Dyads

violin solo

Fredrik Rasten

2020

Dyads

violin solo, for Johnny Chang

Fredrik Rasten
2020

Dyads consists of 9 small one-paged pieces, exploring 5-limit just intonation and *pitch drift* by the syntonic comma.

By the occasional use of a metal chain on the body of the violin, a rattling sound is achieved that also emphasizes the rhythmic and timbral aspects of harmonic beating.

Through combining groups of the *ptolemaic* (5-limit and pythagorean) dyads

5/3, 8/5, 5/4, 6/5, 3/2 and 4/3,

notes are arrived at that produce more complex dyadic sounds when combined with the open (pythagorean) D or G-string.

These *derivative* dyads[1] have a wide span of complexity. While the simpler derivations, like the 15/8 (Ptolemaic major seventh), 9/8, 10/9 (major and minor whole tone respectively) and 27/16 (pythagorean major sixth) are all either simple pythagorean intervals in themselves or simple pythagorean intervals altered by *one* syntonic comma (81/80), the more complex derivatives are generated by accumulation of simple ptolemaic intervals that “pulls” the comma in the same direction, and are thus altered by two or three syntonic commas from their pythagorean “origin”.

Tuning:

The piece is played on the two lower strings of the violin, tuned as a just pythagorean fifth (3/2):

3. D -2 cents
4. G -4 cents

[1] *dyad* and *interval* are here used more or less interchangeably

Notation:

The staff notation is supplemented with harmonic ratios above each dyad and melodic ratios between the harmonic ones in a way that permits interpreting the score without necessarily reading the staff notation:

- Note that the melodic ratios are written with respect to temporal movement:

  4 : 5 means that the melodic movement *from* 4 *to* 5 constitutes the difference and the transition between the two dyads[2].

- When the melodic ratios graphically are placed higher, this means that the melodic transition happens on the 3rd string, as when the melodic ratios graphically are placed lower, this means that the melodic transition happens on the 4th string.

- The accidentals used belong to the Extended Helmholtz-Ellis JI Pitch Notation by Marc Sabat and Wolfgang von Schweinitz

Interpretational notes:

Each dyad is quite long in duration, with one very slow bow (or more) per dyad. Every dyad is well tuned and stabilized before moving on, however, a sense of melodic movement should be preserved

When two dyads are not connected with a notated bow they should be separated by a few seconds of silence

Each page should have a quite long silence between them

Pages can be repeated

The piece can either progress in a normal succession or in any other order, and the performer is free to play a selection of pages instead of them all

The piece is played soft or medium soft throughout, but with a full tone / with clarity

Very small melodic movements, of 80:81 (syntonic comma) and 125:128 (lesser diesis), should be played with a subtle and slow adjustment / glissando. Apart from this glissandi can appear occasionally, ad lib

[2] *contrary* to the common praxis of 4:5 meaning a *downward* movement and 5:4 meaning an *upward* movement, in this context the respect to the temporal order makes more sense to me.

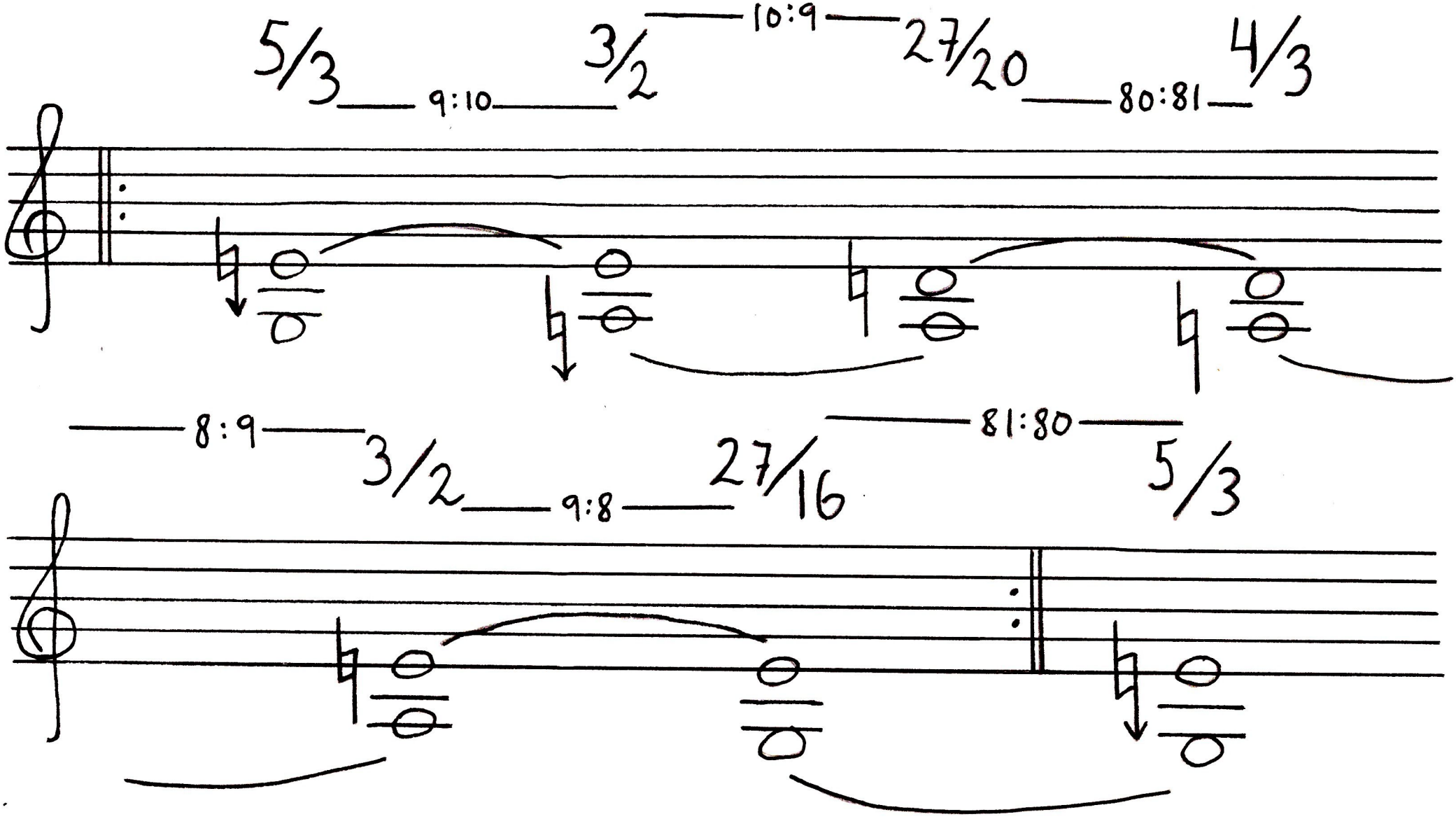
A metal chain[3] - a necklace, key-chain or similar should be applied to the violin body for some or all of the pages played (resting somewhere between the bridge and where the violin neck connects to the body), to create rattling texture.

