An Infinite Circle is a Straight Line

For solo piano

Ian Percy

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… a thousand sounds of Pi …

For solo piano

Duration ca. 12’ 22”

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2012/20

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Prelude: When in doubt, just keep walking forwards …

I. Cycle Four (a fourth of seven): Let's just go for it …

II. Cycle Five (a fifth of seven): The hills are growing steeper …

III. Cycle Six (a sixth of seven): Wake up, there are mountains to climb and things we can believe in …

Interlude: There are, and will always be, just causes to fight …

IV. Cycle Seven (the seventh of seven at eight forty-six): In leaps and bounds – a mission impossible …

Postlude: There are, and will always be, vast oceans to explore …

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The majority of this multiple movement work for solo piano was composed systematically from the first 1,000 decimal digits of Pi during the summer of 2012. Using a combination of Arnold Schoenberg's dodecaphonic technique and Arvo Pärt's extended tone rows, the piece started life as an analytical exercise, a theoretical study into the musical possibilities of composing with the linear properties of eternal numbers. The Prelude and Postlude were composed in an instinctive manner during the summer of 2014 through a desire to bookend the systemised cycles with music formed from a more 'philosophical' approach to the use of Pi and musical 3s, 1s and 4s. The Interlude was added during final realisation of the performance score in late 2020, when three of the original cycles were removed and the phrases were articulated within the boundaries of the system to enhance the inherent musicality of the statements and subtly sculpt the textural contours that emerged.

Pi is an eternal number; it is infinite and linear but is part of the equation used to calculate the circumference of a circle; a cyclic and self-contained shape. The composer was attracted by this contradiction and was intrigued by the realisation that if Pi is an 'infinite decimal', it could also be argued that the precise circumference of a circle is an unobtainable pursuit (an infinite elusive). Whilst researching the fundamentals of Pi, one stumbled across an area of research (or mode of thinking) referred to as 'philosophical mathematics', which, until then, one would have considered to be an oxymoron. A quotation accredited (with some dispute) to Johannes Kepler (1571-1630) stating that 'an infinite circle is a straight line' offered just 'a splash' of external narrative (and a title for the piece). Others have mused how, therefore, the maximum triangle must also be a straight line …

The Rules of the Game:

1. The cycles are a systematic setting of the first one thousand decimal digits of Pi.
2. Numbers are translated to musical pitch via Schoenberg's 12-tone system. C was chosen as 0, but the system is transposable.
3. Whenever 1, 0 or 1, 1 appear in the sequence, they are treated as 10 and 11. Without this anomaly (referred to as the 10/11 anomaly), Cycle One would outline a decachord (10-tone language) instead of the total chromatic (12-tone language).
4. Instead of returning to 0 at the octave (as in Schoenberg's method), the system was extended at each cycle (e.g. 0 = C2, 12 = C3 and 24 = C4 etc.), which expanded the registral span at each iteration and introduced an architectural sense of textural and timbral development.
5. Cycle One uses 0 – 11 (one chromatic octave), Cycle Two uses 0 – 23 (two chromatic octaves) and Cycle Three uses 0 – 35 etc.
6. Every single digit (1 – 9) is equal to the duration of a semi-quaver.
7. Every double digit (10 – 83) is equal to a quaver (two semi-quavers).
8. There are many repeated digits in the infinite decimal of Pi, which led to a lot of semi-quaver reiterations, so repeated numbers are given the durational value of the combined digits: 8, 8, 8 equals a dotted-quaver (three semi-quavers) and 9, 9, 9, 9 equals a crotchet (4 semi-quavers)

Simply Systematic:

One recalls exploring a variety of initial approaches whilst trying to uncover fragments of music within this linear eternal and the processes were excessively time consuming to document in score form, but once the 'rules of the game' were established, it was literally a case of 'inputting the data' and sitting back to let the systems and cycles unfold, entertained by the musicality one had discovered. The articulation and dynamics added during final realisation of the performance score simply enhanced the phrases that were already present; like applying oil to wood to emphasise the grain and preserve its natural beauty. One could pose the question: Whose music is this? Perhaps it belongs to the Akashic Record? Perhaps it is mine?

Variable Form:

This is a virtuosic piece. Cycle Seven borders on a 'mission impossible' and is perhaps more practical for performance as a duo for two players at one piano. Cycle Six demands elite acrobatics from the pianist and Cycle Five requires a high level of stamina, technique and agility. The music clearly belongs to the same evolutionary strand as George Antheil's *Ballet Mécanique* (1924) and Conlon Nancarrow's mid-twentieth-century studies for automated player pianos, and this collection was initially conceived as a theoretical exercise (not for the concert hall), but it is difficult to deny the inherent musicality in these cycles (and the capabilities of the modern pianist), so, for this reason, the piece can be performed in variable forms with as little as three movements: Prelude – Cycle Four – Postlude. Simply keep adding cycles to taste (or technique). The Interlude should only ever be observed if one is attempting a performance of the whole piece.

Notation: This is an extremely chromatic score, so in order to dilute the number of accidentals, the following rules were strictly observed:

a. The barline cancels all accidentals.
b. Both staves are considered separate, so no cautionary naturals are offered.
c. Accidentals (and their cautionaries) only apply to notes in that specific register.
d. Whenever there are cross-staff beamed notes, no rests are given in either stave.

