Brad Edwards

Tuning Drone Melodies

Bass Clef

(with some tenor clef)

Trombone, Euphonium (bass clef), Bassoon, Cello

About This Book

Tuning Drone Melodies is a collection of music intended for use with a tuning drone (not included). Part One is for a single instrument playing with the drone while Part Two is for multiple instruments playing with the drone. My thanks to Dr. Benjamin Coy, whose waveform graphic (front cover) first appeared in his intonation article on Jay Friedman's website (jayfriedman.net/articles/ an_introduction_to_temperament). Ben has also written a very nice book with detailed intonation exercises: *Intonation Studies for Three Trombones*.

How to Use This Book

- *Listen carefully*: This may seem obvious but the skill of making small adjustments to match your pitch with another takes time and patience.
- *De-tune on purpose*: The fear of being wrong closes the mind. Feel free to bend the pitch while listening nonjudgmentally as your note clashes or blends with the drone.
- *Pause as needed*: In the pursuit of musical interest, these melodies do move along. Some out-of-tune notes might slip past your attention until your ear and reflexes improve. Insert fermatas to pause and check critical notes. Be patient!
- *Play musically*: Playing in tune is wonderful but not if it leads to a dull musical performance. You must simultaneously make compelling phrases and adjust to lock in pure intervals.

A Bit About Tuners

Electronic tuners are wonderful devices but it's easy to use them the wrong way:

Problem #1

Playing in tune is about your **ears**, not your **eyes**. If you simply stare at the display without listening, you're doing it wrong.

Problem #2

Some tuners are **too sensitive**; you sustain a reasonably steady note and the display jumps all over the place. Maybe that sensitivity is useful for tuning electronic instruments but for most wind instruments, an overly sensitive display can lead to confusion and tension.

Problem #3

Tuners report that you are sharp or flat compared to an **isolated** electronic standard. If you are sitting in an ensemble but relying on the tuner instead of listening to those around you, you're putting blinders on. That's like driving your car into a lake because the GPS told you to (yes, this has happened!). Use common sense. Listen to the people around you. Be a good musician!

Problem #4

Tuners use a **compromise** system of equal temperament. Harmonies sound more beautiful using the pure ratios of 'just' intonation. More about this later...

A Bit About Tuning Drones

Tuning drones are simply sustained notes (preferably in tune!). At the time of printing (2014), there are a number of ways to generate tuning drones. One is an excellent recording, *Cello Drones*, available from Navarro River Music. This recording can be found in most online music stores or directly from the company itself (navarrorivermusic.com). Unlike electronic drones, these use a pleasing cello sound with a rich set of overtones inherent in the timbre.

A number of drone apps are available for iPhones and iPads. The best I have found is *Tonal Energy* (tonalenergy.com). The app easily generates drones not only with unisons and octaves but also other intervals, such as perfect fifths and even chords. Tonal Energy allows you to easily toggle between equal temperament and just intonation (more about that later). Another good app is the *Practice Center*, available from Cal30 iPhone solutions (cal30.biz). In addition to tuning drones, this app includes modules for video and audio recording, a metronome with drum loops and a timer. A fairly good tuner/drone app for the Android operating system is *Tunable*. As time goes on, I'm sure the app world will develop quickly. If using electronic drones, I suggest an open perfect fifth when playing along with this book. That's what I used in creating these melodies.

I have created my own tuning drones and distribute them freely through my website (bonezone.org). These are .wav files using just intonation. They are somewhat limited in length but can be looped using the right software. Another useful set of free drones can be found at Ben Coy's website (tenorposaune.com). Basically, Ben took the cello drone concept and rebuilt it with brass sounds instead of strings.

If you are practicing with a patient partner, it may also be possible to take turns providing the drone note.

Another challenge in working with drones is speaker technology. While it is possible to use headphones, quality speakers are far better. Here are some important considerations:

- *Tone Quality:* generating drones through small, tinny speakers is an inferior experience. If possible, make sure the speakers generate a good clean bass sound.
- *Volume:* many portable speakers don't generate enough sound to be useful for play-alongs. Other speakers break up at louder volumes.
- *Size and portability:* most college music students must use practice rooms and carry everything around. If you purchase portable speakers, make sure the quality is high enough. As of now, the built-in speakers of most phones and tablets aren't up to the task.

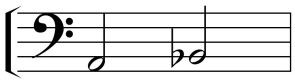
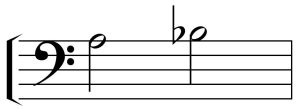
If you have a permanent practice space, invest in a good audio system. If you need to use portable speakers, a number of good-quality, portable speakers are becoming available at reasonable prices. Do some research before spending your money.

Hertz, Cents and Beats

Hertz: *Hertz (Hz) = vibrations per second.* You may have heard the term 'A 440.' An object vibrating 440 times each second is vibrating at 440Hz and will sound the note 'A' above 'middle C' (C4).

Cents: Each 1/100 of a half step is a cent. If you are 20 cents sharp, you are 20/100 (or 1/5) of a half step sharp.

A change of one *100 cents* does not equal a change of one *100 Hertz*.
Look at this table:

Notation	Change (Hz)	Change (%)	Change (Cents)
	**6.54** (110 – 116.54)	5.95%	100
	**13.08** (220 – 233.08)	5.95%	100

Beats: When two notes are out of tune, you hear *beats* - that waving/pulsing quality of the two sound waves moving in and out of sync. The *closer* the notes get to a unison, the *slower* the beats sound. The "Grinders" exercises of Part One use slow glisses to help you listen for, and resolve, beats.

Pure intervals have beats of their own which are less obvious to the ear. Pick the right two notes, play them in tune and the beats can actually form a third note!

Perfect vs. Color Intervals

Perfect Intervals: Fourths, fifths and octaves. These intervals don't change from major to minor keys. The table on the next page gives some examples.

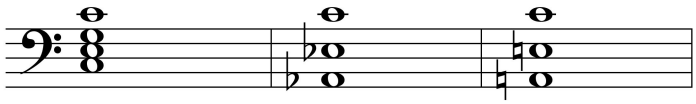
Color Intervals (Color Notes): Mostly thirds and sixths. These change from major to minor keys. The table on the next page gives some examples.

One should use the term "major third" but not "perfect third." Conversely, one should refer to a "perfect fifth" but never a "major fifth."

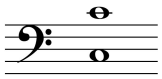
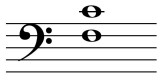
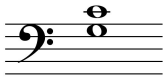
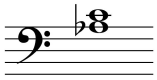
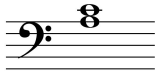
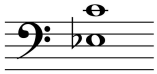
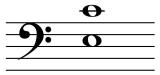
Equal vs. Just

Equal temperament: A compromise system in which all keys are the same but none are ideal. Most electronic tuners and midi devices use this system.

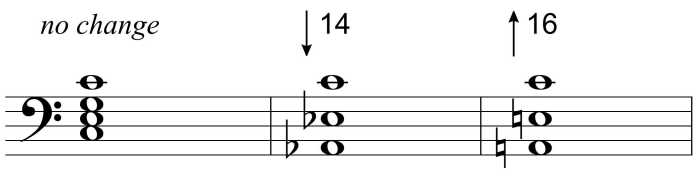
Just intonation: A system built on pure frequency ratios. For example, a just-tuned major third is built on a 5:4 ratio. Look at the three chords below…



Each of these chords has a C as the top note. In equal temperament, each C would be the same. In just intonation, each of these C's will be in a slightly different place to lock in those pure ratios. This table should help:

Interval	Ratio	Example	Top Note Adjustment
Octave	2:1		No change
Perfect 5th	3:2		Up 2 cents (almost nothing)
Perfect 4th	4:3		Down 2 cents (almost nothing)
Major 3rd	5:4		Down 14 cents
Minor 3rd	6:5		Up 16 cents
Major 6th	5:3		Down 16 cents
Minor 6th	8:5		Up 14 cents

Here's the same musical example with the adjustments needed for that C:



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Part One: One Voice with Drone

Part Two: Multiple Voices with Drone

Part One:
One Voice with Drone

About this section:

Each 6-page section focuses on one tonal center (drone note). All the material is meant to be played over that drone. All sections have the same basic layout:

- ***Grinders***: These have lots of half steps moving from 'grinding' dissonances to consonances. Glissandi are indicated but don't worry if your instrument can't gliss. Just play the half step legato. If you can gliss, move slowly and listen to the beats. Slide positions are intended for trombone and don't show any intonation adjustments.

- ***Perfect Intervals***: This is a simple exercise using perfect fourths, fifths and octaves. Notice the variations below each exercise. Feel free to make your own variations.

- ***Perfect Interval Piece***: With titles like *Promenade* and *Rustic Waltz*, these half-page etudes emphasize the perfect intervals. Each piece usually appears twice in the book (in different keys).

- ***Finding the Thirds***: Lots of practice with major and minor thirds over the drone. You will find that major thirds 'settle in' more easily than minor thirds.

- ***Two Short Pieces***: With titles like *Lament* and *Tower Waltz*, these pieces are in contrasting styles and modes. Each piece usually appears twice in the book (in different keys).

