Peter McKenzie Armstrong

Pitch/Time Swaps

as applied to the Fugue subjects of

J.S. Bach's *Das Wohltemperierte Klavier*

scored for solo piano

Opus 39

Edition Ottaviano Petrucci

NOTES

GENERATION

Encoded as an X/Y dot graph, rotated 90 degrees, then read in that position left–to–right, musical scoring is seen with its essential parameters exchanged, pitch indications having become instead relative attack times and vice versa. With the rotation anticlockwise (as in these examples), pitchwise top/bottom translate to timewise first/last, etc.

I have applied this procedure to the Fugue subjects of J.S. Bach's *Das Wohltemperierte Klavier*, trusting that juxtaposition of such originals (linear only) and their rotations (mainly chordal) may enhance its promise as a compositional option.

As used here, the rotation addresses its source's sounding notes only (not also rests) and without subsequent reportioning of the results (as with many integral–serialist algorithms). For a representative graph see Appendix A.

RE "X/Y–>Y/X" SECTIONS:

NOTATION

– Notehead colors: green, the original's recurrent pitches; red, the rotation's corresponding simultaneities; grey, exceptions (applying in both senses).
– Accidentals (default '#' in their generating graph) are respelled in their score as appears harmonically and voice–leading–wise most plausible.
– Meter signatures and articulation markings are chosen post–process as best to convey emergent patterns.

PERFORMANCE

– Accidentals apply once only, c/o LilyPond's style "forget".
– Tied anticipations, unless slashed, are to occur on–beat.
– Legato connection is intended only within slurs, not also from their final note.
– Damper pedal use is expected for realizing slurs where necessary, or for enhancing immediate resonance, but not for connecting non–slurred notes.
– I suggest programming as a selection of perhaps six of these pages with their order, tempi, dynamics and hand distributions at player's discretion.

MISCELLANY

– WTC I:19 – I have extended this quoted subject a full bar beyond its answer's entry.
– WTC I:24 – Source pitches recurring only in embellishment are not counted for rotation.
– WTC II:10 is the only subject rotated in separate sections; its length otherwise forces unworkably overstacked chords.
– Rotating fugue subjects alone presents only recurrence–>simultaneity. For an example including also the reverse, see Appendix B.

– PMA

to Kevin Korsyn

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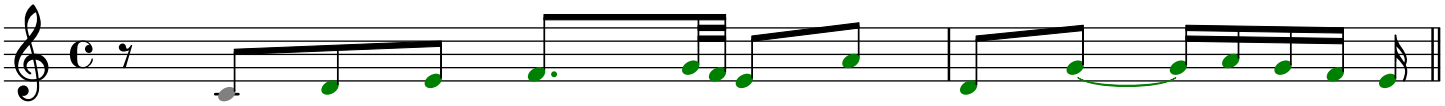
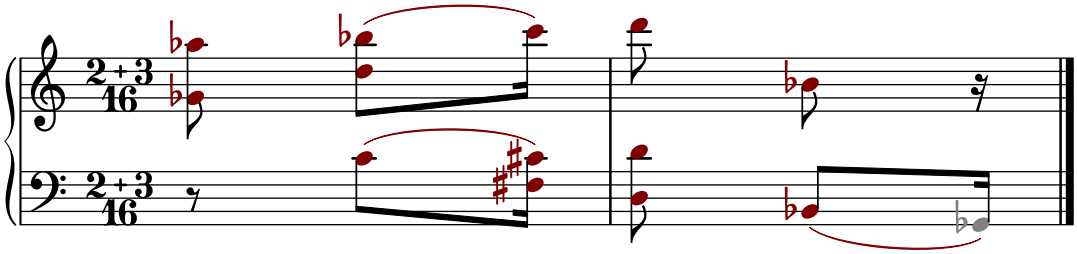
Opus 39

WTC I: 1 (BWV 846)



X/Y->Y/X



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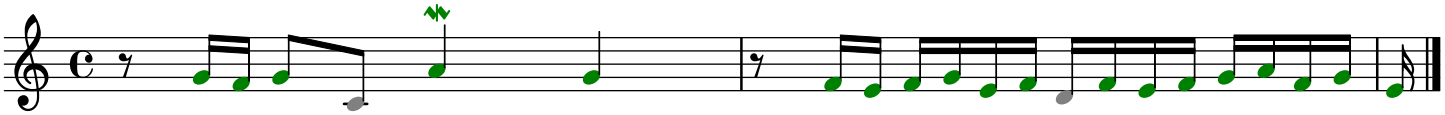
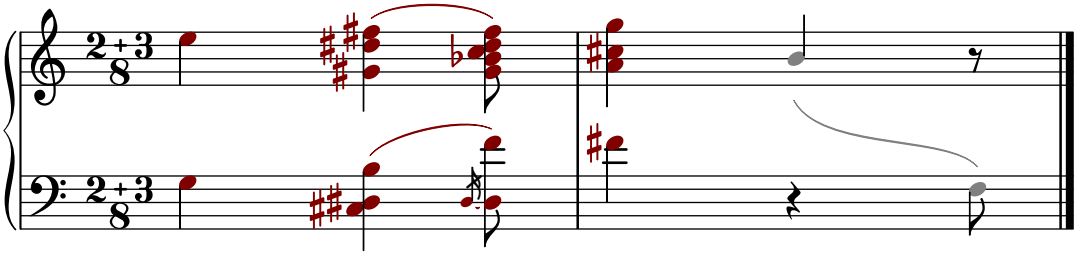


X/Y->Y/X



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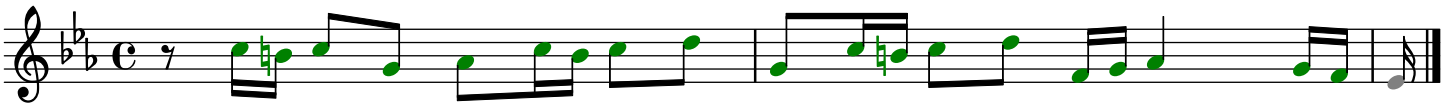
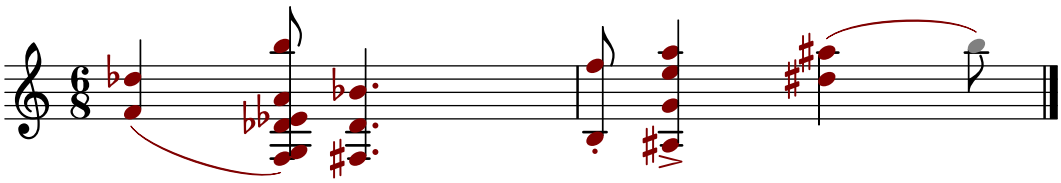


X/Y->Y/X



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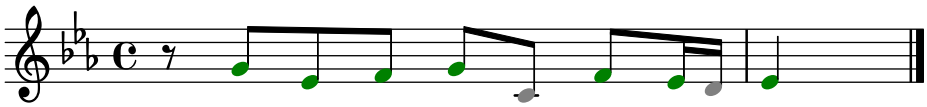

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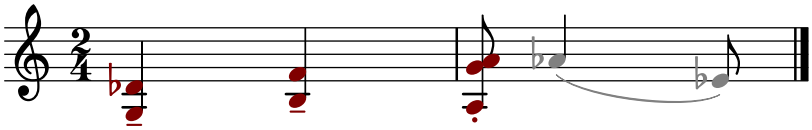

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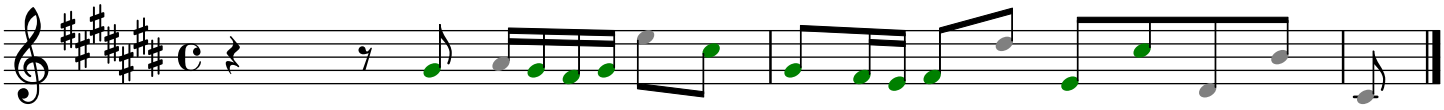

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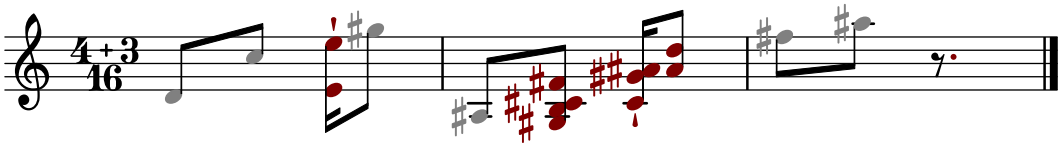

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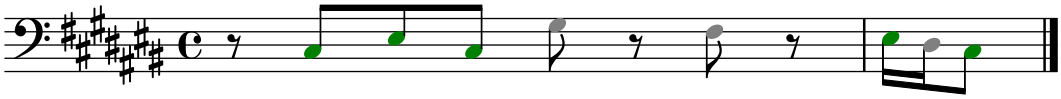

