

Infinity III

Michael Winter (2005)

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Meta-Score

*This work is for one or more groups of performers. Each group is composed of one or more performers. The duration of any given performance should be no less than 4 minutes and may extend infinitely. The piece may also be rendered electronically.

Choosing an Ensemble:

*Each group must share a common pitch range determined by the group with the narrowest pitch range. That is to say, no group can play outside the range of any other group. For example, a realization may be arranged with a cello and violin player comprising one group and bass clarinet and clarinet player comprising another group. Thus, the common range would extend from approximately Eb2 to G6 pending on the instruments used. Within each group the performers should divide the part based on the particular ranges of each instrument. For example, using group one of the previous ensemble, the violinist could play all notes above G3. A note should never be doubled. Though it is not mandatory, all groups should be differentiated in timbre to produce an independence of line. Within each group, all instruments should have similar-sounding timbres.

Part Generation:

*Each group plays one part. All parts are generated the same way with the following instructions:

- 1) Each event has a duration determined by the absolute value of a quasi-random number based on a Gaussian distribution. Throughout the course of the work, the standard deviation for tones durations will decrease linearly from 10 seconds to .1 seconds over the course of $\frac{3}{4}$ of the duration of the performance and will then increase linearly back to 10 seconds over the last $\frac{1}{4}$ of the piece. Starting at 0 minutes 0 seconds, the standard deviation will be 10 seconds. For example, in a 10 minute performance, if the first even has a duration of 7 seconds, the second event will be determined by a Gaussian distribution with a mean of zero and a standard deviation of 9.846. Each event should be generated linearly so that the standard deviation for duration and pitch (see 3) can be incremented accordingly, i.e. determined by the duration chosen for the previous event.
- 2) For each event, either sound or silence is chosen at random.
- 3) If sound is chosen, then the parameter of pitch is also chosen by a quasi-random number based on a Gaussian distribution with a mean of 0 and a standard deviation that goes from 0 to 1 over $\frac{3}{4}$ of the given length of the particular realization and stays at 1 till the end. This number must be generated for each sounding event in the work. Then one must take the absolute value of the greatest outlier and scale the generated numbers to the pitch range of the ensemble. The pitch is determined by this scaled number added to the mean pitch of the ensemble.

Notation Generator:

*The notation generator written in the Java programming language may be included with the meta-score or can be obtained. The user is allowed to enter in a duration of performance and a number of groups. The application will then generate a readable score based on the Meta-Score that the user may print out and use for a performance. There are many features included in the application. For example, there is a transposition function for transposing instruments and a part generator. It is preferred that all performers read from a master score so that they may see the relationship of there part to the others.

*I have implemented what I call a super-staff system. Each staff has eleven lines that encompass a grand staff (bass and treble clef with a alto/tenor clef also showing). The user is allowed to highlight the outside line of any clef so that they may see where the ledger lines would begin as if the notation was in a more traditional five line per staff setup. Also all accidentals are written either directly above or below the notehead. Above the staff for each note, there is a cent deviation (one-hundredth of a tempered semitone) from the closest written tempered pitch. The notation is written in a “space equals time” format with lines extending from each notehead to express the duration of each tone. The conventions of the super-staff system and the positioning of the notehead have been utilized to avoid any collisions on the page and to stay true to the space equals time paradigm.

*There are also many other features included in the program to best tailor a score for that particular generation. There will be updated versions of the application that will hopefully address any bugs found in the application. Included with the application is a read-me file that details all the functions and known bugs. You may contact me at mwinter@sonicism.net to generate a version if you have any troubles.

*It should be addressed that the generated score is a realization of the Meta-Score just as a performance is a realization of the generated score. I have created the score generator in hope that others will not have to. However, it is certainly possible to create a different notation that satisfies all the requirements set forth in the Meta-Score.

Dynamics and Performance Instructions:

*The work should start at a soft level and slowly get louder to a maximum loudness at $\frac{3}{4}$ of the length of the performance. Over the last $\frac{1}{4}$ of the piece, the dynamic should slowly get softer so that the level is barely audible by the end of the piece. The current version of the notation generator only displays dynamic instructions at the beginning of each system but the swell should be continuous loudest at the most dense part ($\frac{3}{4}$ in) of the work

*For longer tone durations, the performers should enter and exit each tone very softly reaching the destination dynamic towards the middle of the tone. As the durations get shorter, the performers can accent the tones and articulate them in any number of ways.

