

The Chromatic Scale

Spelling

The chromatic scale consists entirely of half steps, covering all twelve notes within the octave. The scale is usually written with sharps ascending and flats descending. The main reason for this is so that you do not need natural signs to cancel the accidentals as you would if you used flats ascending or sharps descending:

Here is the full chromatic scale:

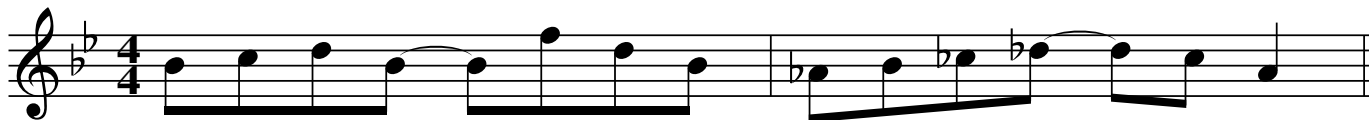
The notes of the chromatic scale do not always occur in order, of course, so the actual spelling of a given note in a given piece of music will depend on the context. For music with a key center, any non-diatonic note can be seen as a chromatic alteration to one of the basic scale tones. We describe these non-diatonic pitches in terms of which scale degree has been altered and whether the scale degree has been raised or lowered. Just as A# or Bb are two different names for the same pitch, in the key of G we would describe these notes as #2 and b3 respectively.

Keep in mind that when writing chromatic alterations in keys other than C, the natural sign might be the appropriate accidental to use in order to raise or lower a pitch. For example, if the key signature includes Bb, then a natural sign in front of a B would have the effect of *raising* it. On the other hand, if the key signature includes F#, then a natural sign in front of an F *lowers* it.

In choosing the spelling for the chromatically altered notes in a melody, we usually follow the same convention of using sharps / raised scale degrees for notes that resolve upward and flats / lowered scale degrees for notes that resolve downward.

Here is an example of a melody with chromatic alterations, spelled appropriately and labeled by scale degree:

When a chromatically altered pitch does not resolve by half step, we may take other factors into consideration. For example, if a line basically moves stepwise, we will spell it in such a way that makes this clear:



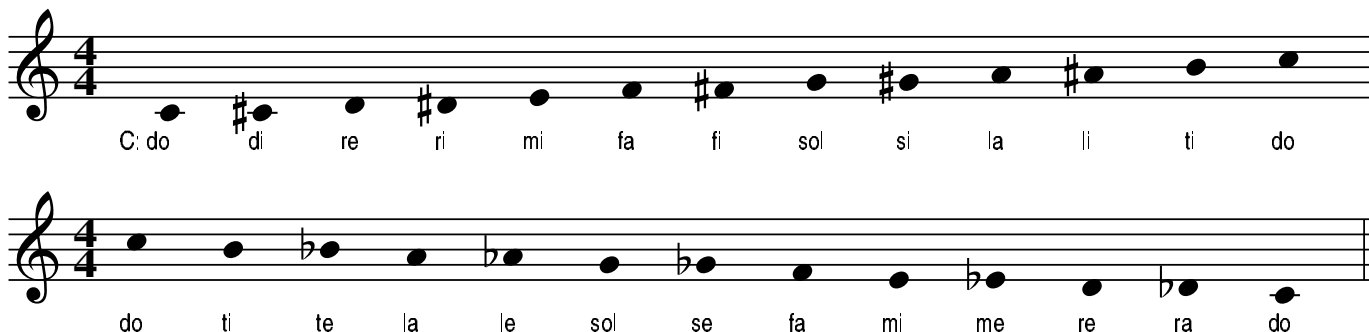
In some situations, the accompanying chords may determine the best spelling for a melody note, and in other situations, there may be other considerations, but these will be addressed as they come up in other lessons.

Solfege

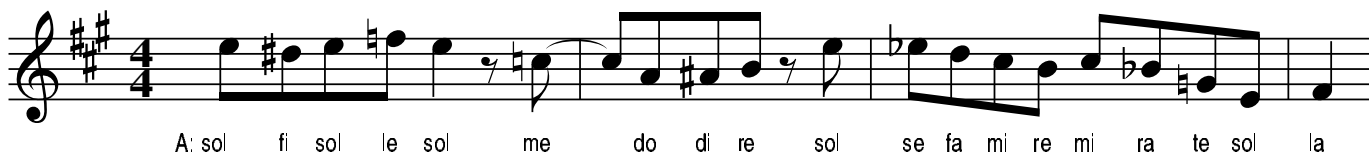
The spelling of a chromatically altered note in a piece also determines the syllable we use to name it in solfege. The solfege syllables for raised and lowered scale degrees are based on those for the unaltered scale degrees, with the vowels changing to "i" for raised pitches and "e" for lowered ones. Thus, raising the fourth scale degree of the D scale from G to G# changes the solfege syllable from "fa" to "fi", and lowering the sixth scale degree from B to Bb changes the solfege syllable from "la" to "le".

Conveniently, the syllables that already end in "i" ("mi" and "ti") correspond to the scale degrees we almost never raise (3 and 7), because a sharp 3 sounds the same as 4, and a sharp 7 sounds the same as 1. However, the one syllable that ends in "e" ("re") corresponds to a scale degree we do sometimes need to lower. So the flat 2 is arbitrarily named "ra".

