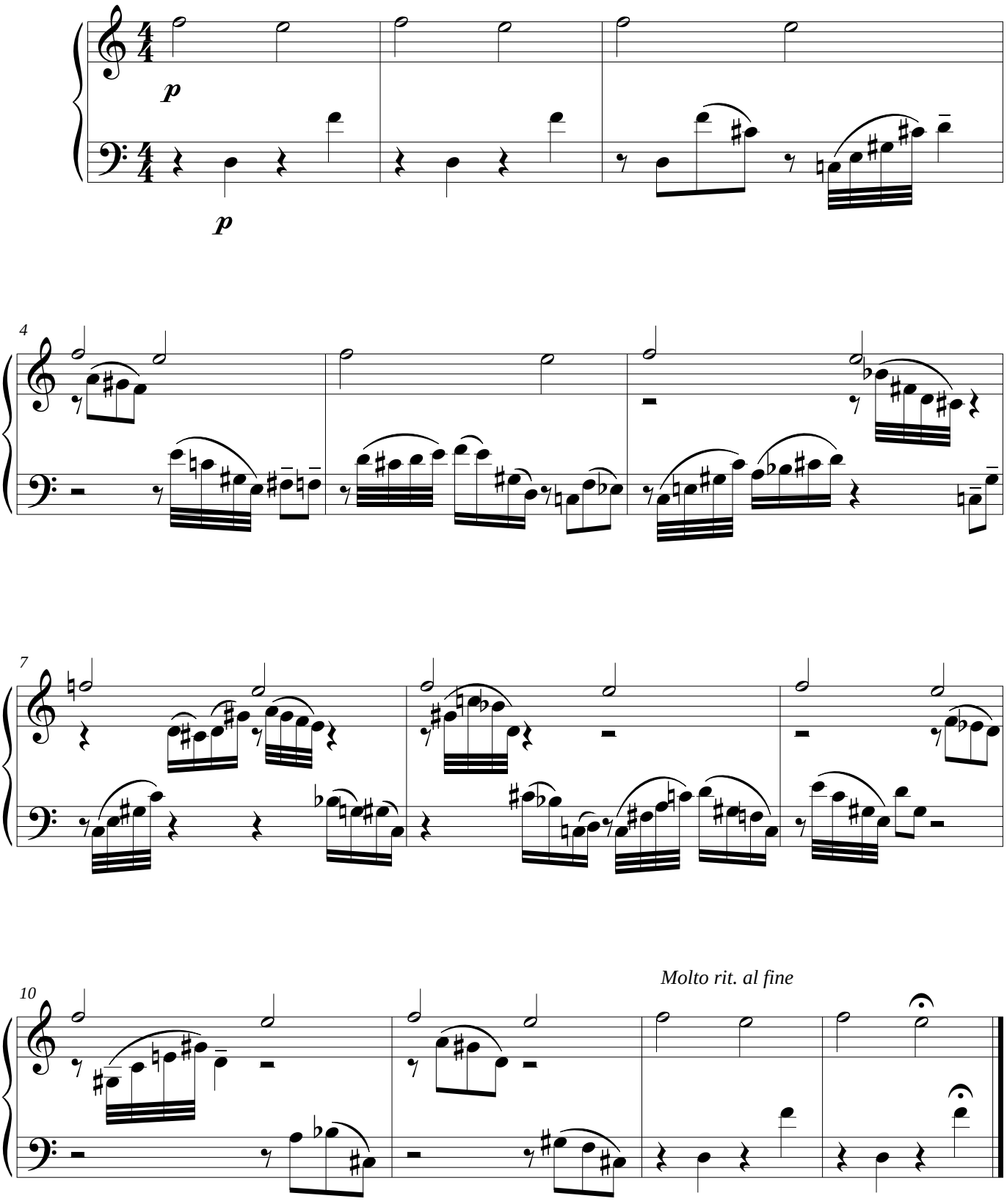
sfz
sffz
sffz

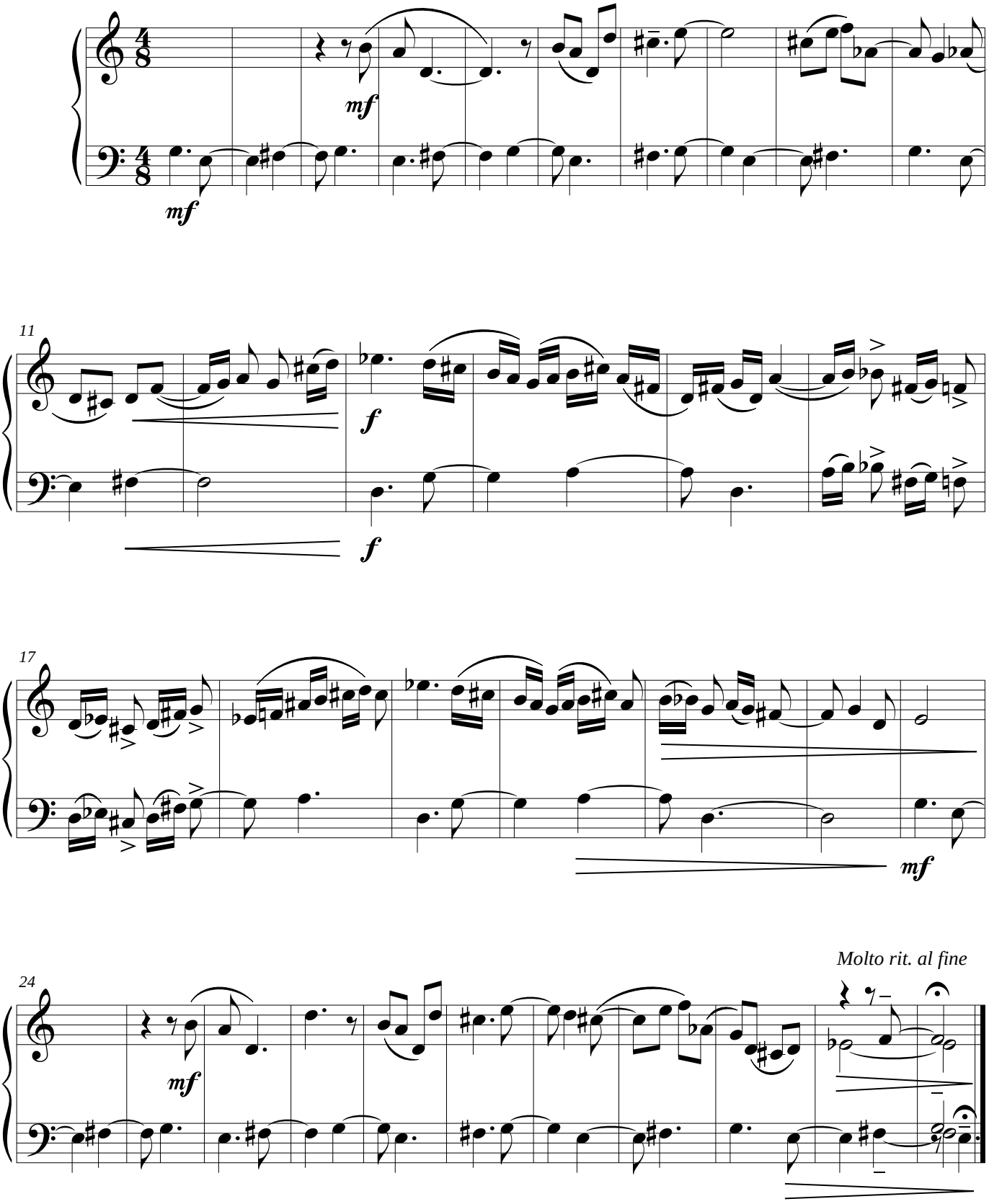
III - Cycle 36

Mournful ♩ = 52