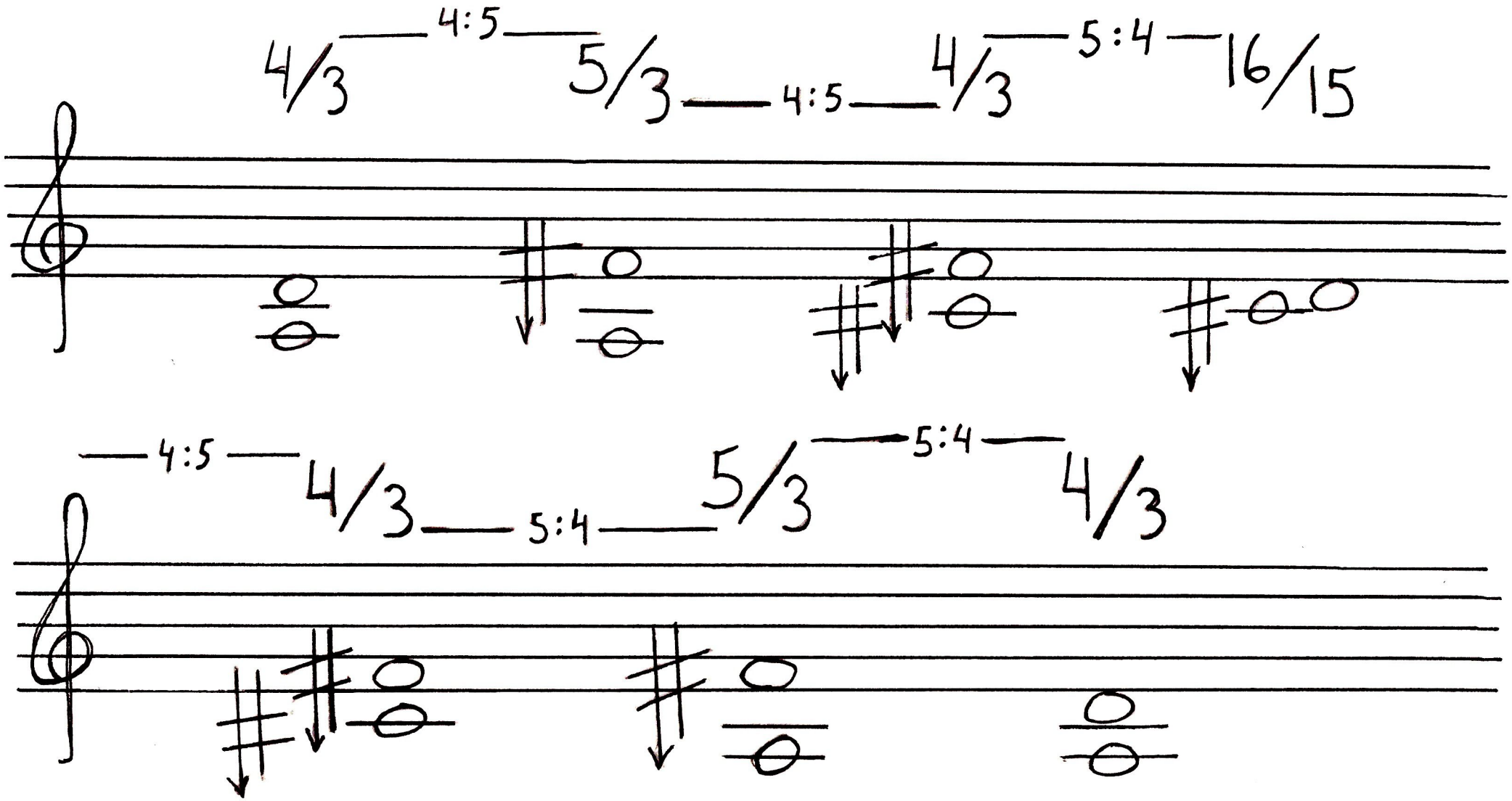
A page can also be played without the chain and then repeated with the chain or vice versa.