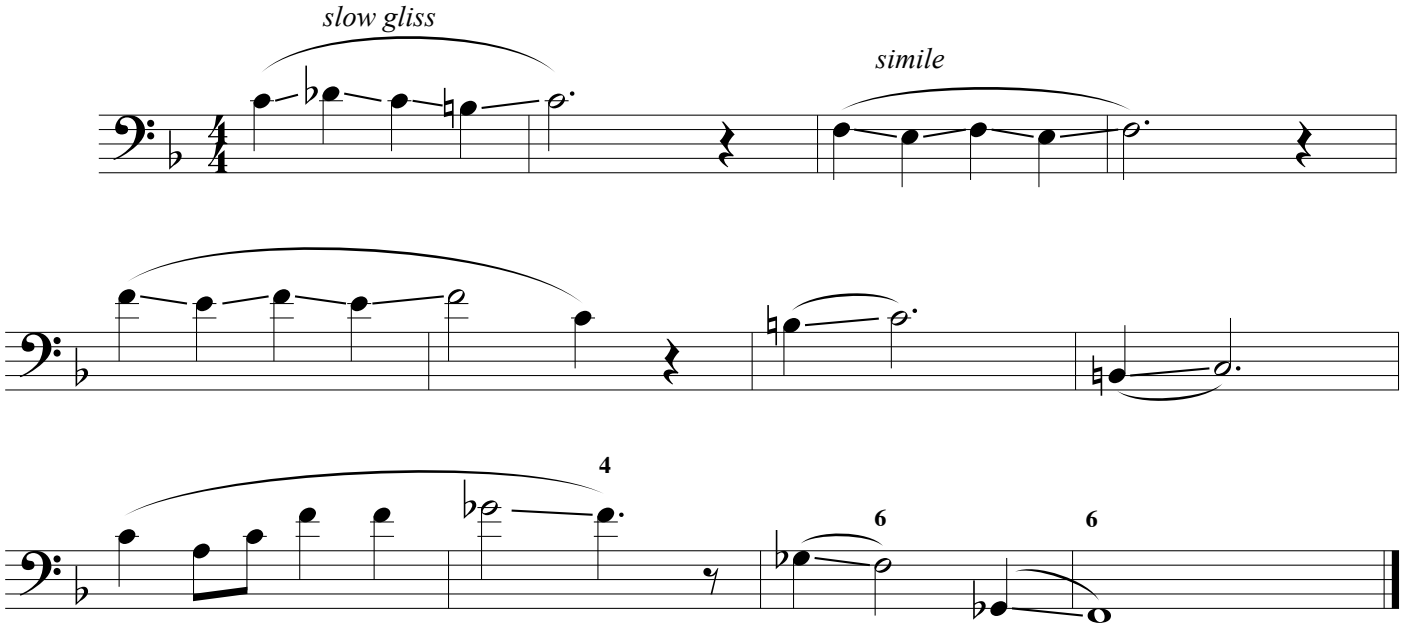
- ***High Range / Low Range***: Pretty self-explanatory. Don't worry if you can't hit the highest notes.

- ***Folk Song Settings***: Two or three settings of folk songs that happen to work well over a tuning drone. Each folk song appears three or four times in the book (in different keys and usually with slight variations).

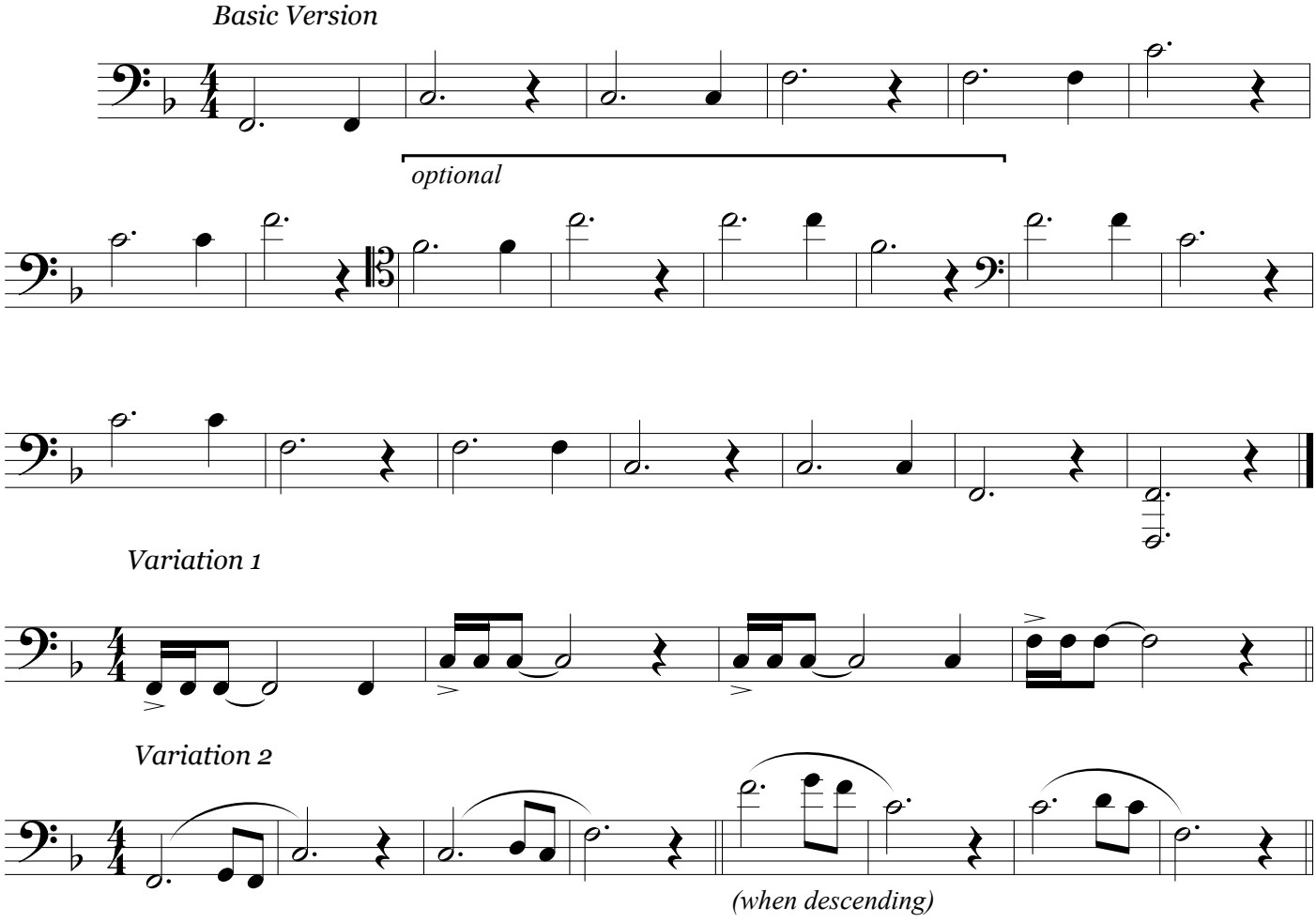
- ***Concert Piece***: A more challenging one-page etude. Each drone has a unique etude.