In Conclusion:
The emotive and flamboyant Prelude was composed through inverted mirror symmetry and transposed palindromic retrogrades of musical 3s, 1s and 4s (intervals and interval-classes). The introverted and reflective Postlude was composed from a reductive linear sequence of dyads (3s, 1s and 4s). The Interlude is composed from silence. The Cycles were composed through systematic translation of the first one thousand decimal digits of Pi into musical pitch, and, when using these rules, sounds like a form of contemporary chromatic Jazz. One is left wondering how the next 1,000 digits would sound if new rules were conceived in the context of a plainchant setting for SATB, or perhaps a modernist work for pitched percussion …

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Prelude: When in doubt, just keep walking forwards ...

♩ = 76 **... watching the curved horizon as the sun sets on another summer ...**

molto rubato, molto espress.

poco rit. [♩ = 66]

A ♩ = 76 **... do you recall the time when ...**

... watching the sun melt into a million brilliant colours ...

poco rit.

B ♩ = 60

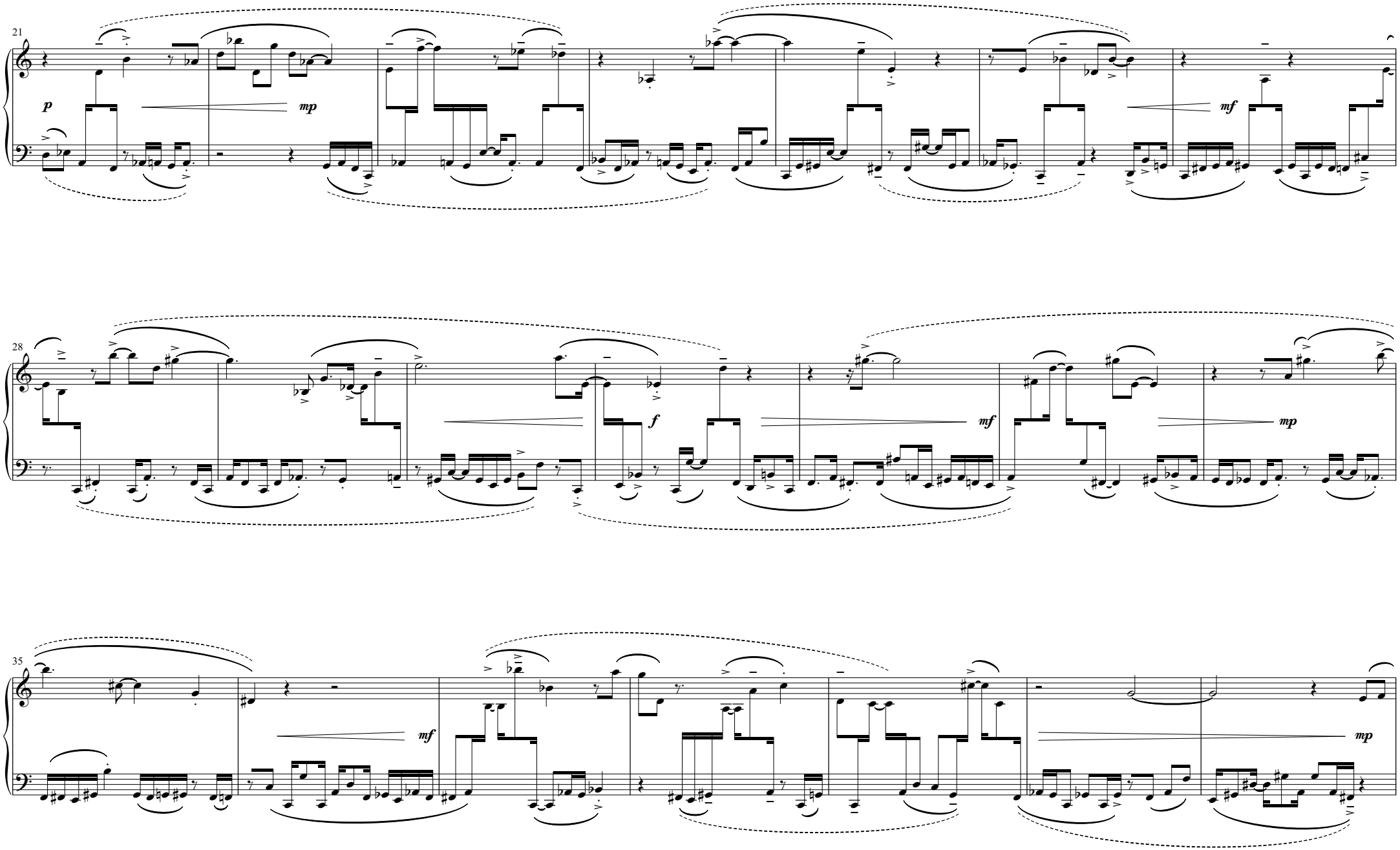
poco rit. [♩ = 40]