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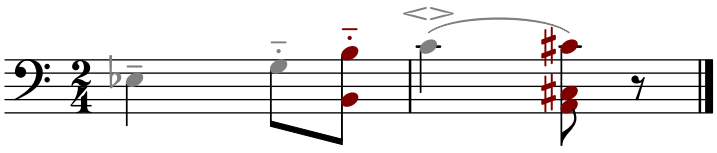

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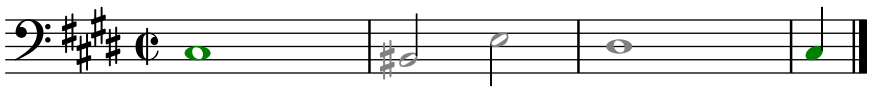

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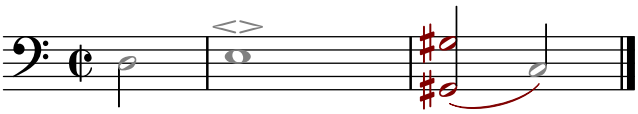

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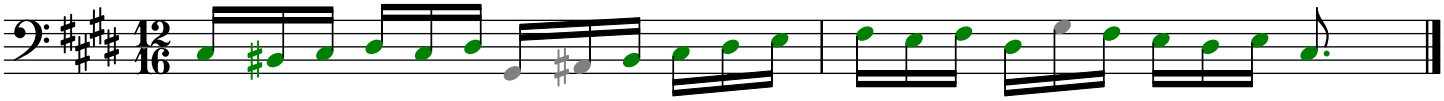

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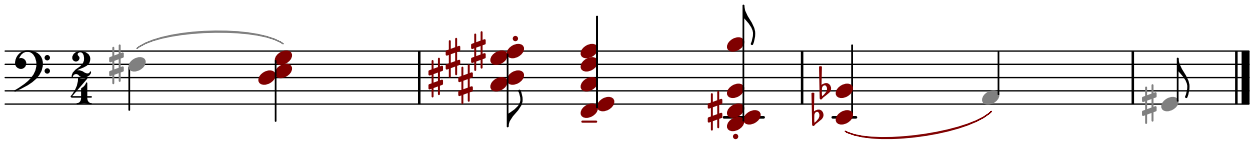

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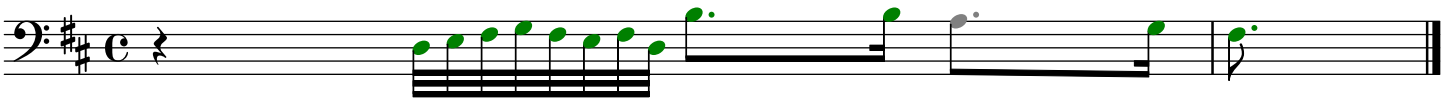

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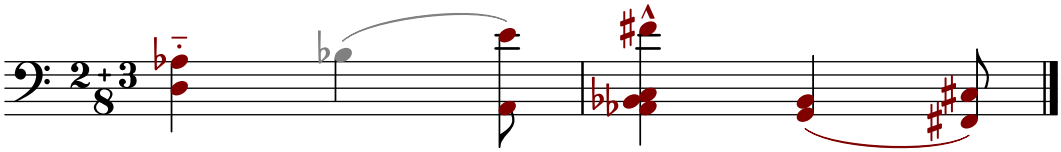

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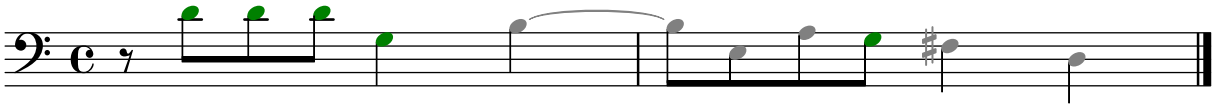

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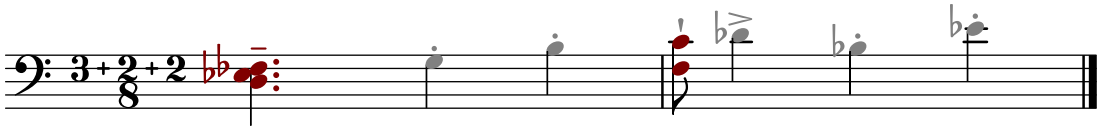

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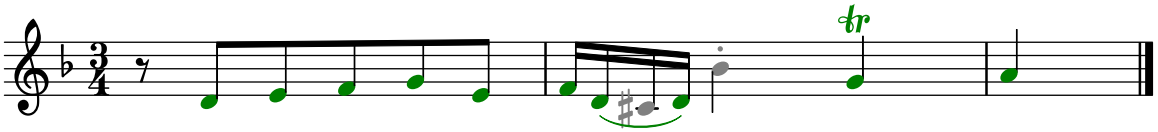

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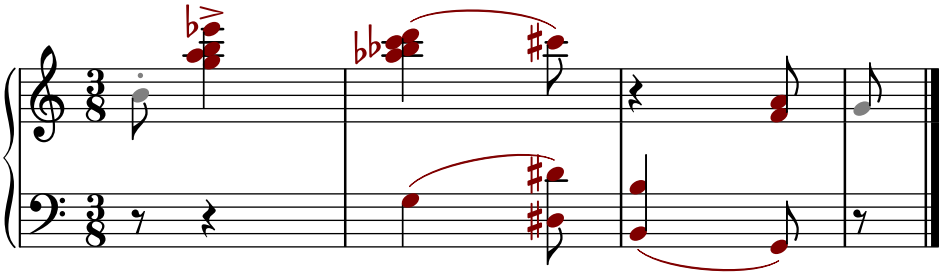

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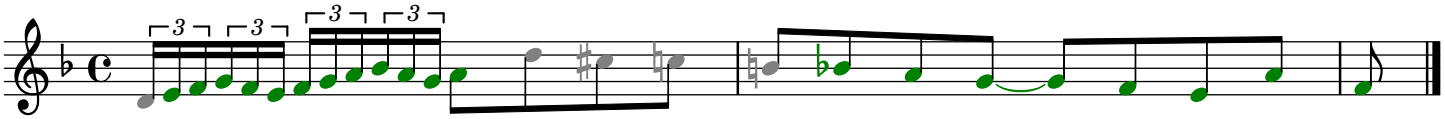

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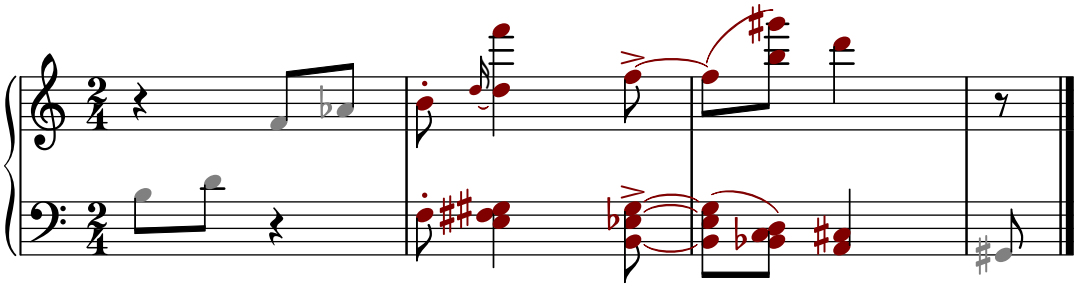

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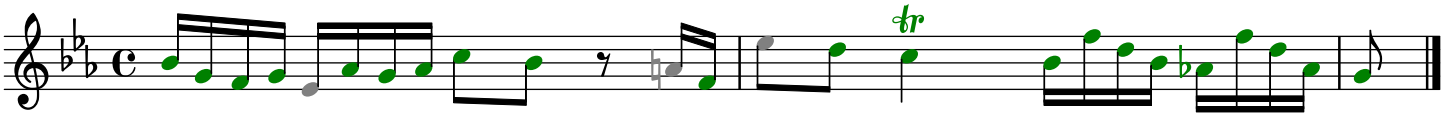

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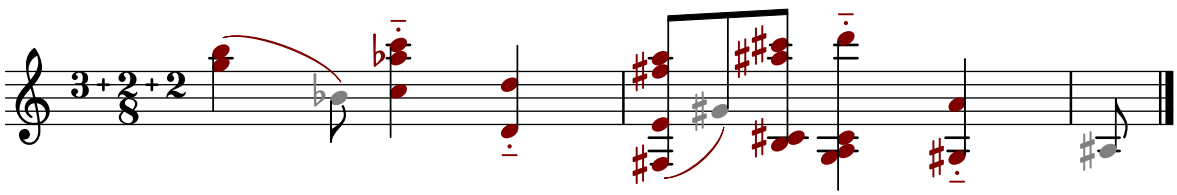

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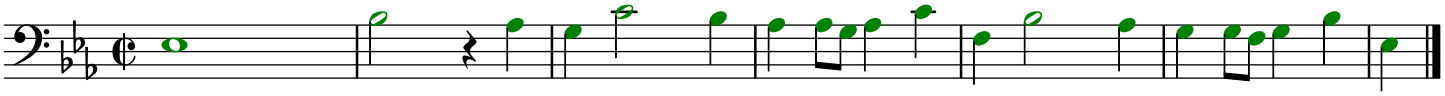