F Drone

Grinders

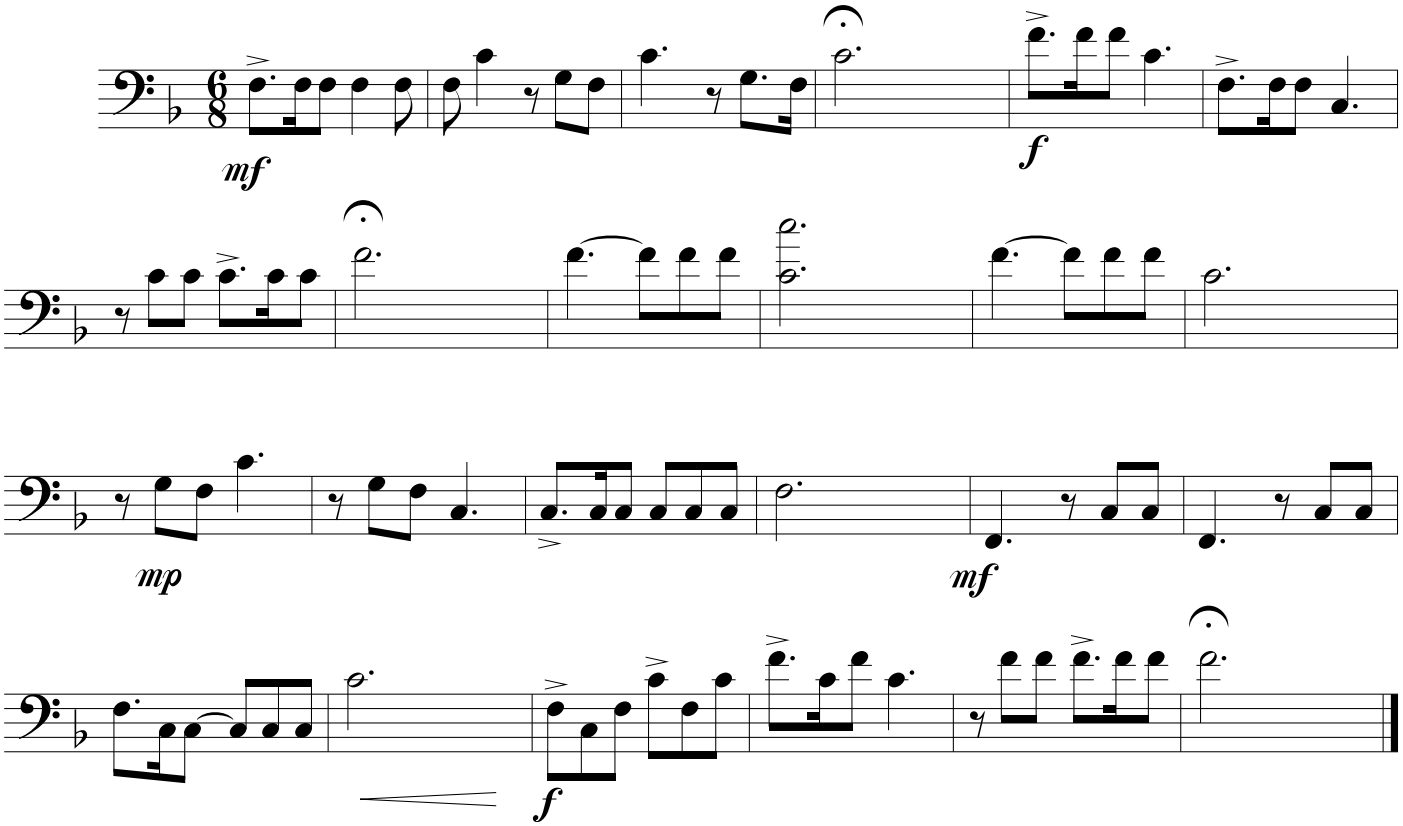


Perfect Intervals

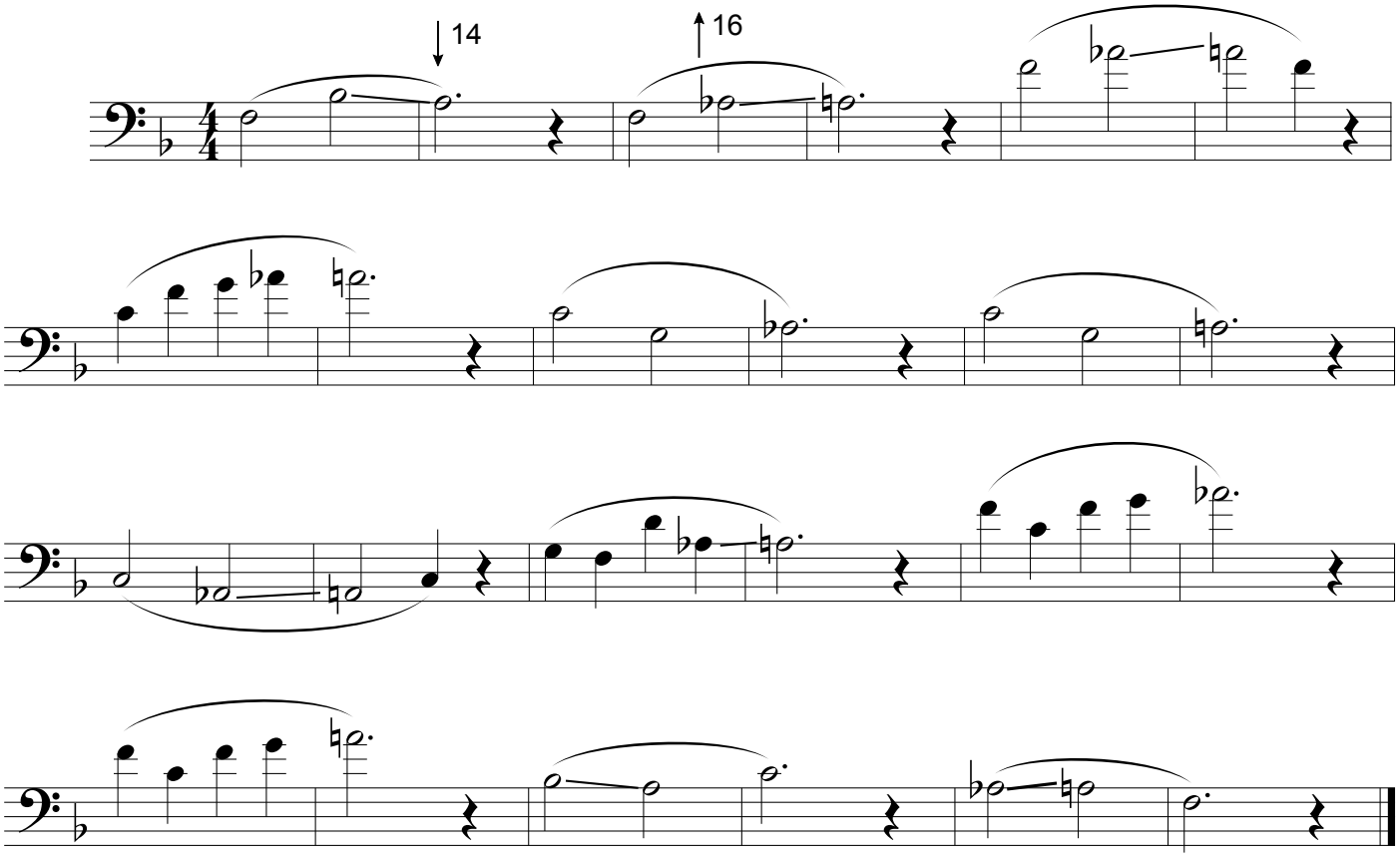


Be creative and apply your own variations to the basic harmonic skeleton above.

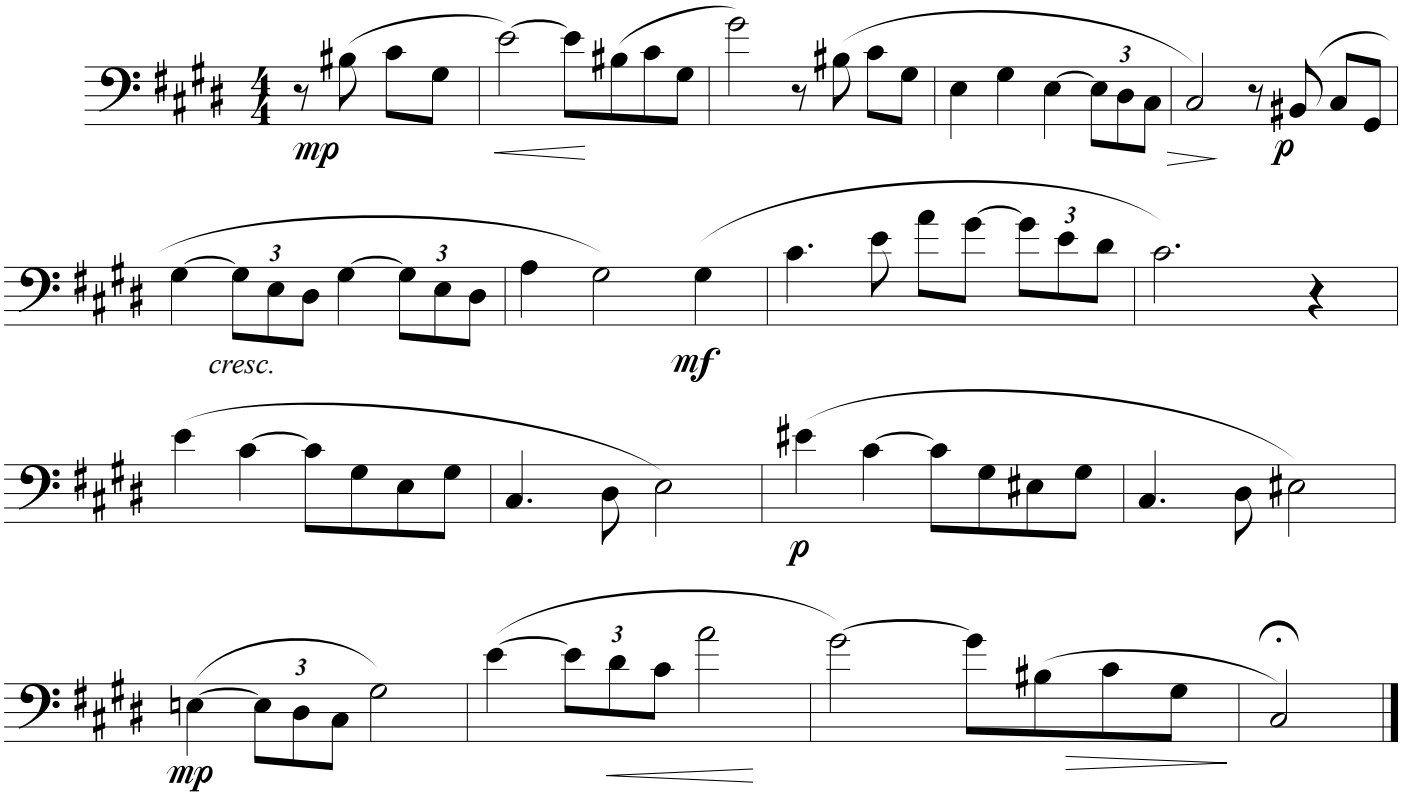
Heroic Fanfare



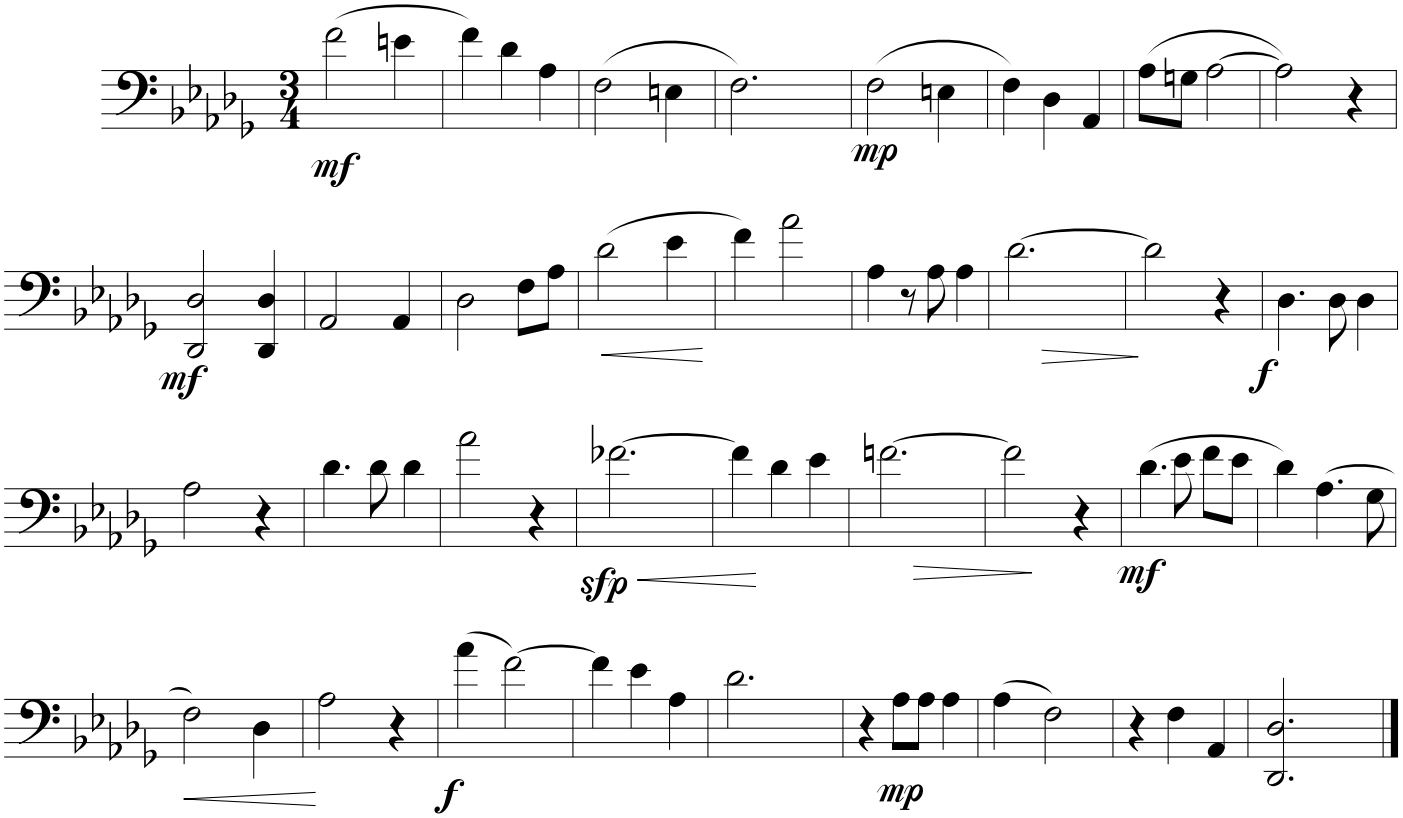
Finding the Thirds *(Major third, down 14 cents; Minor third, up 16 cents)*