The flow from sparseness to a more dense texture should be very clear. Also in a grouping of notes that have no silence between the tones, the performers may choose to slur the grouping as if they were one gestalt. They may also increase the dynamic if they feel that the line may play a more prominent role at that given time in the whole texture.

*All that has been provided in my score generator is pitch, duration, loudness, and point in time of a tone. It is up to those realizing the piece, to give a personal sense of musicality to the performance while staying true to the general progression outlined in the Meta-Score.

Infinity III

— = .5 seconds

1

2

3

4

5

1

2

3

4

5

soft - slowly get louder

1

2

3

4

5

1

2

3

4

5

(louder)

1

2

3

4

5

(louder)

1

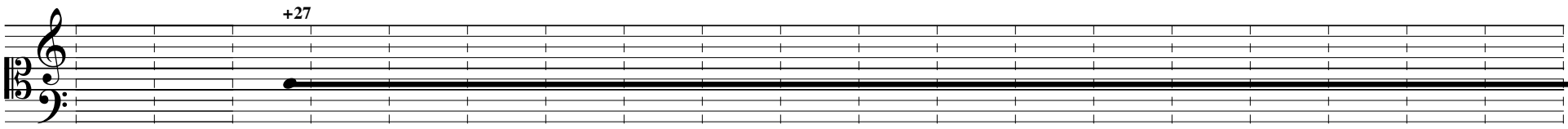
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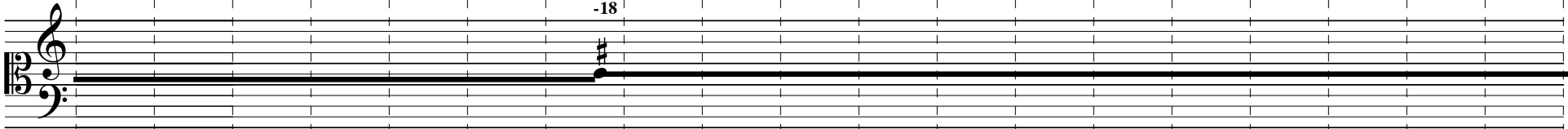
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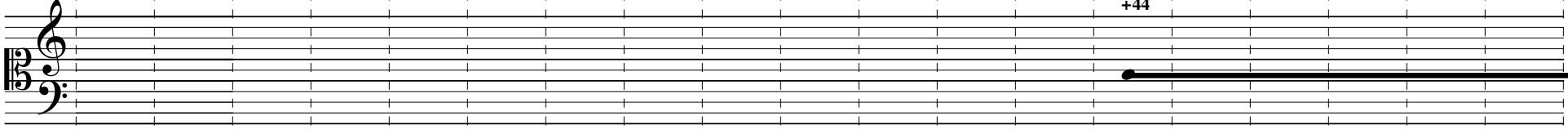
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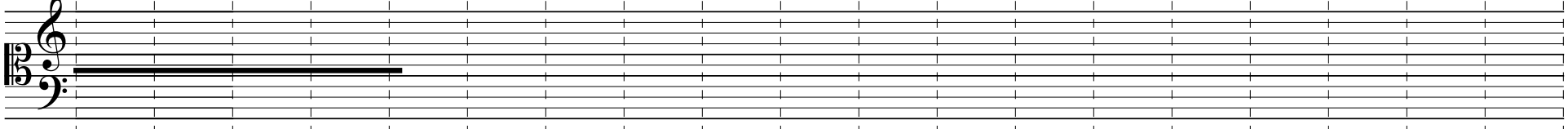
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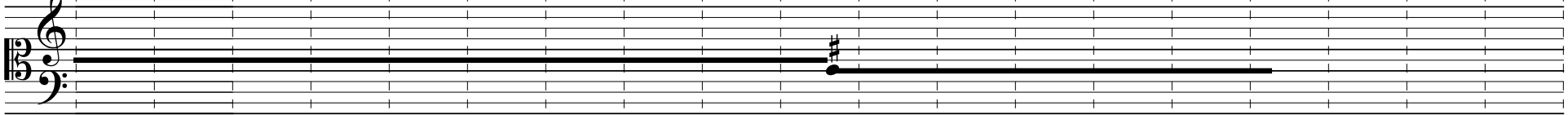
(louder)

