Gilding the Fourfold

For Just Intonation Piano and Soprano Saxophone

Ethan Isaac

2024

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Gilding the Fourfold (2024)

Ethan Isaac (b.1996)

Commissioned by saxophonist Evan Ney

Instrumentation:

Soprano Saxophone

88 Key Electric Piano - Pianoteq or BitKlavier (guidance available by request)

Equipment recommendations continued in the technical guidelines

Scale: Ratio - Concert Pitch (Piano Scordatura) | (HEJI Transposition) | Sax Scordatura | *Diff. from ET.*

1/1 -	**B𝄫**	|(C) | sim.	*0c*	
63/64 -	**B**	|(C𝄲)| sim	*-27.3c** Diff. is from the prev. note (C)	*(Septimal Comma)*
9/8 -	**C**	|(D)| sim	*3.9c*	*(9th Harmonic)*
567/512 -	**D𝄫**	|(D𝄲)| sim	*-23.4c**	
6/5-	**D**	|(E𝄳)| E	*15.6c*	*(5-Limit Minor 3rd)*
21/16 -	**E𝄫**	|(F𝄲)| F	*-29.2c*	*(Septimal 4th)*
728/512 -	**E**	|(F♯)| sim	*11.7c*	
3/2 -	**F**	|(G)| sim	*2c*	*(3rd Harmonic/ Perfect 5th)*
189/128 -	**G𝄫**	|(G𝄲)| sim	*-25.3c**	
27/16 -	**G**	|(A)|sim	*5.9c*	*(Pythagorean Major 6th)*
7/4 -	**Ab**	|(B𝄫𝄲)| B𝄫	*-31.2c*	*(Natural 7th Harmonic)*
243/128 -	**A**	|(B)| sim	*9.8c*	*(Pythagorean Major 7th/243rd Harmonic)*
2/1 -	**Bb**	|(C)| sim	*0c*	

Program Note:

My friend and philosopher Nile Lok was with me during the last meeting with my grandfather before he passed in 2024. In this final conversation, we spoke on the meaning of art and life itself, a common topic between both relationships. One of Nile's specialties is the work of Martin Heidegger, and the "Fourfold" concept stood out in our conversations. It speaks on what we've lost via technological development, and affirms that we must dwell within our living spaces with more awareness. My grandfather's spaces were always chaotic, full of tools and old things without clear purposes, but organized in way only he understood. I remember his trailer, dusty, his trusty bread machine running and the smell of cigars. With the piece *Gilding the Fourfold*, the performer is forced to re-dwell within their instrument and the musical material, as the abnormal tuning system requires a restructuring of their well-trodden performance skills. What could sound easy, is deceptively difficult, and what appears challenging, could be deceptively simple. Fusing my favored parts of La Monte Young's and Michael Harrison's scales it carries some diatonic minor flavor with septimal intervals.

Approx. Length 8'

Technical Guidelines:

For this piece, you will need

1. *A quality 88-key piano with MIDI capability, and ideally a half-pedaling function.* Ideally a Kawaii VPC-1 or similar. The M-Audio Hammer 88 or Yamaha P-45 are entry-level options. In order to use half-pedaling I recommend the *Yamaha FC4A* sustain pedal, it costs about 40 dollars. A full size higher-end digital piano may include this feature so check before spending any money.

2. Playback of the Pianoteq or BitKlavier audio will be accomplished through the use of a *computer.* The performer should know DAWs to a basic degree if they intend to set up on their own. Reaper is a fully featured DAW with an eternal free trial, I recommend it.

3. The computer should likely output audio via an *audio interface*, such as a Focusrite 2i2 or equivalent

4. A stereo keyboard amplifier or smaller monitors placed near the keyboardist would be preferable to putting the sound through a PA system. If a PA system is all that is available then the saxophone should be mic'd and mixed into the PAs as well.

Audio System Blueprint:

Keyboard (P-45 or similar) -> Computer (Using a DAW such a Reaper for playback) -> Audio Interface -> Amp or PA System

Pianoteq Setup (Paid*):

Included with the score will be a preset file for use with Pianoteq, so all that will be required on the performer's end will be the installation of Pianoteq and proper setup within the DAW environment. Unfortunately, while the audio is an improvement over alternatives, the software (Pianoteq STD is the minimum required version) does cost $269, and $108 with the education discount. Modartt has you apply the discount and I am happy to be the contact used. *(Contact me personally, I may be able to provide a temporary license)

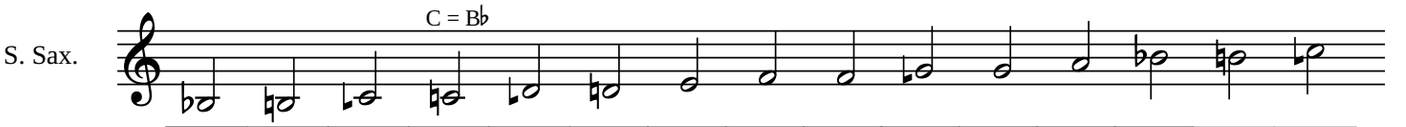
The file type is .FXP and all that is needed is to drag and drop the preset file into Pianoteq while it is open.

BitKlavier Setup (Free):

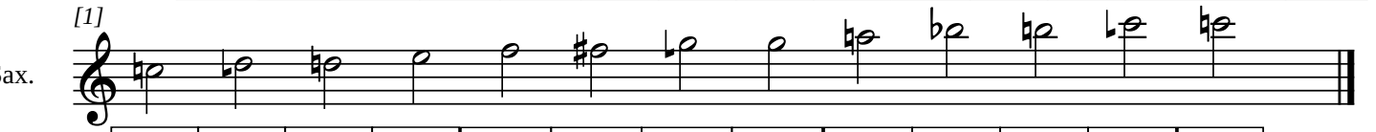
Fortunately, BitKlavier is an excellent open-source, free alternative to Pianoteq. It was created by Dan Trueman at Princeton University and is a great program for anyone interested in prepared piano. The setup is nearly the same as Pianoteq, though will require a separate preset .XML file using the BitKlavier "Gallery" format, and will need to be reloaded every time the software starts.

Transposed Score

Scale and Fingering Diagrams



208.8hz -31.2c	220hz 9.8c	228.1hz -27.3c	231.8hz 0c	256.7hz -23.4c	260.7hz -3.9c	278.1hz 15.6c	304.2hz -29.2c	330hz 11.7c	342.2hz -25.3c	347.7hz 2c	391.hz 5.9c	405.6hz -31.2c	440hz 9.8c	456.3hz -27.3c
A thick mute may be used to lower the bell keys as needed	N/A	N/A	N/A	N/A	D+C♯	Eb+C♯	F+6	F♯+E♭	G+ Vent 4	N/A	N/A	G#+ta	B+3+ta or B+G#	C+3+G#



463.5hz 0c	513.3hz -23.4c	521.5hz -3.9c	556.2hz 15.6c	608.4hz -29.2c	660hz 11.7c	684.4hz -25.3c	695.3hz 2c	782.2hz 5.9c	811.2hz 31.2c	880hz 9.8c	912.6hz -27.3c	927.1hz 0c
N/A	D+Bb or 3+8ve+C1	N/A	Eb	F+6	F#+Eb	G+ Vent 4	N/A	N/A	G#+ta	N/A	C+3	Ord. fingerings for all pitches above C

Performance Notes:

Most of the Multiphonics used are taken from Marcus Weiss's book "The Techniques of Saxophone Playing" from Barenreiter. There is an interactive page with example playback. The multiphonics used are 4, 29, 17, and 9 with fingering charts placed above the approximate notation. Those otherwise added have the relevant fingerings and notation

The material can be accessed online for free via this link - https://tinyurl.com/3pkd5z2n

There are two notations for slap tonguing in this piece, one for a slap accent before an ord. tone, and one for a traditional closed slap. The markings used are below.

Slap Tone - +

Closed Slap - 𝅝

HEJI NOTATION:

HEJI notation is used to clarify the more unusual notes in the scale, in particular how translates into the saxophone. The [𝅘𝅥] represents a septimal comma reduction. (approx. -64/63 or -27.26 c) Since all of the notes have their own smaller just intonation adjustments this means that the total difference between the equal tempered note and the tuning is sometimes more or less than -27.26 c.

Transposed Score (Sax)

Gilding the Fourfold

For Evan Ney

Ethan Isaac

Empty ♩ = 33

Mind of Glass ♩ = 66

S. Sax.

Pno

port

pp

sub. mp

f

mp

f

Ped.