Lament

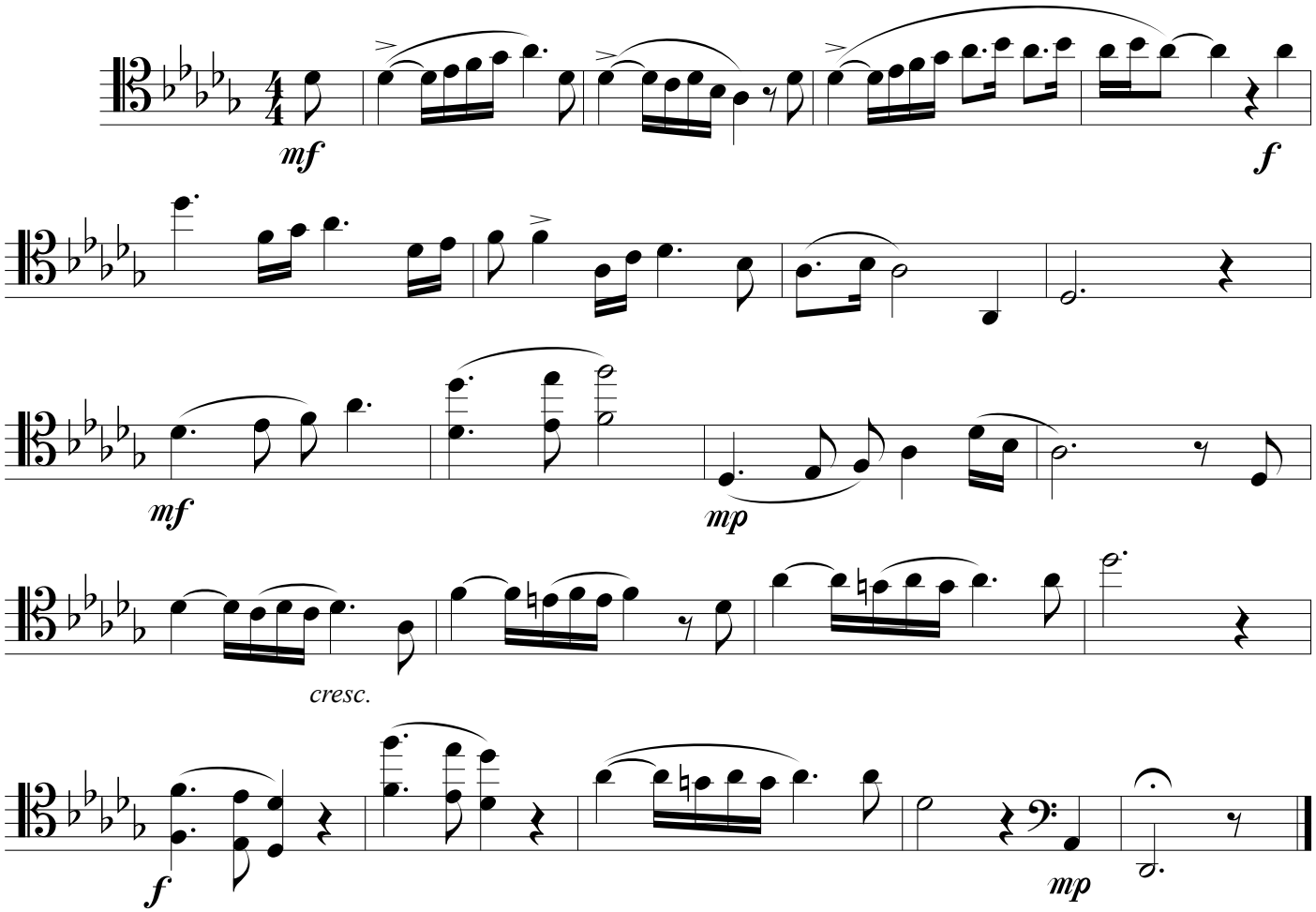


Tower Waltz

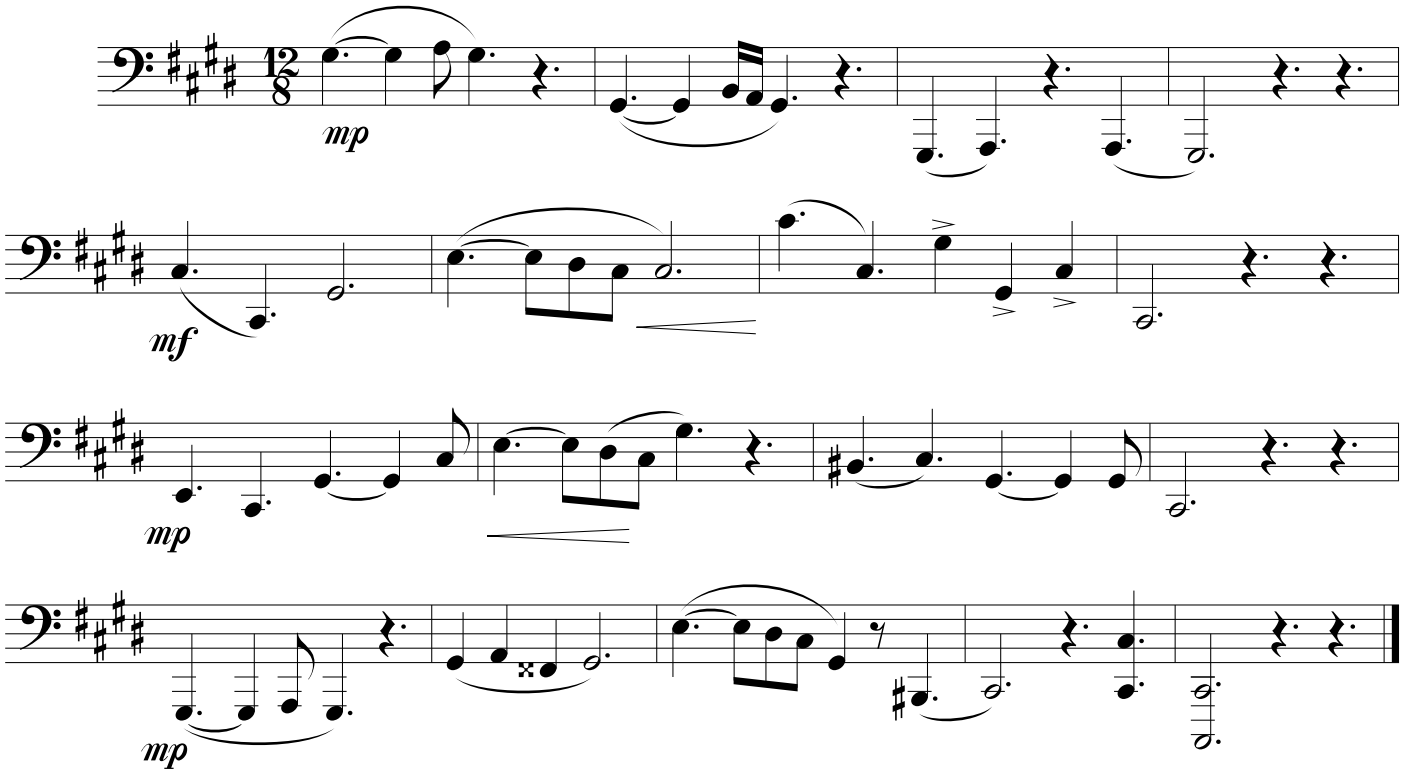


[D-flat/C-sharp drone]