1  +27

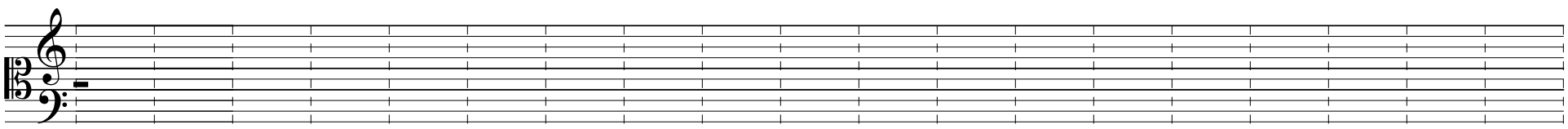
2  -18 #

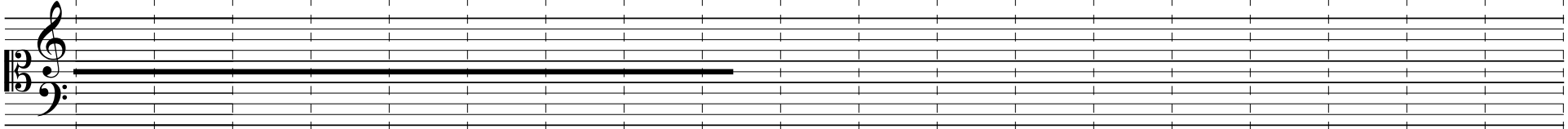
3  +44

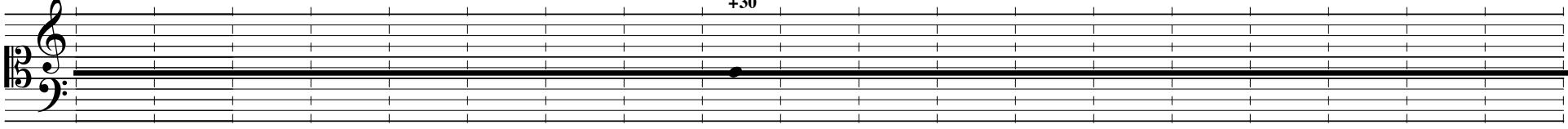
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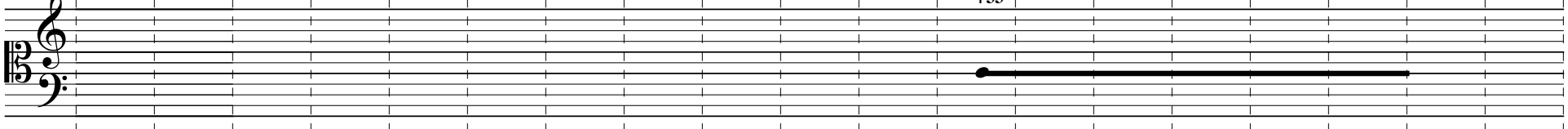
5  +40 #

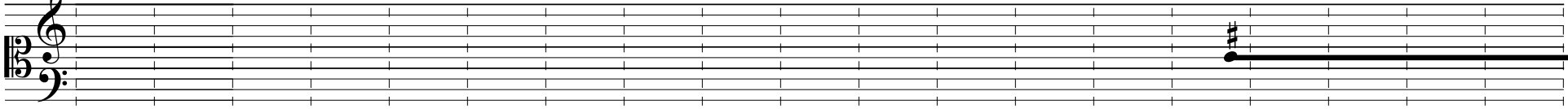
(louder)

1 

2 

3  +30

4  +33

5  +32 #

(louder)

1

2

3

4

5

(louder)