5

S. Sax.

Pno

ff

sub. mf

f

mp

f

sub. mf

8

S. Sax.

Pno

ff

p

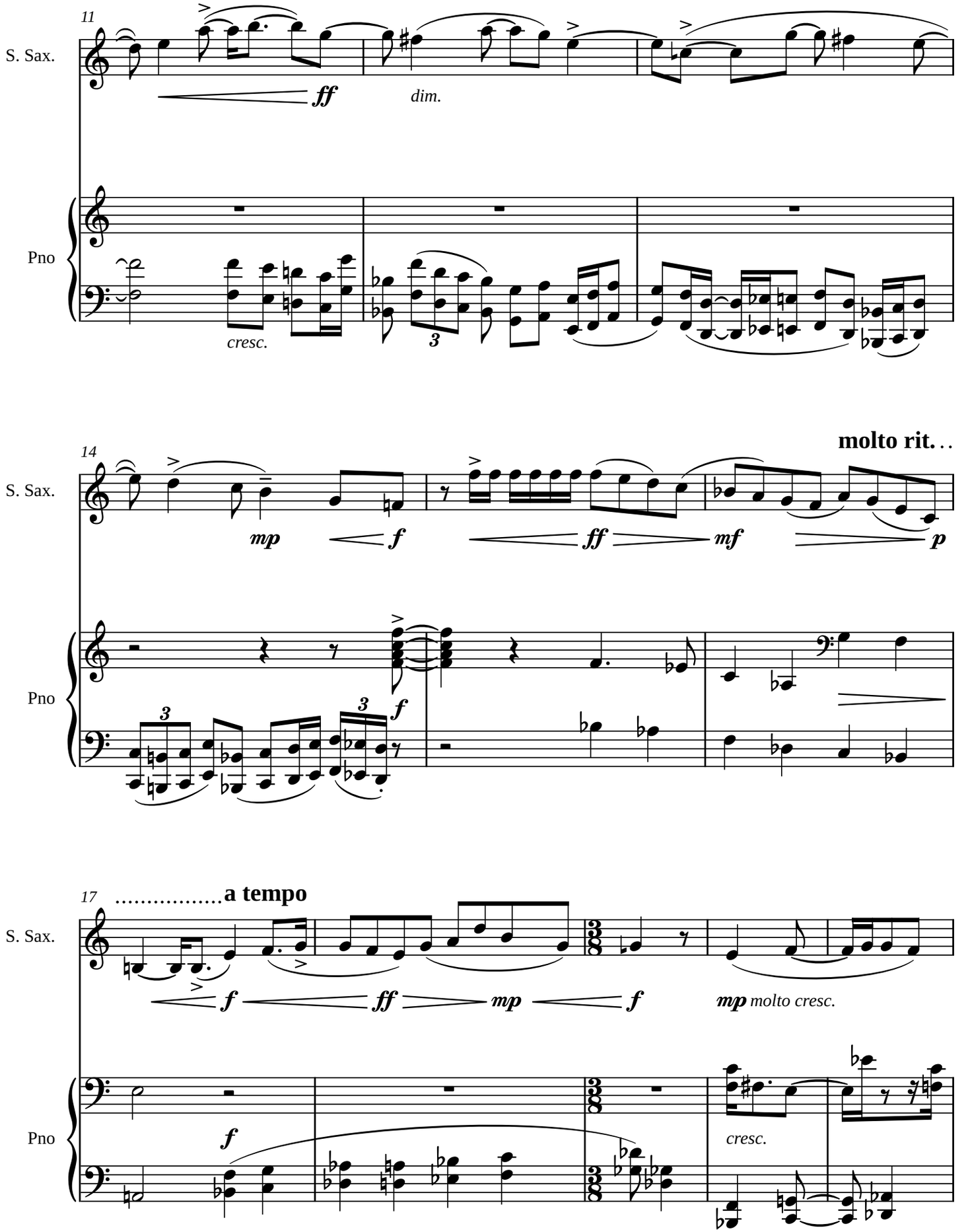
f

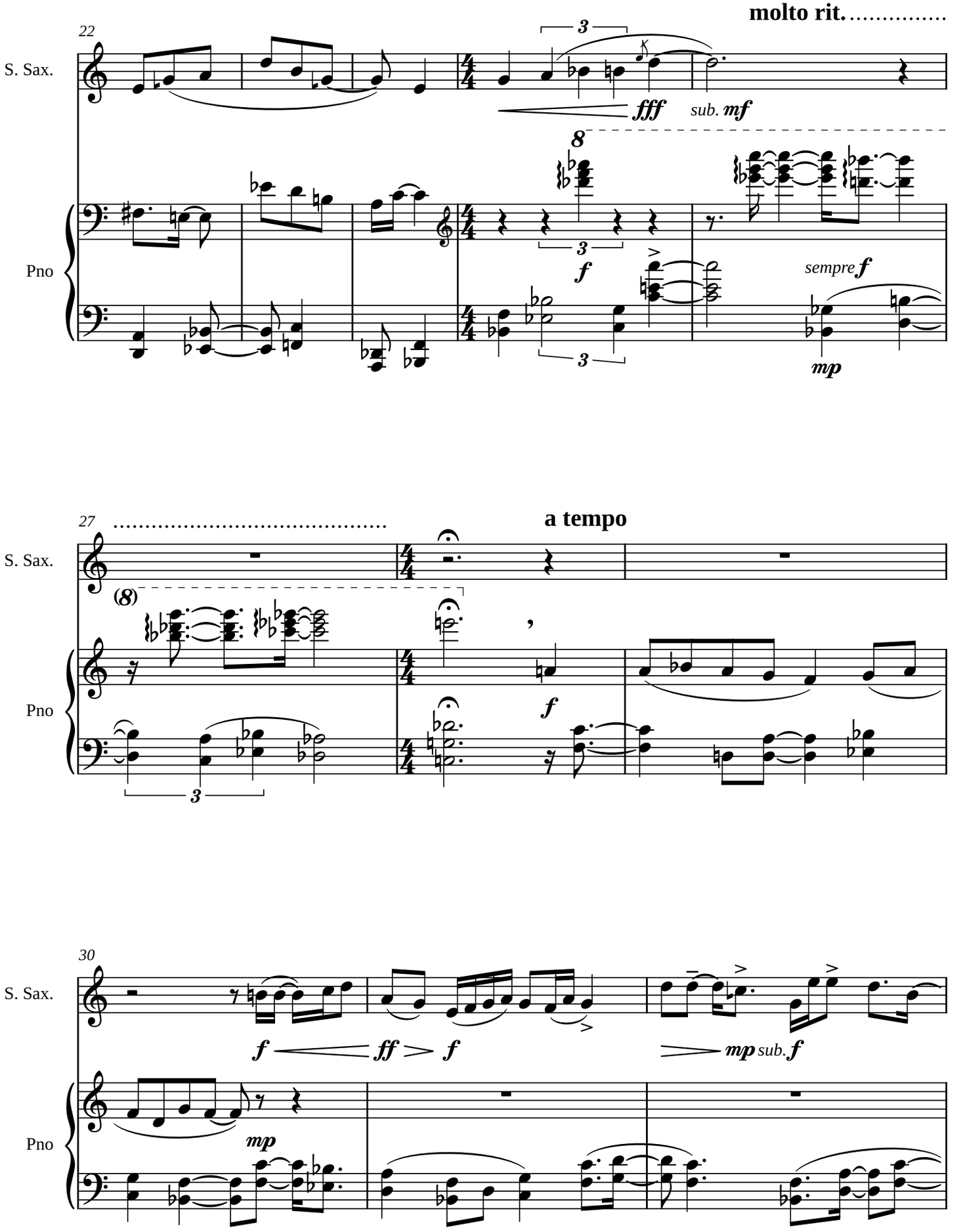
sub. f

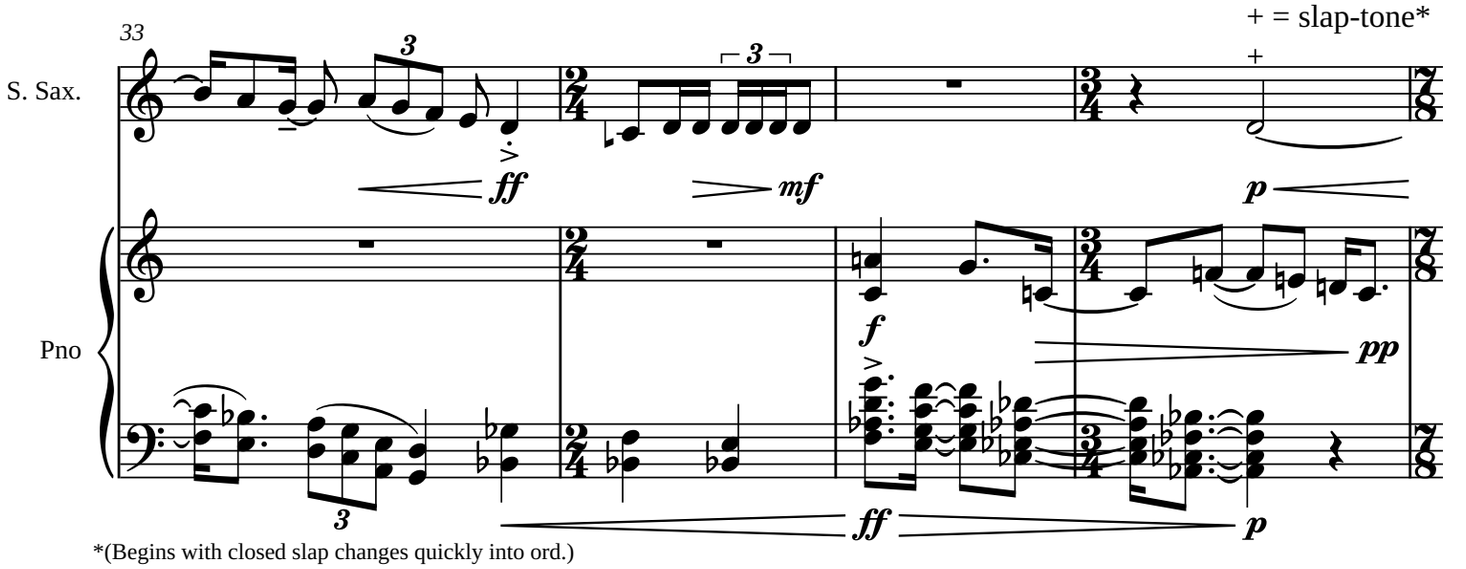
ff

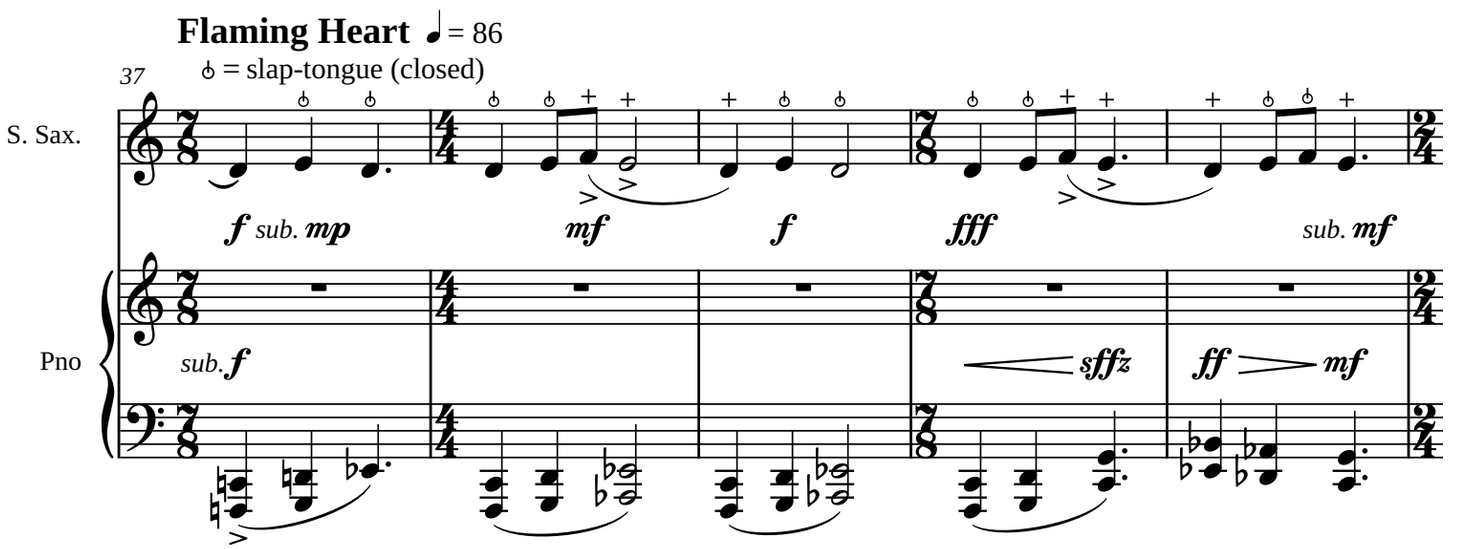