High Range

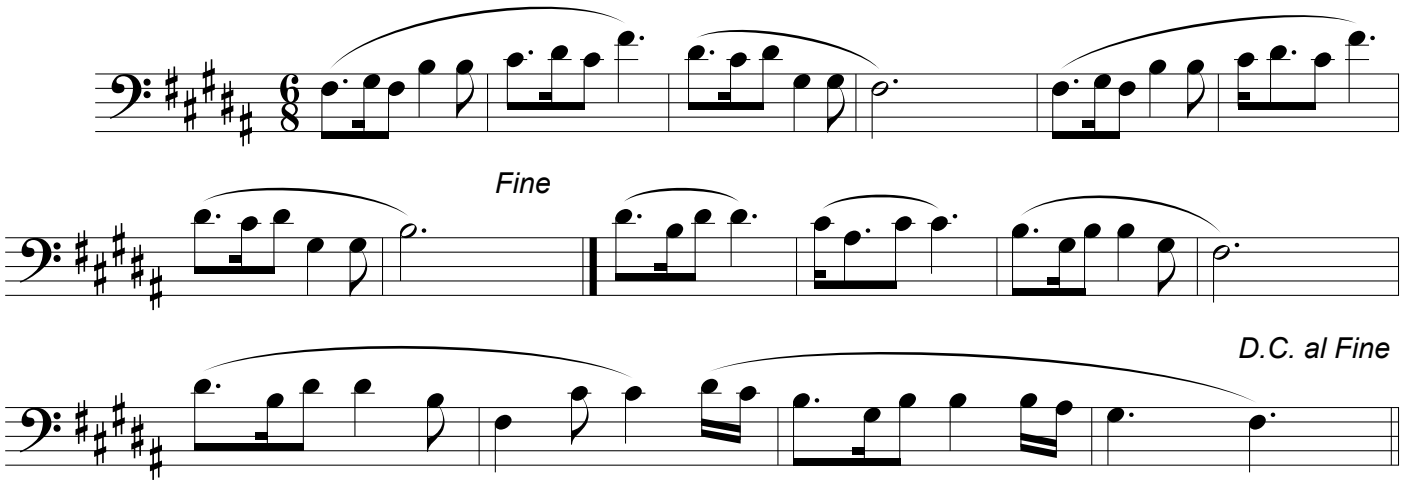


Low Range



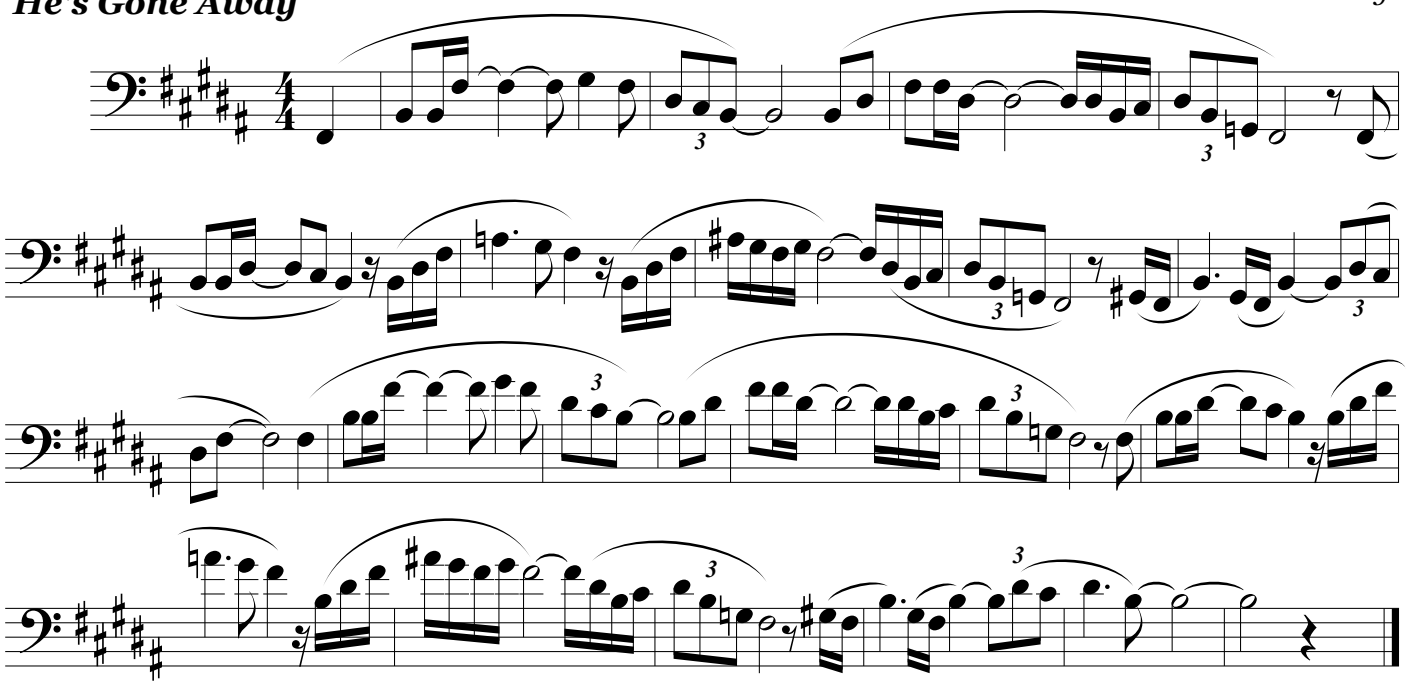
Skye Boat Song

Scottish Folk Song



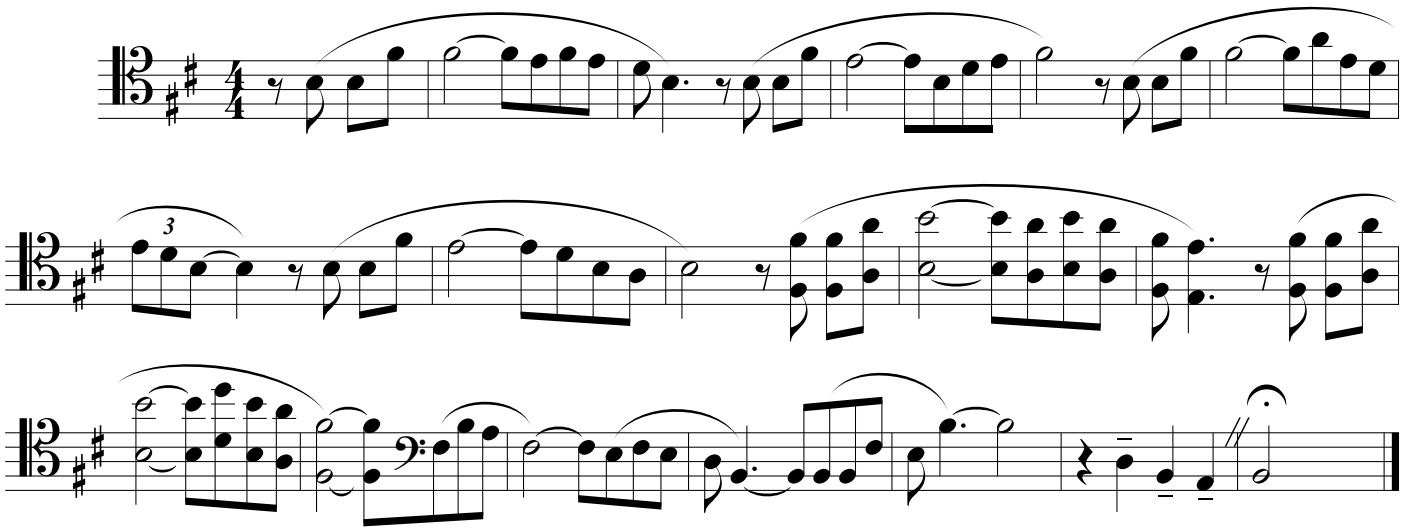
He's Gone Away

American Folk Song



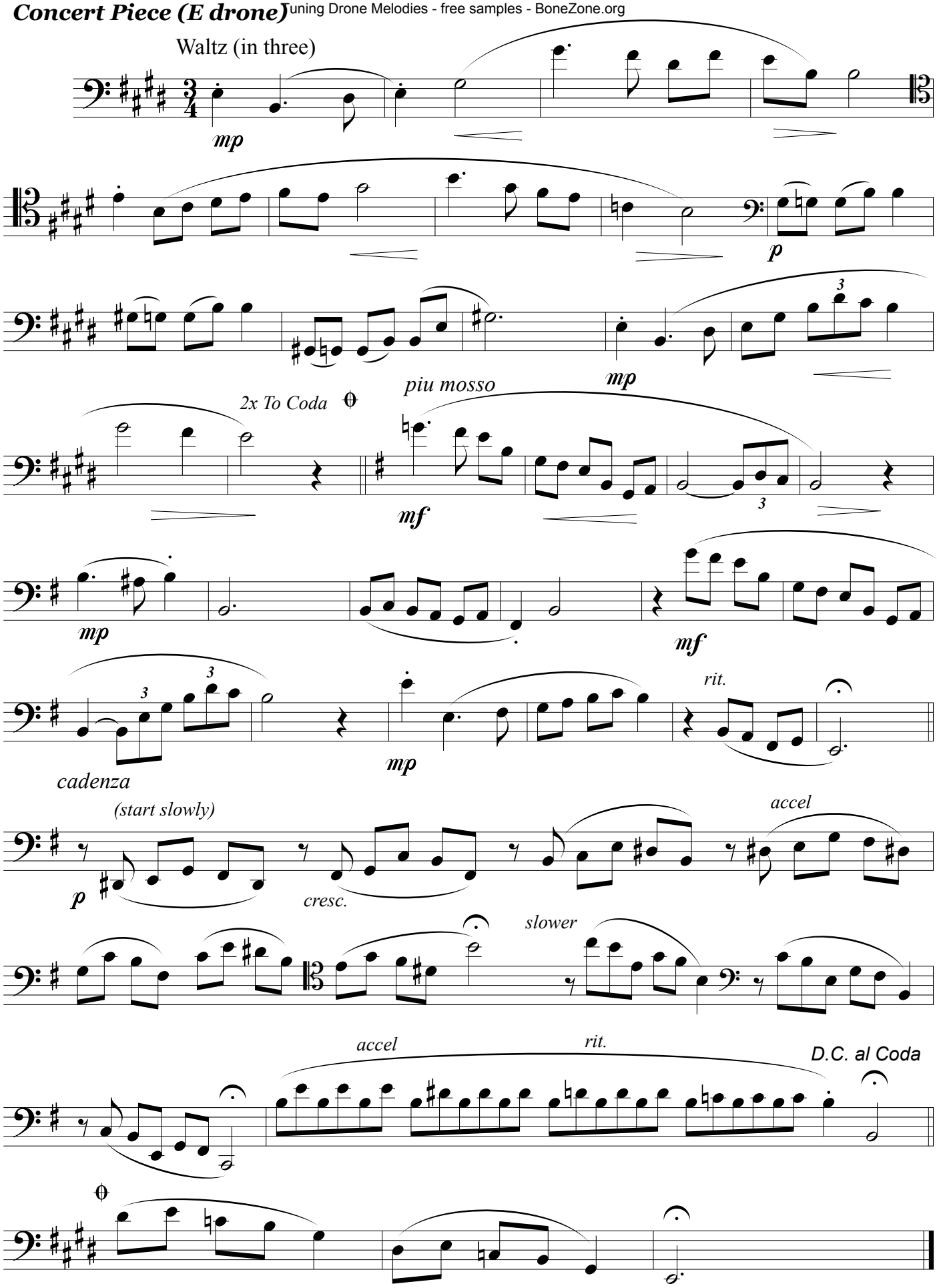
Wayfaring Stranger

American Folk Song



Concert Piece (E drone)

Waltz (in three)



Part Two:
Multiple Voices with Drone

About this section:

Each 5-page section centers on one tonal center (drone note). All the material is meant to be played over that drone. All sections have the same basic layout:

- ***Perfect Intervals***: No thirds are used here; just octaves, fourths and fifths.