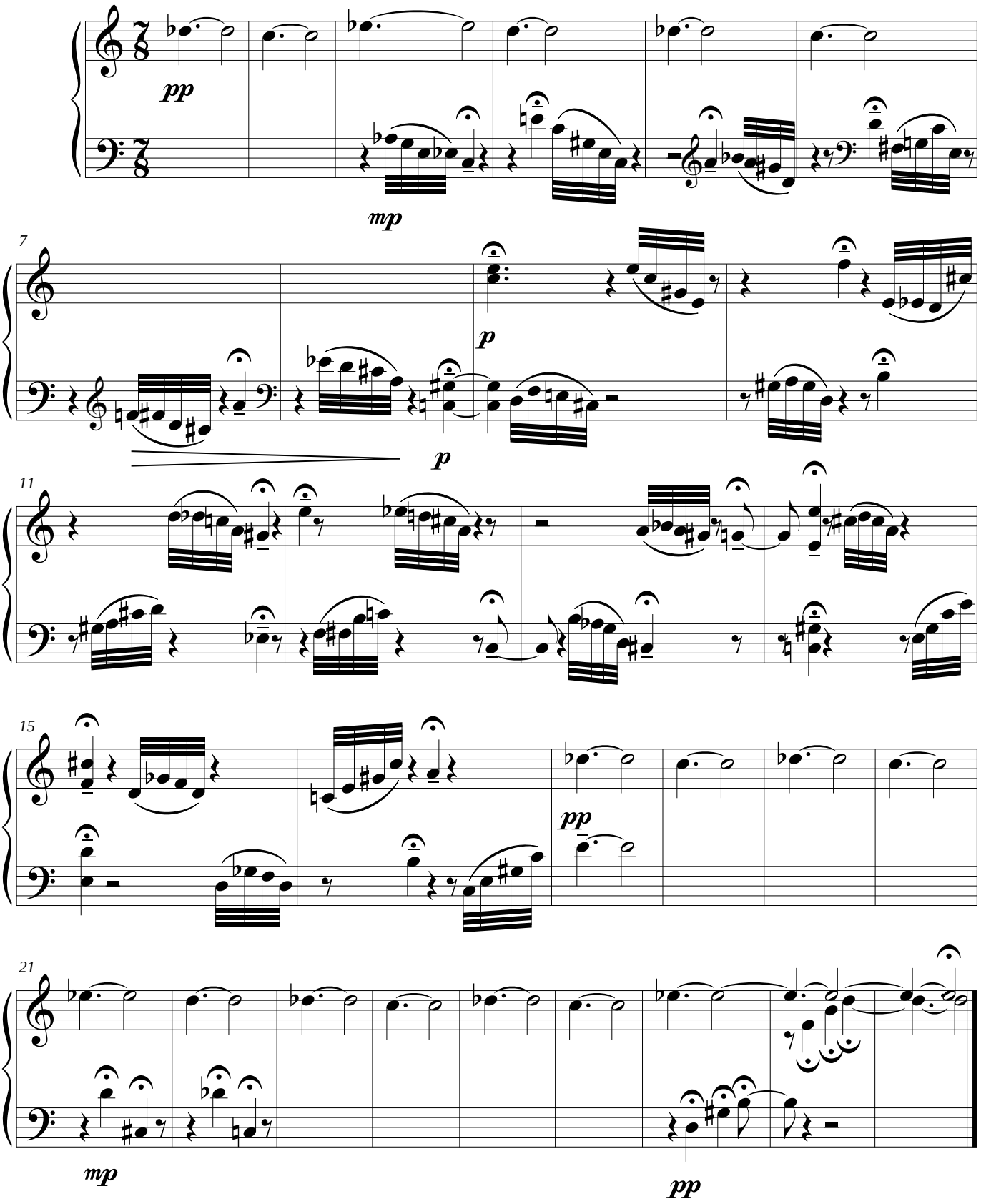
IV - Diversion 1: Dust in the Flask

Metric ♪ = 138



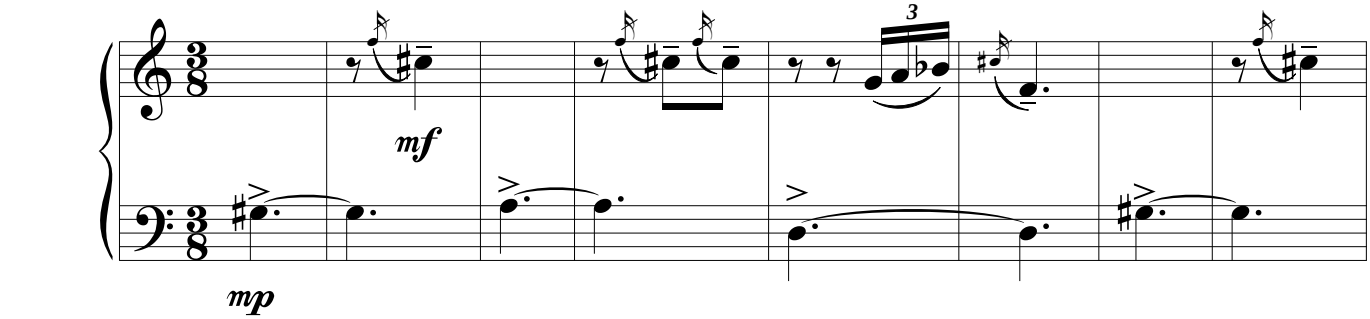