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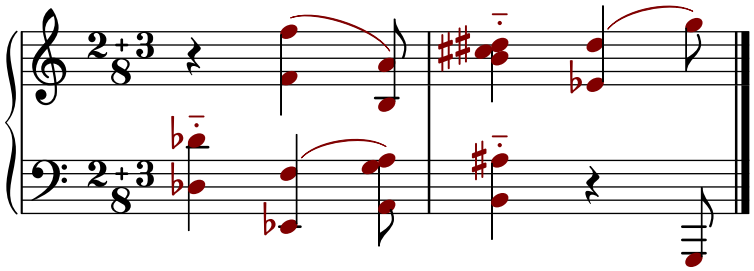

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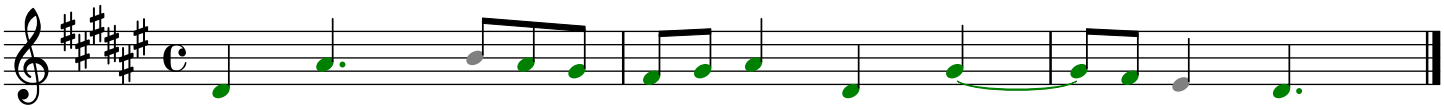

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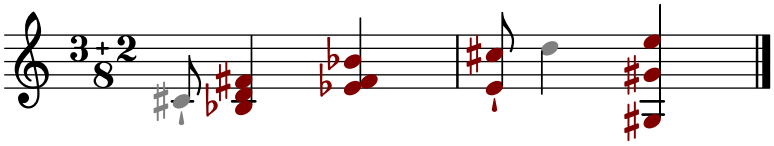

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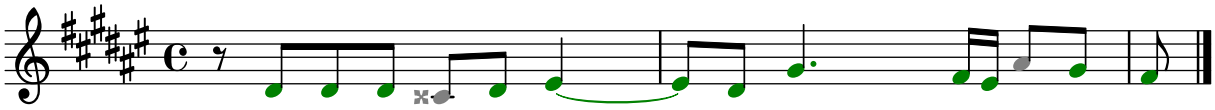

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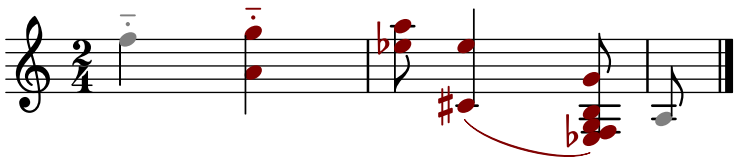

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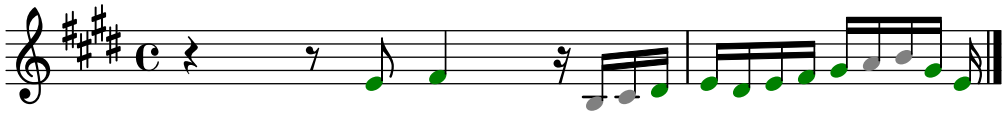

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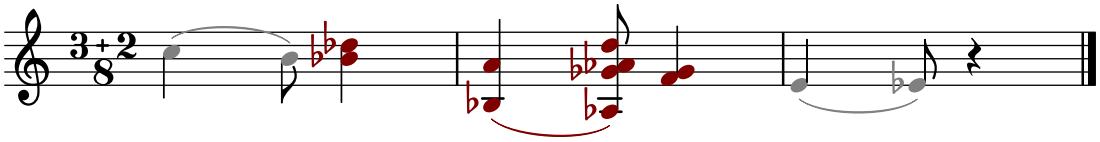

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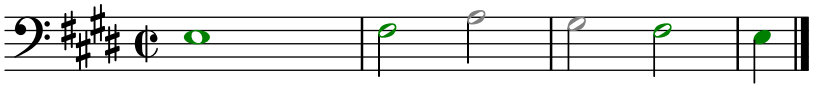

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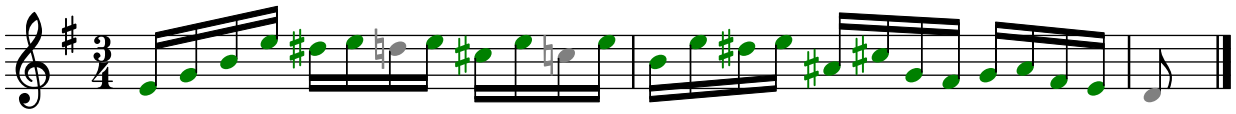

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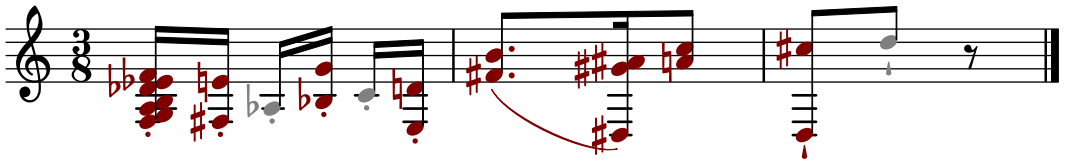

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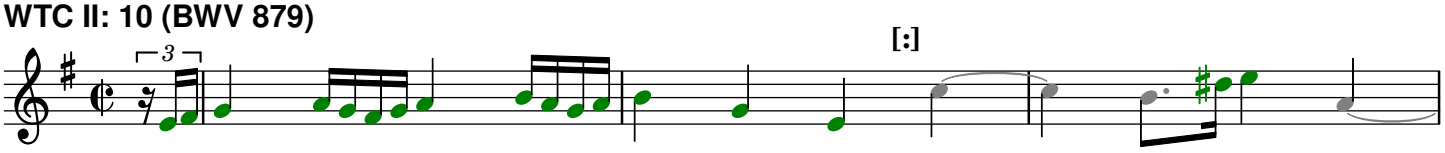

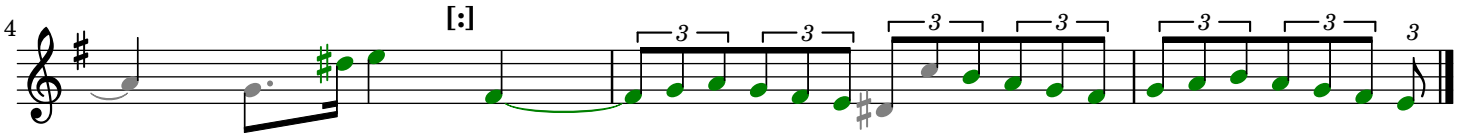

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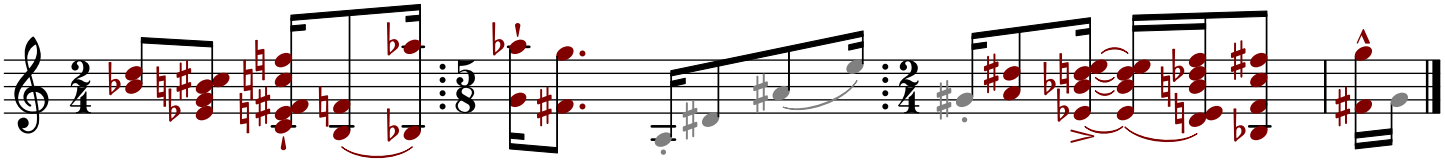

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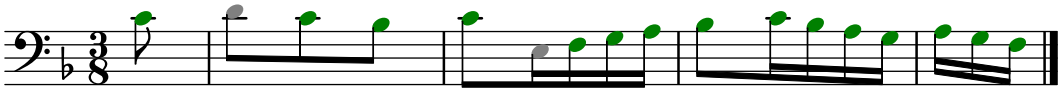

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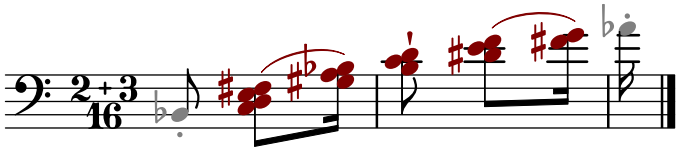

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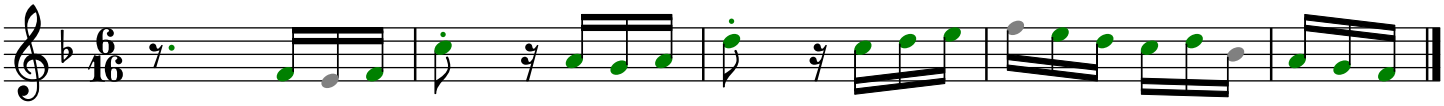

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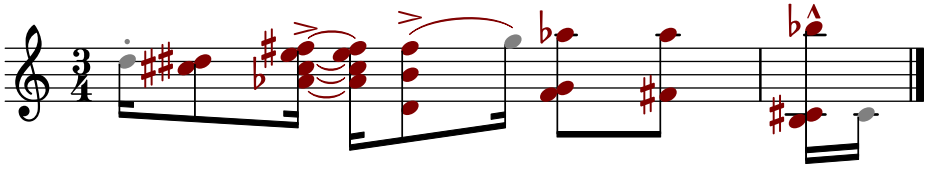