- ***Color Notes***: These little plagal cadences (I-IV-I) in both major and minor get right to the heart of the matter of tuning thirds and sixths. They should be done over a unison or octave drone (as opposed to a drone using perfect fifths).

- ***Major and Minor Thirds***: Lots of practice with these. You will probably find the major thirds easier to "lock in" than the minor thirds.

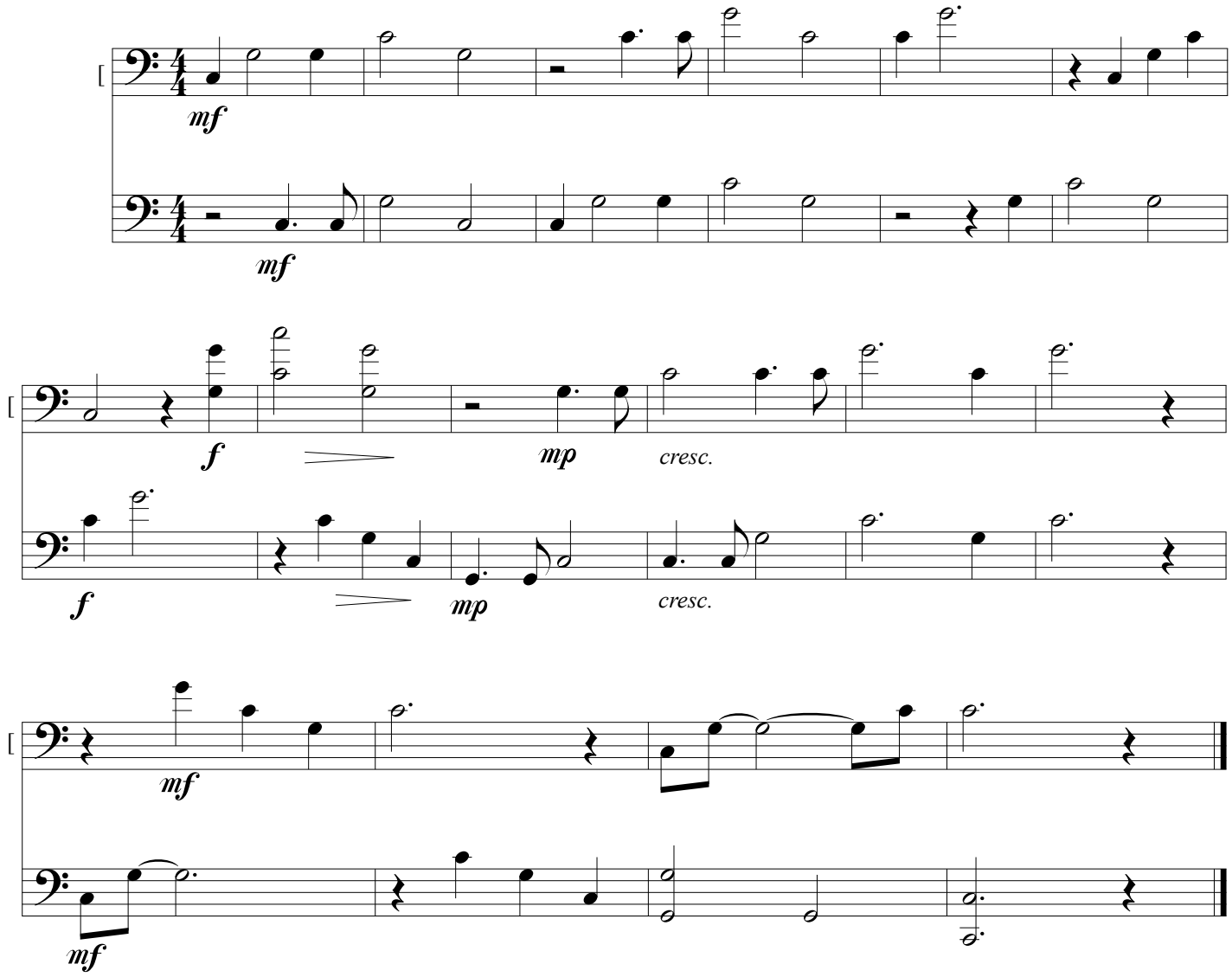
- ***Duets in Major and Minor***: Two short pieces, one mode each. For the most part, each piece appears twice throughout the book.

- ***Drone Rounds***: These rounds can be played with two or more players. The asterisk (*) indicates the starting point for the next voice. The fermata in parentheses indicates the stopping point for the second voice. A question mark over the final repeat indicates an optional repeat.

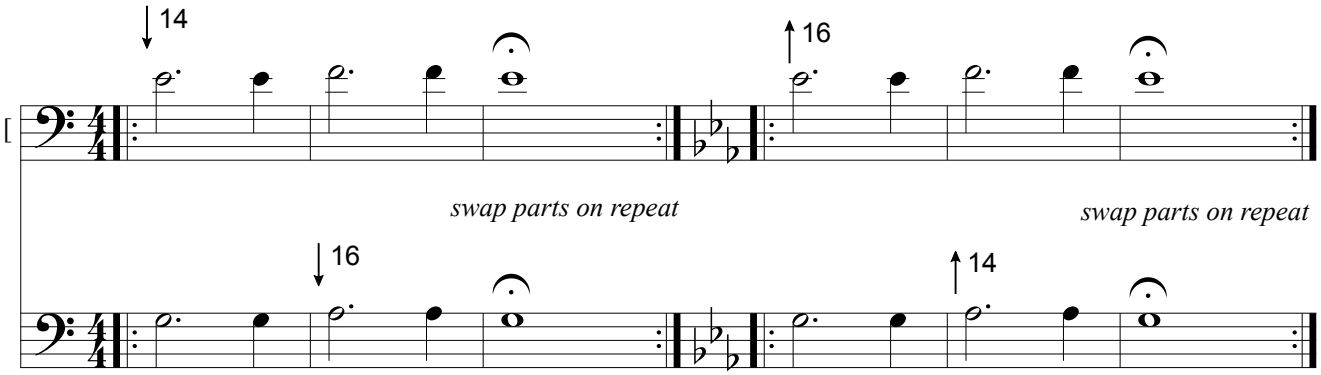
- ***Concert Duet***: A longer, more challenging piece with contrasting styles. Each piece appears in two different keys throughout the book.

C Drone

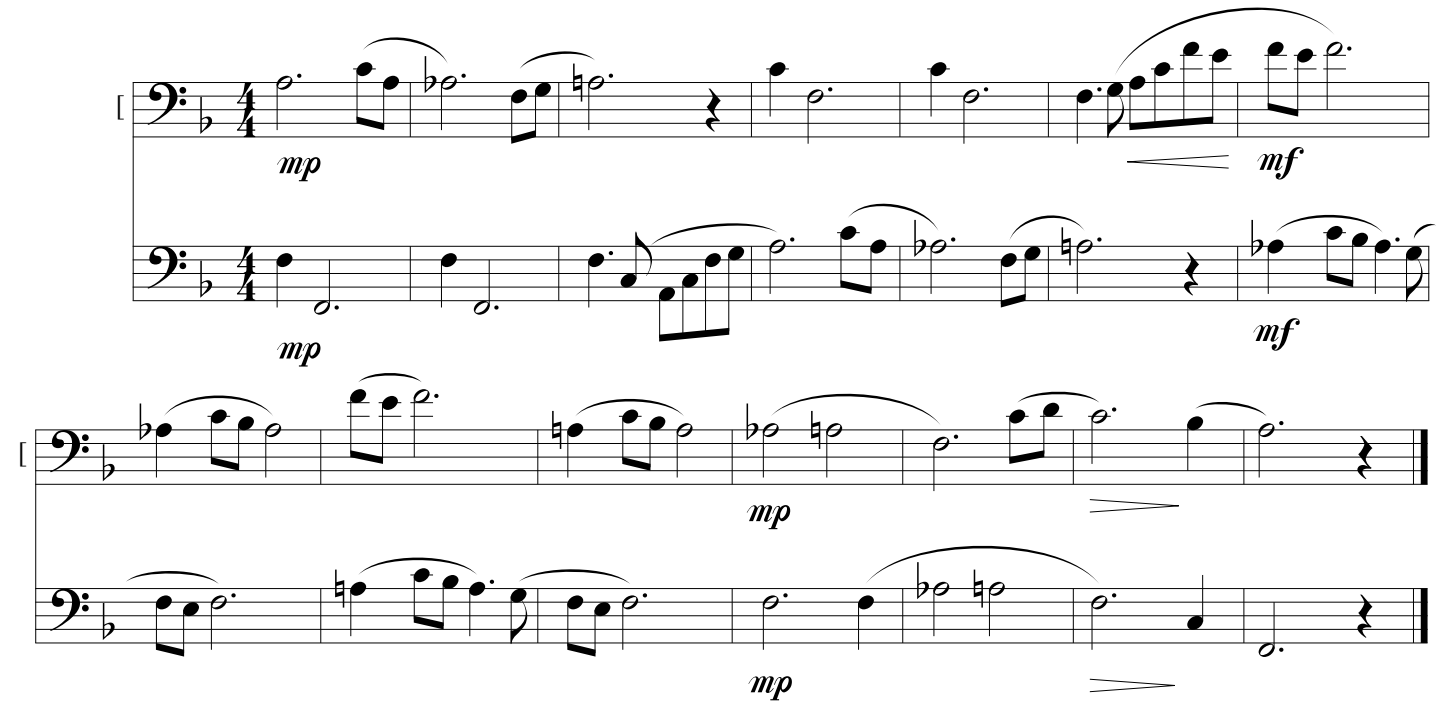
Perfect Intervals (4ths, 5ths, 8ves)



