

(Book 5) Lesson 58b.

The "overtone" series (to the 10th partial)

By multiplying the fundamental frequency of any note in the manner shown, this physical musical phenomenon takes shape. (If you carry on the process to the 23 multiple, the entire chromatic scale will appear.) Any fundamental will produce a similar set of overtones. Notice that the first six overtones consist of a "major chord". The overtones diminish in intensity as they rise up the "physical" ladder.

Chordally speaking:

	Root	Root	5th	Root	3rd	5th	b7th	Root	9th	3rd
over tones	1	2	3	4	5	6	7	8	9	10
	"C"	"C"	"G"	"C"	"E"	"G"	"Bb"	"C"	"D"	"E"
	1	2	3	4	5	6	7	8	9	10
Fundamental	x2	x3	x4	x5	x6	x7	x8	x9	x10	
on the guitar:										
any open string	12th fret	7th	5th	4th	ahead of 3r	behind 3rd	a bit farther	2nd ?	?	

You can experience this phenomenon on the guitar by sounding the above suggested harmonics. Eventually, they are so close together that it may be by pure luck that you will sound the correct one. There is also a limit to how many of the harmonics will sound, due to the inflexibility of the string. With careful trial, you should be able to get to the 9th degree.

The implication of this musical phenomenon is that any single note, produces a weakly audible major chord and if you can "listen farther into the sound" of that single note, it actually produces a "Dominant 7th chord." Notice that the 7th overtone is the flatted 7th degree.

It is this "7th overtone" (partial) which plays such an important role in the basic progression of chords. From our previous experiences with chord resolution, you should recall that the b7th has a tendency to fall one scale tone. (resulting in consonance) In a Dominant 7th chord, the b7th falls a semi-tone when moving to the Tonic major, or a full tone when moving to the Tonic Minor.

G7: b7=F ----- falls to "E" in a C chord or falls to Eb in a Cm chord.

If the b7th is capable of falling a scale tone to a consonant note in the next chord, the Root Movement is Primary.

If the b7th cannot fall to a consonant note in the next chord, the Root Movement is Secondary.

If all of the above and also what follows on the next page is confusing, do not worry. It is not that bad to simply take some things for granted and get on with the job at hand. This short excursion into the physics of music will not necessarily make you into a better player but only a more knowledgeable one.

(A very exhaustive study of music theory can be found (and perhaps should be studied by all guitar players) in a series of books called "Modern Harmonic Technique" by Gordon Delamont. (Kendor Music Inc. is the publisher. Mr. Bradan and Mr. Delamont were good friends.)