jaendel-rao
from *a history of the domino problem*
for sustaining instruments

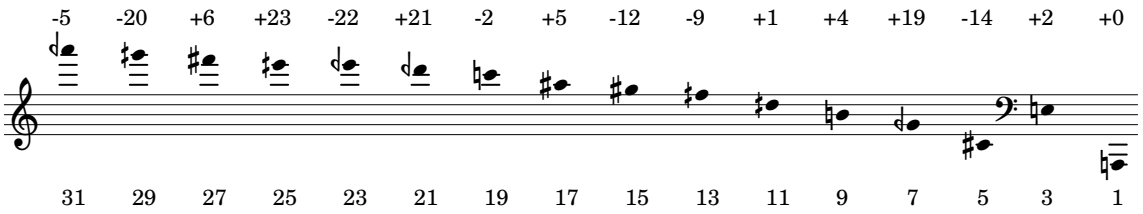
Provided are scores for two versions of this piece: reduced and full. The instructions for the pieces are essentially the same but the reduced version allows for fewer instrumental resources.

Each part is notated in two 'voices': one below the center line and one above. Together, the various combinations indicate 4 ways of producing a pitched-tone which means that each pitch must be able to be played in one of the 4 following ways. 1) a rest written on the center line between the two voice indicates silence, 2) and 3) a rest in one voice with a note in the other indicates to produce the tone in one way or the other pending in which voice the note is given, and 4) a note above and below the center line indicates that both ways of producing the tone must be played together. As such, each part must be taken by an instrument that can play the same pitch in two ways at the same time; e.g. a double stop on a stringed instrument. Or, two instruments can be assigned to the same part; one playing the upper voice and the other playing the lower voice. For the latter, if the instruments are similar in timbre, they should be dislocated in space to give further distinction between the two voice.

Another option is to use electronics and / or amplification to create the voice distinction; e.g. the performer sustains the tone throughout the piece and the 4 types of distinctions are as follows: 1) a rest written on the center line between the two voice indicates no amplification, 2) and 3) a rest in one voice with a note in the other indicates that the tone is amplified in either the left or right speaker pending in which voice the note is given, and 4) a note above and below the center line indicates that the tone is amplified through both speakers. The ensemble can explore other simple methods of distinction using one instrument per part (e.g. four dynamic levels or four tremolo speeds), but the previous options are preferred. This option can also be synthesized completely while the ensemble performing a drone in which each performer individually swells in and out of tones with pitches that are octave equivalents of harmonics of the fundamental (generally preferring octaves in which that harmonic is naturally occurring).

The ensemble can choose to perform any 4 or more sections (preferable more / all). Note that the sections are offset for each successively entering voice. The entrance and exit of each note should be rather abrupt / binary. However, the part as a whole should fade in at the beginning of a section and fade out at the end of a section. Crescendo and decrescendo markings indicate the start of the fade which should last 4 measures from the mark. If the (de)crescendo markings are given where there are rests on the center line, there may not be a fade at all if a centered rest is interpreted as silence. The peak amplitude should be quite present and equal for all parts.

As mentioned above, each part plays one pitch. The pitches are derived from adjacent odd harmonics of a harmonic series based on an arbitrary fundamental. These should be played as precisely as possible in the register they occur in the harmonic series. Given below is an example series based on an a fundamental of a low 'a' with cent deviations given from the nearest pitch in 24-tone equal temperament. Note that each part enters from high to low and are labeled accordingly.



*This piece is part of a large-scale performance-installation titled *a history of the domino problem*. It may be played alone or alongside other pieces from *a history of the domino problem*. Instructions are given in the score detailing the superordinate, large-scale work.

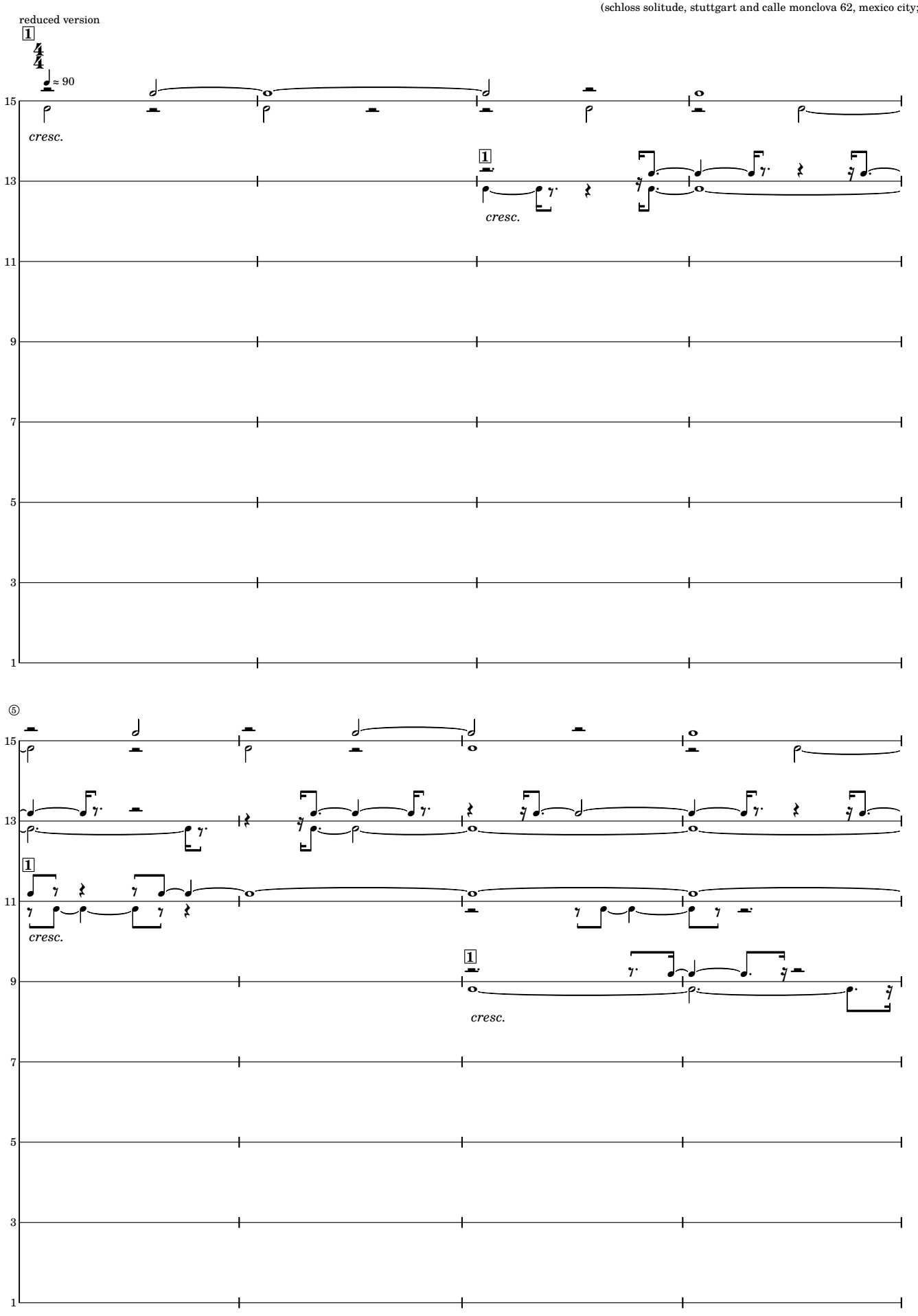
michael winter
(schloss solitude, stuttgart and calle monclova 62, mexico city; 2018-19)
version generated: 2023.12.20

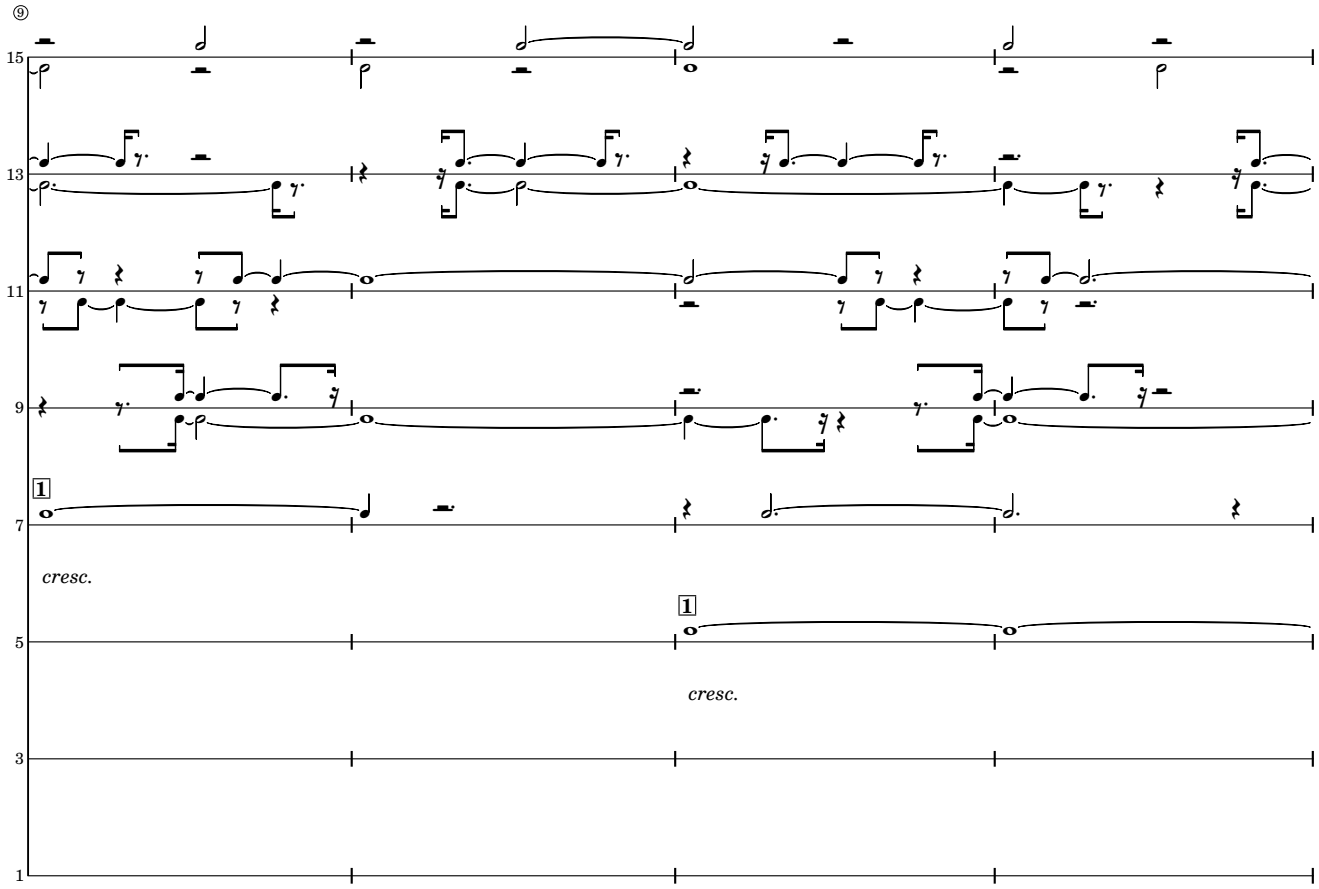
jaendel-rao

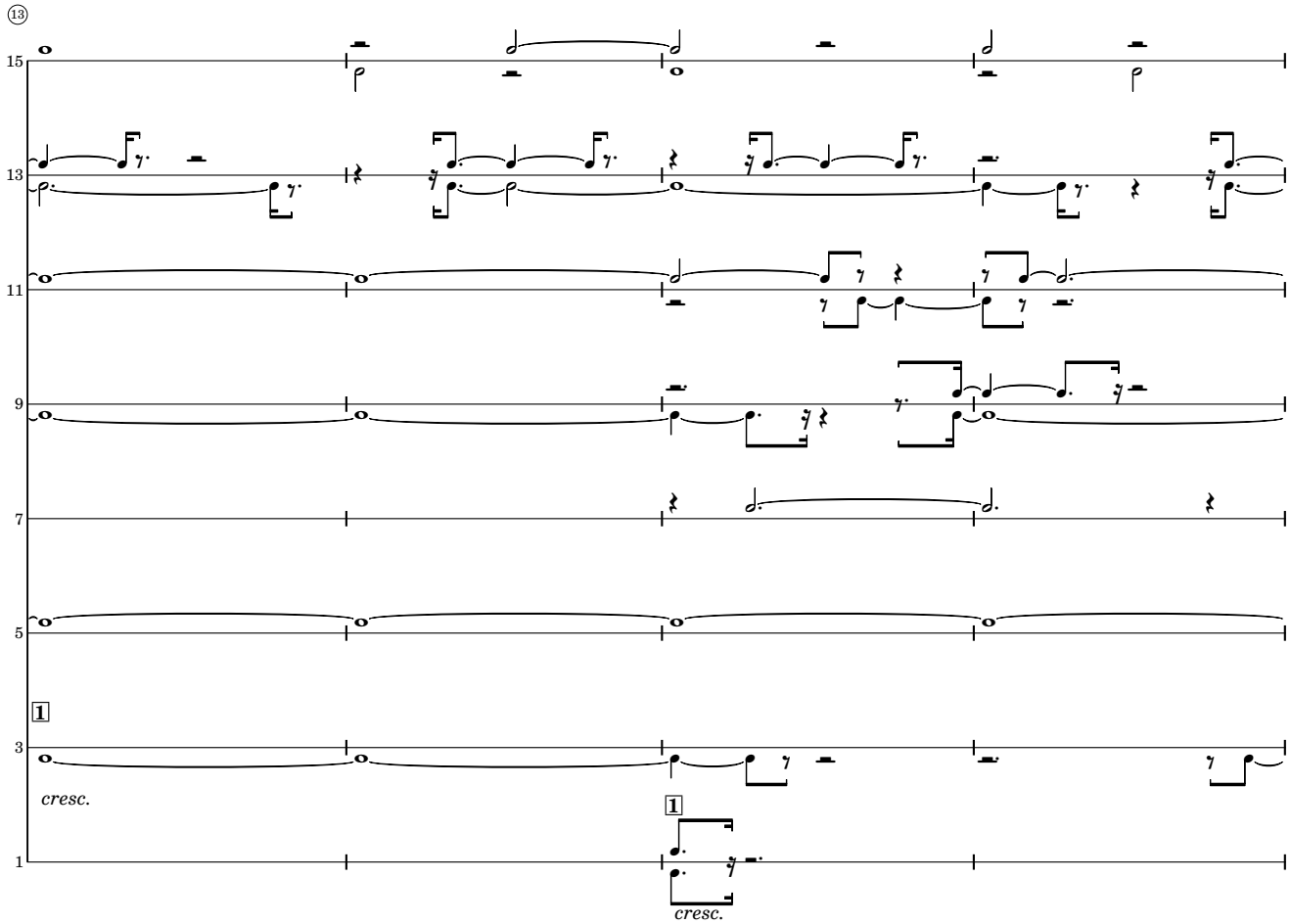
from *a history of the domino the problem*

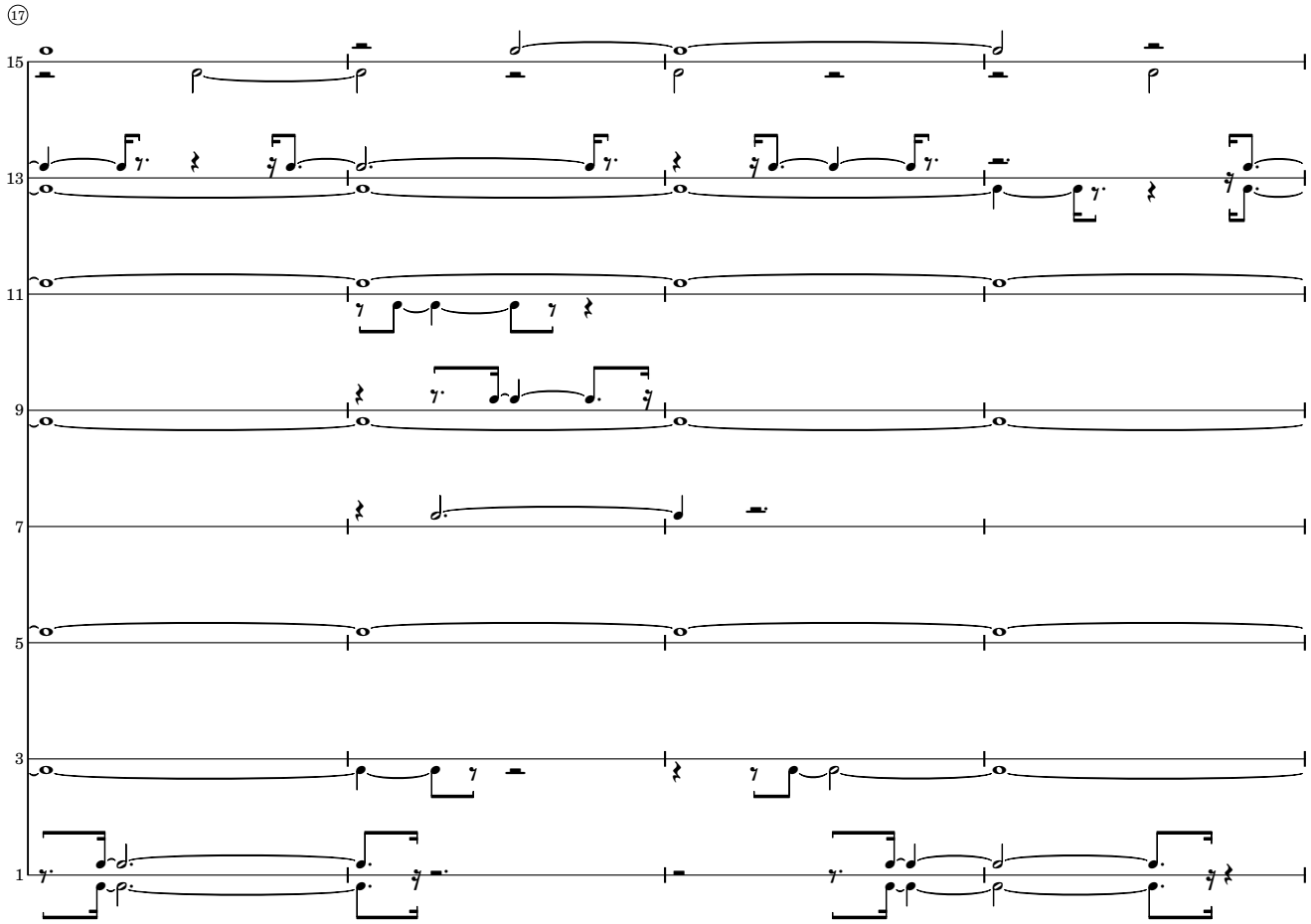
michael winter

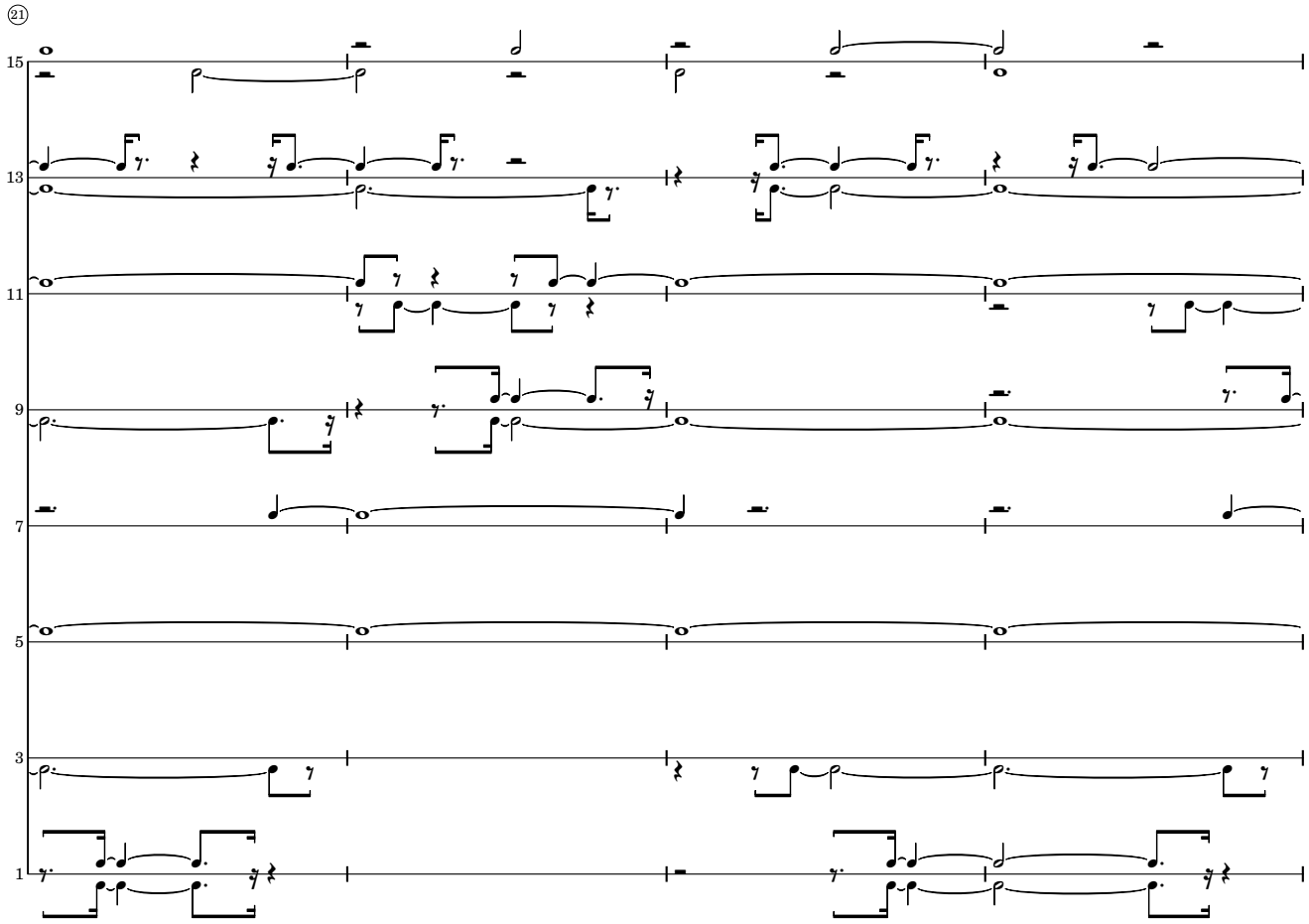
(schloss solitude, stuttgart and calle monclova 62, mexico city; 2018-19)

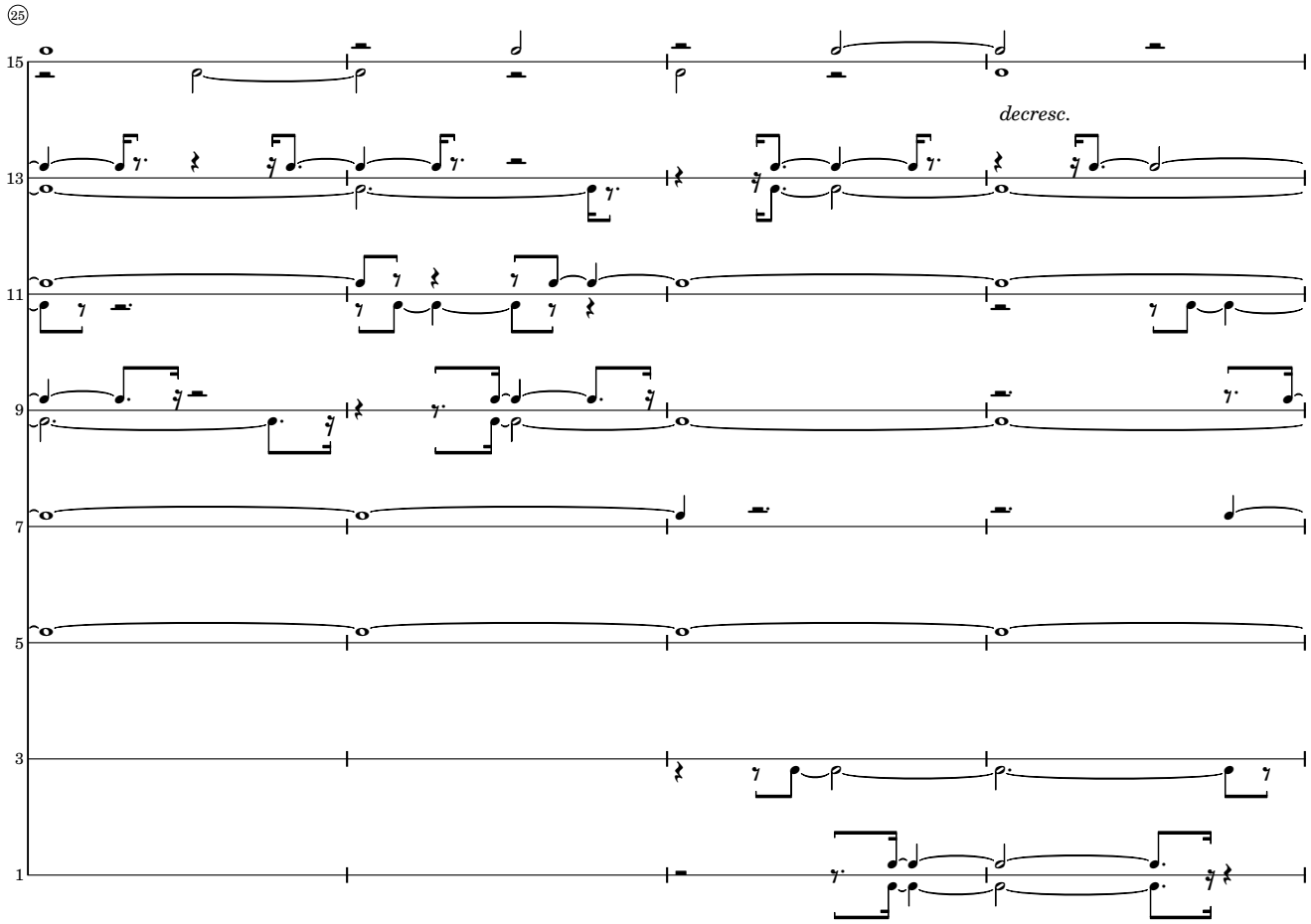


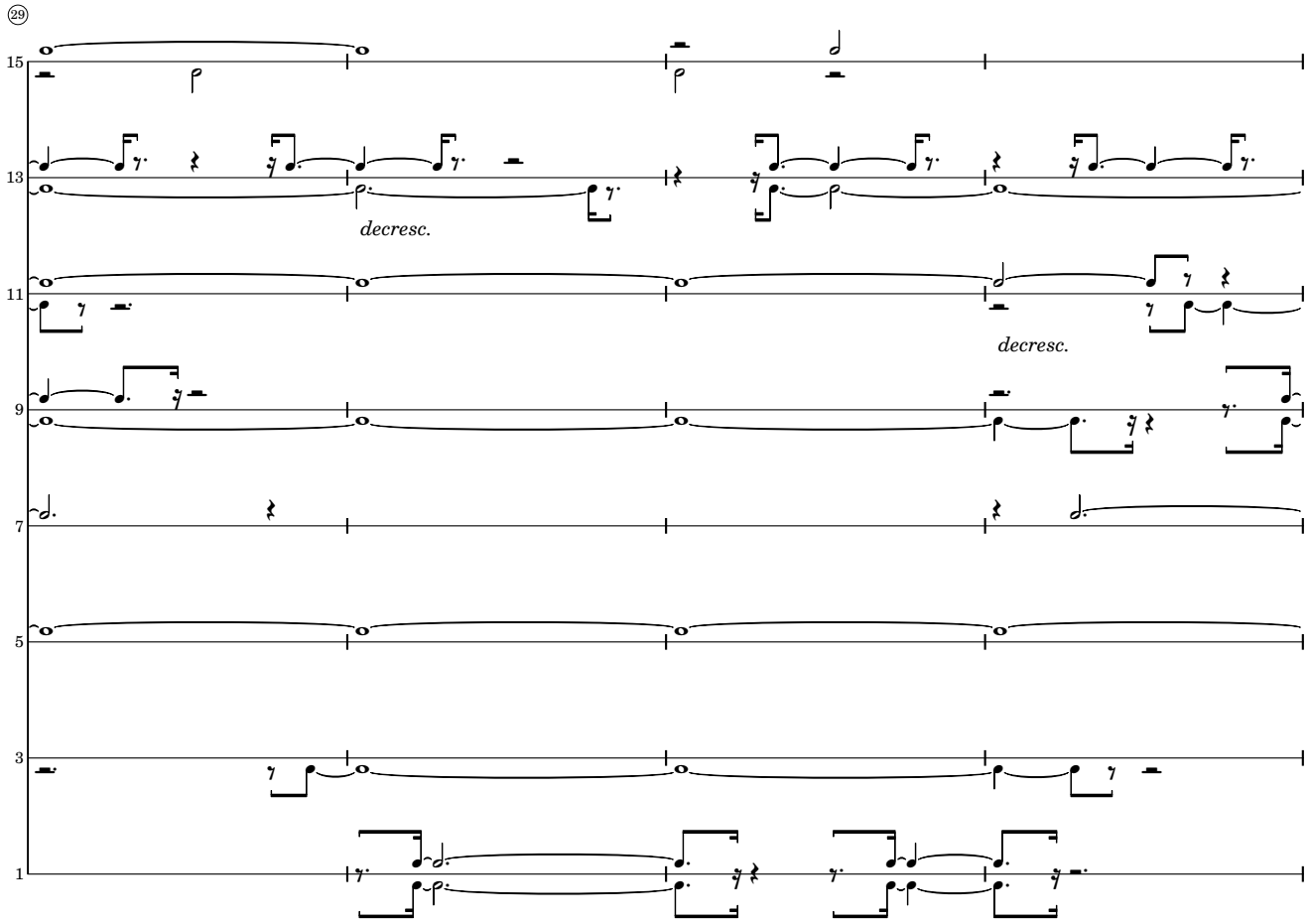

⑨
15
13
11
9
7
5
3
1
1
cresc.
1
cresc.

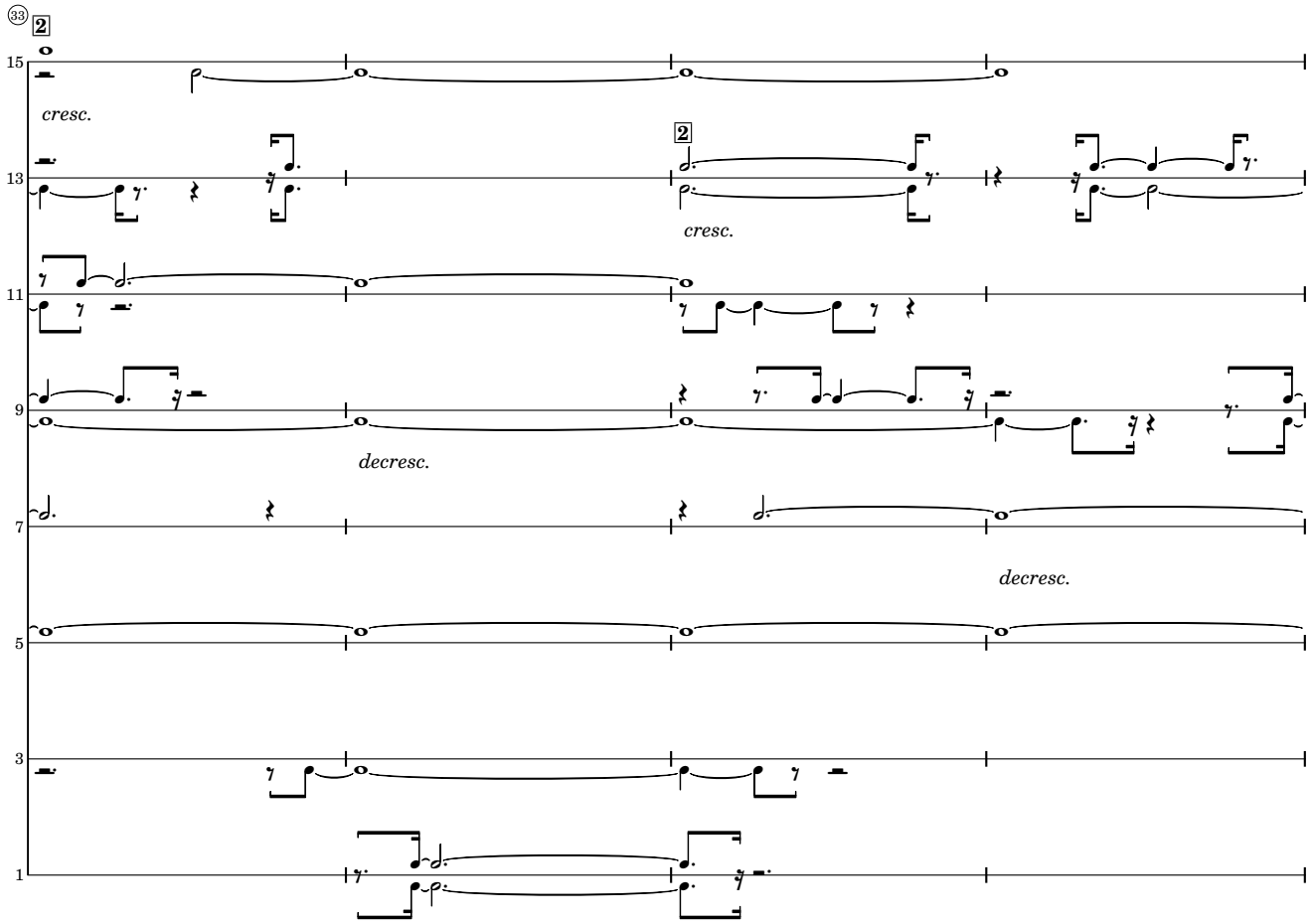

⑬
15
13
11
9
7
5
3
1
1
cresc.
1
cresc.

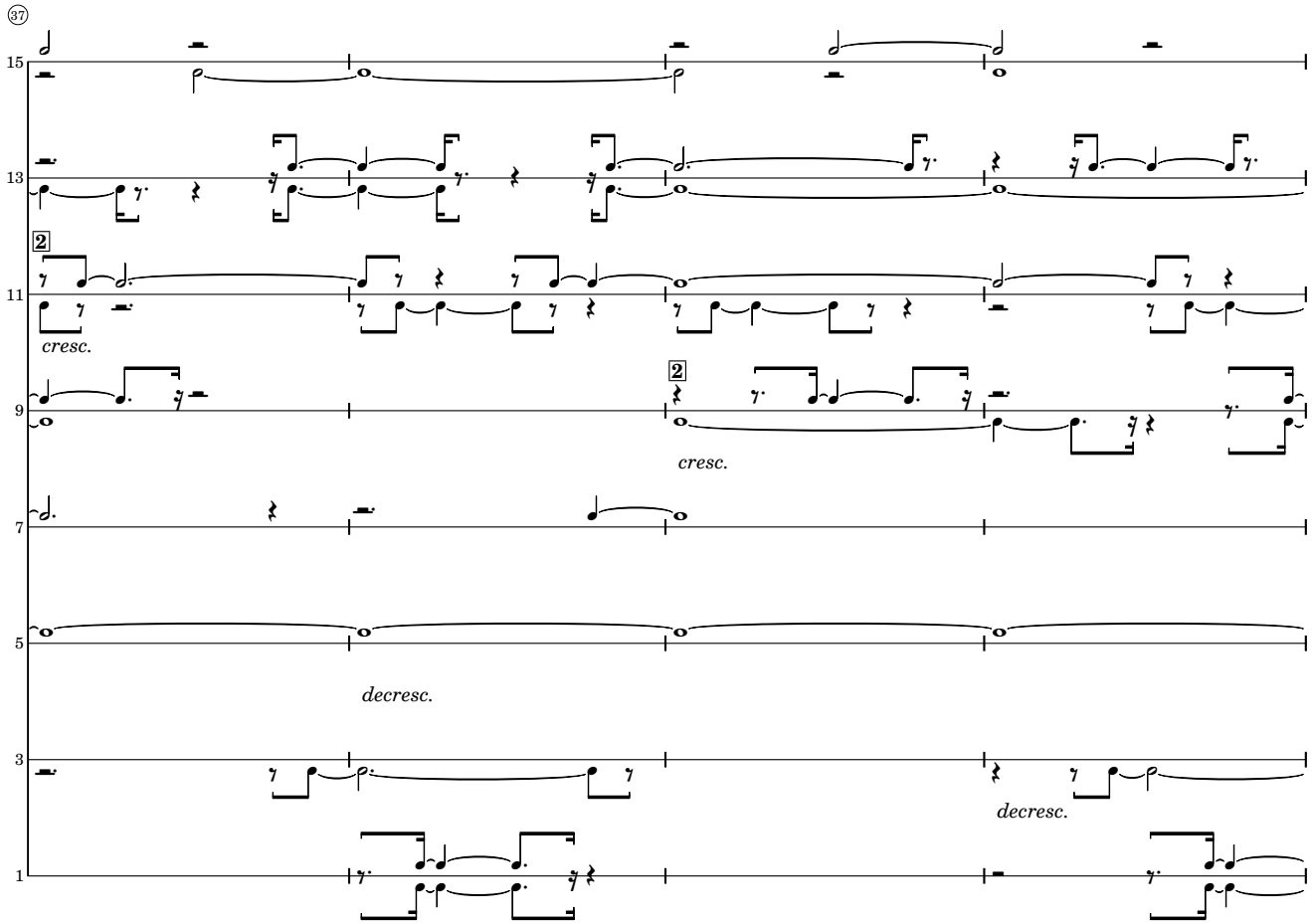

17
15
13
11
9
7
5
3
1

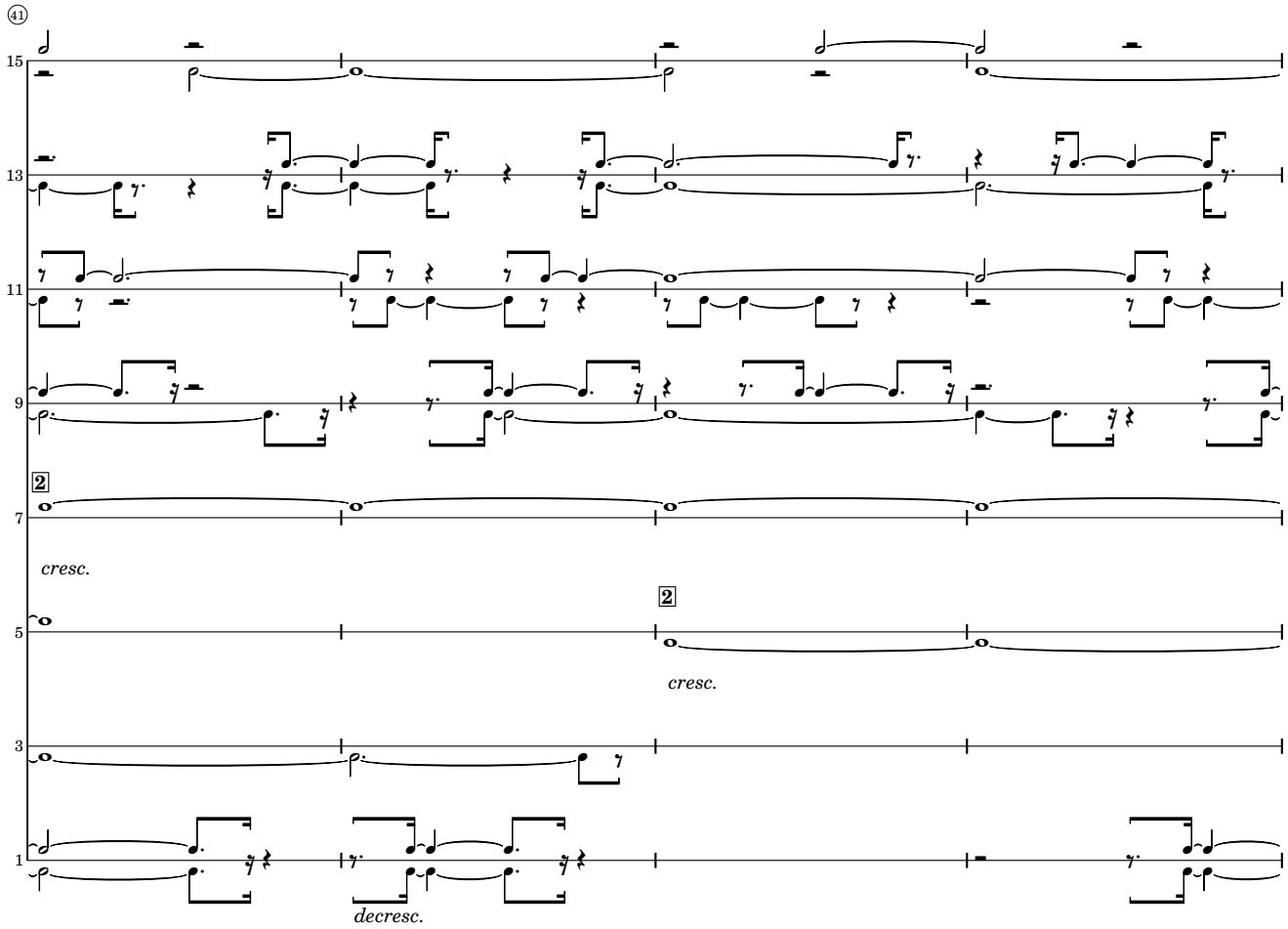

21
15
13
11
9
7
5
3
1

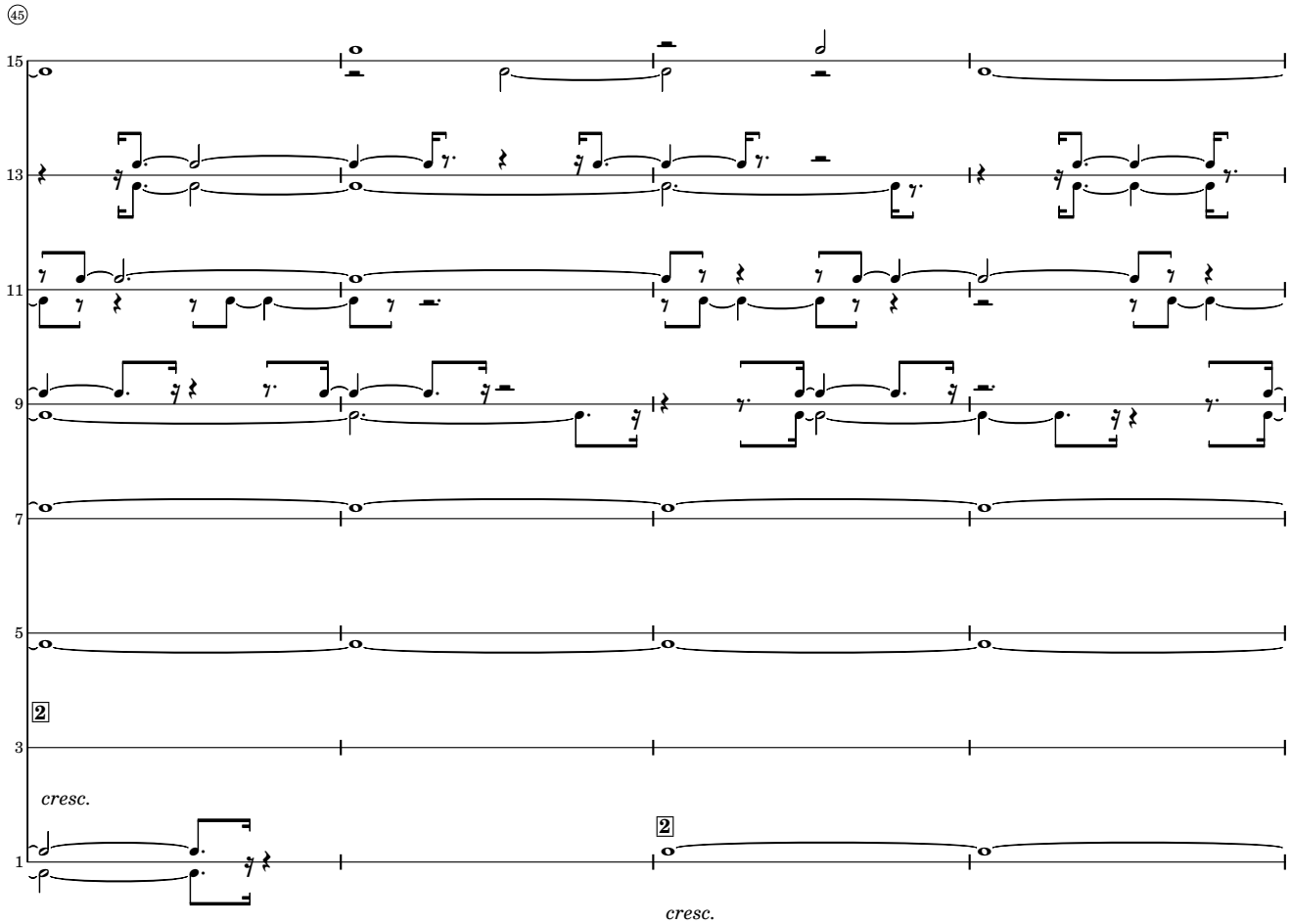

25
15
13
11
9
7
5
3
1
decresc.

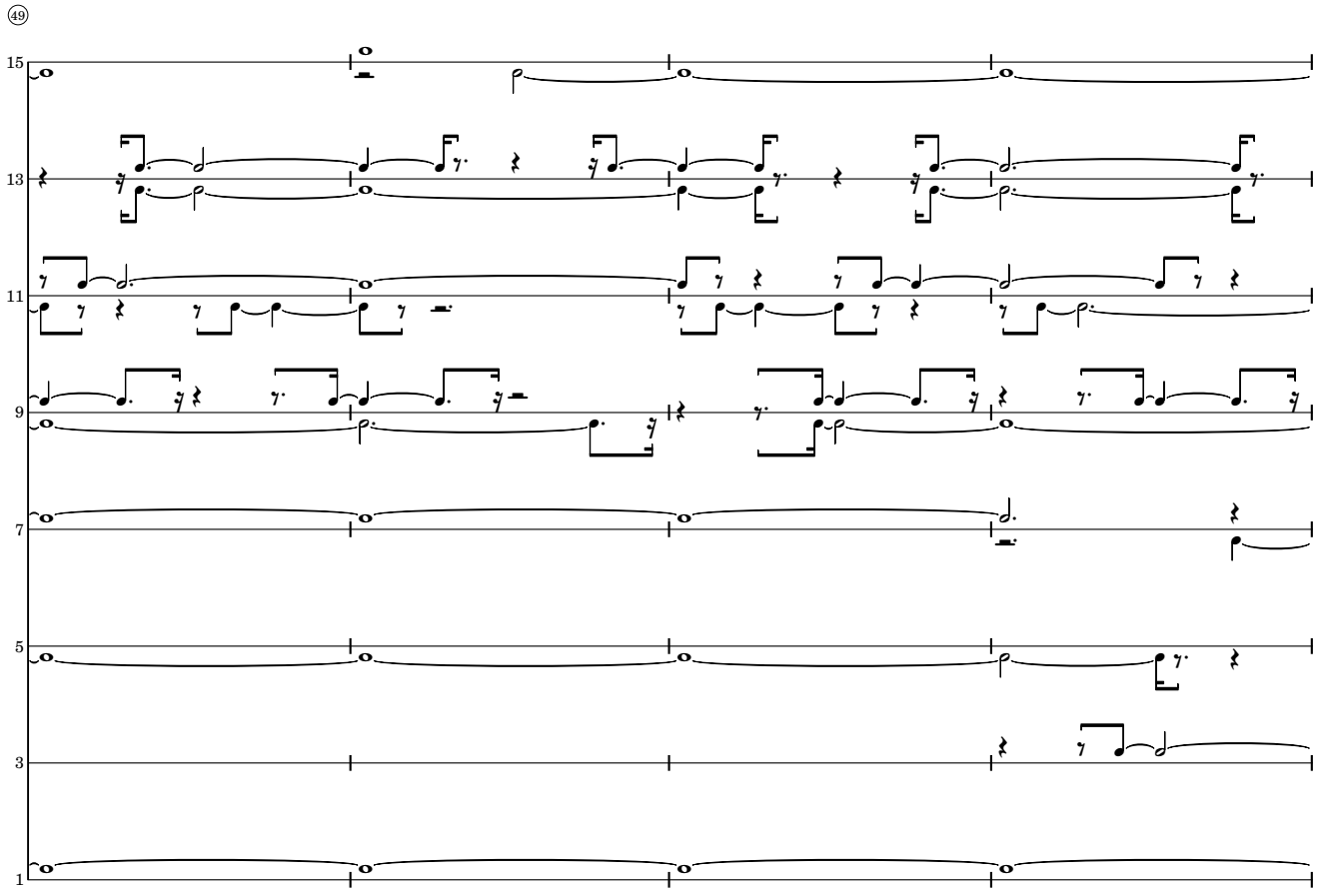

29
15
13
11
9
7
5
3
1
decresc.
decresc.

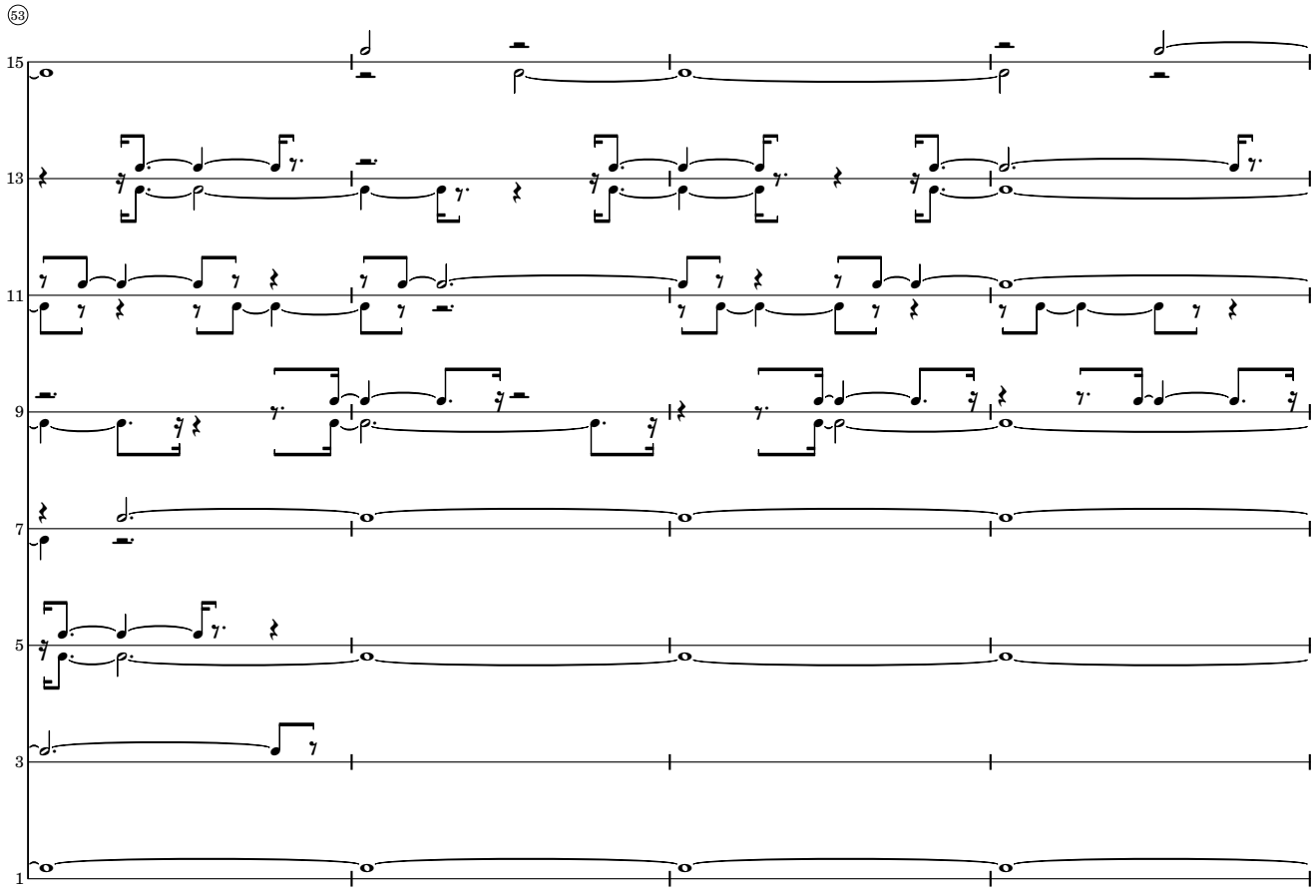

33
2
15
cresc.
13
2
cresc.
11
9
decresc.
7
decresc.
5
3
1

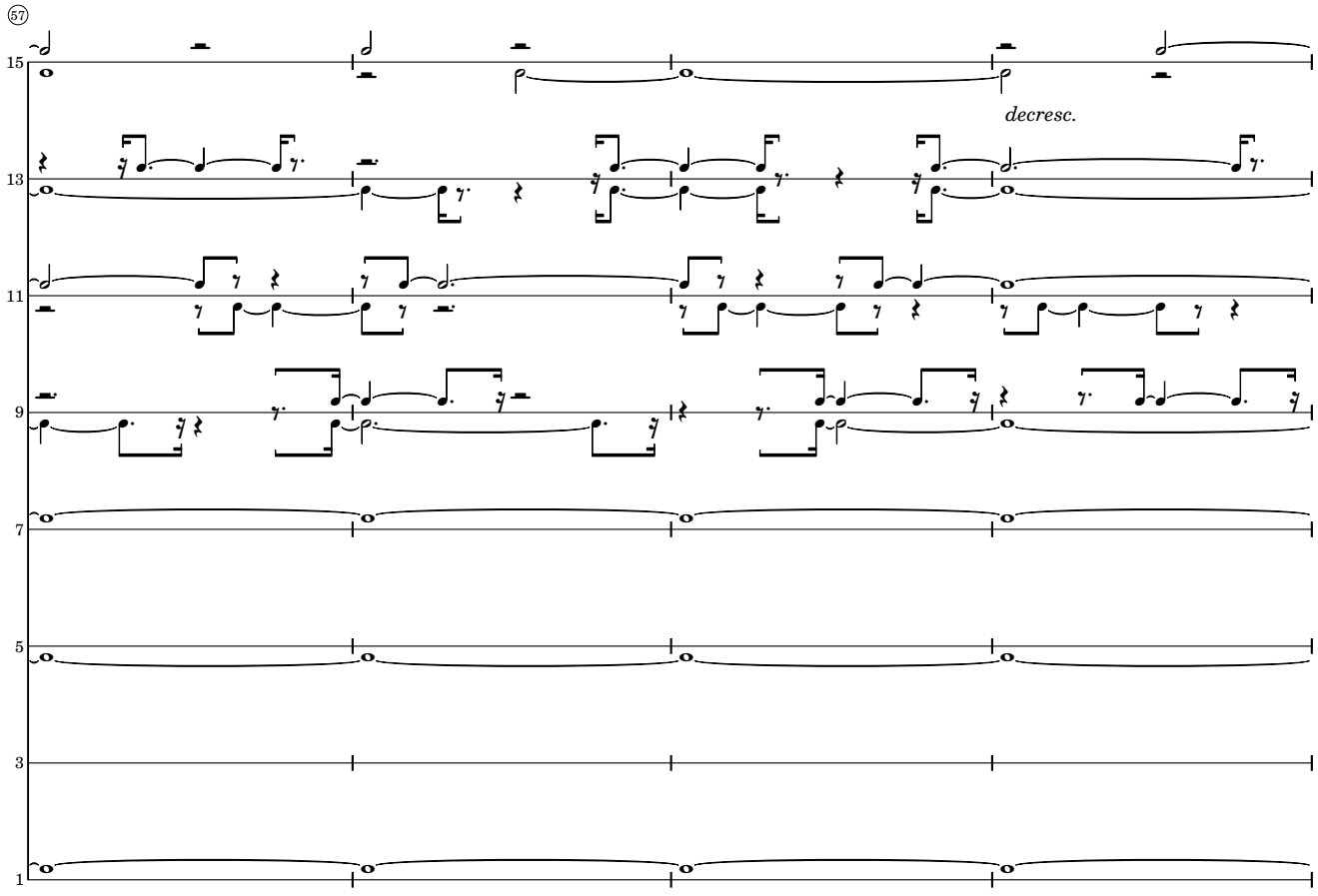

37
15
13
2
11
cresc.
2
9
cresc.
7
5
decresc.
3
decresc.
1

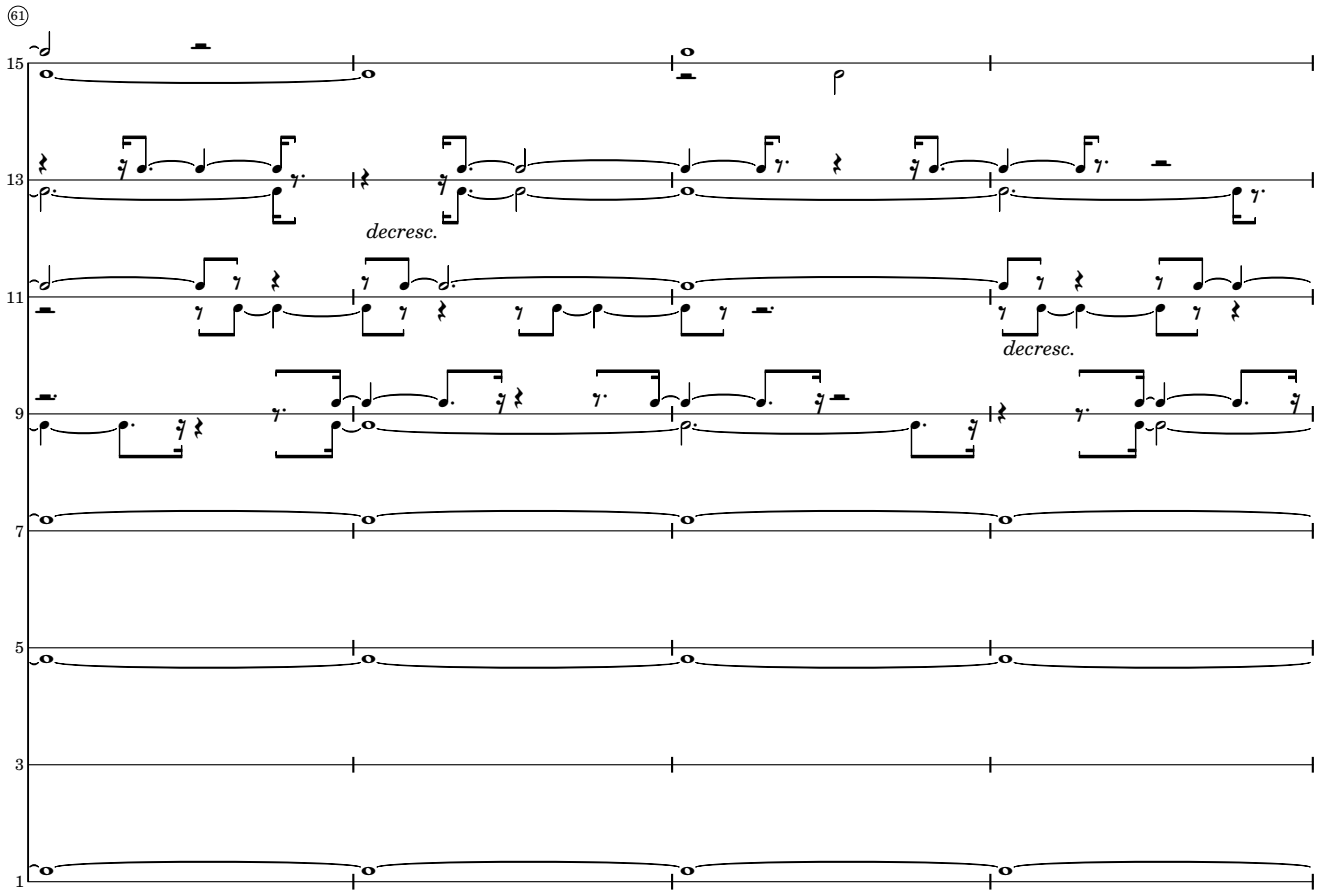

41
15
13
11
9
2
7
cresc.
2
5
cresc.
3
1
decresc.

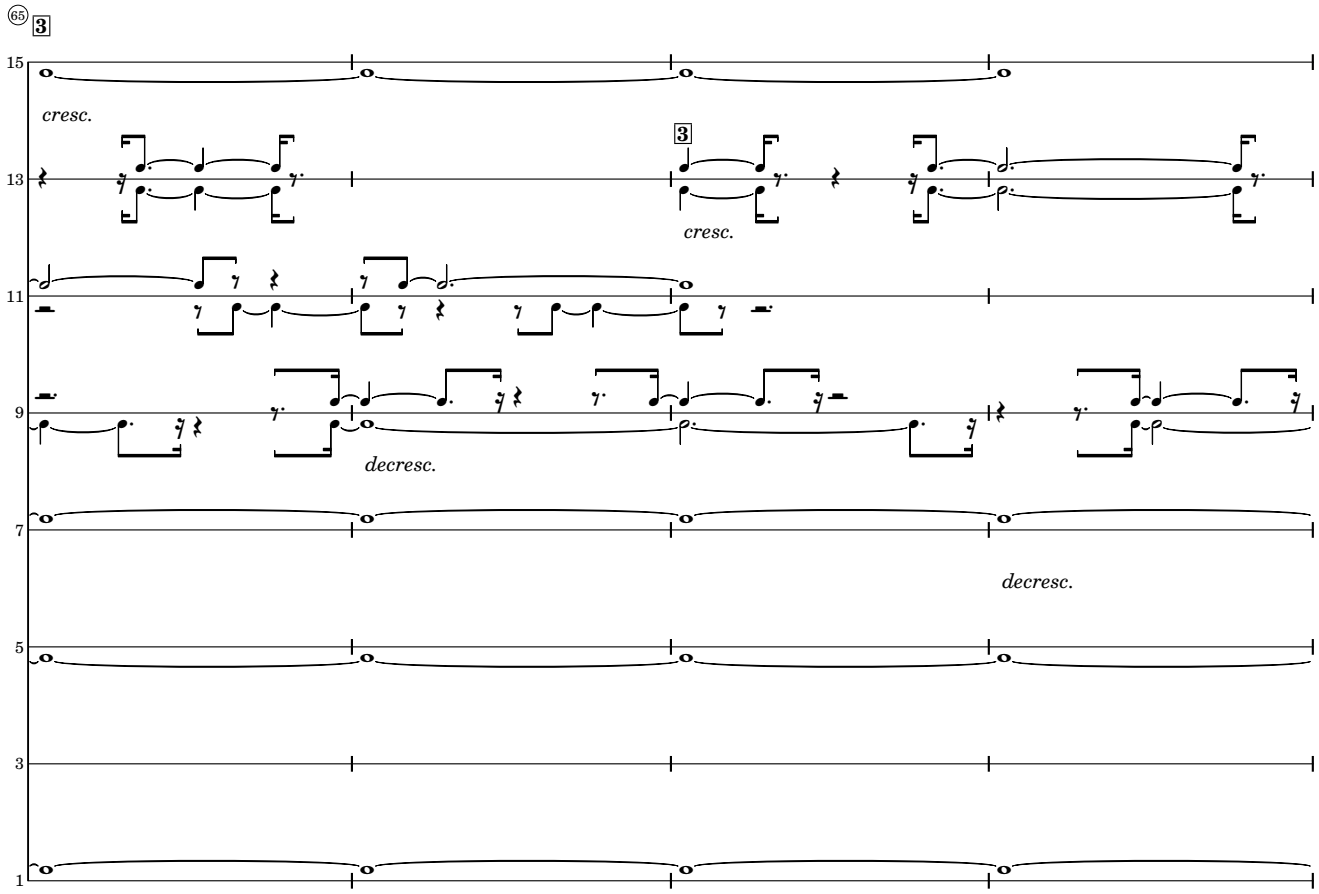

45
15
13
11
9
7
5
2
3
cresc.
2
1
cresc.