sub. f

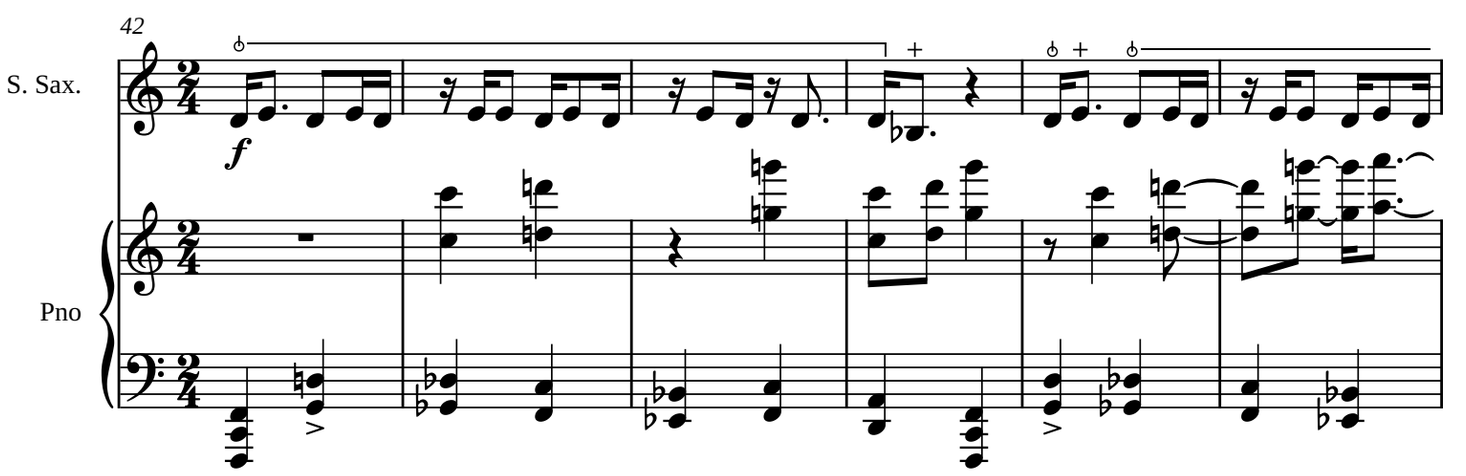
sub. mp

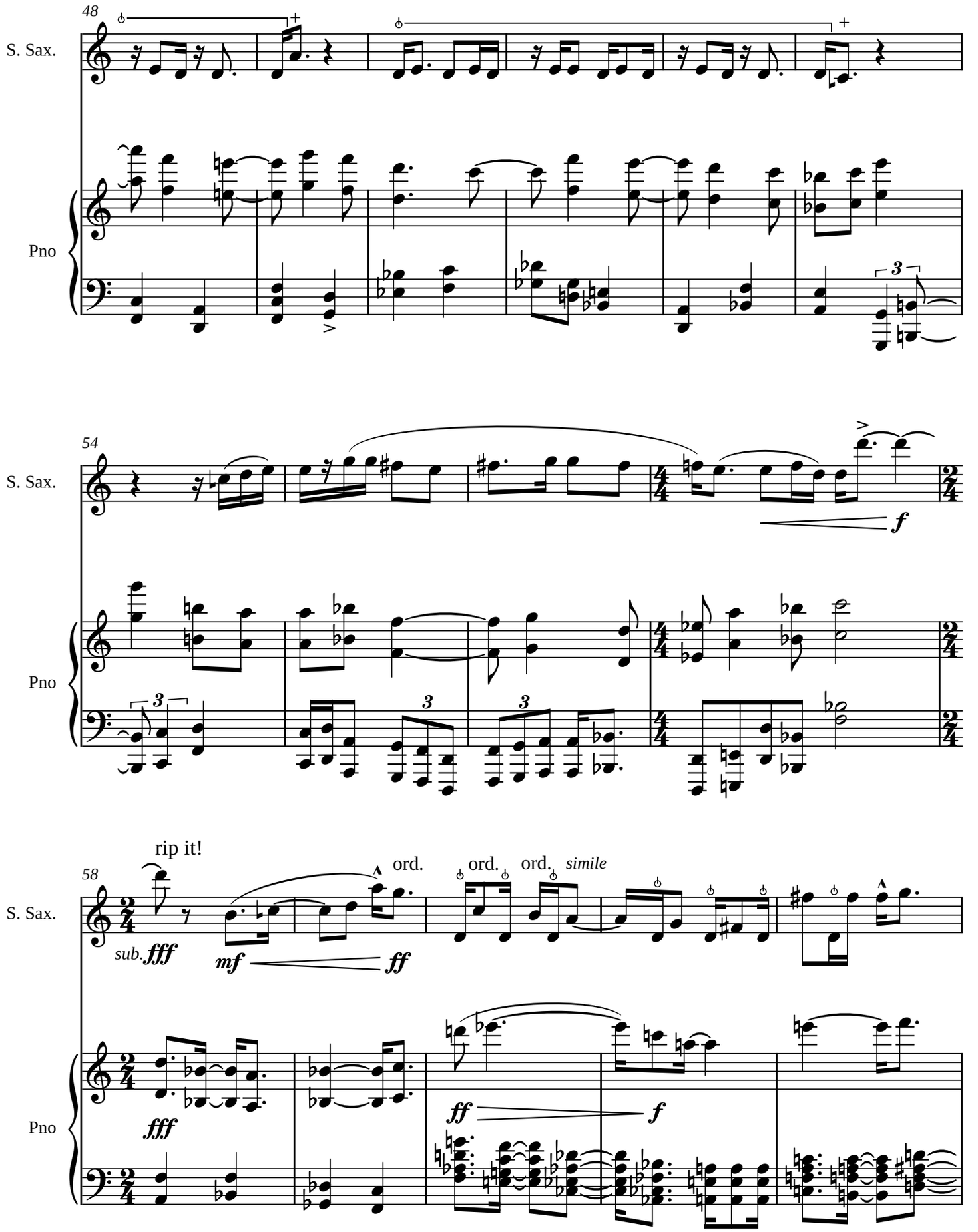

11
S. Sax.
ff
dim.
Pno
cresc.
3
14
molto rit. . .
S. Sax.
mp
f
ff
mf
p
Pno
3
3
f
17
a tempo
S. Sax.
f
ff
mp
f
mp molto cresc.
Pno
f
cresc.