Here is the full chromatic scale in C with solfege syllables:



Here is the melody that was used to demonstrate labeling with altered scale degrees, now labeled with solfege syllables:



Scope of Accidentals

An accidental applied to a note applies to all further occurrences of that same note in that same octave, in that same staff, and in that same measure. This means that an accidental does *not* apply to the same note in a different octave, or to the same note in a different staff even if in the same octave, or to the same note in a different measure even if in the same octave and staff. In the following example, the accidentals in parentheses above the notes show which are affected by the accidental on the first note of the measure and which are not.

In order to reduce the likelihood of reading errors, many arrangers will use "courtesy" accidentals to remind the reader of the status of certain notes. A common convention is to use a courtesy accidental any time an altered note reappears in unaltered form in the very next measure. So in the above example, the F in the second measure of the treble clef part would receive a courtesy natural sign to remind the reader that the sharp in the previous measure has now been cancelled. Any reader *should* know this without the reminder, but mistakes do happen when reading, and using courtesy accidentals does go a long way toward reducing them. The particular convention of using courtesy accidentals to cancel alterations from the previous measure is especially effective and is followed almost universally. Some arrangers may also put a courtesy natural sign on the high F in the first measure of that same part to remind the reader that the sharp applies only to the original octave, although this can be considered more optional.

Using courtesy accidentals as discussed above, the above example would be notated as follows:

Discovery

Identify the notes in the following example by scale degree (including alterations) and solfege syllables:

G: 3 #2 3
mi ri mi

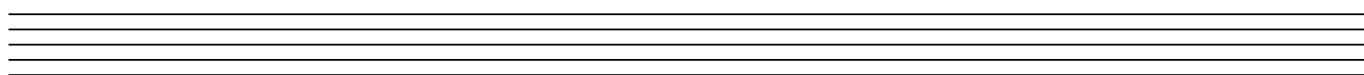
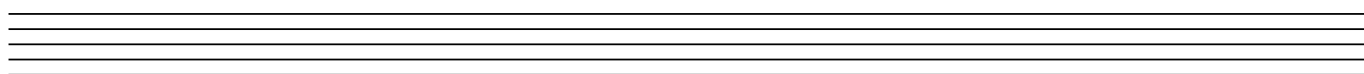
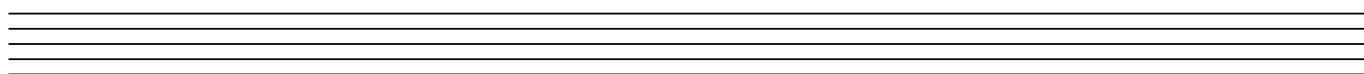
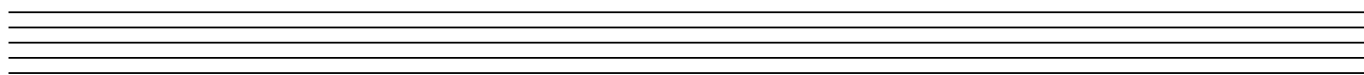


Add courtesy accidentals to the following using the first convention described previously (any note that was altered in the previous measure):



Look through your fakebook and find examples of tunes that use chromatically altered pitches. Study them to see for yourself how these notes tend to be used. To what extent do they resolve to their diatonic neighbors as described here? Can you make any other generalizations about the use of chromatically altered pitches in the songs you are analyzing? Keep in mind that if you see a particular chromatically altered pitch used consistently throughout a section of a piece, this may indicate that the piece has modulated to a new key.

Now, write some melodies of your own. Choose a clef and key, then try to write lines that are largely diatonic but that use chromatically altered pitches in ways that seem consistent with the examples you have studied.



Aural Skills

Write in solfege syllables for the following, and then practice singing it one measure at a time. The goal is to learn to hear the various chromatically altered pitches relative to their diatonic neighbors.

The image shows four musical staves, each containing a sequence of notes with chromatic alterations. The first staff is labeled 'C: do re di re' and shows a chromatic alteration of 'di' to 're' (F# to F). The other three staves show similar chromatic alterations at different points in the scale.

When chromatic alterations occur within a melody that is otherwise in a major key, we can use the relationship between these altered pitches and their neighbors to help us find the altered pitches. Rather than try to sing the altered pitch directly, we can first sing a diatonic neighbor and use that to help us find the altered pitch. For example, consider the following melody:

The image shows a musical staff in 4/4 time with a key signature of one flat (F major). The melody consists of several notes, some of which are chromatically altered.

We can use our familiarity with the major scale to help us find the altered pitches by temporarily adding diatonic neighbors before the altered pitches. When even the diatonic pitches might be hard to find, we can insert diatonic steps from the previous pitch or from "do" to help lead us to the desired note:

The image shows a musical staff in 4/4 time with a key signature of one flat (F major). The melody is the same as the previous staff, but with diatonic neighbors added to help find the altered pitches. The notes are labeled with solfege syllables: F: do sol le sol fa mi ri mi sol do ti te la sol fi sol.

Once we have found the pitches using this method, we can try to sing the melody in its original form without the added diatonic neighbors.

Now, look through your fakebook and choose a tune that you are not familiar with. Be sure to choose a tune with a key signature so you know it has a key center. Identify the key, label the notes with solfege syllables, and then work on sight-singing the melody using these techniques.

We can use these same principles to identify chromatically altered pitches when transcribing a line. Sing the line back, then sing it with diatonic neighbors in front of any chromatically altered pitches that are not already preceded with a diatonic neighbor. These diatonic neighbors can then be identified normally, using stepwise motion from the previous pitch or from "do". Once you have identified the diatonic neighbors thus inserted, you can more easily identify the chromatically altered pitches.