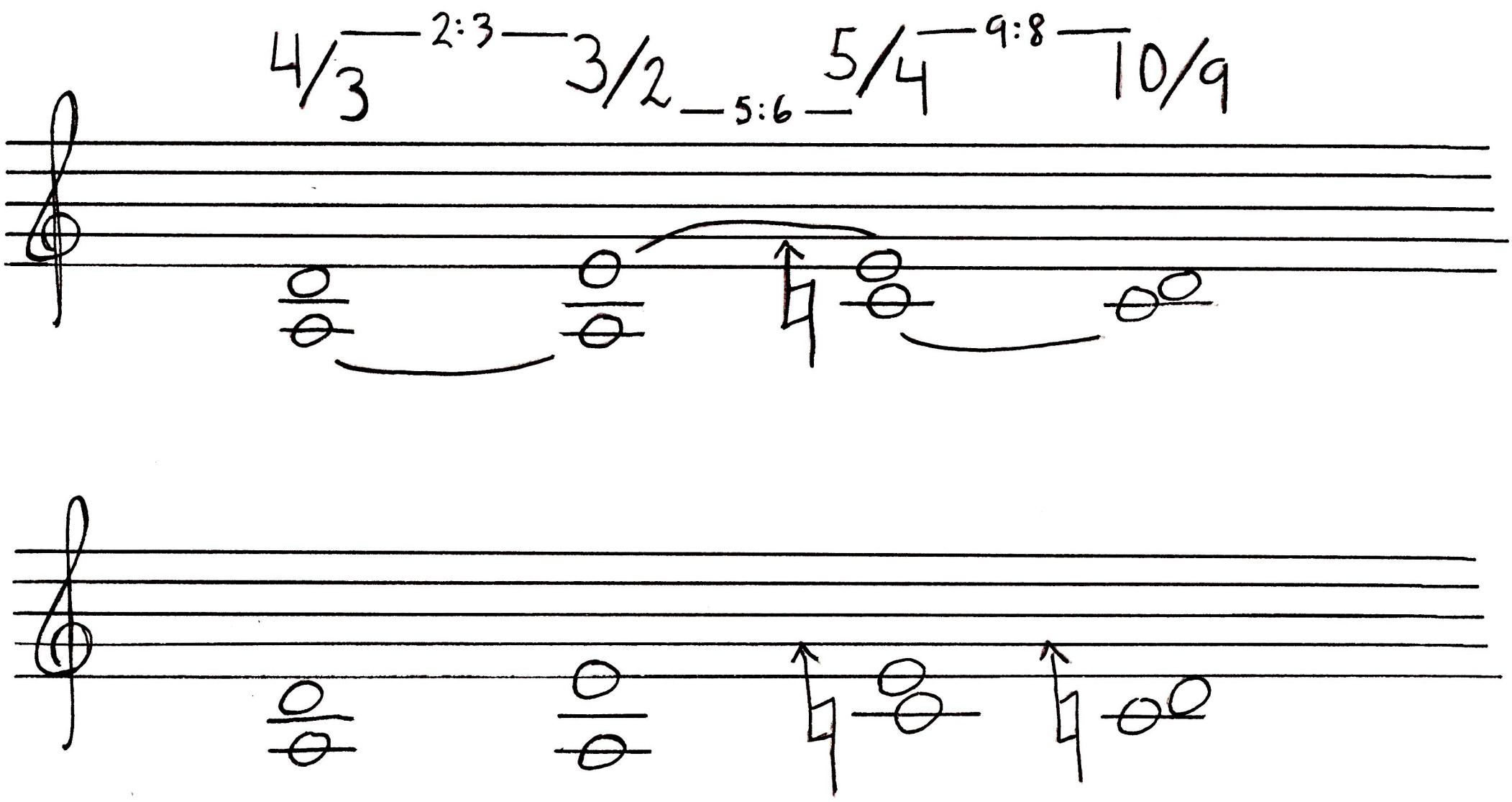
To minimize the logistics of the chain being put in place and taken off, the intervals of using or not using the chain should generally be quite long.