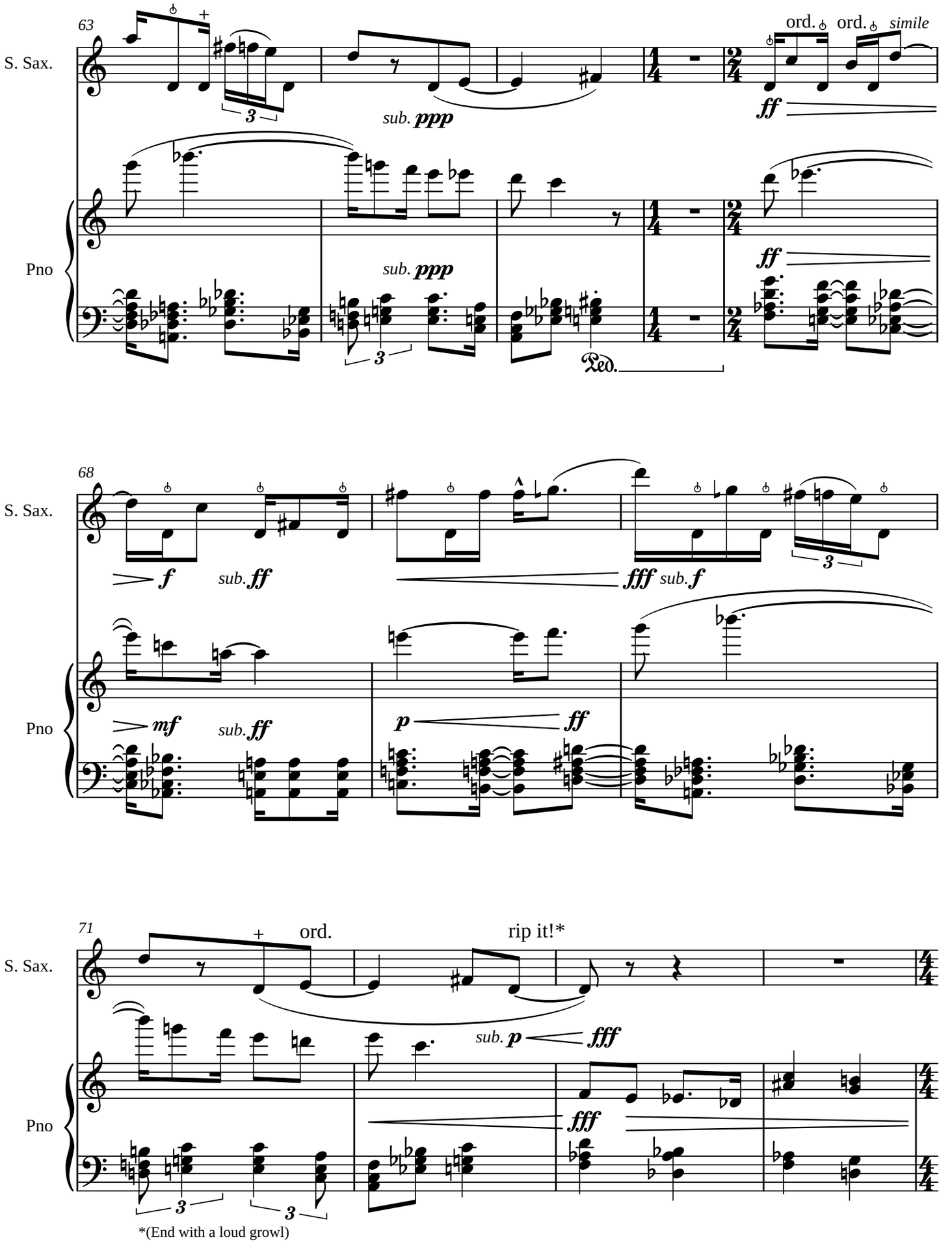

molto rit.
22
S. Sax.
Pno
fff
sub. mf
f
sempre f
mp
27
a tempo
30
mp sub. f
mp

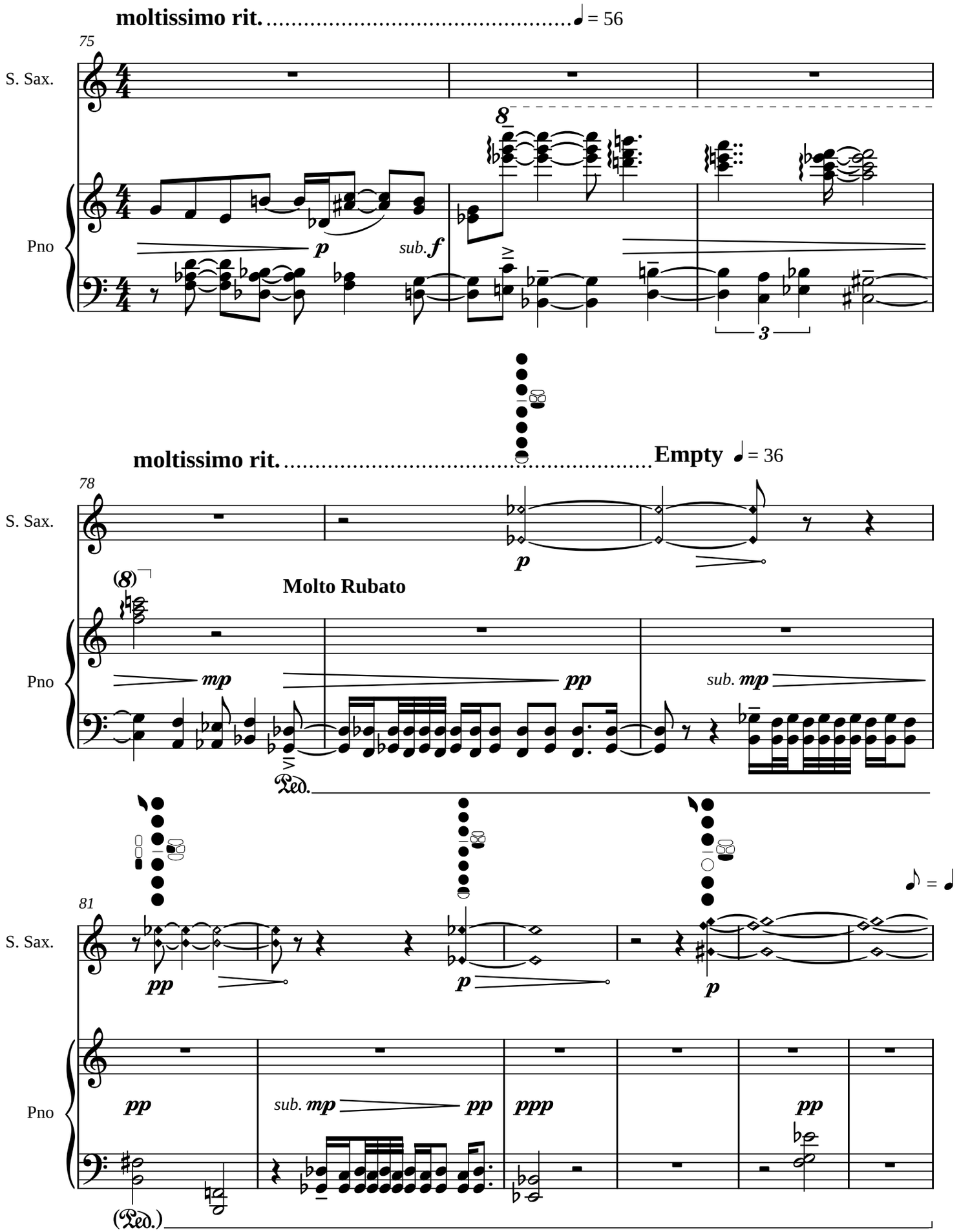

33
S. Sax.
Pno
+ = slap-tone*
ff
mf
p
f
pp
ff
p
*(Begins with closed slap changes quickly into ord.)

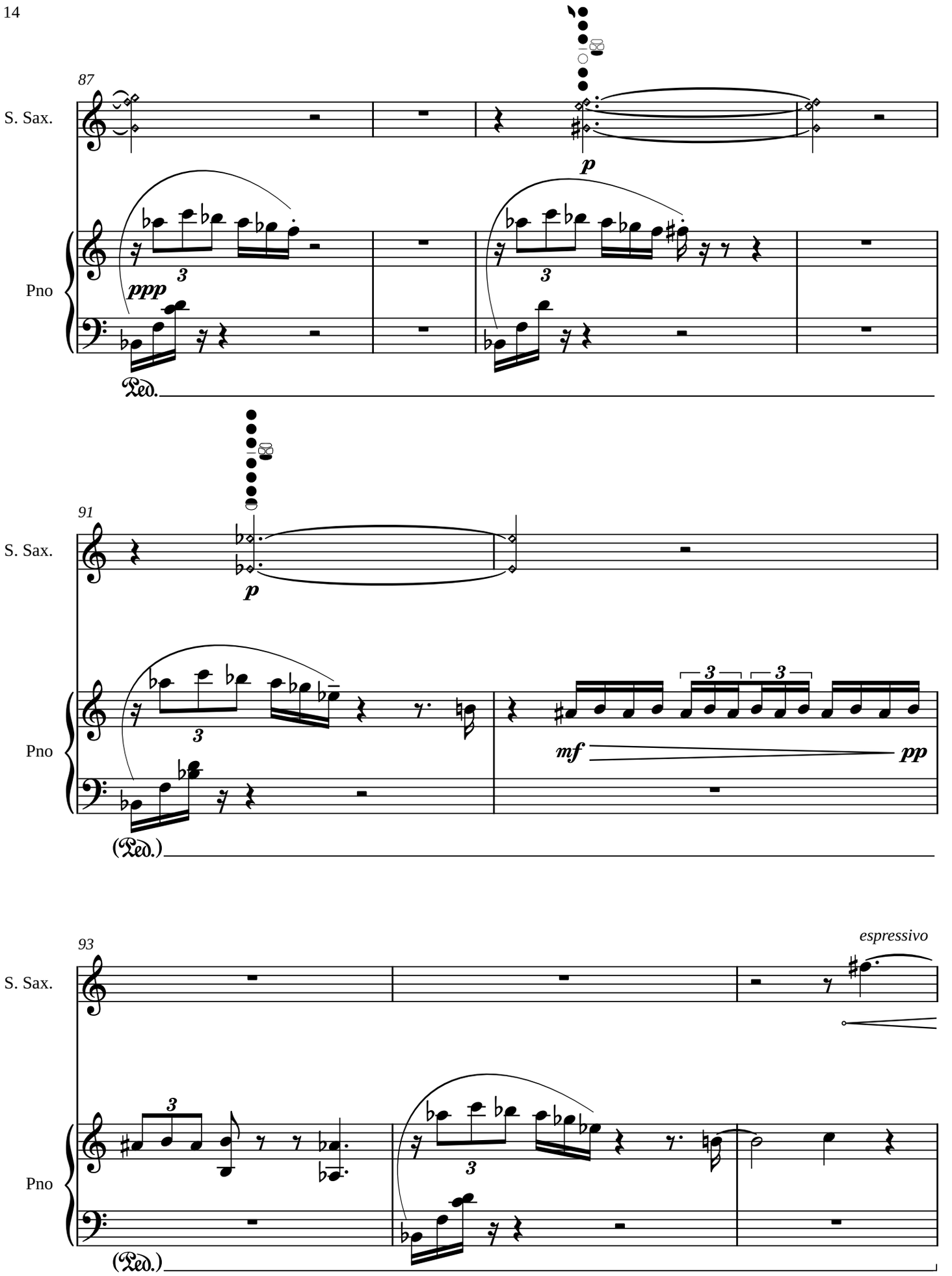

Flaming Heart ♩ = 86
37
S. Sax.
Pno
= slap-tongue (closed)
f sub. mp
mf
f
fff
sub. mf
sub. f
sffz
ff mf