V - Diversion 2: The Tea Ceremony

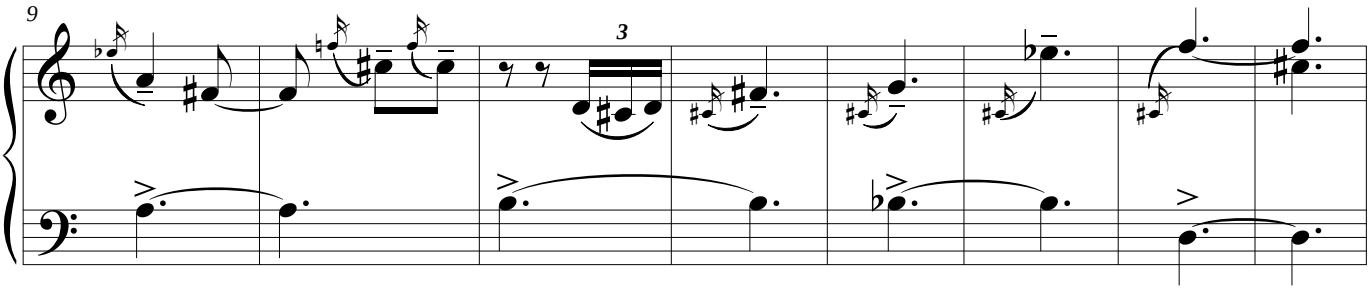
Periodically Serene ♪ = 208

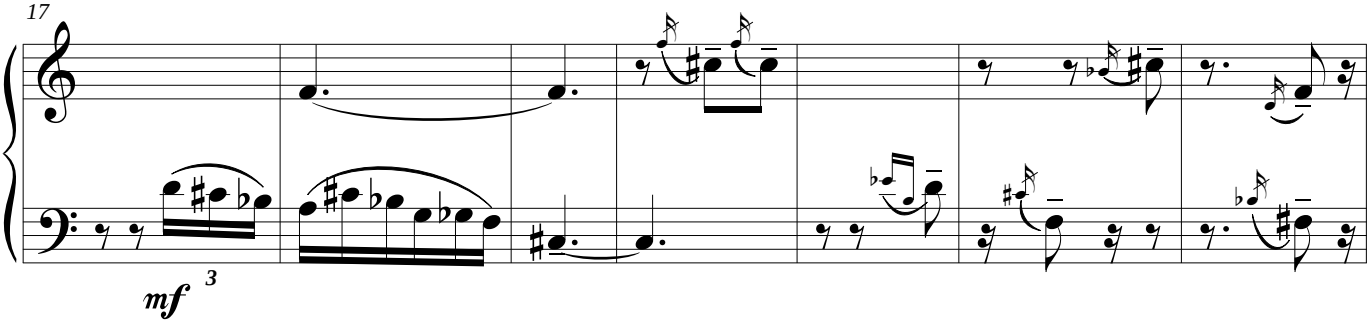