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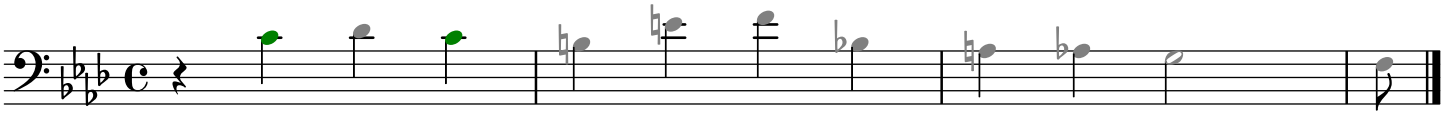

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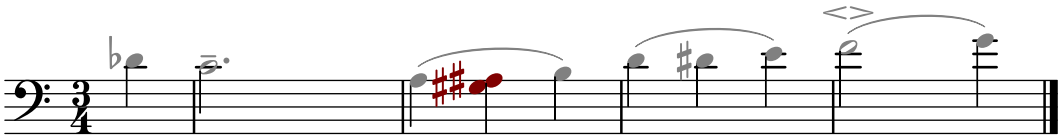

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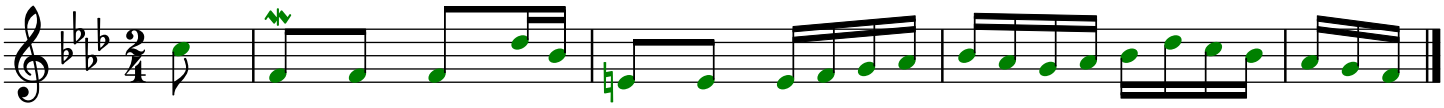

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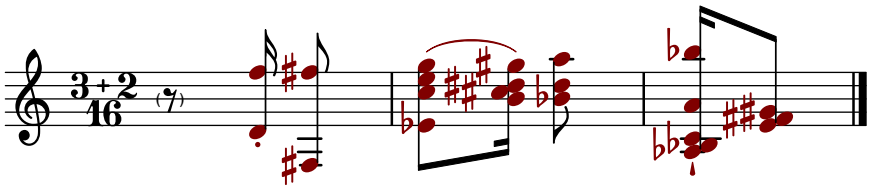

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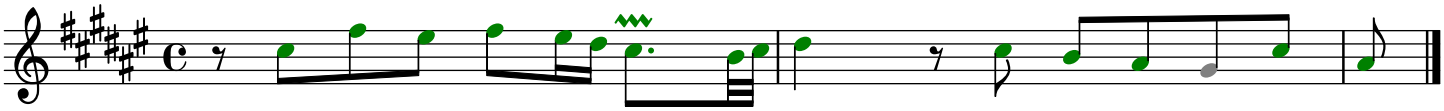

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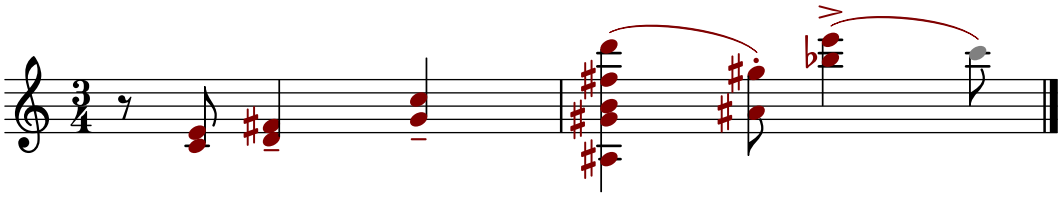

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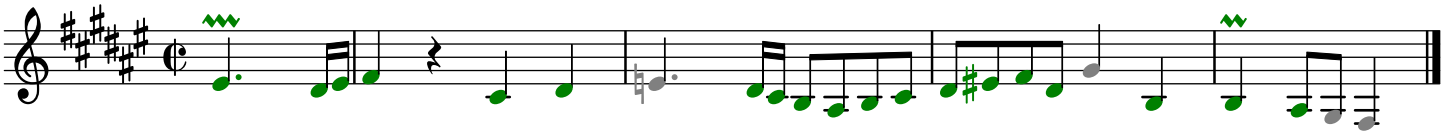

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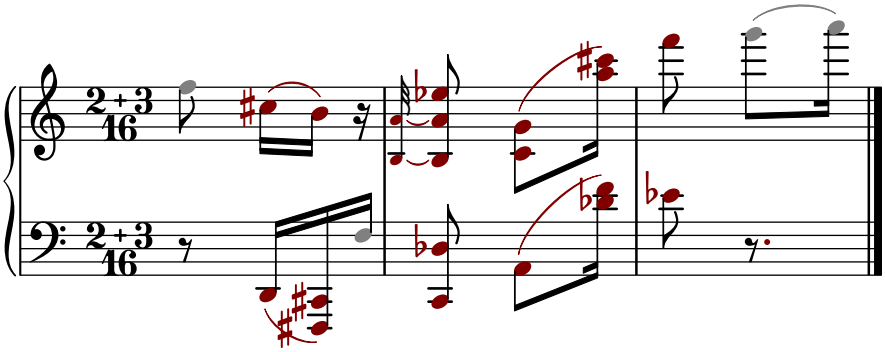

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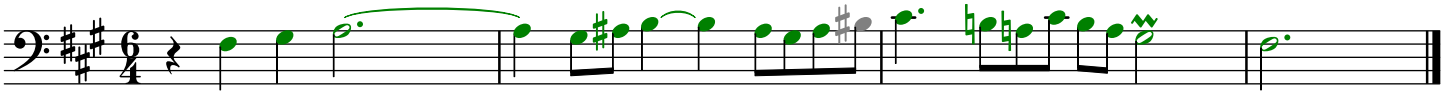

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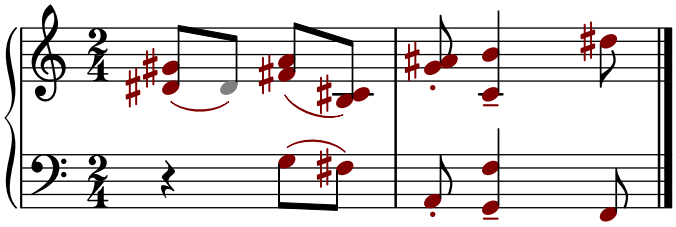

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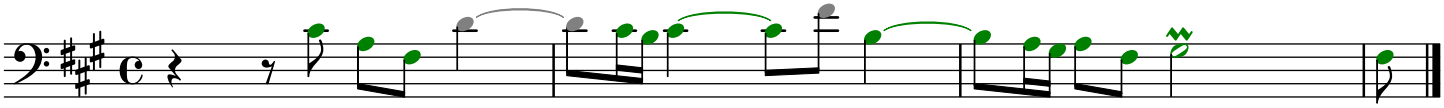

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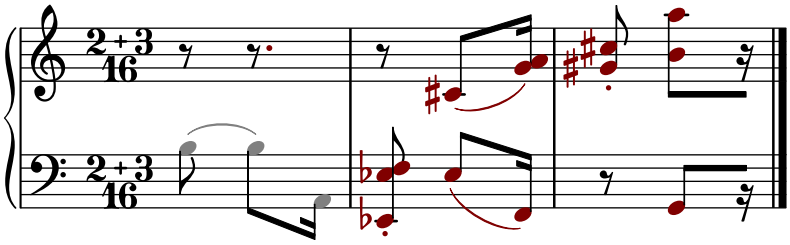

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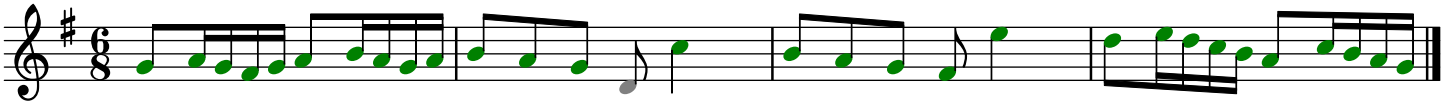

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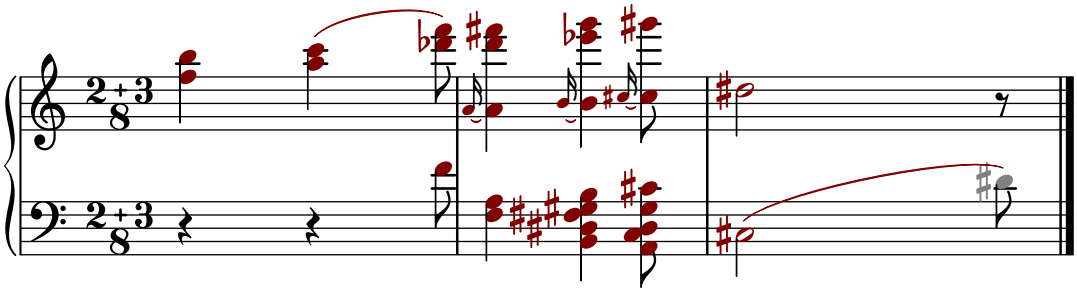