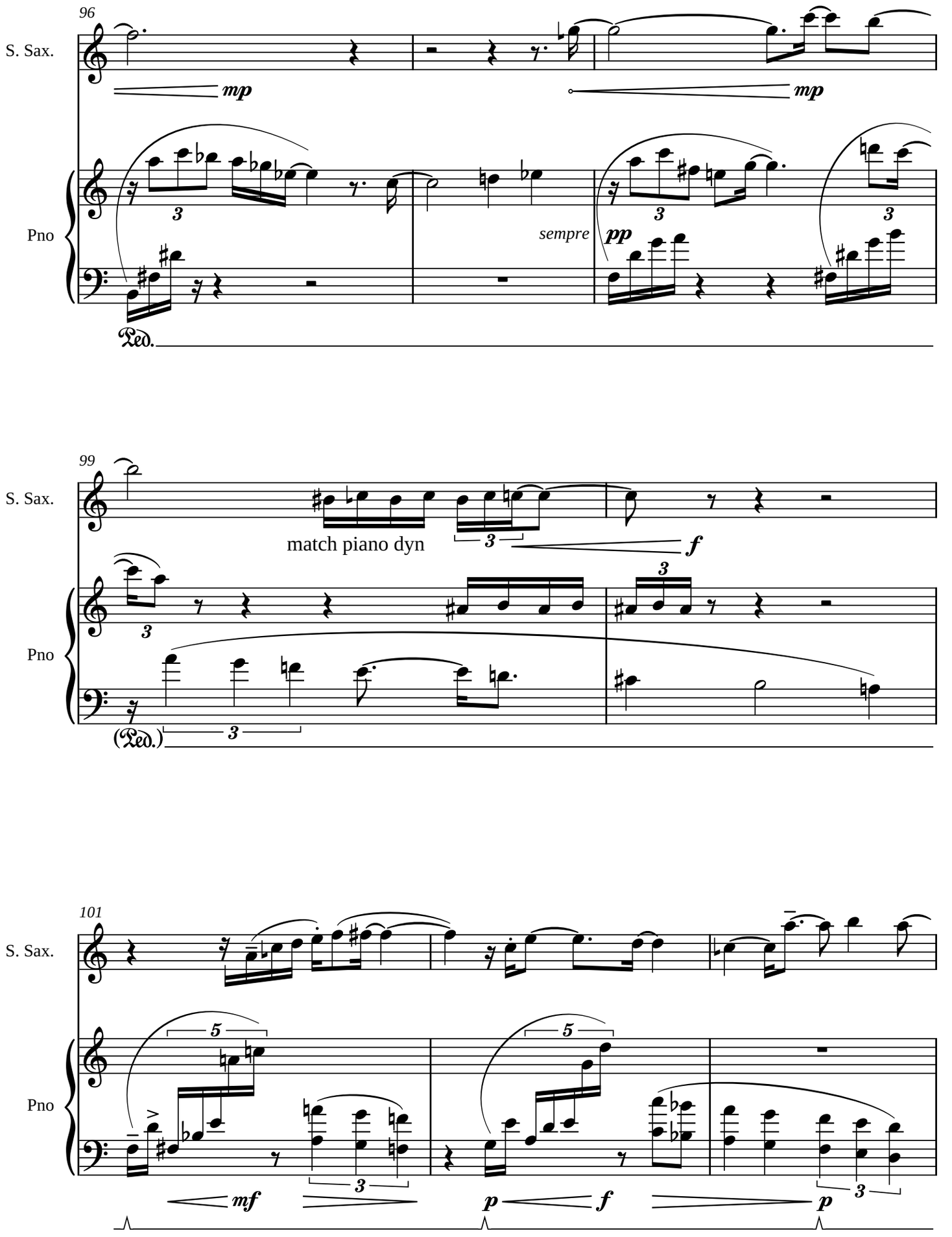

42
S. Sax.
Pno
f

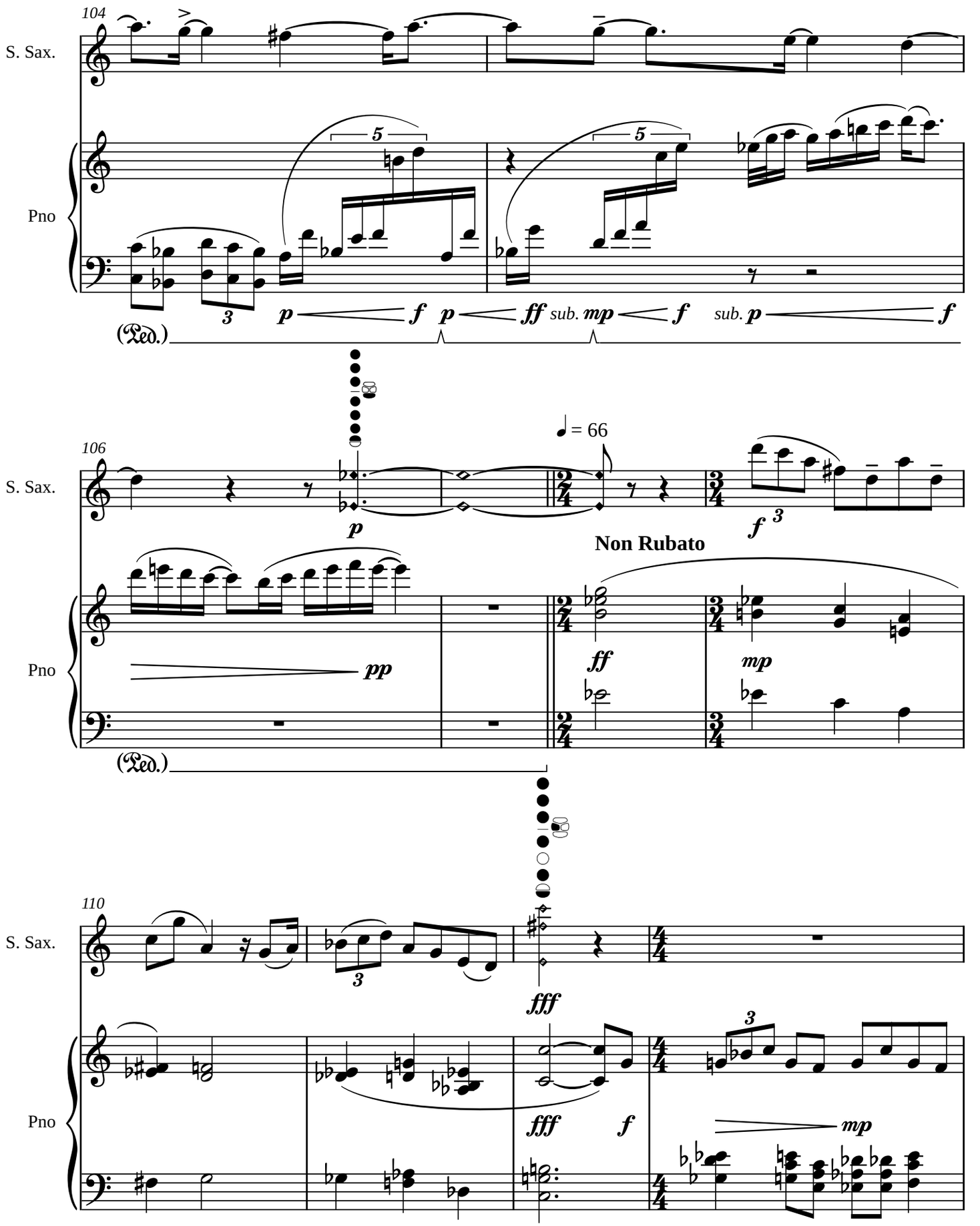

48
S. Sax.
Pno
54
S. Sax.
Pno
rip it!
58
S. Sax.
sub. fff
mf
ff
ord.
ord.
ord.
simile
Pno
fff
ff
f

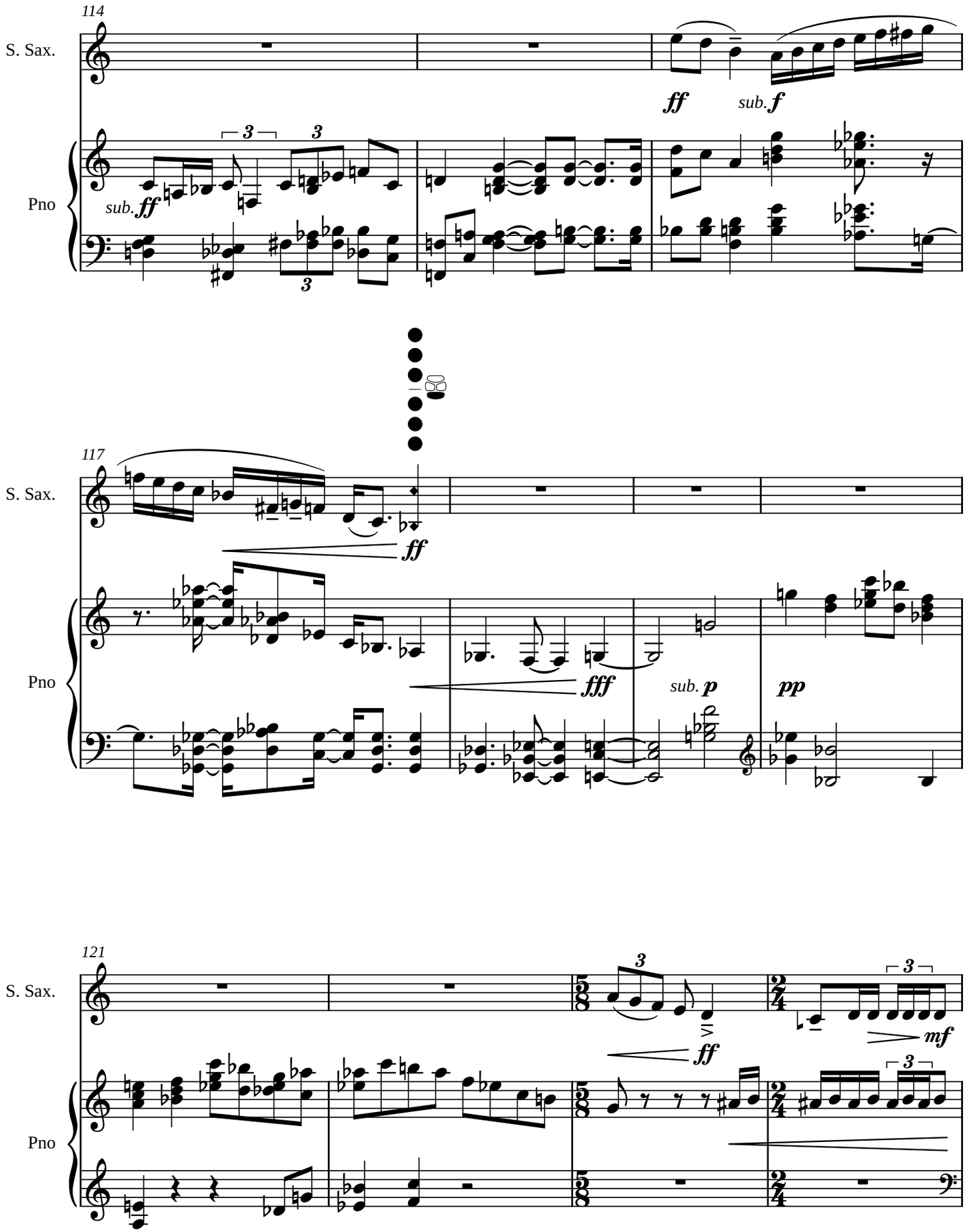

63
S. Sax.
Pno
ord.
ord.
simile
sub. ppp
ff
sub. ppp
ff
Ped.
68
S. Sax.
Pno
f
sub. ff