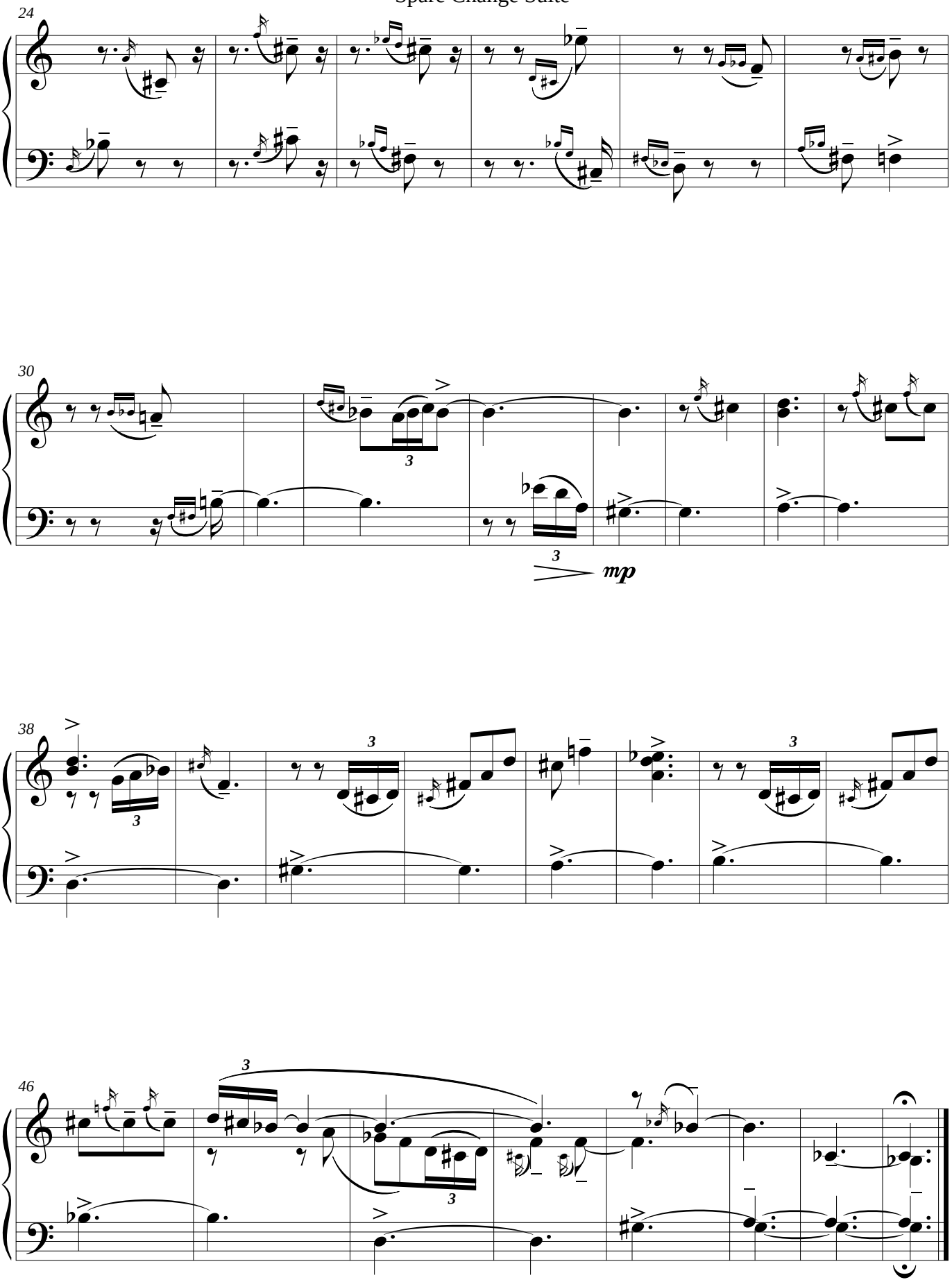
VI - Casting the Bones

Pointillistic ♪ = 160





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