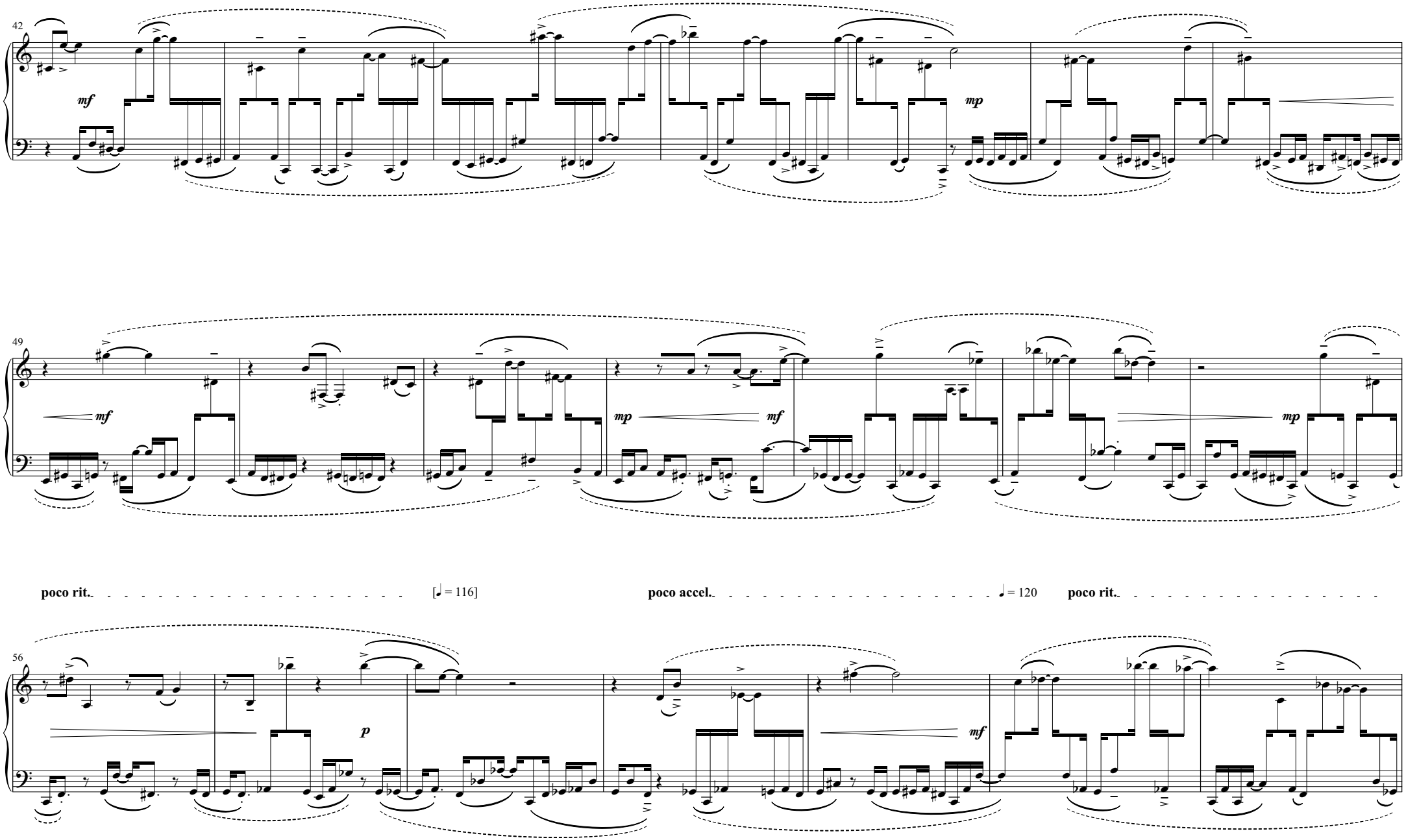
cresc.

Cycle Four (a fourth of seven): Let's just 'go for it' ...

1 ♩ = 120 **... relentless (but rewarding) ...**

senza rubato, molto espress.




42
mf
mp
49
mf
mp
mf
mp
poco rit.
[♩ = 116]
poco accel.
♩ = 120
poco rit.
56
p
mf

[♩ = 116]

poco accel. . . . . . **C** ♩ = 120 **... beginning of an end ...**

63

f *ff* *mf*

poco rit. . . . . . [♩ = 116]

70

mp

poco rit. . . . . . [♩ = 112]

poco rit. . . . . . [♩ = 60]

77

p *pp* *ppp*

Cycle Five (a fifth of seven): The hills are growing steeper ...

2 ♩ = 120 **... in perpetualis ad infinitum (and beyond) ...**

poco rubato, molto espress.

poco rit.

84

mf *mp*

[♩ = 116]

poco rit. [♩ = 112]

91

p *pp* *ppp*

poco accel. [♩ = 116]

poco accel.

98

p *mp* *mf*

♩ = 120

105

f

poco rit. [♩ = 116]

112

mf *p* *pp*

poco rit. [♩ = 112] **poco accel.** [♩ = 116]

119

ppp *pp*

poco accel. D ♩ = 120 ... a beginning of an end ...