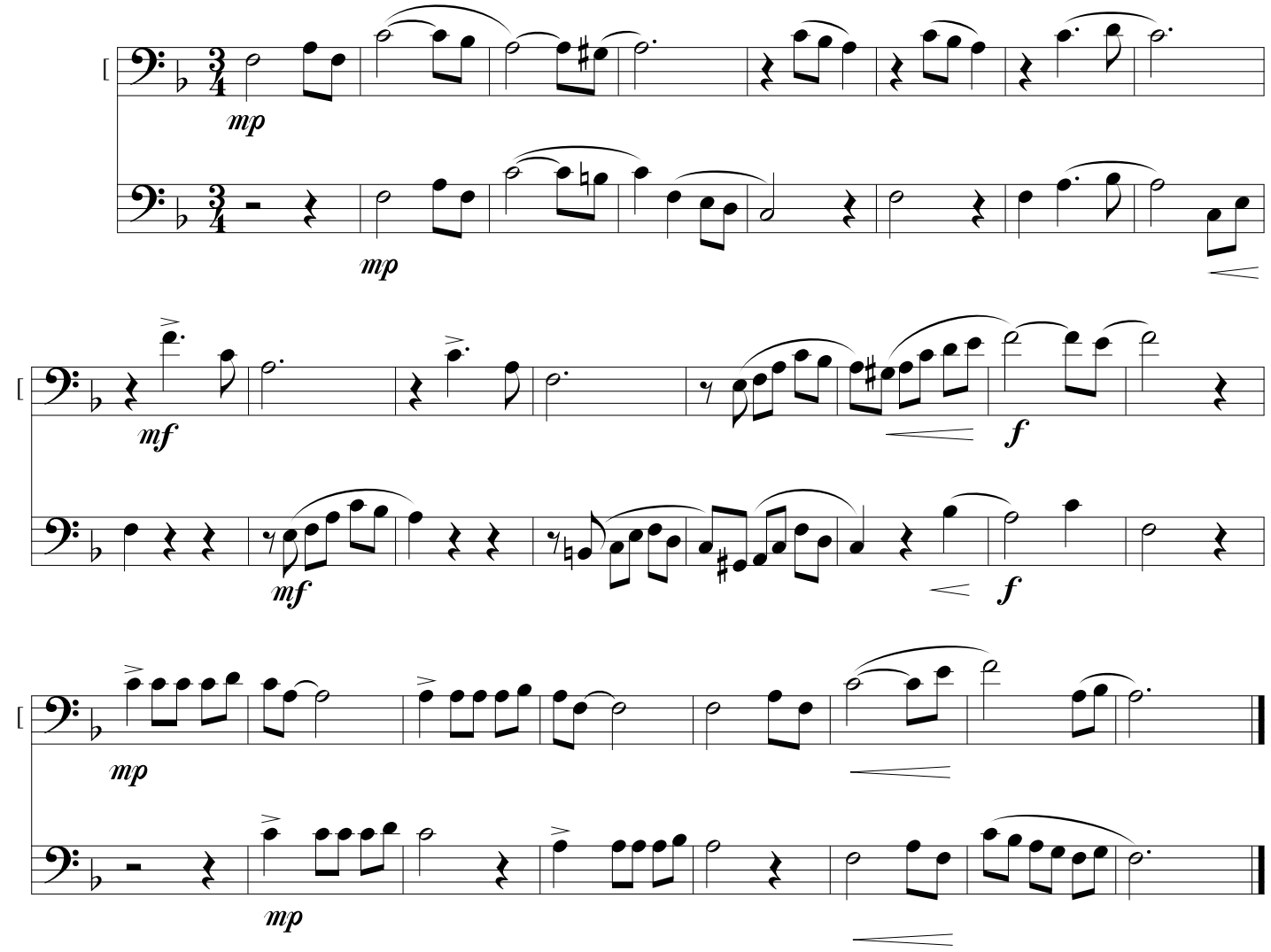
Color Notes (3rds, 6ths) *(Drone unison/octaves only, no perfect fifths)*



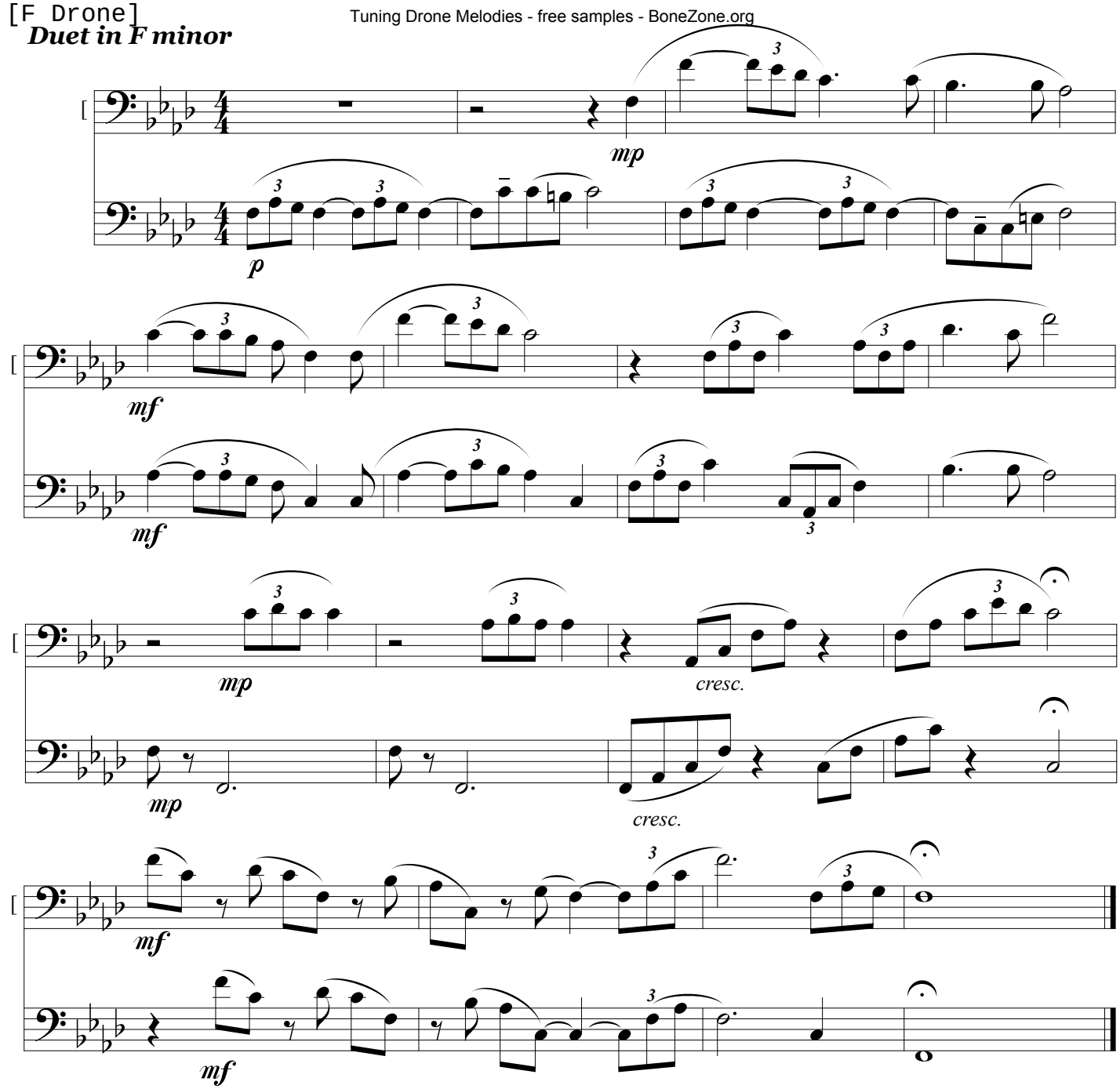
Major and Minor Thirds



Duet in F Major



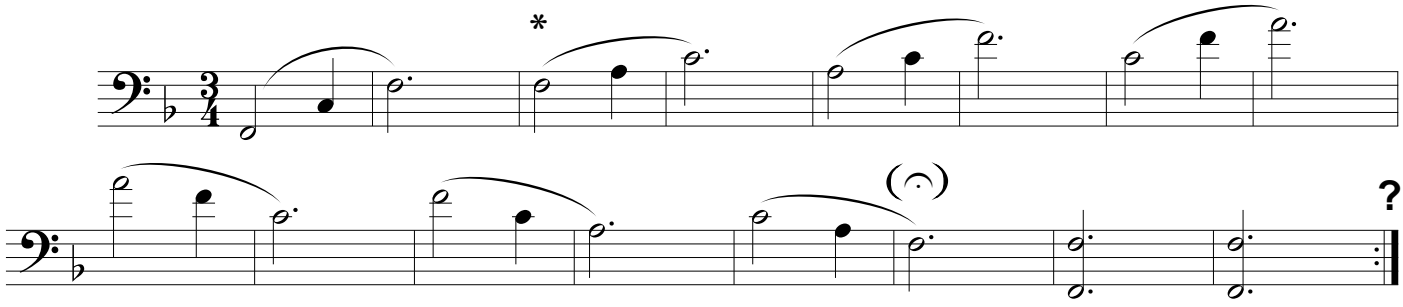
Duet in F minor



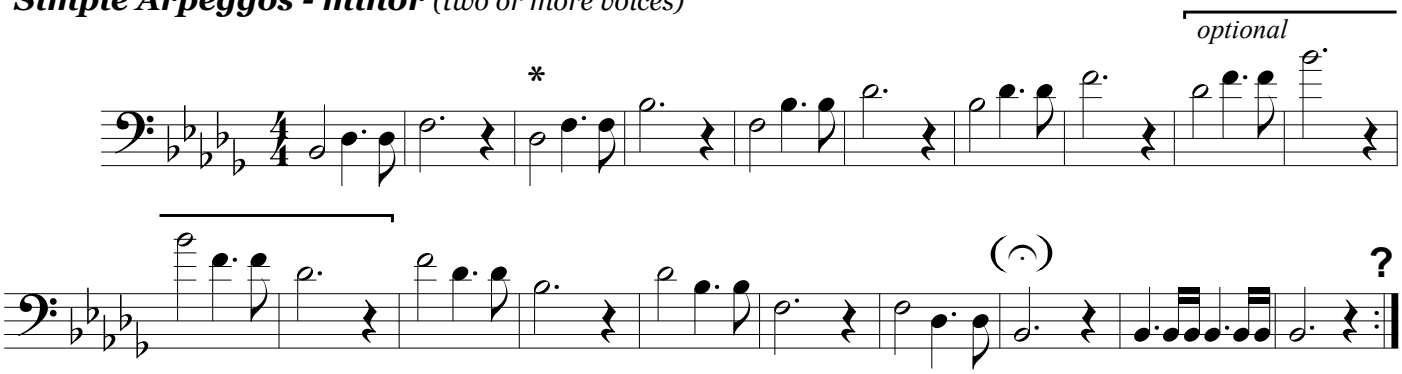
Drone Rounds

The second part should enter when the leading part reaches the asterisk (*). The fermata in parentheses is the stopping point for the second voice (if only two voices are playing).