3
3
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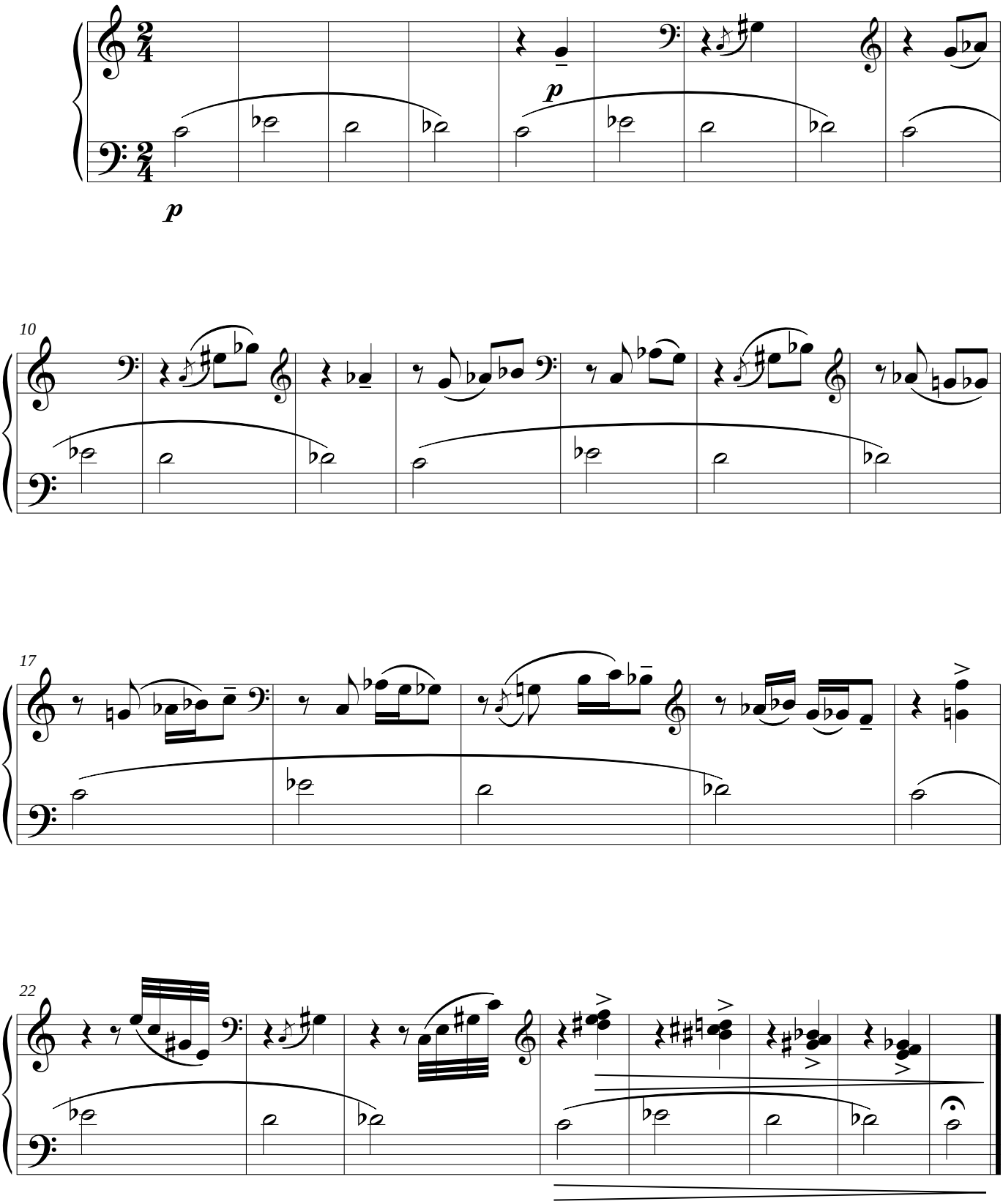
38
3
3
3
46
3
3