126

mp f mf

133

f mf

poco rit. [♩ = 116]

poco rit. [♩ = 69]

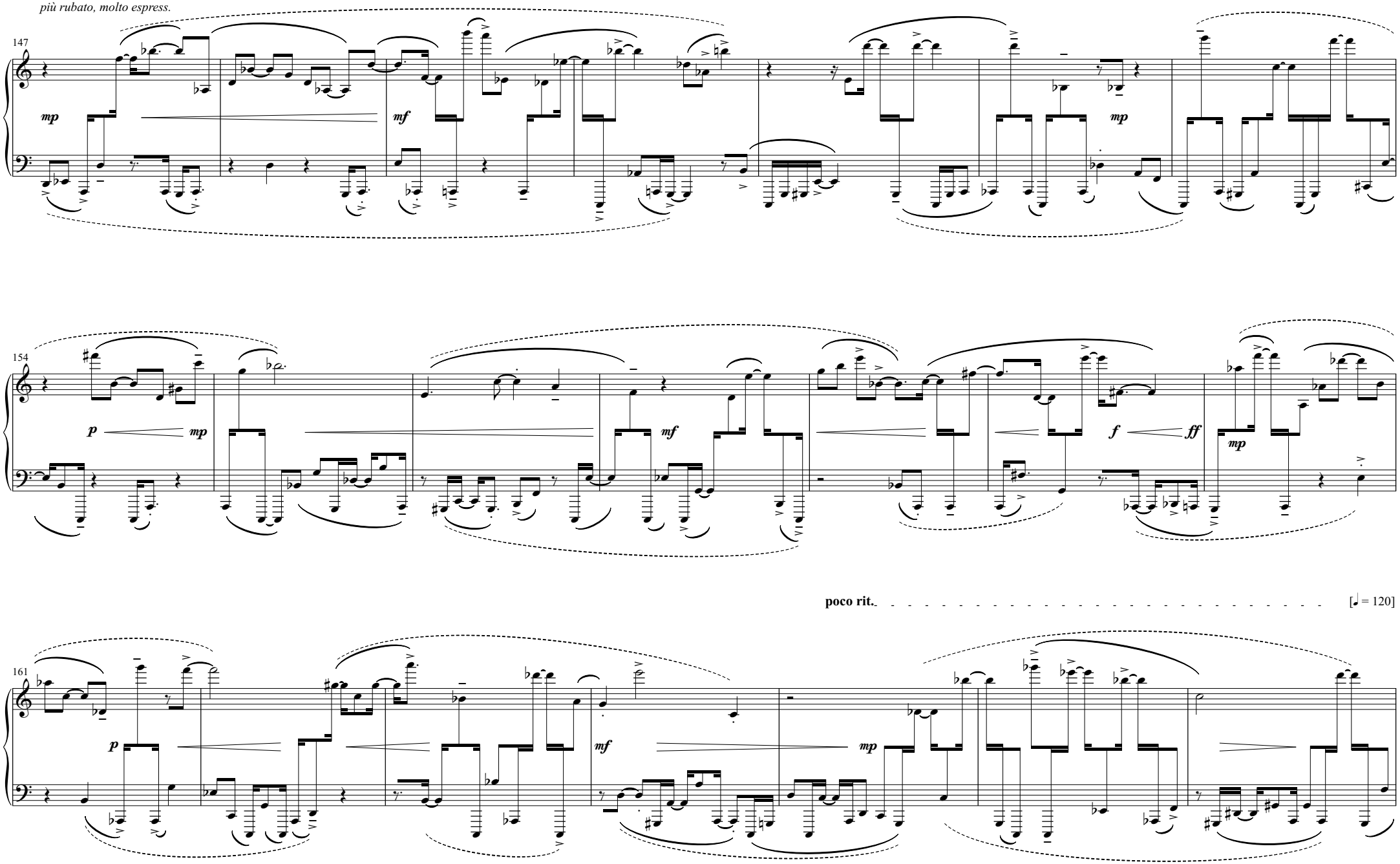
140

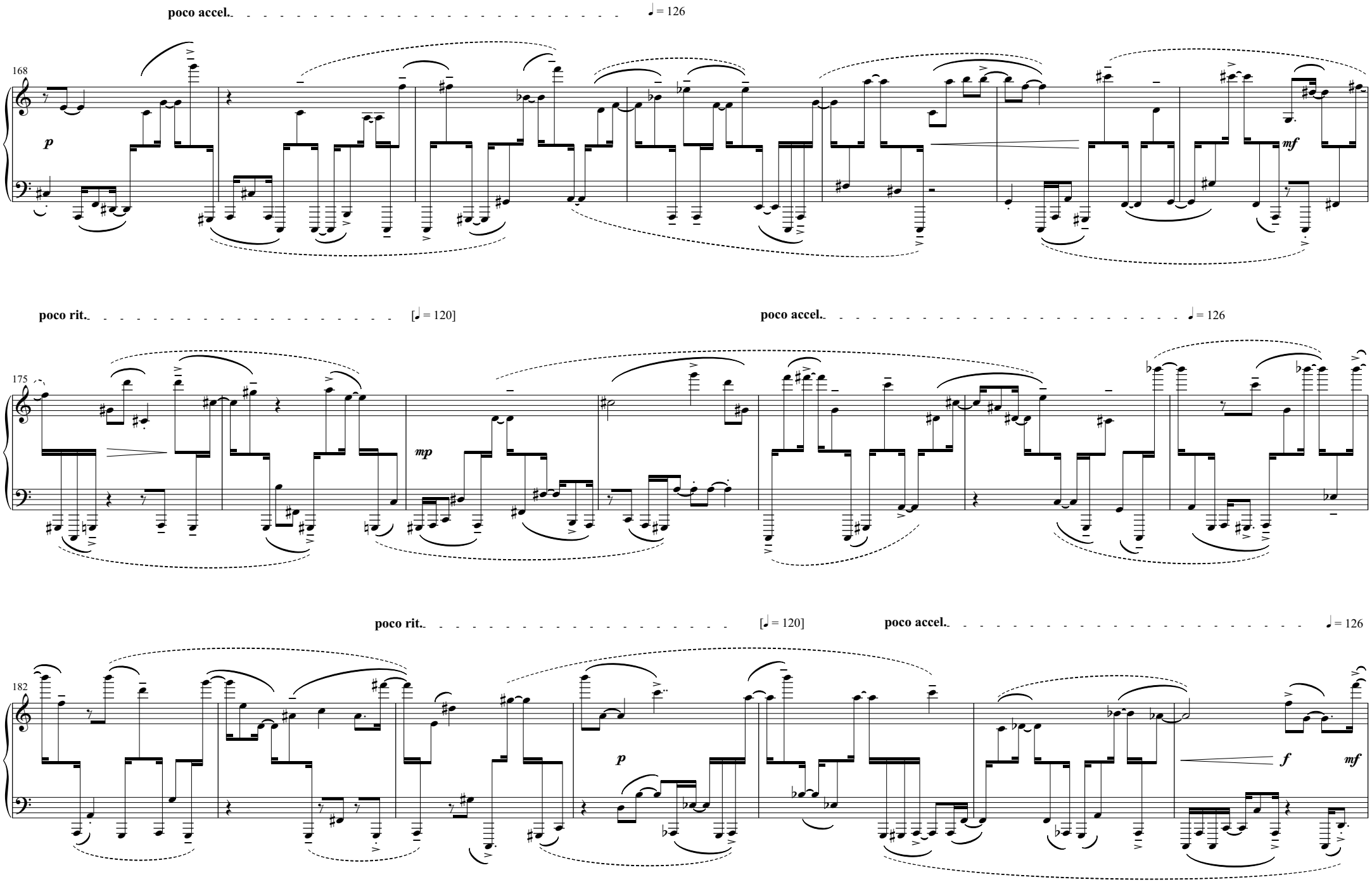