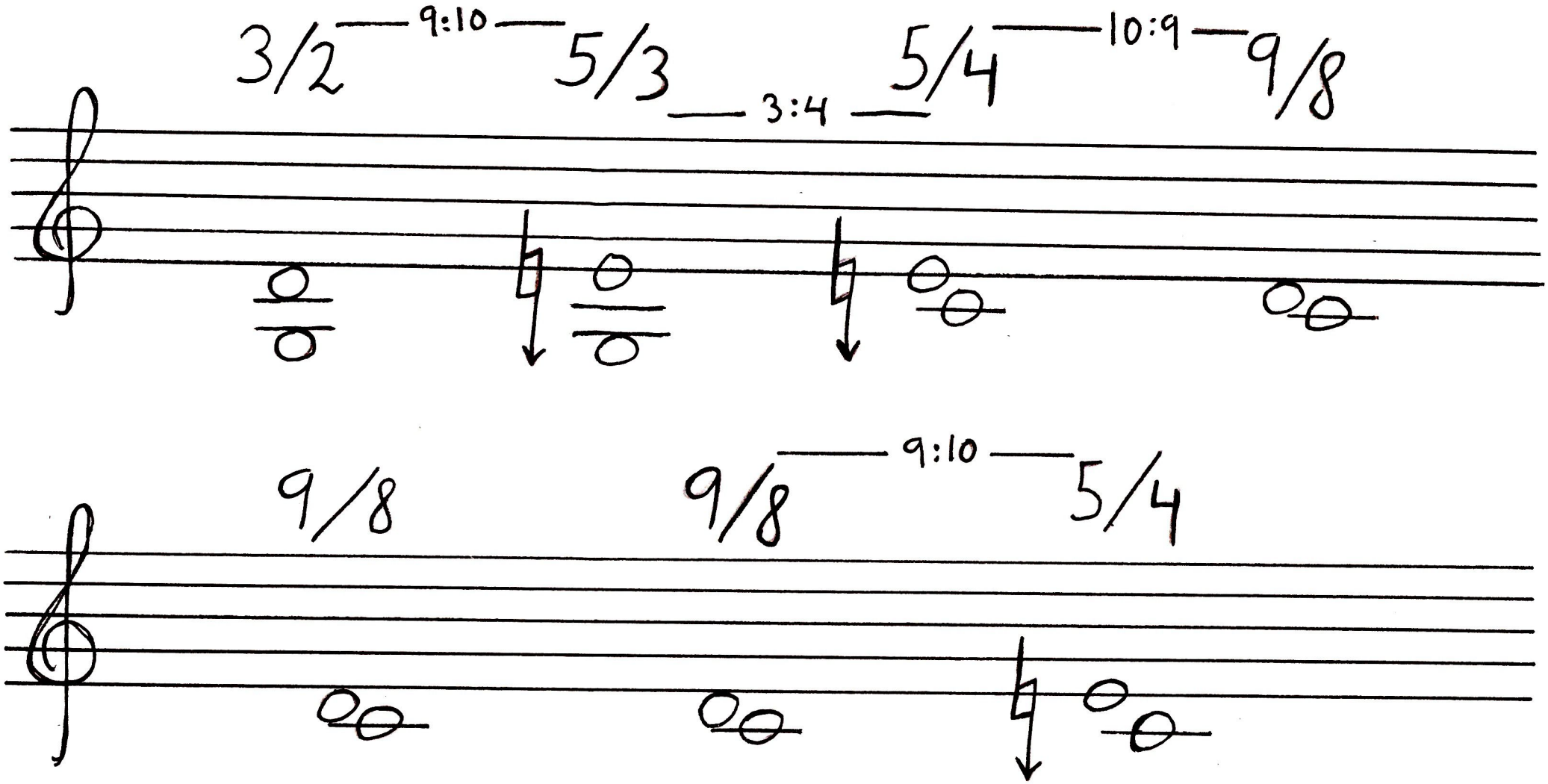
The piece can also be realized with the chain applied throughout.