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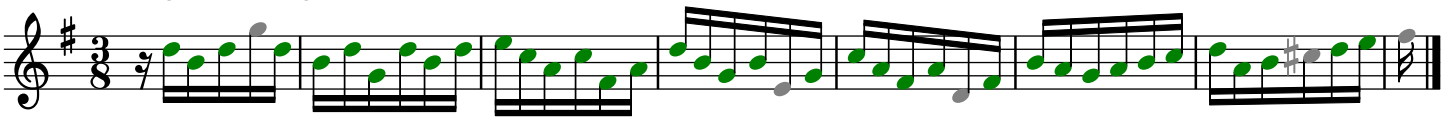

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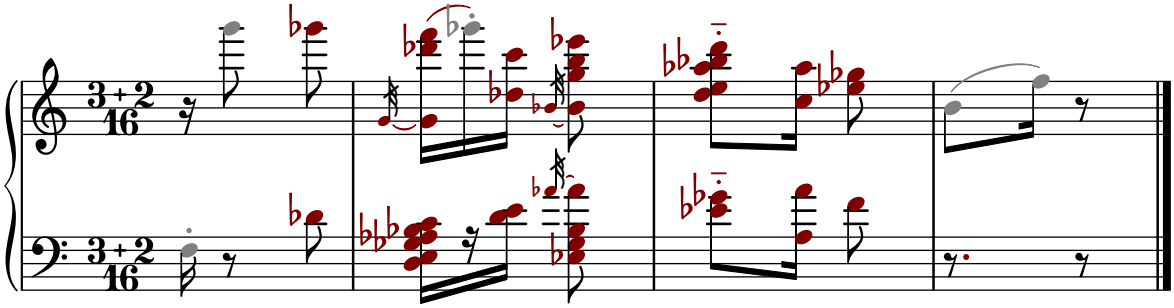

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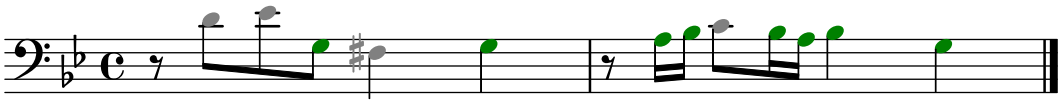

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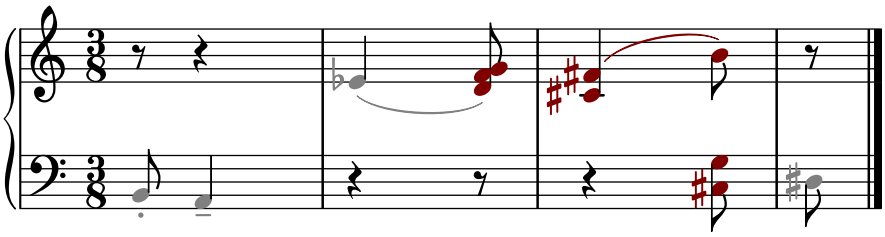

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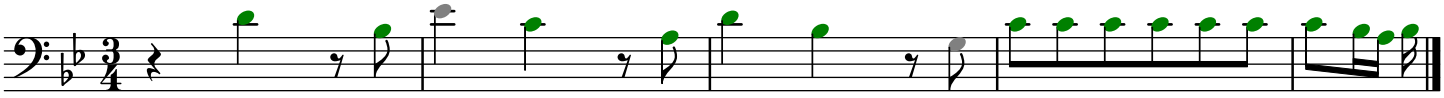

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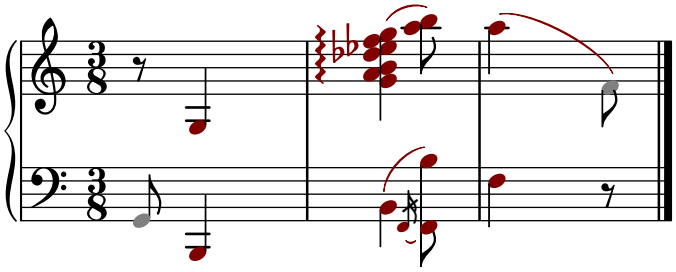

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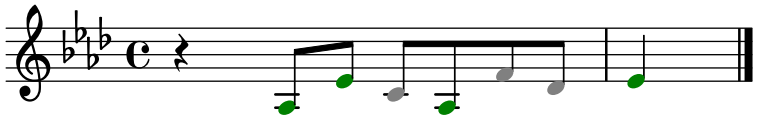

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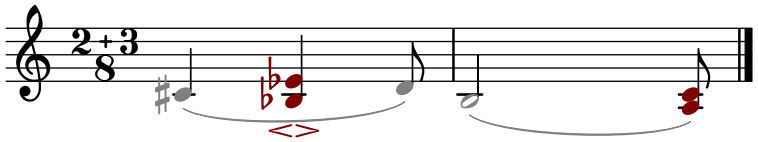
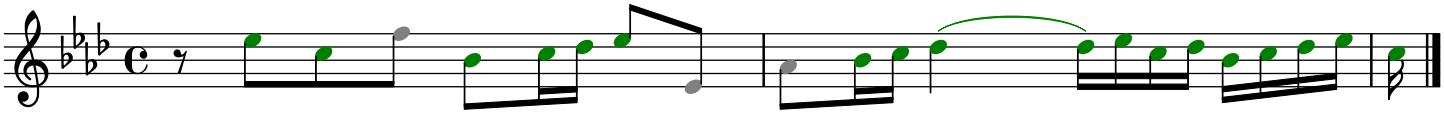


WTC II: 17 (BWV 886)



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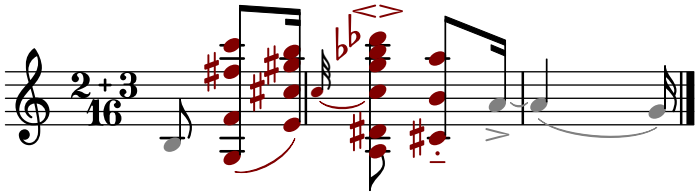

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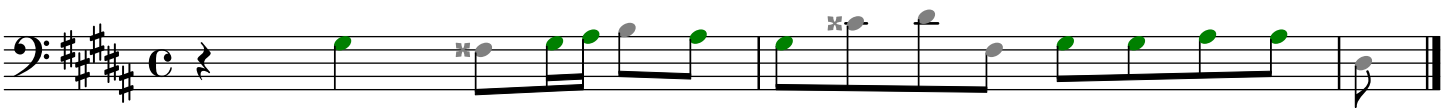
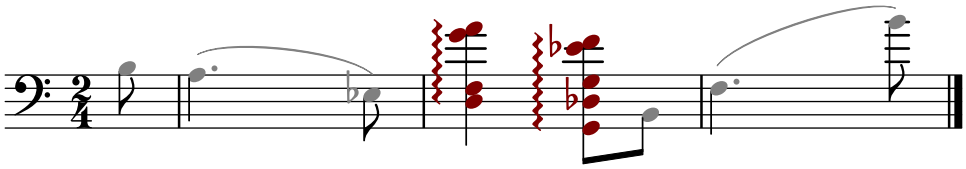


X/Y->Y/X



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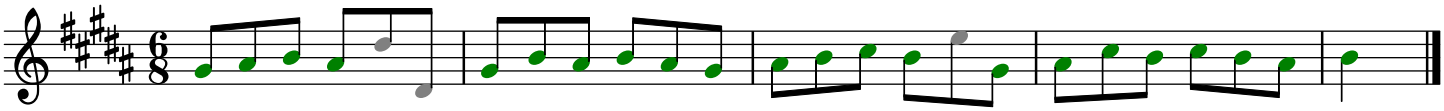
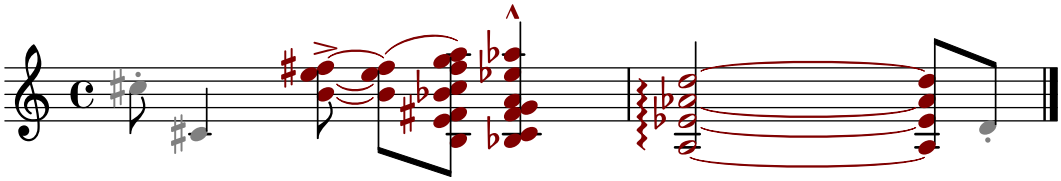


X/Y->Y/X



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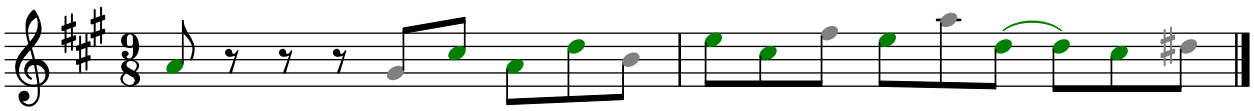