mp p pp ppp

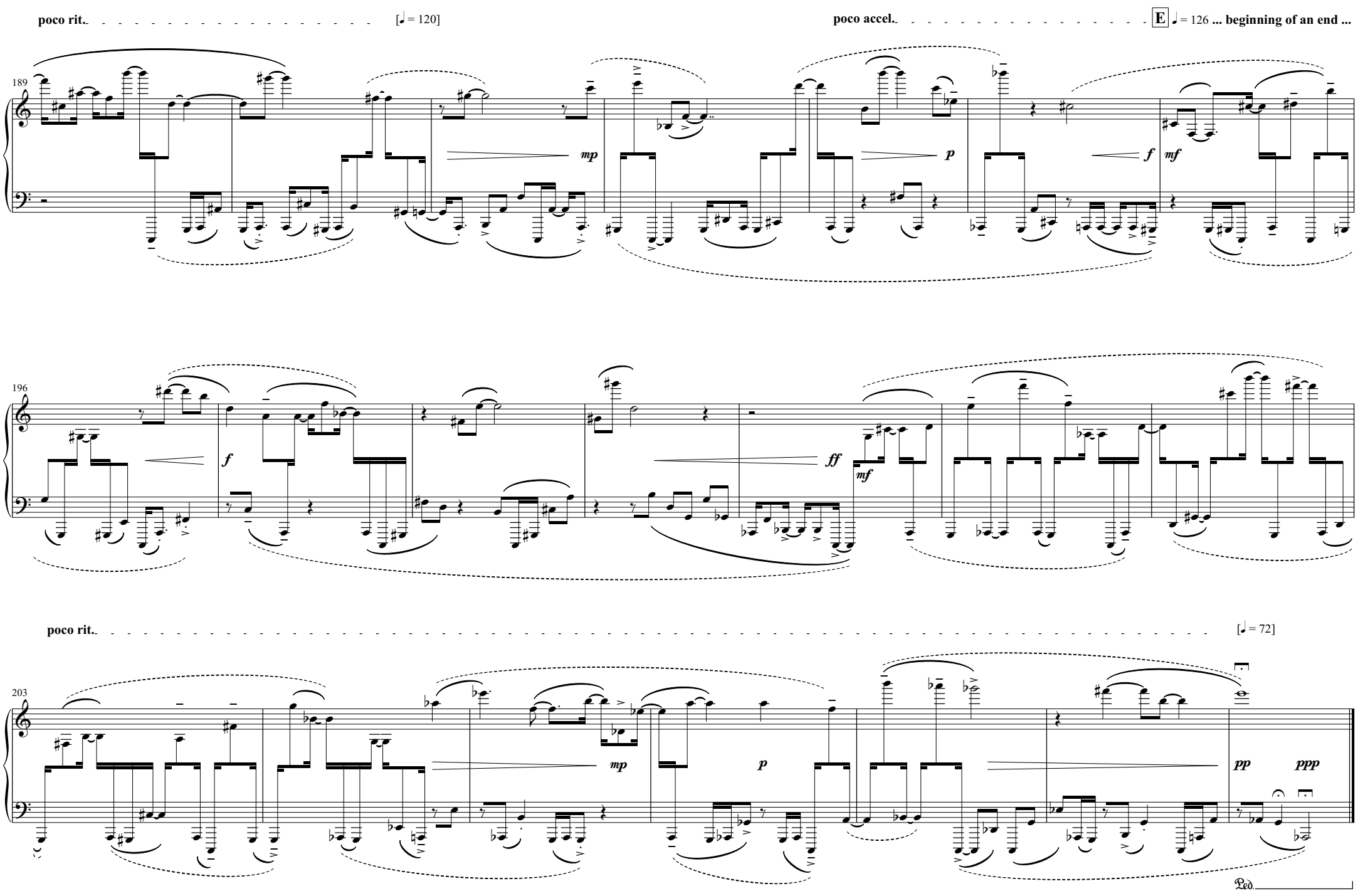
Cycle Six (a sixth of seven): Wake up, there are mountains to climb and things we can believe in ...