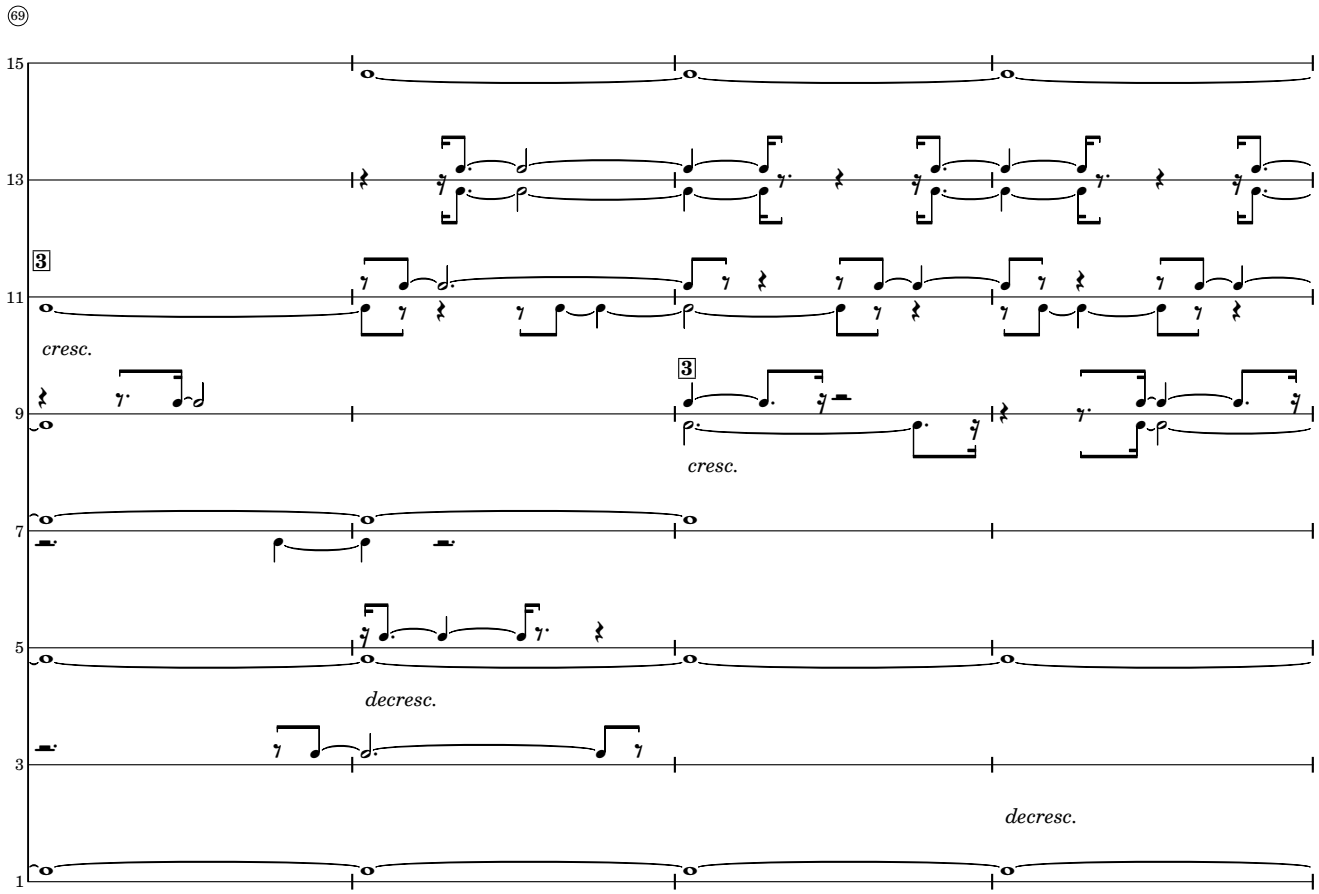

49
15
13
11
9
7
5
3
1


53
15
13
11
9
7
5
3
1

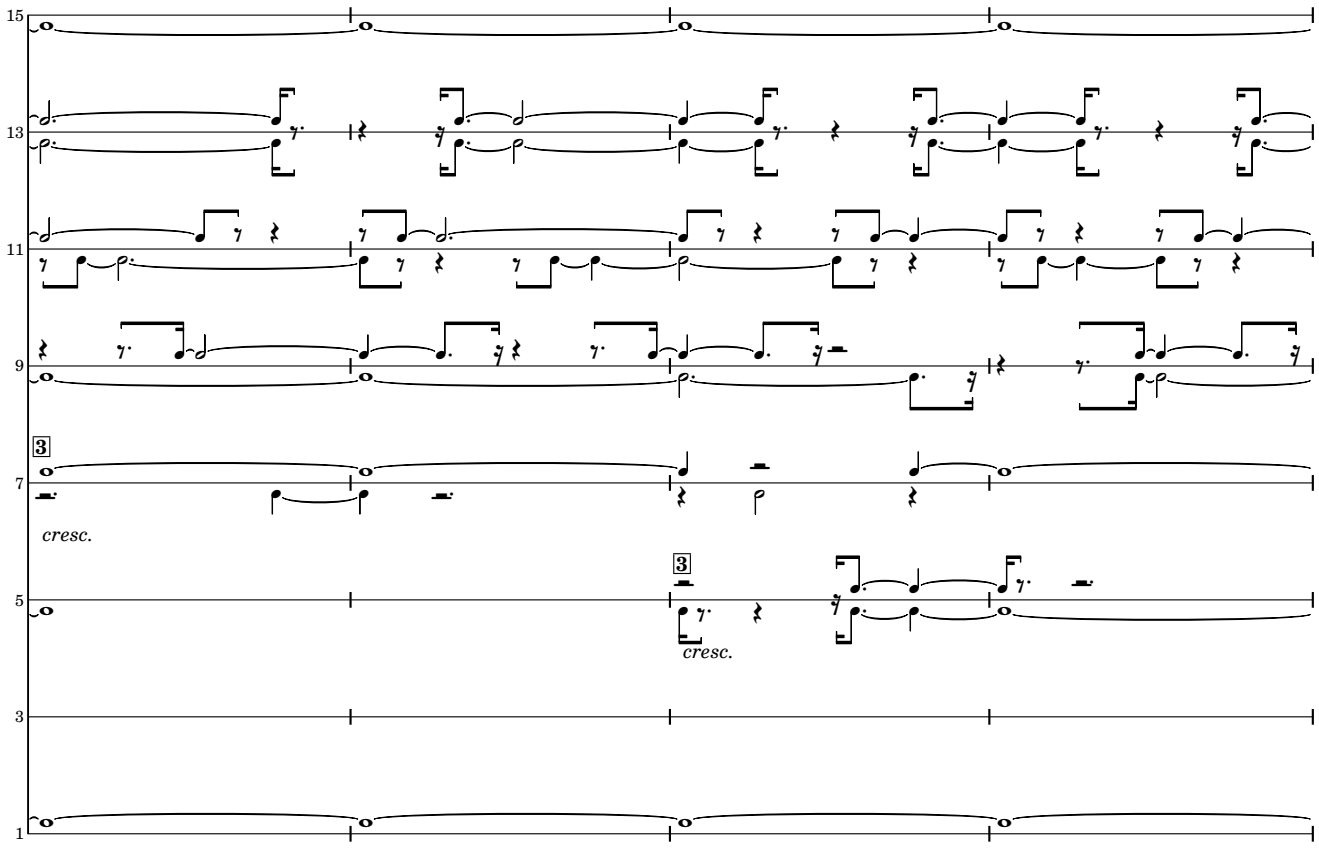

57
15
13
11
9
7
5
3
1
decresc.


61
15
13
11
9
7
5
3
1
decresc.
decresc.


65
3
15
cresc.
13
3
cresc.
11
9
decresc.
7
decresc.
5
3
1

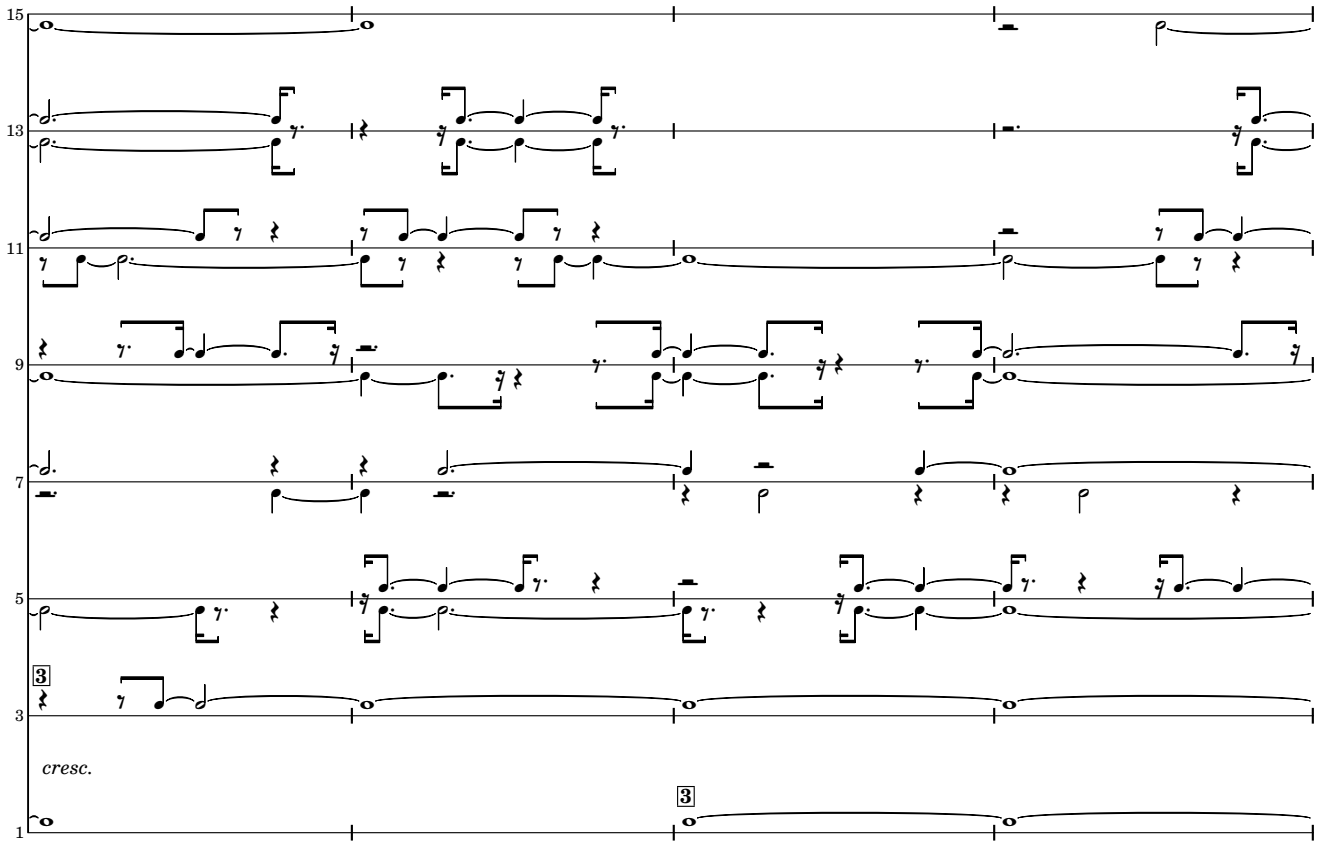

69
15
13
3
11
cresc.
3
9
cresc.
7
5
decresc.
3
decresc.
1

73



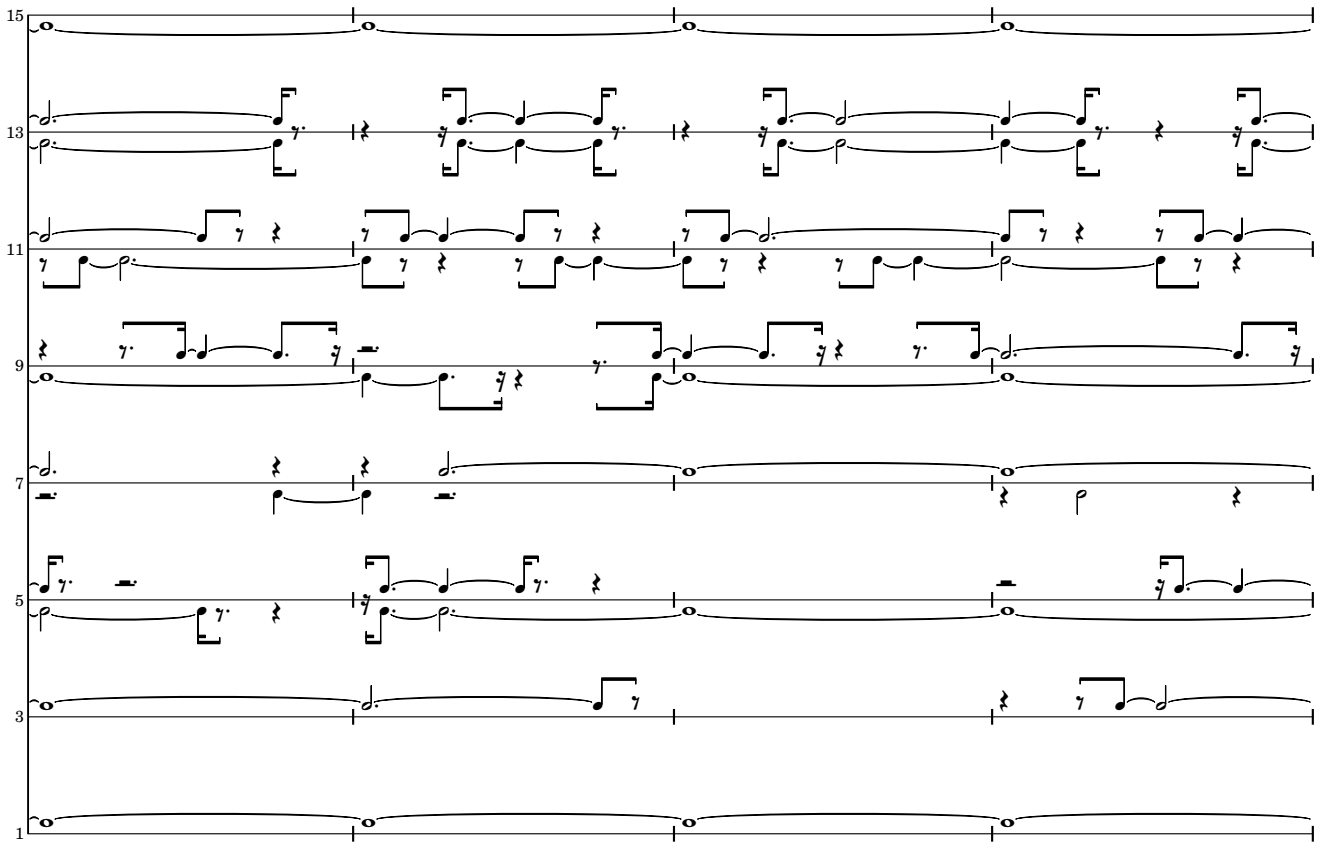
decresc.

77

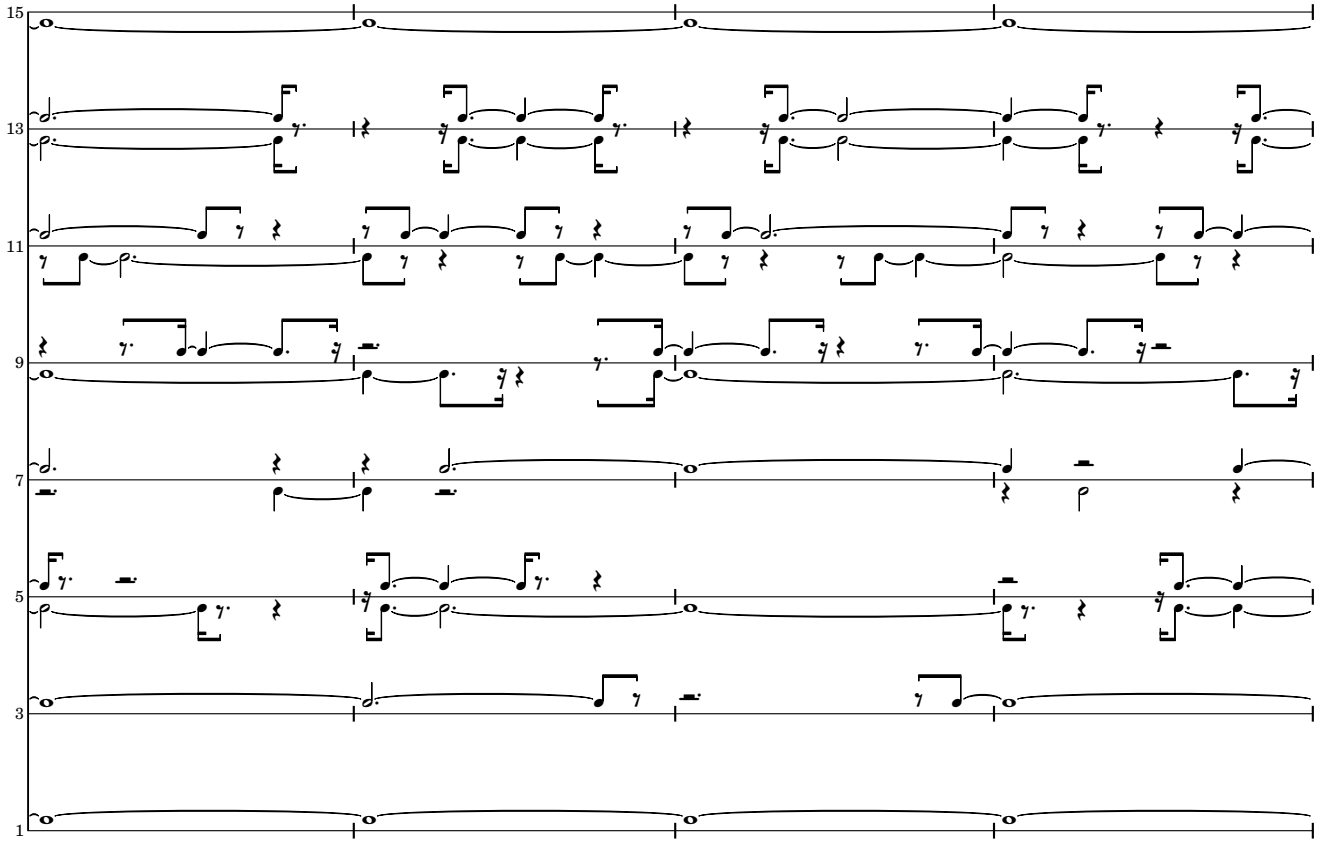


cresc.

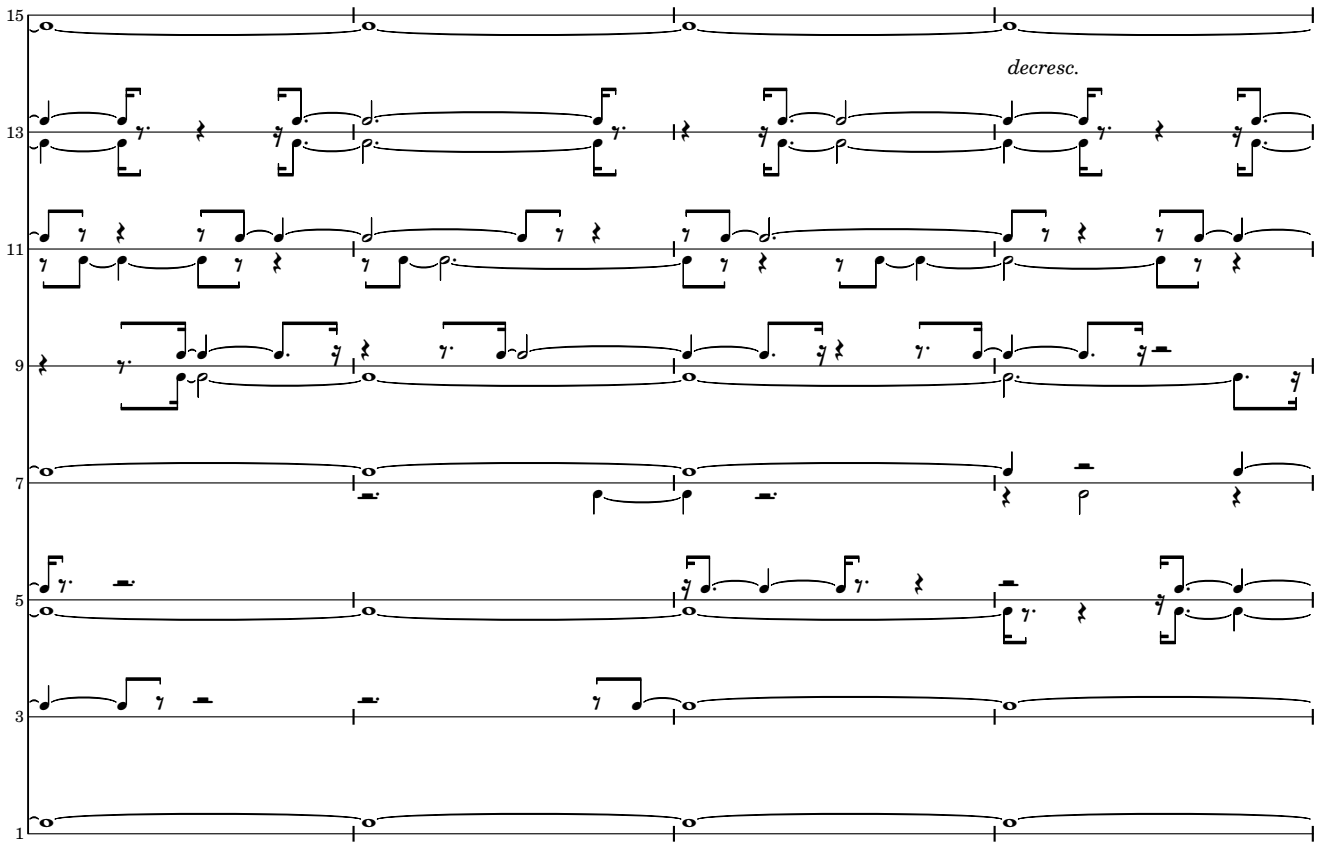
81



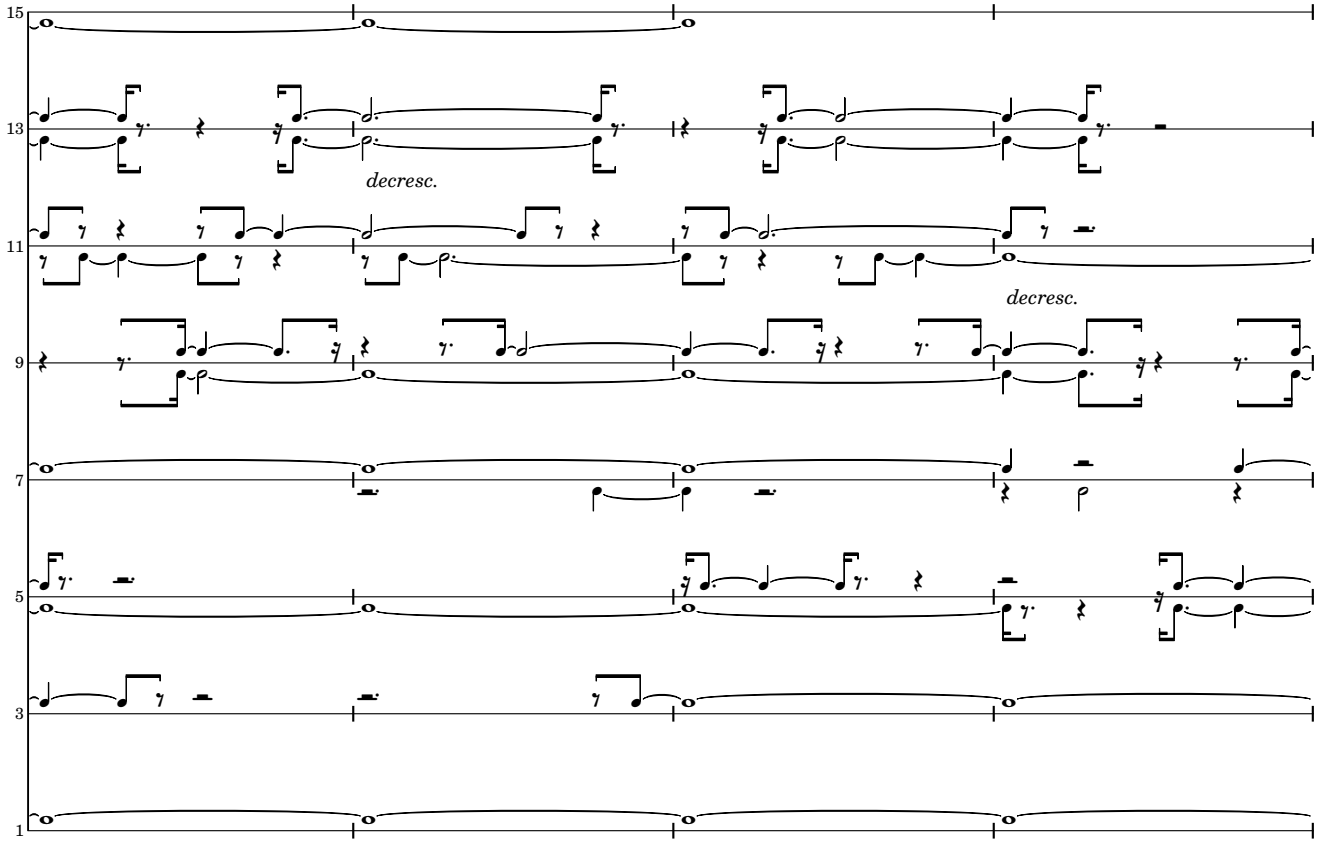
85



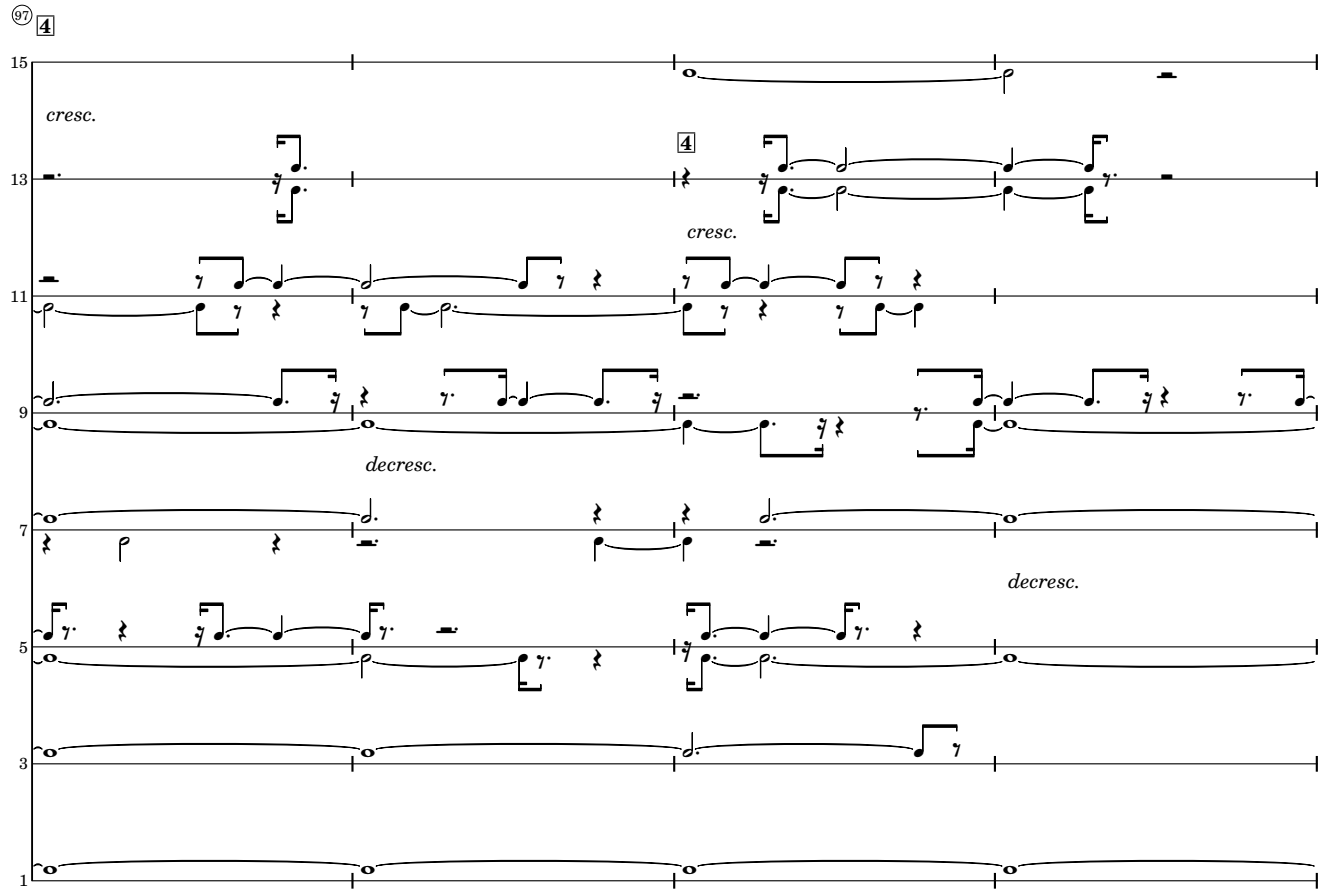
89



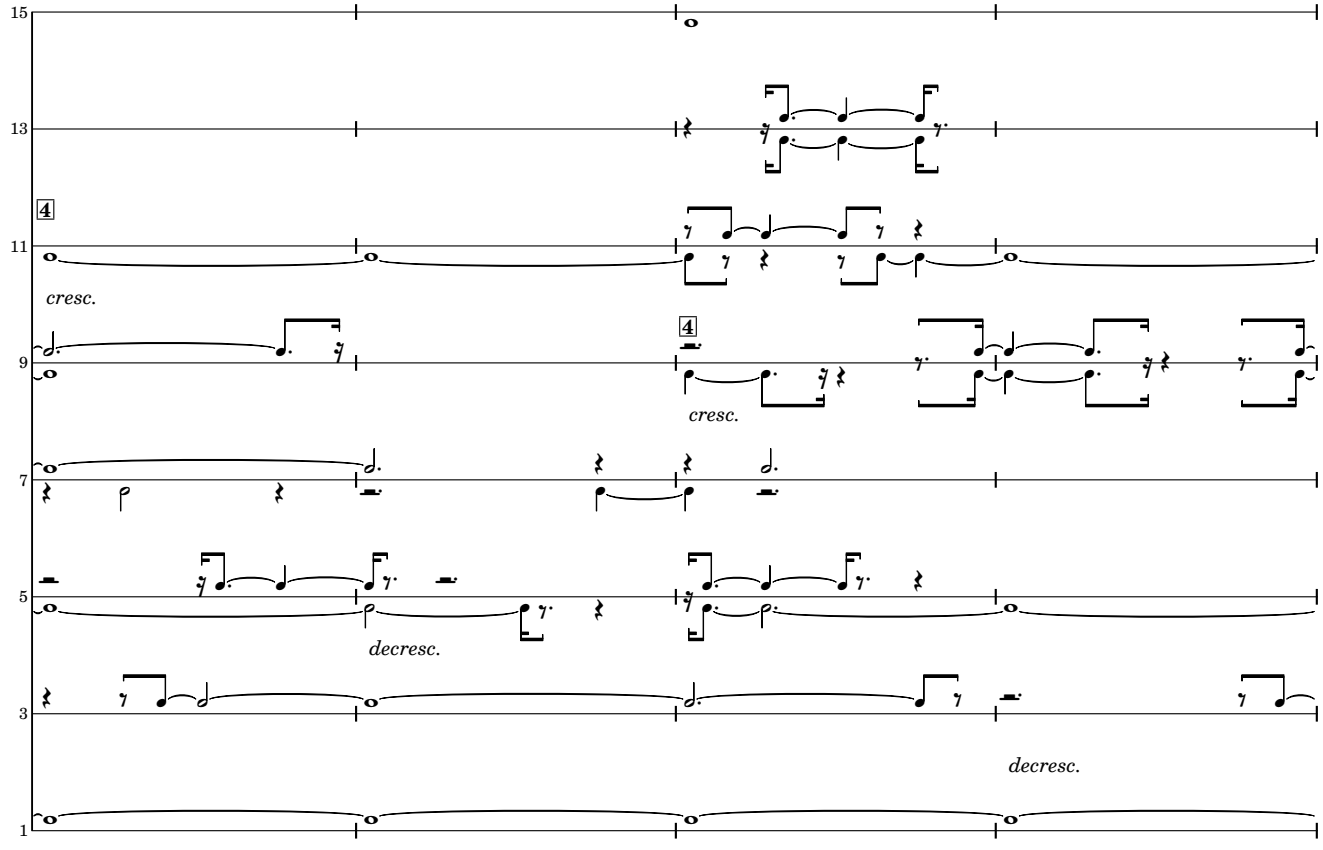
93



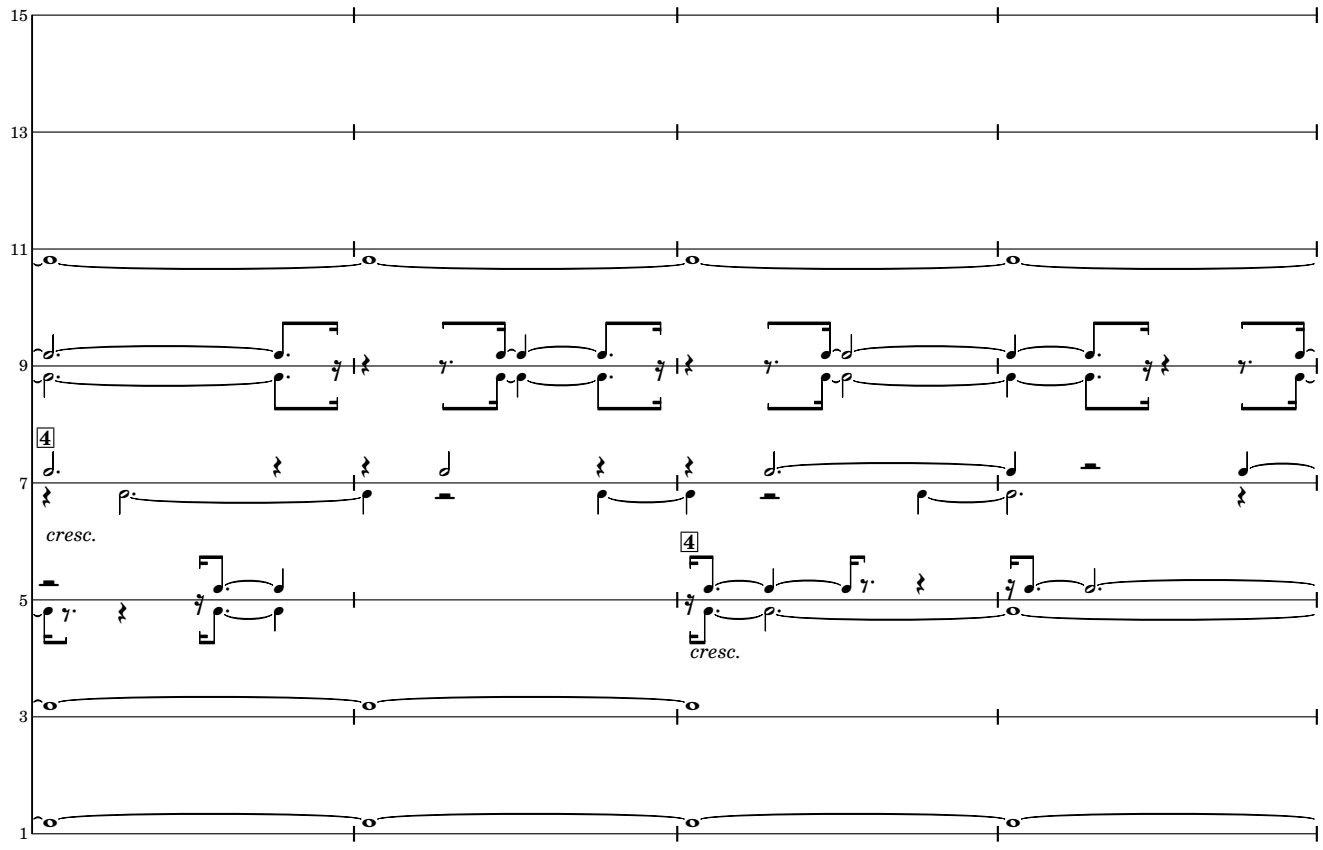
97


4
15
cresc.
13
4
cresc.
11
9
decresc.
7
decresc.
5
3
1

101

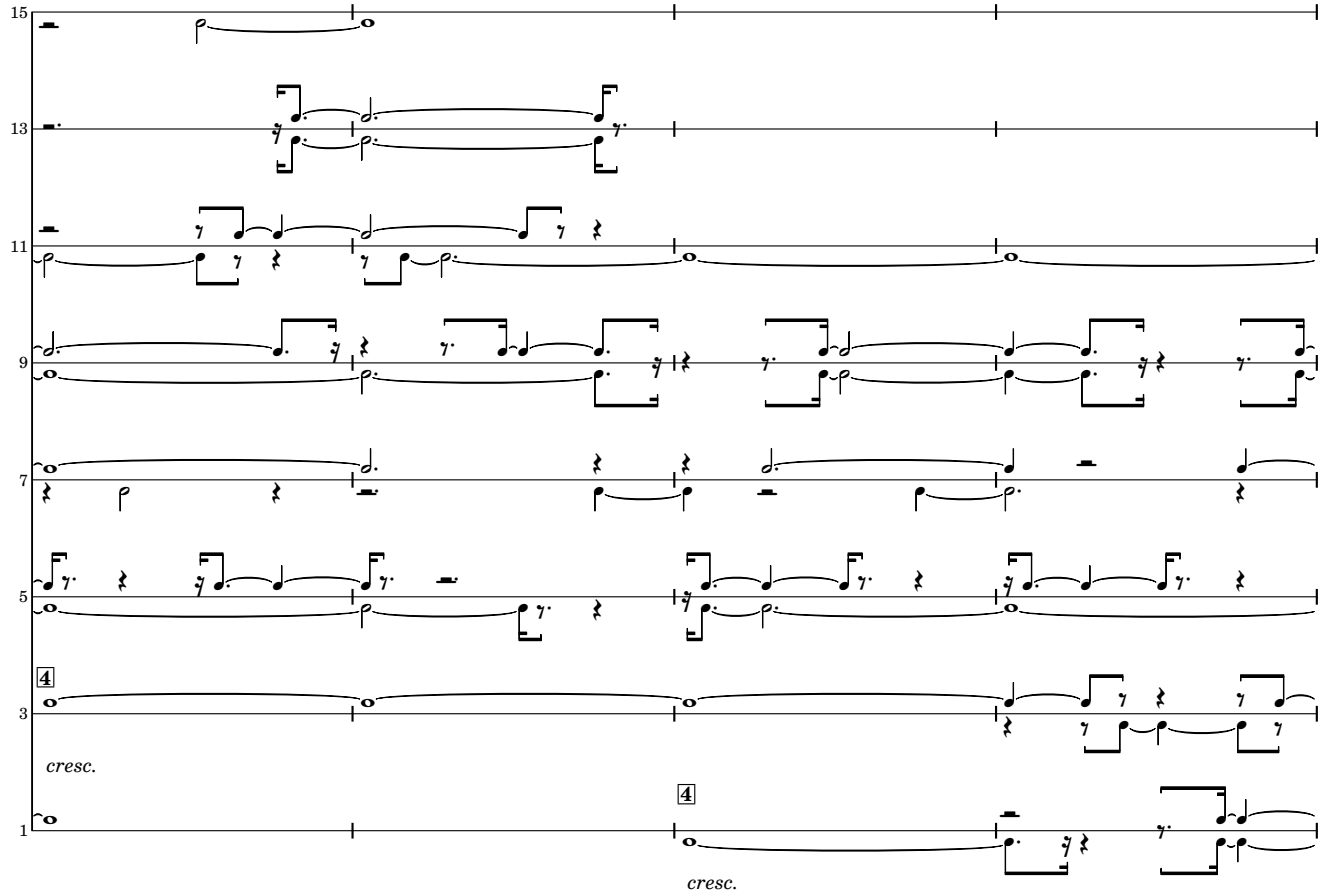

15
13
4
11
cresc.
4
9
cresc.
7
5
decresc.
3
decresc.
1

105

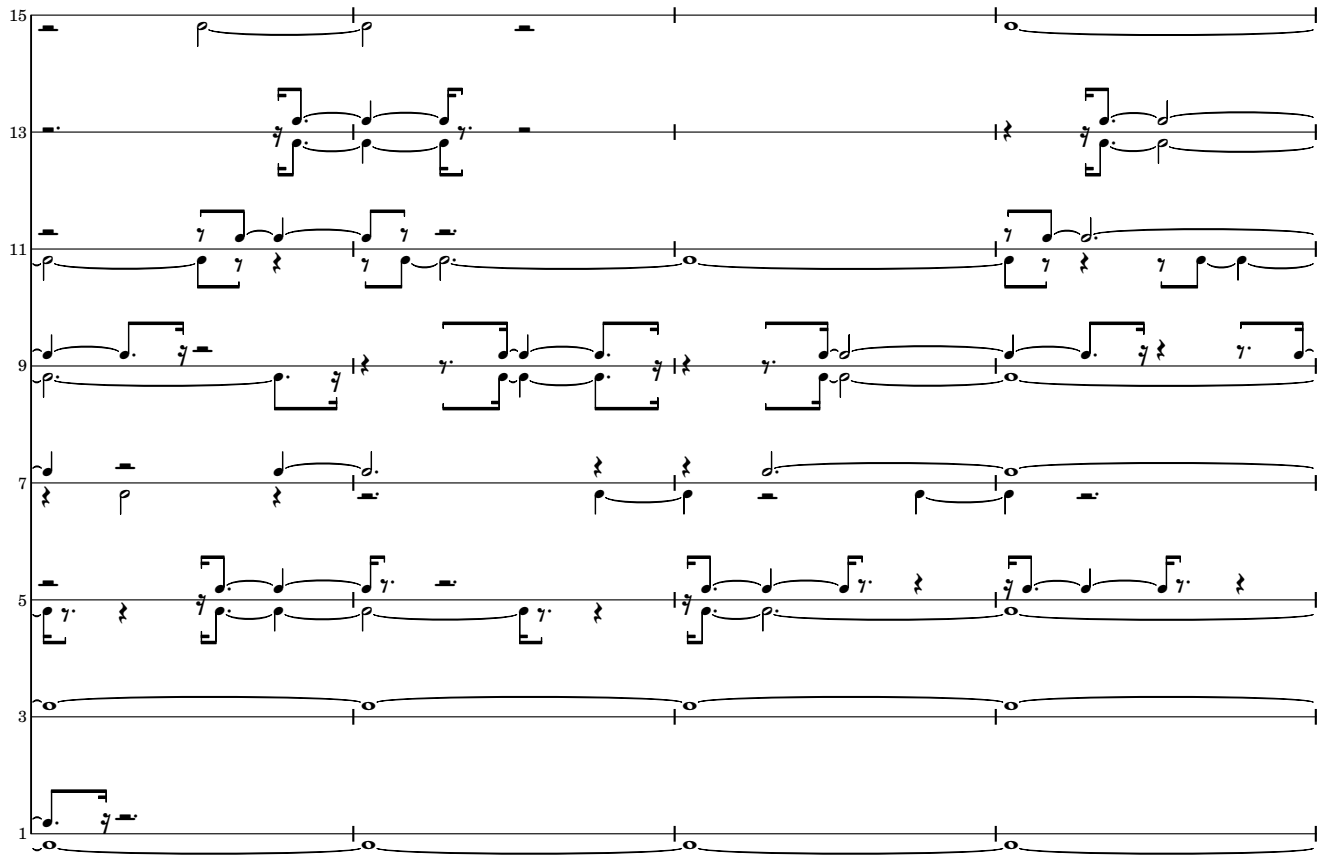


decresc.