1


2

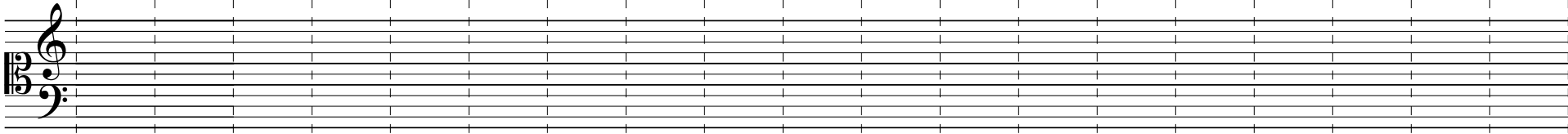
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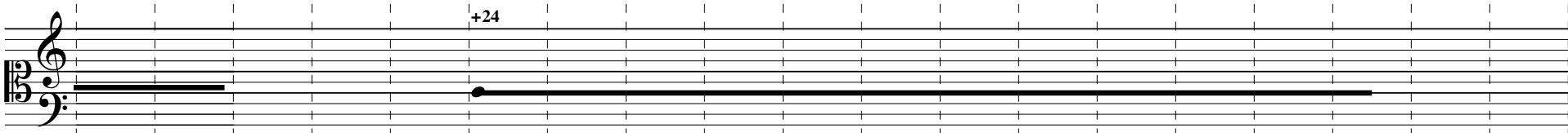
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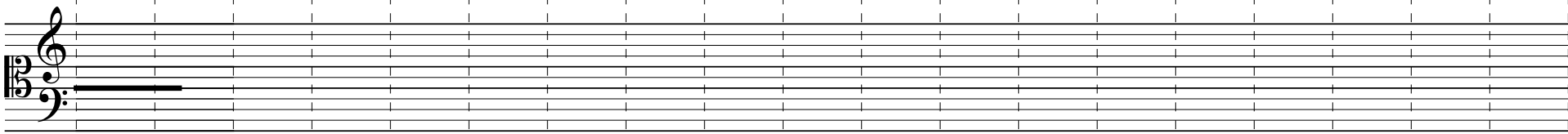
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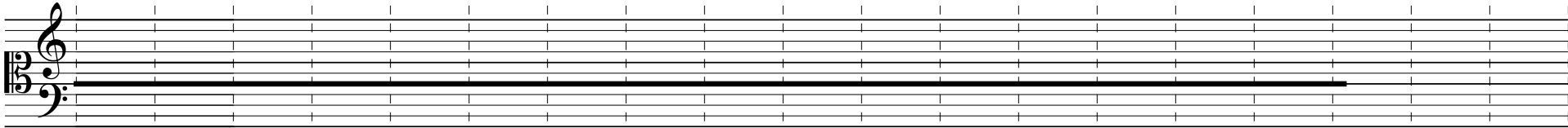
(louder)