3 ♩. = 126 **... in energetic continuum (a marathon not a sprint) ...**

più rubato, molto espress.

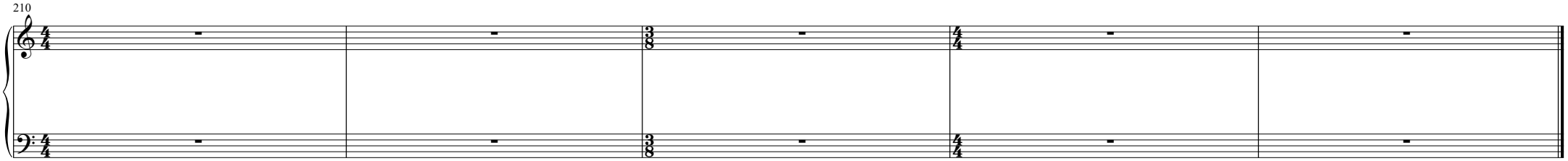



poco accel.
♩ = 126
168
p
mf
poco rit.
[♩ = 120]
poco accel.
♩ = 126
175
mp
poco rit.
[♩ = 120]
poco accel.
♩ = 126
182
p
f
mf


poco rit.
[♩ = 120]
poco accel.
E
♩ = 126 ... beginning of an end ...
189
mp
p
f
mf
196
f
ff
mf
poco rit.
[♩ = 72]
203
mp
p
pp
ppp
Ped.

Interlude: There are, and will always be, just causes to fight ...