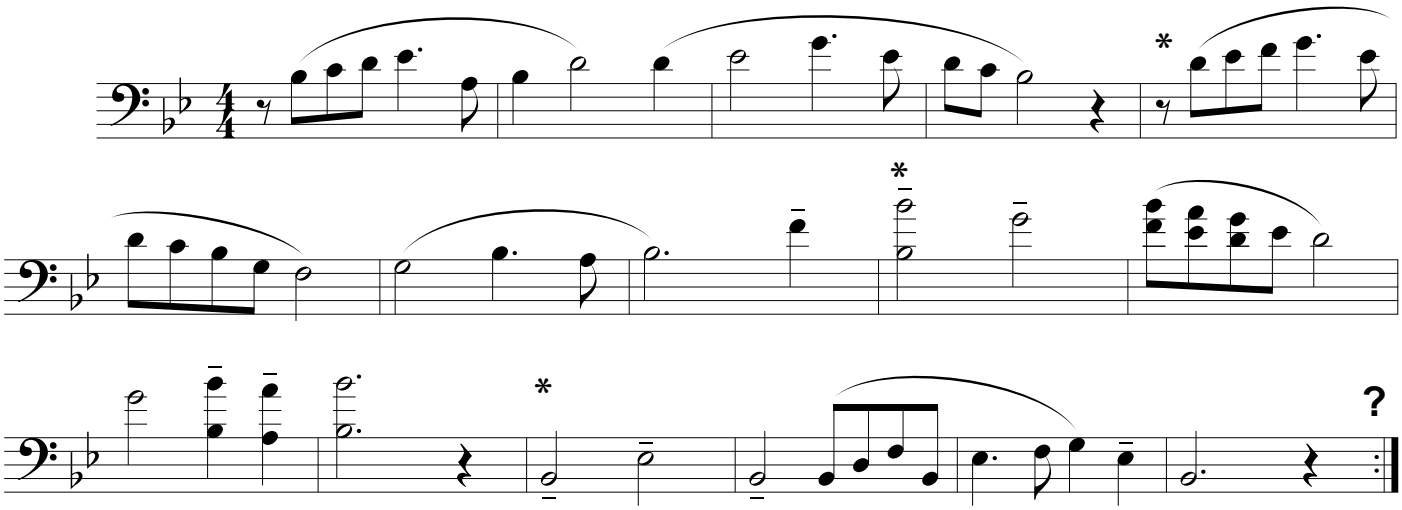
Simple Arpeggios - major *(two or more voices)*



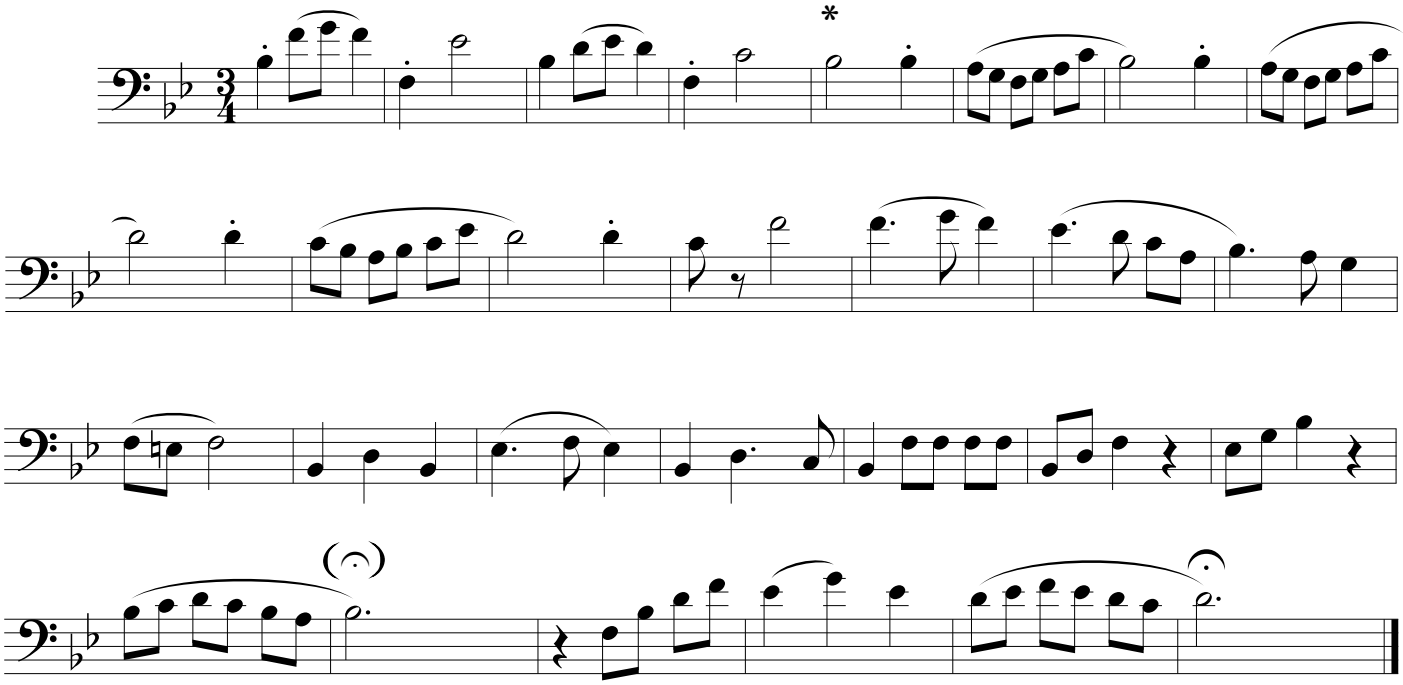
Simple Arpeggos - minor *(two or more voices)*



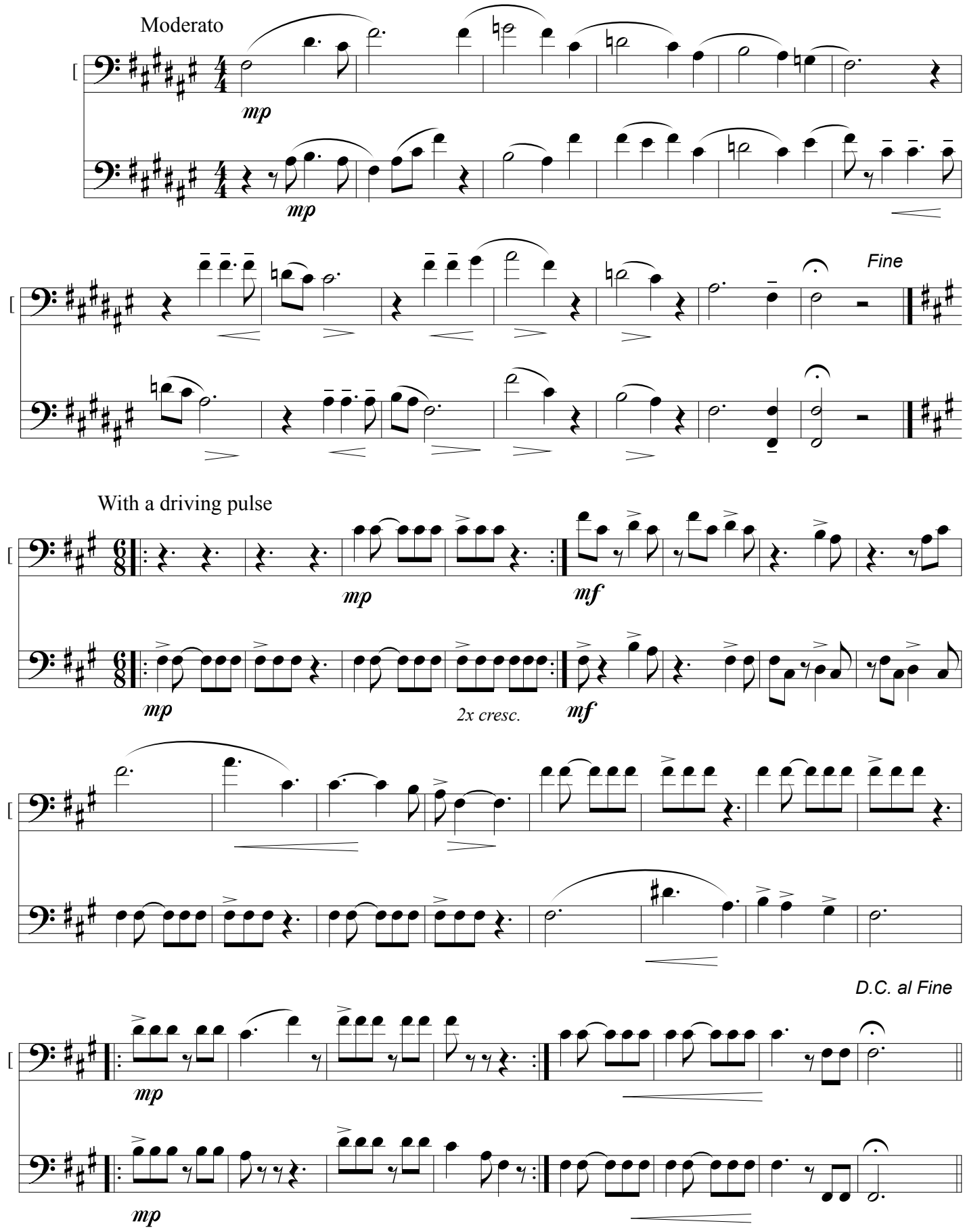
Plagal Cadence Round *(two or more voices; drone unison/octaves only, no perfect fifth)*



Round Dance *(two voices)*



Concert Duet (F-sharp Drone)



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- ***Bass Trombone Craft*** *(186 pages)*

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- Sequel to ***Lip Slurs***

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- Music to be played over tuning drones for one or more instruments
- Bass Clef version

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