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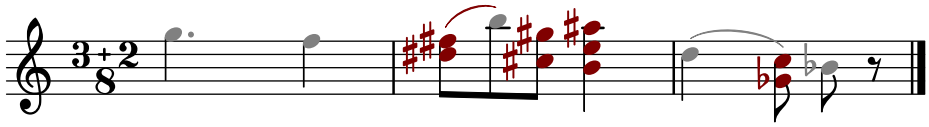

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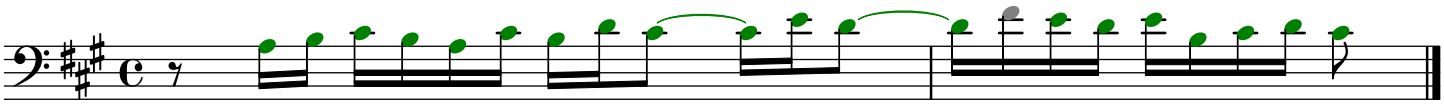

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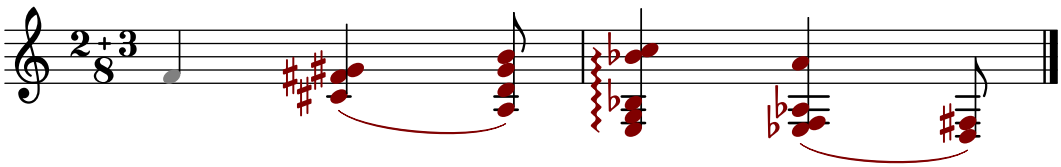

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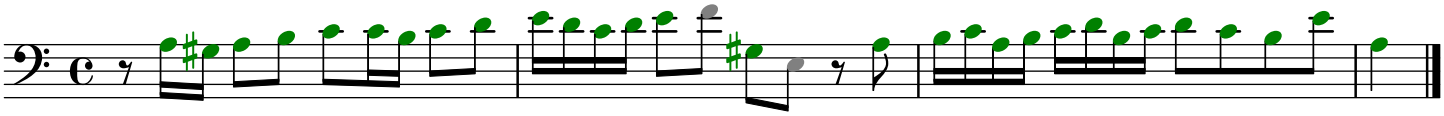

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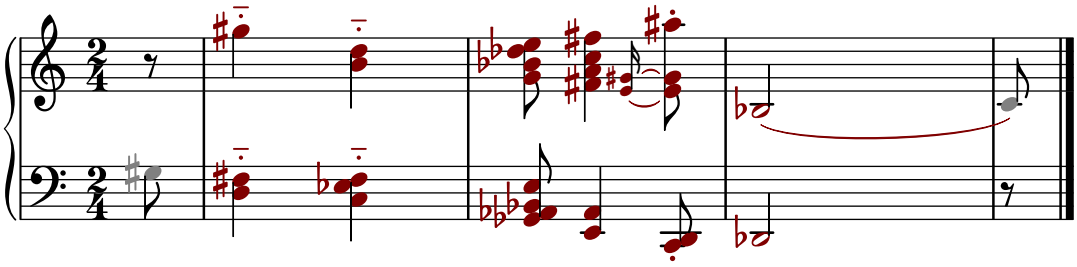

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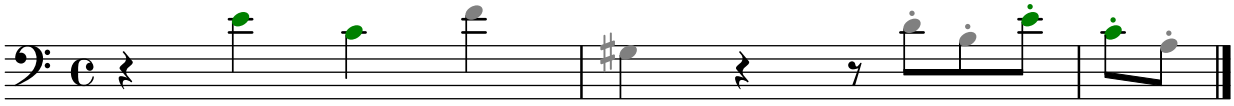

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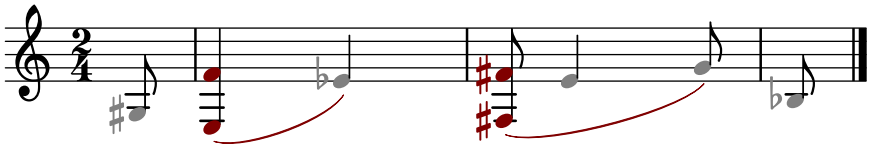

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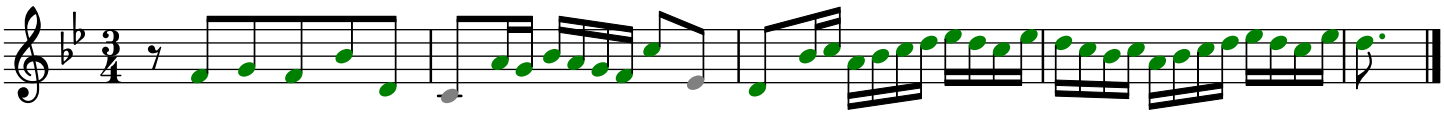

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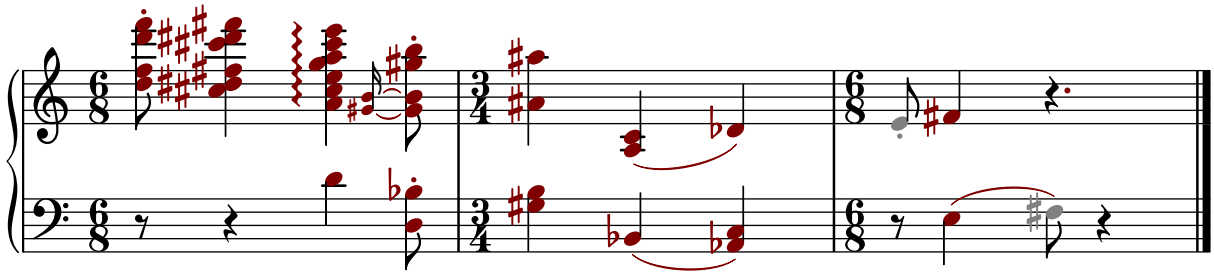

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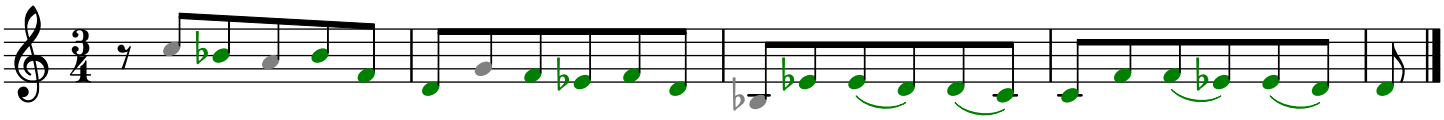
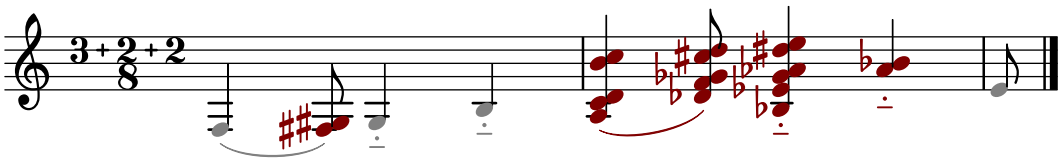


X/Y->Y/X



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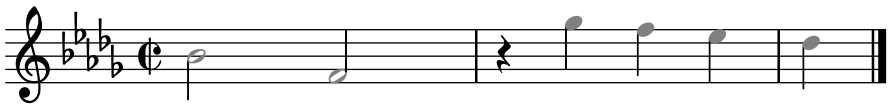
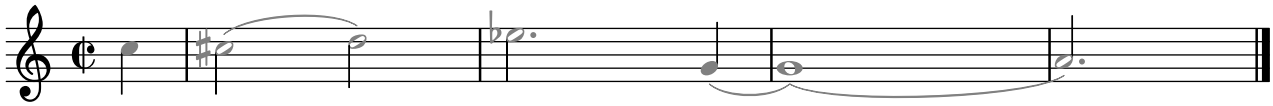


X/Y->Y/X



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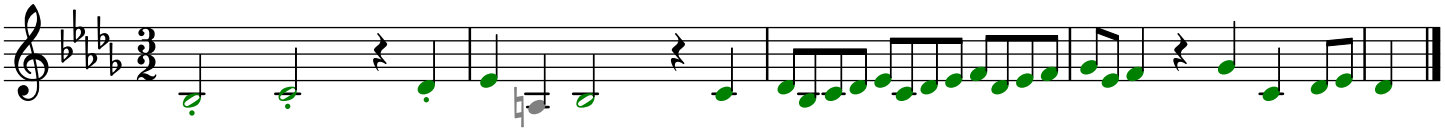