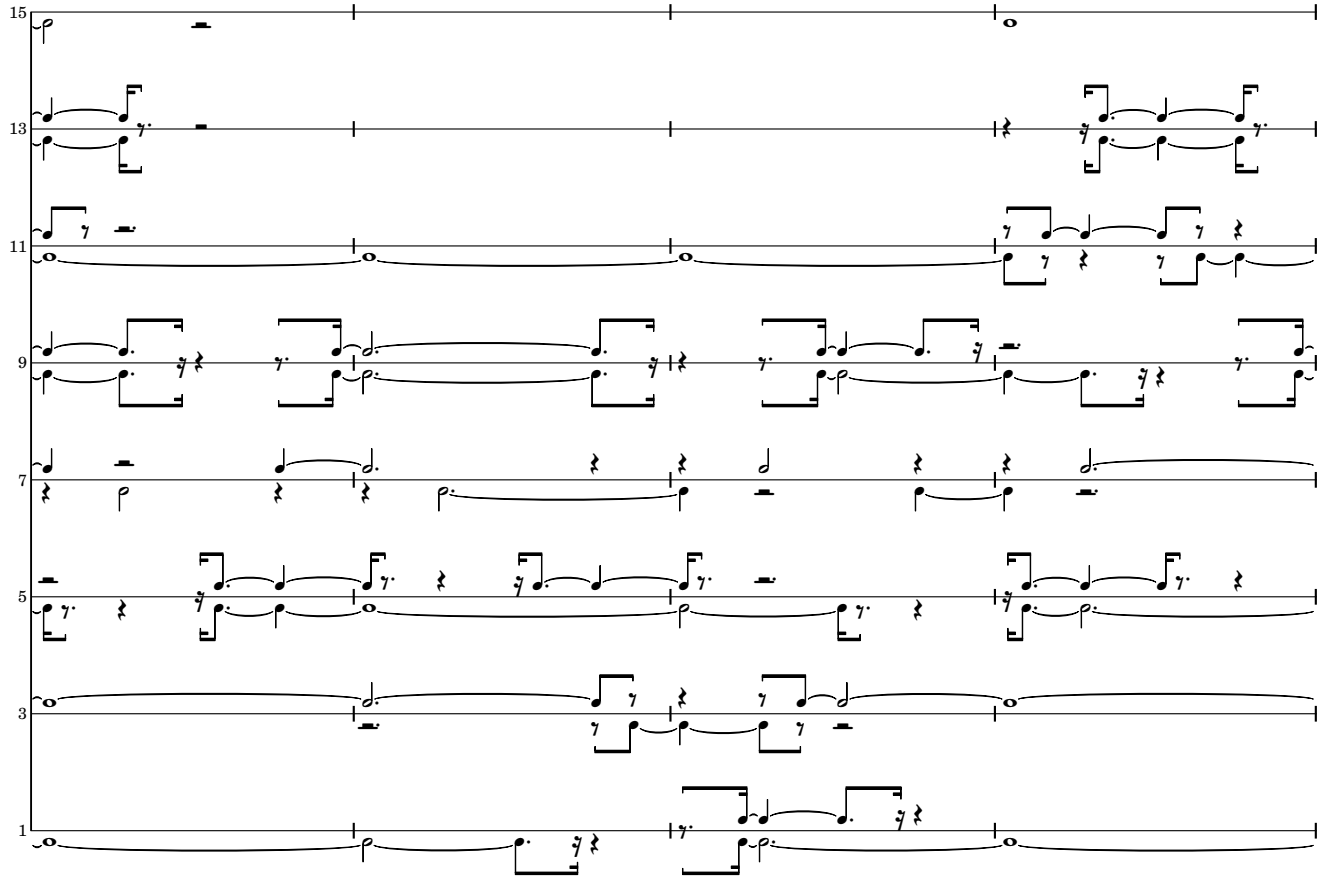
109



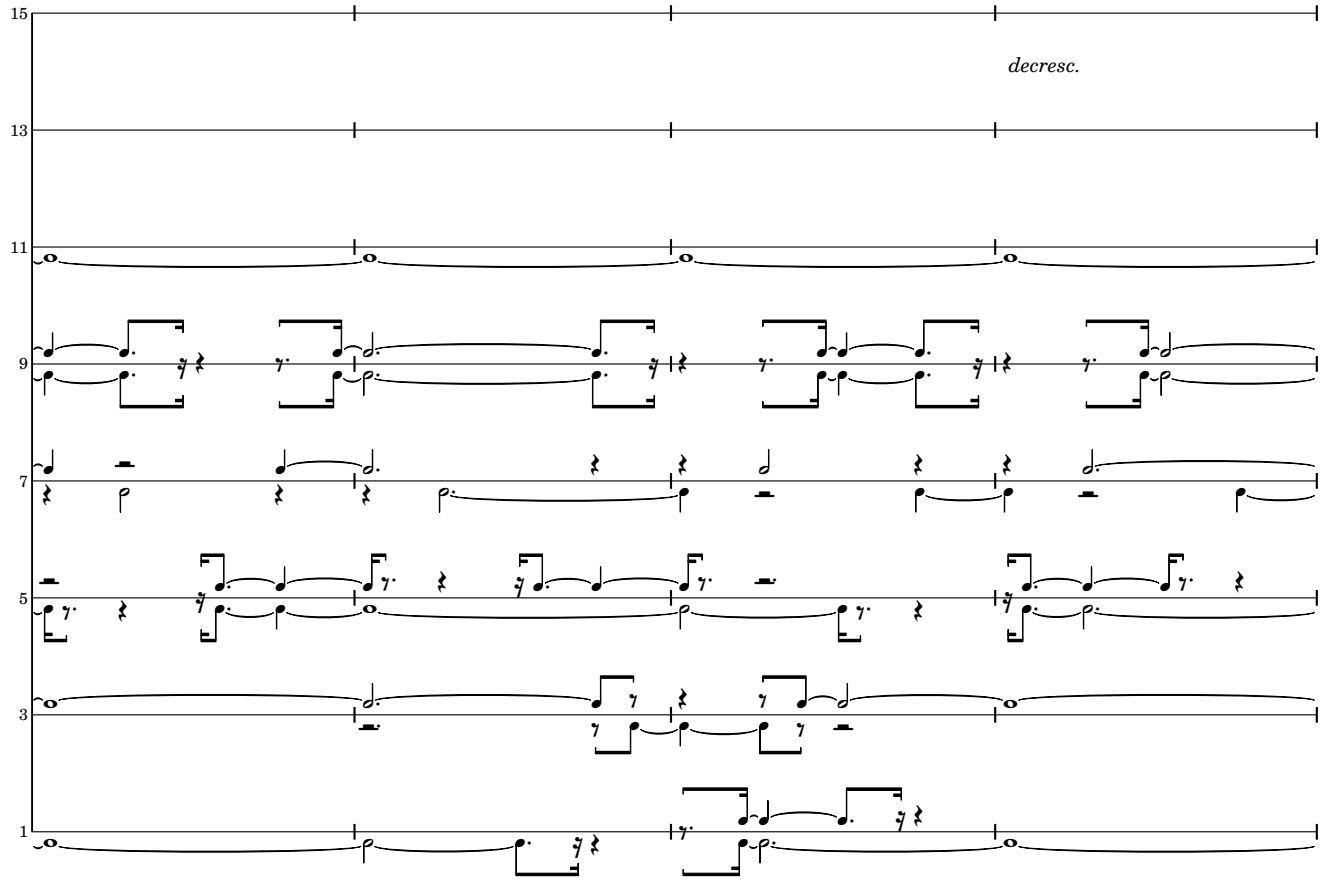
113



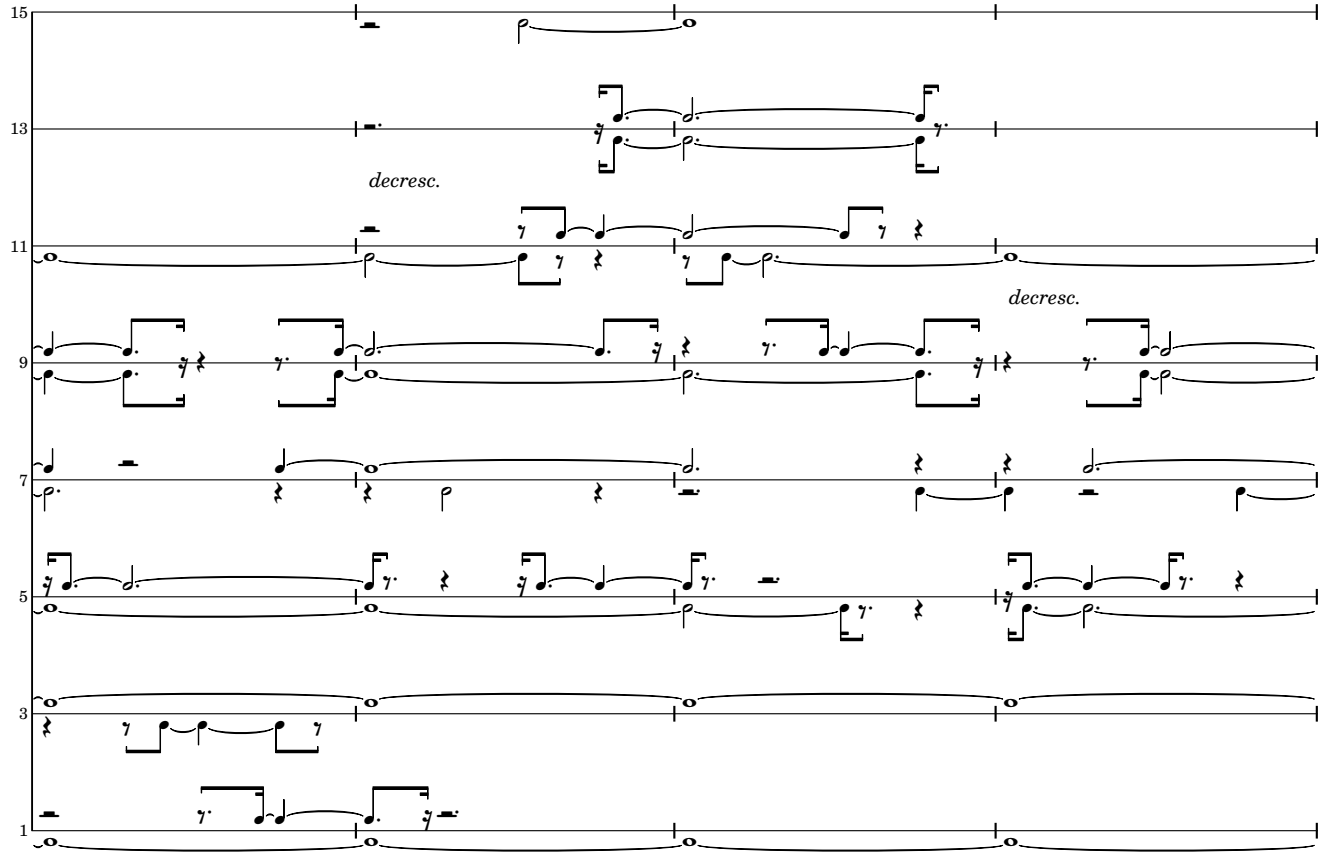
117

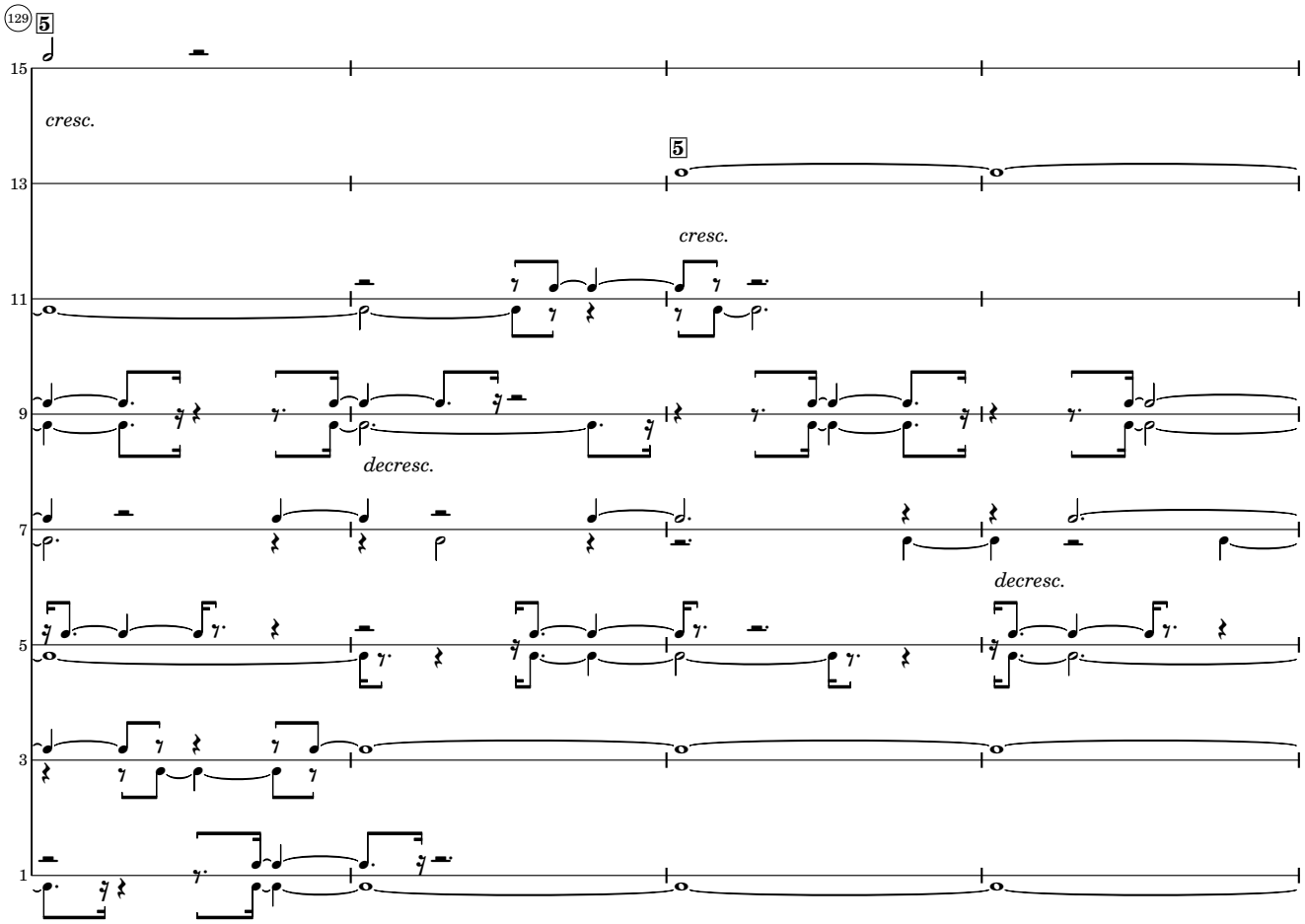


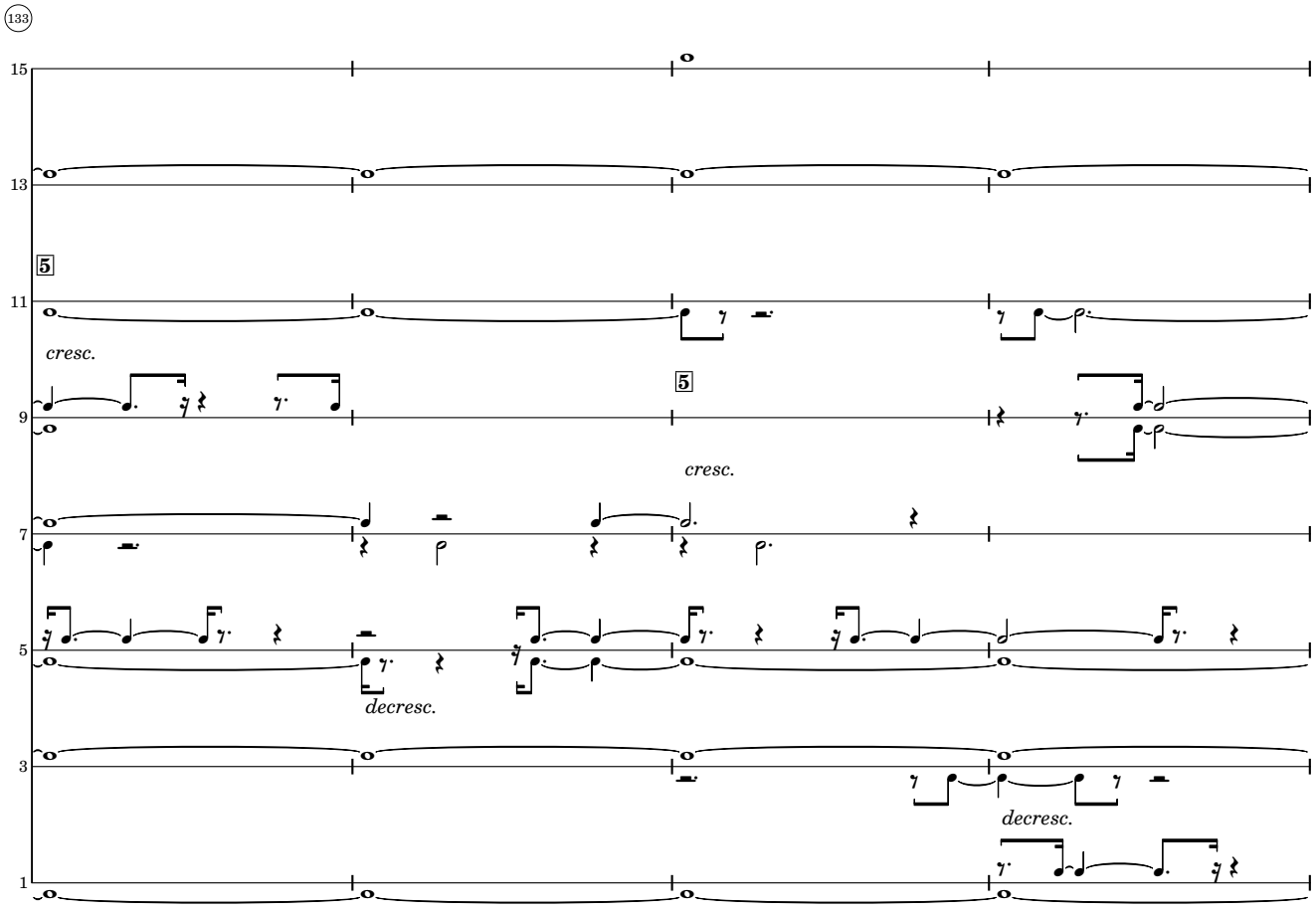
121

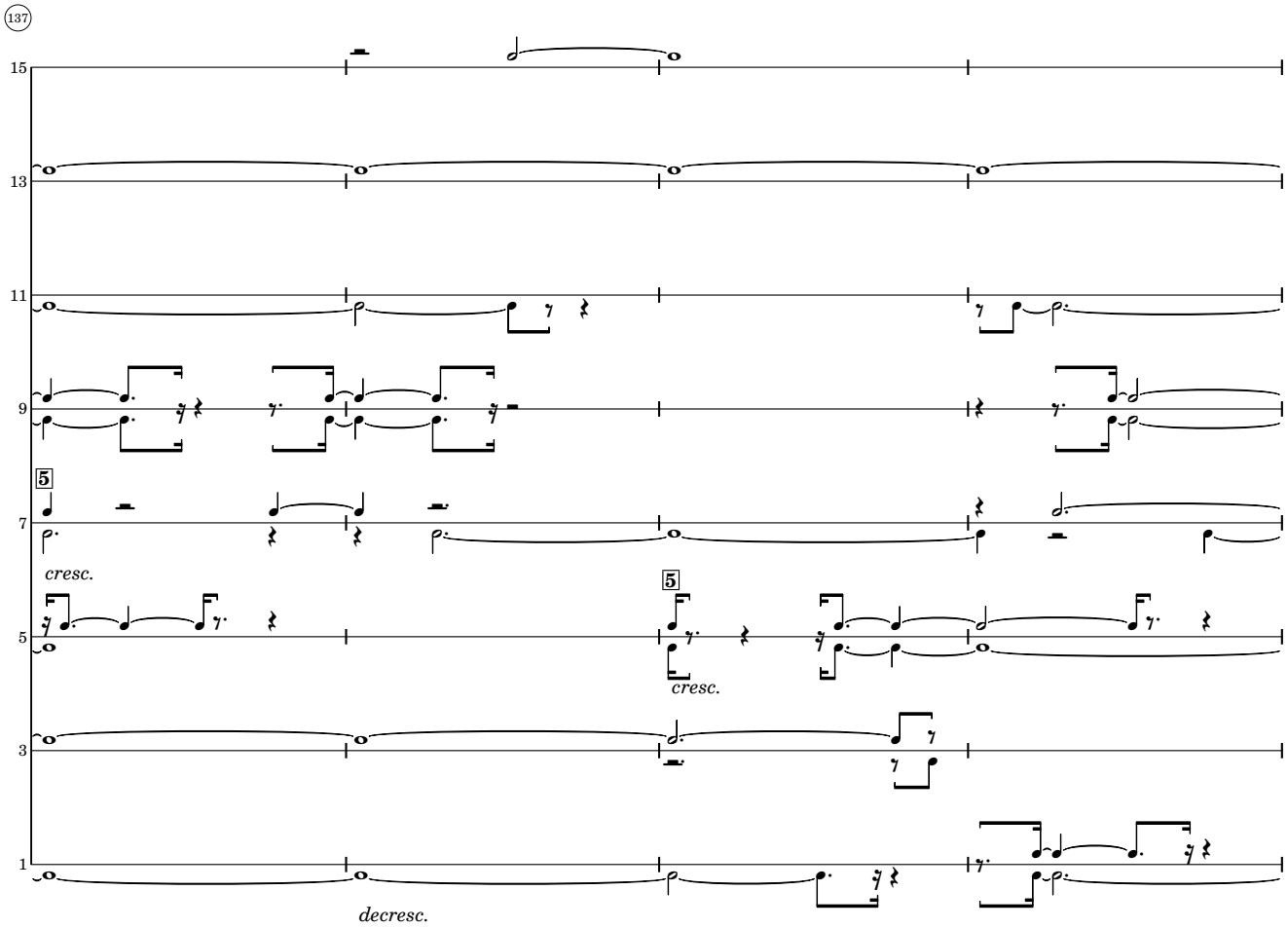


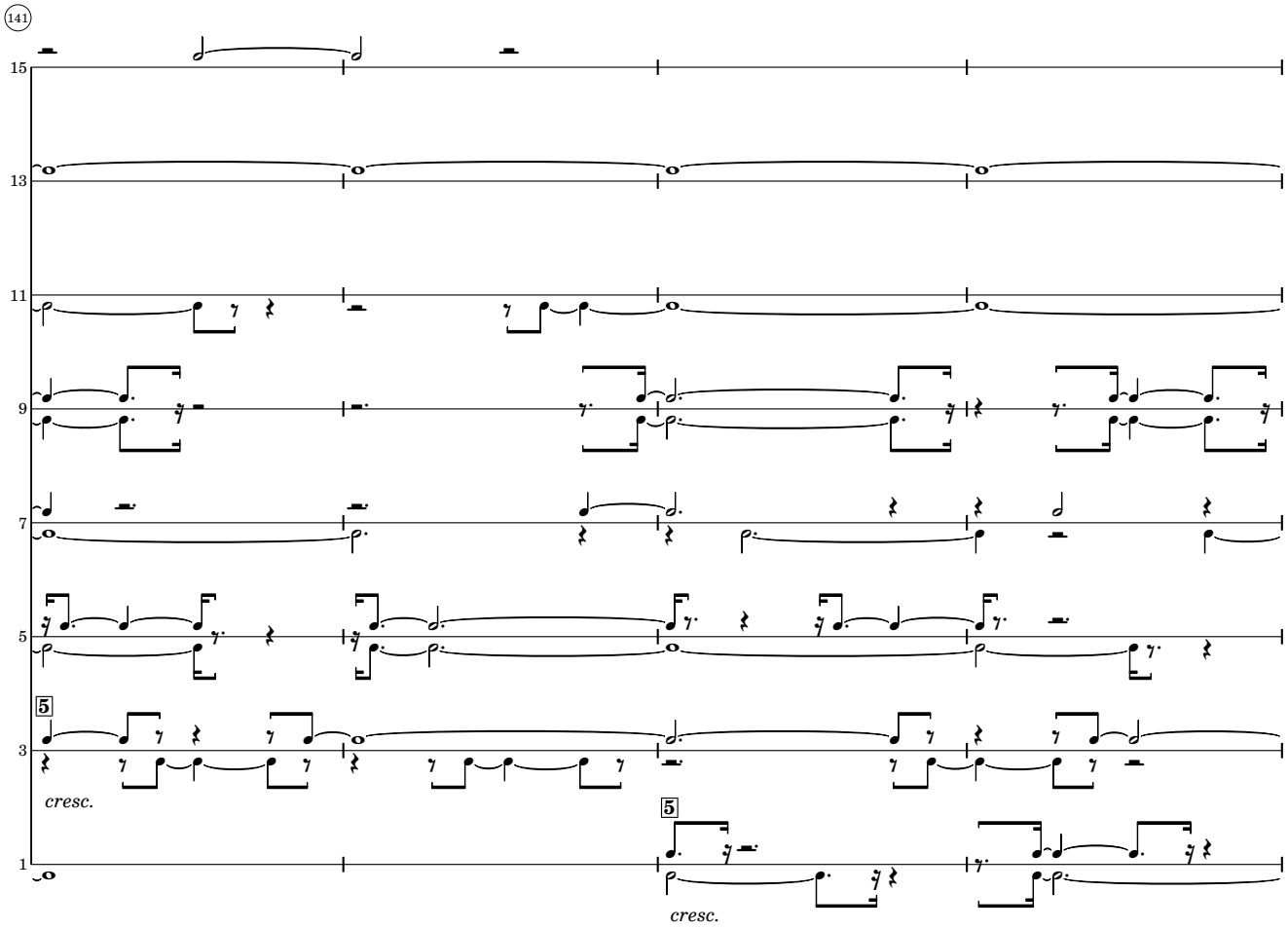
125

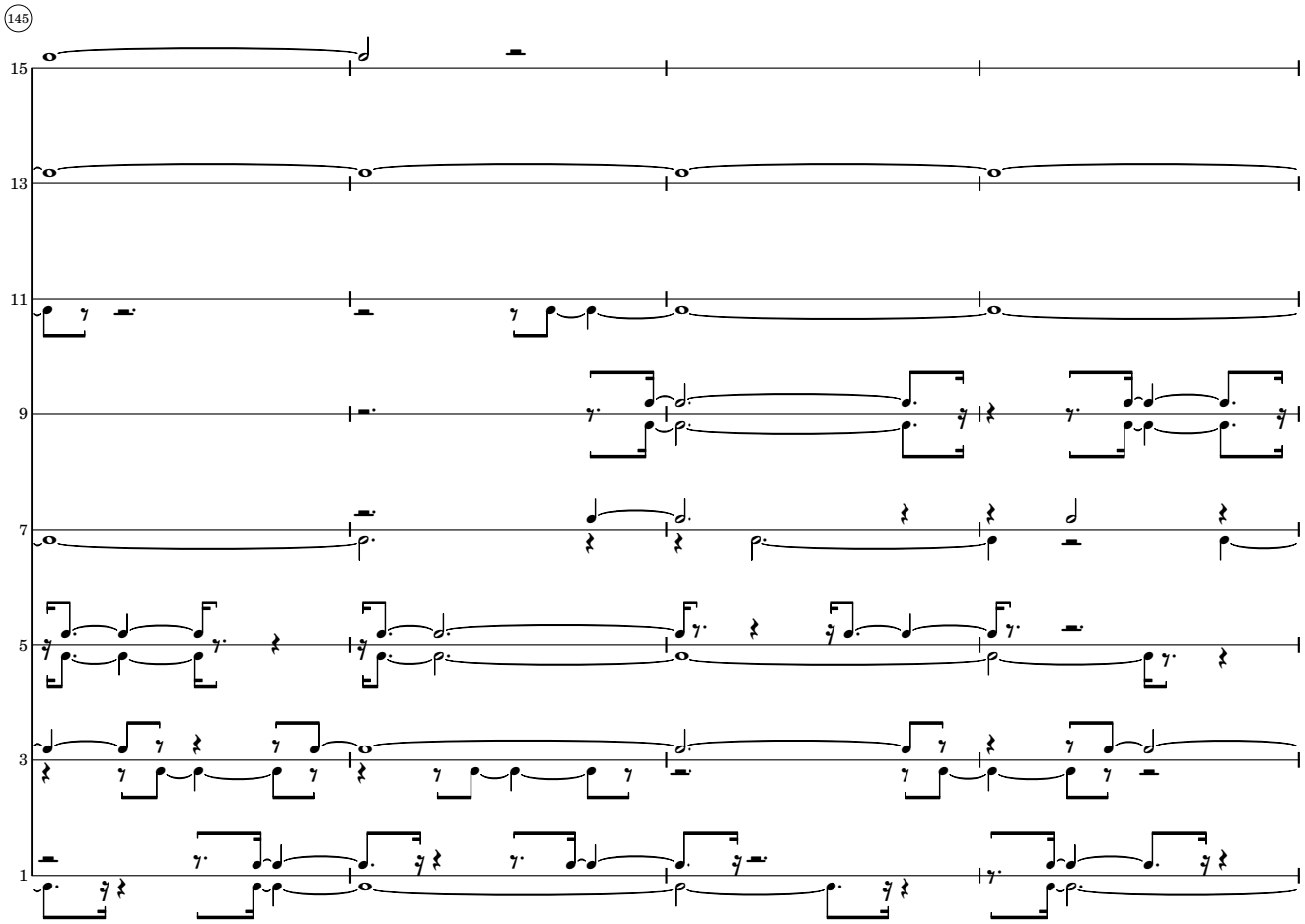


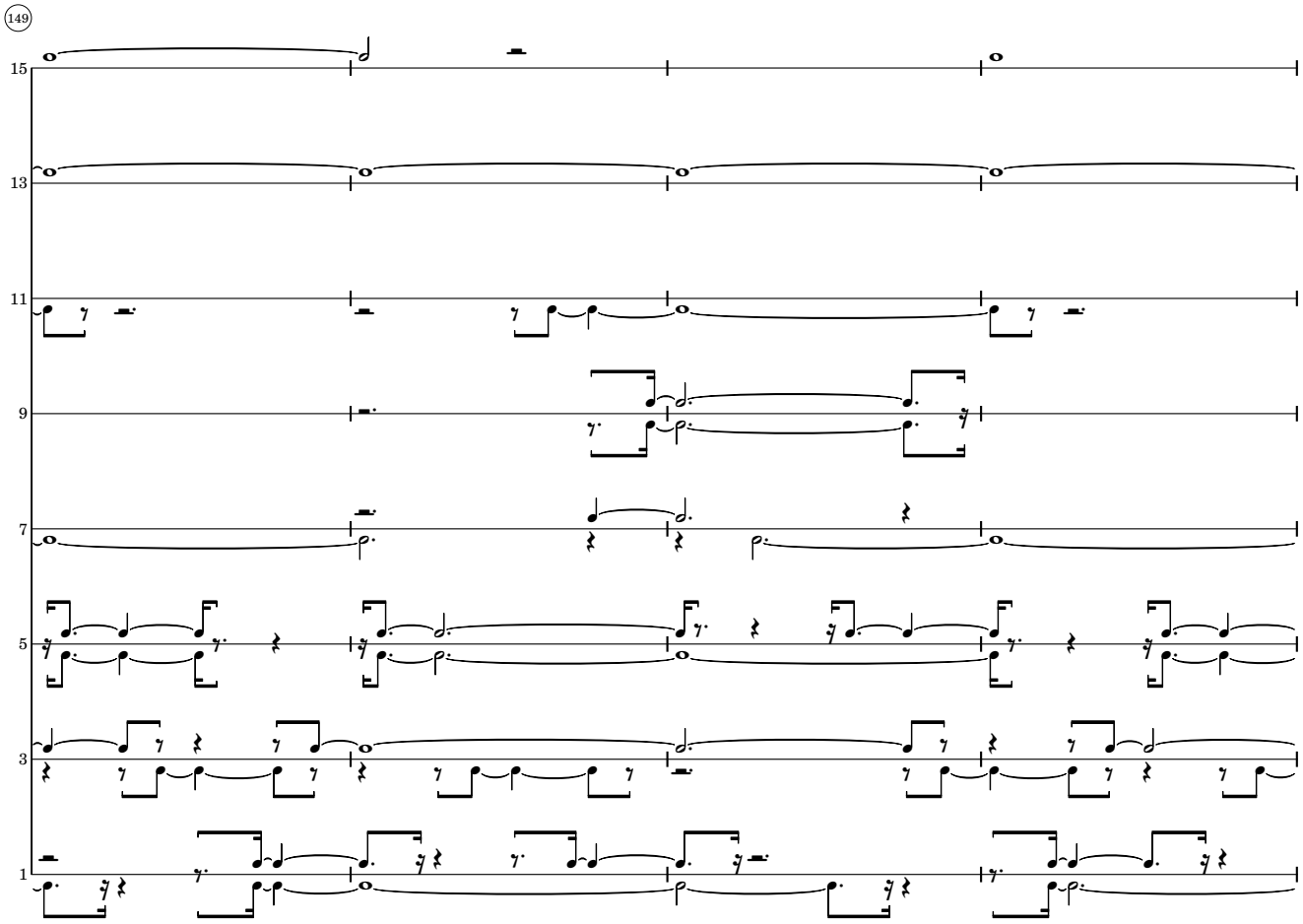

129
5
15
cresc.
5
13
cresc.
11
9
decresc.
7
decresc.
5
3
1


133
15
13
5
11
cresc.
5
9
cresc.
7
5
decresc.
3
decresc.
1

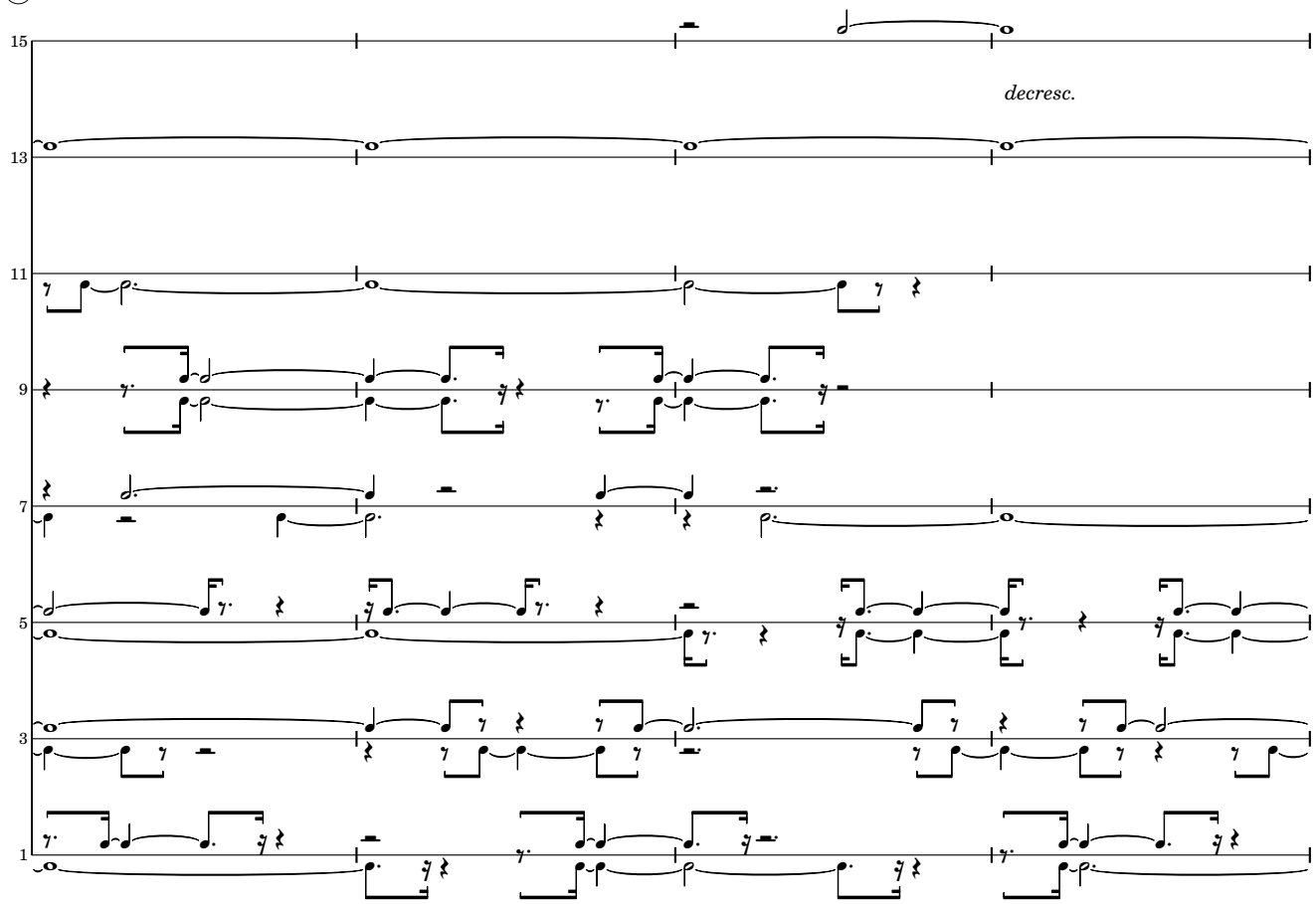

137
15
13
11
9
7
5
3
1
5
cresc.
5
cresc.
decresc.


141
15
13
11
9
7
5
3
1
5
cresc.
5
cresc.

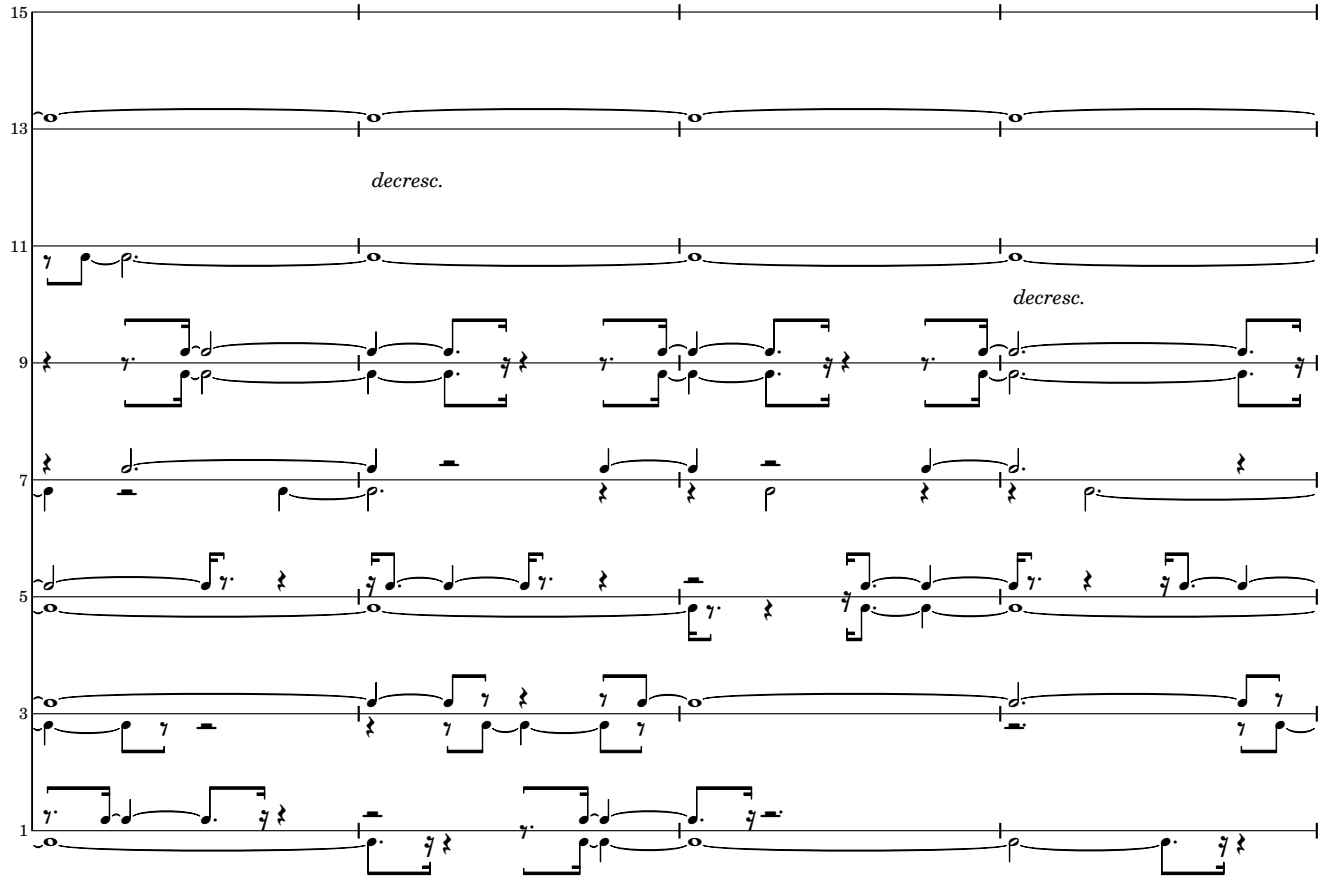

145
15
13
11
9
7
5
3
1

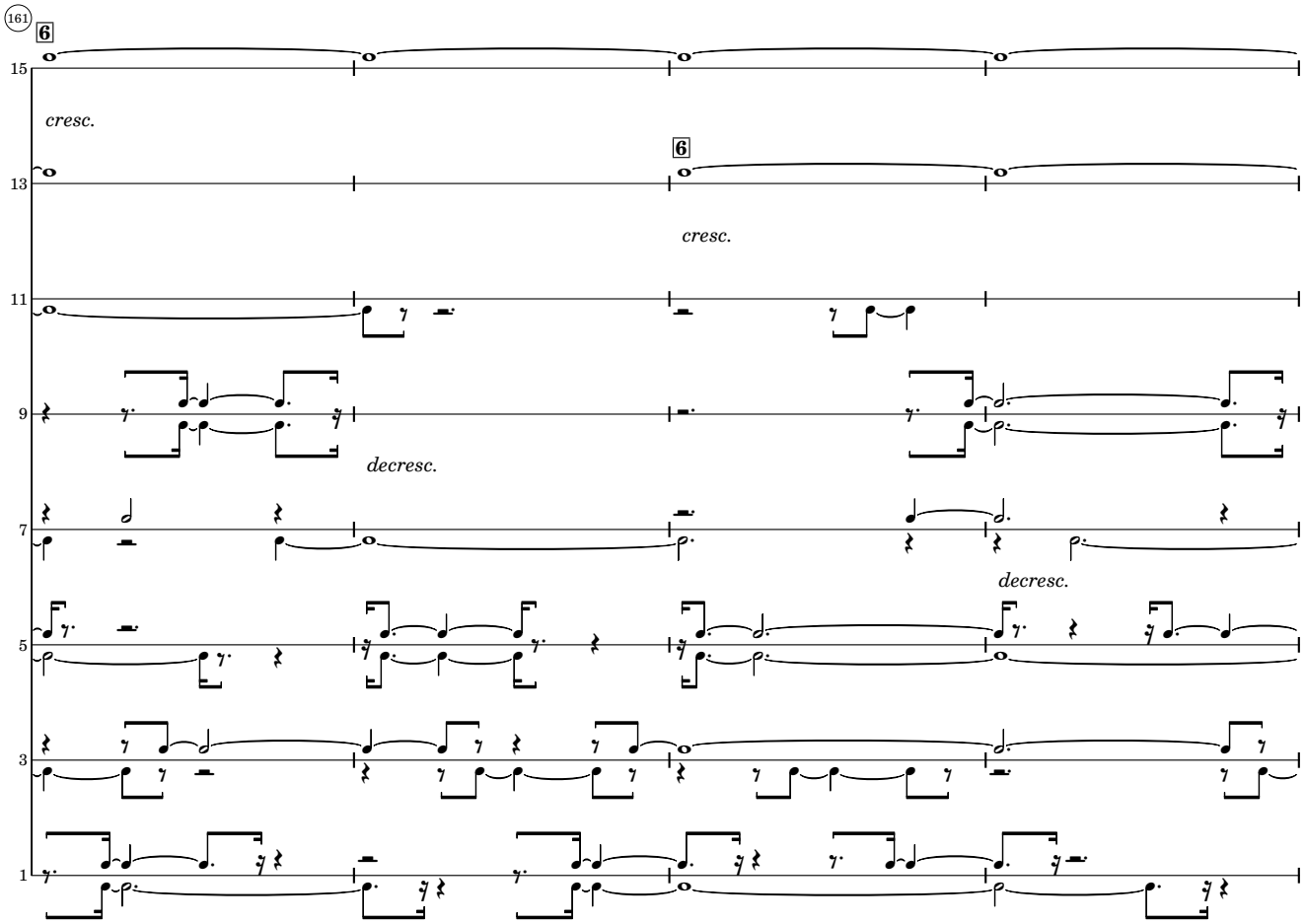

149
15
13
11
9
7
5
3
1

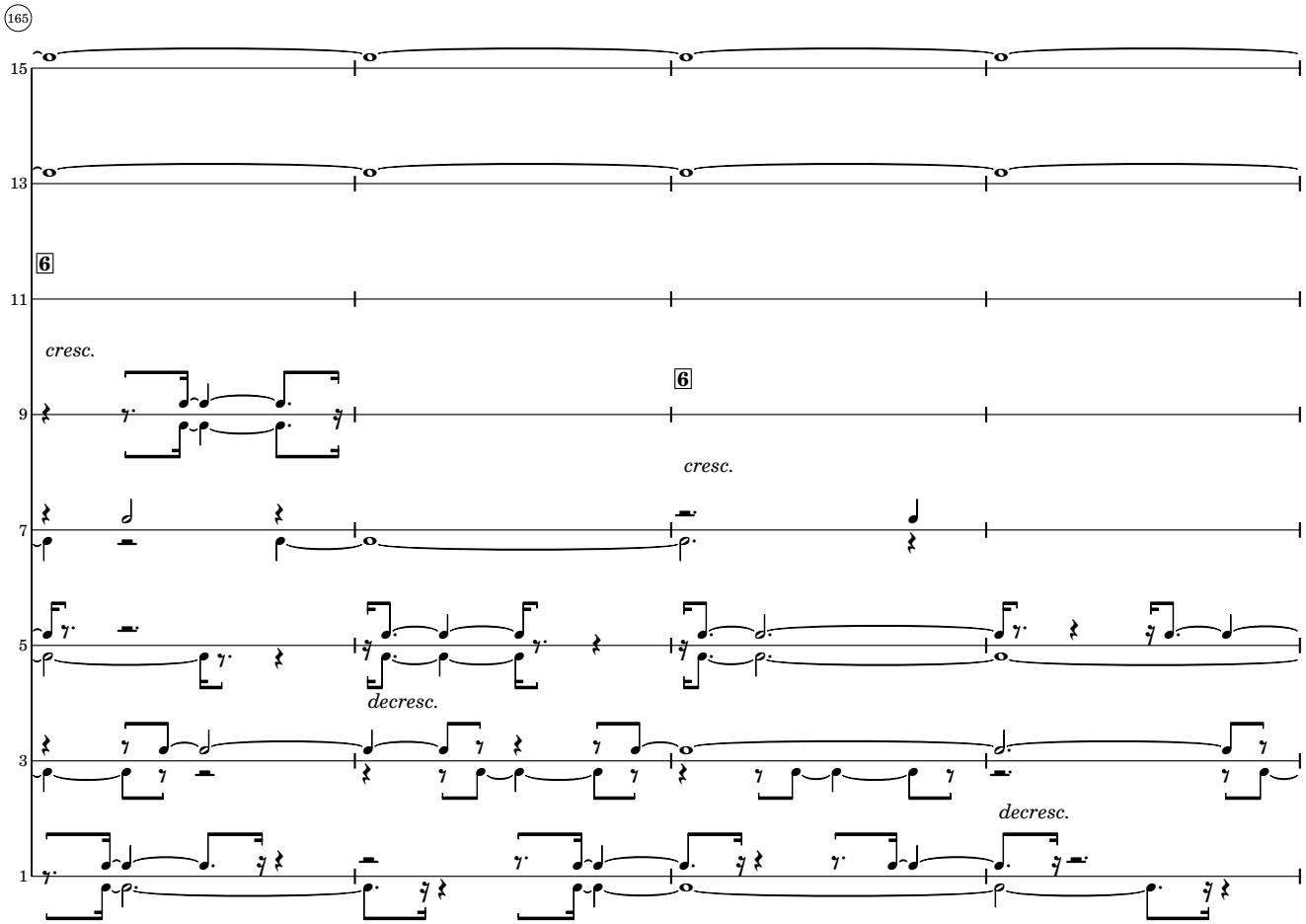
153

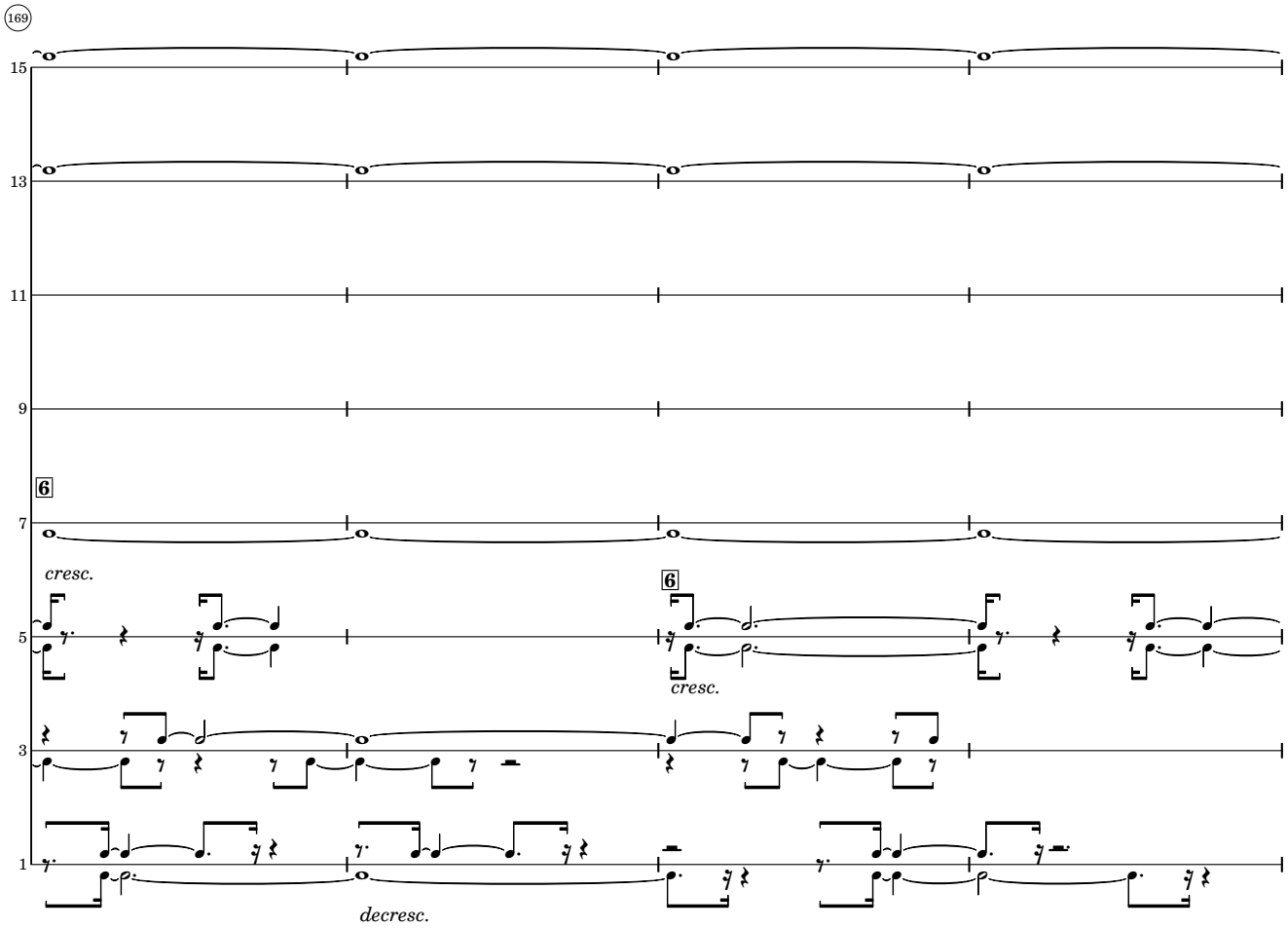


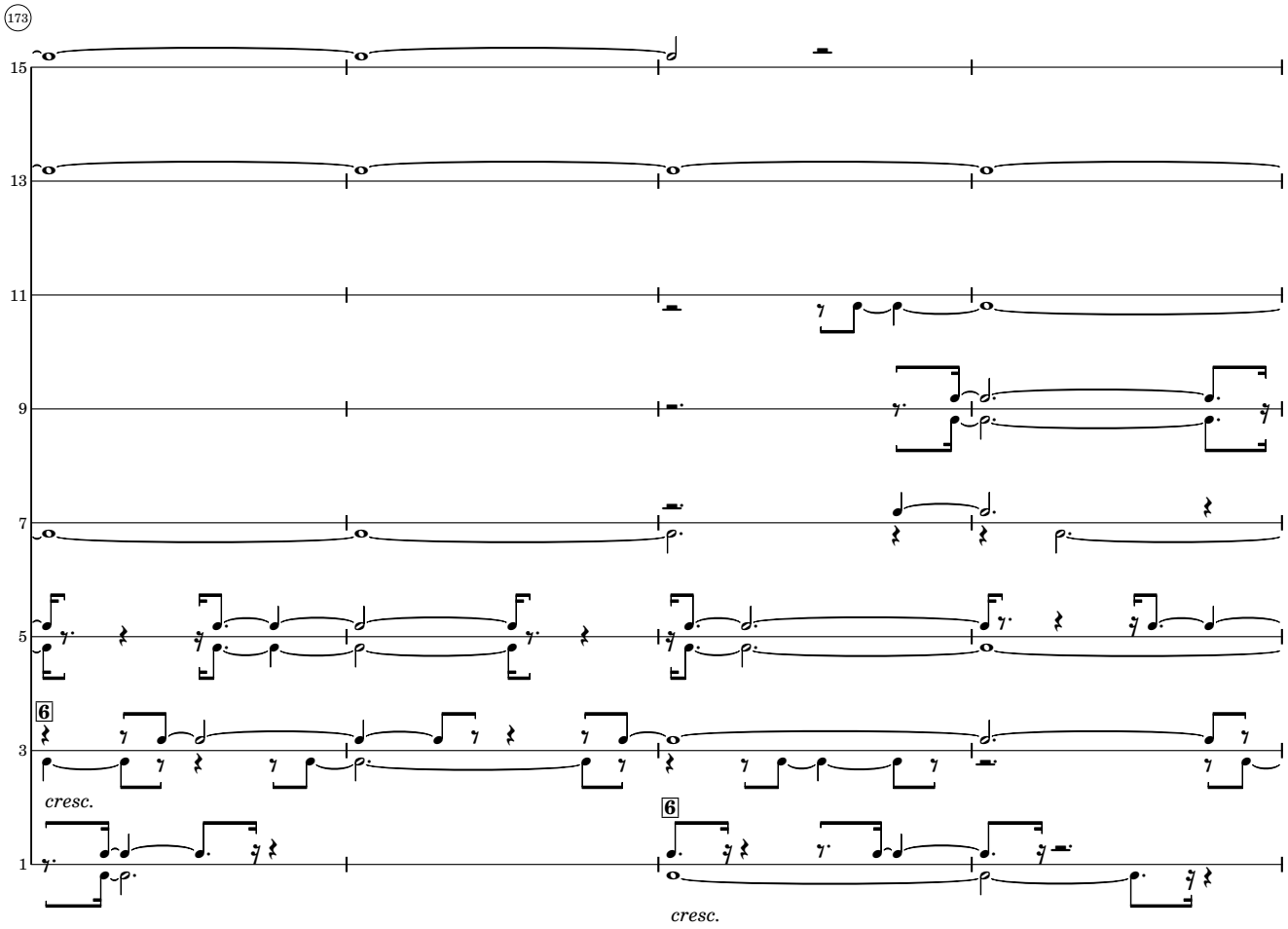
157

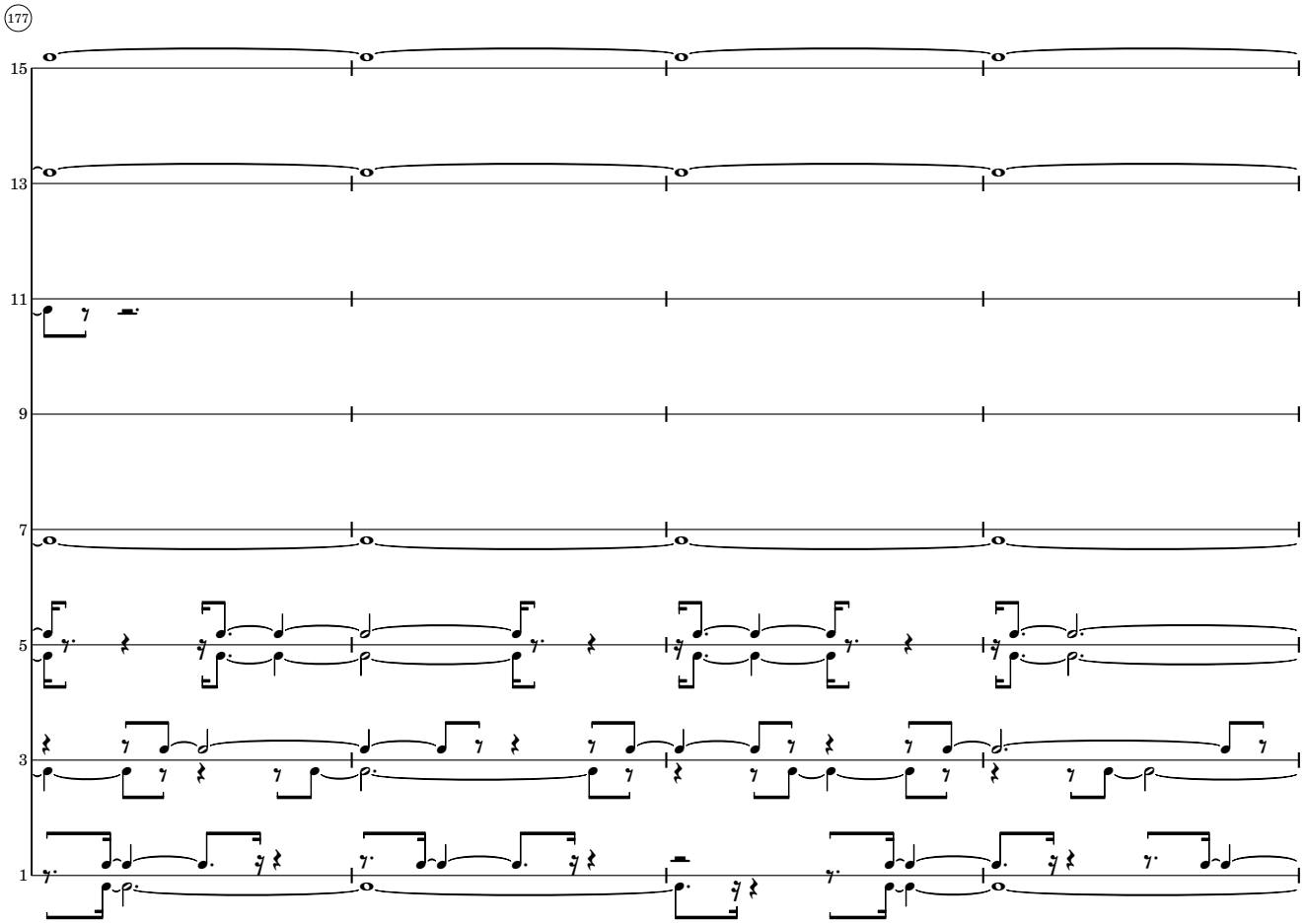


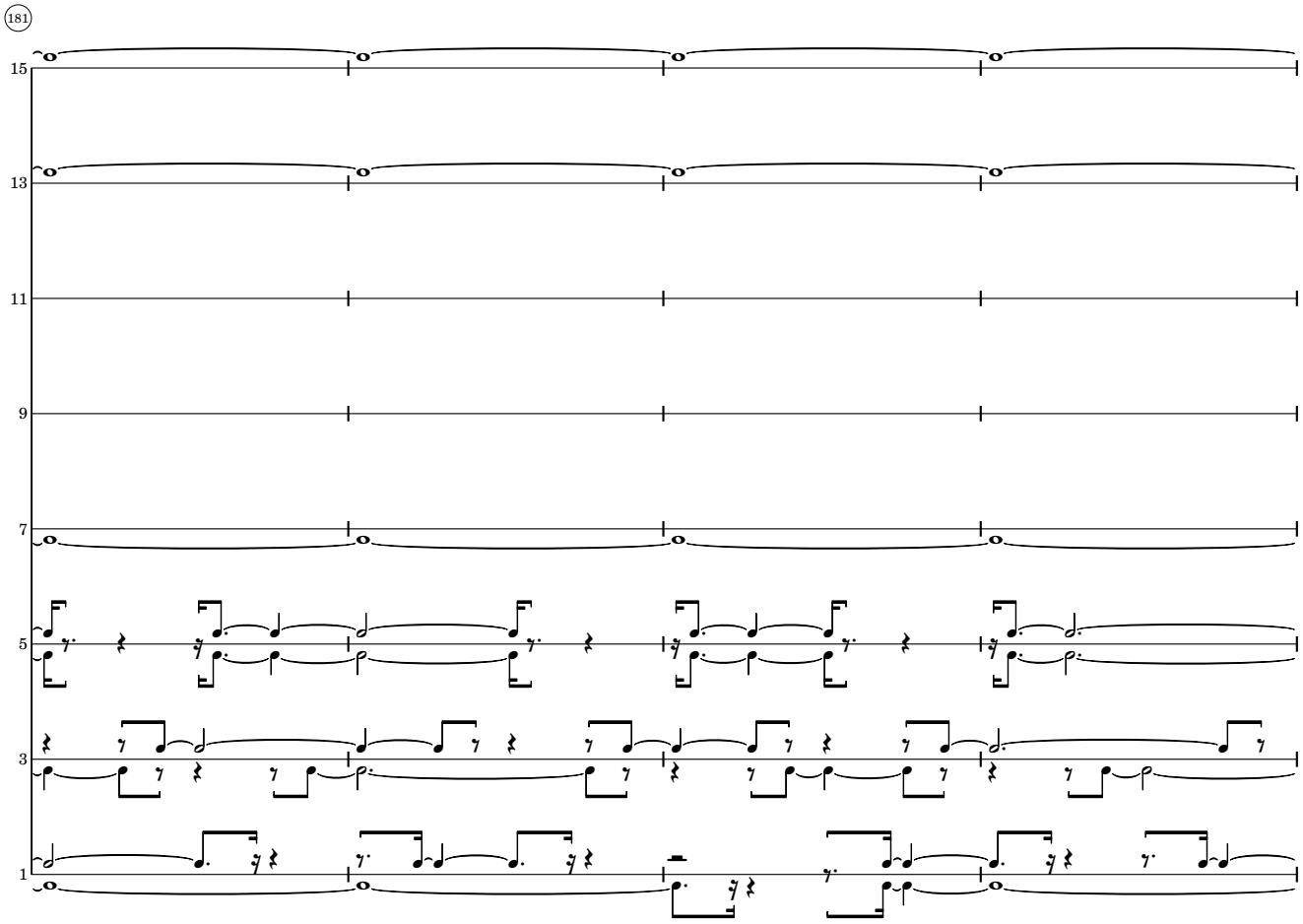

161
6
15
cresc.
6
13
cresc.
11
9
decresc.
7
decresc.
5
3
1

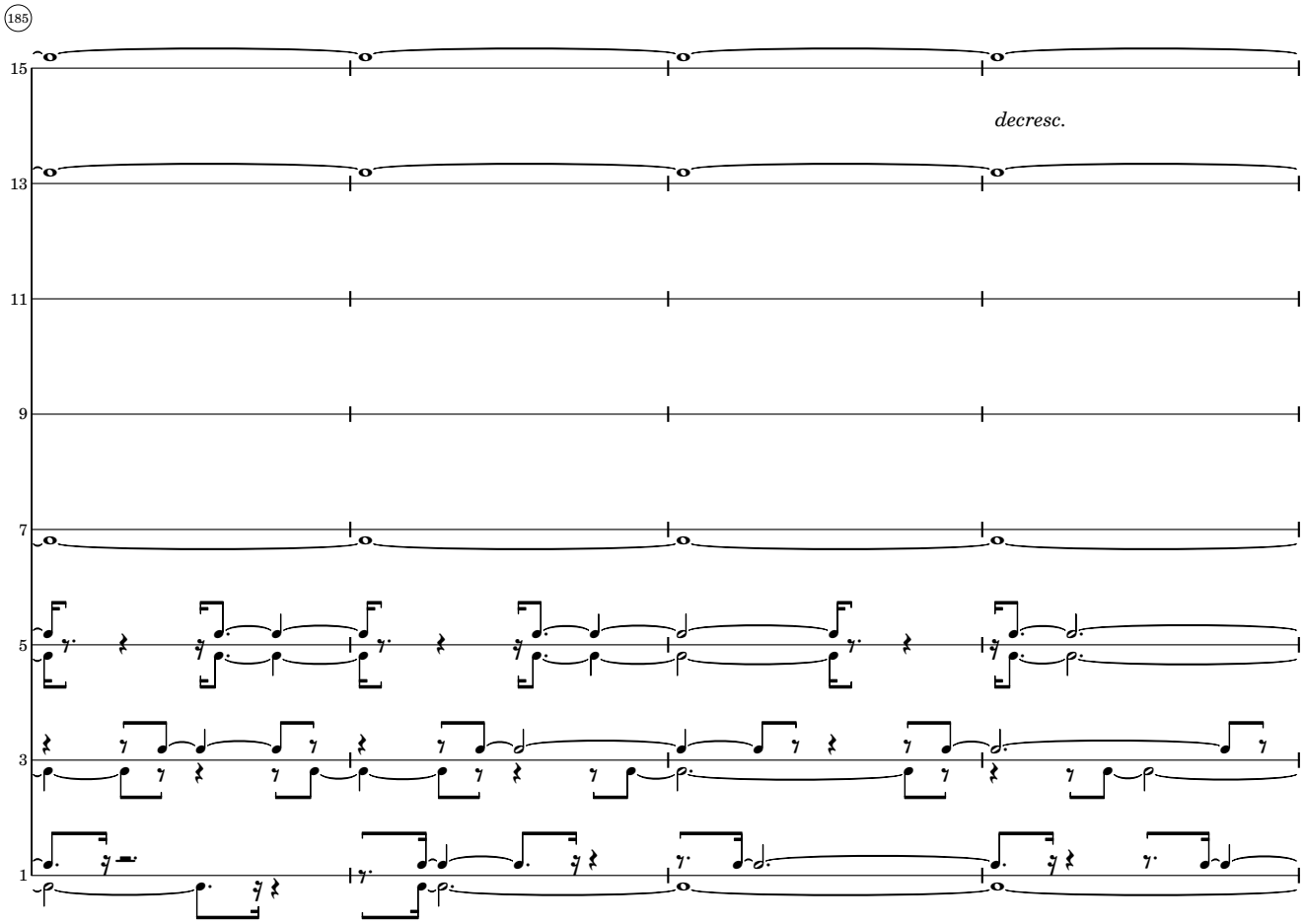

165
15
13
6
11
cresc.
6
9
cresc.
7
5
decresc.
3
decresc.
1

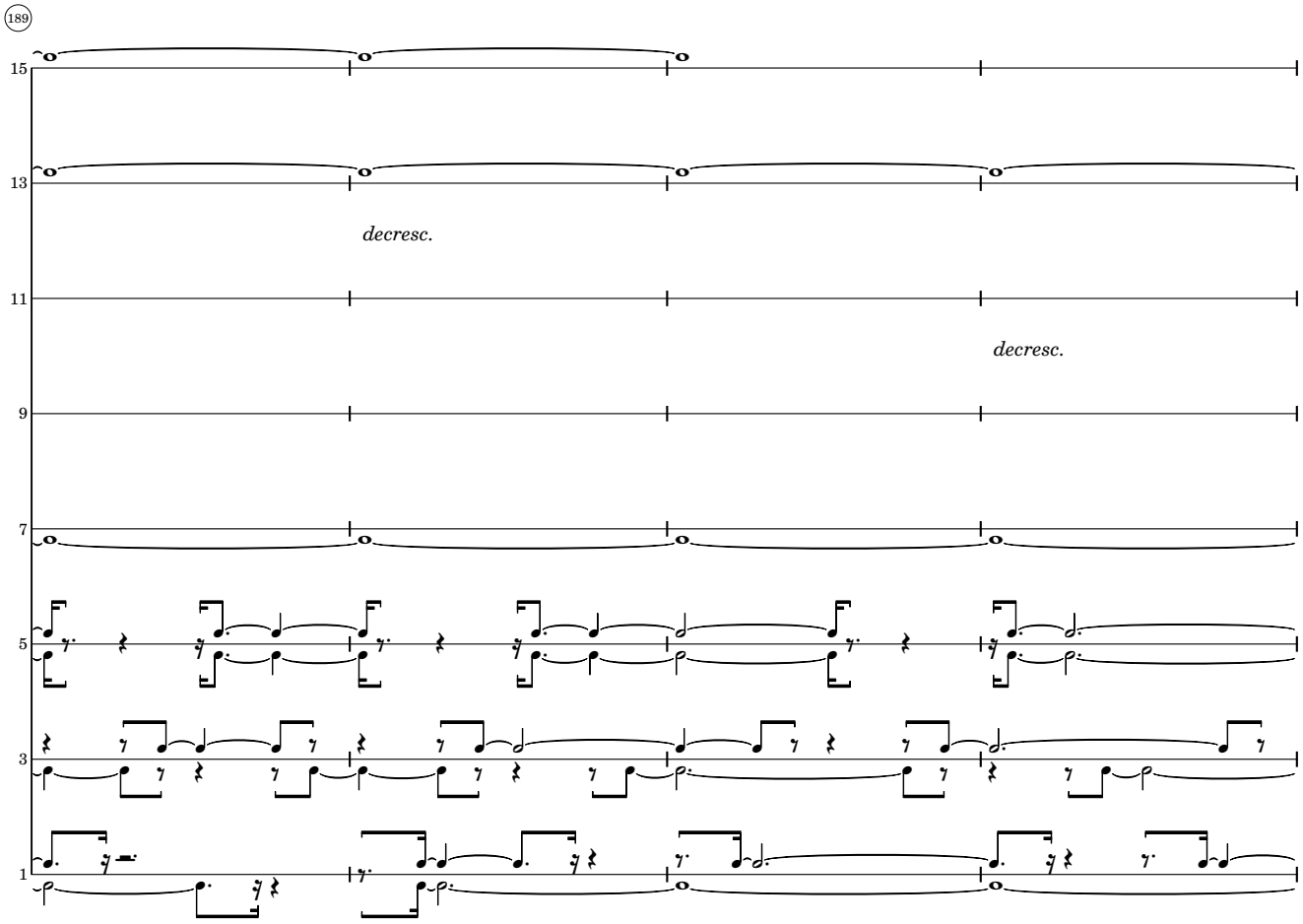

169
15
13
11
9
6
7
cresc.
6
5
cresc.
3
1
decresc.

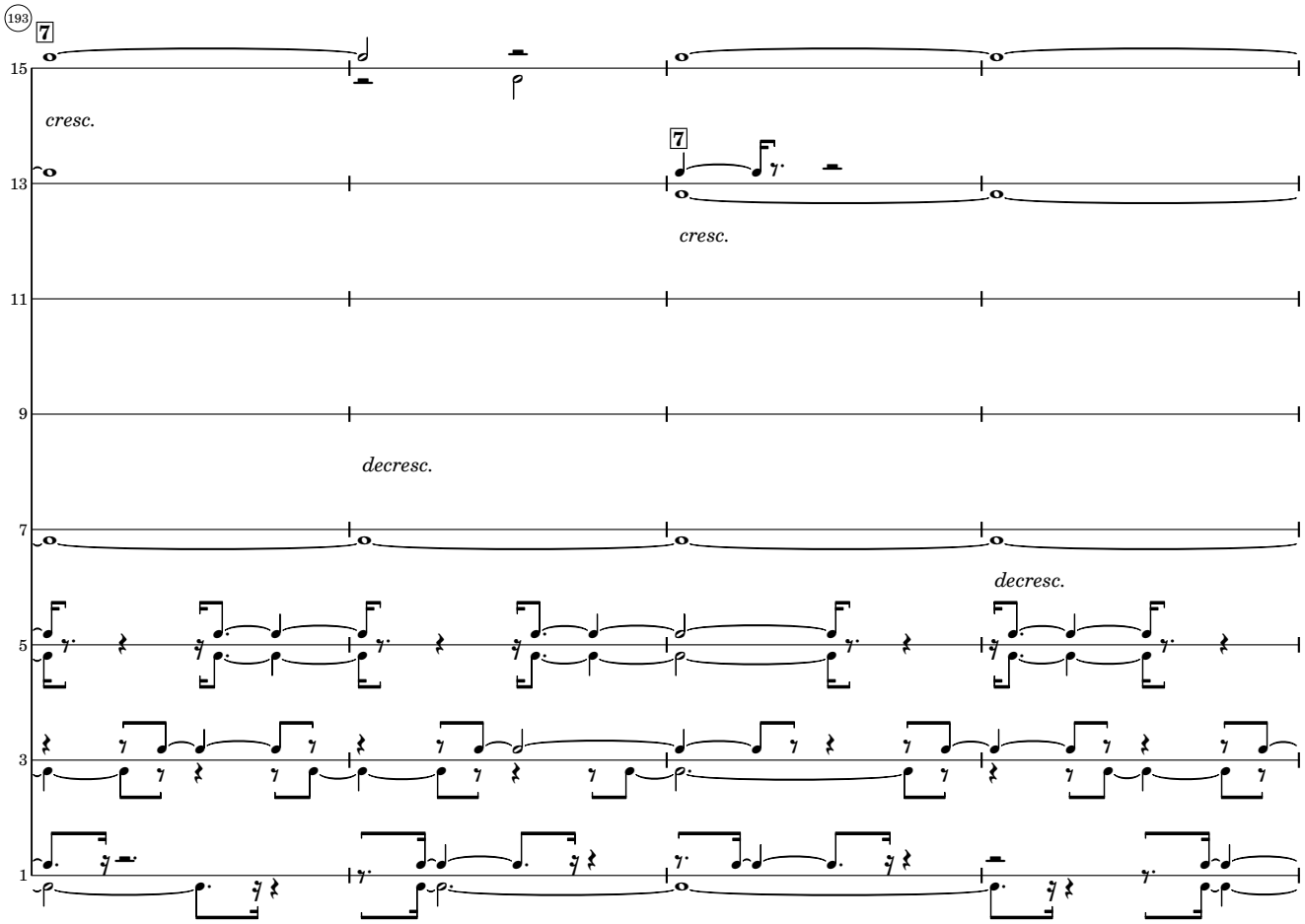

173
15
13
11
9
7
5
6
3
cresc.
6
1
cresc.