♩ = 120 **... with reverence (and in silence) ...** **attacca**

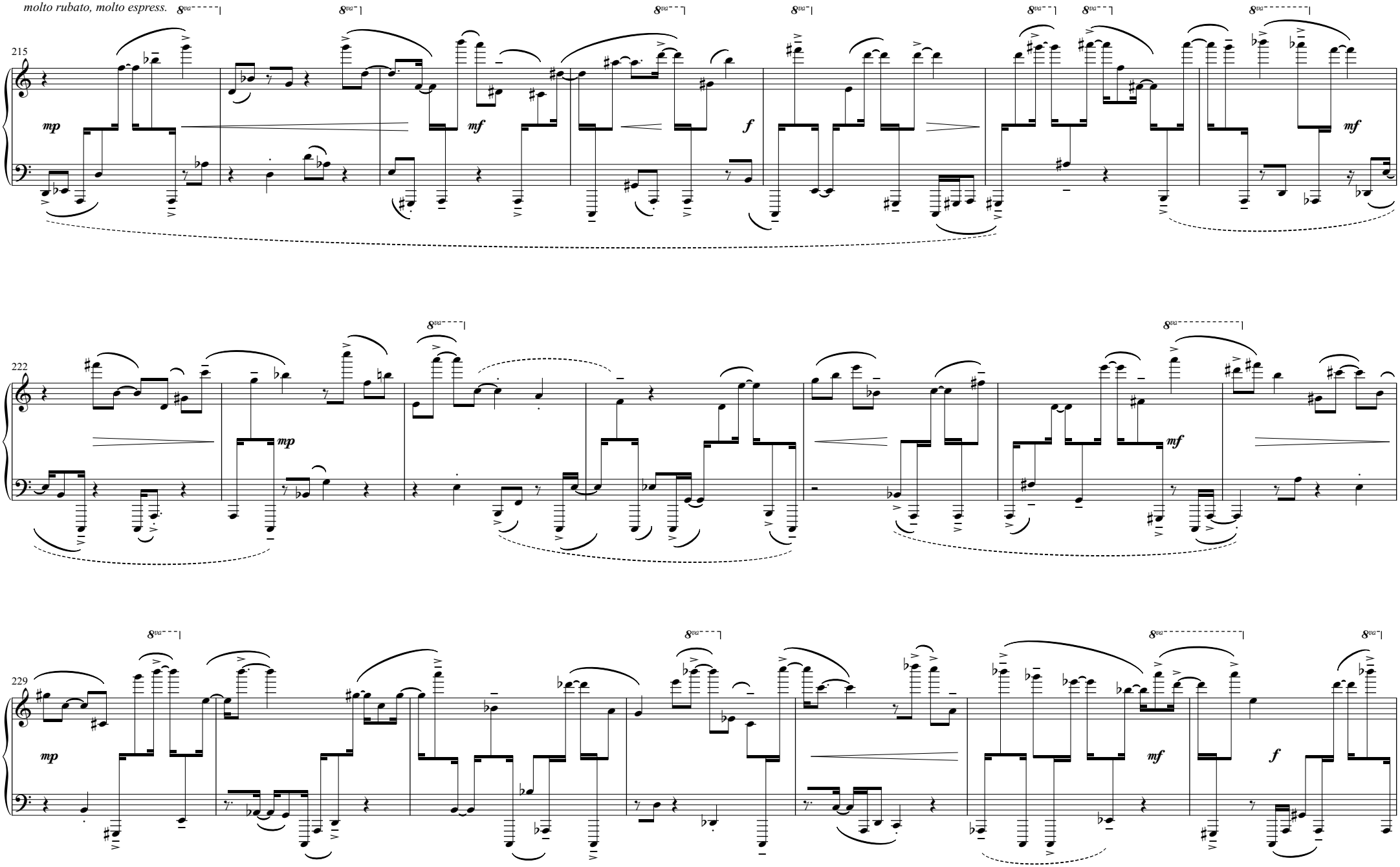


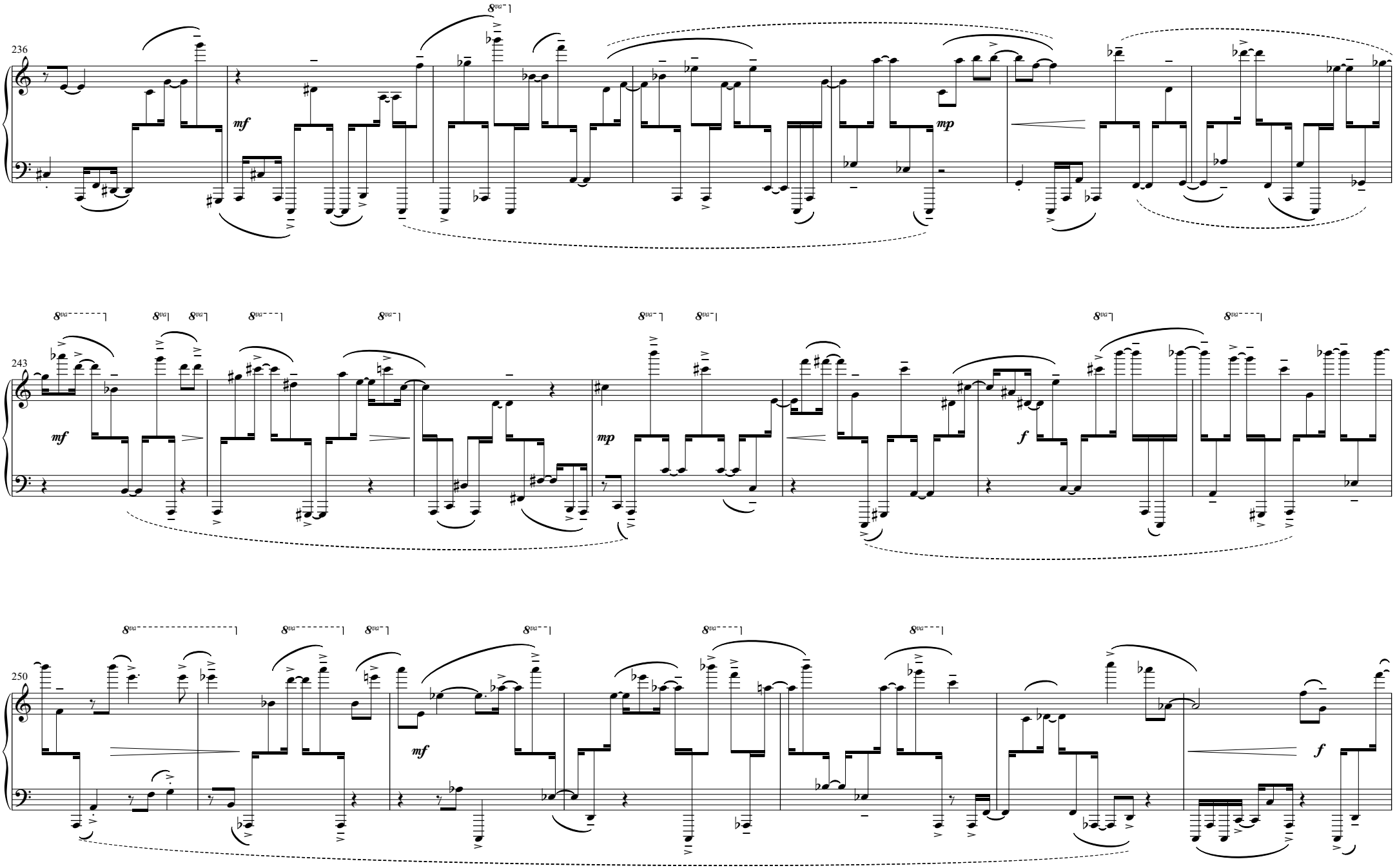
8' 46"

Cycle Seven (the seventh of seven at eight forty-six): In leaps and bounds - a mission impossible ...