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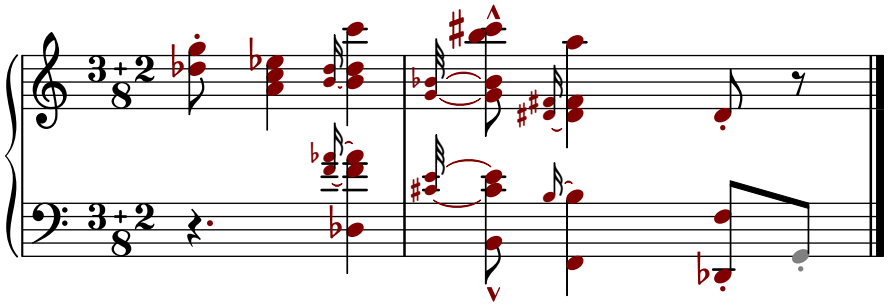

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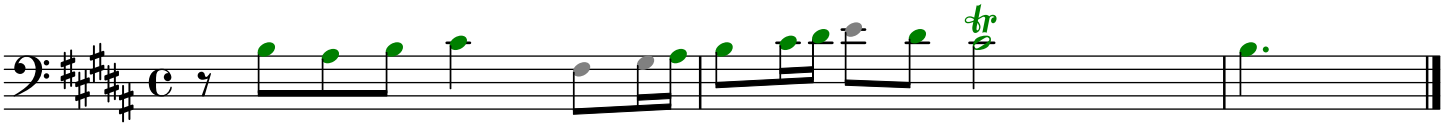
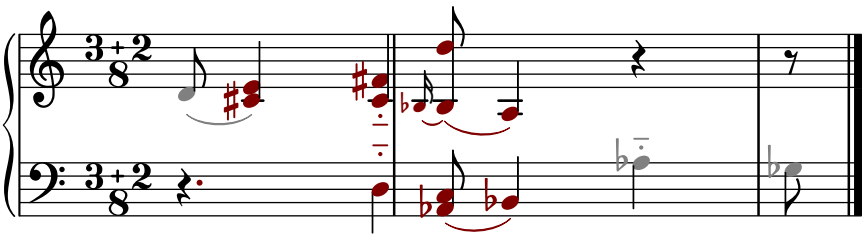


X/Y->Y/X



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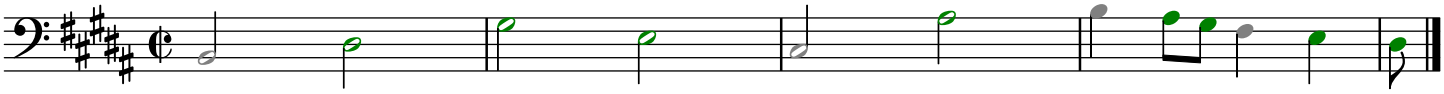
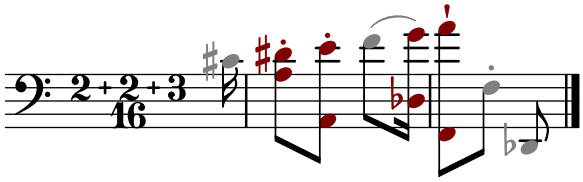


X/Y->Y/X



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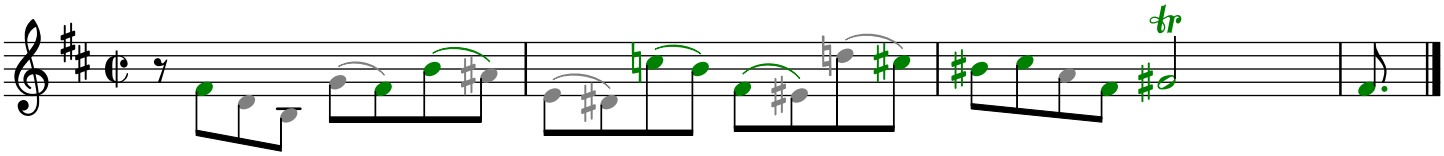
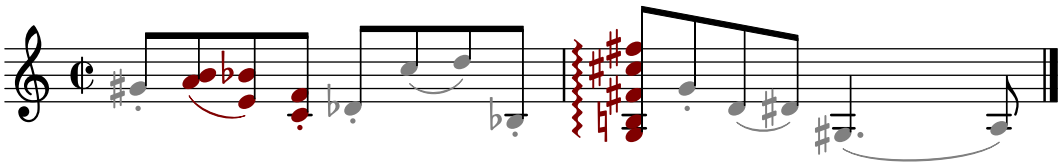


X/Y->Y/X



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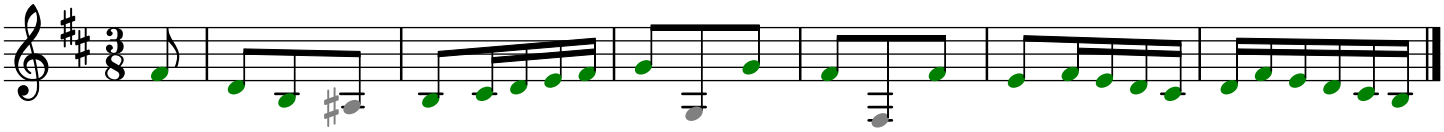
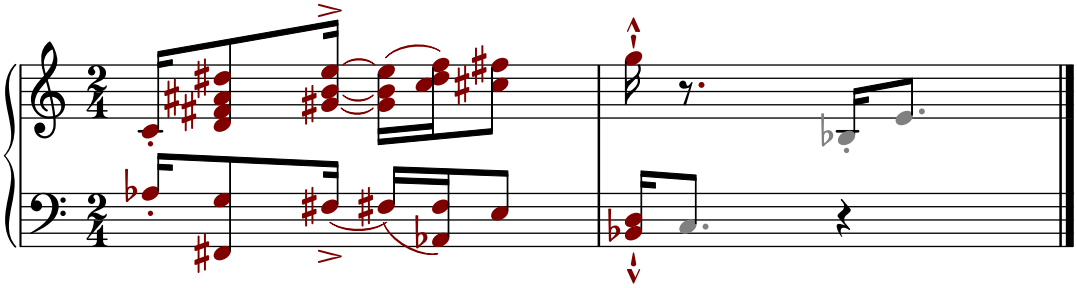


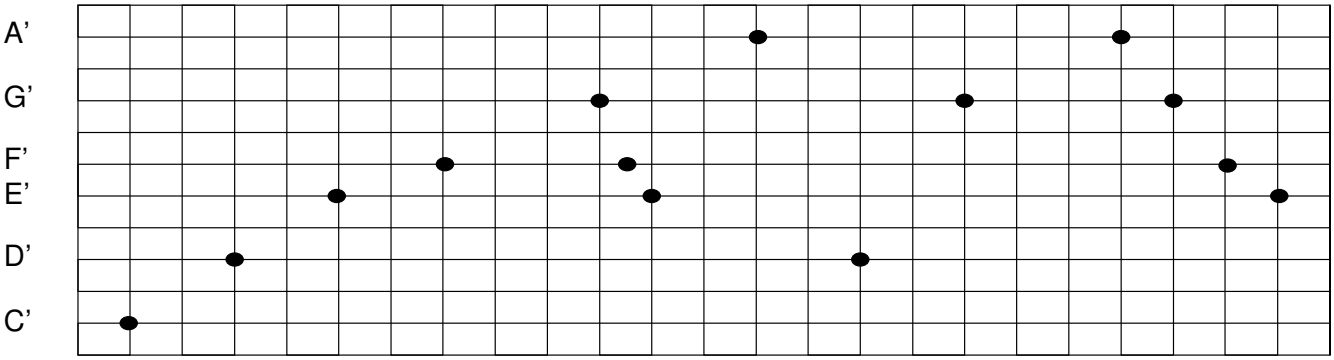
X/Y->Y/X

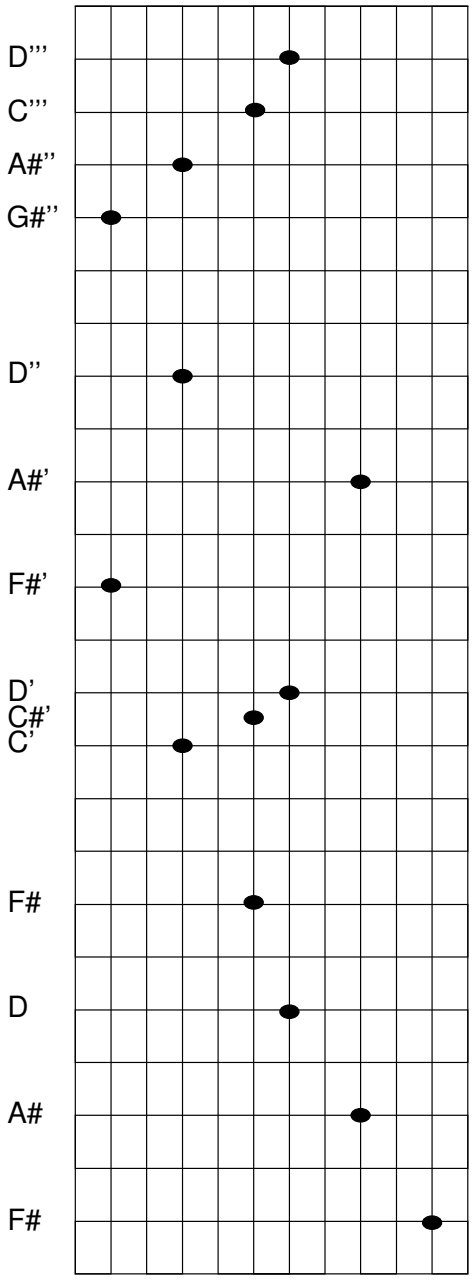


Music engraving by LilyPond 2.22.0--www.lilypond.org

Appendix A

Rotation–Graph Example





ABOVE: WTC I:1 (BWV 846), Fugue Subject

Generally these vertical/horizontal grid units match their source's minimum interval/duration. Exceptions, such as this example's offline F', will not affect their note's scored proportions.