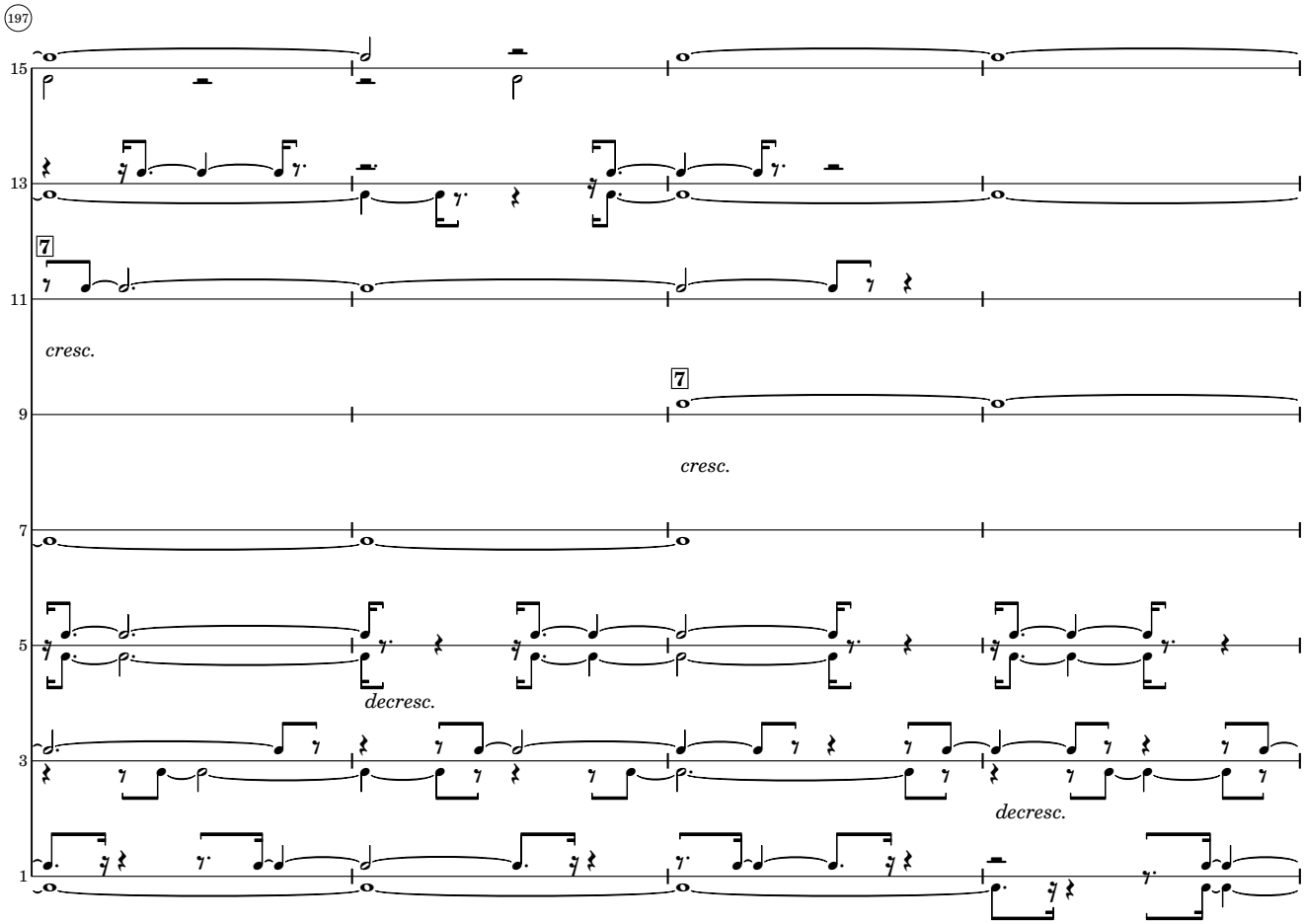

177
15
13
11
9
7
5
3
1

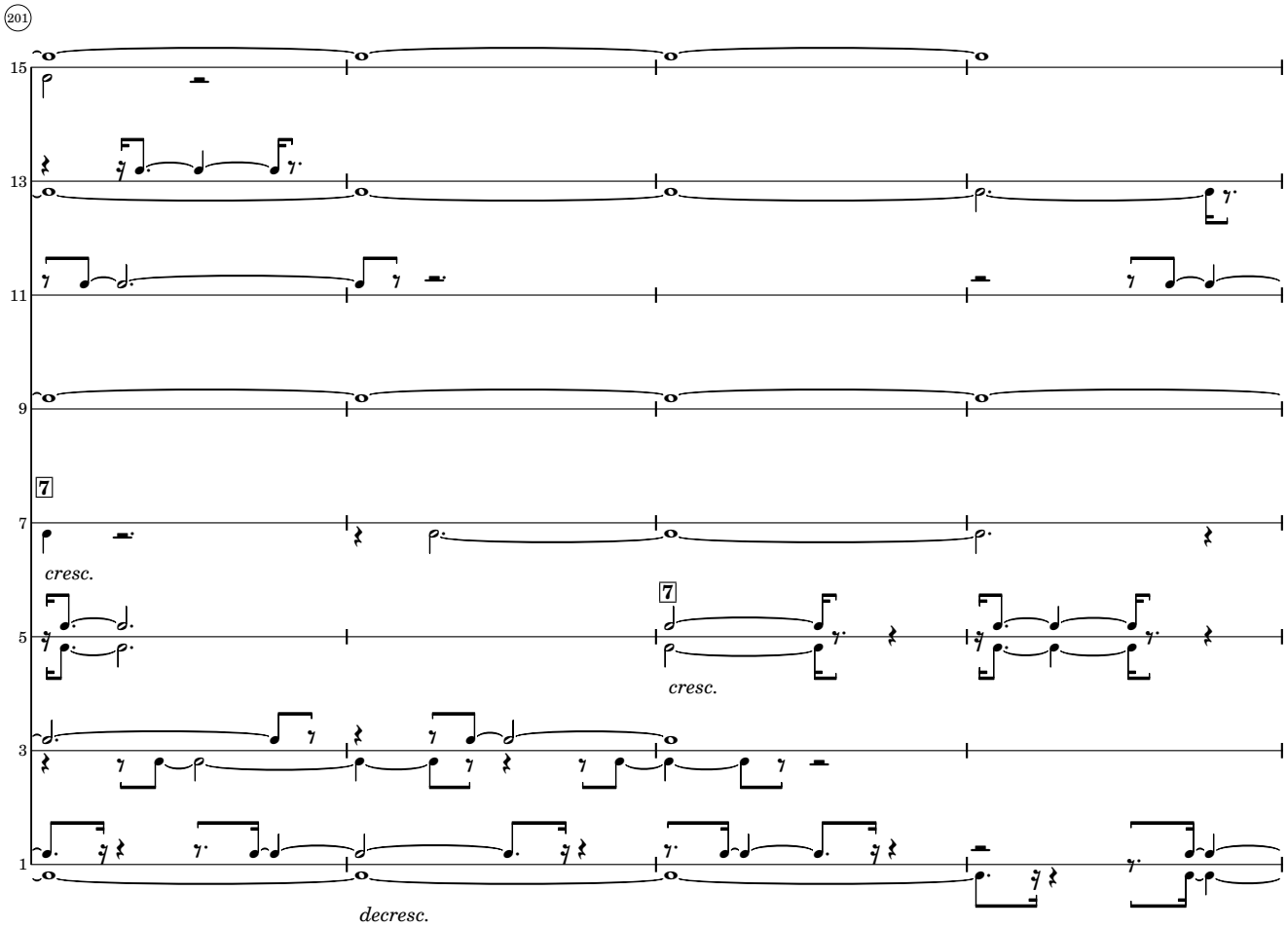

181
15
13
11
9
7
5
3
1

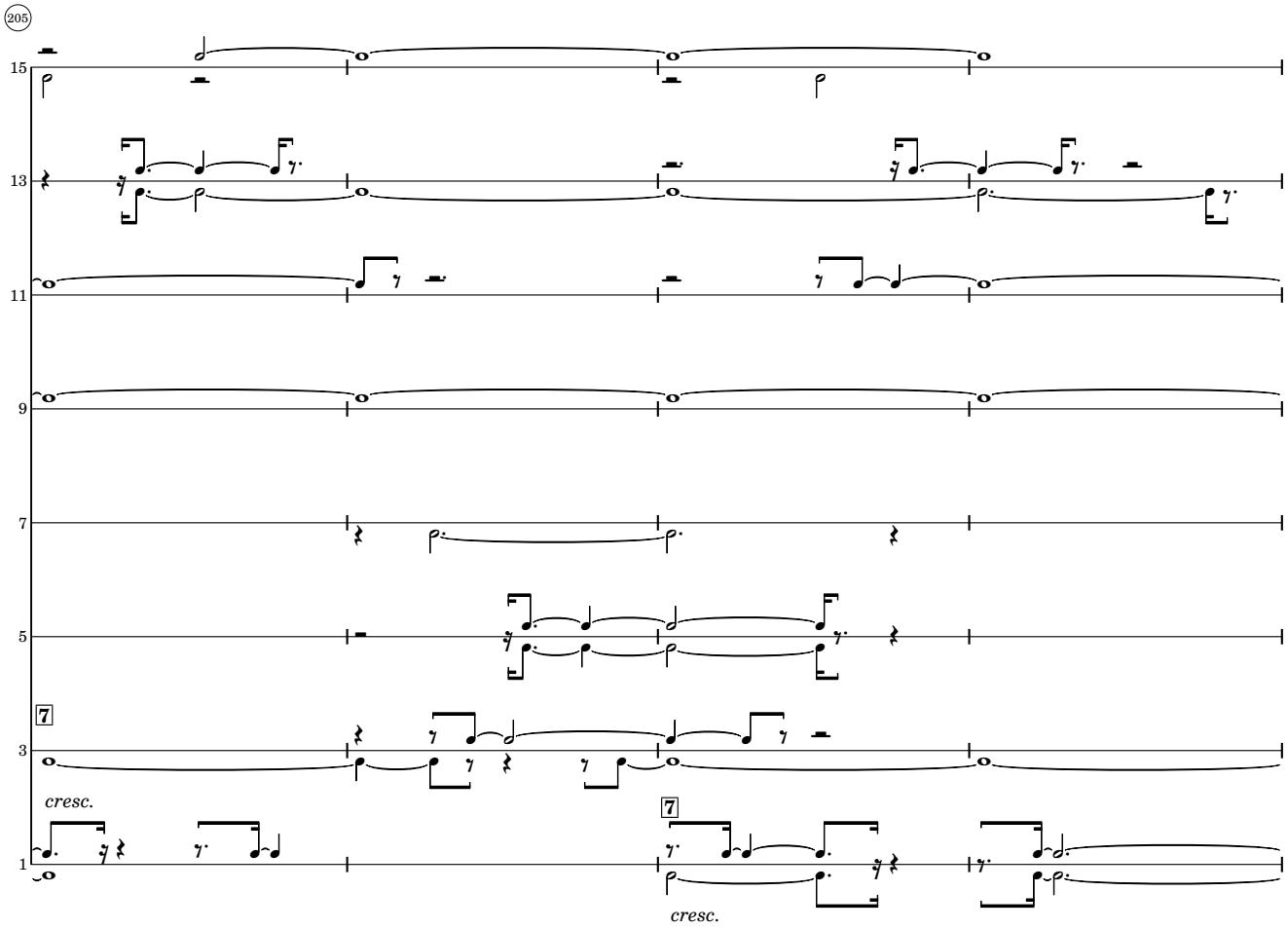

185
15
decresc.
13
11
9
7
5
3
1

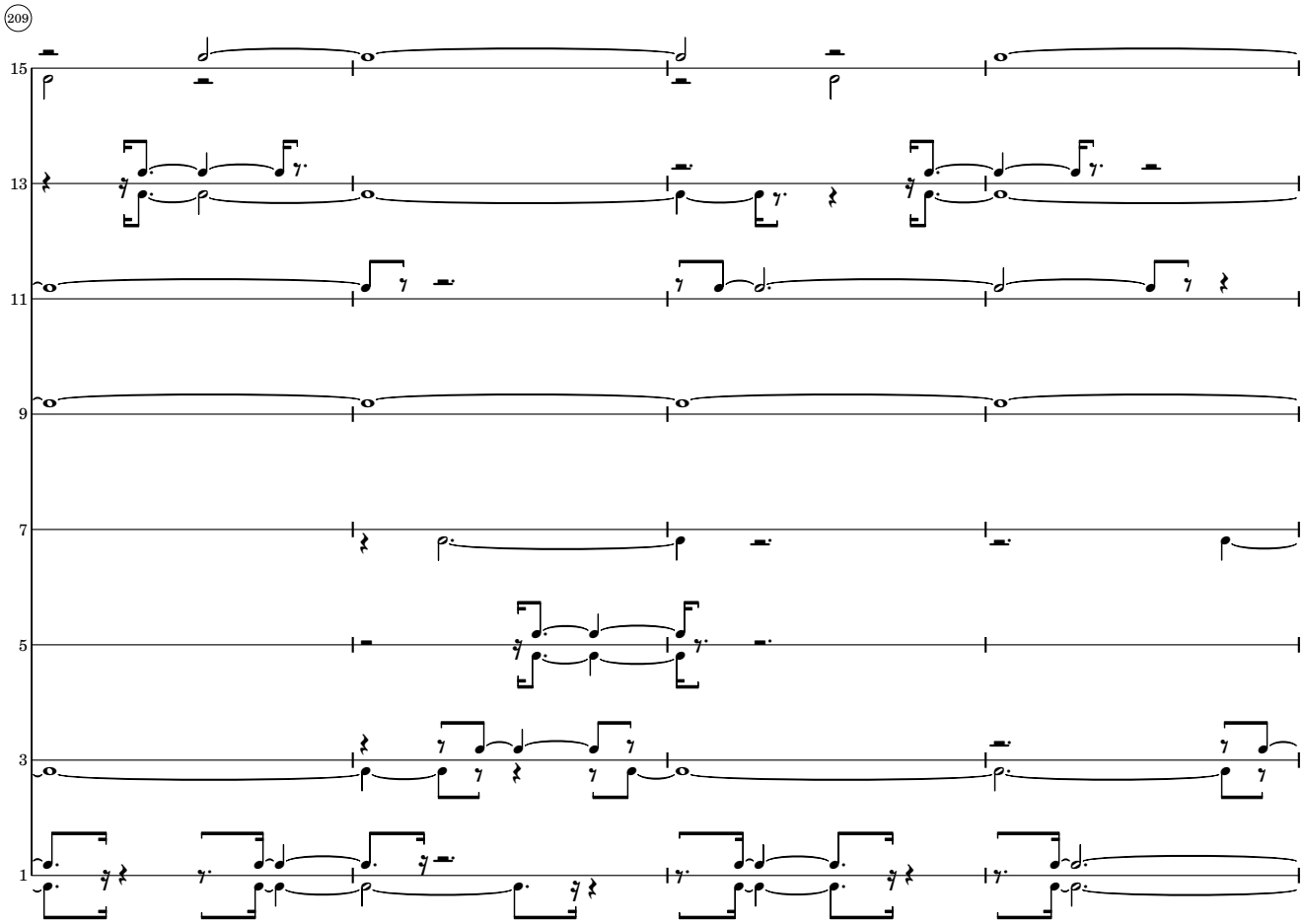

189
15
13
decresc.
11
decresc.
9
7
5
3
1

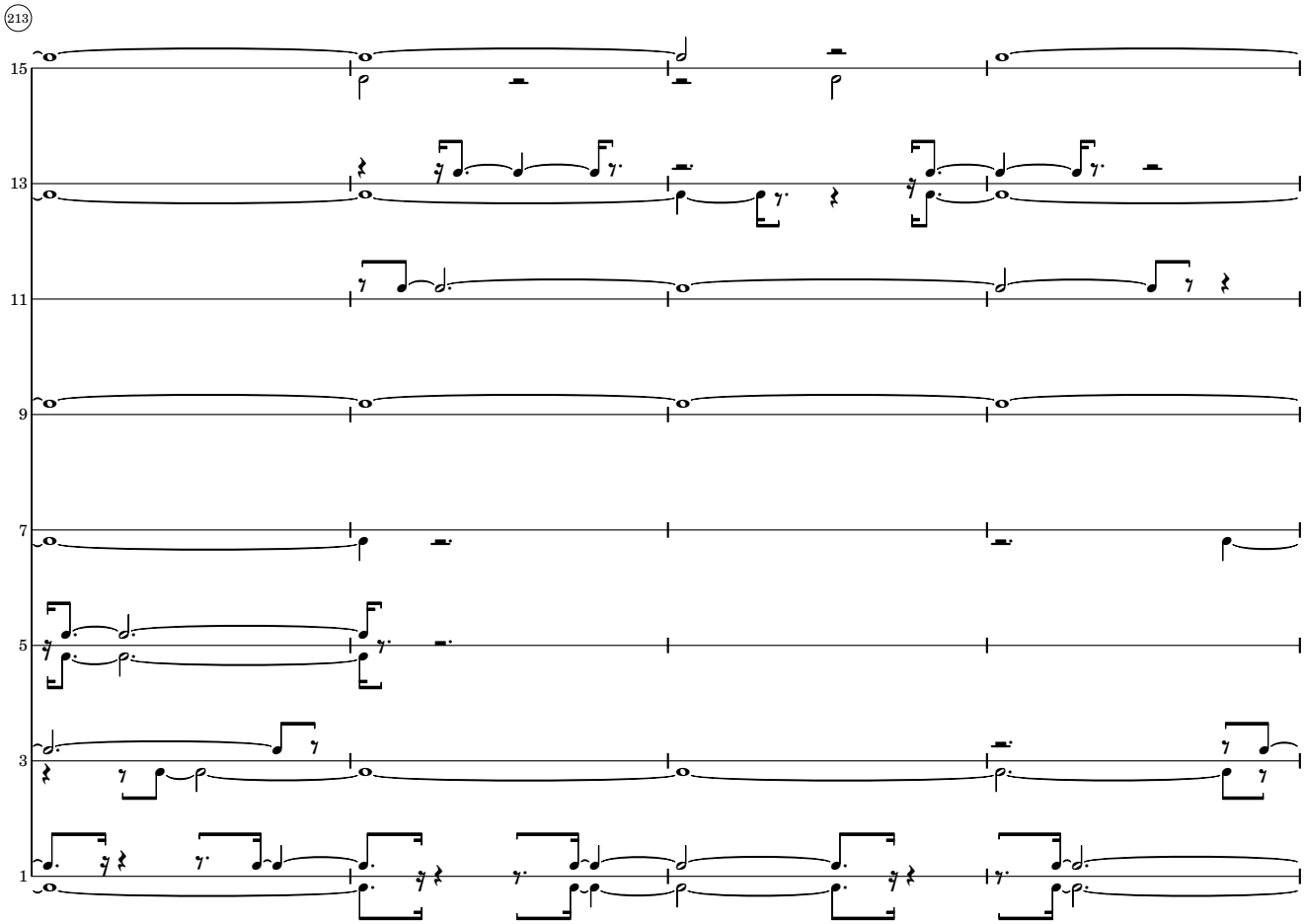

193
7
15
cresc.
7
13
cresc.
11
9
decresc.
7
decresc.
5
3
1

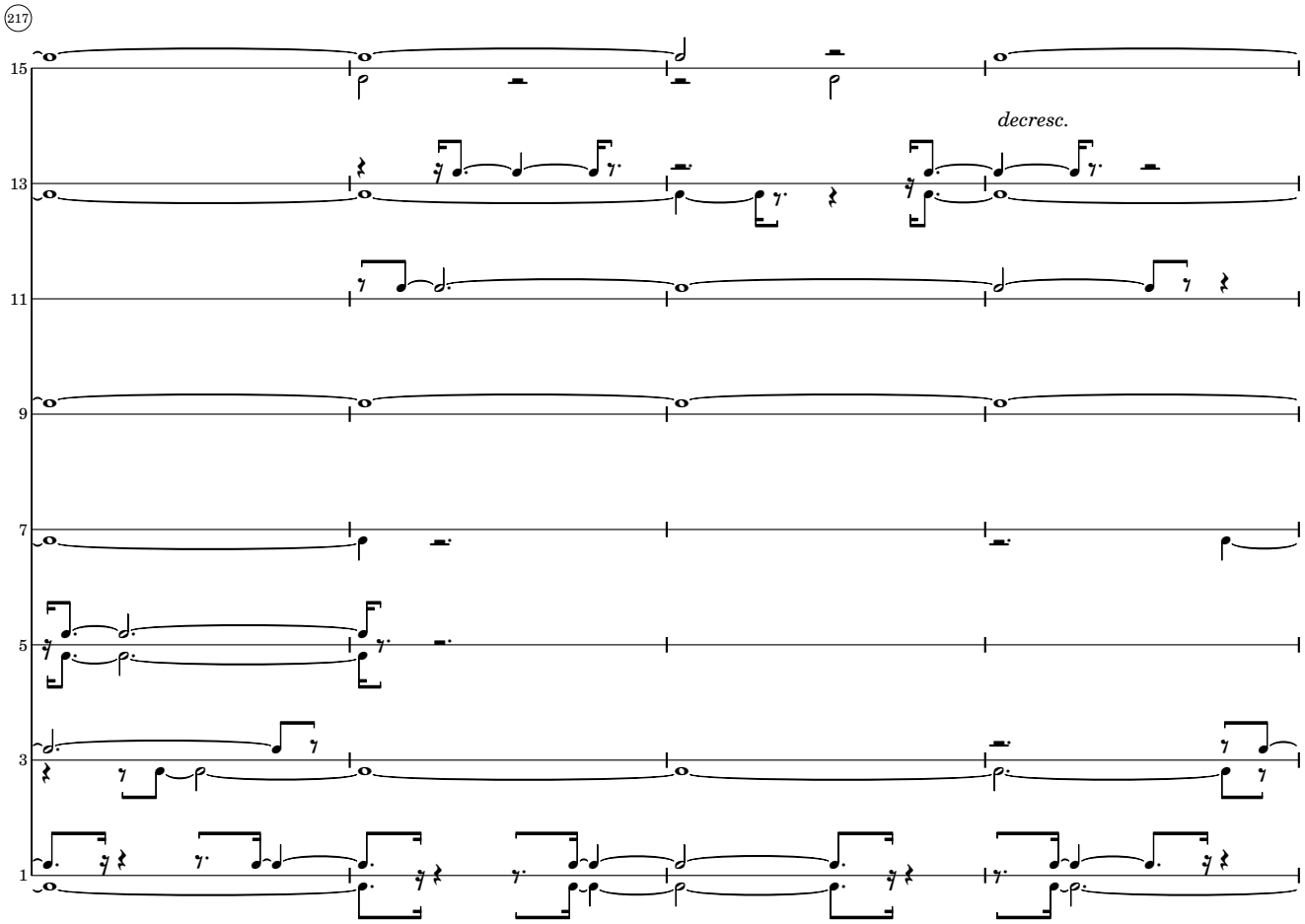

197
15
13
7
11
cresc.
7
9
cresc.
7
5
decresc.
3
decresc.
1

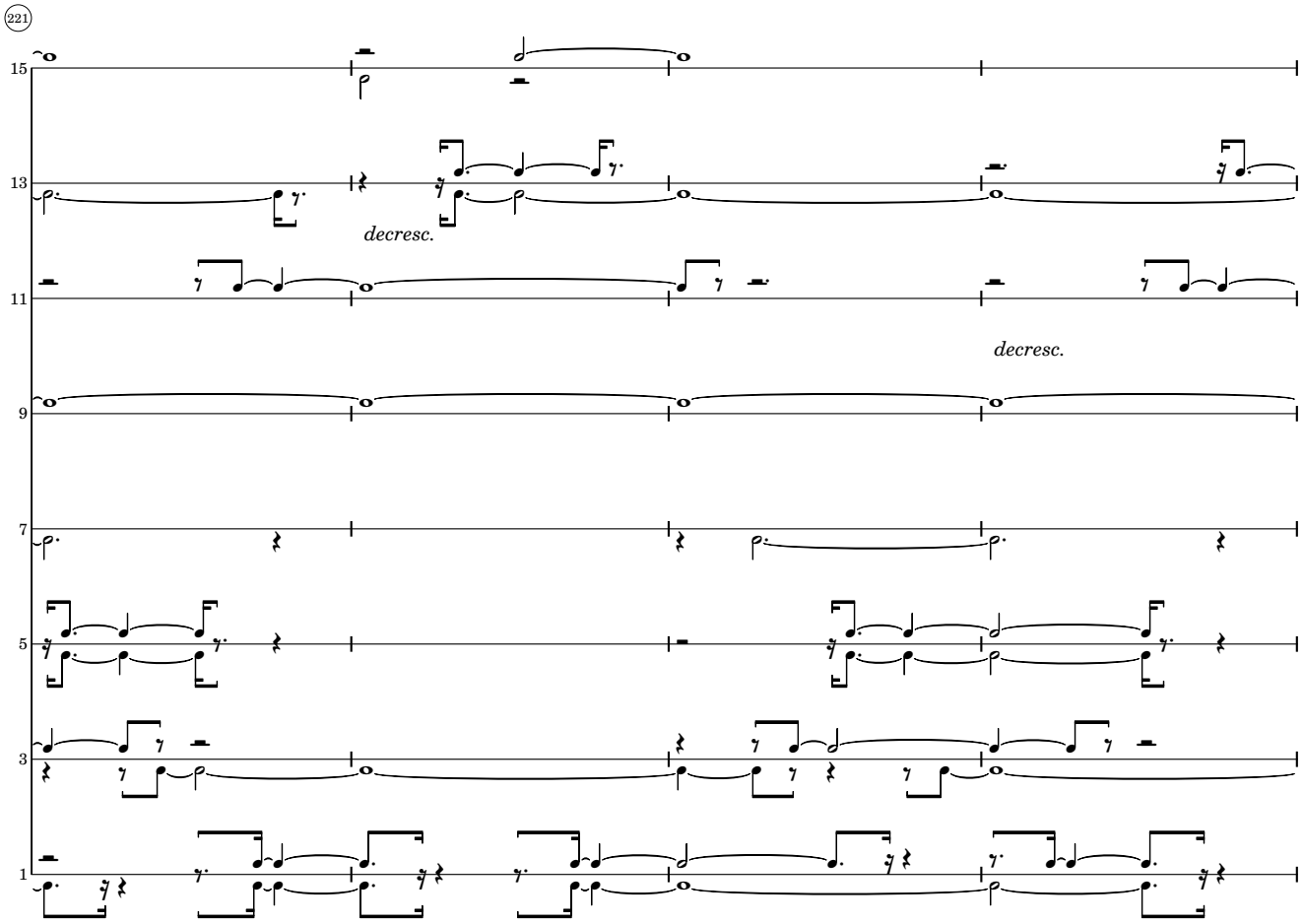

201
15
13
11
9
7
7
cresc.
5
7
cresc.
3
1
decresc.

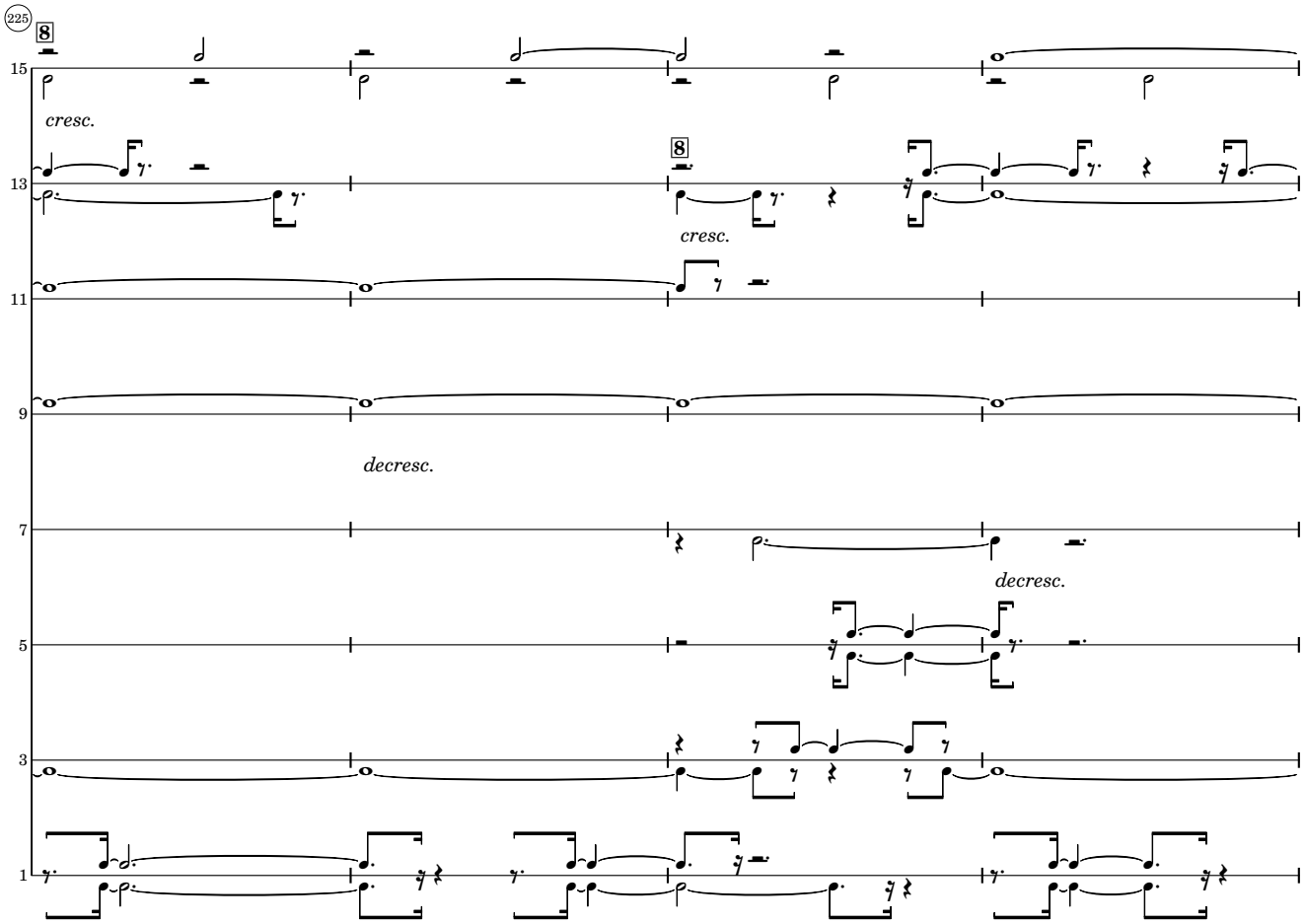

205
15
13
11
9
7
5
7
3
cresc.
1
7
cresc.

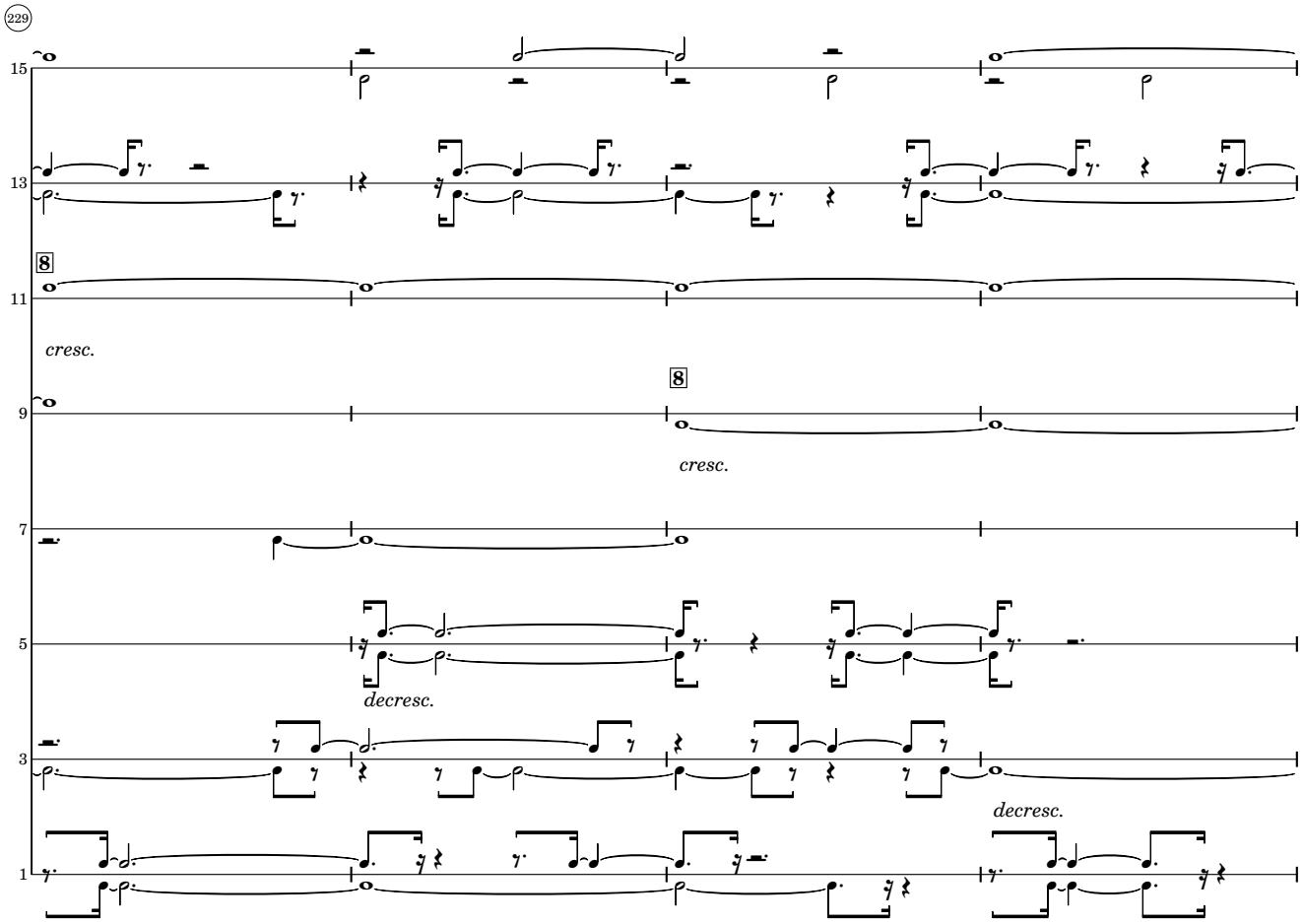

209
15
13
11
9
7
5
3
1

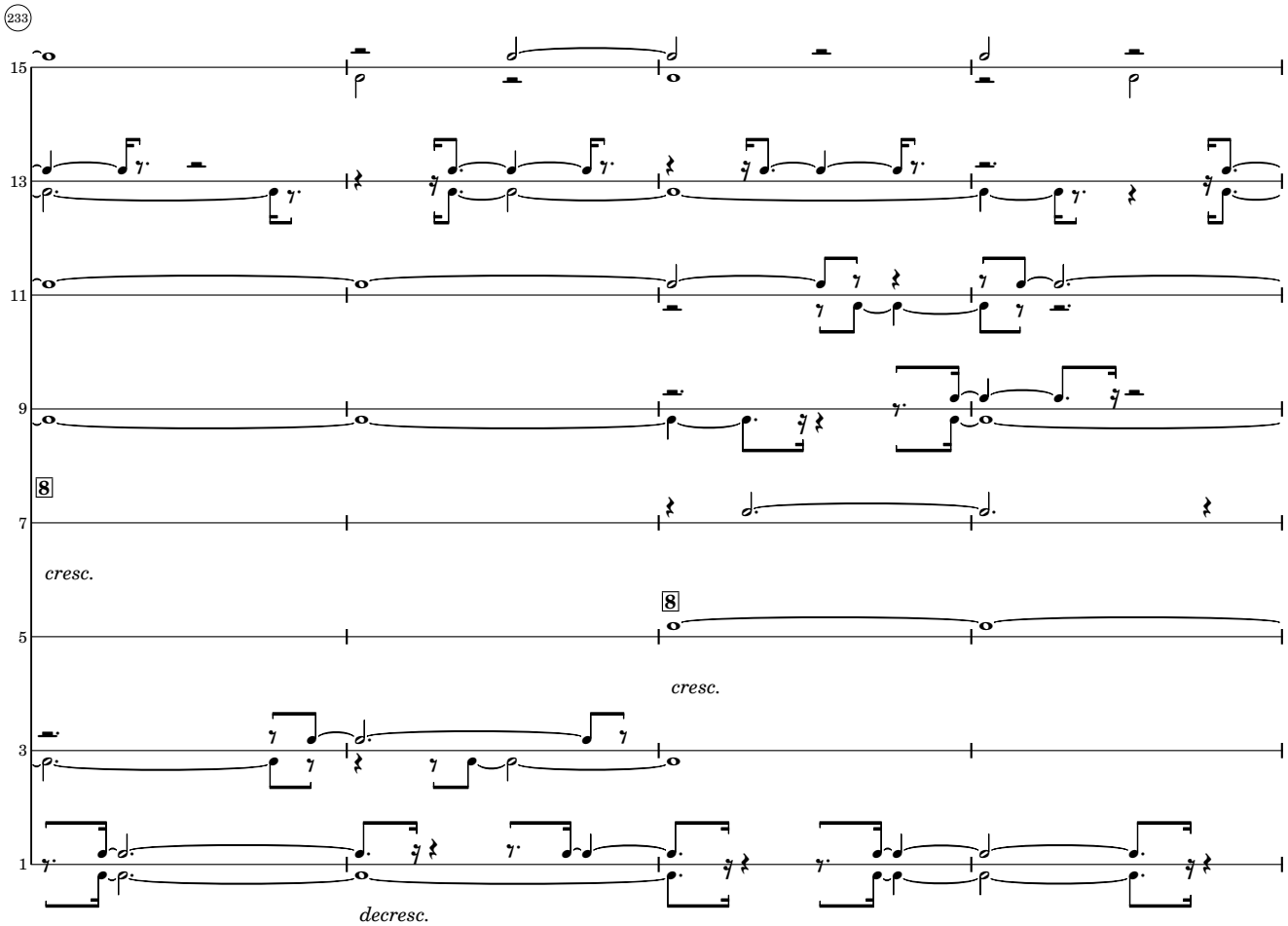

213
15
13
11
9
7
5
3
1

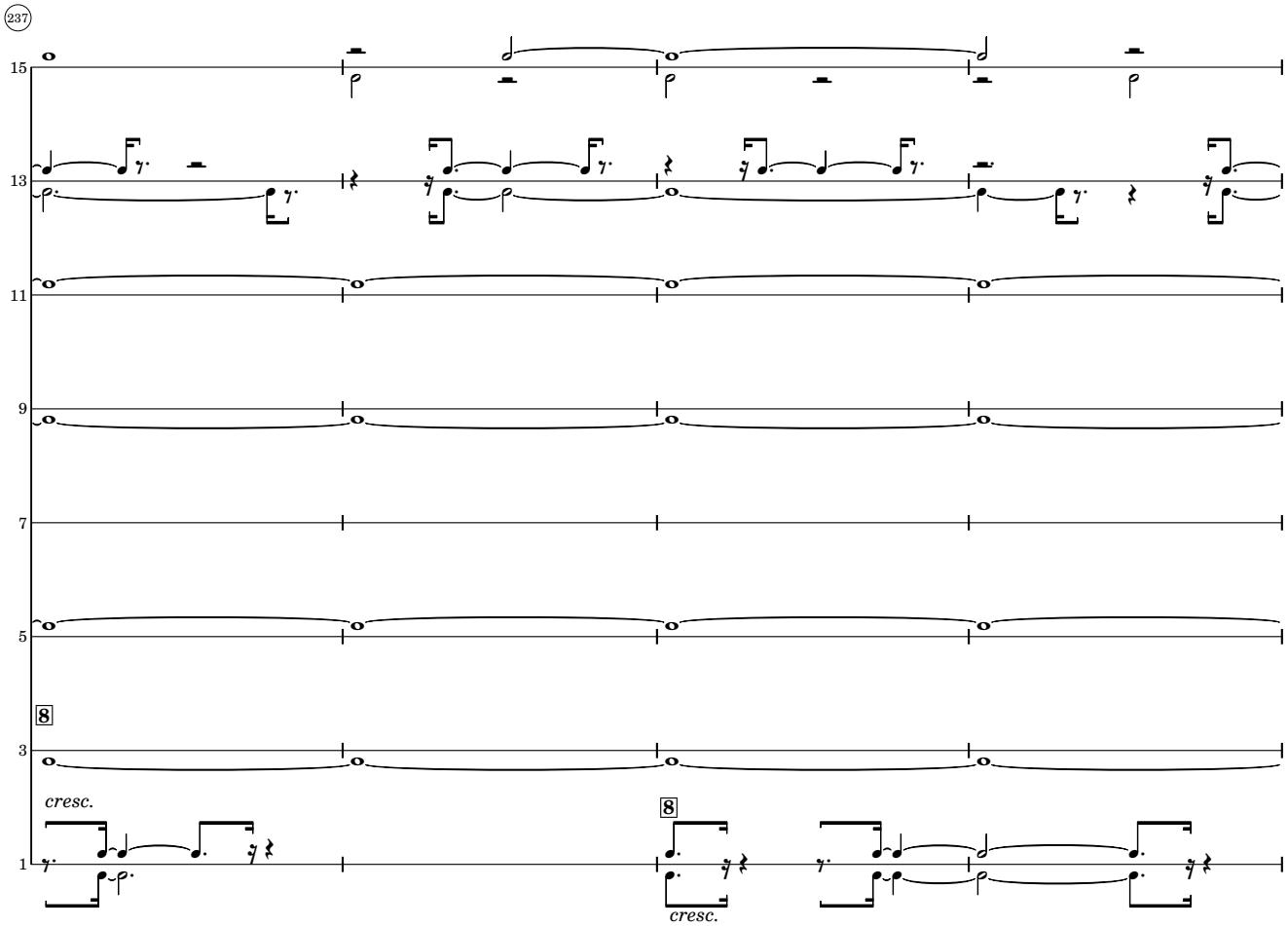

217
15
13
11
9
7
5
3
1
decresc.

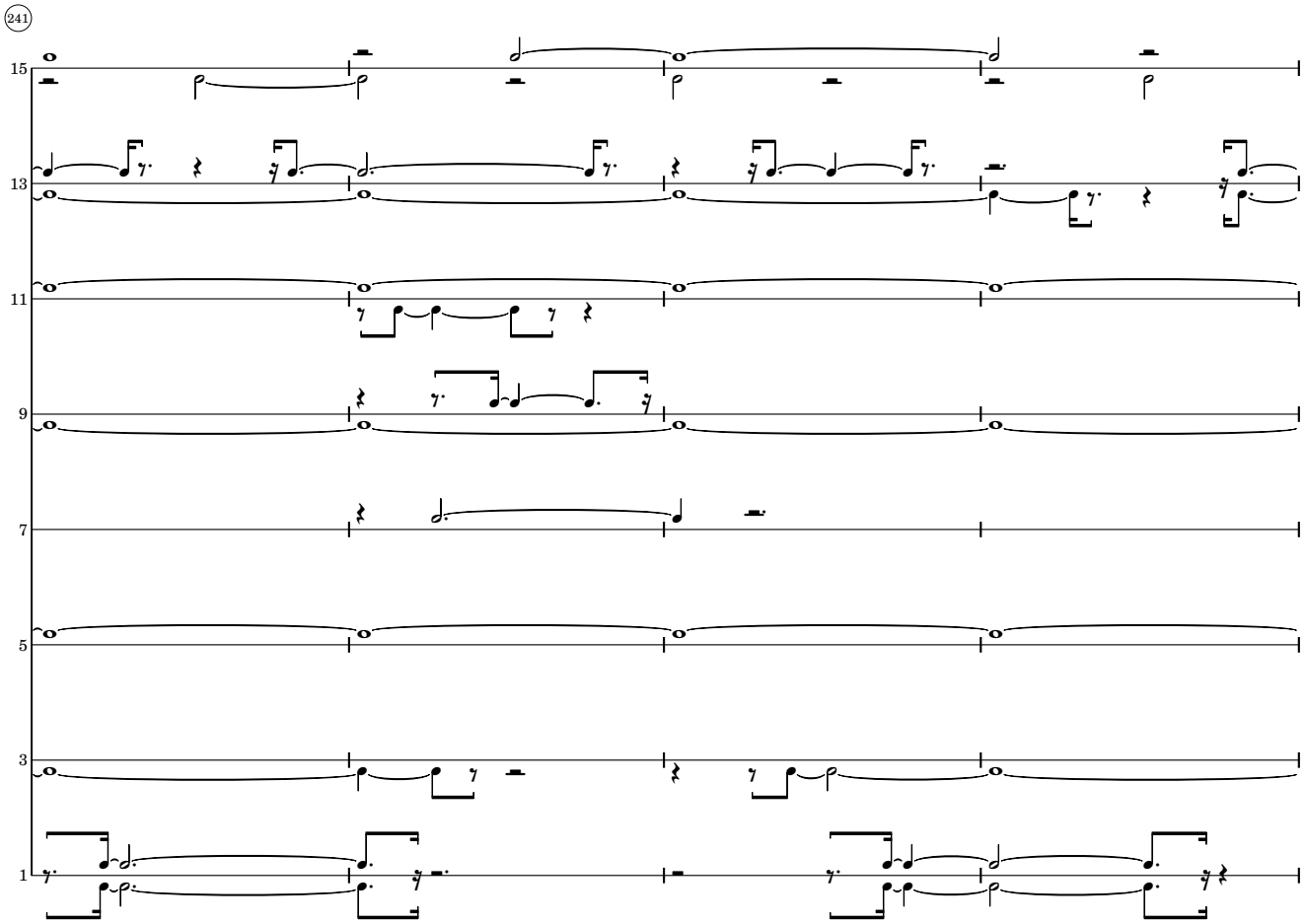

221
15
13
11
9
7
5
3
1
decresc.
decresc.

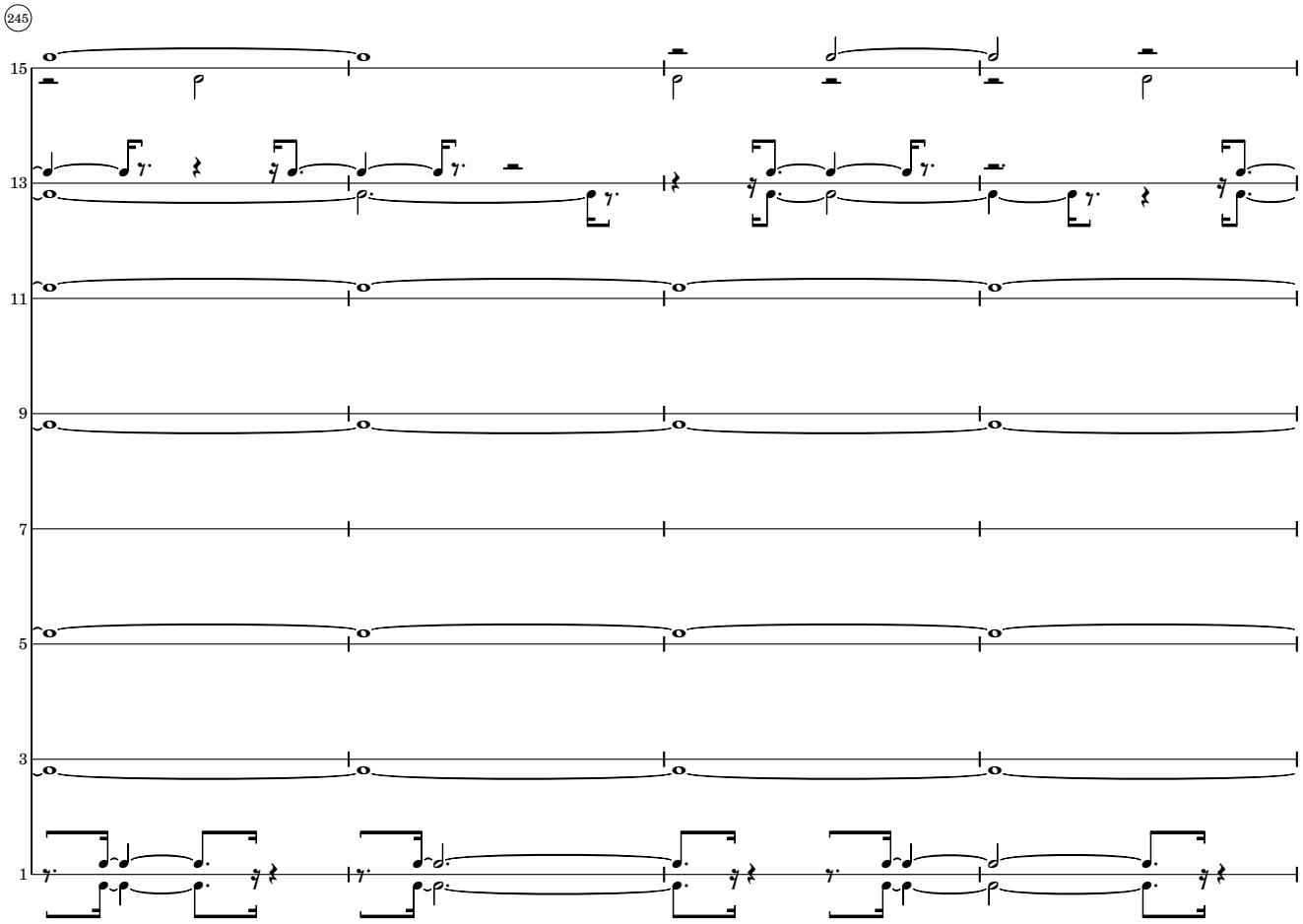

225
8
15
cresc.
13
8
cresc.
11
9
decresc.
7
decresc.
5
3
1

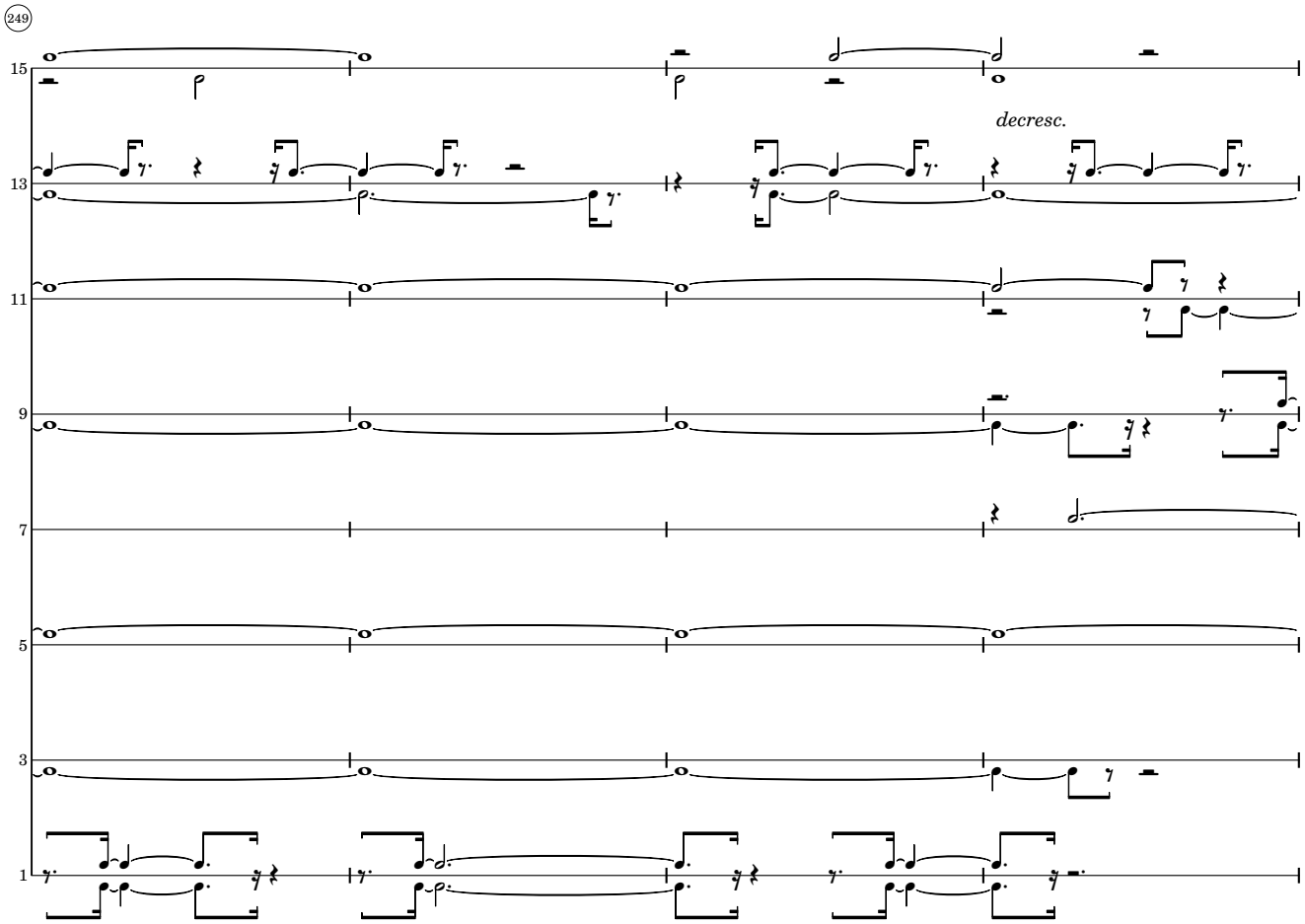

229
15
13
8
11
cresc.
8
9
cresc.
7
5
decresc.
3
decresc.
1

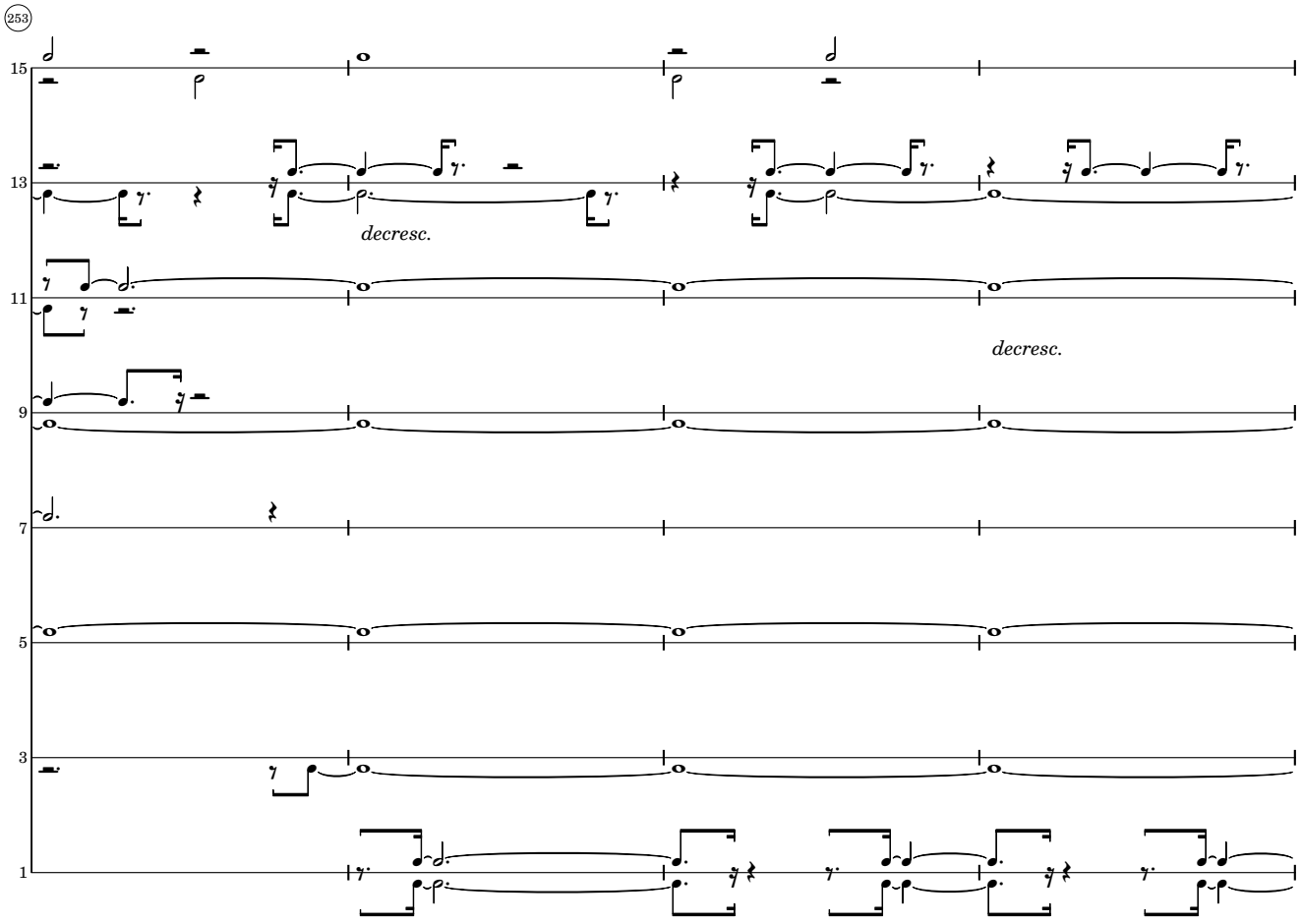

233
15
13
11
9
8
7
cresc.
8
5
cresc.
3
1
decresc.


237
15
13
11
9
7
5
8
3
cresc.
8
1
cresc.

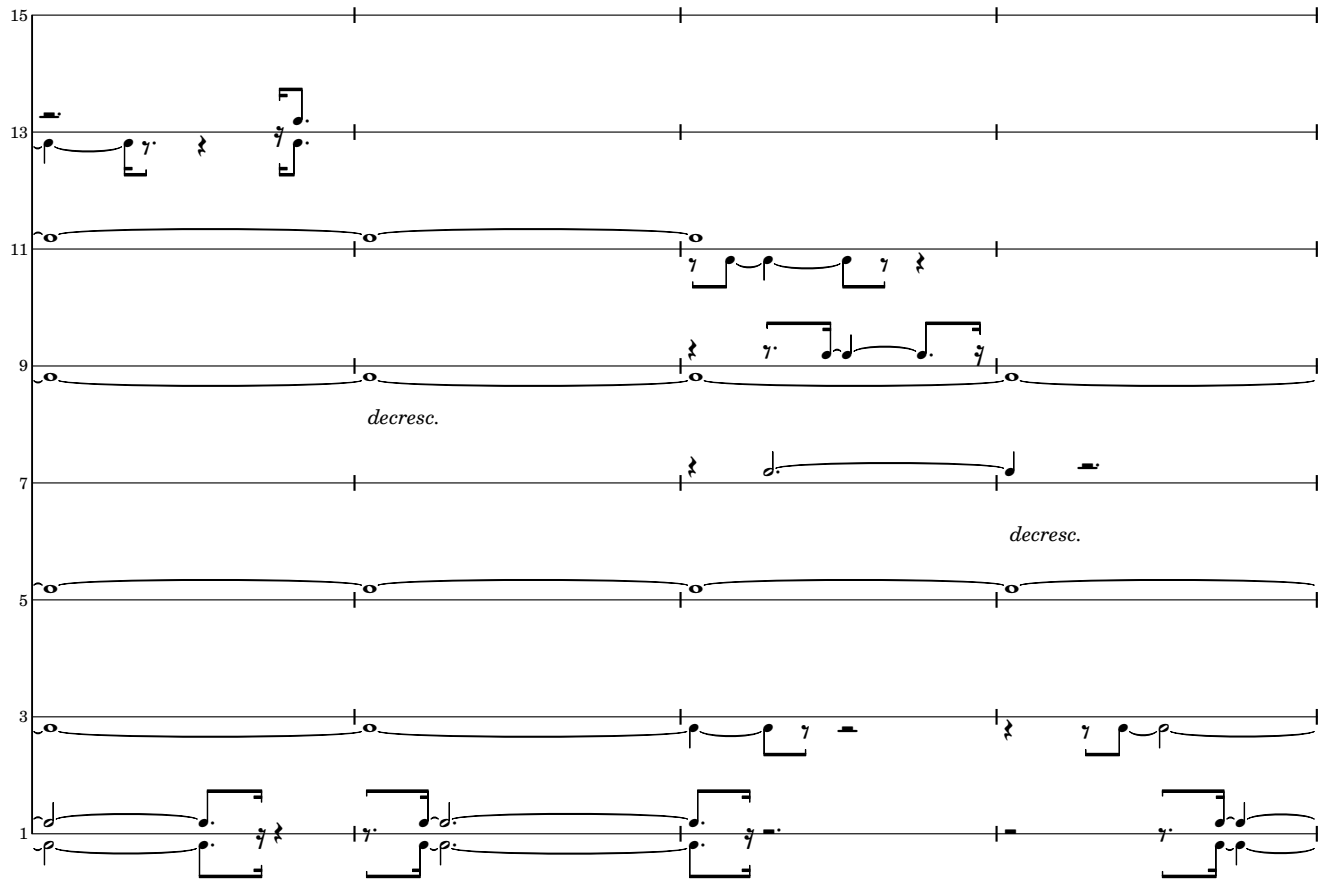

241
15
13
11
9
7
5
3
1


245
15
13
11
9
7
5
3
1

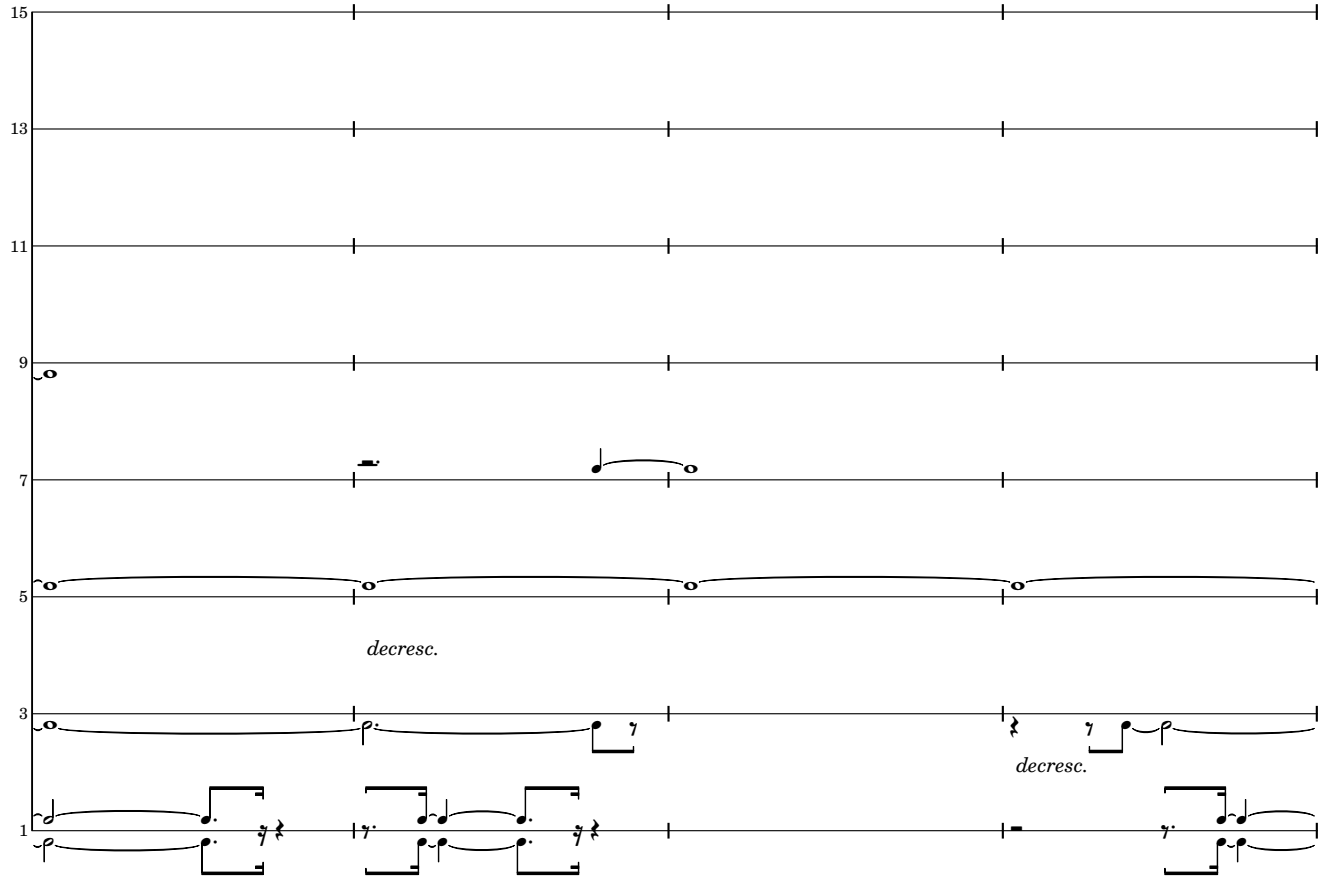

249
15
13
11
9
7
5
3
1
decresc.


253
15
13
11
9
7
5
3
1
decresc.
decresc.

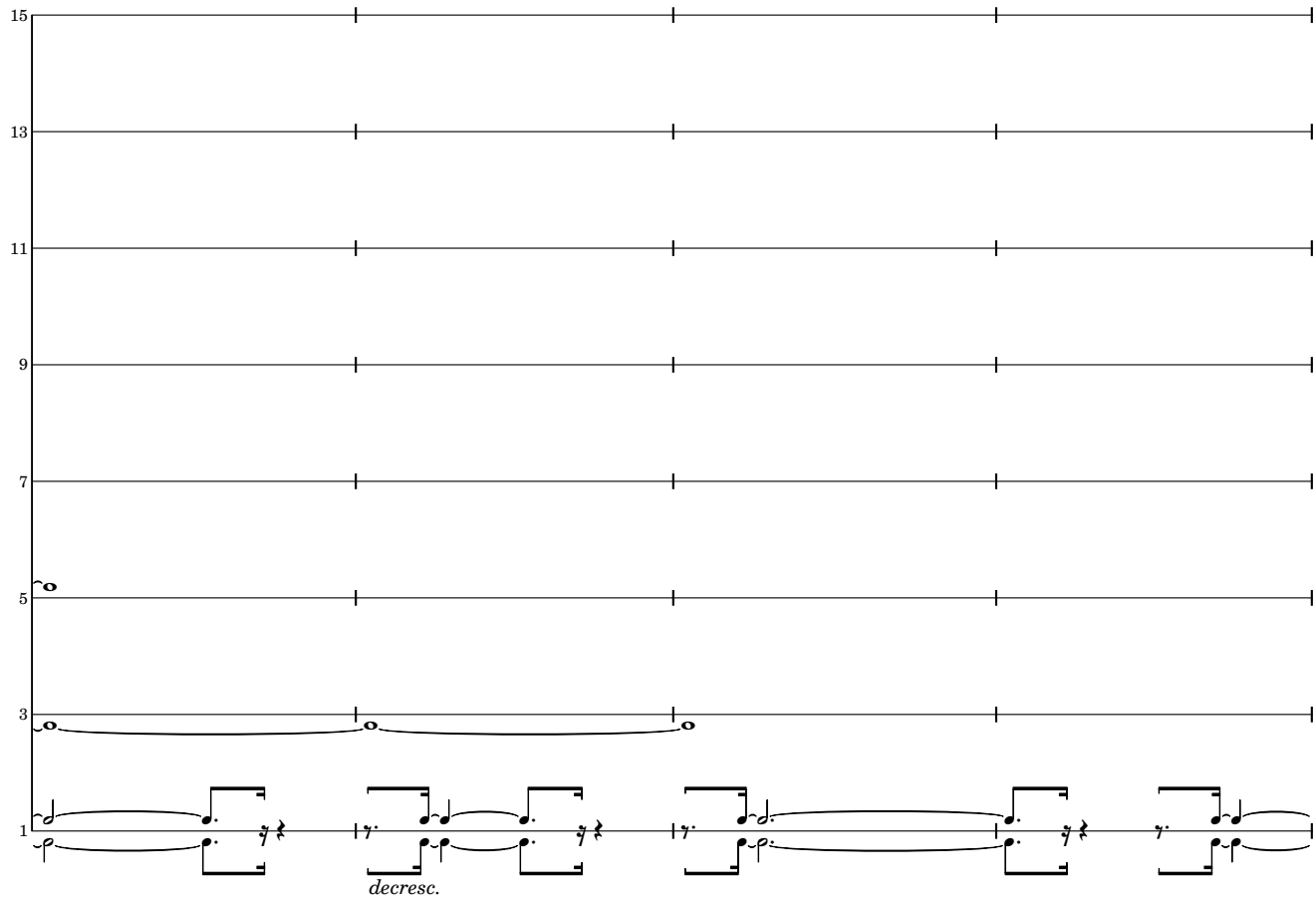
257


15
13
11
9
7
5
3
1
decresc.
decresc.

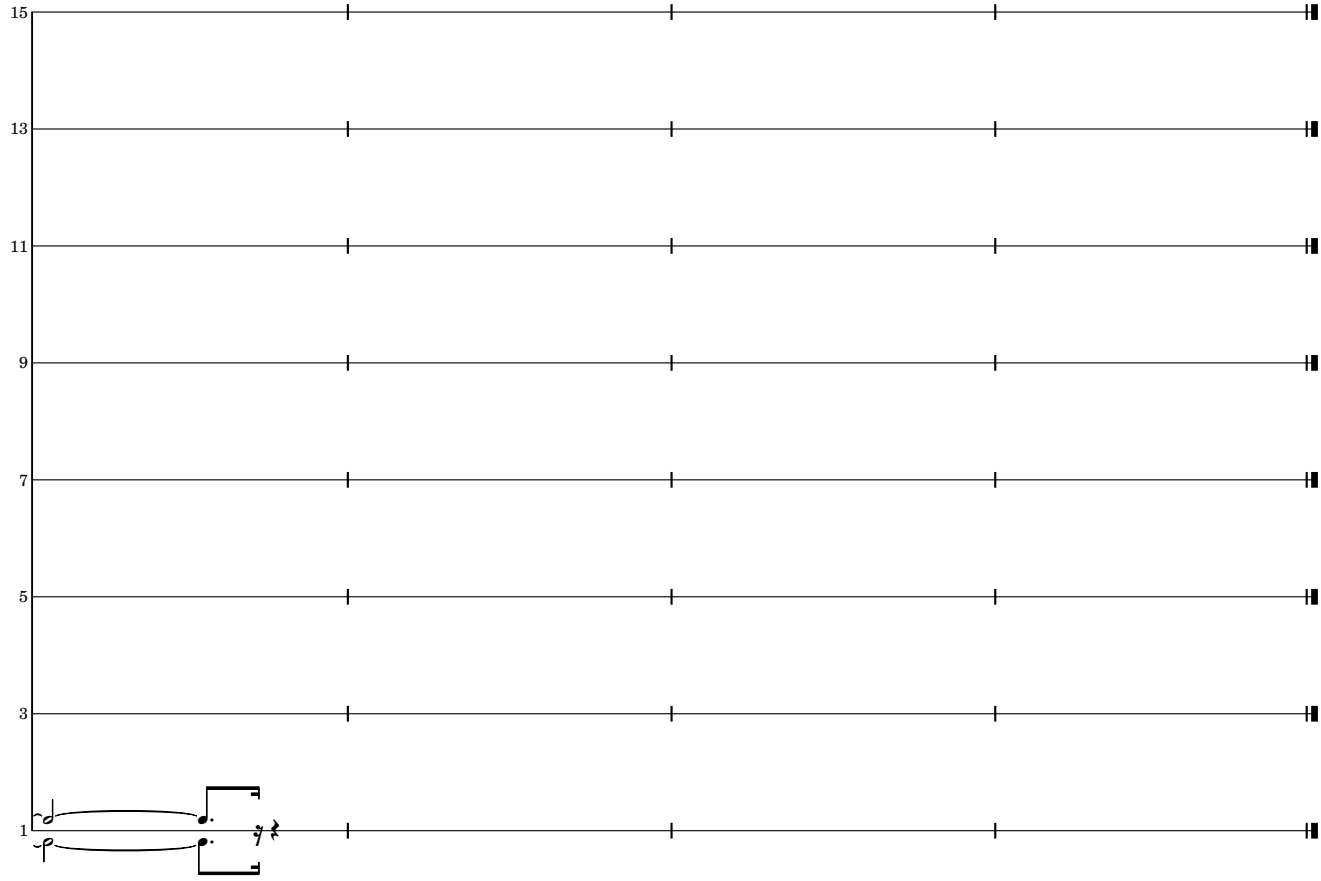
261


15
13
11
9
7
5
3
1
decresc.
decresc.