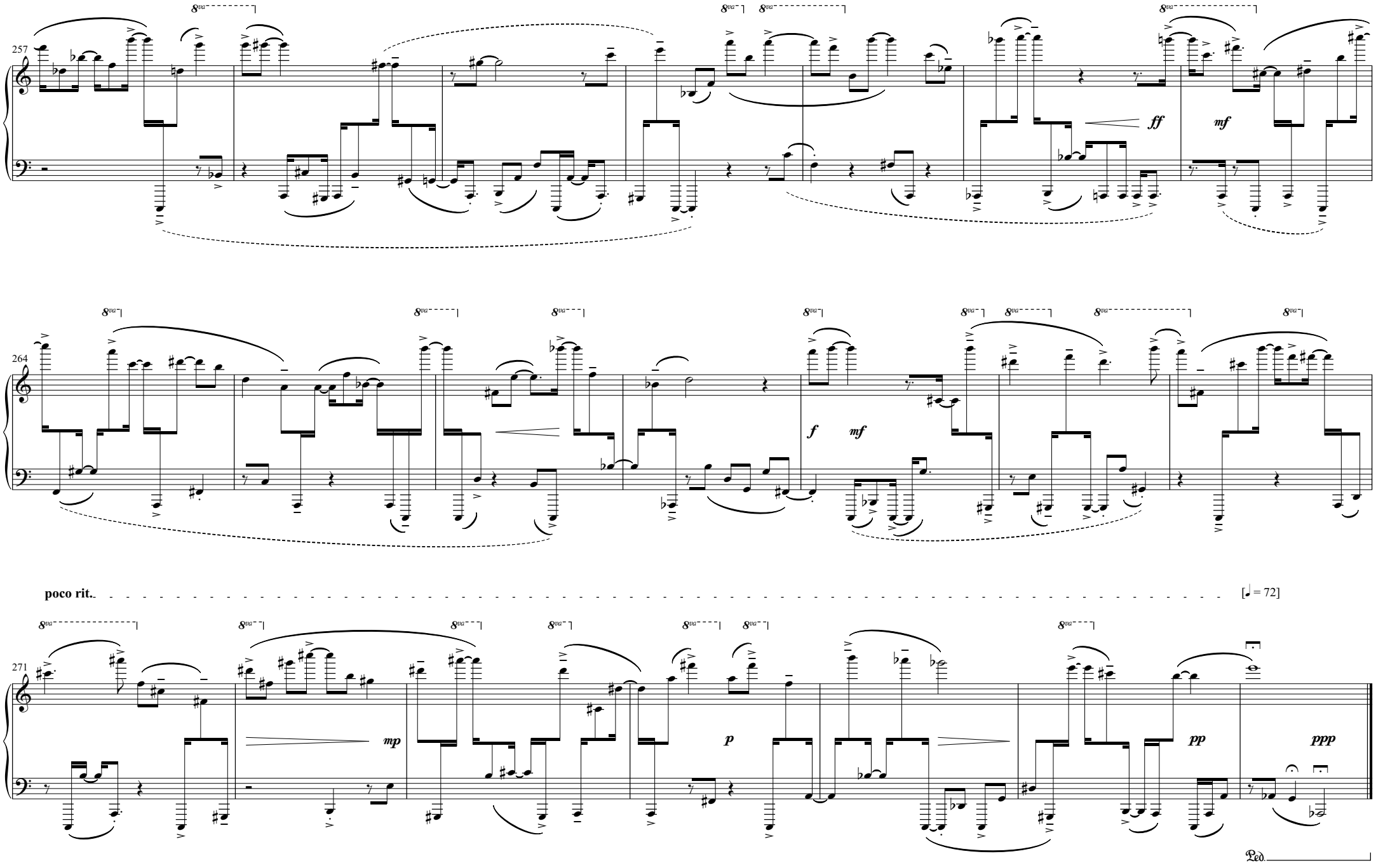
4 ♩ = 126 **... a mission impossible, but who dares wins (some would say) ...**

molto rubato, molto espress.




236
mf
mp
243
mf
mp
f
250
mf
f

F **... a beginning of the end ...**

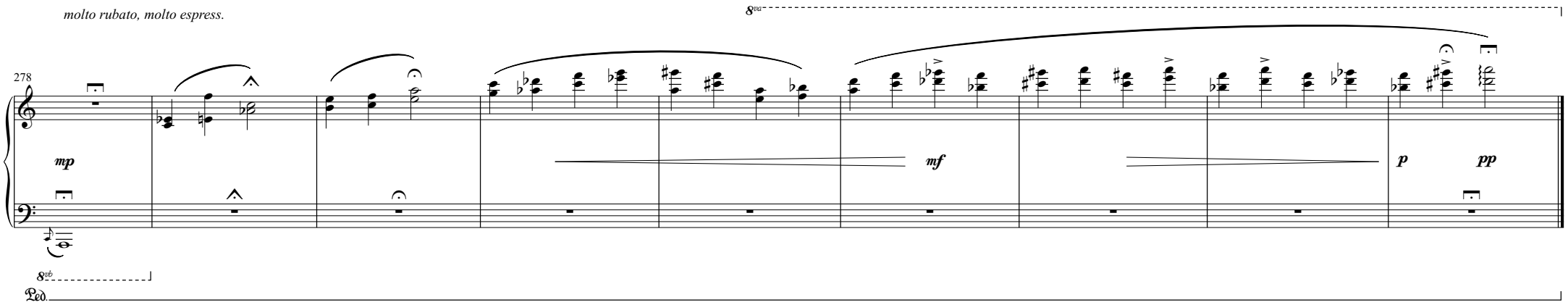


Postlude: ... there are, and will always be, vast oceans to explore ...

♩ = 40 **... watching the sun set on the final summer (nothing lasts forever) ...**

poco rit.

molto rubato, molto espress.



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