Octave level is per LilyPond's notation.

OPPOSITE: X/Y–>Y/X, 90 Deg ACW Rotation

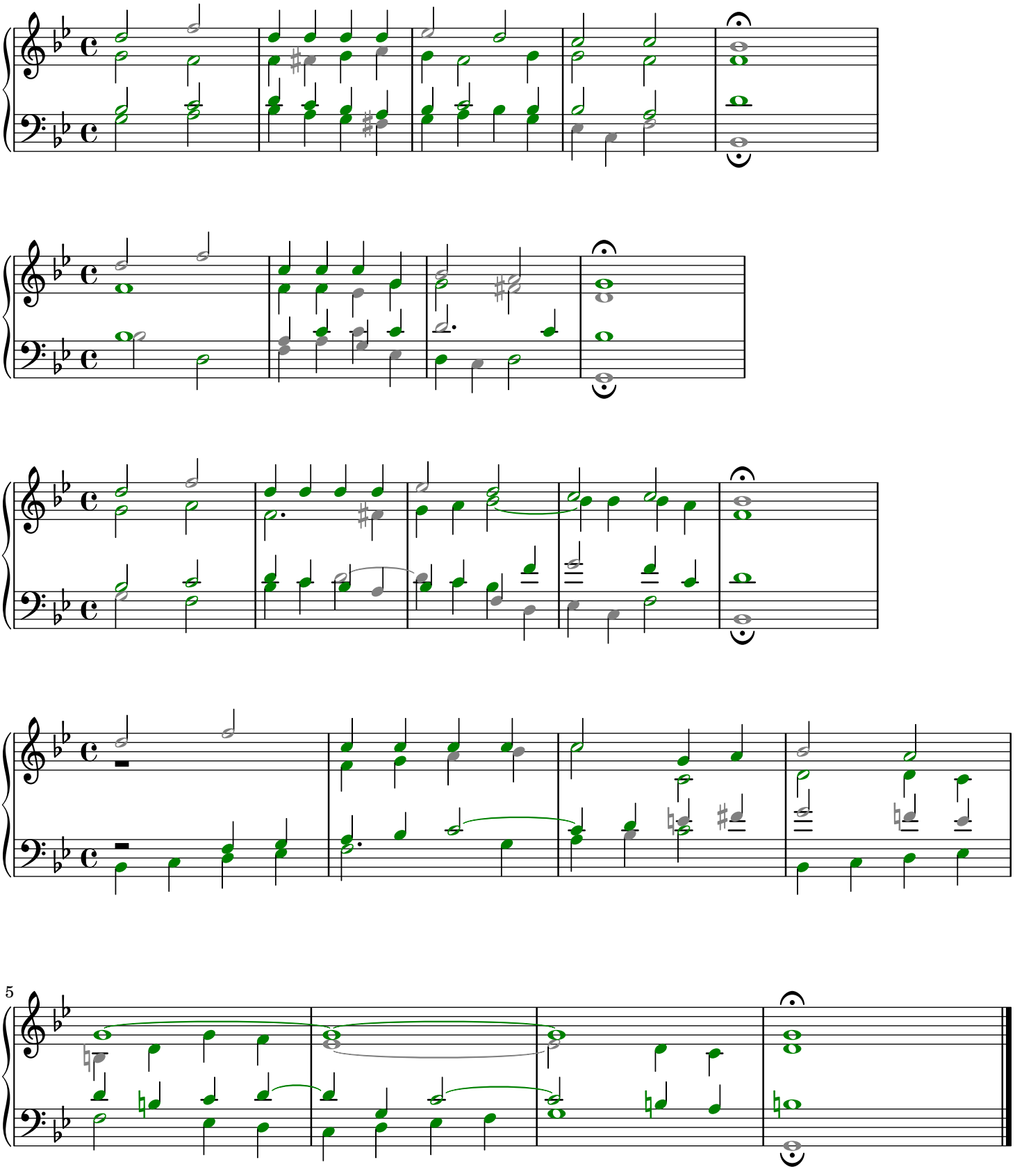
Accidentals (all '#' here by default) are due for probable respelling in score.

The shortest source duration translates by default to a semitone, and vice versa. If that duration is contextually especially short, as here, wholetones will become the sounding intervallic unit.)

Output pitch center is chosen to close–match that of the source.

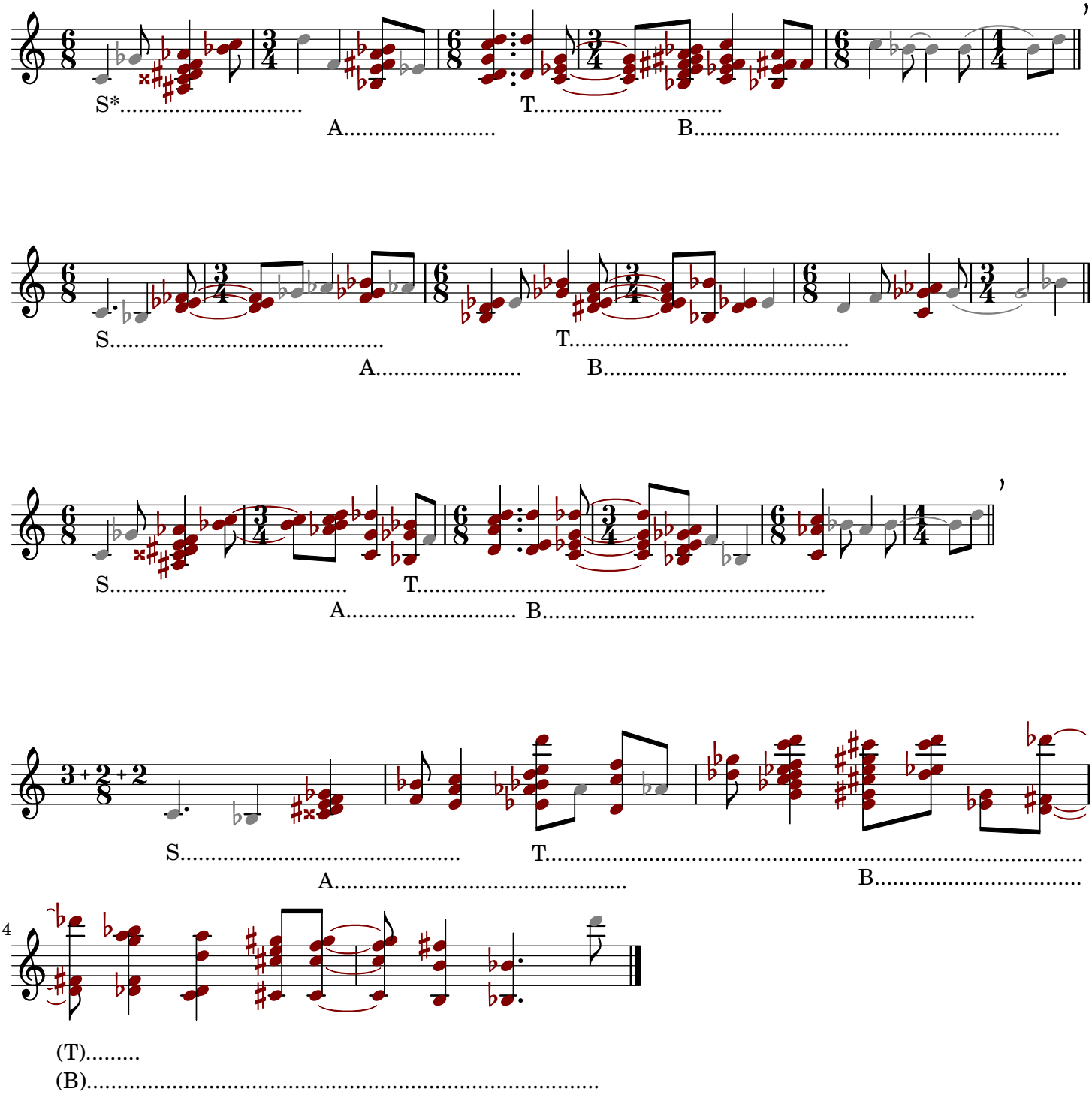
Appendix B

J.S. Bach, Chorale "Meine Seel' erhebt den Herren", BWV 324



Rotation: Exchange of Pitch/Time Proportions

applied to the chorale phrases separately



* Dotted lines indicate corresponding chorale voice ranges, with the left-most event here referencing the top-most chorale pitch.