265



269

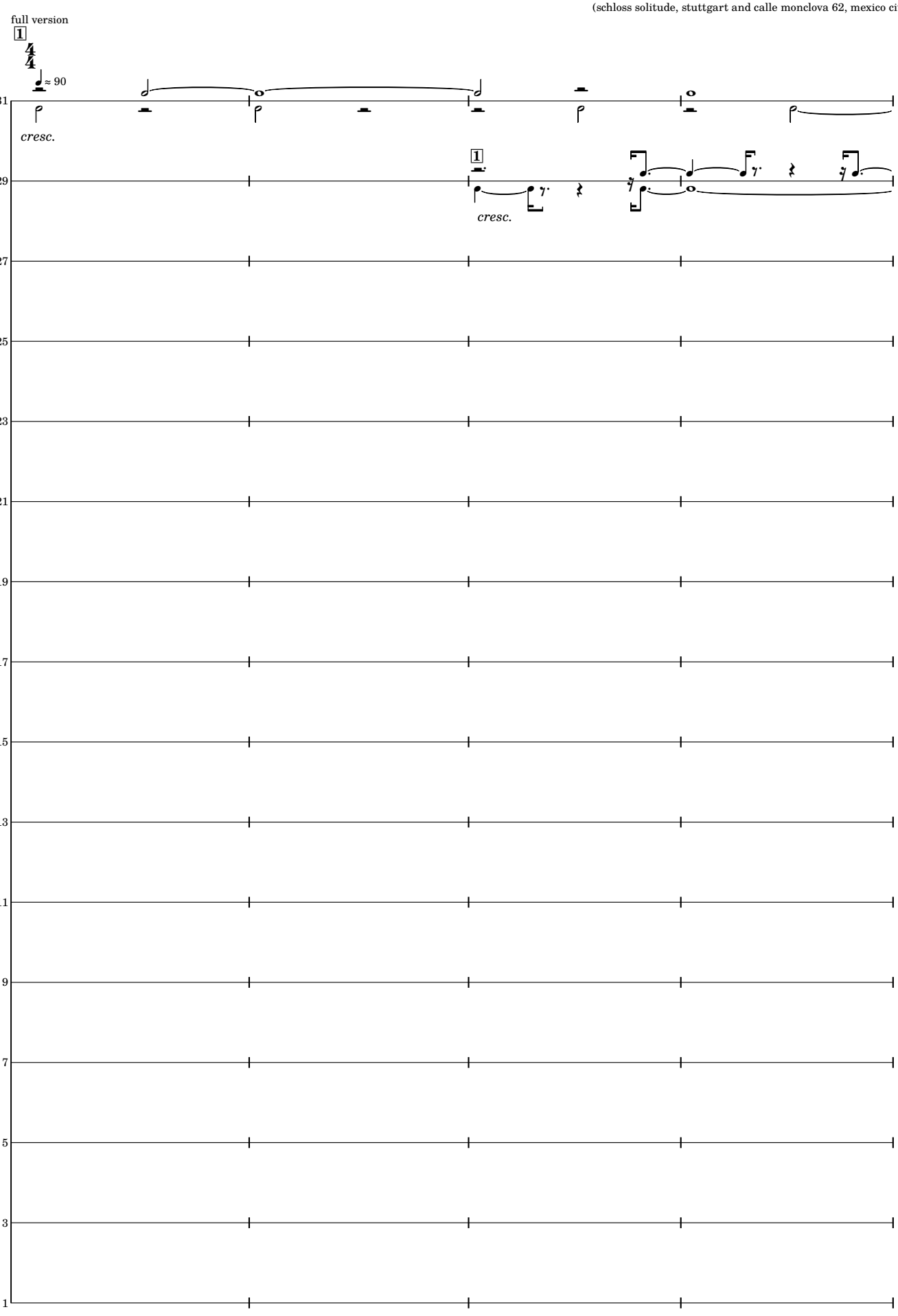


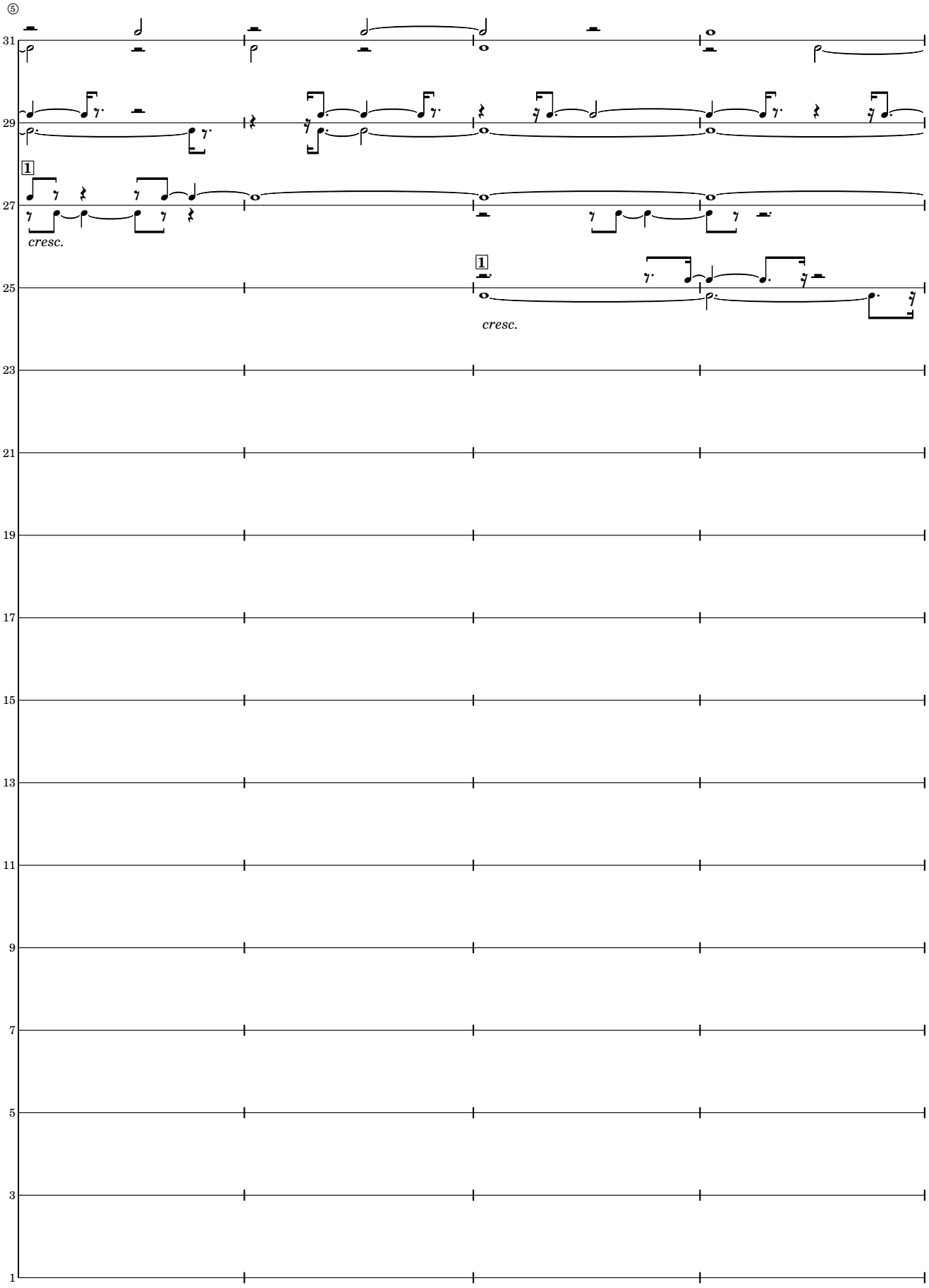
jaendel-rao

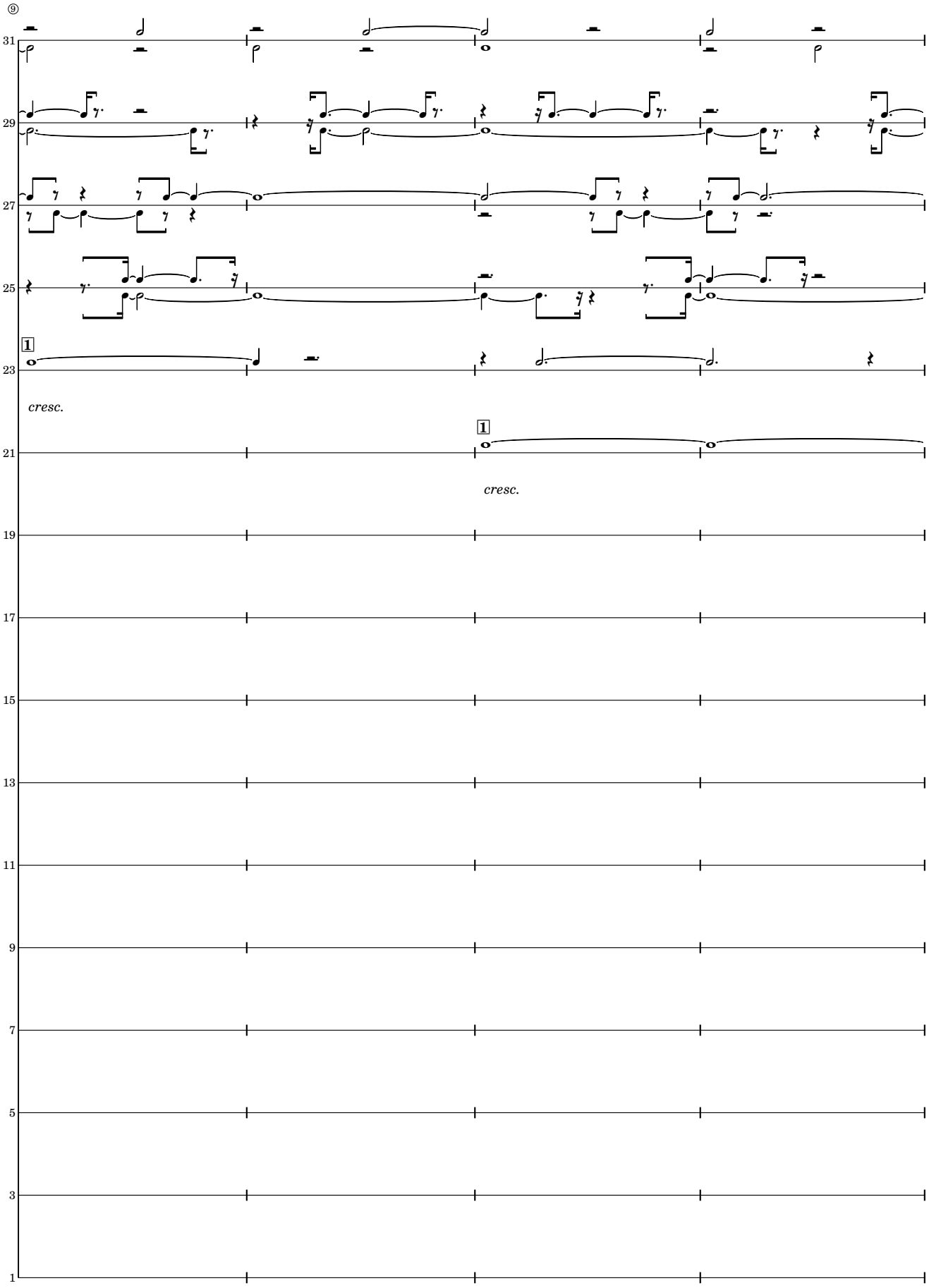
from *a history of the domino the problem*

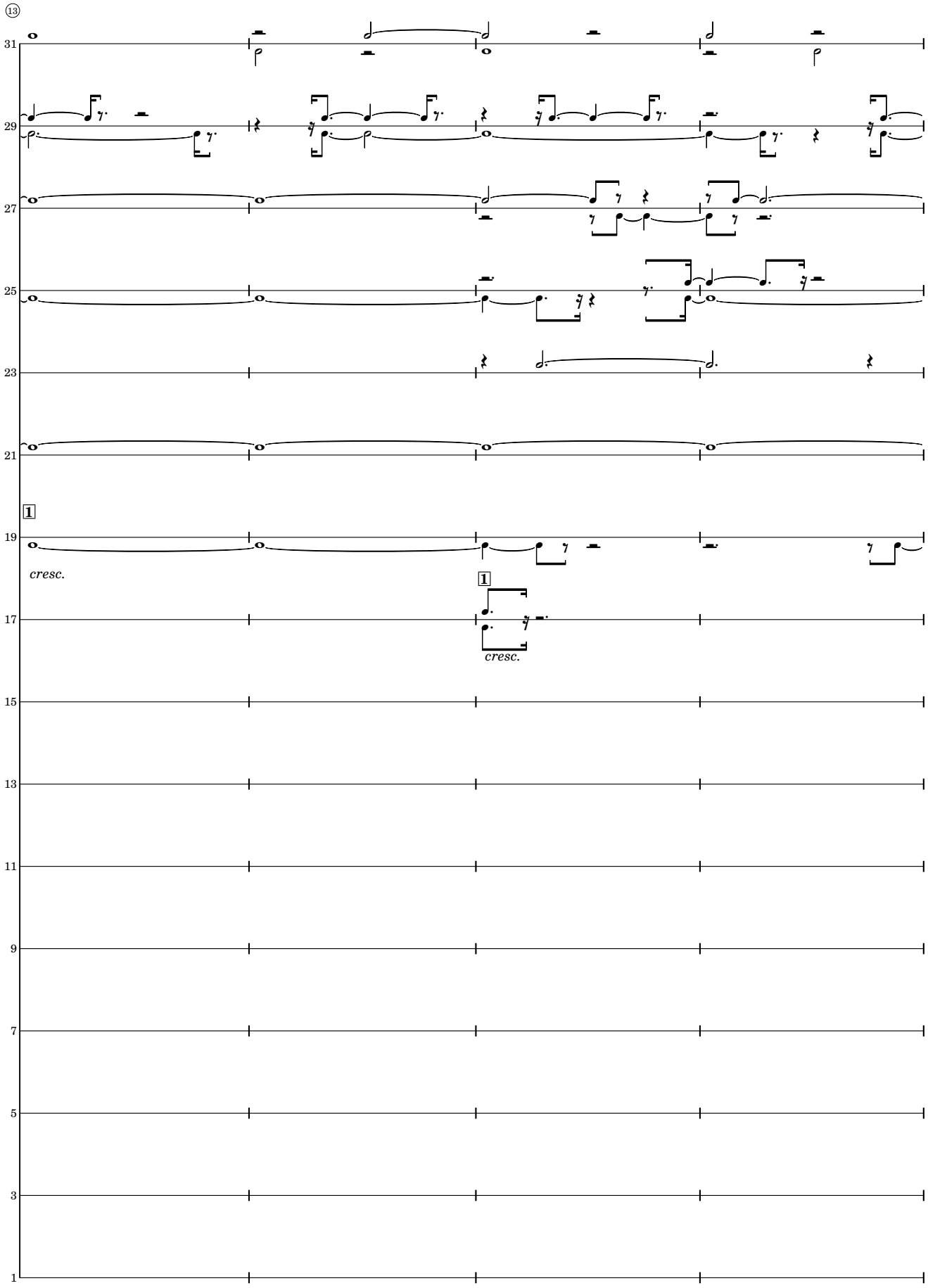
michael winter

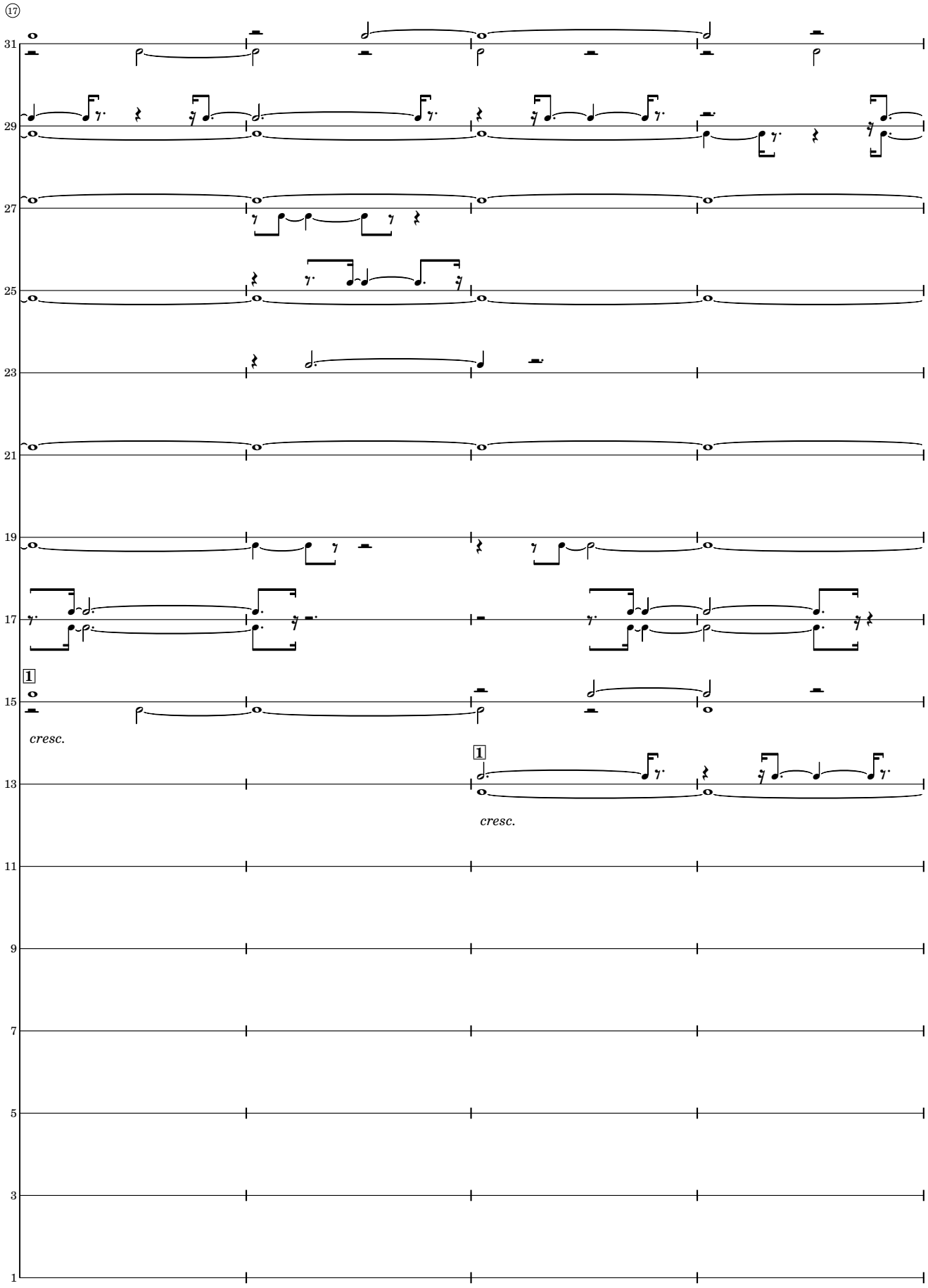
(schloss solitude, stuttgart and calle monclova 62, mexico city; 2018-19)

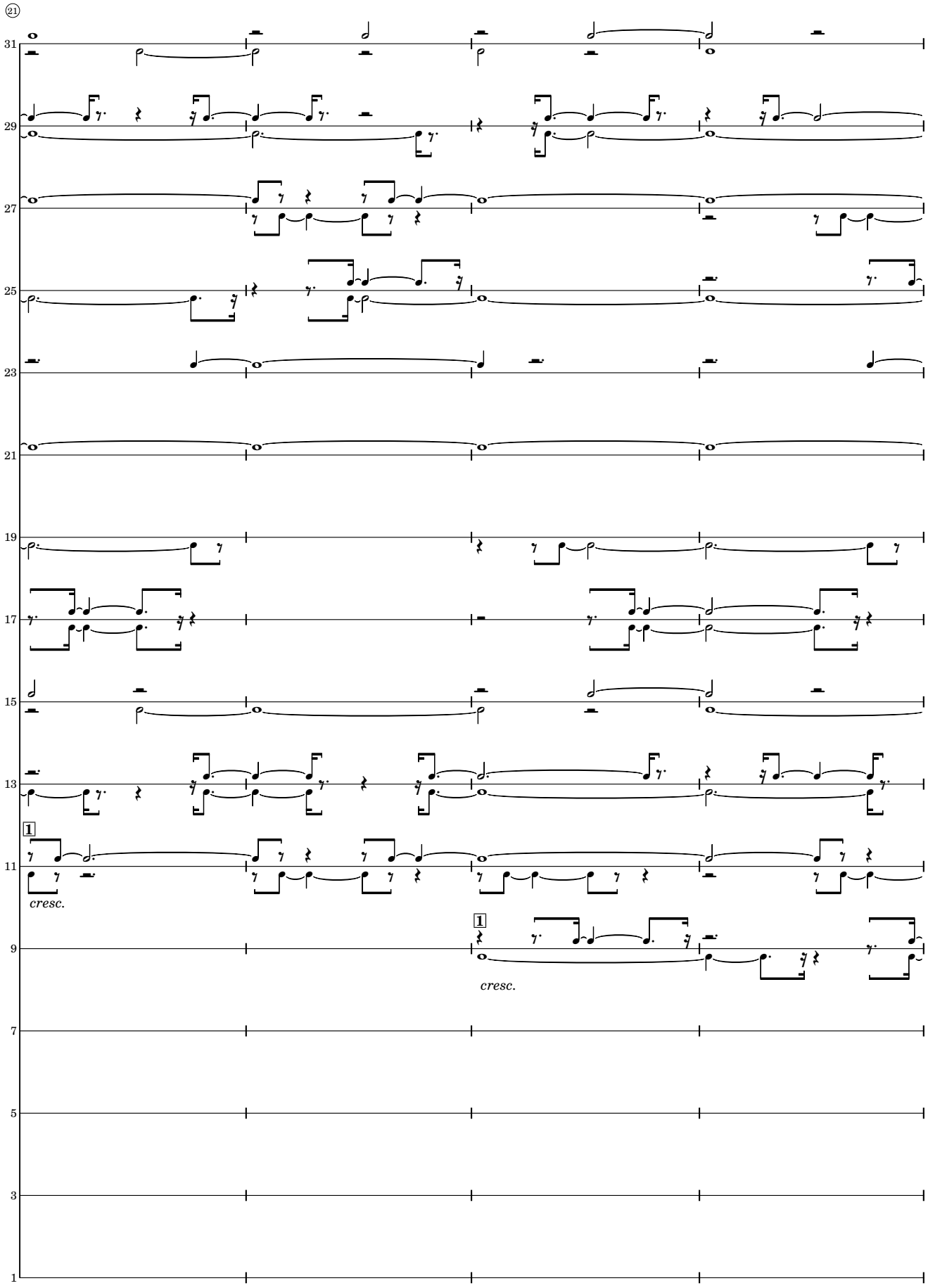


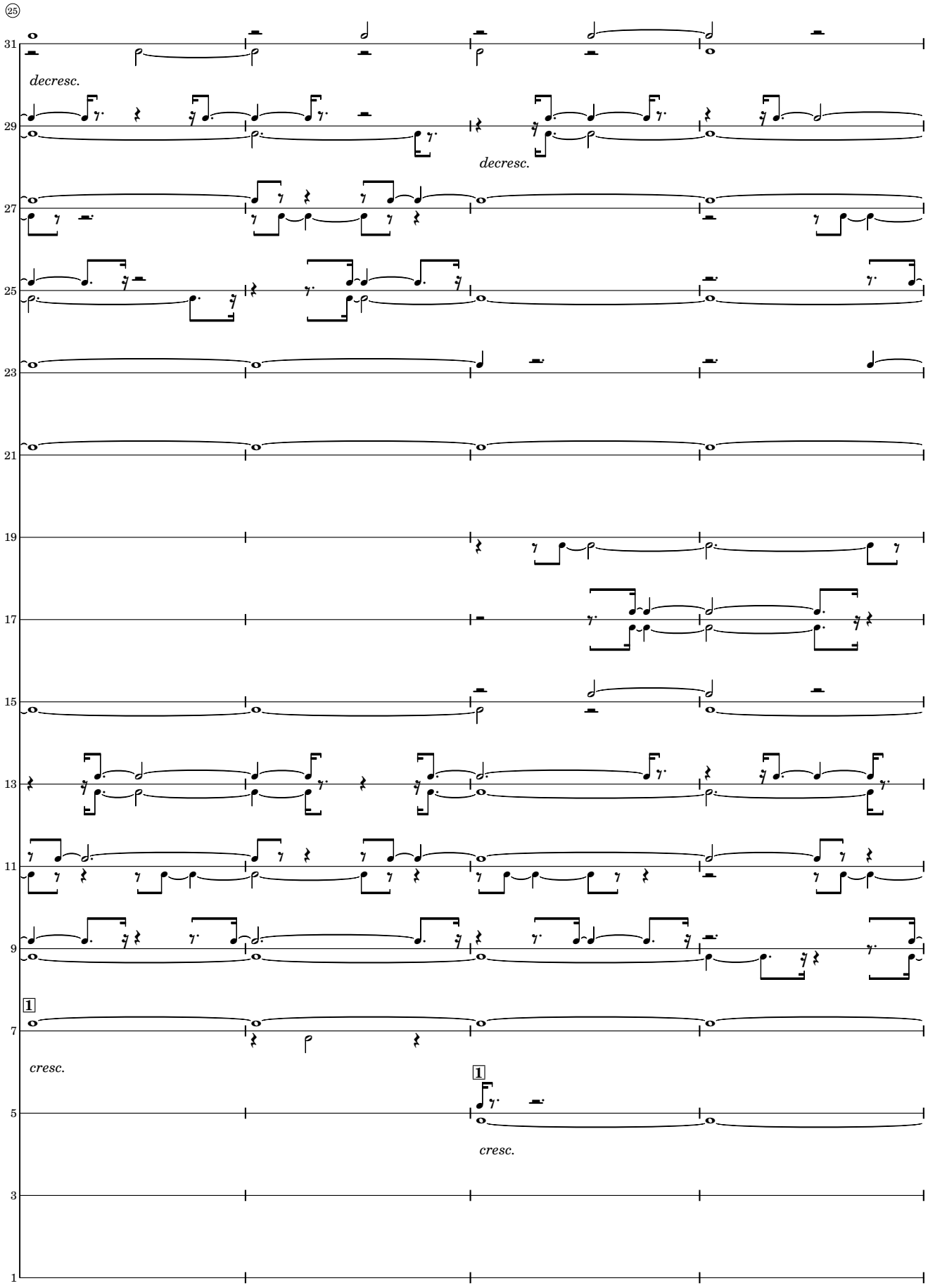

⑤
31
29
1
27
cresc.
1
25
cresc.
23
21
19
17
15
13
11
9
7
5
3
1

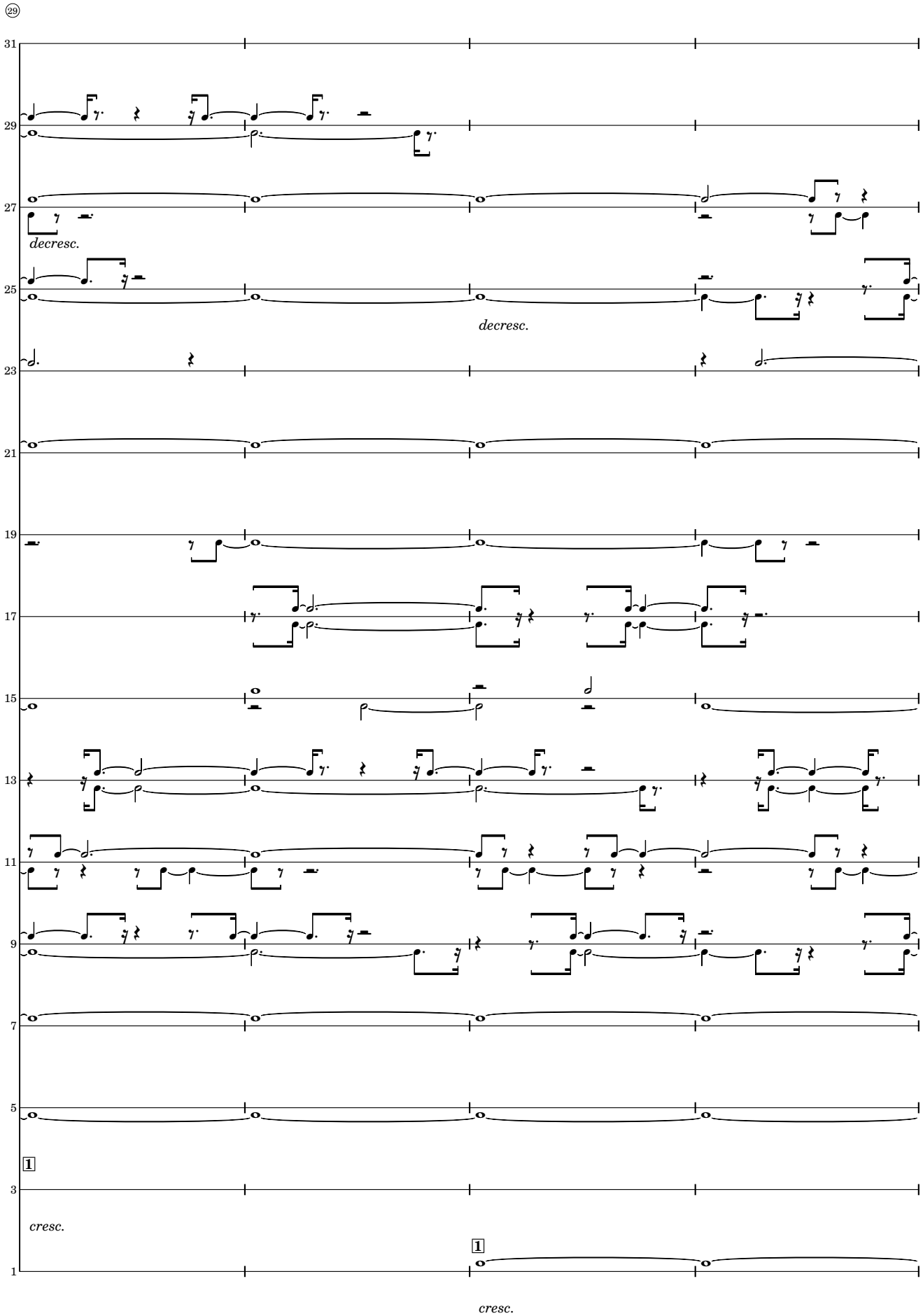

⑨
31
29
27
25
1
23
cresc.
1
21
cresc.
19
17
15
13
11
9
7
5
3
1

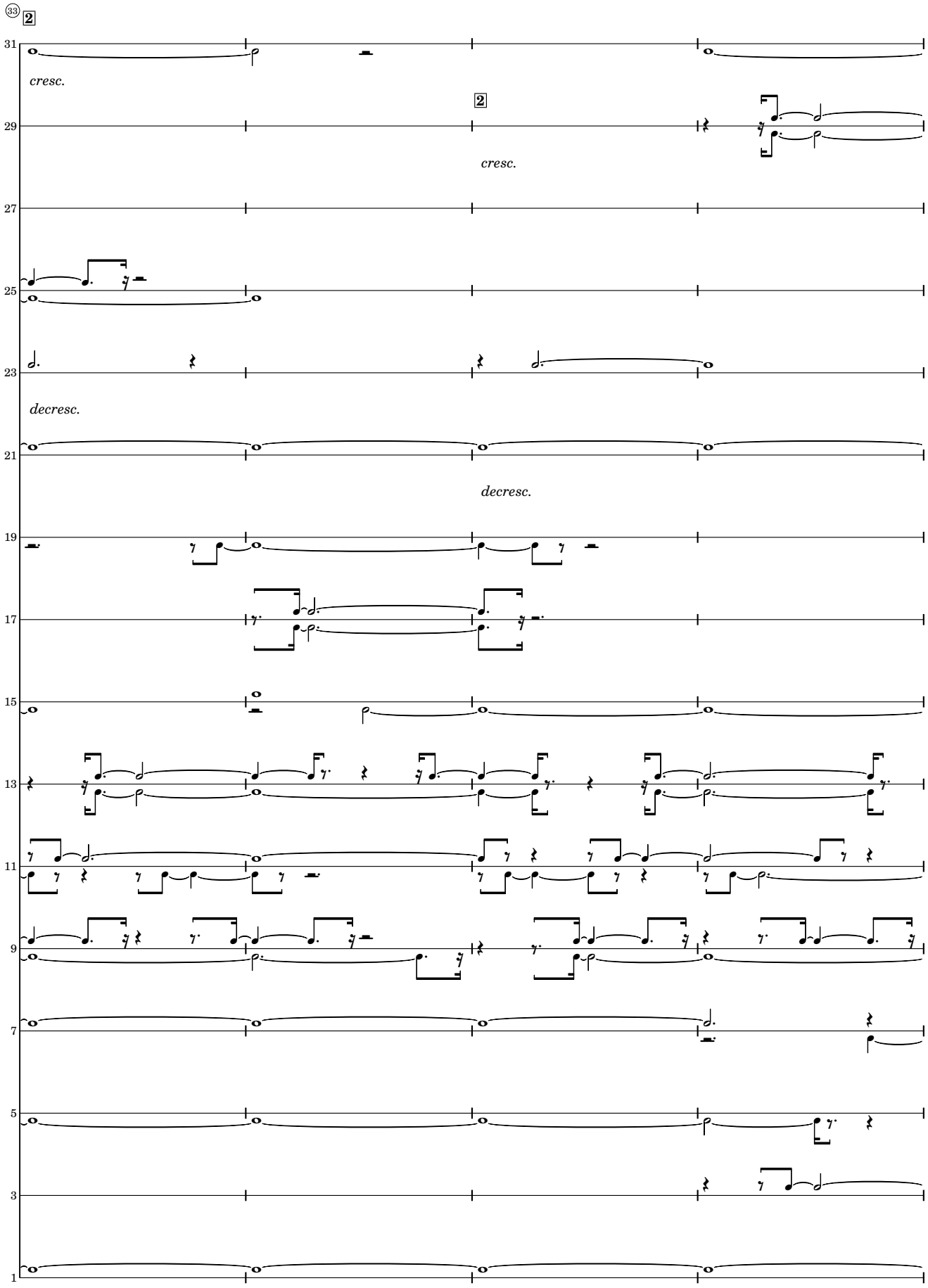

⑬
31
29
27
25
23
21
1
19
cresc.
1
17
cresc.
15
13
11
9
7
5
3
1


⑰
31
29
27
25
23
21
19
17
1
15
cresc.
1
13
cresc.
11
9
7
5
3
1

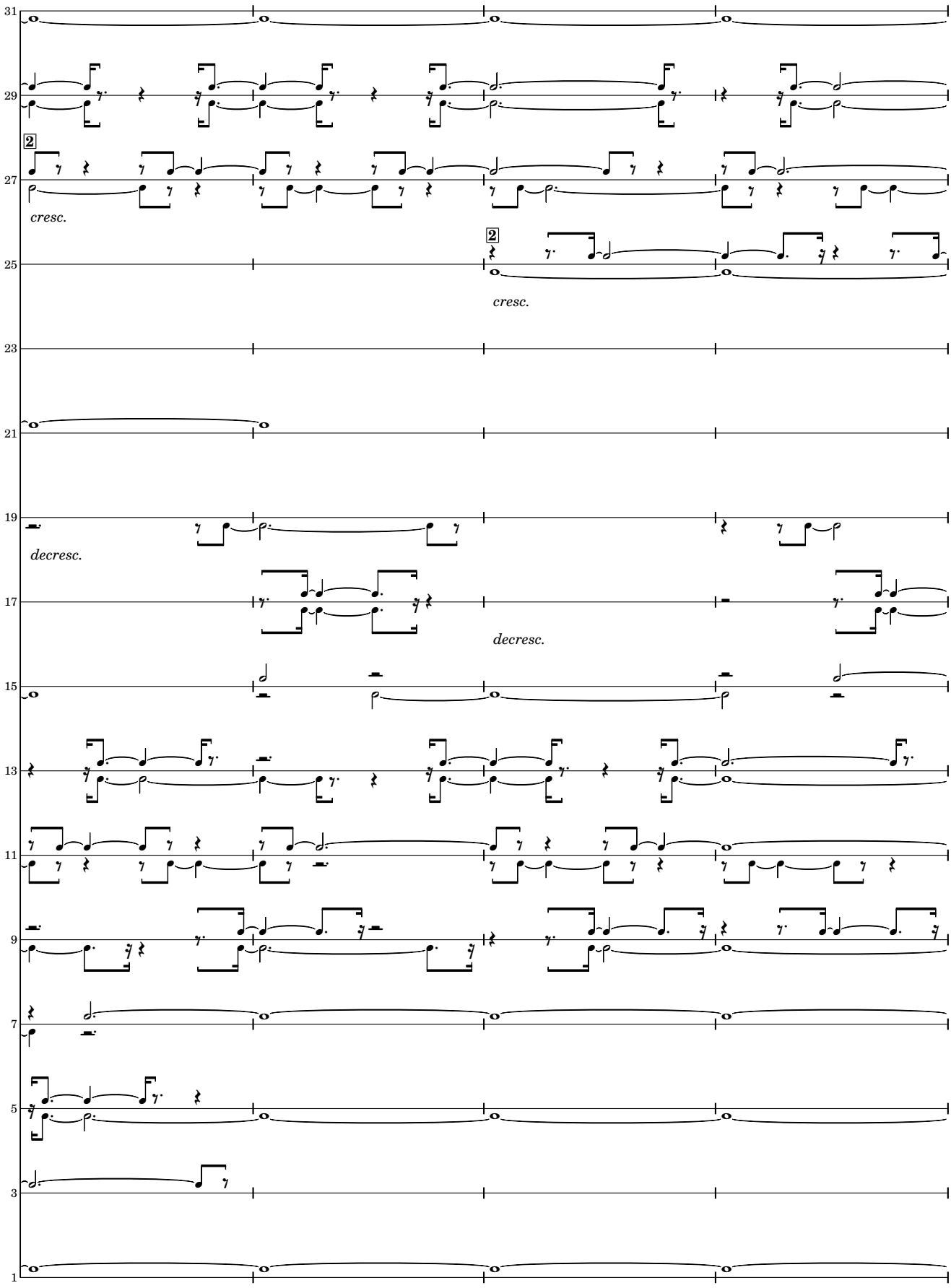

21
31
29
27
25
23
21
19
17
15
13
1
11
cresc.
1
9
cresc.
7
5
3
1


25
31
decresc.
29
decresc.
27
25
23
21
19
17
15
13
11
9
1
7
cresc.
1
5
cresc.
3
1

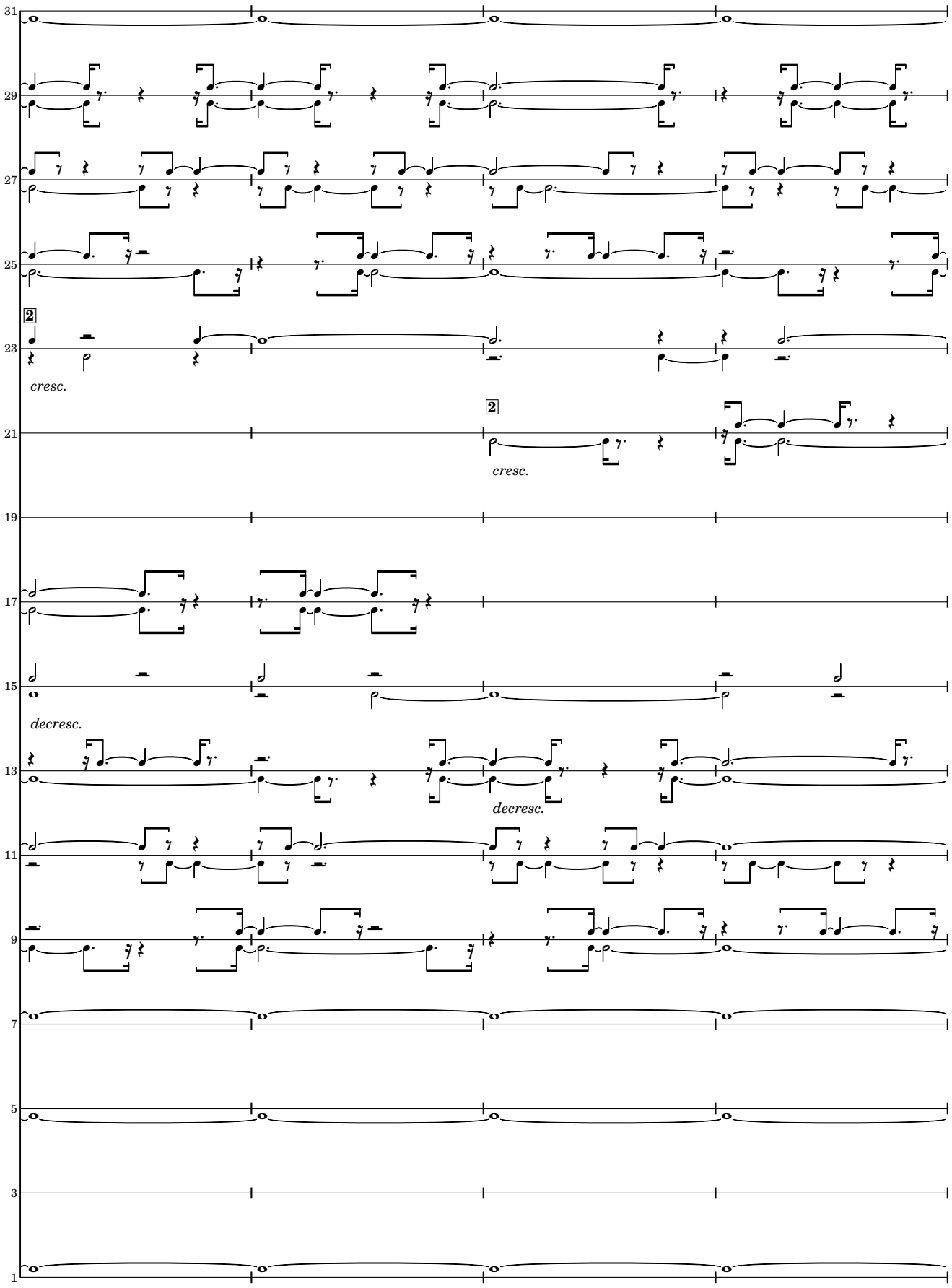

29
31
29
27
decresc.
25
decresc.
23
21
19
17
15
13
11
9
7
5
1
cresc.
1
cresc.


33
2
31
cresc.
2
29
cresc.
27
25
23
decresc.
21
decresc.
19
17
15
13
11
9
7
5
3
1

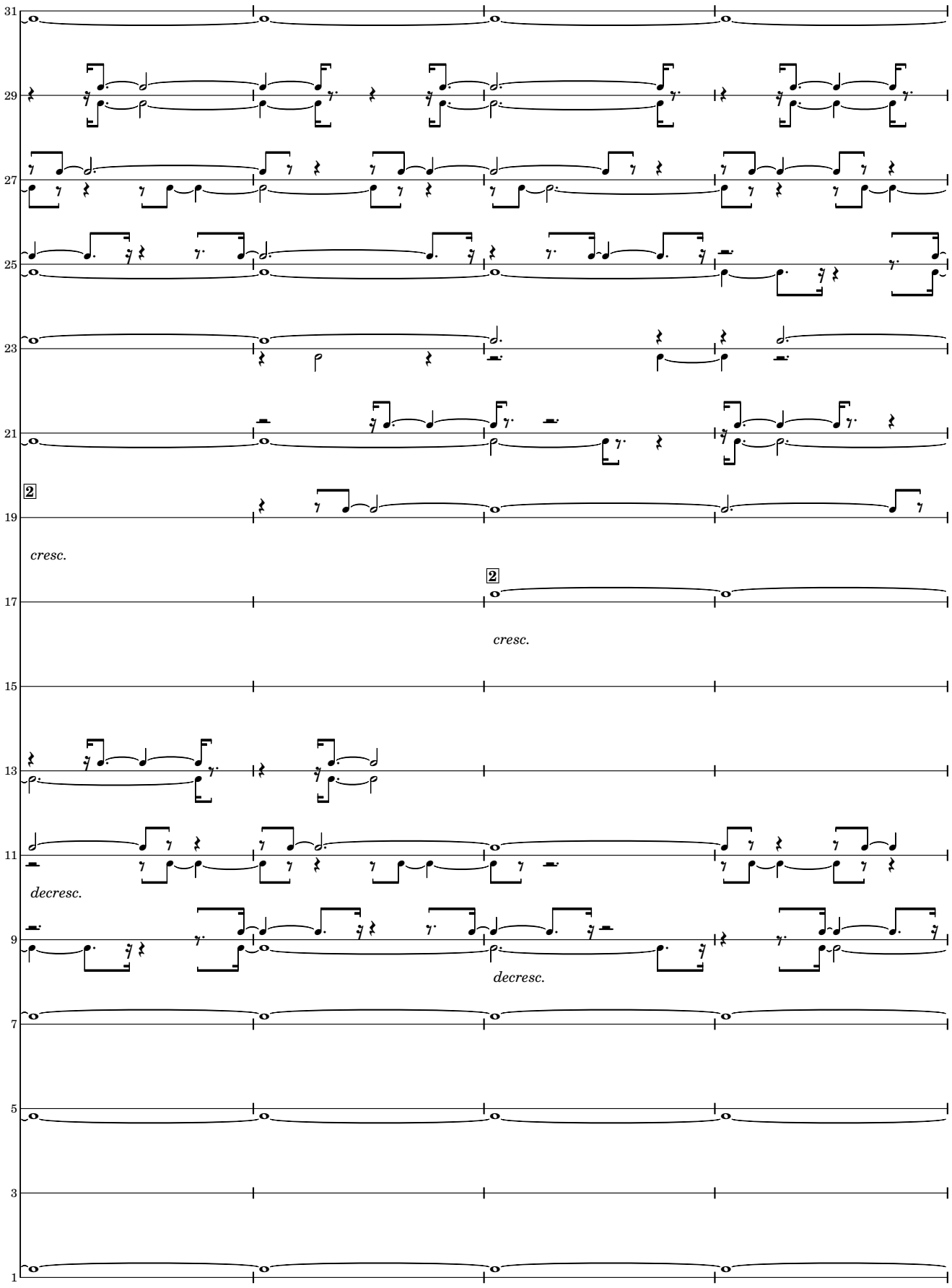
37

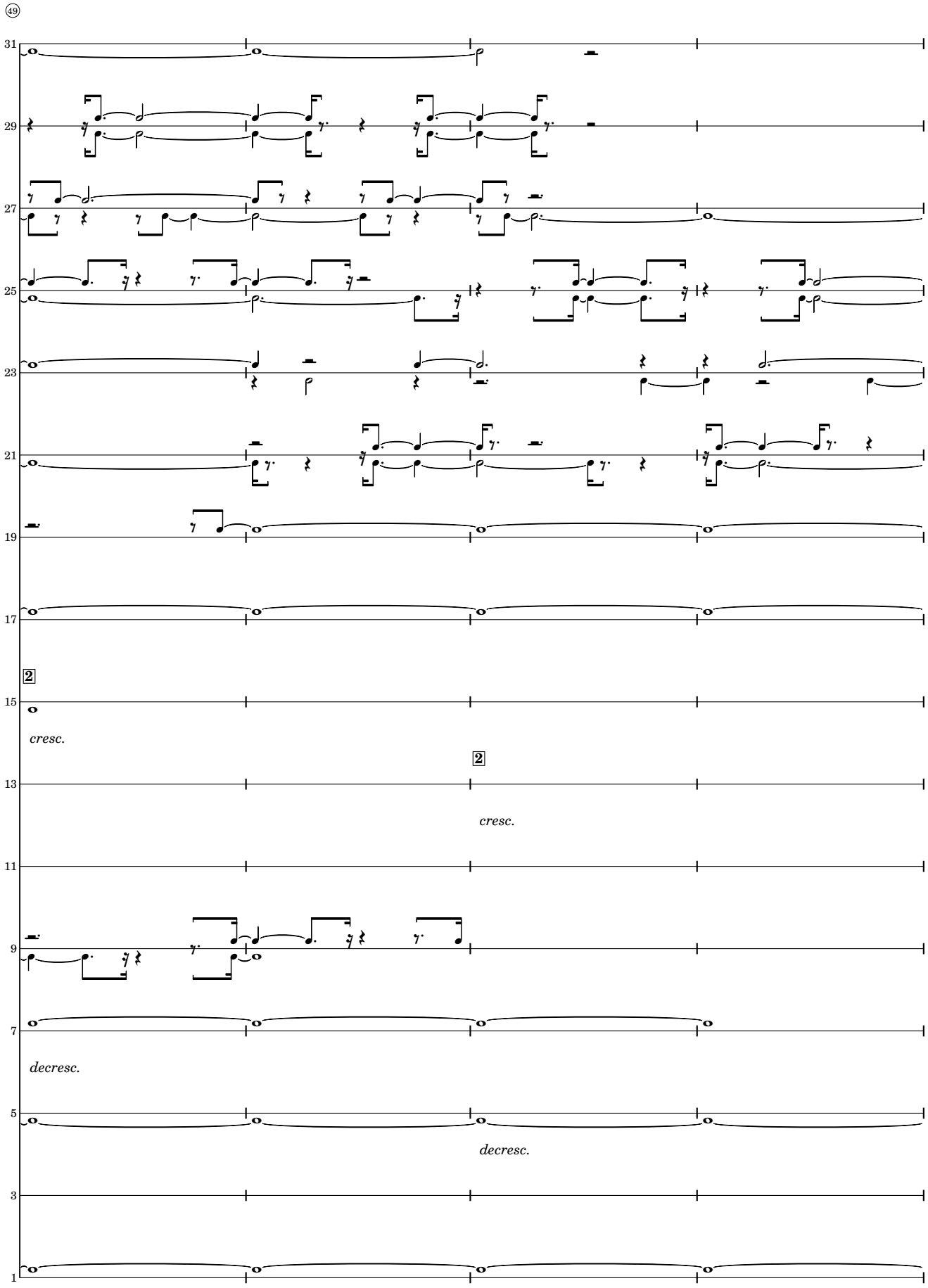

31
29
2
27
cresc.
2
25
cresc.
23
21
19
decresc.
17
decresc.
15
13
11
9
7
5
3
1

41

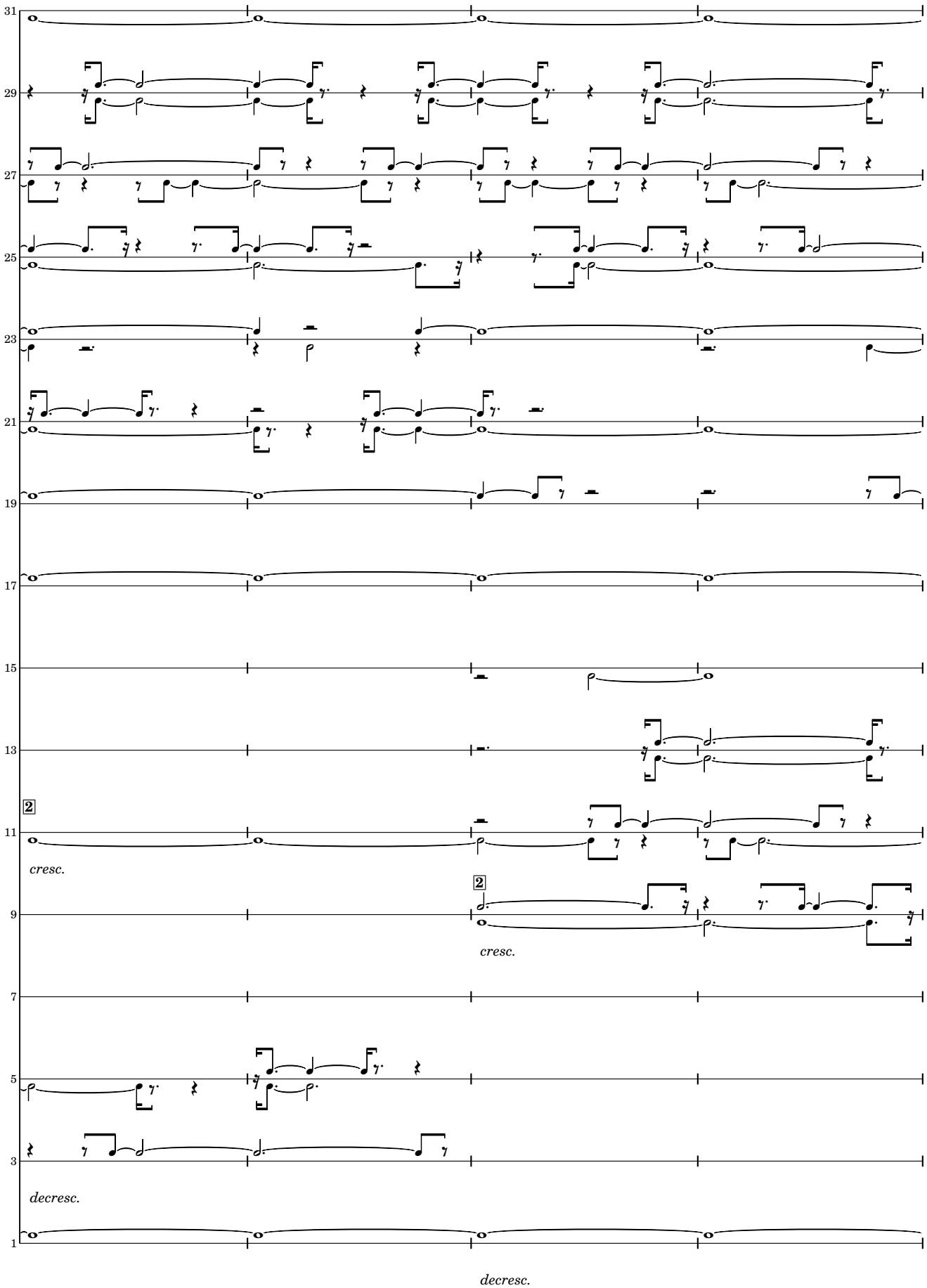

31
29
27
25
2
23
cresc.
2
21
cresc.
19
17
15
decresc.
13
decresc.
11
9
7
5
3
1

45

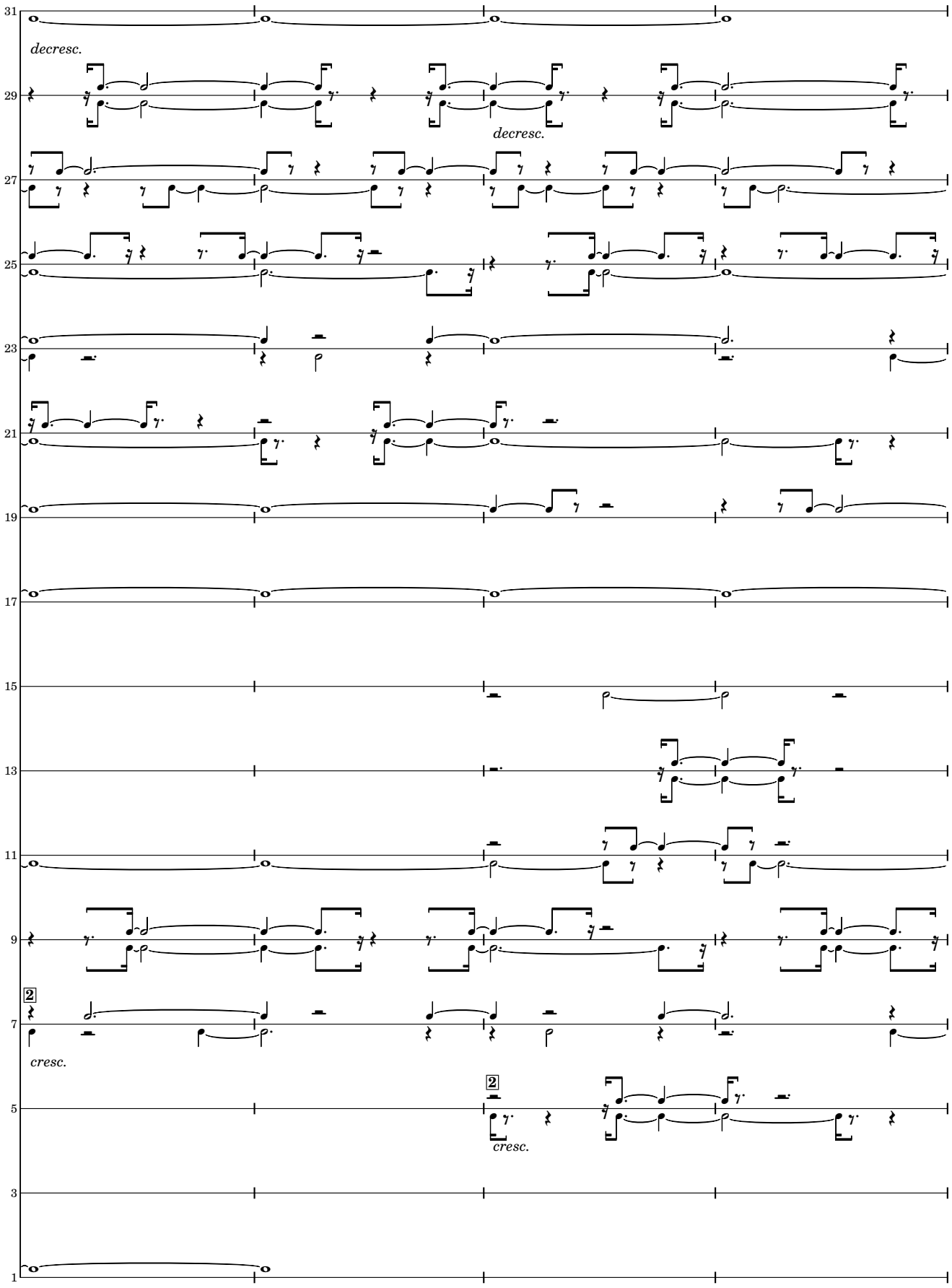

31
29
27
25
23
21
2
19
cresc.
2
17
cresc.
15
13
11
decresc.
9
decresc.
7
5
3
1


49
31
29
27
25
23
21
19
17
2
15
cresc.
2
13
cresc.
11
9
7
decresc.
5
decresc.
3
1

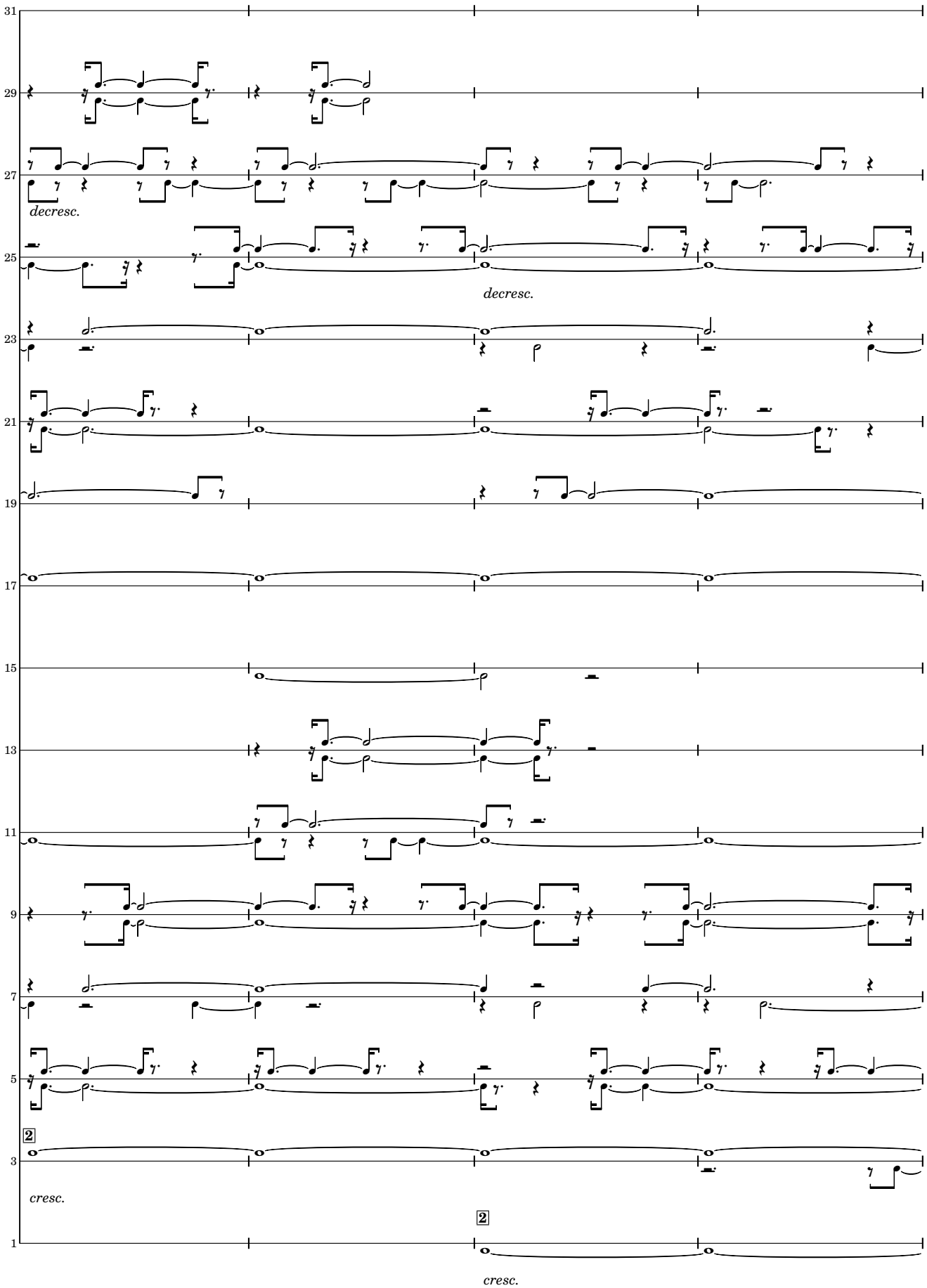
53

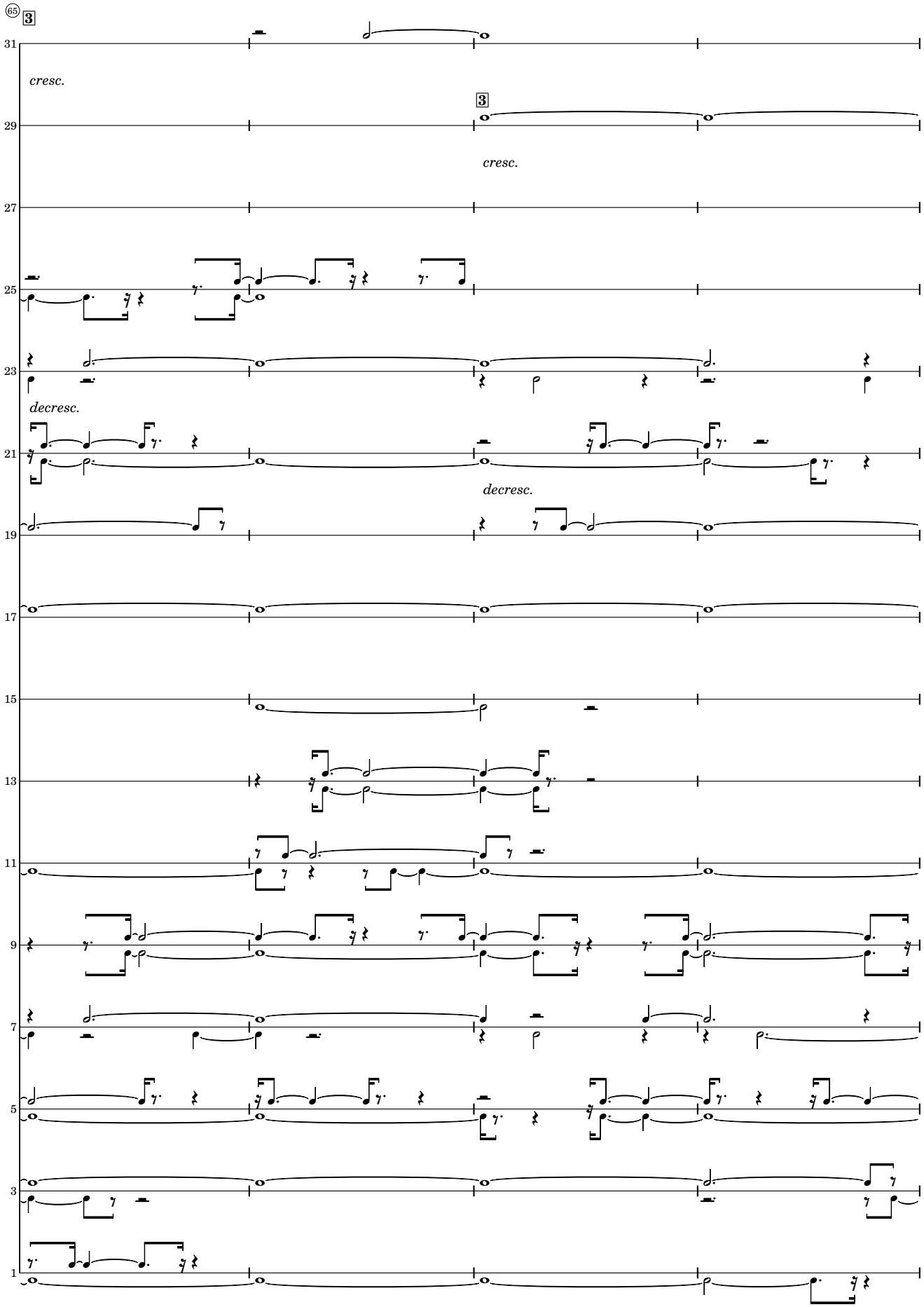

31
29
27
25
23
21
19
17
15
13
2
11
cresc.
2
9
cresc.
7
5
3
decresc.
1
decresc.

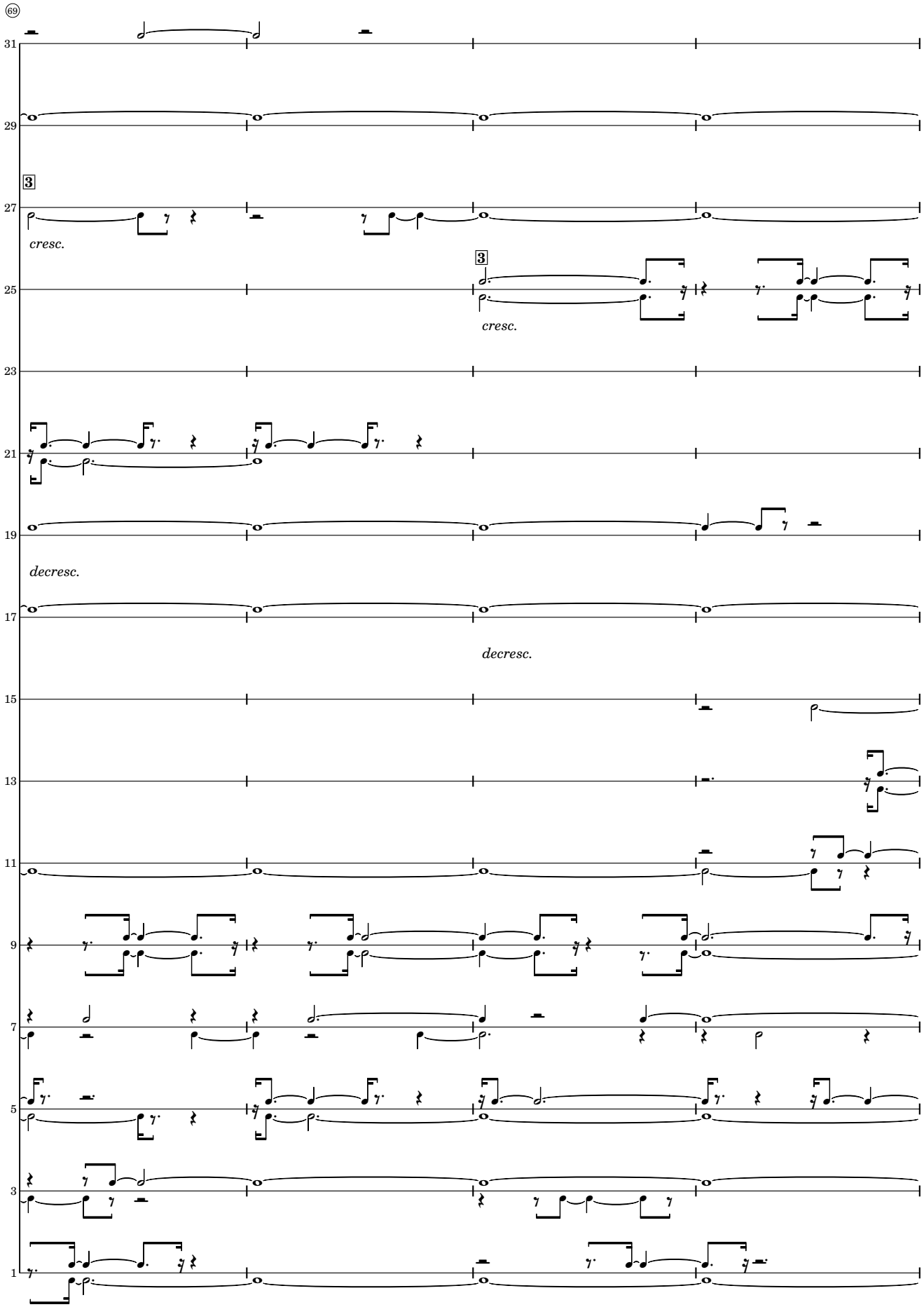
57

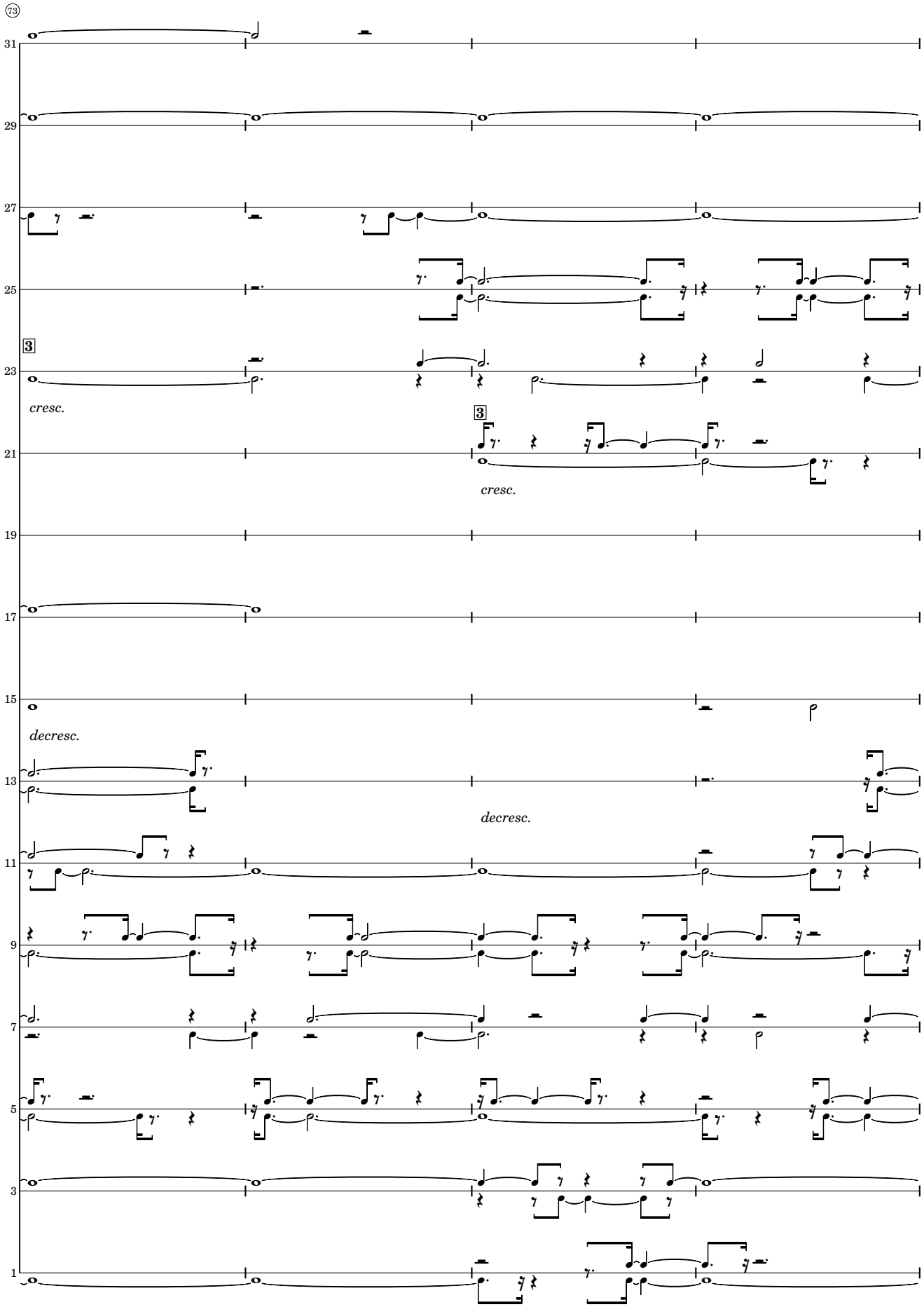

31
decresc.
29
decresc.
27
25
23
21
19
17
15
13
11
9
2
7
cresc.
2
5
cresc.
3
1

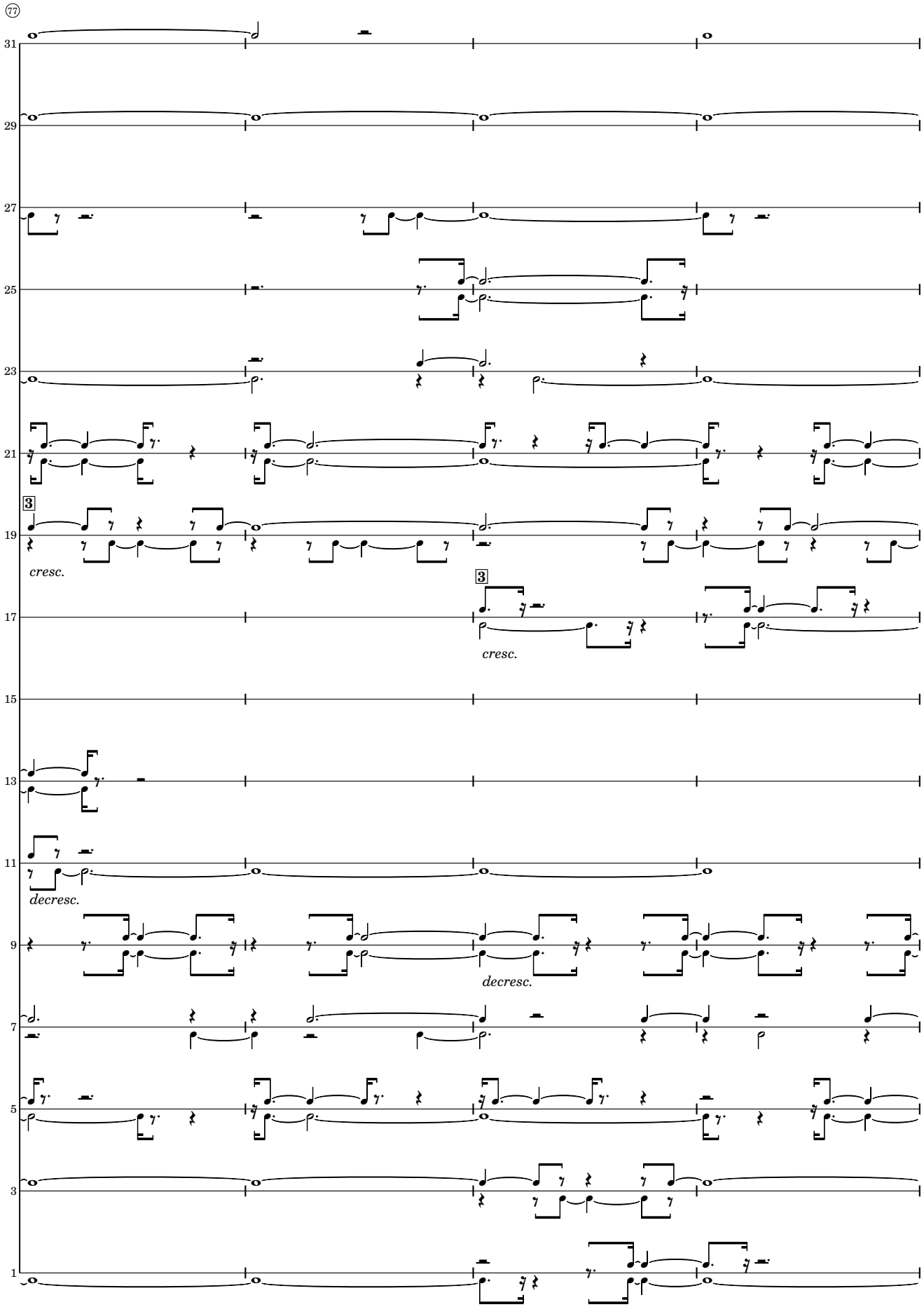
61

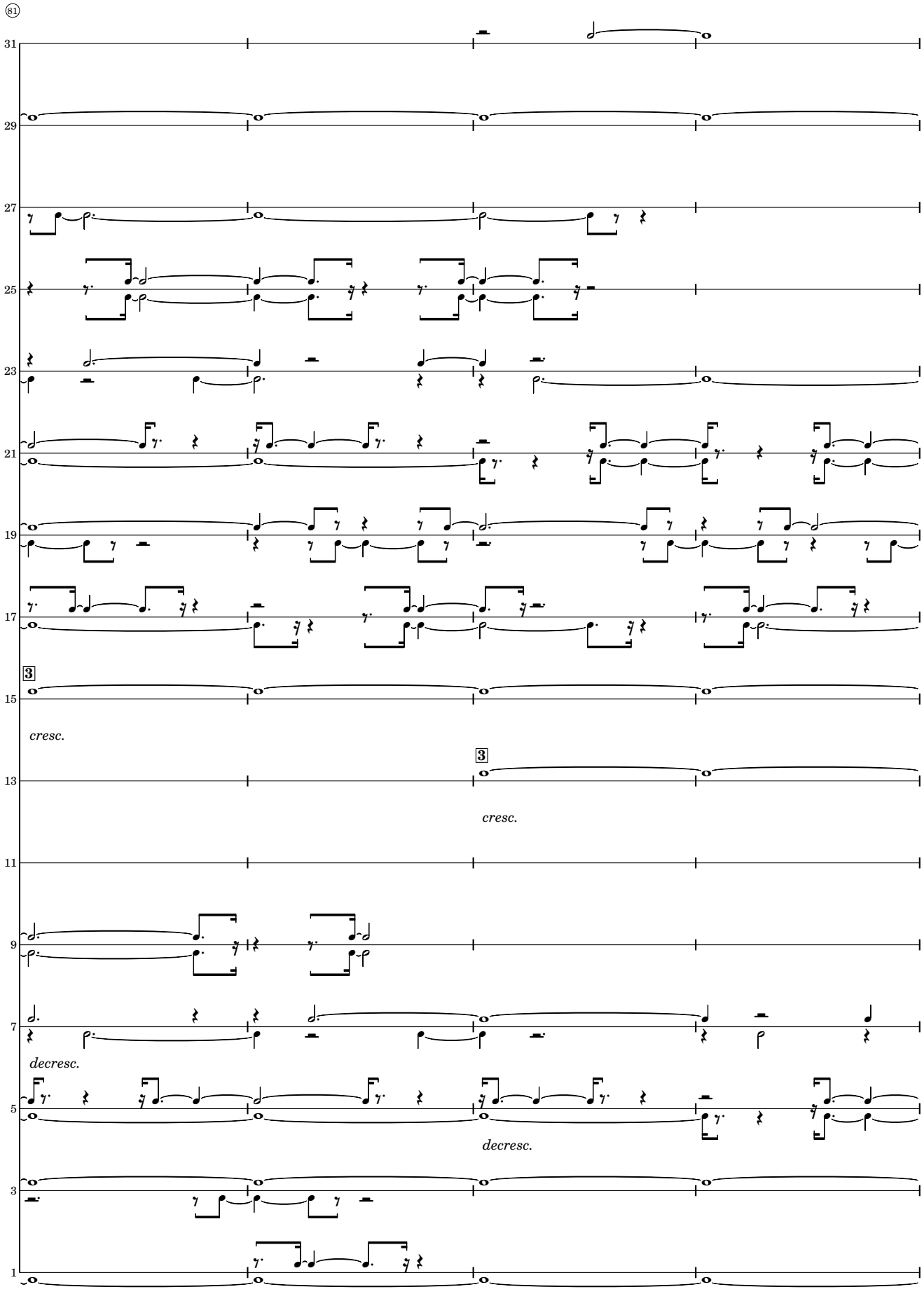

31
29
27
decresc.
25
decresc.
23
21
19
17
15
13
11
9
7
5
2
3
cresc.
2
1
cresc.