1 

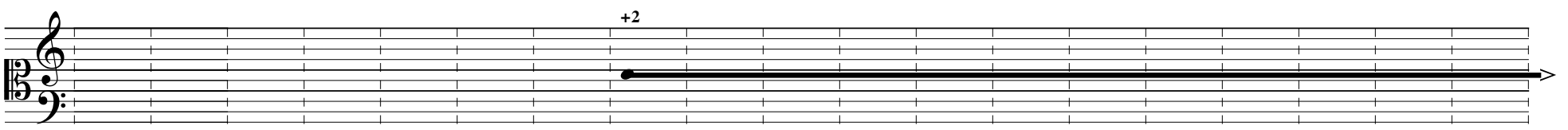
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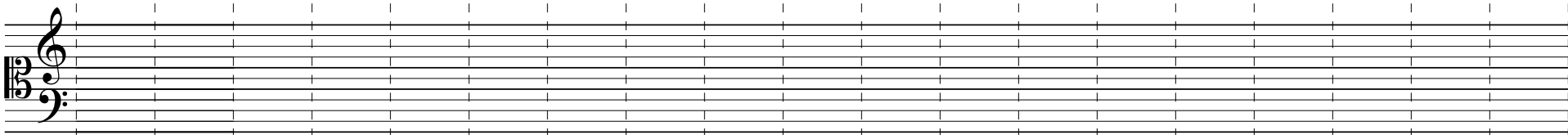
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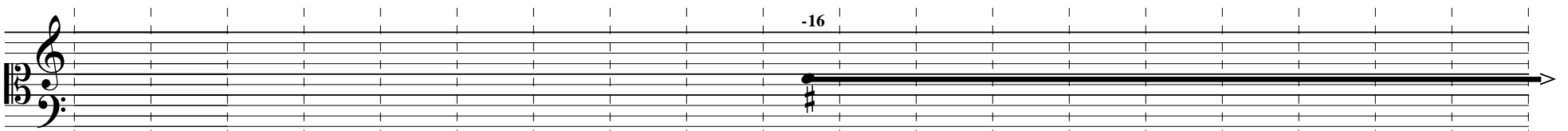
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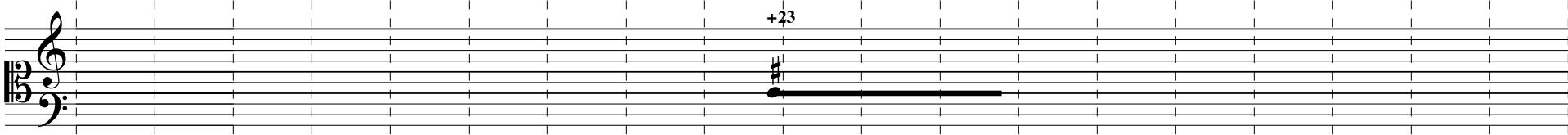
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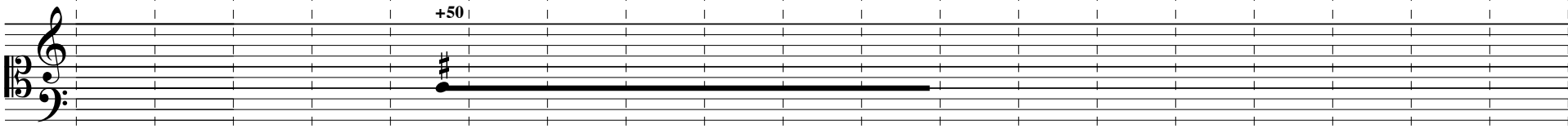
(louder)

1 

2 

3 

4 

5 

(louder)

1

2

3

4

5

(louder)

1

2

3

4

5

(louder)

1

2

3

4

5

Musical score for five staves. Staff 3 contains a note with a sharp sign (#) and the number +49 above it. Staff 5 contains a note with the number +1 above it. Staff 3 also features an arrow pointing to the right with the number -22 above it.

(louder)

1

2

3

4

5

Musical score for five staves. Staff 2 contains a note with the number -22 above it. Staff 4 contains a note with the number -15 above it. Staff 5 contains two notes, both with sharp signs (#) above them; the first has +44 above it and the second has -29 above it.

(louder)

1

2

3

4

5

Detailed description: This block contains five musical staves. Staff 1 is empty. Staff 2 has a note on the first line with a sharp sign, labeled '+36'. A horizontal line with an arrow extends from this note to the right. Staff 3 is empty. Staff 4 is empty. Staff 5 has a note on the second line, labeled '+10'. A horizontal line with an arrow extends from this note to the right. Staff 2 also has a second note on the second line with a sharp sign, labeled '-19'. A horizontal line with an arrow extends from this note to the right.

(louder)

1

2

3

4

5

Detailed description: This block contains five musical staves. Staff 1 has a note on the second line with a sharp sign, labeled '-20'. A horizontal line with an arrow extends from this note to the right. Staff 2 has a note on the first line, labeled '+28'. A horizontal line with an arrow extends from this note to the right. Staff 2 also has a note on the second line with a sharp sign, labeled '+9'. A horizontal line with an arrow extends from this note to the right. Staff 3 has a note on the first line, labeled '+22'. A horizontal line with an arrow extends from this note to the right. Staff 3 also has a note on the second line, labeled '-24'. A horizontal line with an arrow extends from this note to the right. Staff 3 also has a note on the third line, labeled '-50'. A horizontal line with an arrow extends from this note to the right. Staff 4 has a note on the second line, labeled '-47'. A horizontal line with an arrow extends from this note to the right. Staff 5 is empty.