fff
sub. f
mf
sub. ff
p
ff
71
S. Sax.
Pno
ord.
rip it!*
sub. p
fff
fff
*(End with a loud growl)

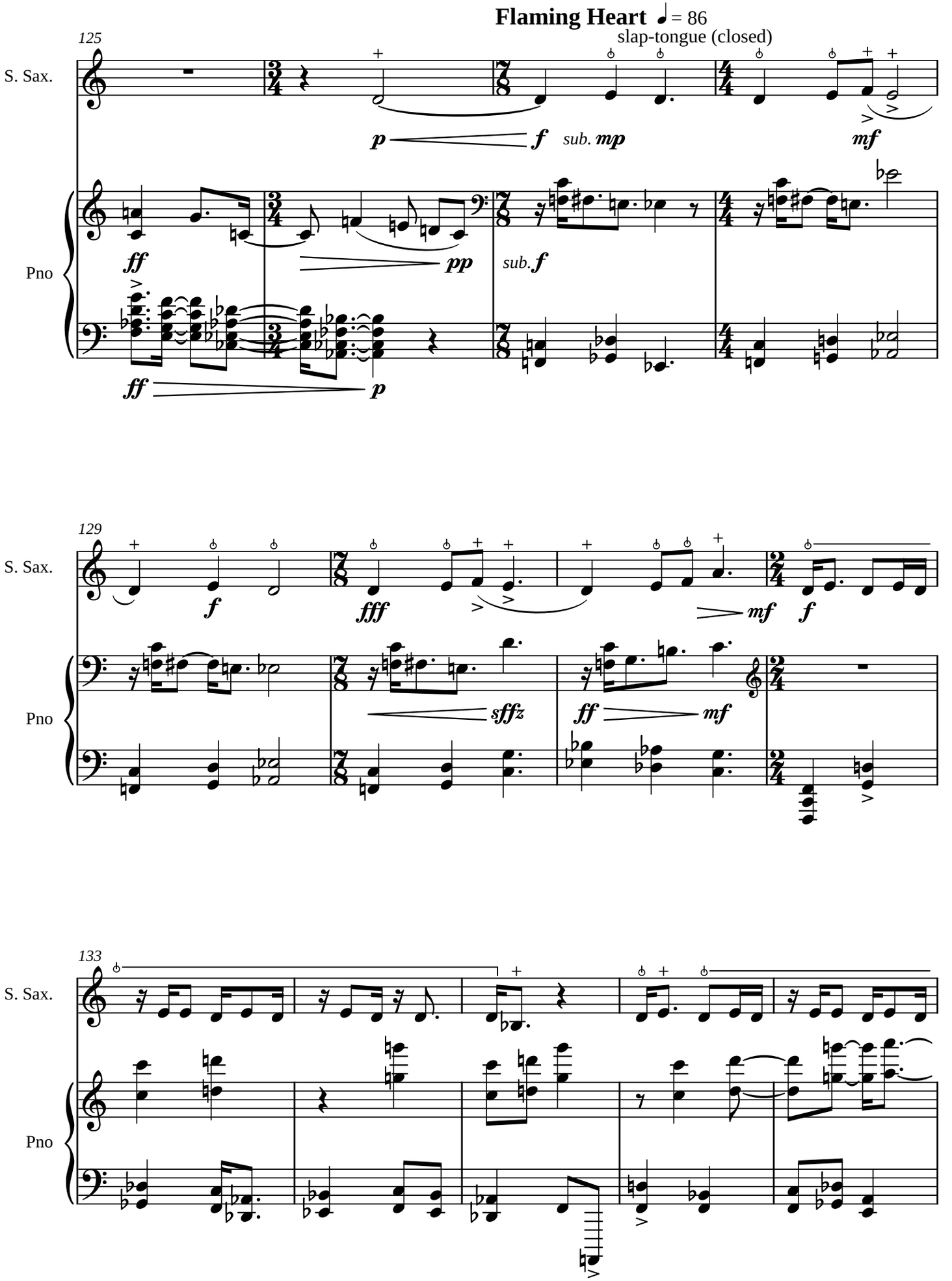

moltissimo rit. ..... = 56
75
S. Sax.
Pno
p
sub. f
3
moltissimo rit. ..... Empty = 36
78
S. Sax.
p
(8)
Molto Rubato
Pno
mp
pp
sub. mp
Ped.
81
S. Sax.
pp
p
p
=
Pno
pp
sub. mp
pp
ppp
pp
(Ped.)