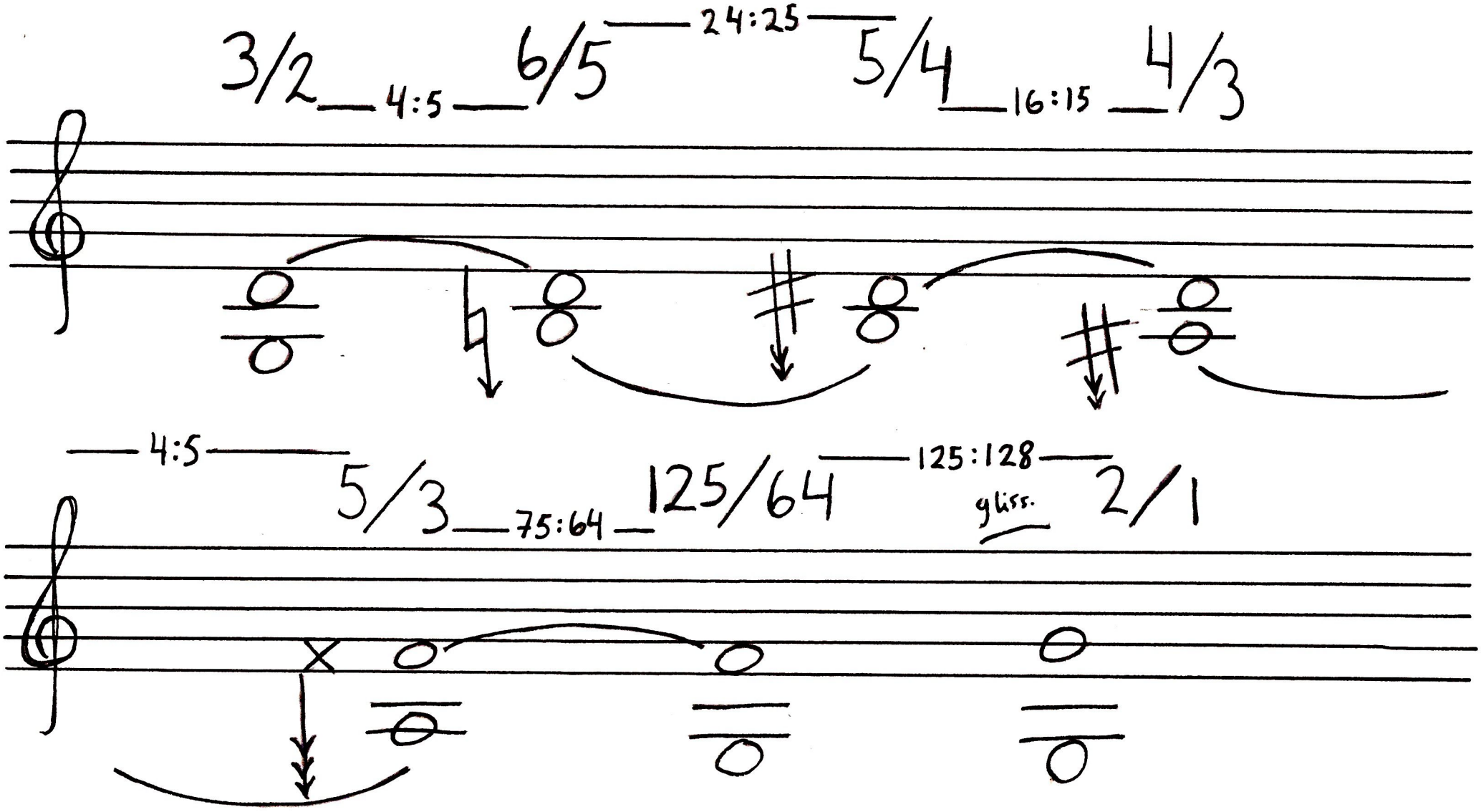
[3] The chain must have some weight and volume to be effective. The one I have experimented with while composing the piece is around 2 meters long and consists of pebbles of stainless steel, with a diameter of ca 4 mm per pebble (the type of chain that is used for some types of window blinds). Most hardware stores should have a variety of appropriate chains.