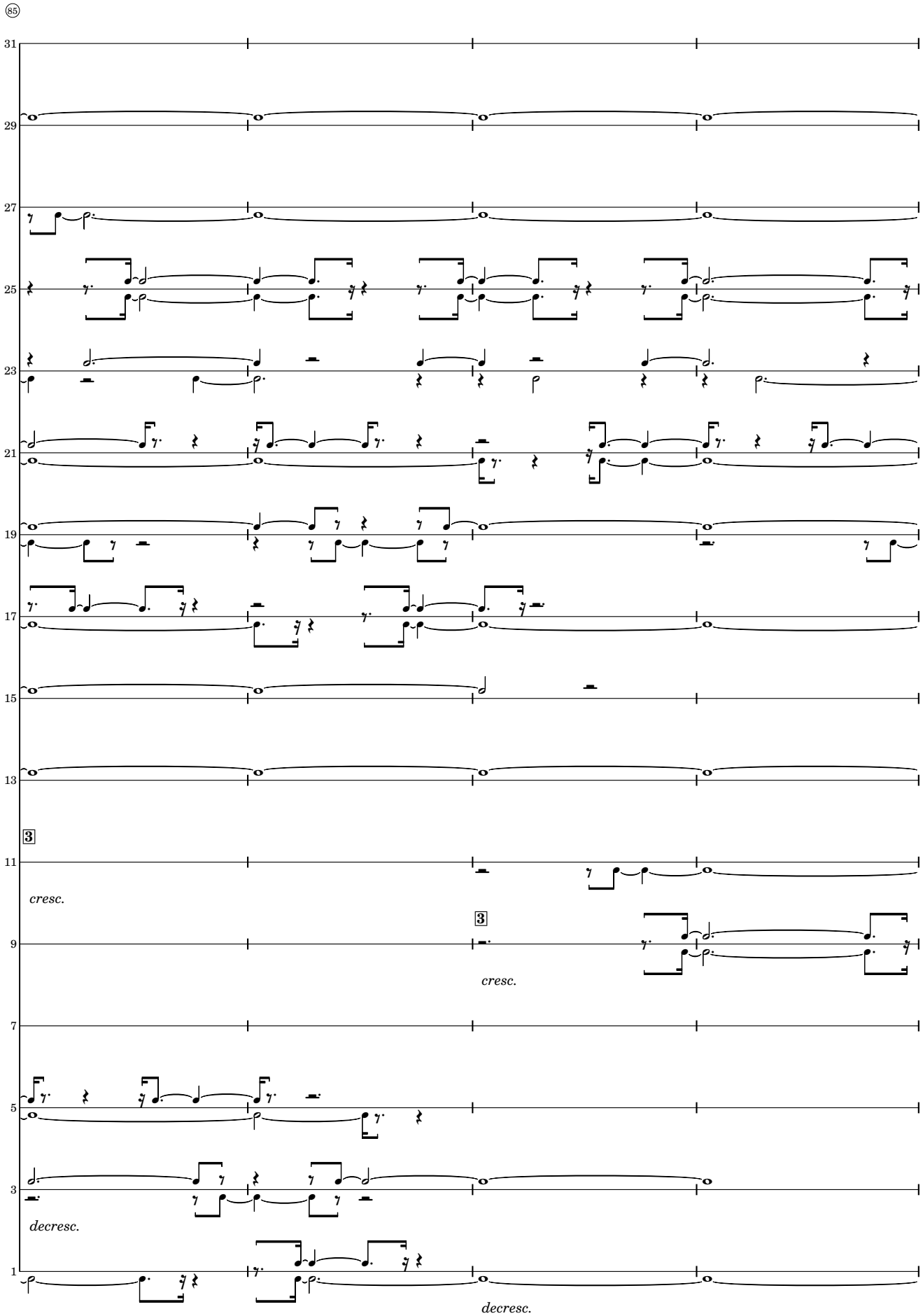

65
3
31
cresc.
3
29
cresc.
27
25
23
decresc.
21
decresc.
19
17
15
13
11
9
7
5
3
1

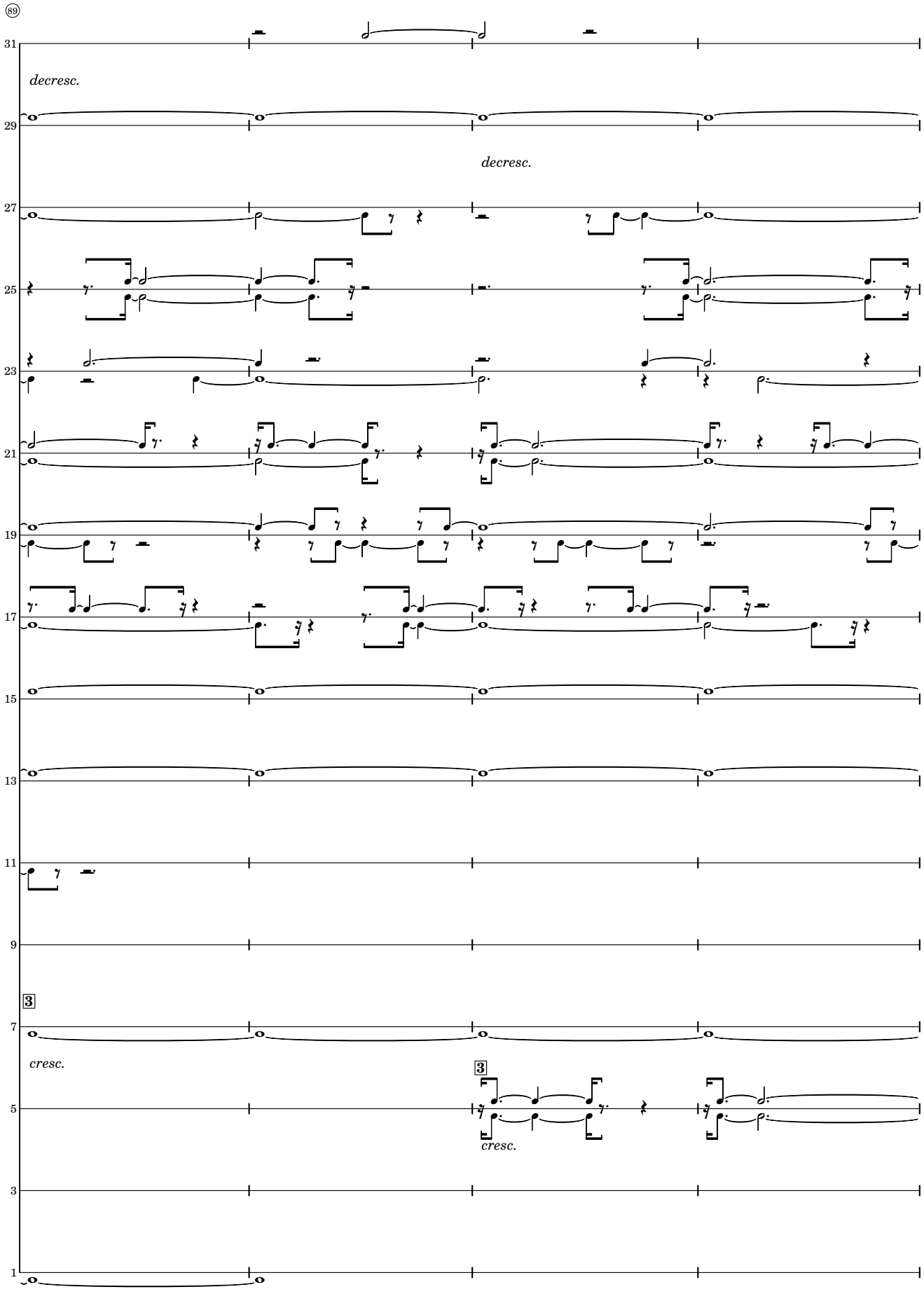

69
31
29
3
27
cresc.
3
25
cresc.
23
21
19
decresc.
17
decresc.
15
13
11
9
7
5
3
1

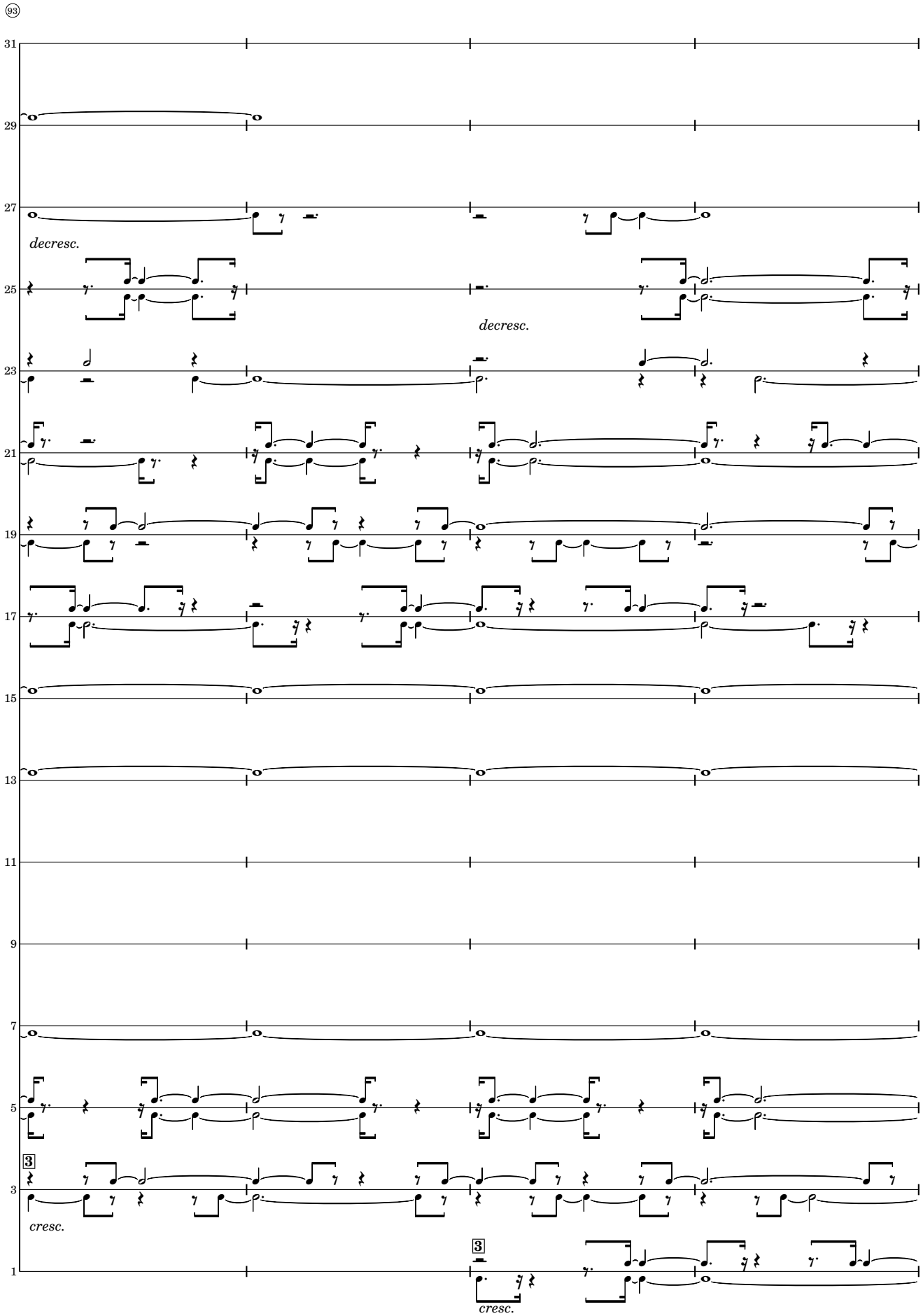

73
31
29
27
25
3
23
cresc.
3
21
cresc.
19
17
15
decresc.
13
decresc.
11
9
7
5
3
1

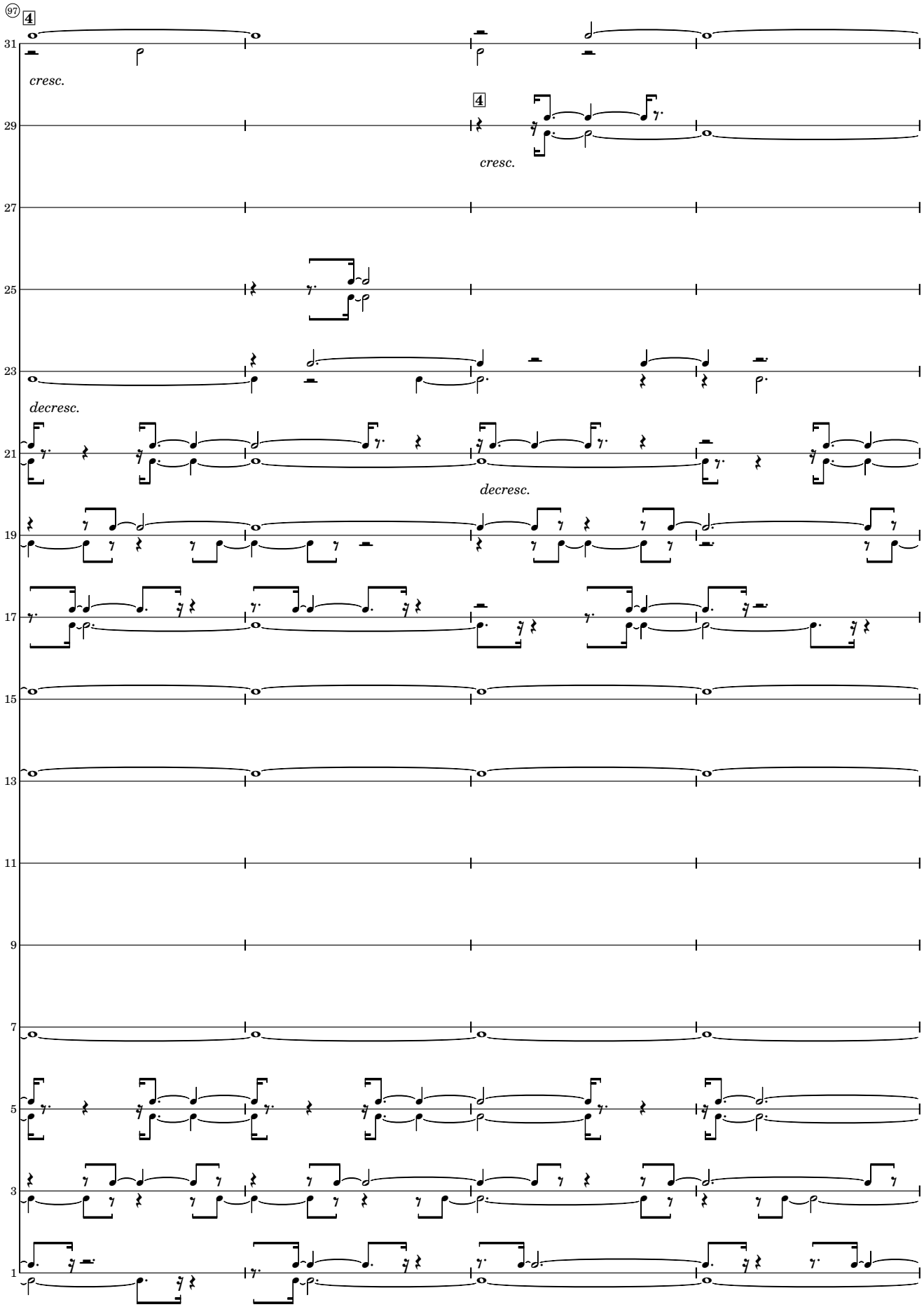

77
31
29
27
25
23
21
3
19
cresc.
3
17
cresc.
15
13
11
decresc.
9
decresc.
7
5
3
1

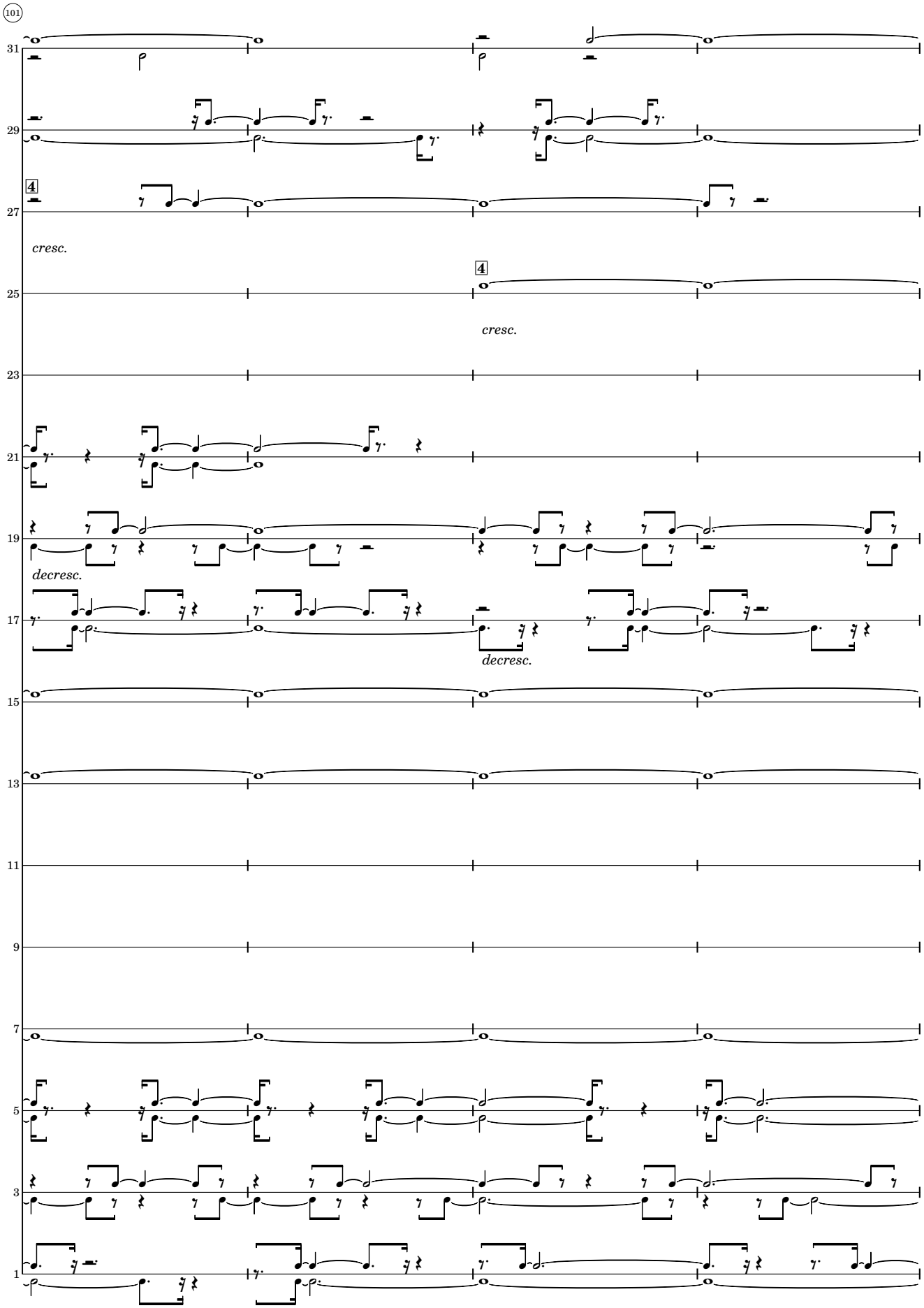

81
31
29
27
25
23
21
19
17
3
15
cresc.
3
13
cresc.
11
9
7
decresc.
5
decresc.
3
1

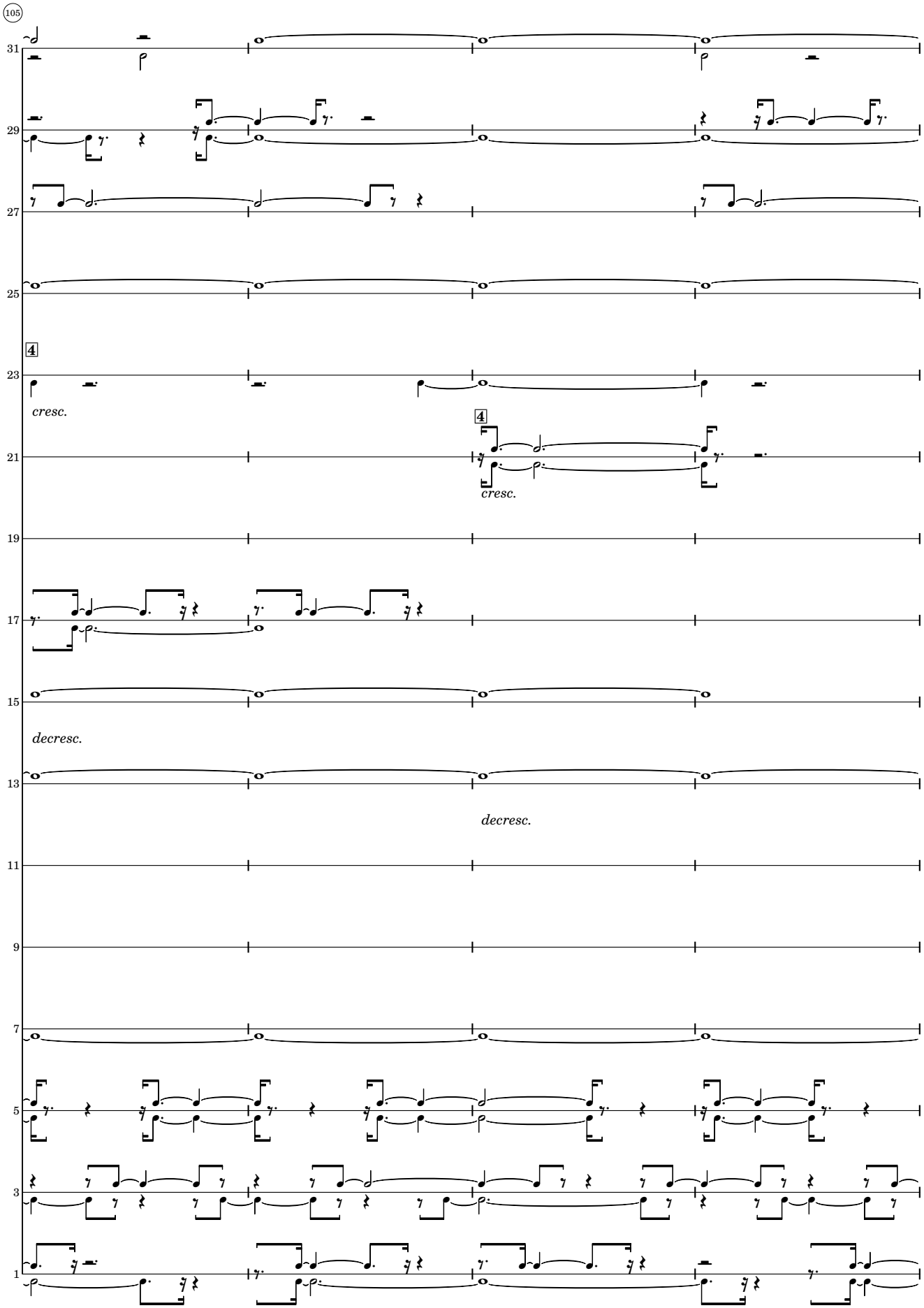

85
31
29
27
25
23
21
19
17
15
13
3
11
cresc.
3
9
cresc.
7
5
3
decresc.
1
decresc.

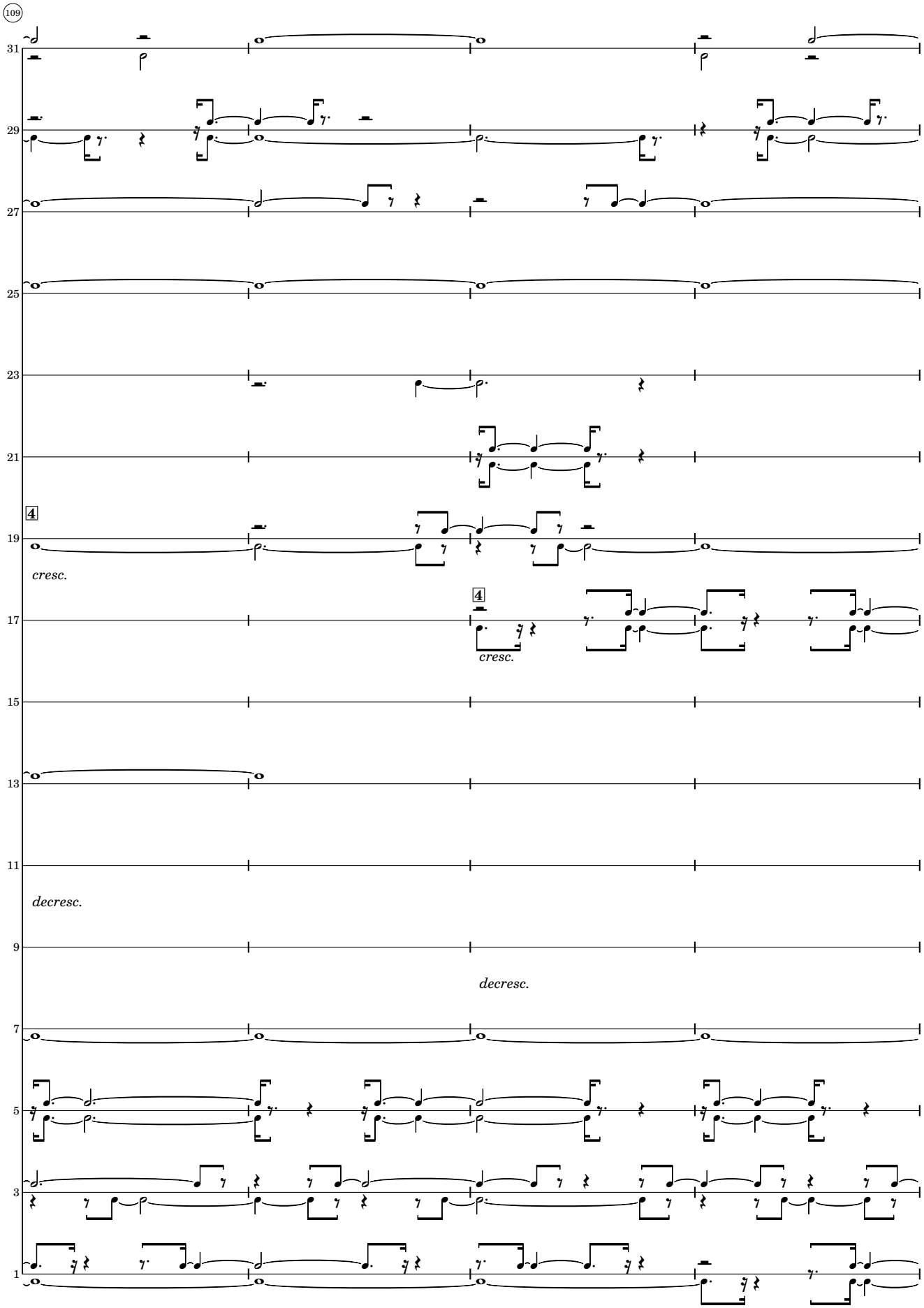

89
31
decresc.
29
decresc.
27
25
23
21
19
17
15
13
11
9
3
7
cresc.
3
5
cresc.
3
1

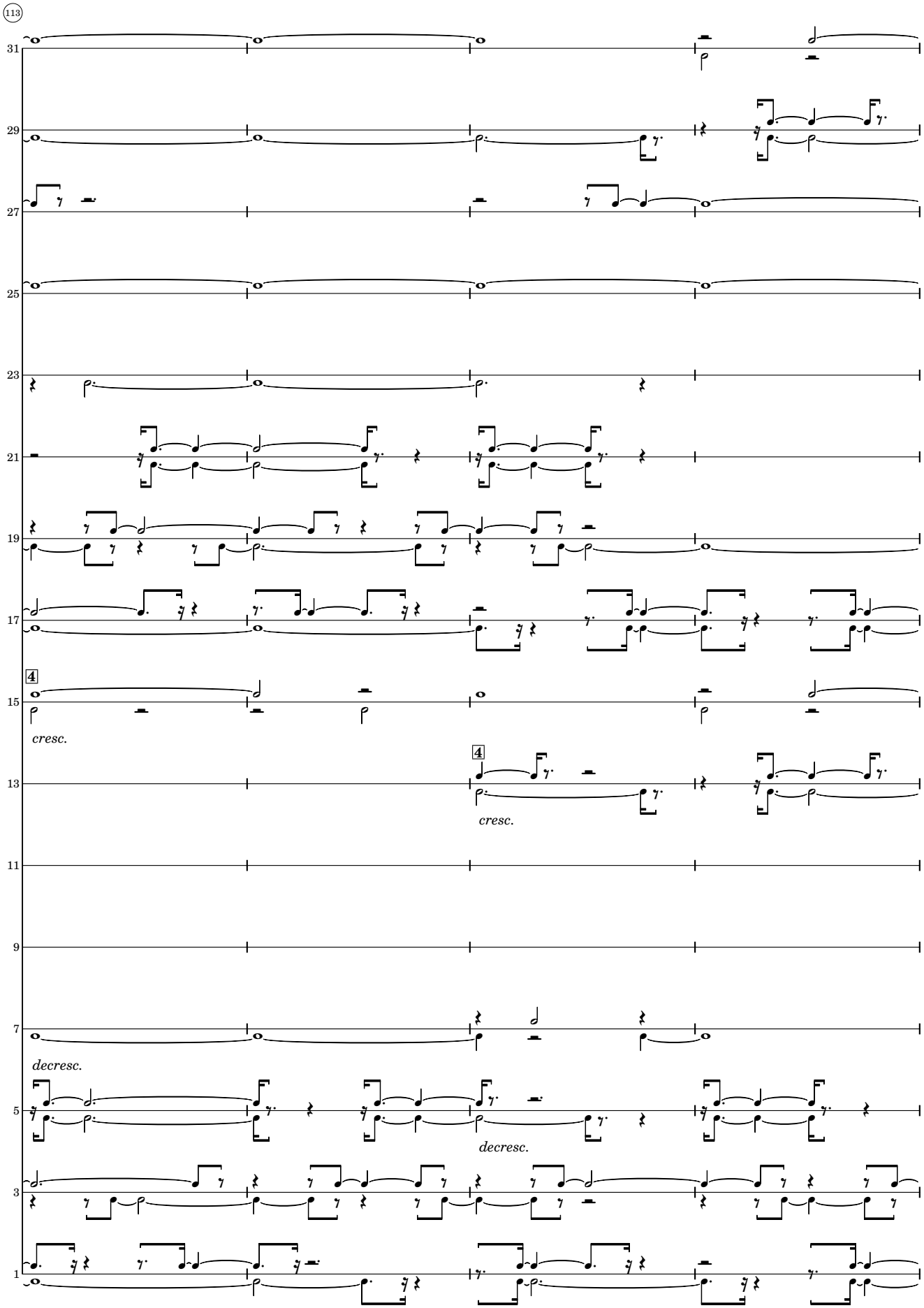

93
31
29
27
decresc.
25
decresc.
23
21
19
17
15
13
11
9
7
5
3
cresc.
1
cresc.

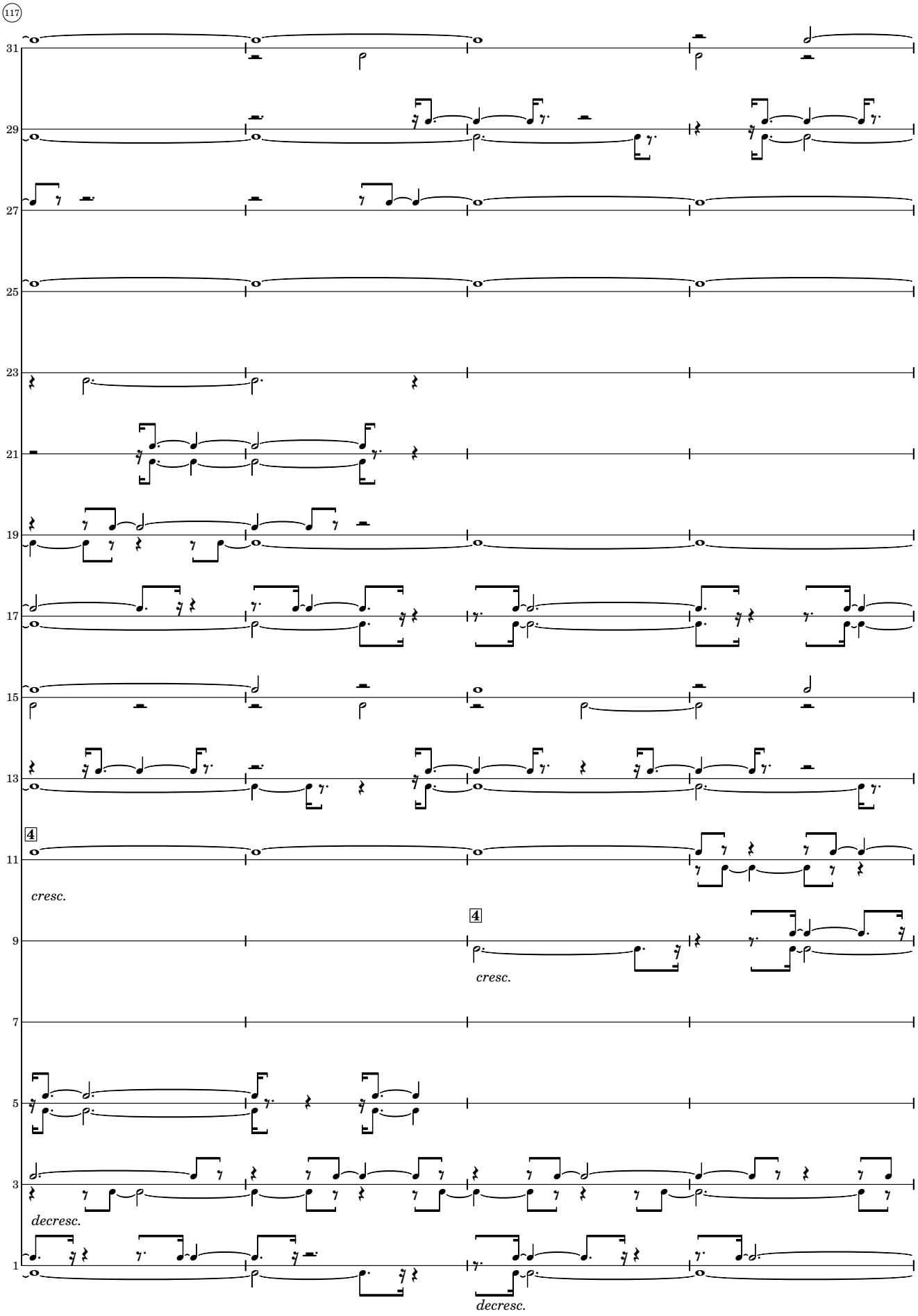

97
4
31
cresc.
4
29
cresc.
27
25
23
decresc.
21
decresc.
19
17
15
13
11
9
7
5
3
1

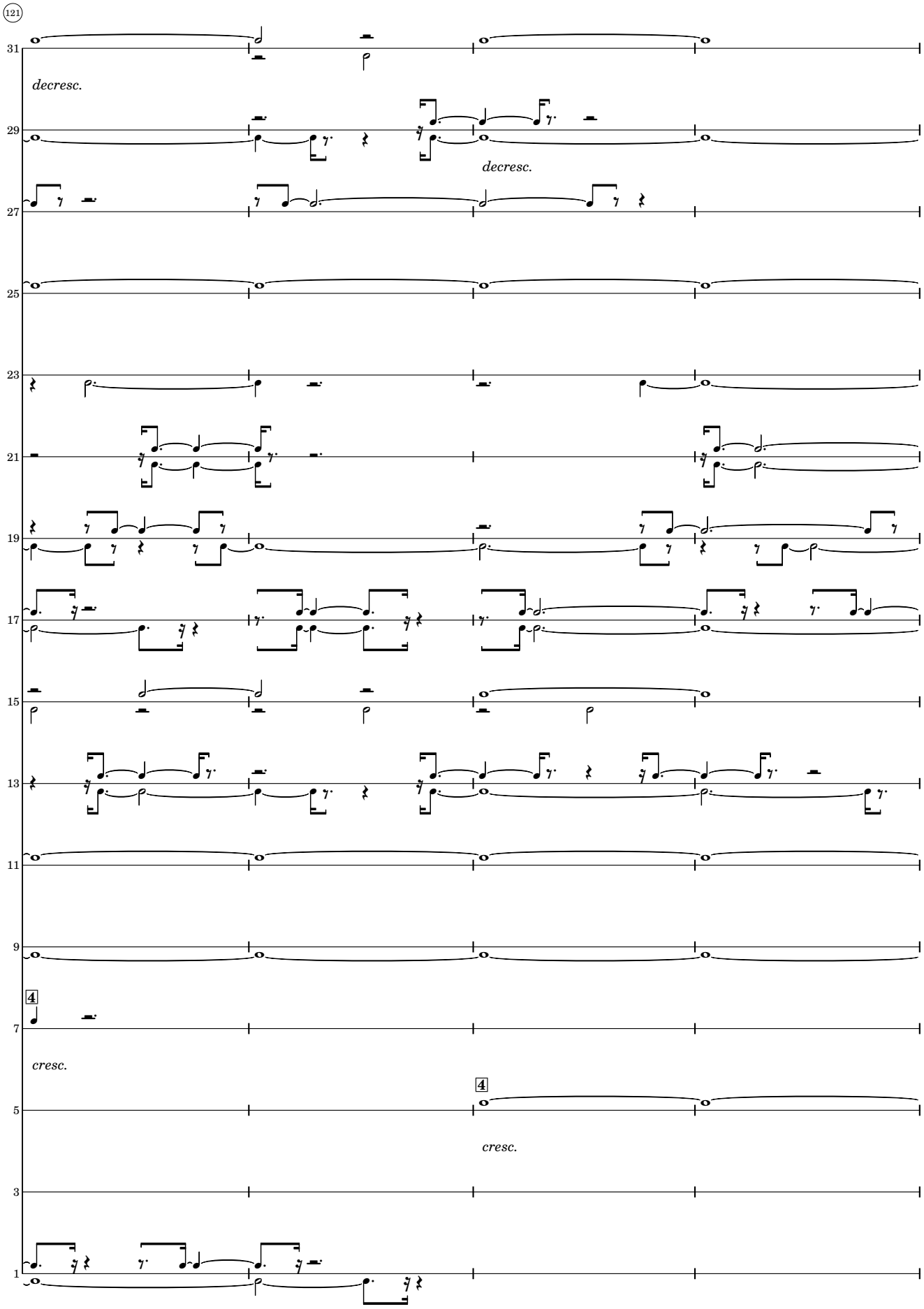

101
31
29
4
27
cresc.
4
25
cresc.
23
21
19
decresc.
17
decresc.
15
13
11
9
7
5
3
1


105
31
29
27
25
4
23
cresc.
4
21
cresc.
19
17
15
decresc.
13
decresc.
11
9
7
5
3
1

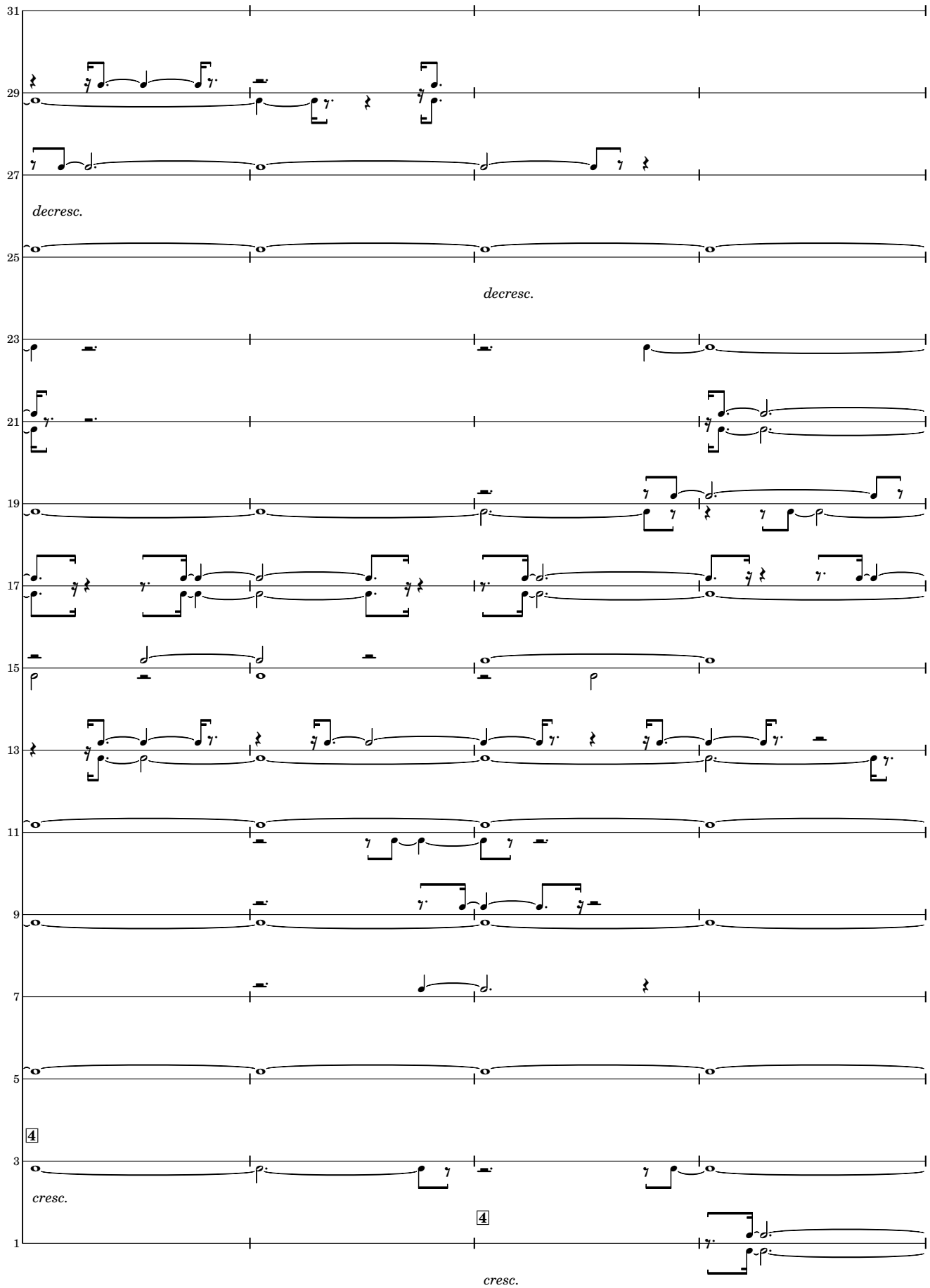

109
31
29
27
25
23
21
4
19
cresc.
4
17
cresc.
15
13
11
decresc.
9
decresc.
7
5
3
1

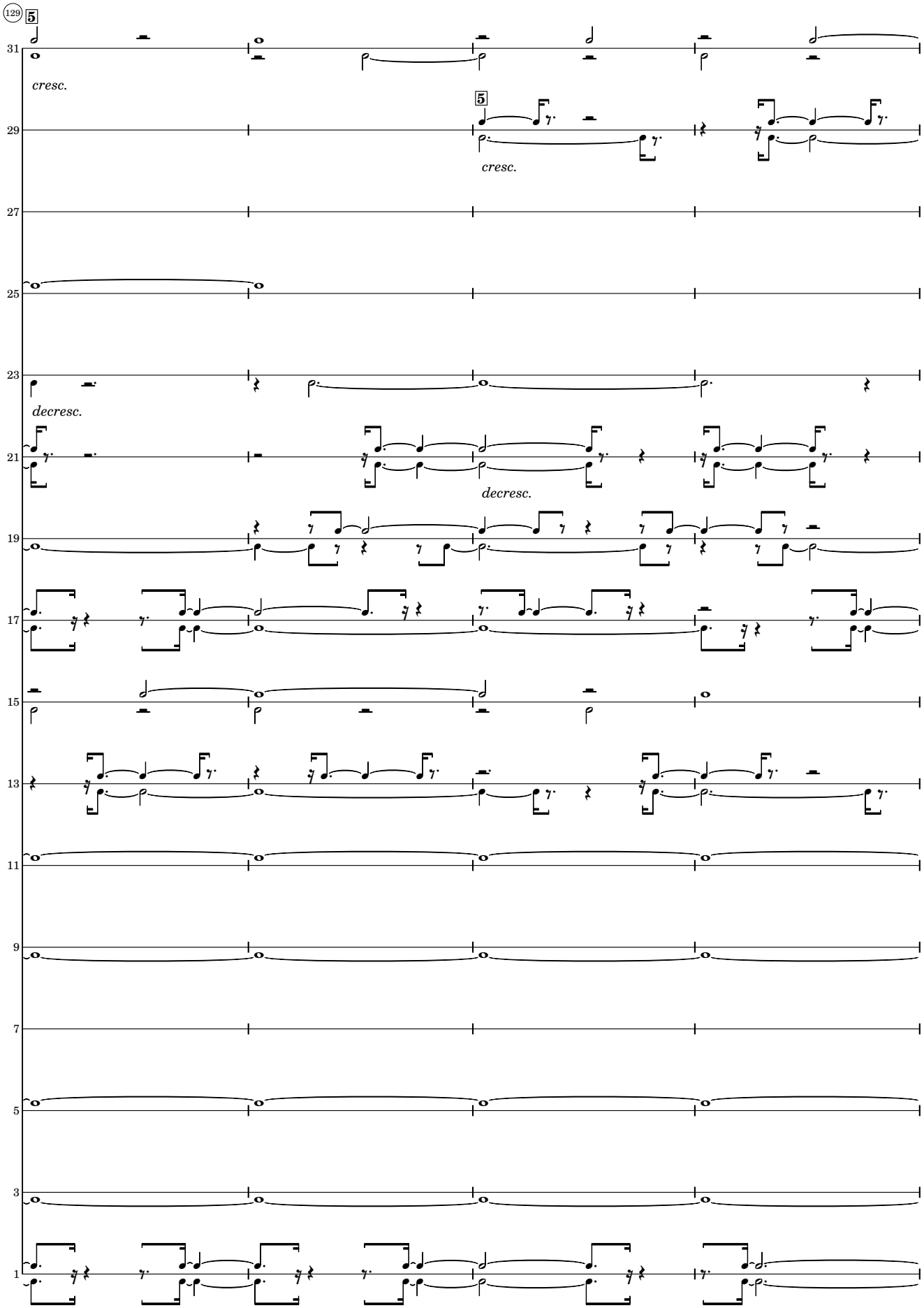

113
31
29
27
25
23
21
19
17
4
15
cresc.
4
13
cresc.
11
9
7
decresc.
5
decresc.
3
1

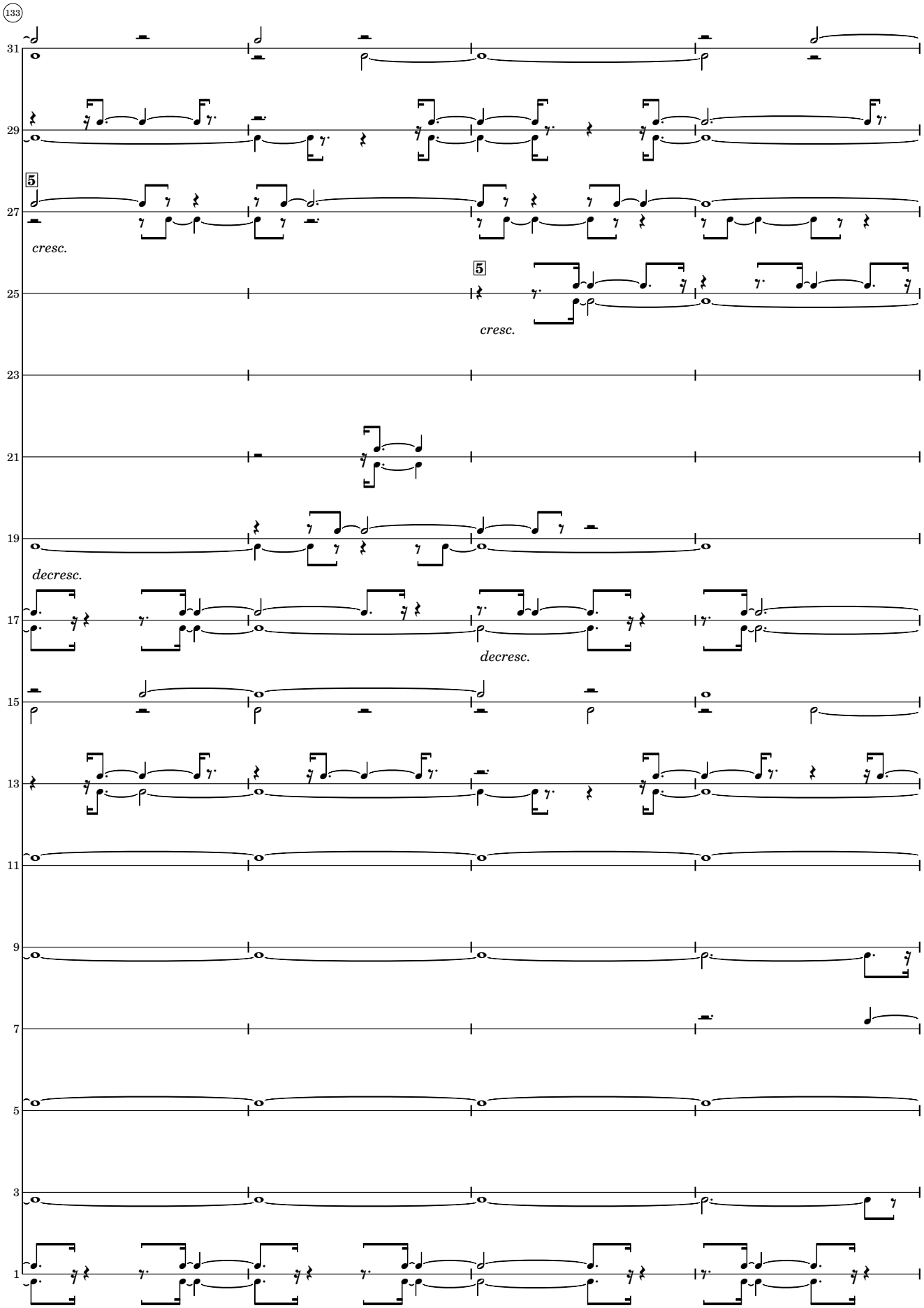

117
31
29
27
25
23
21
19
17
15
13
4
11
cresc.
4
9
cresc.
7
5
3
decresc.
1
decresc.

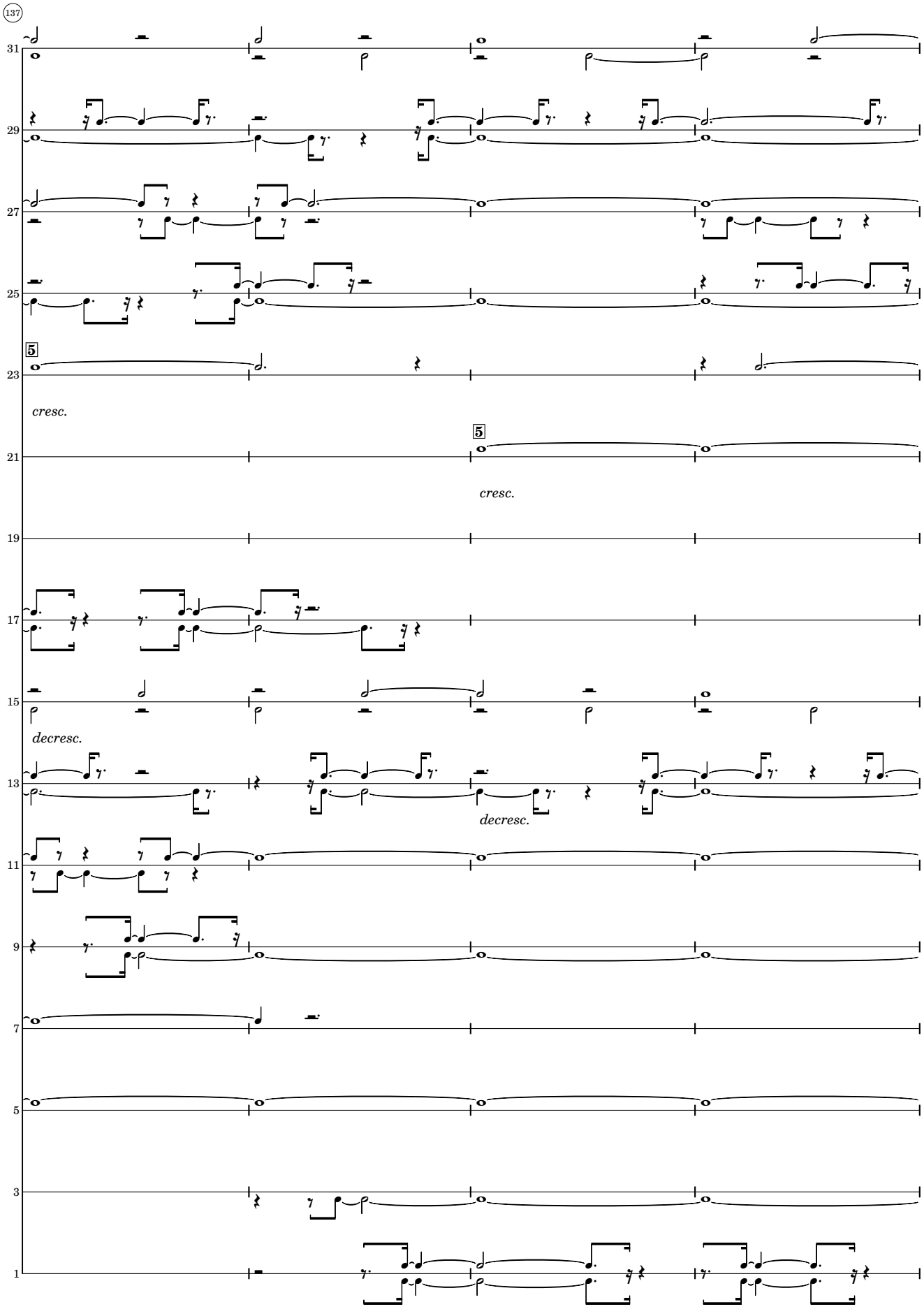

121
31
decresc.
29
decresc.
27
25
23
21
19
17
15
13
11
9
4
7
cresc.
4
5
cresc.
3
1

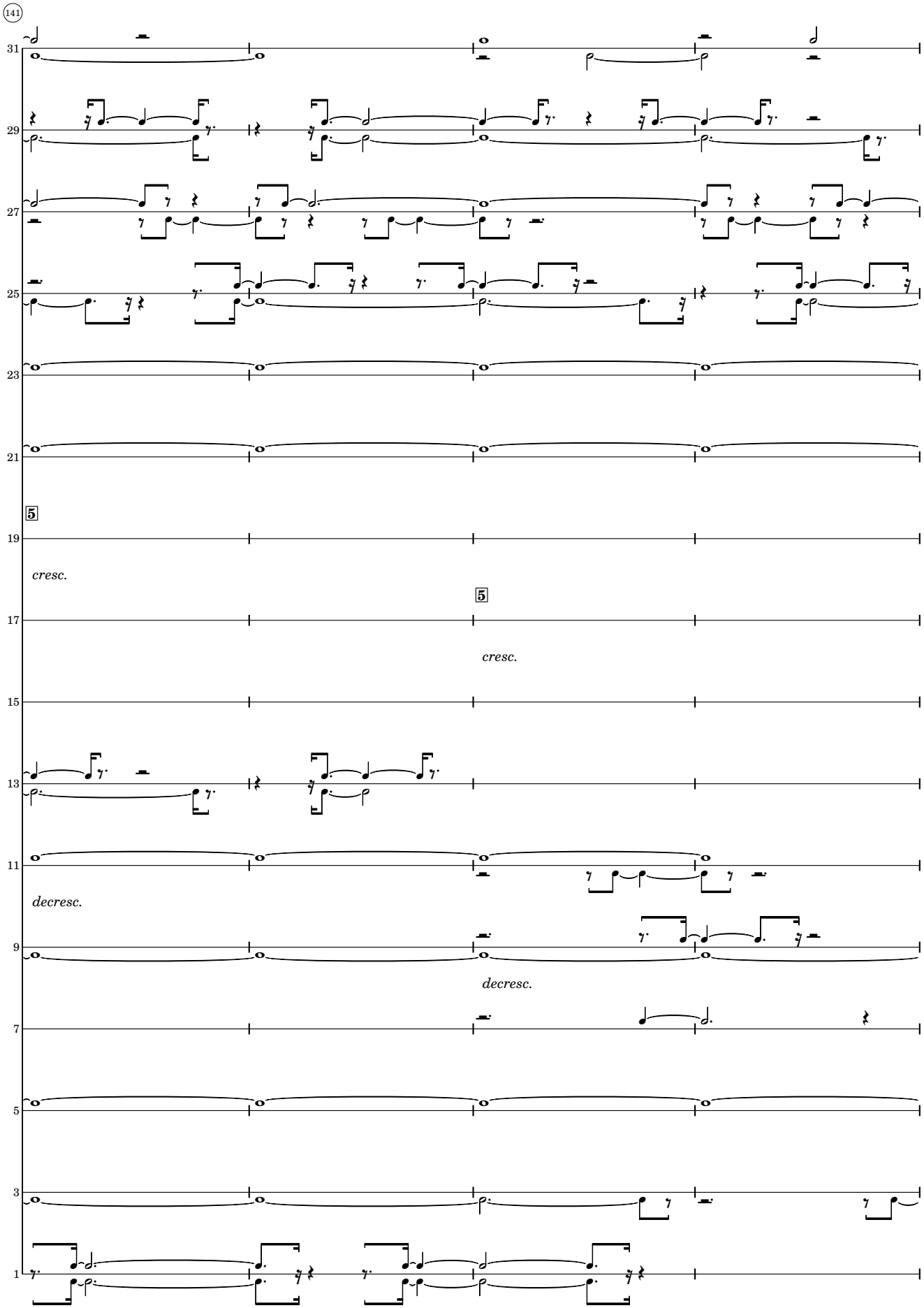
125

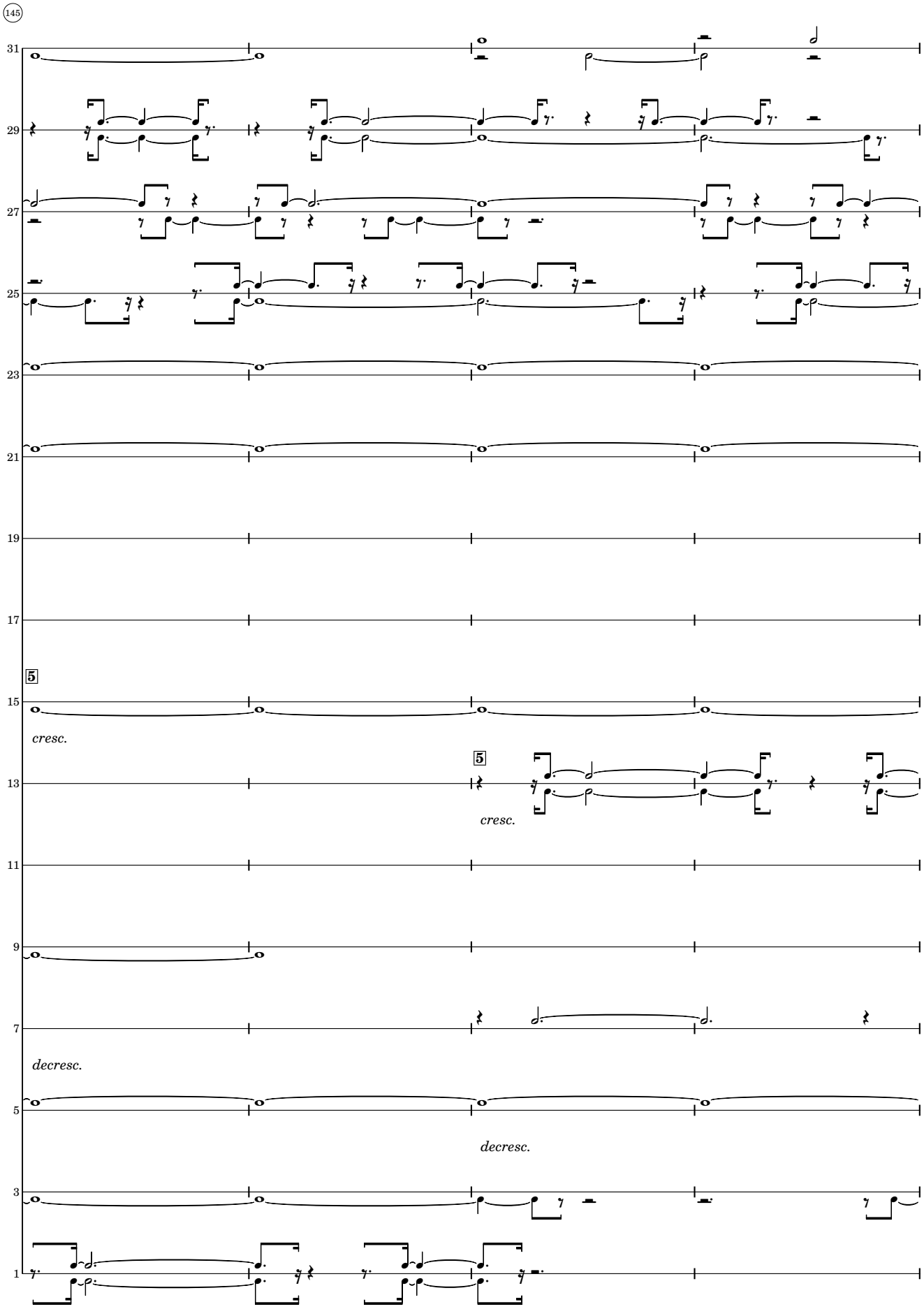

31
29
27
decresc.
25
decresc.
23
21
19
17
15
13
11
9
7
5
4
3
cresc.
4
1
cresc.