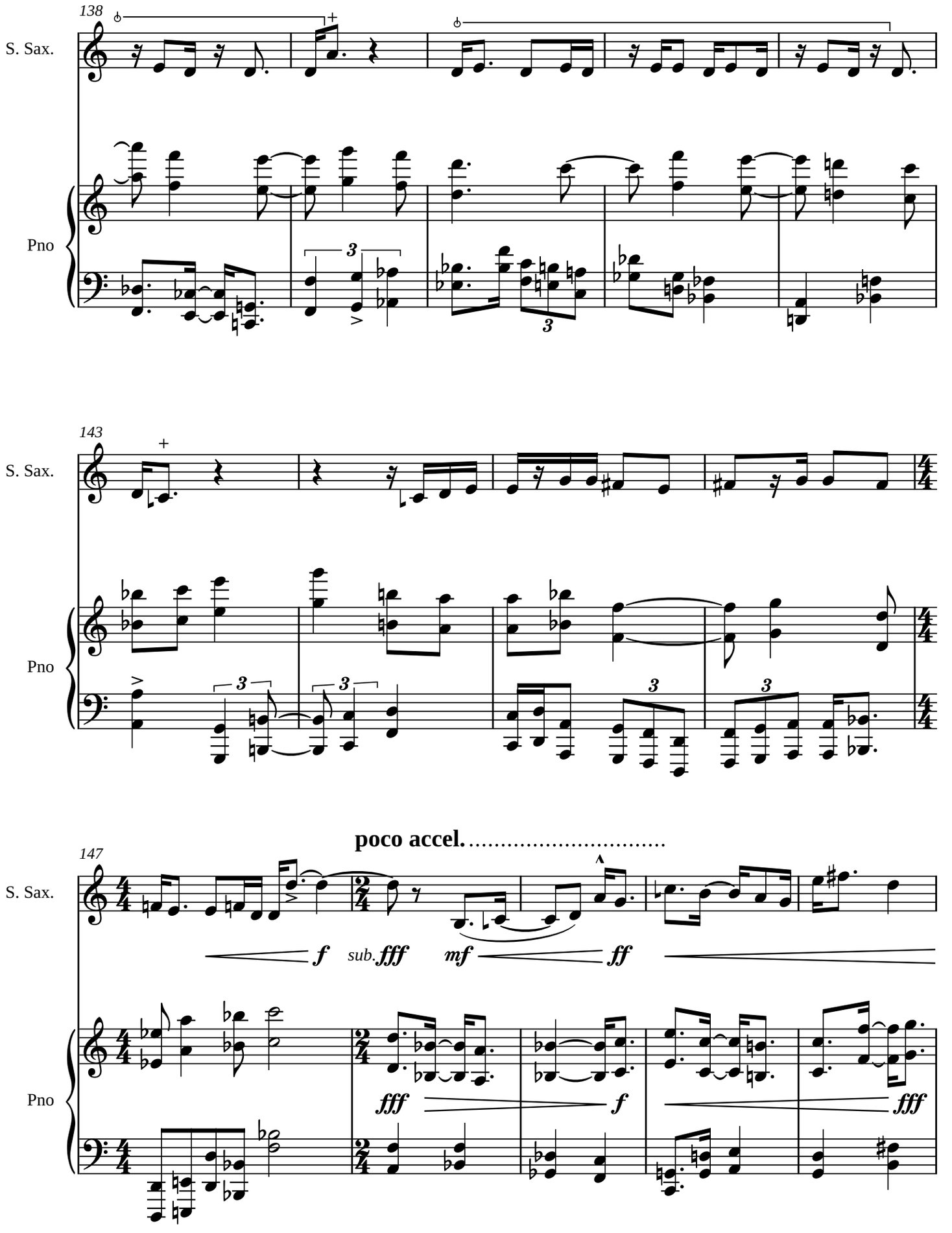

87
S. Sax.
p
Pno
ppp
3
Ped.
91
S. Sax.
p
Pno
3
mf
pp
(Ped.)
93
espressivo
S. Sax.
Pno
3
(Ped.)

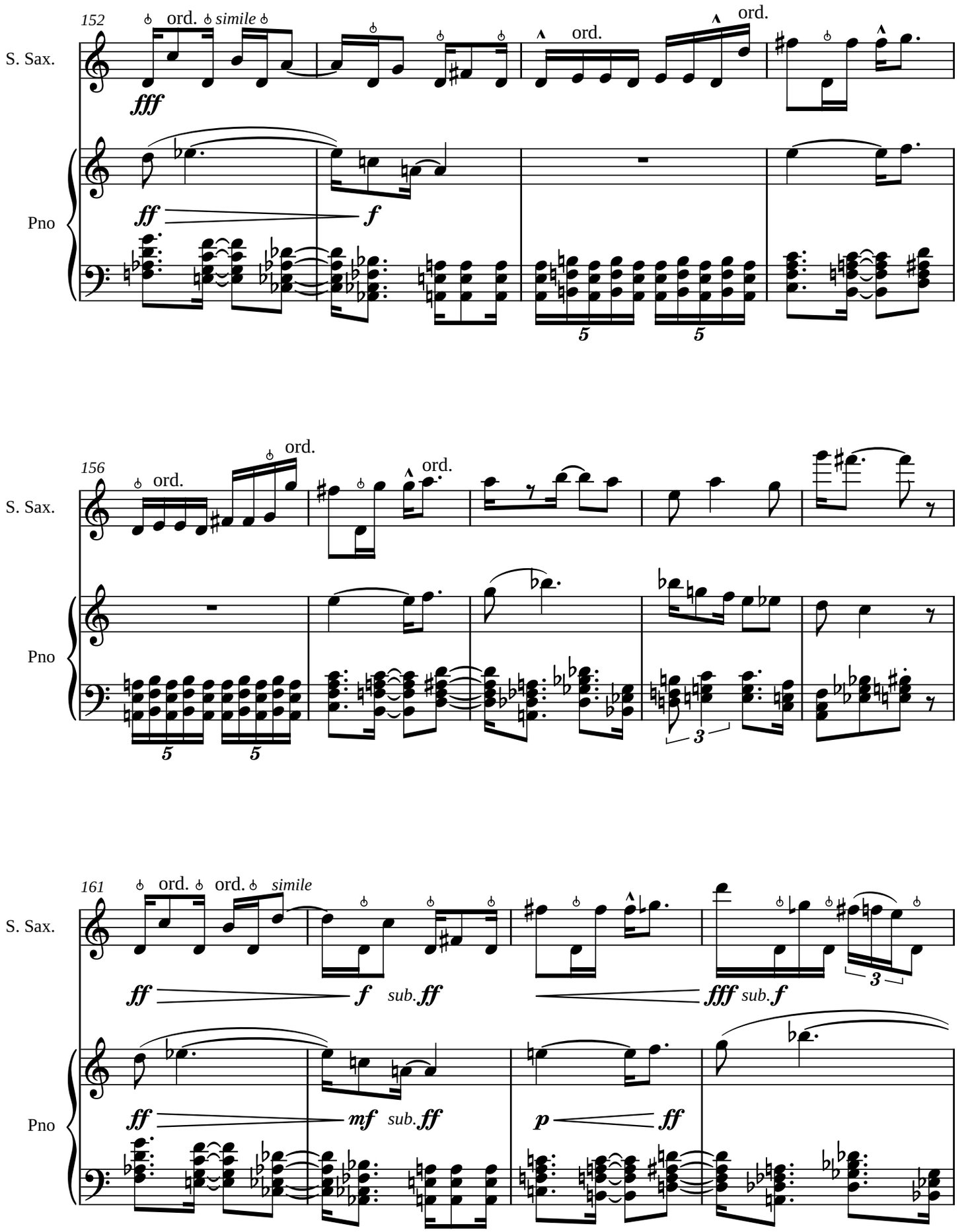

96
S. Sax.
mp
mp
Pno
sempre
pp
Ped.
99
S. Sax.
match piano dyn
f
Pno
(Ped.)
101
S. Sax.
Pno
mf
p
f
p

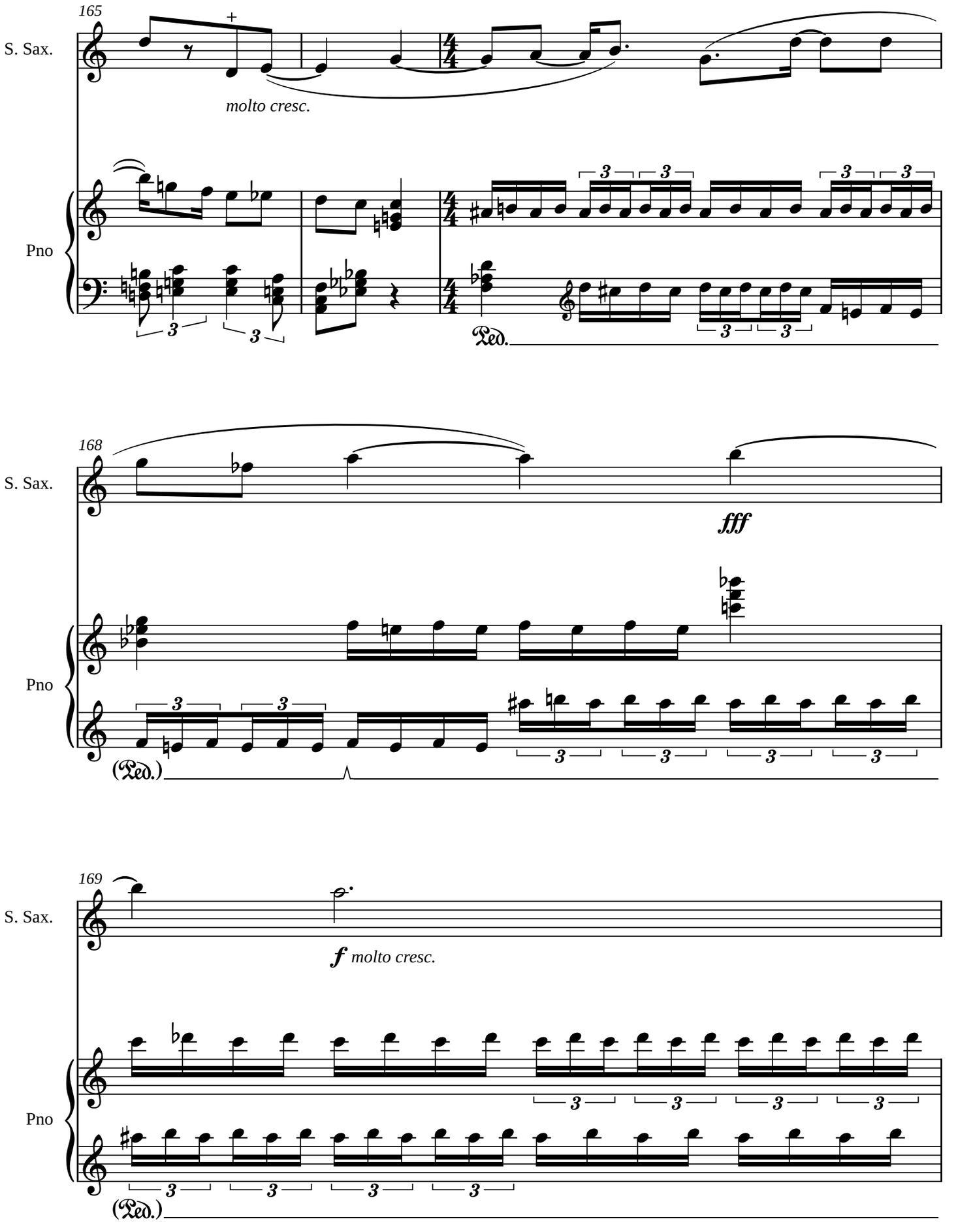

104
S. Sax.
Pno
(Ped.)
sub.
sub.
106
S. Sax.
Pno
= 66
Non Rubato
(Ped.)
110
S. Sax.
Pno

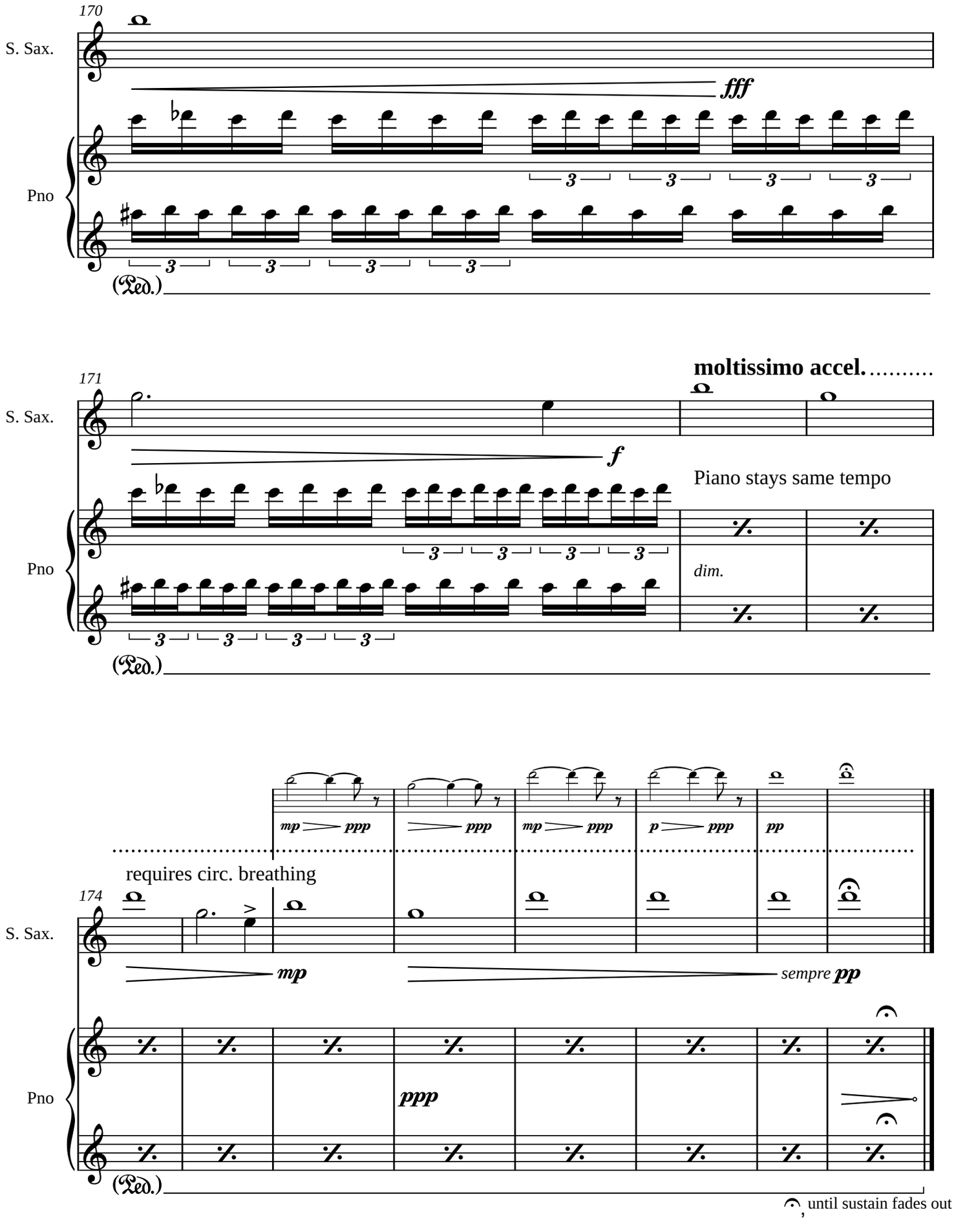

114
S. Sax.
Pno
sub. ff
ff
sub. f
117
S. Sax.
Pno
ff
fff
sub. p
pp
121
S. Sax.
Pno
ff
mf


Flaming Heart ♩ = 86
125
slap-tongue (closed)
S. Sax.
Pno
p
f
sub. mp
mf
ff
pp
sub. f
ff
p
129
S. Sax.
Pno
f
fff
mf
f
sffz
ff
mf
133
S. Sax.
Pno


138
S. Sax.
Pno
143
S. Sax.
Pno
poco accel.
147
S. Sax.
f
sub. fff
mf
ff
Pno
fff
f
fff


152
S. Sax.
Pno
ord.
simile
ord.
ord.
fff
ff
f
5
5
156
S. Sax.
Pno
ord.
ord.
ord.
5
5
3
161
S. Sax.
Pno
ord.
ord.
simile
ff
f
sub.ff
fff
sub.f
3
ff
mf
sub.ff
p
ff


165
S. Sax.
molto cresc.
Pno
Ped.
168
S. Sax.
fff
Pno
(Ped.)
169
S. Sax.
f molto cresc.
Pno
(Ped.)


170
S. Sax.
fff
Pno
(Ped.)
171
moltissimo accel.
S. Sax.
f
Piano stays same tempo
Pno
dim.
(Ped.)
mp ppp
ppp
mp ppp
p ppp
pp
requires circ. breathing
174
S. Sax.
mp
sempre pp
Pno
ppp
(Ped.)
, until sustain fades out