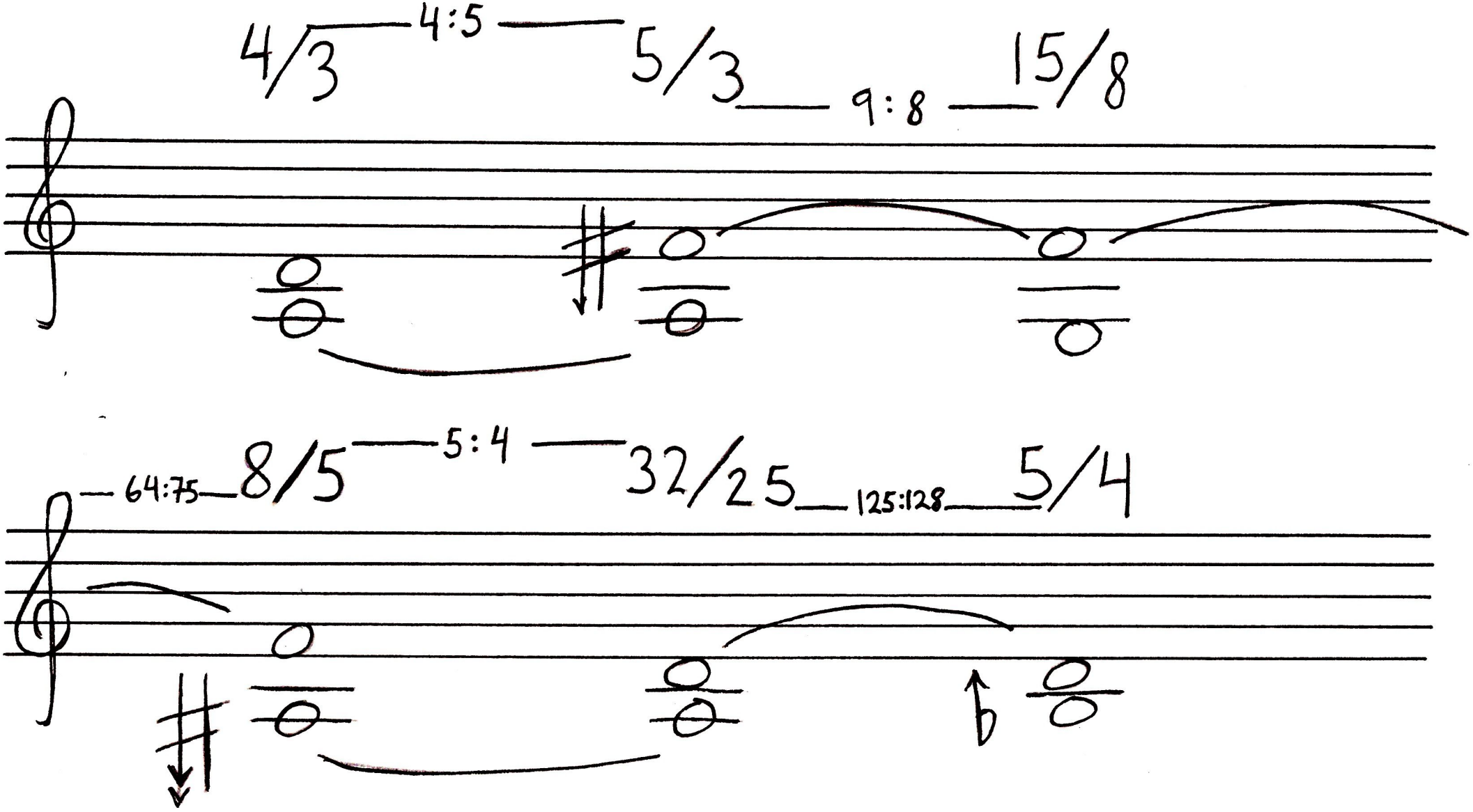

5/3
9:10
3/2
10:9
27/20
80:81
4/3
8:9
3/2
9:8
27/16
81:80
5/3

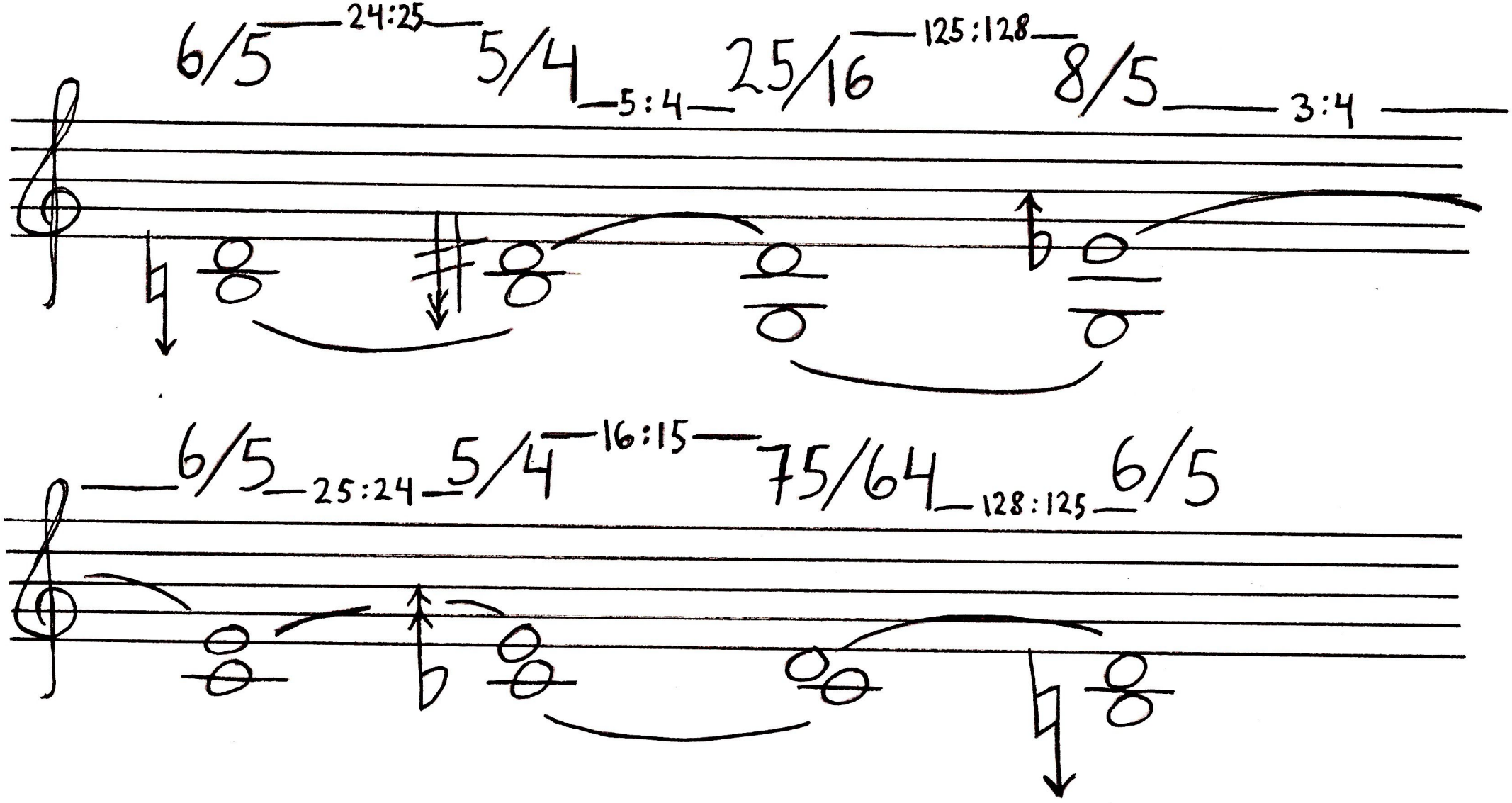

4/3
4:5
5/3
4:5
4/3
5:4
16/15
4:5
4/3
5:4
5/3
5:4
4/3

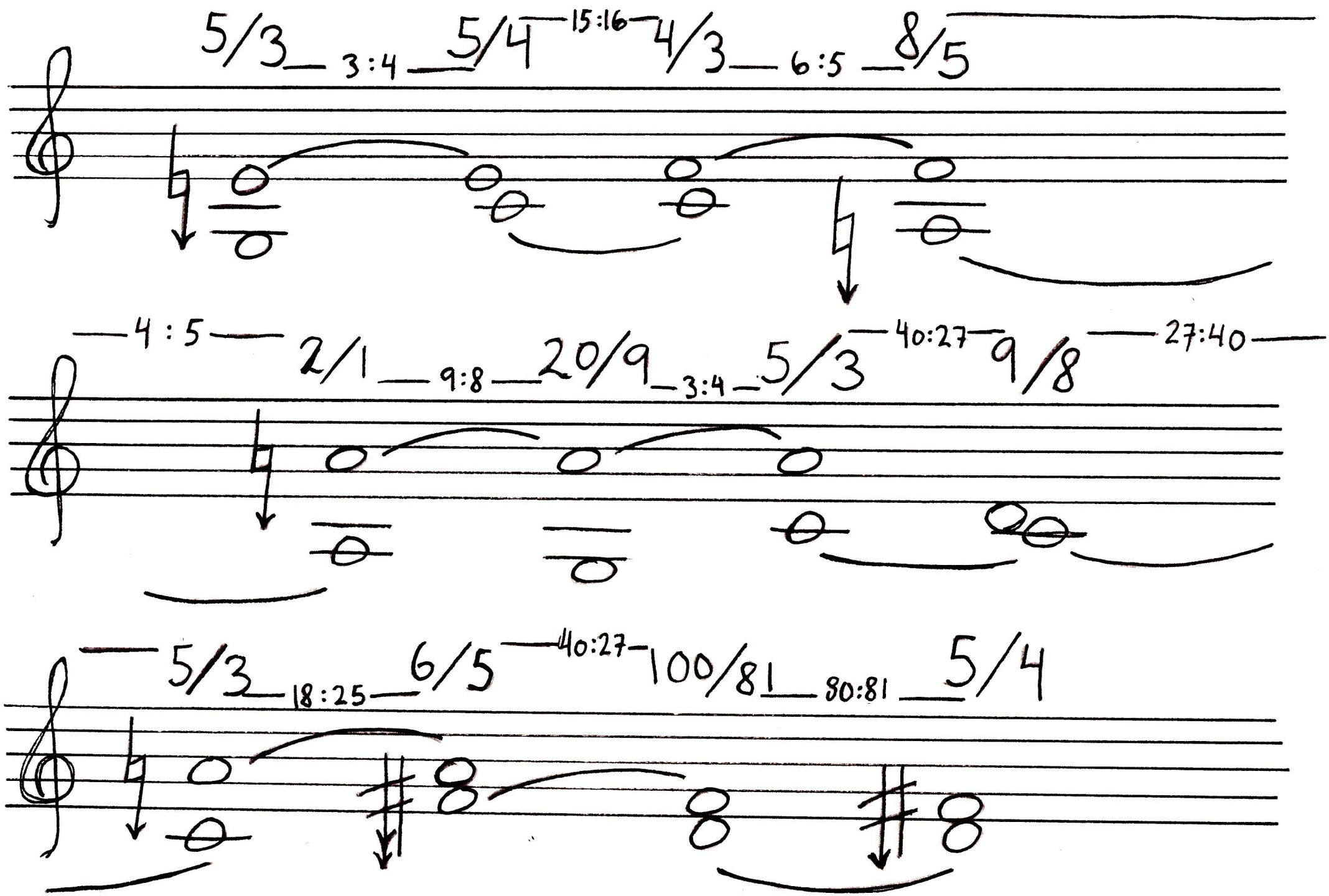

4/3
2:3
3/2
5:6
5/4
9:8
10/9