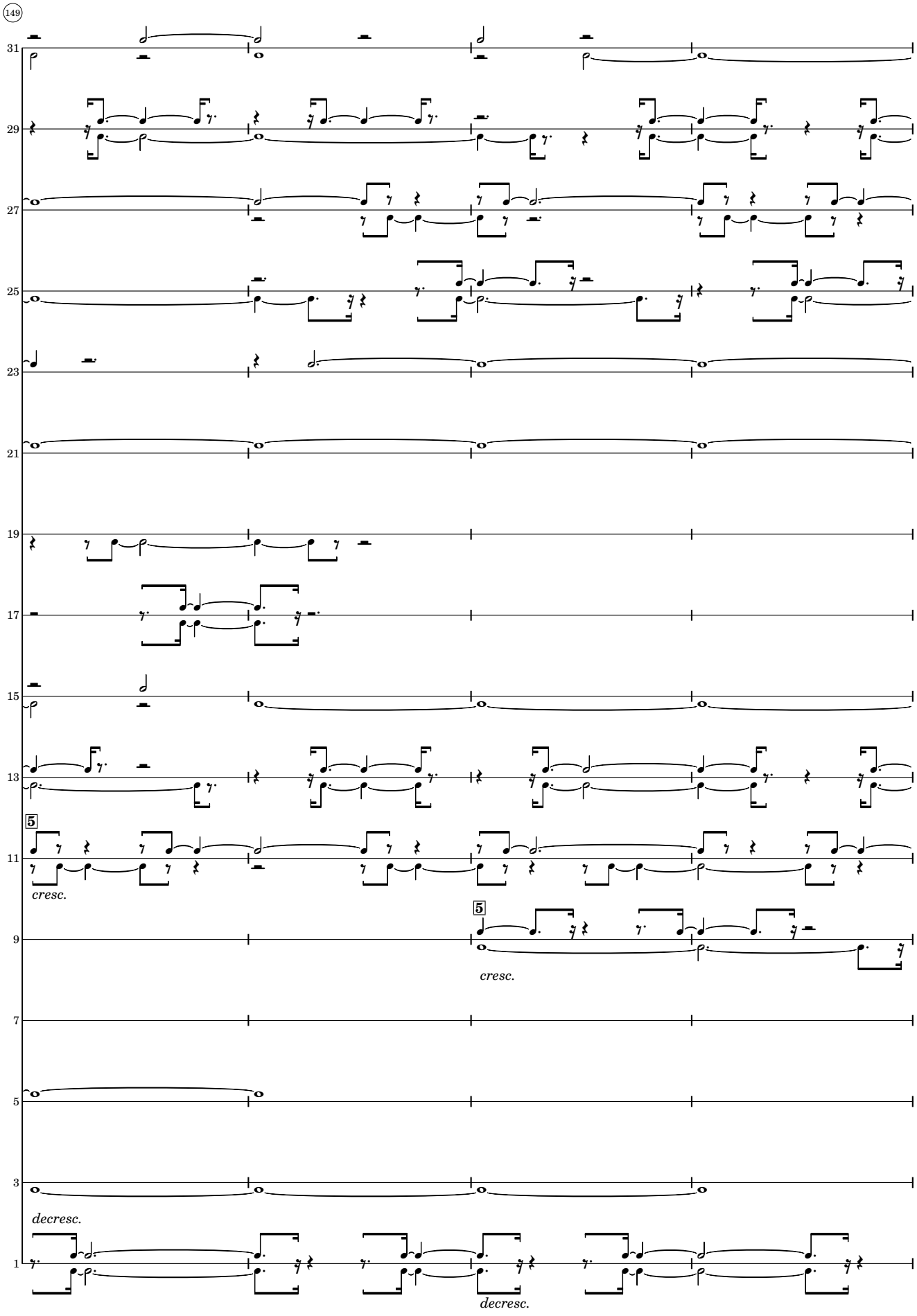

129
5
31
cresc.
5
29
cresc.
27
25
23
decresc.
21
decresc.
19
17
15
13
11
9
7
5
3
1

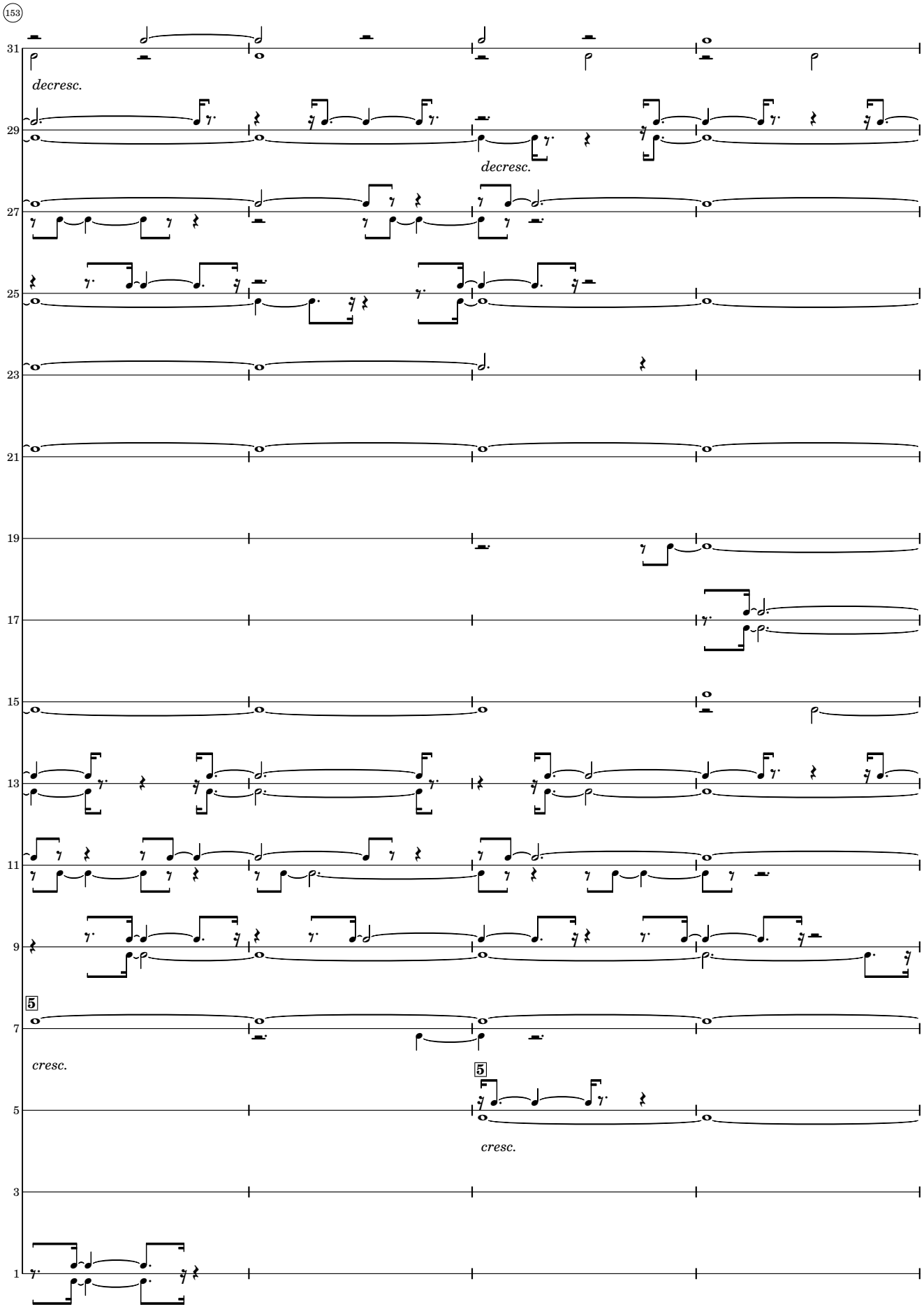

133
31
29
27
5
cresc.
25
5
cresc.
23
21
19
decresc.
17
decresc.
15
13
11
9
7
5
3
1


137
31
29
27
25
5
23
cresc.
5
21
cresc.
19
17
15
decresc.
13
decresc.
11
9
7
5
3
1

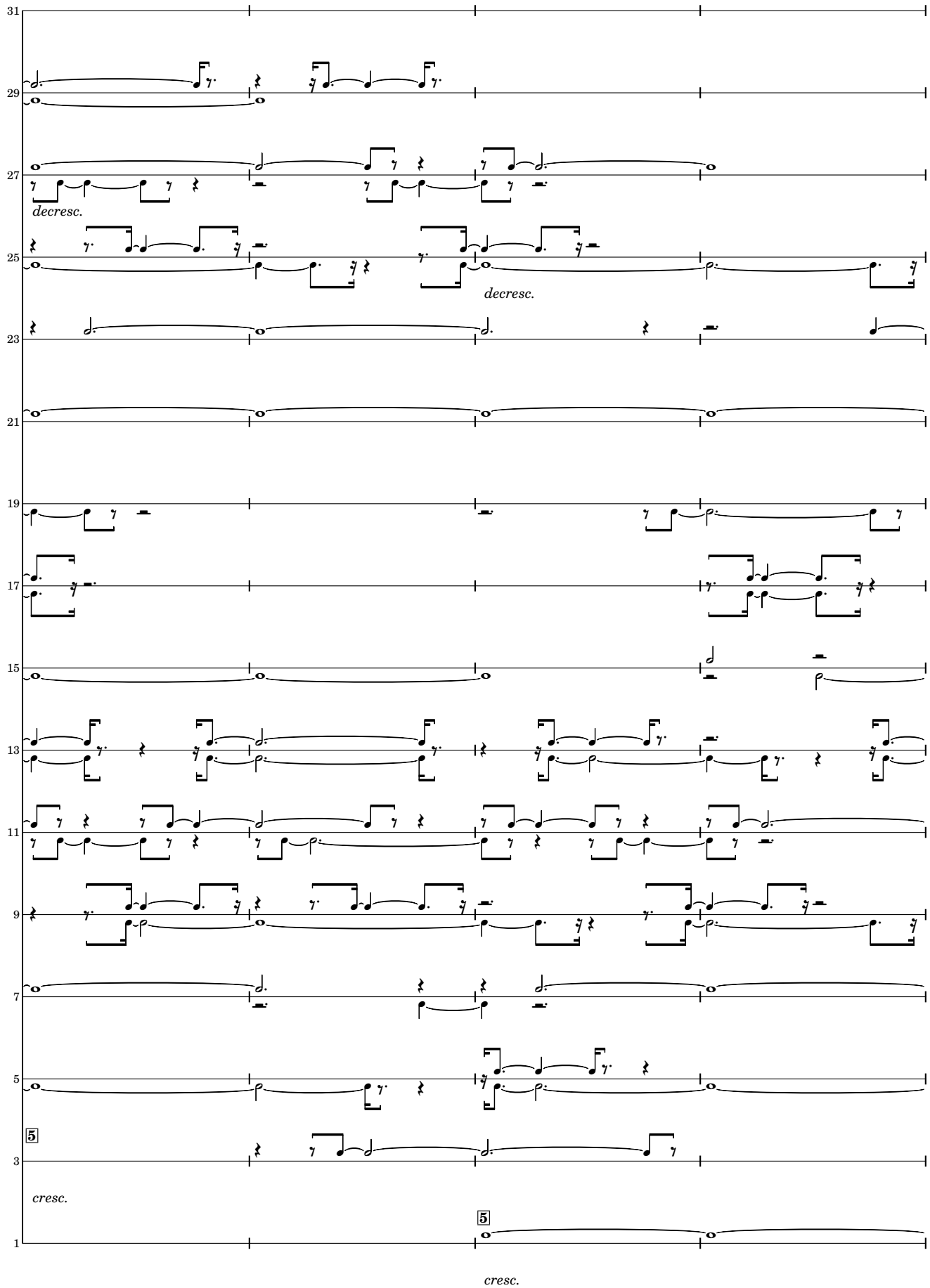

141
31
29
27
25
23
21
5
19
cresc.
5
17
cresc.
15
13
11
decresc.
9
decresc.
7
5
3
1

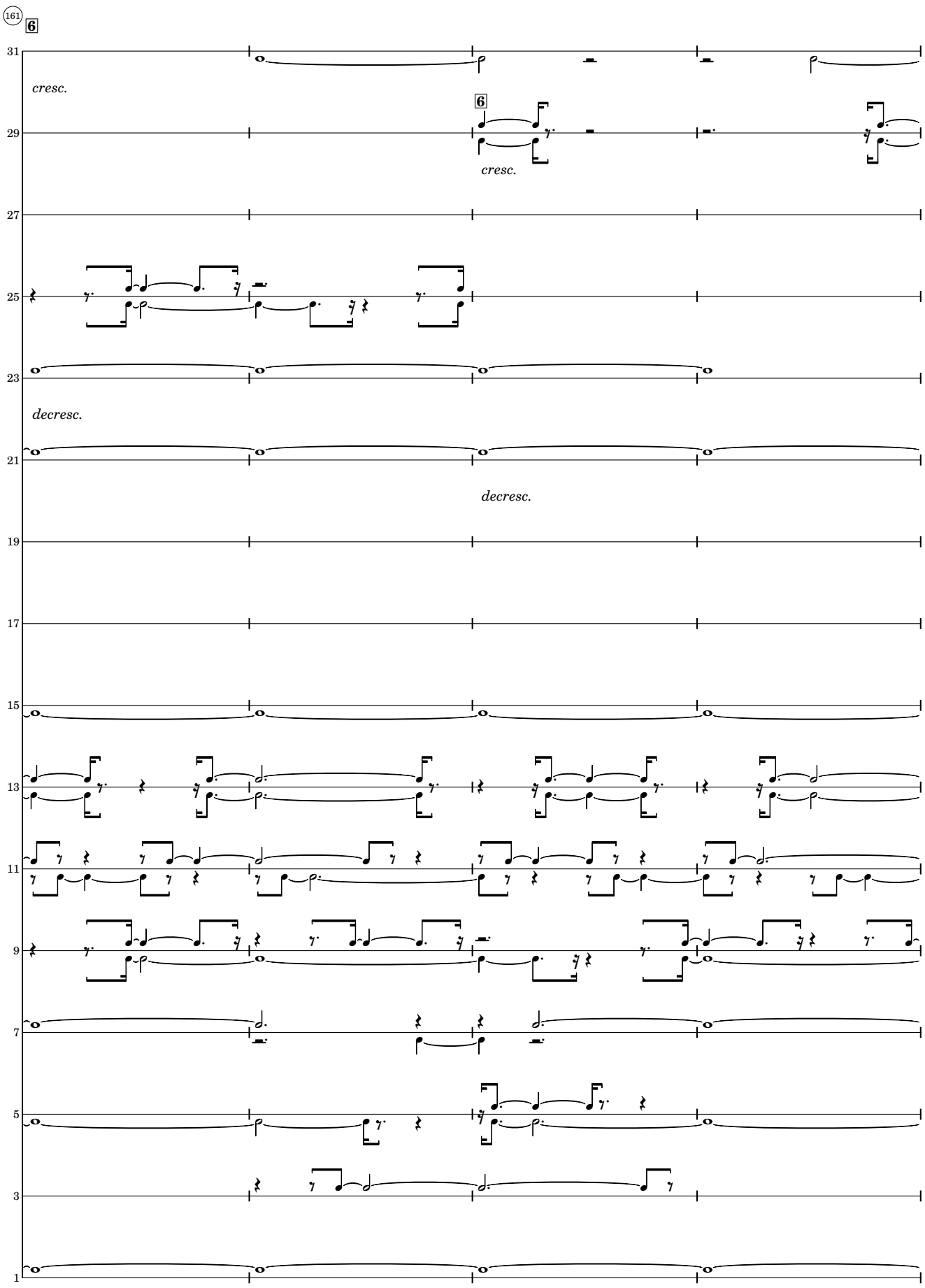

145
31
29
27
25
23
21
19
17
5
15
cresc.
5
13
cresc.
11
9
7
decresc.
5
decresc.
3
1


149
31
29
27
25
23
21
19
17
15
13
5
11
cresc.
5
9
cresc.
7
5
3
decresc.
1
decresc.

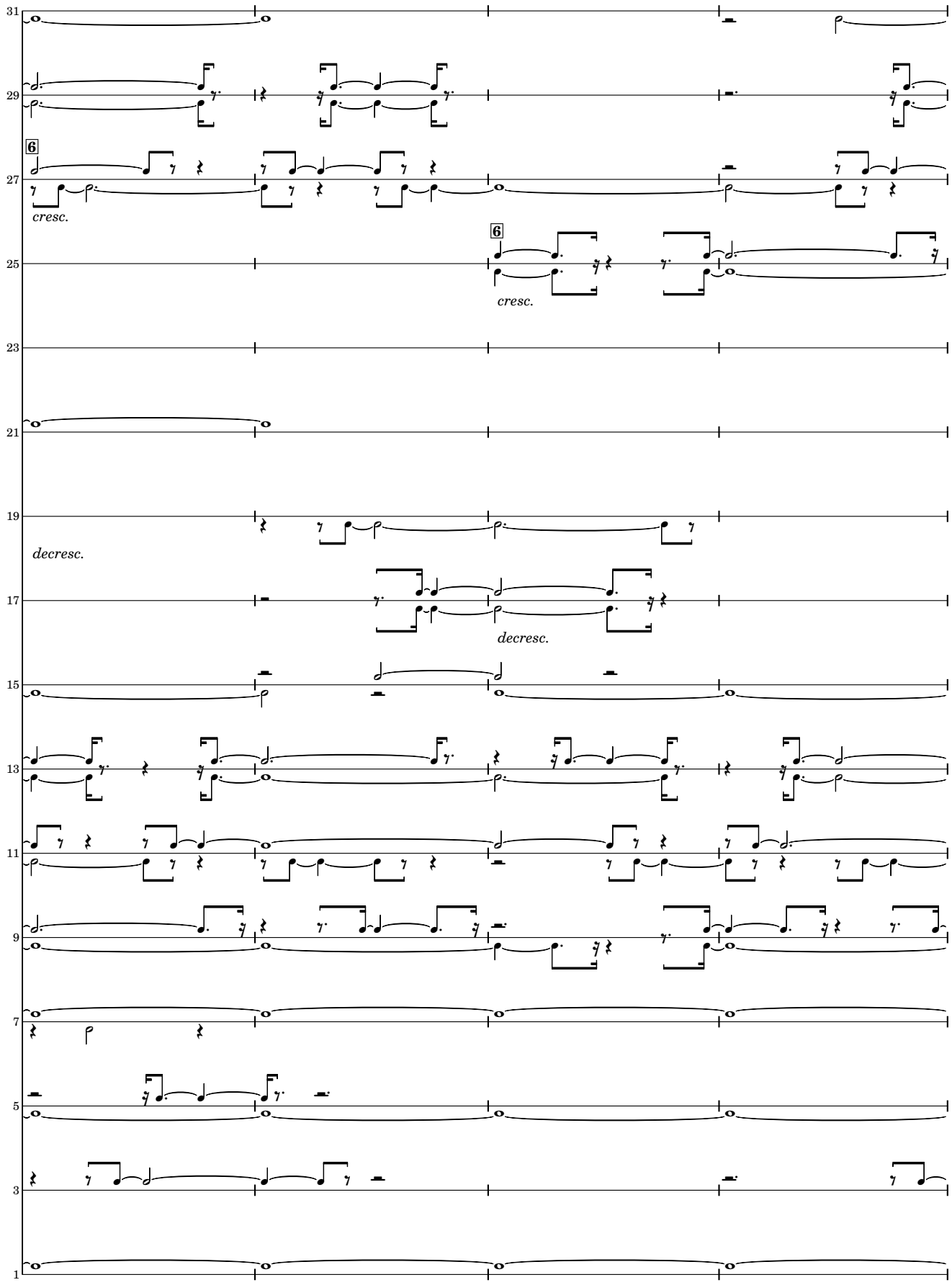

153
31
decresc.
29
decresc.
27
25
23
21
19
17
15
13
11
9
5
7
cresc.
5
5
cresc.
3
1

157

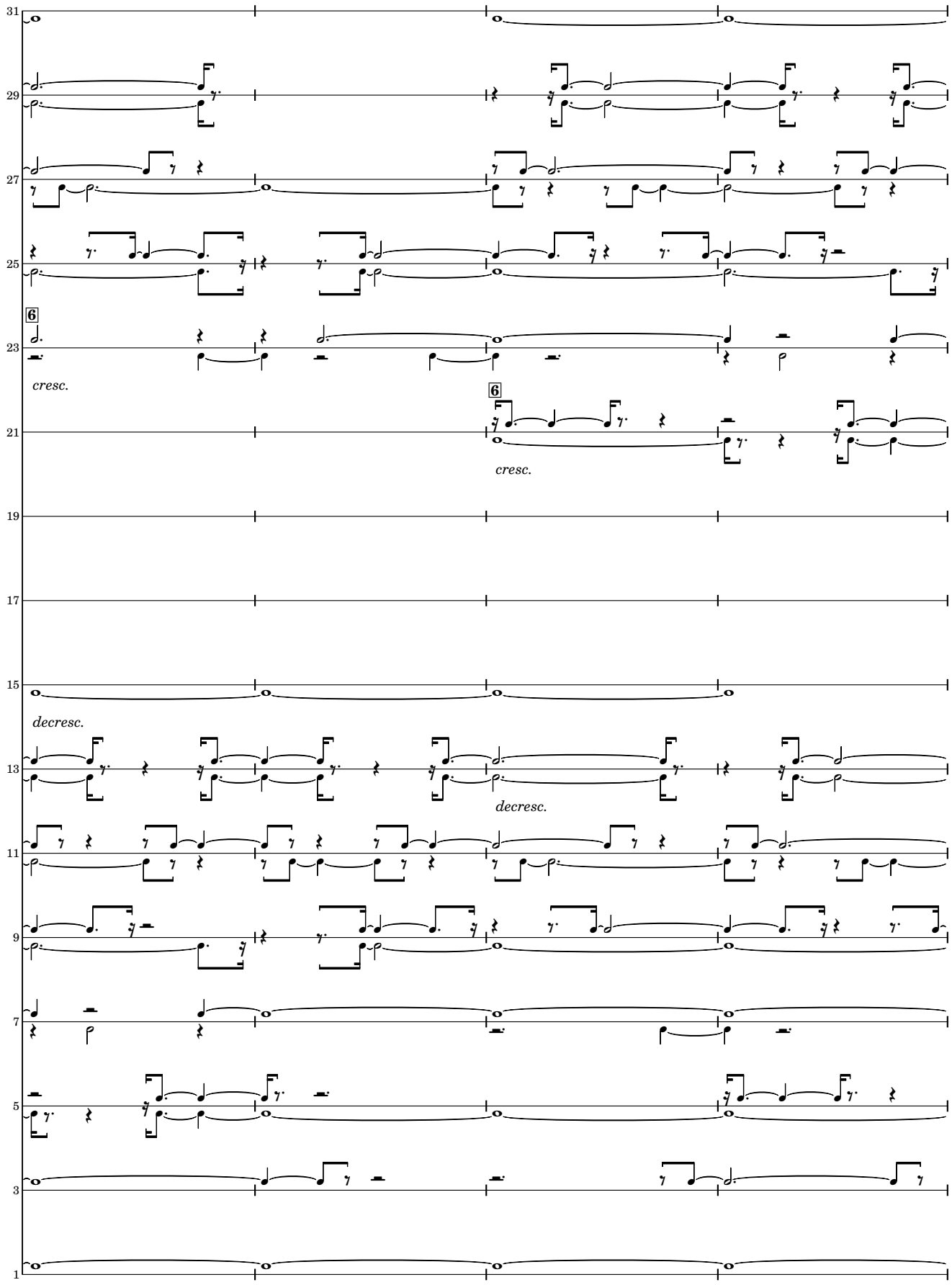

31
29
27
decresc.
25
decresc.
23
21
19
17
15
13
11
9
7
5
5
3
cresc.
5
1
cresc.


161
6
31
cresc.
6
29
cresc.
27
25
23
decresc.
21
decresc.
19
17
15
13
11
9
7
5
3
1

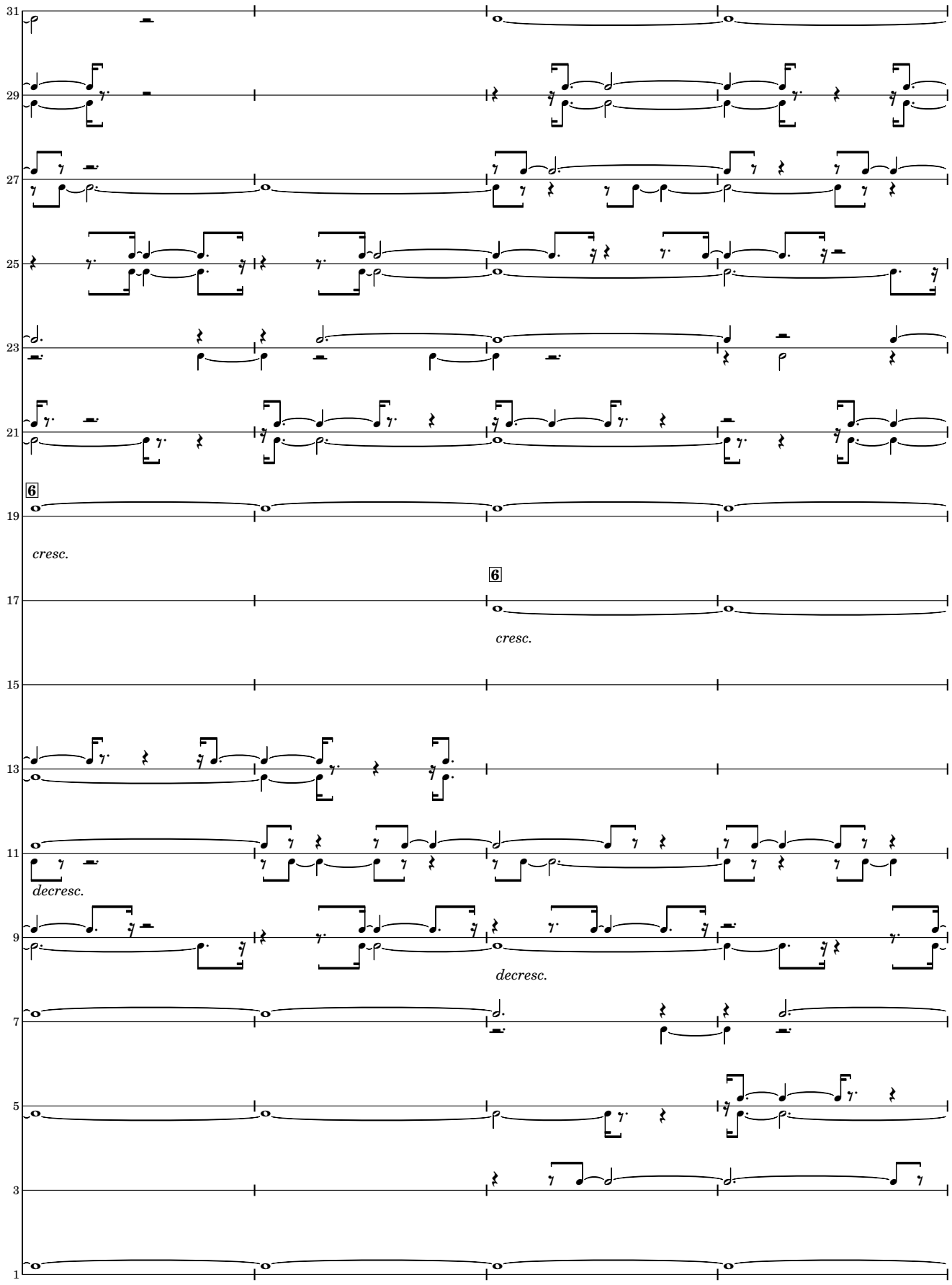
165


31
29
6
27
cresc.
6
25
cresc.
23
21
19
decresc.
17
decresc.
15
13
11
9
7
5
3
1

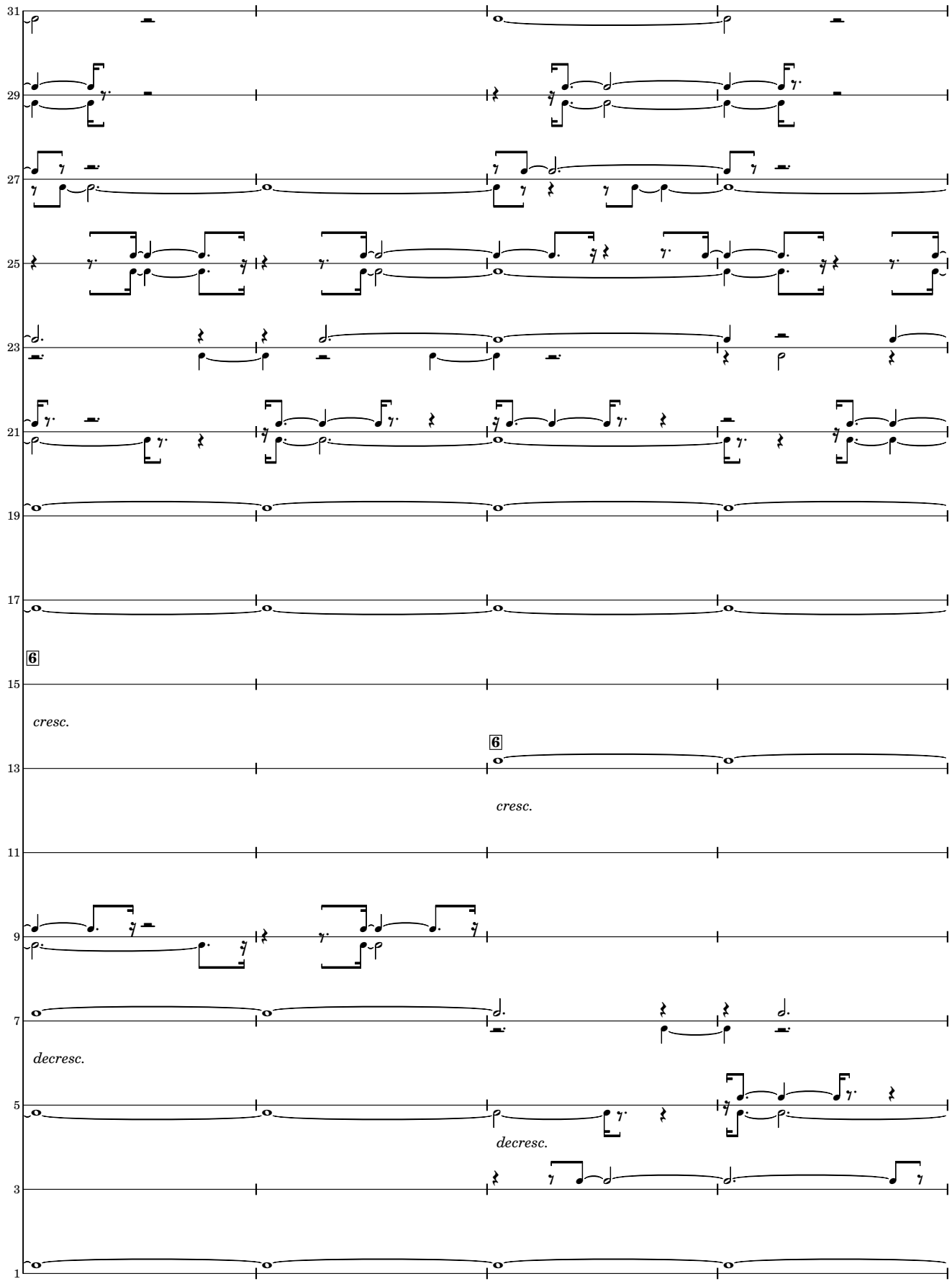
169

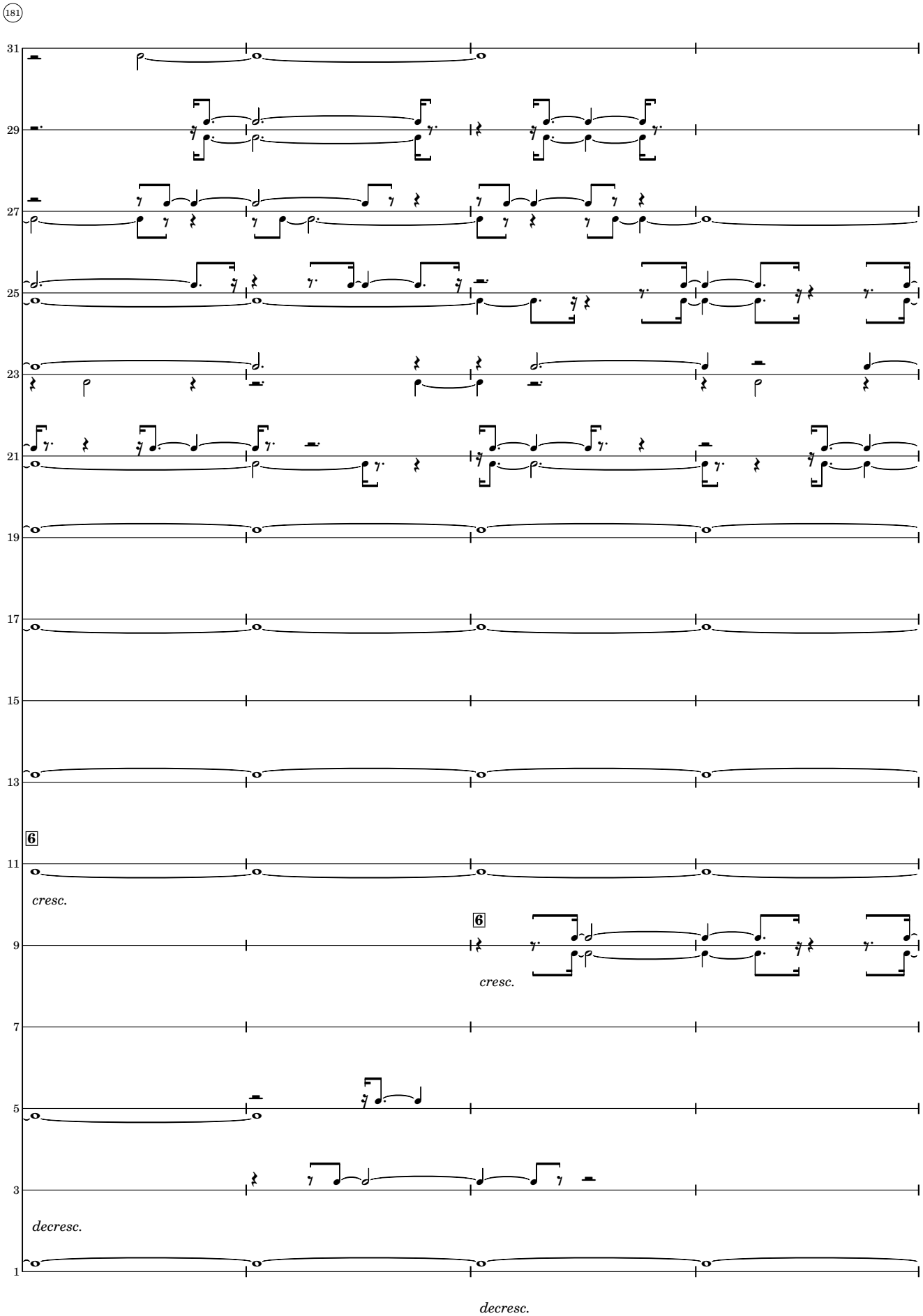

31
29
27
25
6
23
cresc.
6
21
cresc.
19
17
15
decresc.
13
decresc.
11
9
7
5
3
1

173

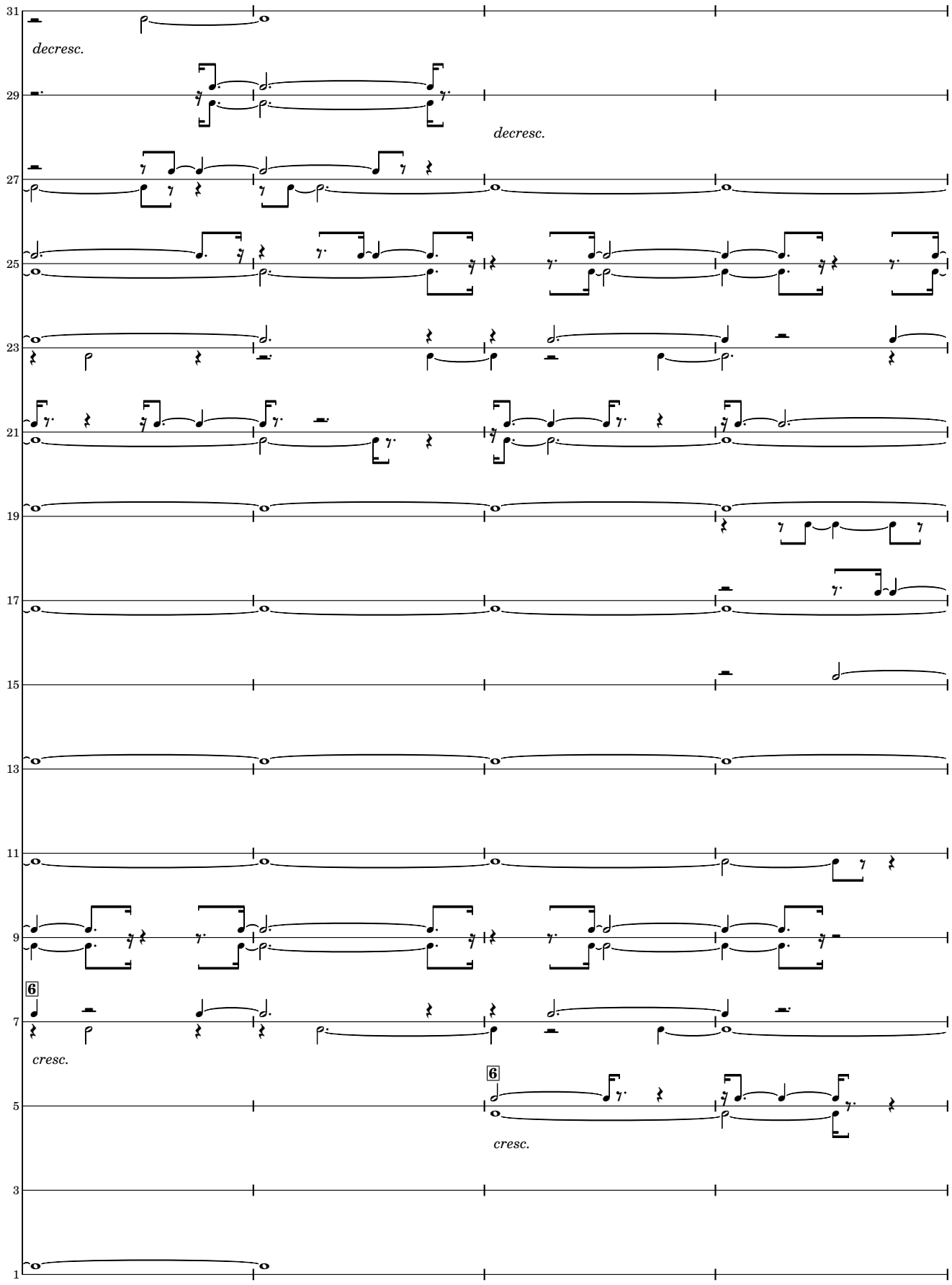

31
29
27
25
23
21
6
19
cresc.
6
17
cresc.
15
13
11
decresc.
9
decresc.
7
5
3
1

177

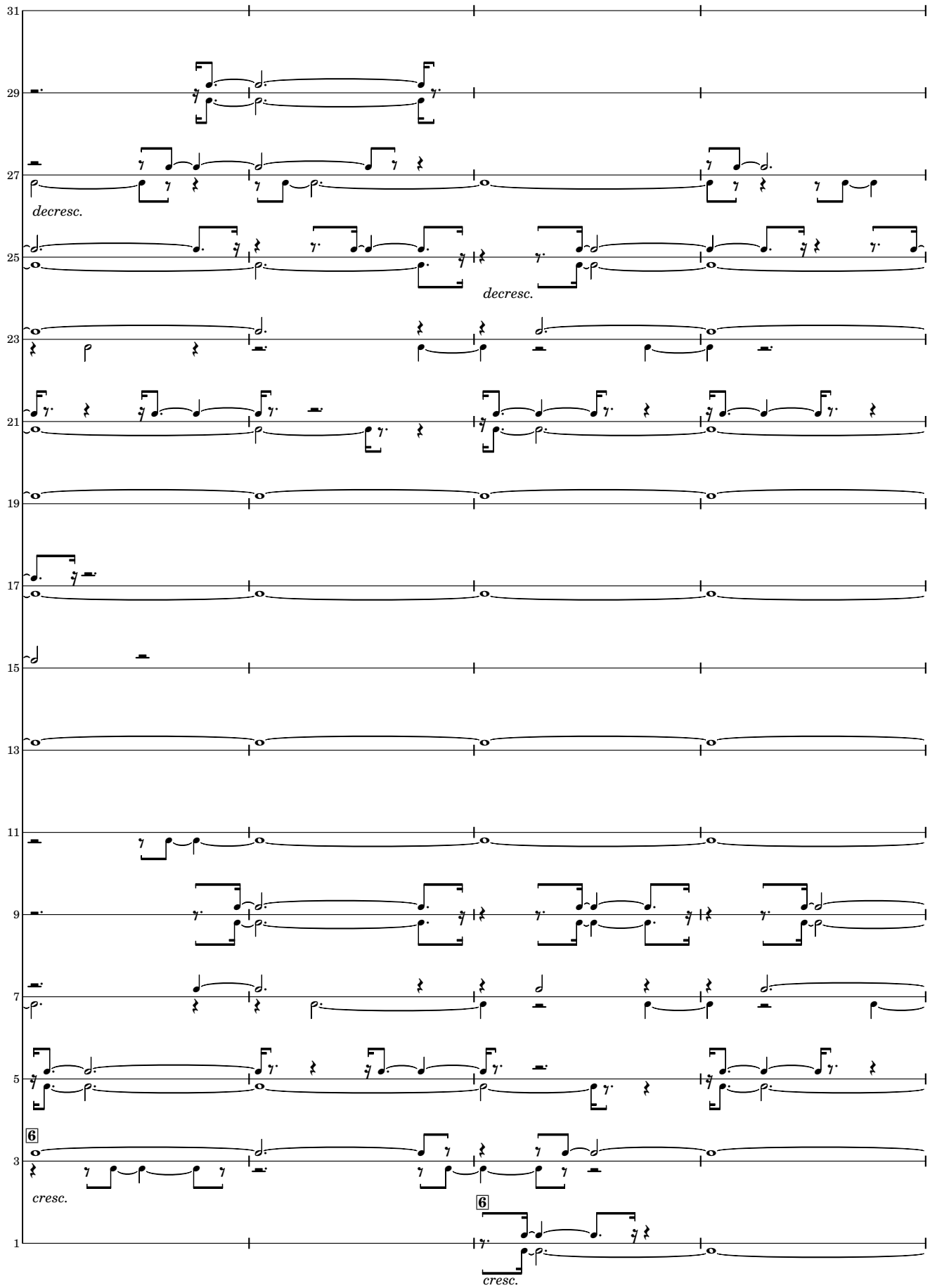

31
29
27
25
23
21
19
17
6
15
cresc.
6
13
cresc.
11
9
7
decresc.
5
decresc.
3
1

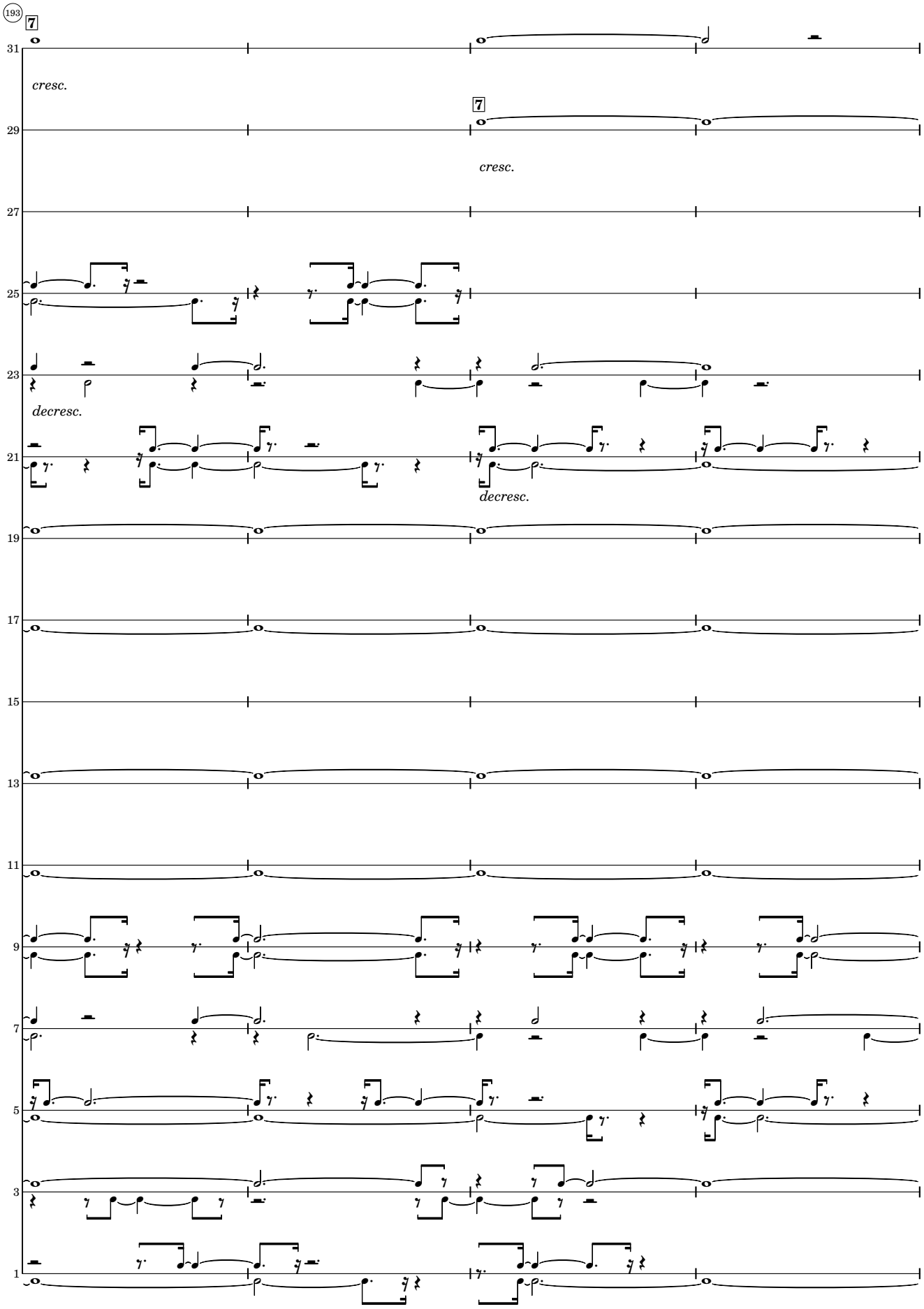

181
31
29
27
25
23
21
19
17
15
13
6
11
cresc.
6
9
cresc.
7
5
3
decresc.
1
decresc.

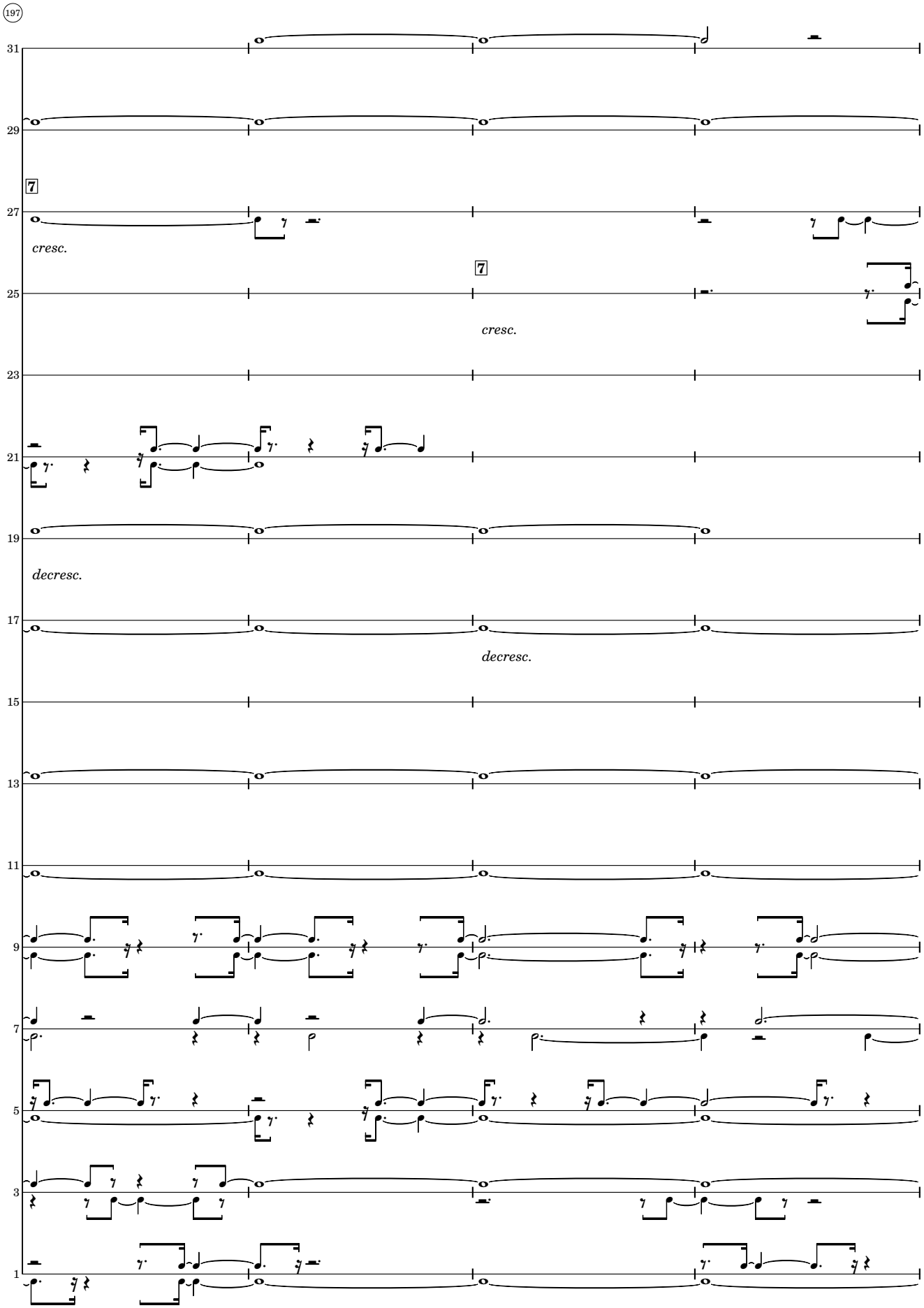
185

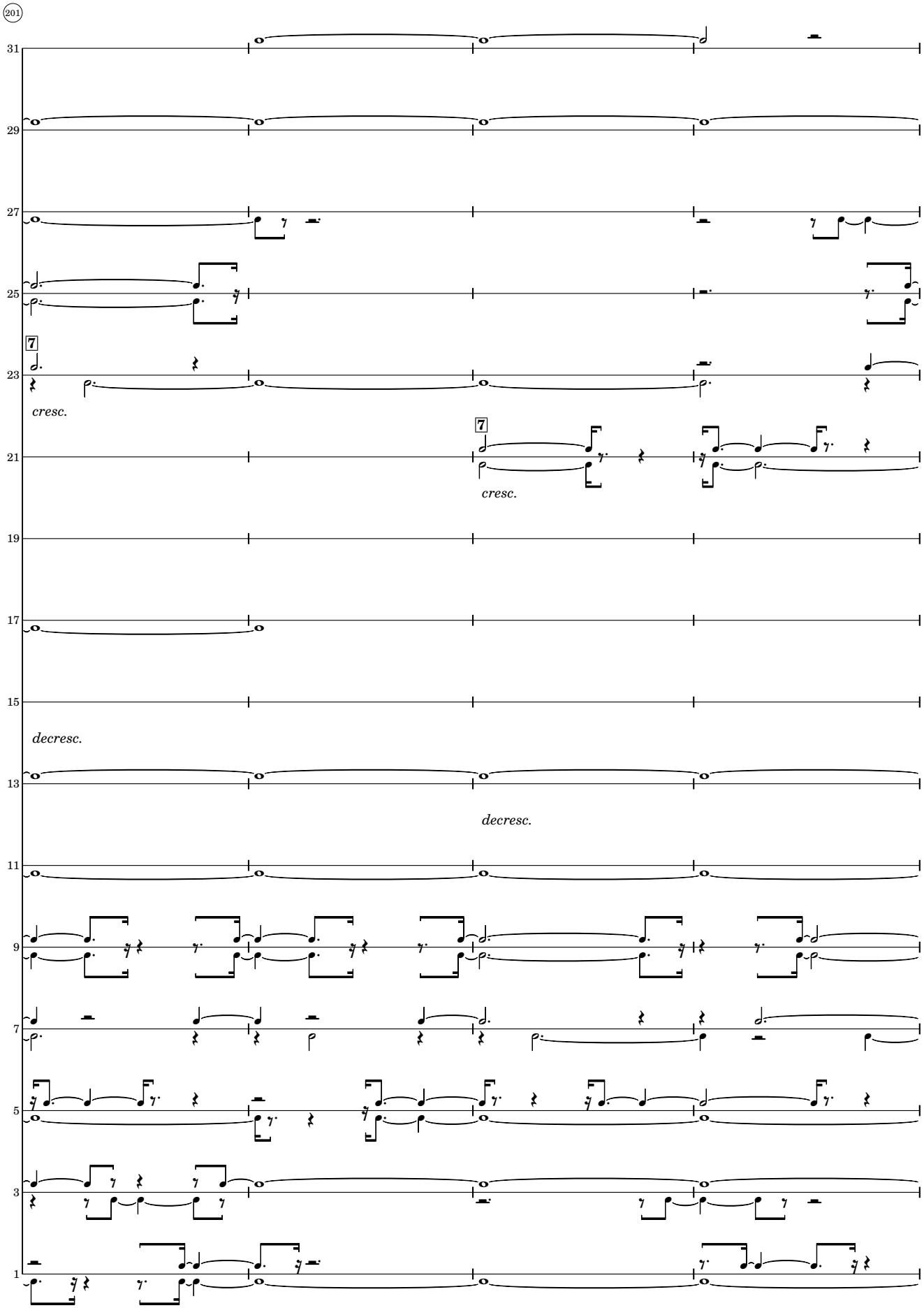

31
decresc.
29
decresc.
27
25
23
21
19
17
15
13
11
9
6
7
cresc.
6
5
cresc.
3
1

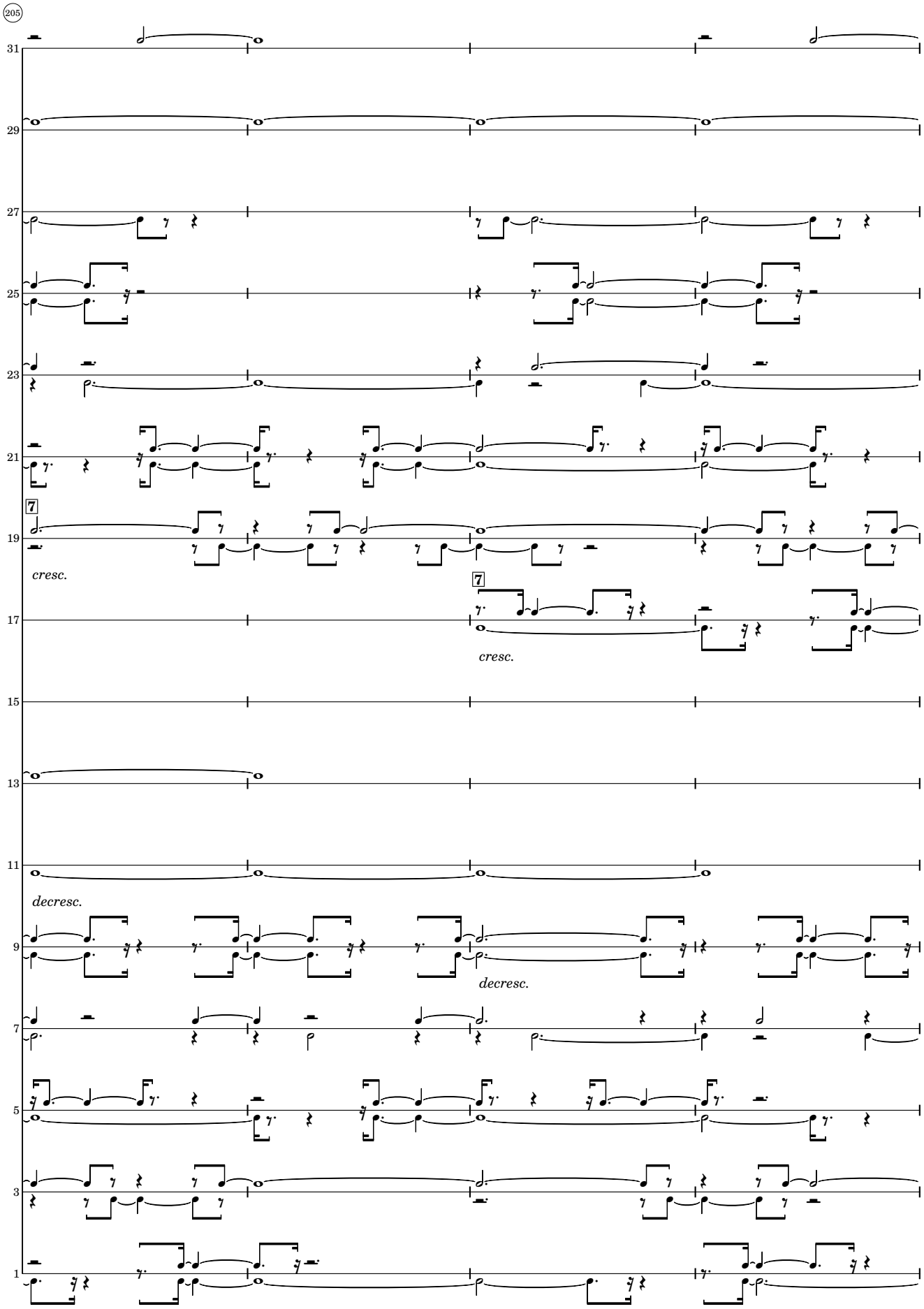
189


31
29
27
decresc.
25
decresc.
23
21
19
17
15
13
11
9
7
5
6
3
cresc.
6
1
cresc.

