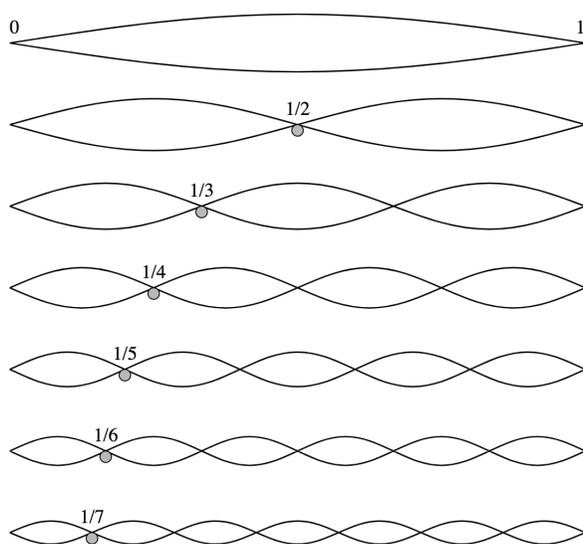


MUSIC THEORY  
a short treatise for Dave  
by Seth Bailin

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**OVERTONES**



Standard tuned bass guitar (or 6 string guitar) can play **harmonics** at the 12th, 7th, and 5th frets of an open string. The 12th fret is the exact halfway point of the string, making an octave (2:1) when the string is muted at the half way point. The 7th fret is exactly 1/3 of the way down the string, allowing the 2nd harmonic to come through when the string is touched at the node. The note that rings is the 5th degree of the open string (B on the E string). 1/4 of the string length creates another octave when played as a harmonic (muted at the node and plucked.)

All instruments utilize the overtone series. Your own voice, when you sing a low note, is not only vibrating at that fundamental frequency, it's also vibrating at every multiple. *The overtone series is a product of the physical universe.*

With brass instruments like trombone and trumpet pedal Bb is the fundamental, low Bb the first harmonic (octave, 1:2), low F is the fifth (1:3), middle Bb is the octave again (1:4). All these notes are achieved by changing the air stream entering the horn, not by changing tube length.

**WESTERN HARMONY** (European classical tradition)

We divide up the octave into 12 notes, then stack those notes together in thirds (and other intervals) to create harmony. *Harmonic relationships can be broken down into three categories: Primary, Secondary, and Tertiary.*

PRIMARY HARMONY

*Primary harmonic relationships, AKA "diatonicism" is using chords that contain strictly notes of a tonal scale. if you are in the key of C and you only play white keys on piano, (C D E F G A B C) then you are playing all diatonic, or "within the key," or all primary harmonies.*

There are infinite ways to play diatonically even when restricted to only seven of the twelve notes.

Any combination of these chords is diatonic harmony: I ii iii IV V vi viib5

as well as all extensions: Imaj7 ii-7 iii-7 IVmaj7 V7 vi-7 vii-7b5

you can analyze minor keys like this as well, in which case these are the primary chords:

i iib5 bIII iv v bVI bVII

plus extensions:

i-7 ii-7b5 bIIIImaj7 iv-7 v-7 bVIImaj7 bVII7

Church and gospel musicians often don't speak of their music in minor keys. They feel all songs in the relative major key, even if it sounds like the minor chord is the root. For example, if a song is in D minor, they would call D minor the vi- chord, and the key would actually be F.

In that case, the progression of primary chords looks exactly like the major scale, starting on the 6th scale degree.

vi viib5 I ii iii IV V and vi-7 vii-7b5 Imaj7 ii-7  
iii-7 IVmaj7 V7

Many pop and folk songs do not leave this "primary" harmonic universe.

Learn a lot of songs and find the common chord movements.

A good songwriting practice is to make a song that only uses diatonic harmony and melody.

## SECONDARY HARMONY

*One degree away from primary harmony.*

This includes using 1) any chords that are parallels of primary chords, 2) any chords that borrow from parallel minor key, and 3) any "five of" a primary chord.