(louder)

1

2

3

4

5

-14 -25 +35

-18 -27

-12

+11 +46

(louder)

1

2

3

4

5

+21

+25 +17

-7 -30 -25

+6

(louder)

1

2

3

4

5

13

7

29

37

33

2

39

34

4

9

5

1

2

3

4

5

Detailed description: This block contains five staves of musical notation. Staff 1 has a whole note on the 4th line. Staff 2 has a whole note on the 2nd line with a sharp sign. Staff 3 has two whole notes: one on the 2nd line with a sharp sign, and another on the 3rd line with a sharp sign. Staff 4 has a whole note on the 4th line with a sharp sign. Staff 5 has two whole notes: one on the 2nd line with a sharp sign, and another on the 3rd line with a sharp sign. Various numbers are placed above the notes: 13 and 7 above the first note of staff 5; 29, 37, and 33 above the first, second, and third notes of staff 3; 2 above the first note of staff 2; 39 above the first note of staff 1; 34 above the first note of staff 2; 4 above the first note of staff 4; and 9 above the first note of staff 5.

(louder)

1

2

3

4

5

39

47

24

35

21

38

1

2

3

4

5

Detailed description: This block contains five staves of musical notation. Staff 1 has a whole note on the 4th line. Staff 2 has a whole note on the 2nd line with a sharp sign. Staff 3 has a whole note on the 3rd line with a sharp sign. Staff 4 has four whole notes: one on the 2nd line with a sharp sign, one on the 3rd line with a sharp sign, one on the 4th line with a sharp sign, and one on the 5th line with a sharp sign. Staff 5 has a whole note on the 4th line. Various numbers are placed above the notes: 39 above the first note of staff 2; 47 above the first note of staff 3; 24, 35, 21, and 38 above the first, second, third, and fourth notes of staff 4.

(louder)

1 +50

2 -6 -43

3 +36 -18 +47 +17

4 -24 -14 -25 -44 +49

5

(louder)

1 -36

2 -23 +47 +38 -22 +6

3 +37 0 +37 +26 -14 +38

4 +46

5 +14

(louder)

1 +34 -9 +5 +28

2 +3

3 -17 +48 -30

5 +23

(louder)

1 0 +19 +3 -38 +33

2 +8 +41

3 -30 +33

4 -13

5 -10 +26 -4 -34 +12 -46

(louder)

1 +3 -21 +48 -15

2 +17

3 +36 +38 -32 -45

4 -14 +36 -46 -36 -12

5 -11 +17

(louder)

Detailed description: This block contains five staves of musical notation. Each staff has a treble clef and a key signature of one sharp (F#). The notation consists of horizontal lines with dots representing notes and beams connecting them. Numerical values are placed above the notes, indicating pitch or amplitude changes. Staff 1 has values +3, -21, +48, and -15. Staff 2 has +17. Staff 3 has +36, +38, -32, and -45. Staff 4 has -14, +36, -46, -36, and -12. Staff 5 has -11 and +17. A dynamic marking '(louder)' is placed below the first staff.

1 -13 +8 +4

2 -36 -28

3 +8 +24 -17 -45 +4 +41

4 +22 -47 -27 -48 -40

5 -26 -41 -44 -23 +27

(louder)

Detailed description: This block contains five staves of musical notation, similar to the first block. Each staff has a treble clef and a key signature of one sharp (F#). Numerical values are placed above the notes. Staff 1 has values -13, +8, and +4. Staff 2 has -36 and -28. Staff 3 has +8, +24, -17, -45, +4, and +41. Staff 4 has +22, -47, -27, -48, and -40. Staff 5 has -26, -41, -44, -23, and +27. A dynamic marking '(louder)' is placed below the first staff.

1 +13 -40 +8 -12 -34 +3 -49 +41 -39 +10 -43

2 +34 -44 +30 -12 -46 +29

3 +21 +20 -11 -35 -2 +43

4 -2 +50 +36 +30 +39

5 +50 +34 -14

(louder)

1 -30 +44 +37 +23 -39 -9 -28 +36

2 -21 -46 +7 +30 +22 +23 +33 -45 -30 +42 +37 +34

3 -11 -45 -39 -30 +39 -26 +33 -45 -17 +2 +22 -22 -46 -16 -43 +44

4 +11 -11 +12 +35 -22 0 +47 -44 -21 +33 +18

5 -13 +21 -5 -43 +29 +2 -7 -42 -41 -44 +5 -32 +11

(louder)