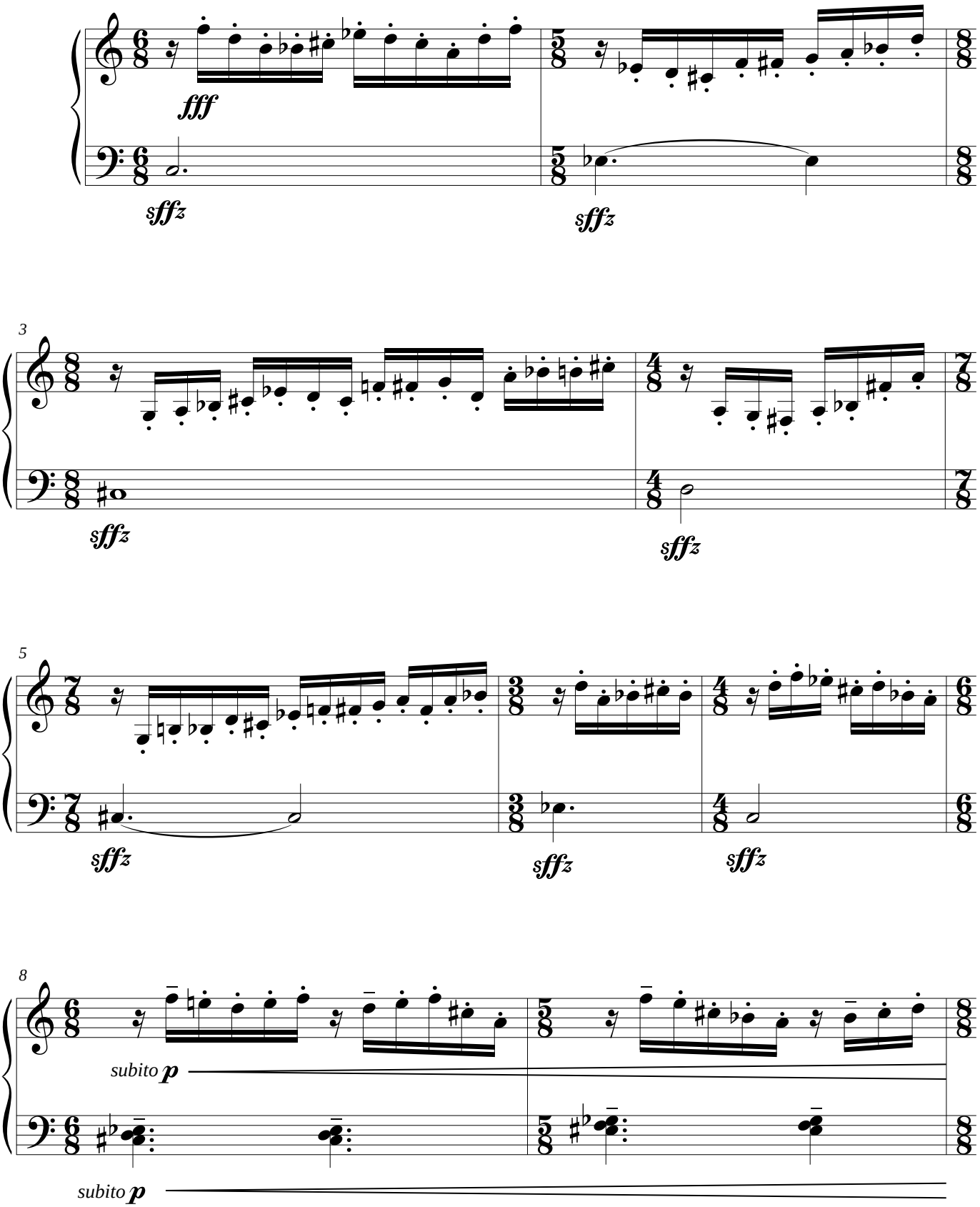
VII - Ripples in the Spectrum

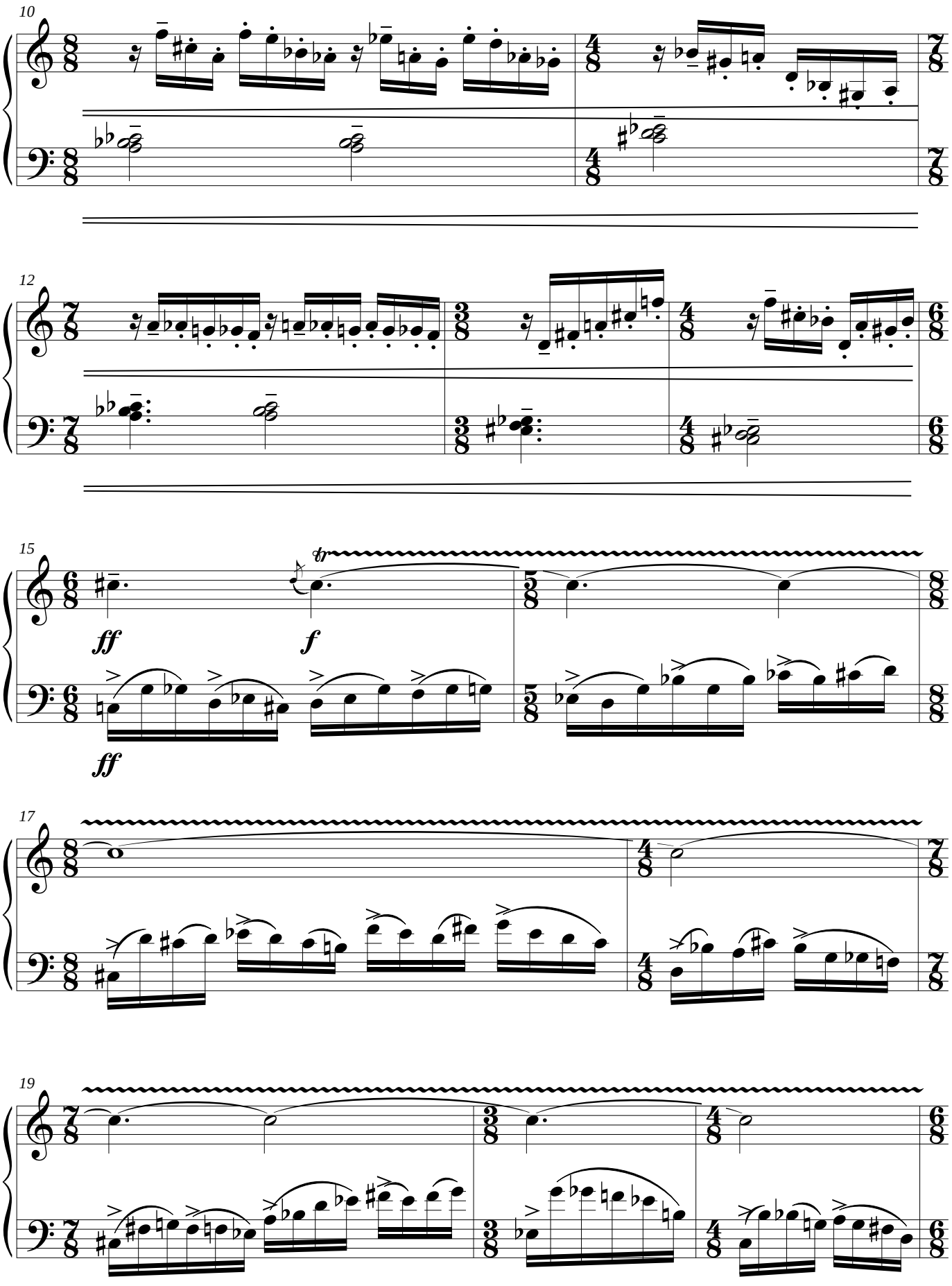
Calm ♩ = 56



VIII - Machinations of Chance

Chaotic ♪ = 208

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12
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ff