1) What is a parallel of primary? A parallel chord is keeping the root of any primary chord and changing its quality. For example, changing C to C- or changing E- to E.

Example using only primary chords:

C A- D- G7

Using a parallel chord to create secondary harmony:

C A D- G7

2) Borrowing from tonic minor:

This would be using any chord built off of the minor scale, but in a major key. For example, using an Ab chord (which is diatonic to C minor) in the key of C major.

Example using only primary chords:

C Am D- G7

Using a chord borrowed from key C- to create secondary harmony:

C Ab D- G7

3) "five of" primary chords. Dominant chords that resolve to a primary.

For example, in the key of C, the chord built off D is minor if only using primary harmony. However, if we see D7 in the key of C, it means that D7 is likely acting as the five chord of G, so in this case D7 would be the "five of five" of C. That "five of five" is a secondary harmonic function.

A "five of three" in C:

C B7 Em G

A dominant seventh chord is usually an indication that it is the five of something, because when we look at primary harmony, the only time we see a dominant seven chord is off the 5th scale degree.

## TERTIARY HARMONY

Two degrees away from primary harmony

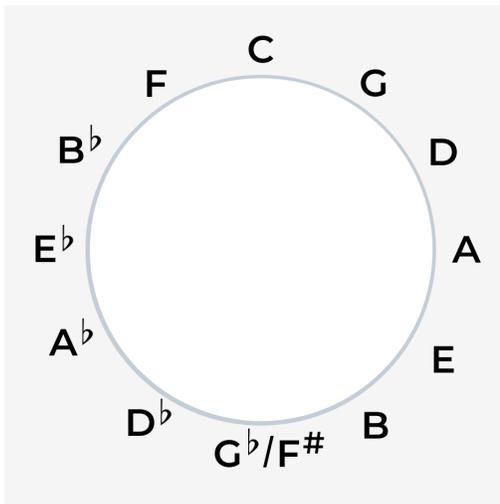
This includes 1) any chords that are not primary or secondary, and 2) chords that are chromatically related to primary or secondary.

For example:

Any quality of Db/C# or Gb/F#, chord in the key of C.

Ebm, Abm, or Bbm in the key of C. (The roots are borrowed from Cm but the quality has changed from major to minor).

## **THE CIRCLE OF FIFTHS**



We map the 12 divisions of an octave in a circle, ordered by how many sharps and flats are contained within their respective key.

There is a magnetism to the keys that are adjacent to each other, as they share 6 out of 7 of the notes of their scales. C is at the top and G, D, A, E, B, and F# follow down the right side.

You can think of going clockwise on the circle of fifths as going in the “sharp” direction, as the scales of each key start to contain progressively more sharps (C at the top has 0 sharps/flats, G has 1 sharp, D has 2, etc). Resolutions and lines when moving in the sharp direction tend to move *up* and have a feeling of *expansion*.

If you start from the top of the circle and go counter-clockwise, you get C, F, Bb, Eb, Ab, Db, and Gb. Going counter-clockwise

on the circle will bring you through the “flat” direction, as the scales of the chords on the circle add more and more flats (C has 0, F has 1, Bb has 2, etc). Resolutions and lines when moving in the flat direction tend to move *down* and have a feeling of *contraction*.

Think of going right or the sharp direction as going east, in the brighter direction. Looking east you can see the sun rise and get brighter.

Think of moving left through the circle as going west, in the darker direction. Looking west you will see the sun set as the sky gets darker.

*Think of the circle of fifths as a knob that can be turned to make your music brighter or darker, to convey a feeling of expansion or contraction.*

Harmony is defined by the changing of chords.

Look at a “ii V I”, the most common chord progression in jazz music, the roots of the chords are in order on the circle of fifths (E A D or C F Bb) moving in the counterclockwise or darker direction.

You could just as well use a progression that went clockwise through the circle, like G D A, or Ab Eb Bb, to resolve, or to get from one place to another.