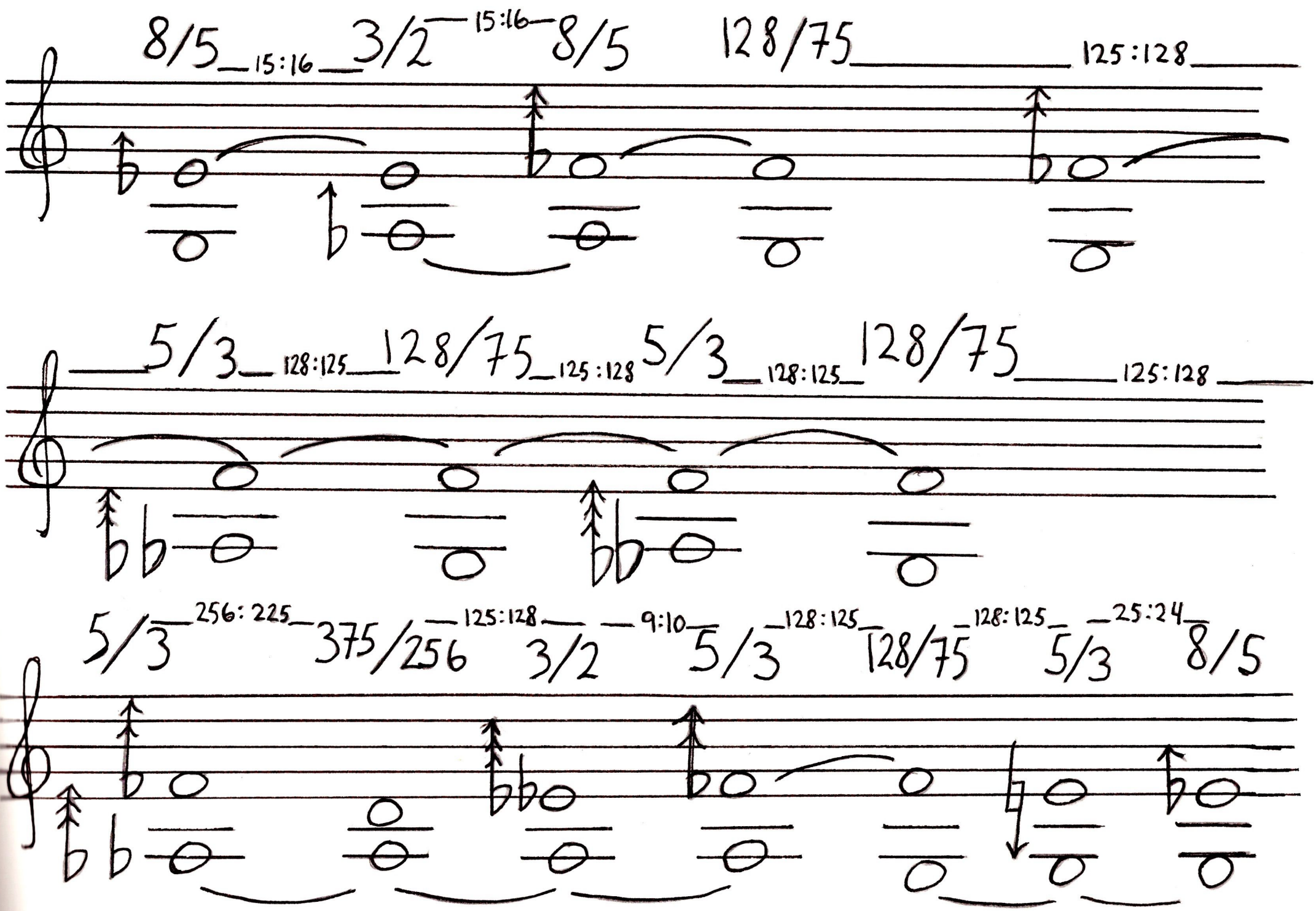

3/2
9:10
5/3
3:4
5/4
10:9
9/8
9/8
9/8
9:10
5/4


3/2
4:5
6/5
24:25
5/4
16:15
4/3
4:5
5/3
75:64
125/64
125:128
gliss.
2/1


4/3
4:5
5/3
9:8
15/8
64:75
8/5
5:4
32/25
125:128
5/4


6/5
24:25
5/4
5:4
25/16
125:128
8/5
3:4
6/5
25:24
5/4
16:15
75/64
128:125
6/5


5/3
3:4
5/4
15:16
4/3
6:5
8/5
4:5
2/1
9:8
20/9
3:4
5/3
40:27
9/8
27:40
5/3
18:25
6/5
40:27
100/81
80:81
5/4


8/5
15:16
3/2
15:16
8/5
128/75
125:128
5/3
128:125
128/75
125:128
5/3
128:125
128/75
125:128
5/3
256:225
375/256
125:128
3/2
9:10
5/3
128:125
128/75
128:125
5/3
25:24
8/5