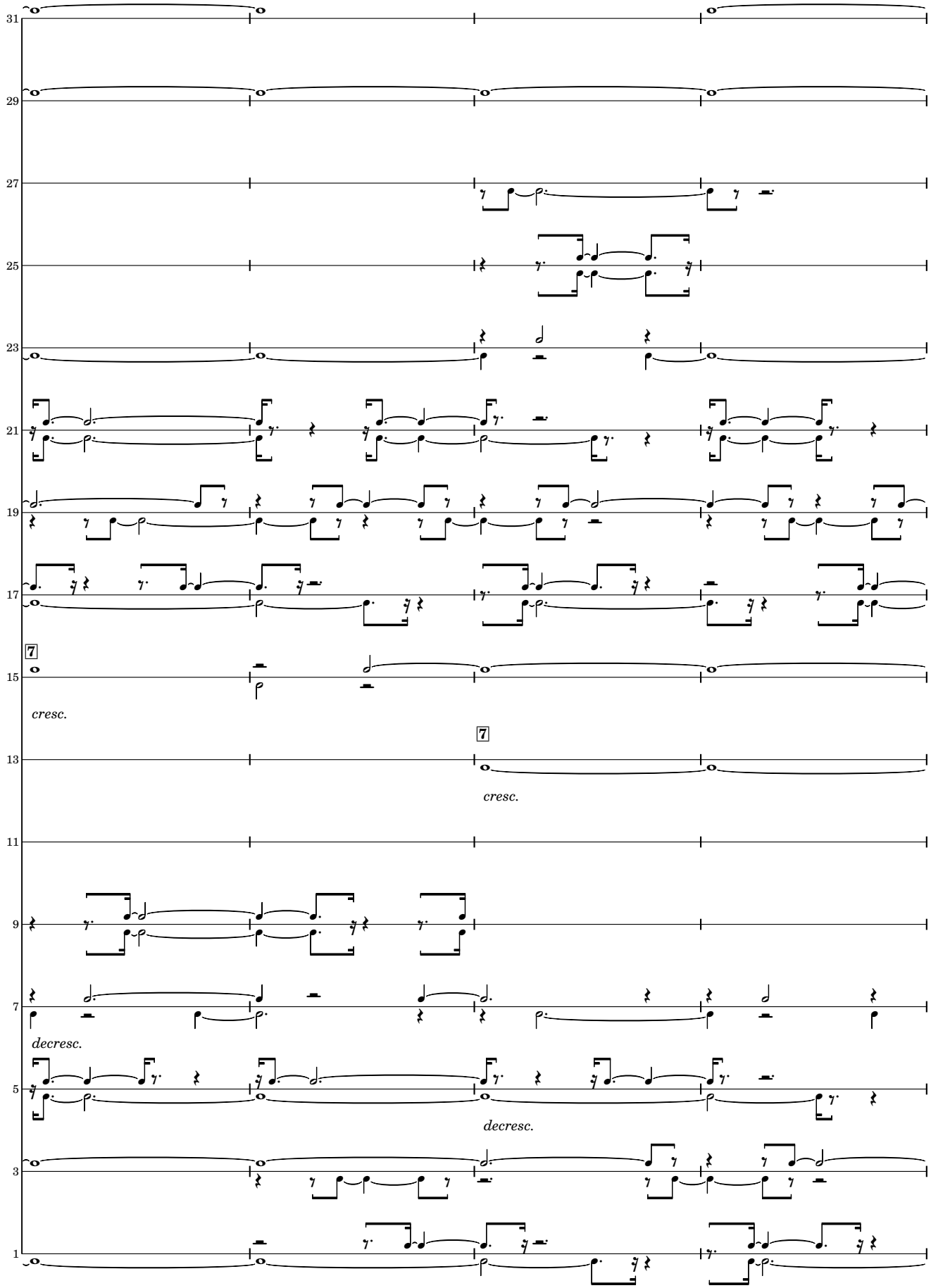

193
7
31
cresc.
7
29
cresc.
27
25
23
decresc.
21
decresc.
19
17
15
13
11
9
7
5
3
1

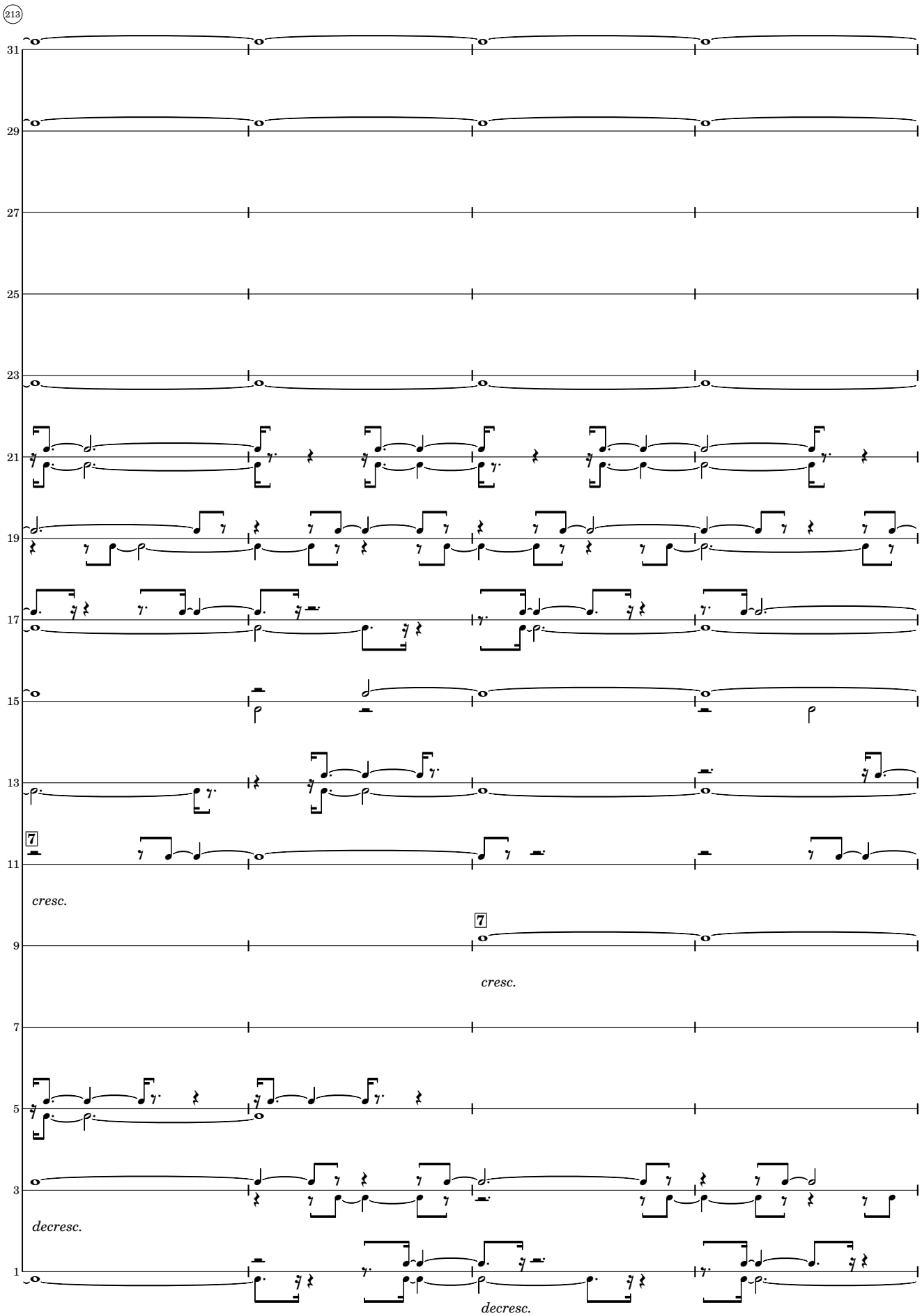

197
31
29
7
27
cresc.
7
25
cresc.
23
21
19
decresc.
17
decresc.
15
13
11
9
7
5
3
1

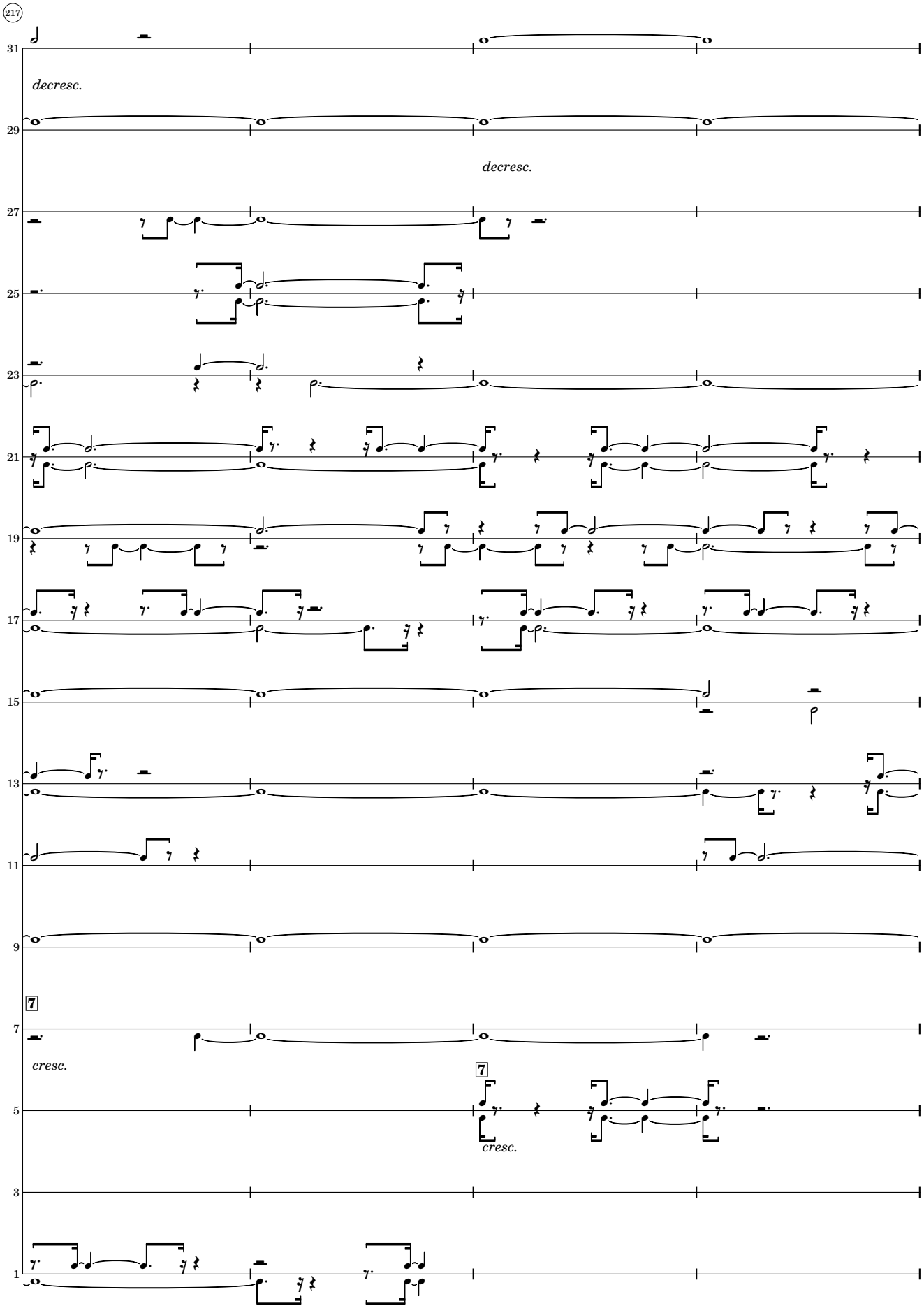

201
31
29
27
25
7
23
cresc.
7
21
cresc.
19
17
15
decresc.
13
decresc.
11
9
7
5
3
1


205
31
29
27
25
23
21
7
19
cresc.
7
17
cresc.
15
13
11
decresc.
9
decresc.
7
5
3
1

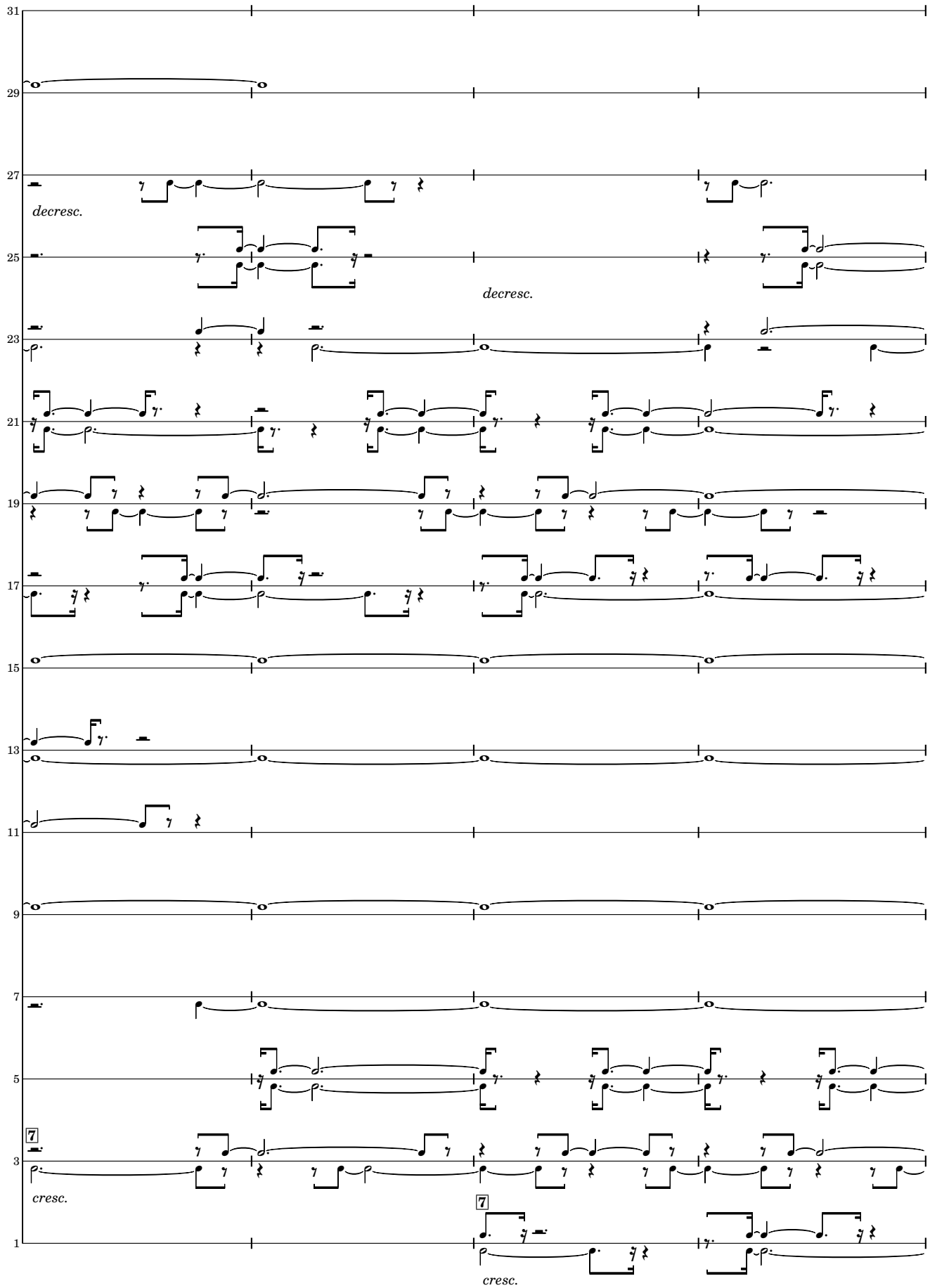
209

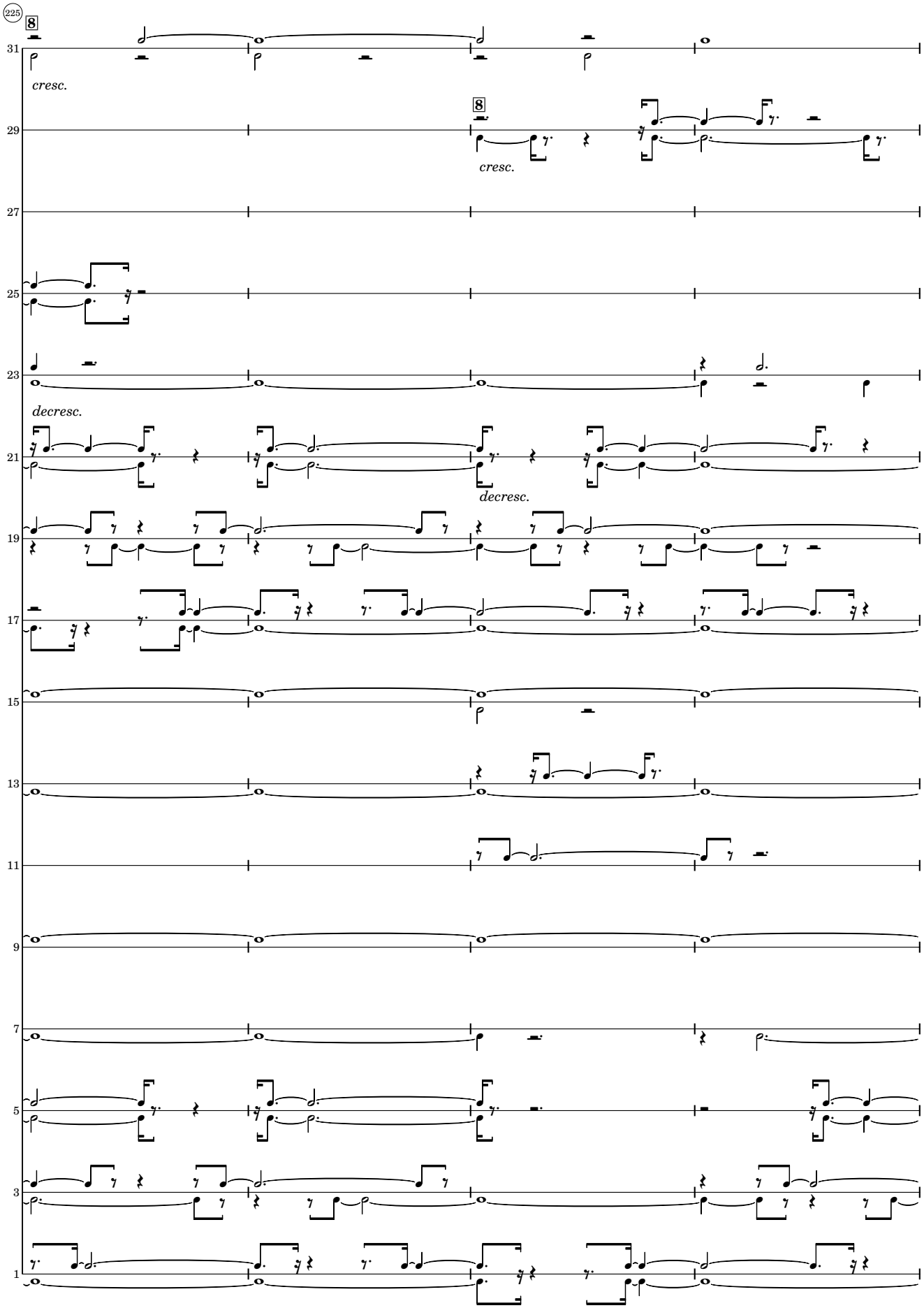

31
29
27
25
23
21
19
17
7
15
cresc.
7
13
cresc.
11
9
7
decresc.
5
decresc.
3
1

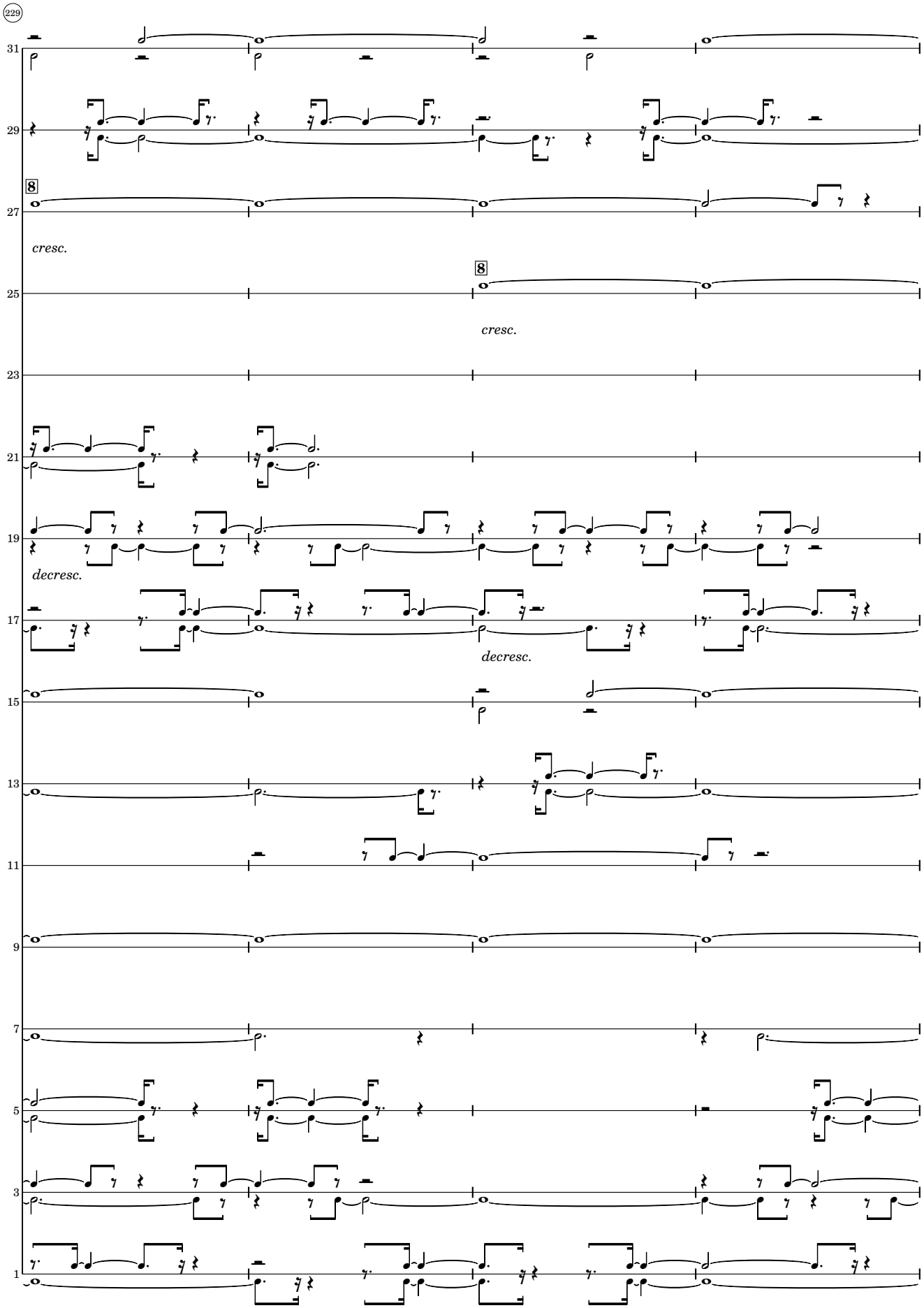

213
31
29
27
25
23
21
19
17
15
13
7
11
cresc.
7
9
cresc.
7
5
3
decresc.
1
decresc.

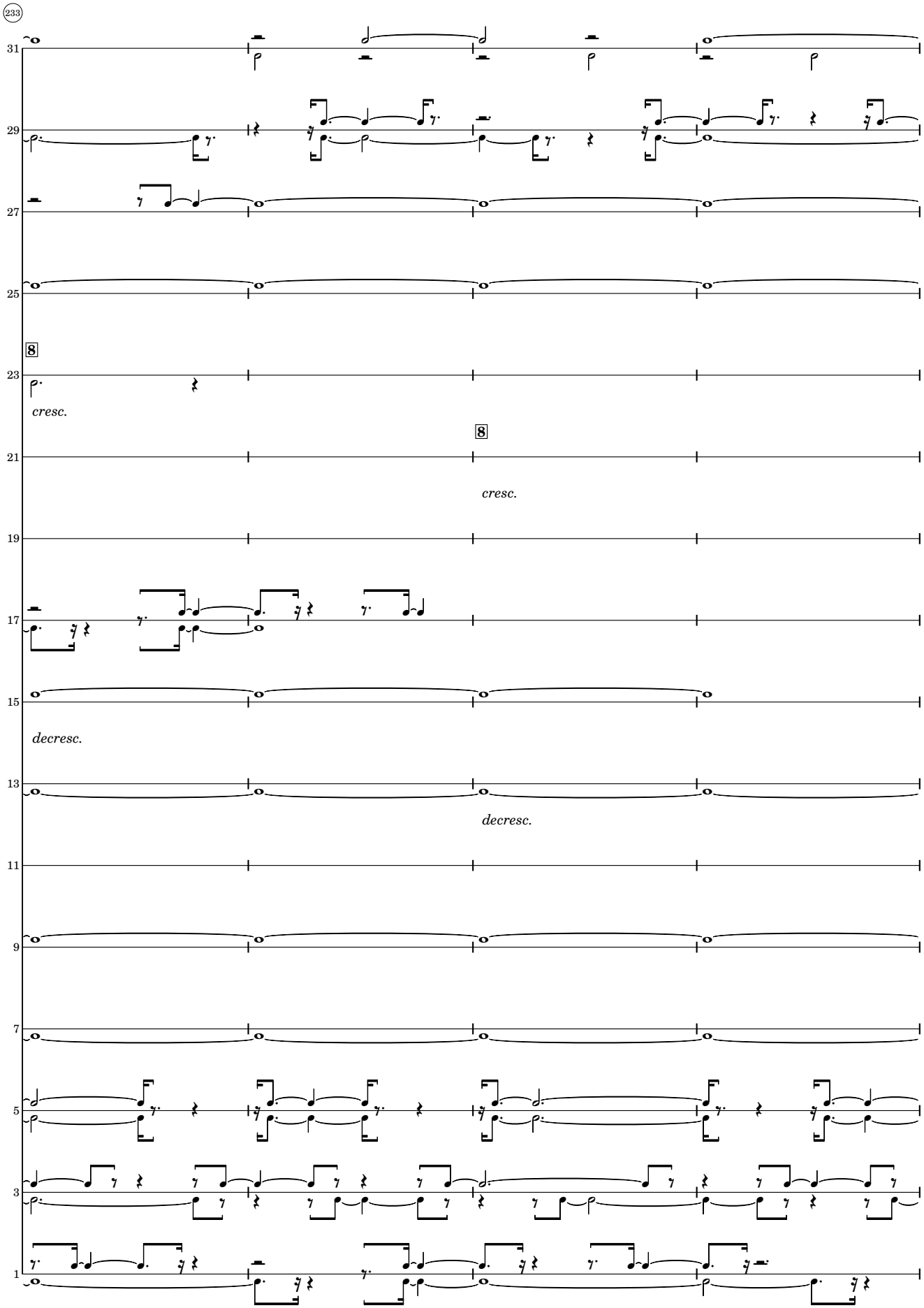

217
31
decresc.
29
decresc.
27
25
23
21
19
17
15
13
11
9
7
cresc.
5
cresc.
3
1

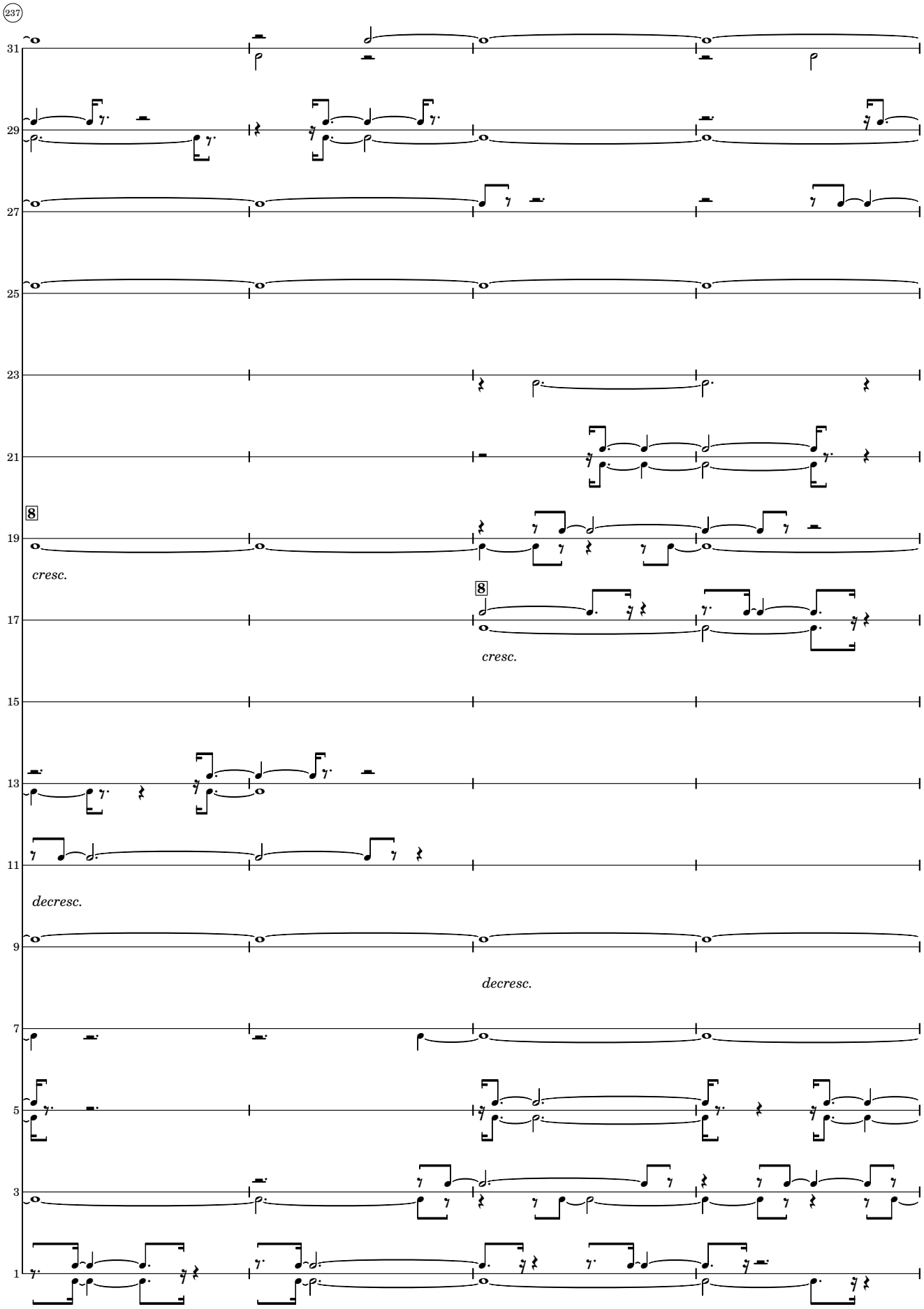
221

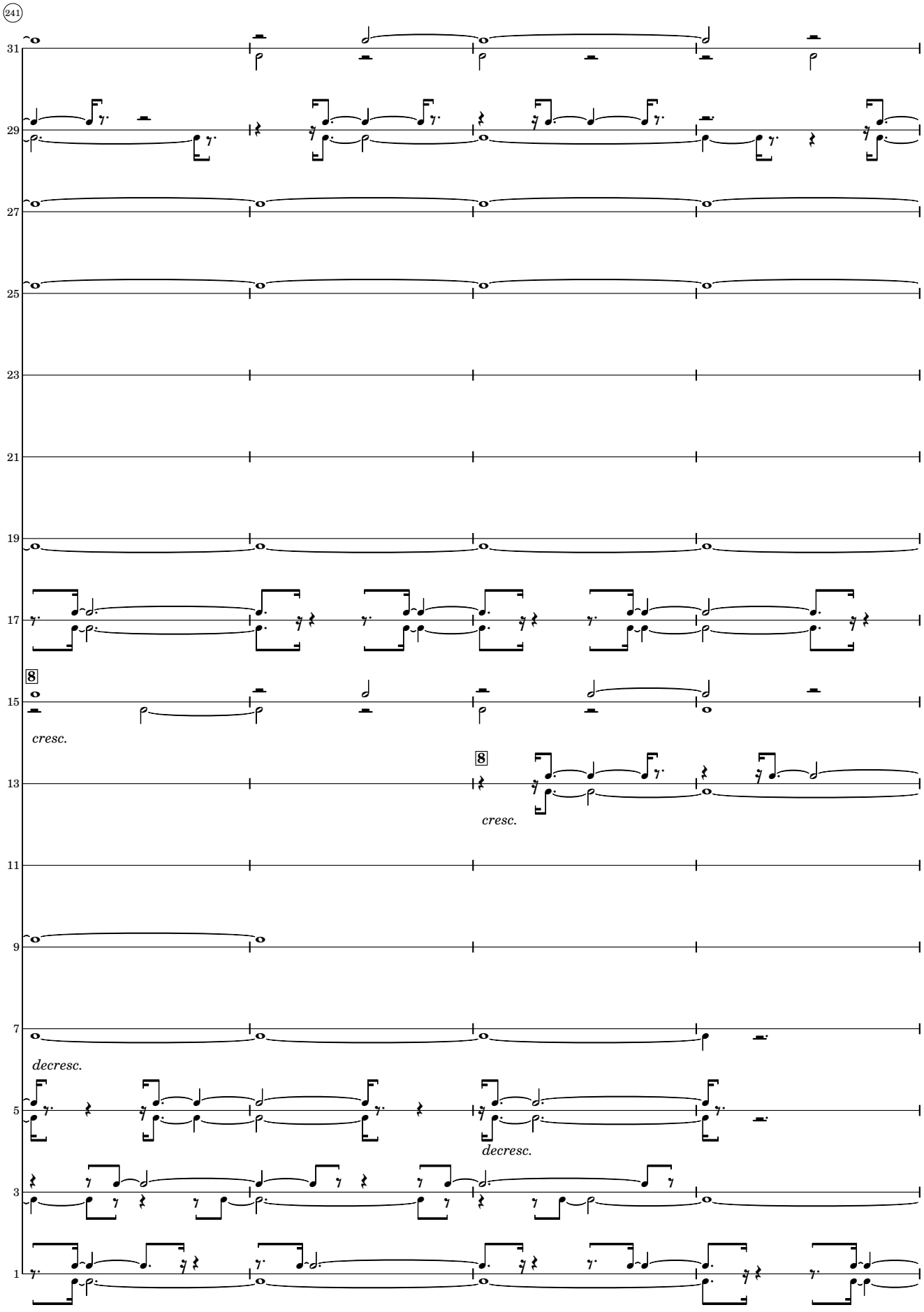

31
29
27
decresc.
25
decresc.
23
21
19
17
15
13
11
9
7
5
7
3
cresc.
7
1
cresc.

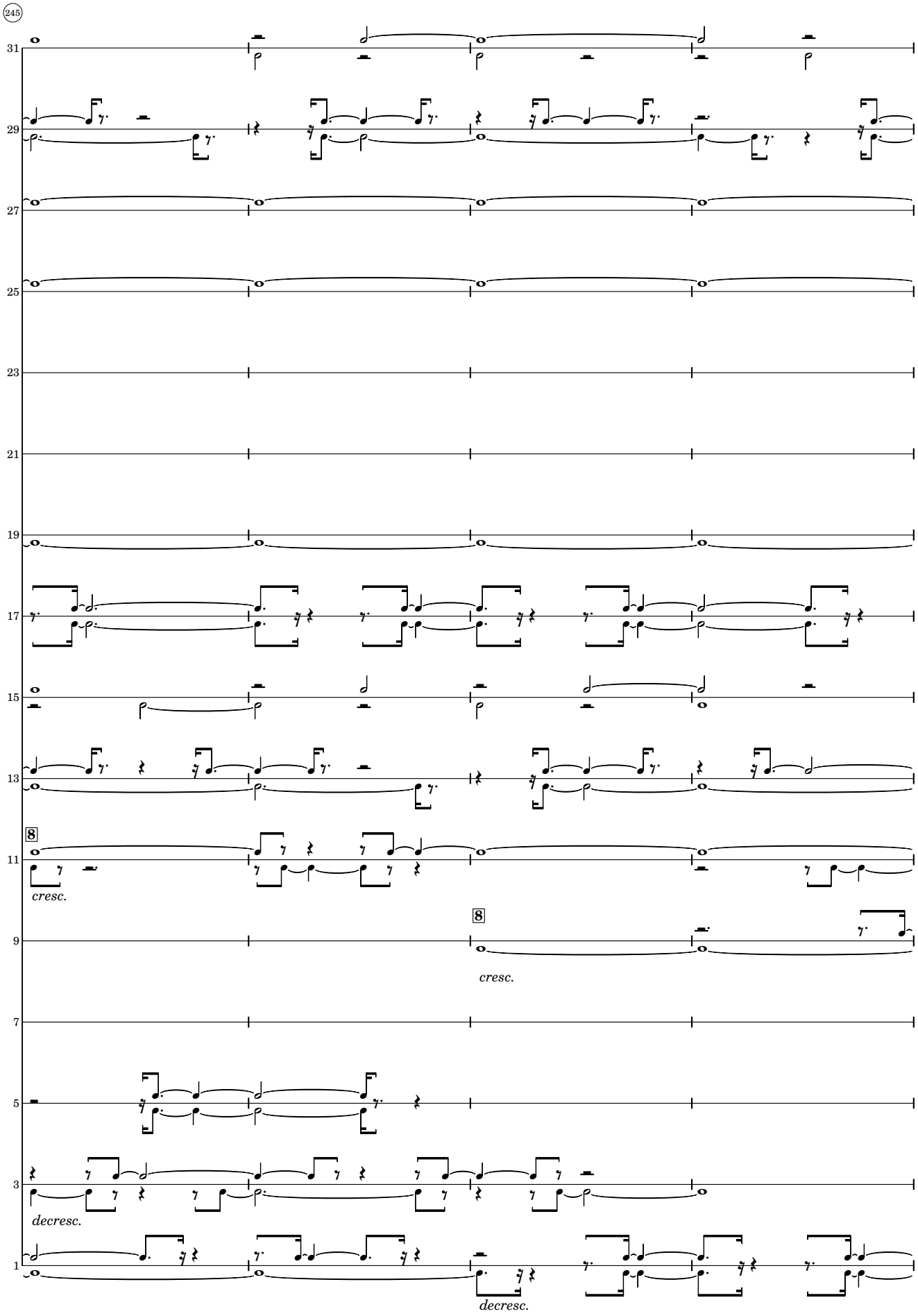

225
8
31
cresc.
8
29
cresc.
27
25
23
decresc.
21
decresc.
19
17
15
13
11
9
7
5
3
1

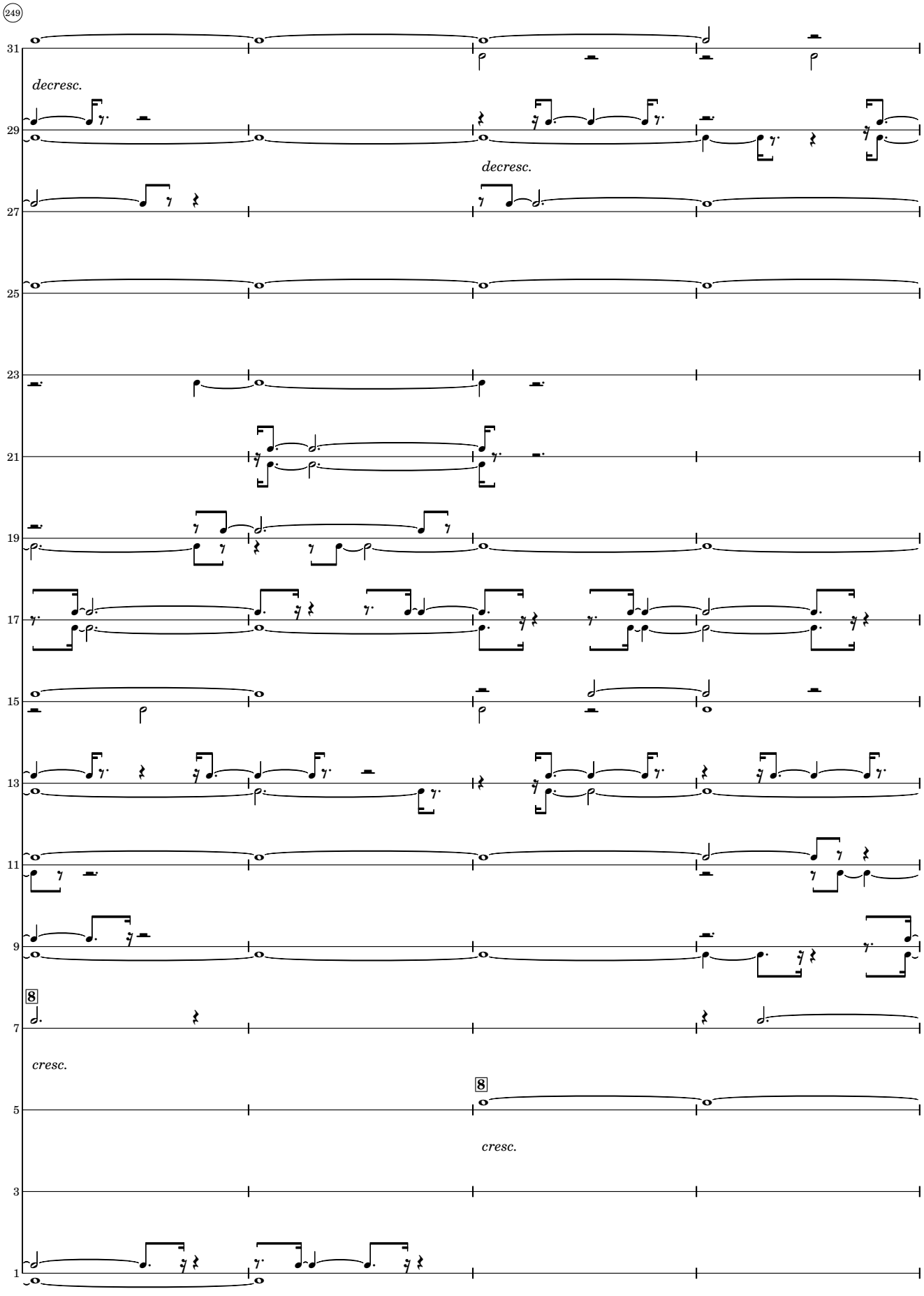

229
31
29
8
27
cresc.
25
8
cresc.
23
21
19
decresc.
17
decresc.
15
13
11
9
7
5
3
1


233
31
29
27
25
8
23
cresc.
8
21
cresc.
19
17
15
decresc.
13
decresc.
11
9
7
5
3
1

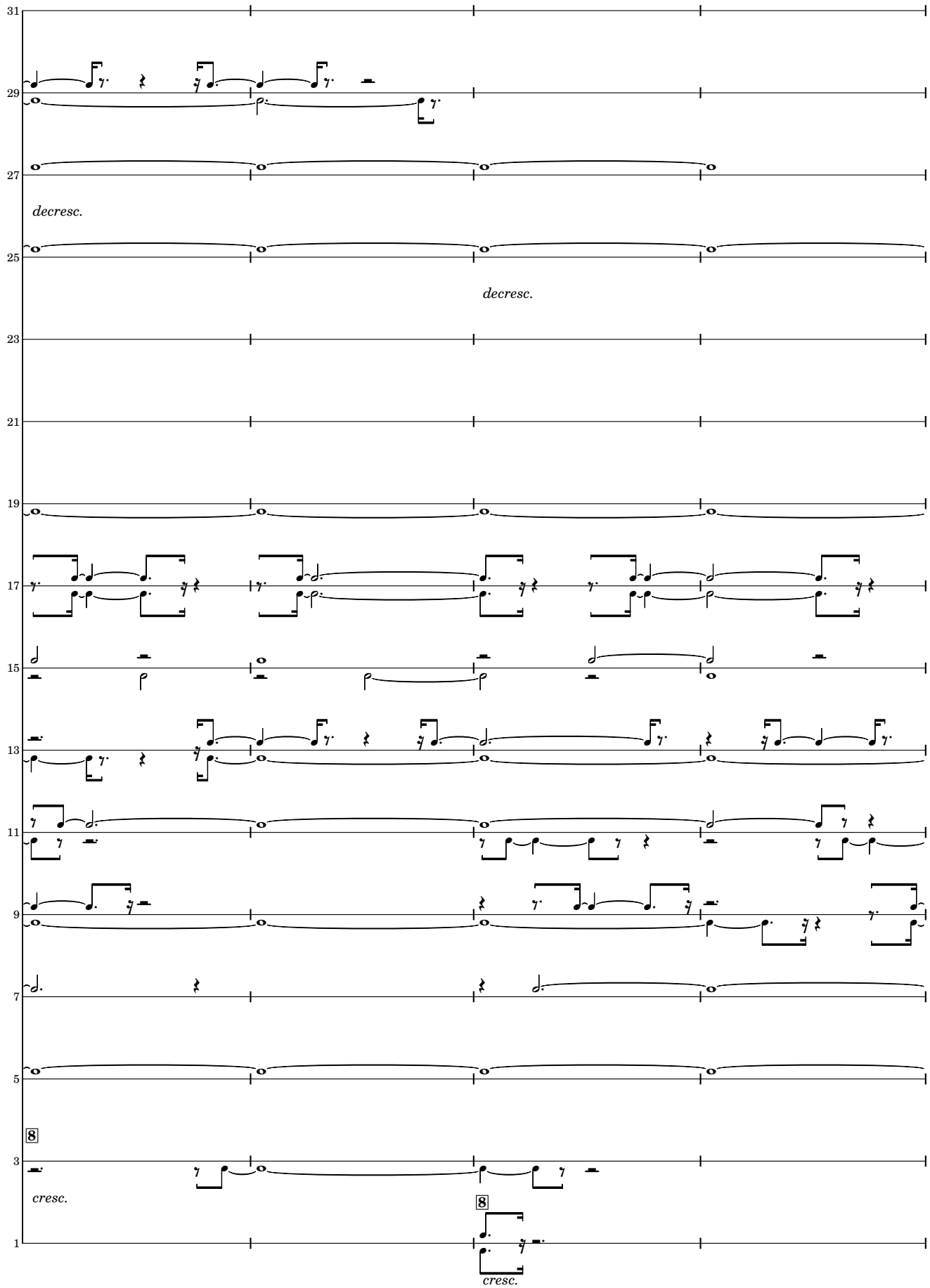

237
31
29
27
25
23
21
8
19
cresc.
8
17
cresc.
15
13
11
decresc.
9
decresc.
7
5
3
1


241
31
29
27
25
23
21
19
17
8
15
cresc.
8
13
cresc.
11
9
7
decresc.
5
decresc.
3
1

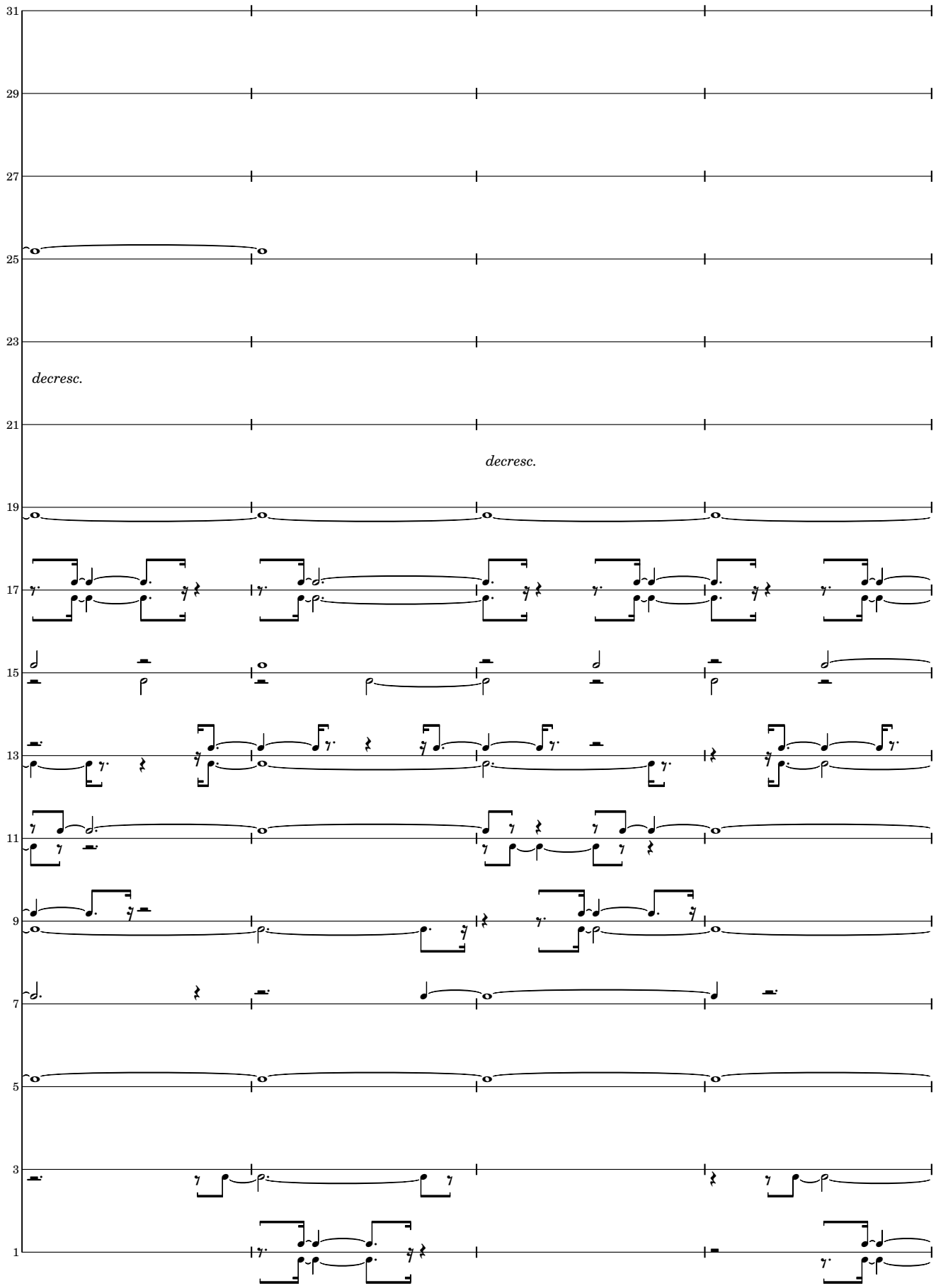

245
31
29
27
25
23
21
19
17
15
13
8
11
cresc.
8
9
cresc.
7
5
3
decresc.
1
decresc.


249
31
decresc.
29
decresc.
27
25
23
21
19
17
15
13
11
9
8
7
cresc.
8
5
cresc.
3
1

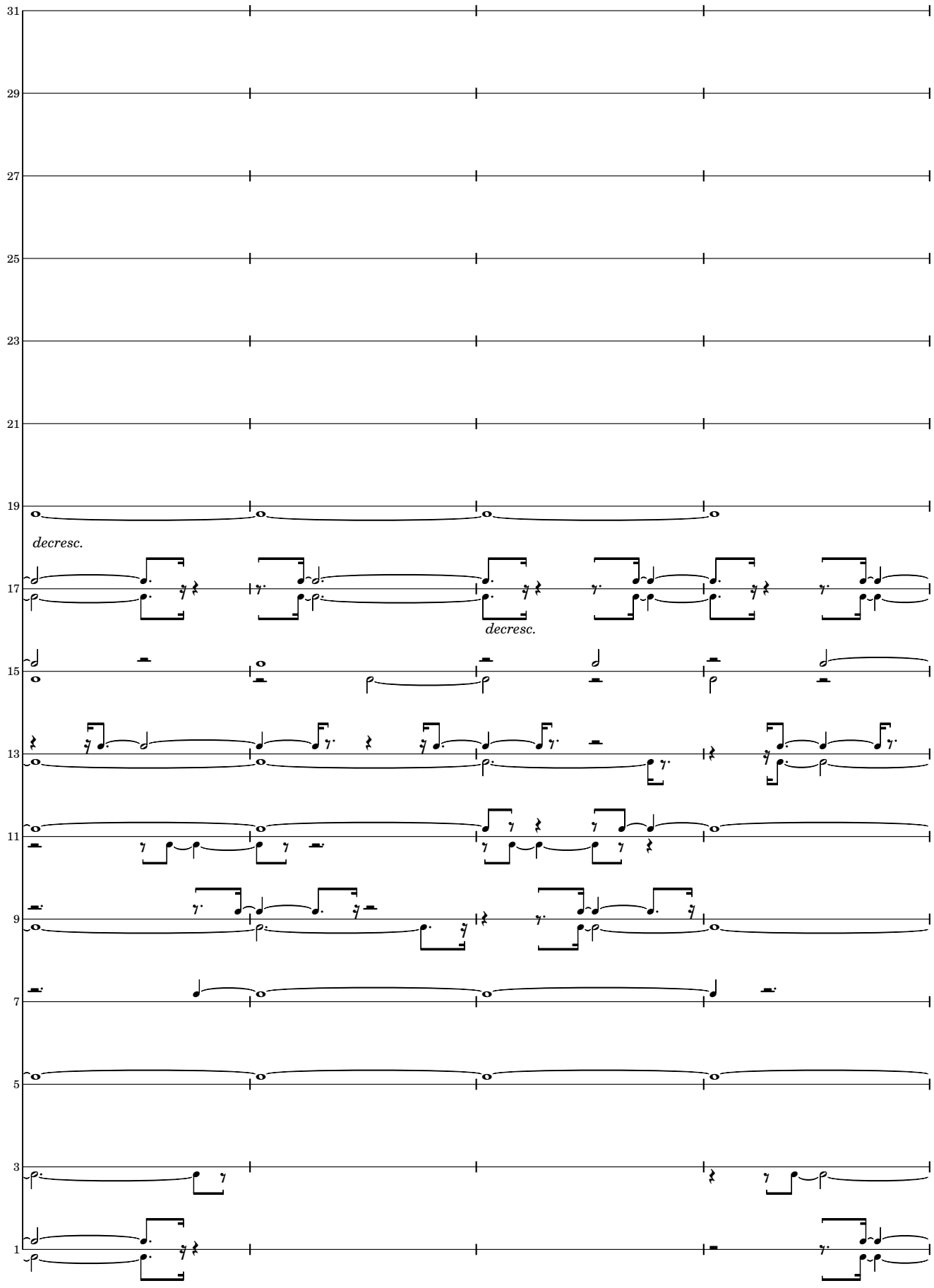
253


31
29
27
decresc.
25
decresc.
23
21
19
17
15
13
11
9
7
5
8
3
cresc.
8
1
cresc.

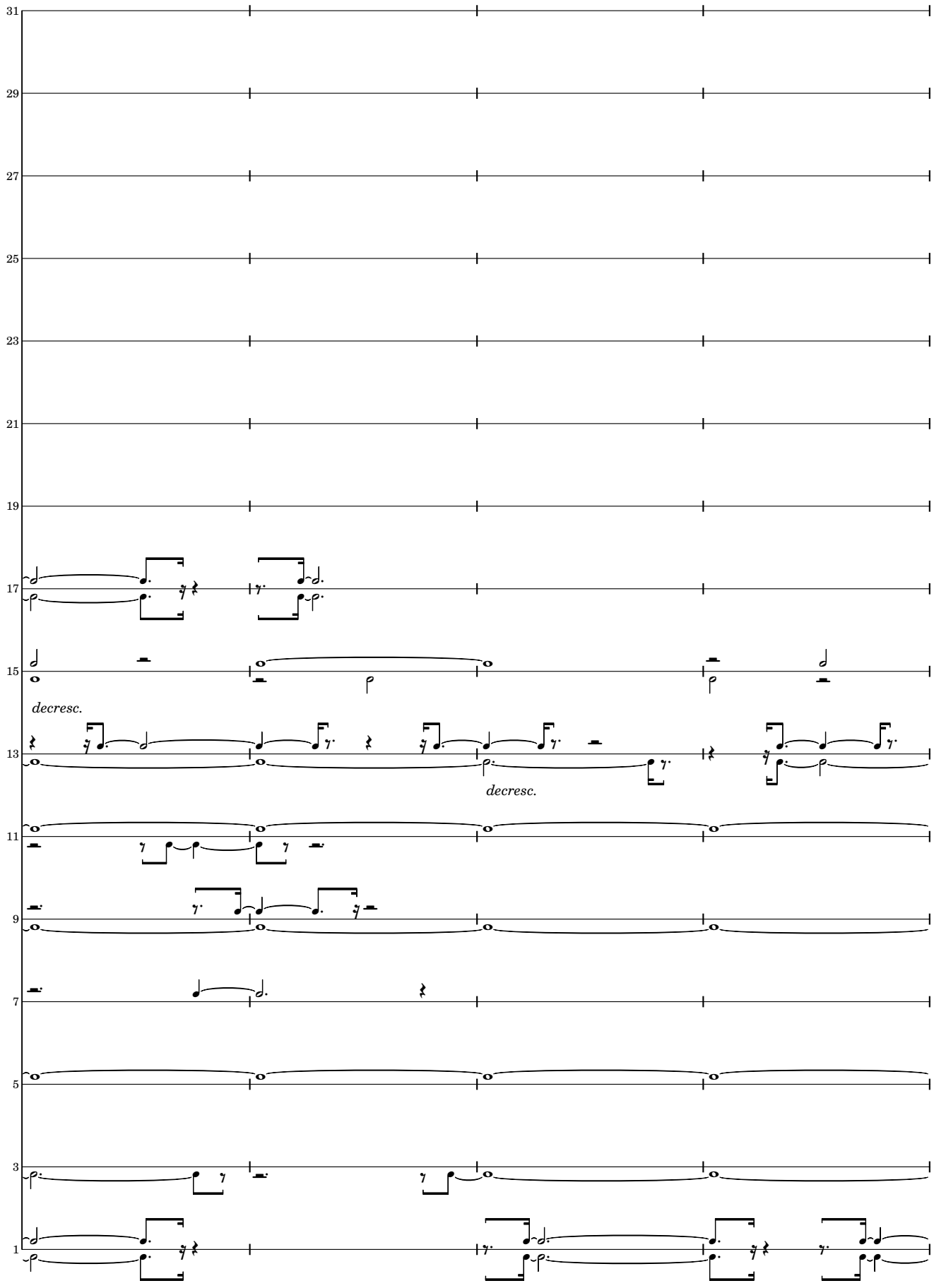
257



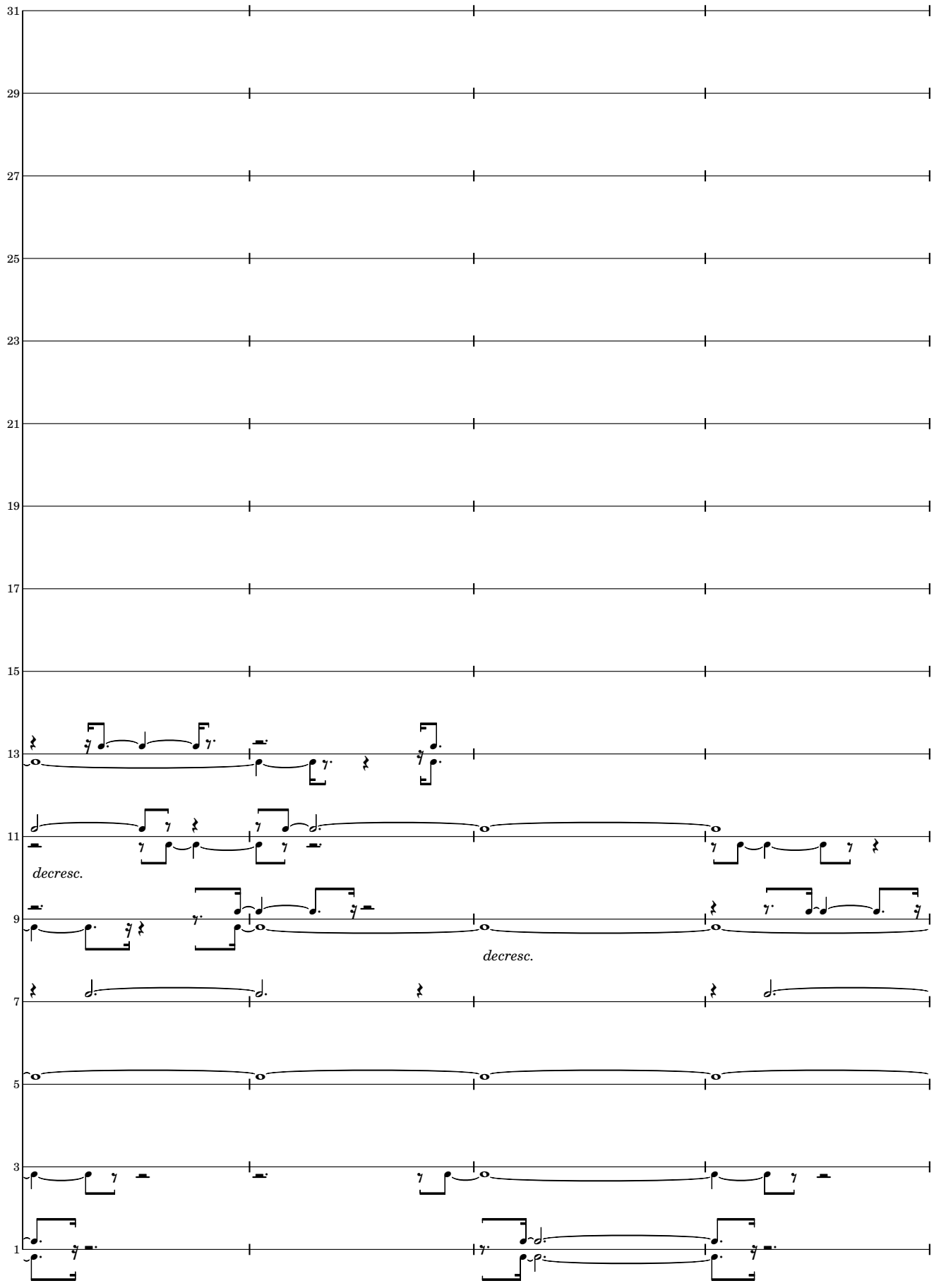
261



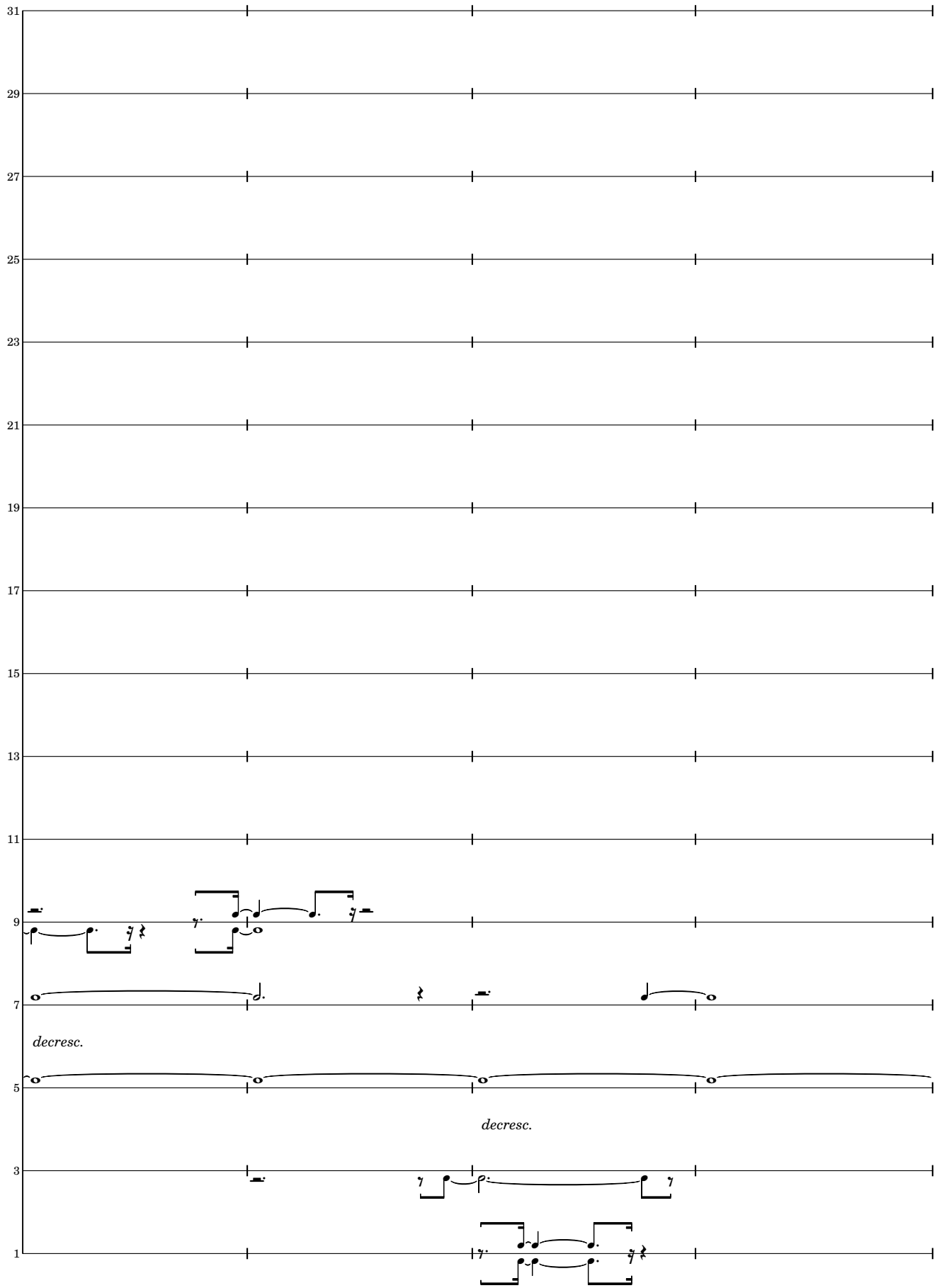
265



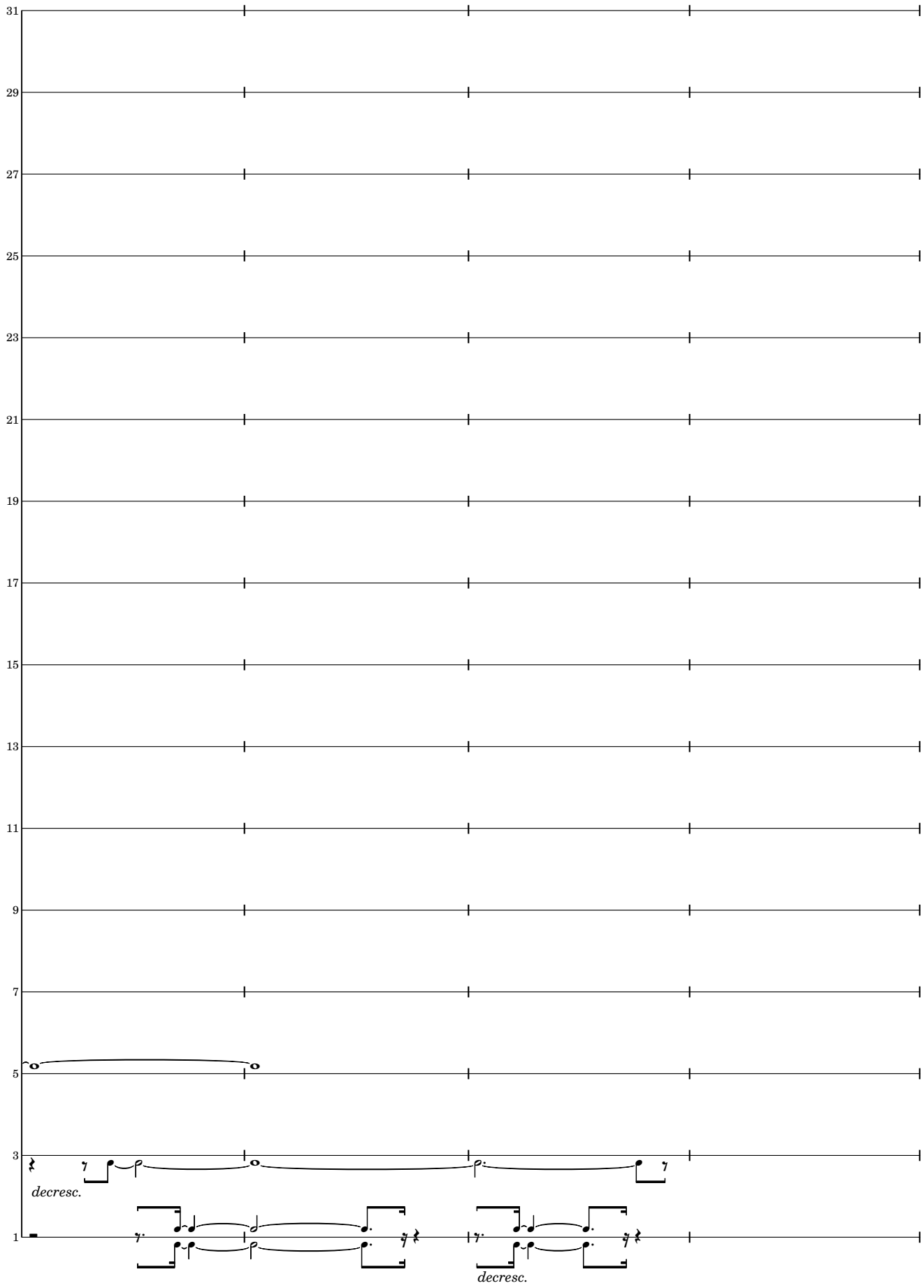
269



273



277



281

31

decresc.

29

decresc.

27

25

23

21

19

17

15

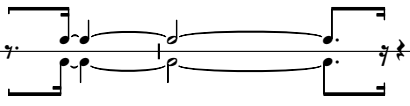
13

11

9

7

5

3

1