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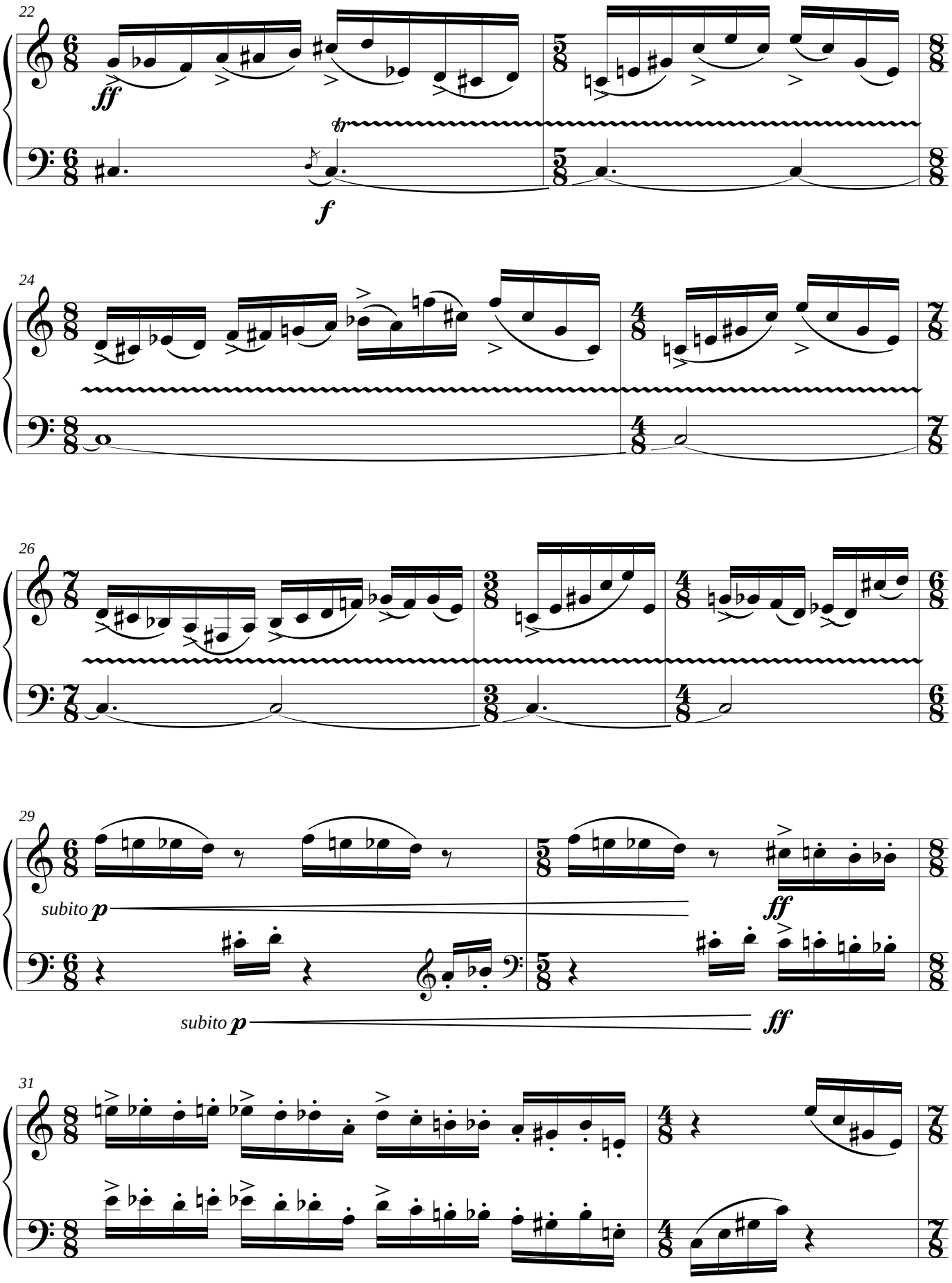
17
19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tr
f
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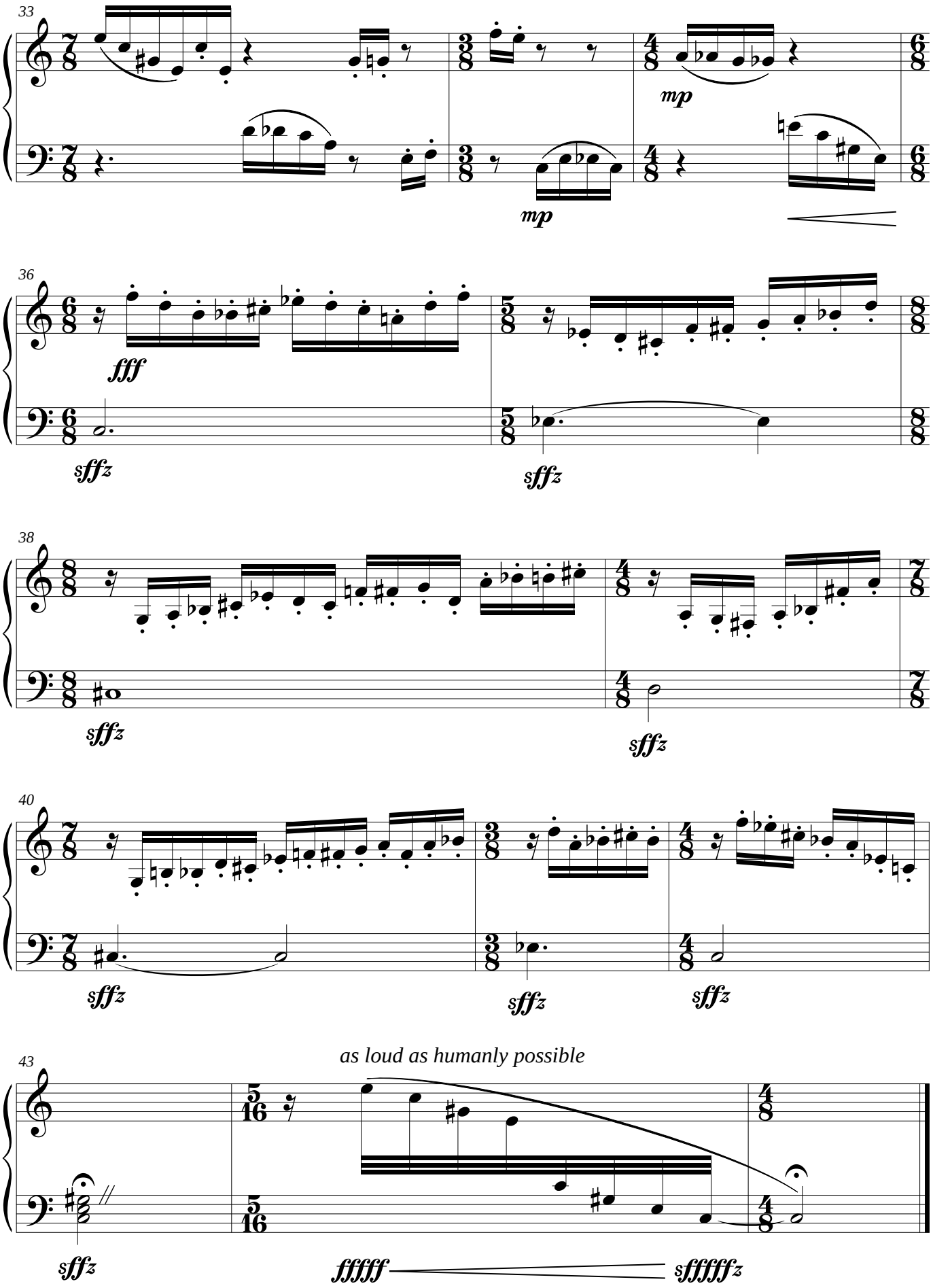
26
29
subito p
ff
subito p
ff
31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mp
mp
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fff
sffz
sffz
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sffz
sffz
40
sffz
sffz
sffz
43
as loud as humanly possible
sffz
fffff
sffffffz