1 +20 +7 -5 -12 -24 -20 -40 -48 +44 +19 -1 -16 +14 +12 +18 +36

2 +10 -16 +20 -4 -1 +48 -17 +27 +13 +1 +36 +34 +44 +25 -13

3 -44 -28 +49 -7 +24 +13 -42 +1 -13 +49 -14 +26 -7 +29 +4 -27

4 -5 -4 -11 -40 +25 +1 -48 -43 +44 +49 +1 -39 -1 -41

5 -13 +13 +37 -19 +21 +33 +38 +11 -16 -22 +26 +9 +6 +1 -28

(louder)

1 +24 +30 +49 -21

2 -26 -14 +49 -31 -27

3 +32 +15 -42 +36

4 +37 +41

5 -9 -33 +4 -27 +26 +7

(softer)

1 $+41$

2 -45 -35 -14

3 $+7$ -44 -15

4 $+40$

5 -27 $+35$

(softer)

1 $+21$ $+23 +30$

2 $+7$ -21

3 $+32$ $+48$

4 $+33$ -11

5 -17

(softer)

1

2

3

4

5

Detailed description: This system contains five staves of music. Staff 1 is empty. Staff 2 has a whole note with a sharp sign and a '-36' above it. Staff 3 has a whole note with a sharp sign and a '-15' above it. Staff 4 has a whole note with a sharp sign and a '+15' above it, followed by a whole note with a sharp sign and a '-8' above it. Staff 5 has a whole note with a sharp sign and a '+39' above it. All notes are on the same pitch line.

(softer)

1

2

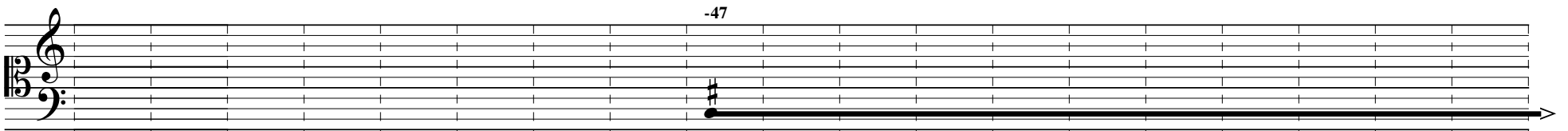
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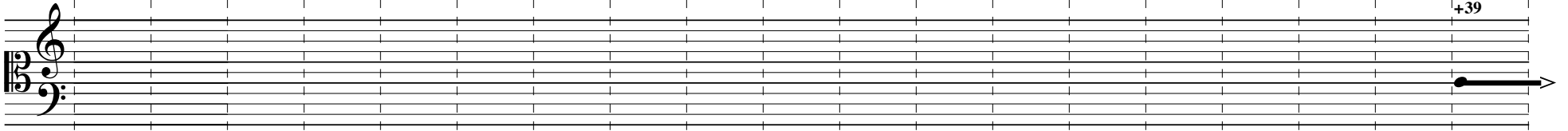
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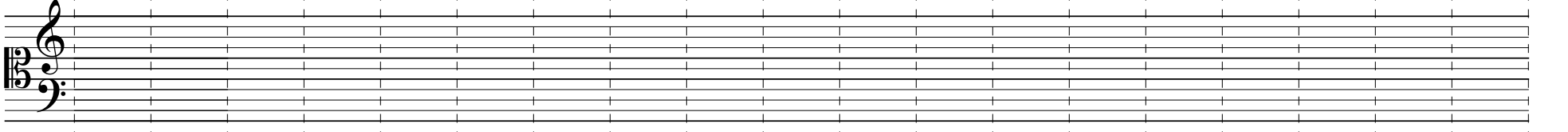
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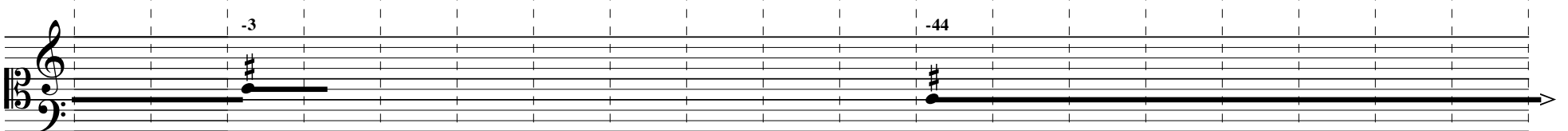
Detailed description: This system contains five staves of music. Staff 1 is empty. Staff 2 has a whole note with a sharp sign. Staff 3 has a whole note with a sharp sign. Staff 4 has a whole note with a sharp sign and a '+10' above it. Staff 5 is empty. All notes are on the same pitch line.

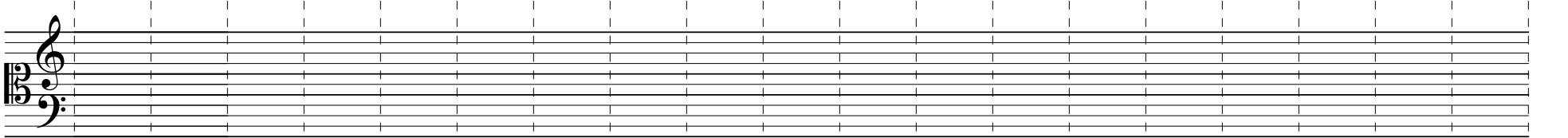
(softer)

1 

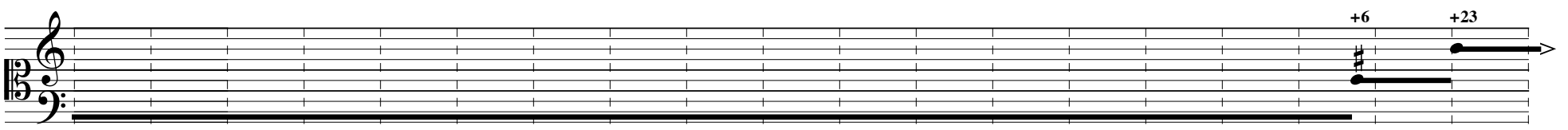
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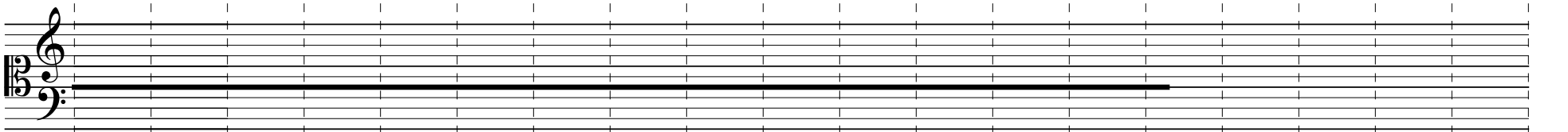
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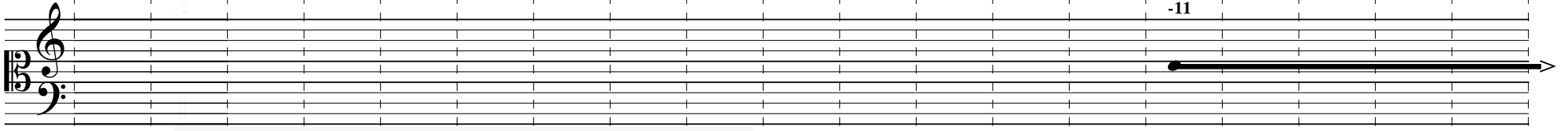
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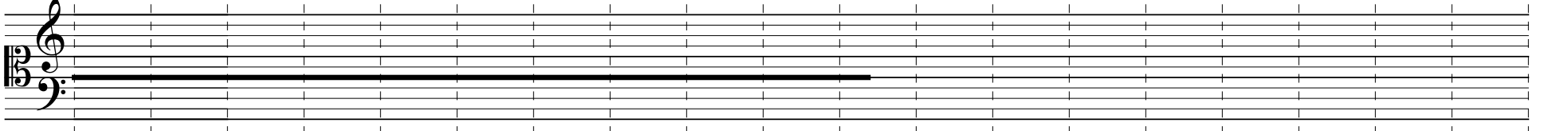
5 


(softer)

1 

2 

3 

4 

5 

(softer)

1

2

3

4

5

(softer)

1

2

3

4

5

(softer)

soft