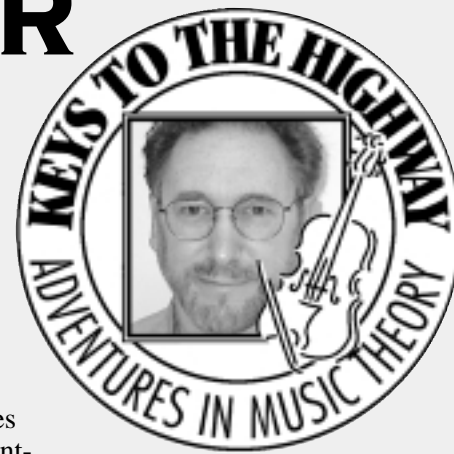


A HALF STEP CLOSER TO UNDERSTANDING INTERVALS



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Has this ever happened to you? You're talking with someone and you just can't come up with a particular word, phrase or name. You say, "Wait, wait, I know this," and you stop talking and do something – something undefined – and up pops the missing information. What is that something you did and how can you make it more effective? Here's my thinking about that (and this is strictly my own theory):

When your brain places something into your memory, it is not stored in isolation. The entire learning environment is stored with it—the music that was playing, the odors in the air, the people and things in the room at that time. Recalling any of these things triggers the connection that may lead to the missing

Figure 1: Intervals measured by 1/2 steps

Scale	Deg	Half Steps	Symbol	Name
C	1	0	PU	Perfect Unison
		1	m2	minor 2nd
D	2	2	M2	Major 2nd
		3	m3	minor 3rd
E	3	4	M3	Major 3rd
F	4	5	P4	Perfect 4th
		6	dim 5	diminished 5th
G	5	7	P5	Perfect 5th
		8	m6	minor 6th
A	6	9	M6	Major 6th
		10	m7	minor 7th
B	7	11	M7	Major 7th
C	8(1)	12	PO	Perfect Octave

information, exercising many different paths to find a particular piece of memory. If that's true, then it follows that the more paths linked to a piece of stored memory, the more chances you have to recall the target information. I believe this to be the basis of various memory aids such as mnemonics, linked lists, word associations, rhyming rules, etc. They generate more pathways and increase the likelihood of reconnecting to specific information. For this reason I find it helpful to learn things from more than one point of view. It expands your chances to remember and, if it is conceptually different, you get a whole new way of visualizing the situation resulting in an even greater generation of new pathways.

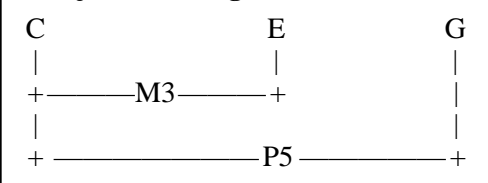
So how does all this relate to the subject at hand, namely, intervals? You guessed it. We're going to revisit the triads and the intervals they contain. To this point intervals have been discussed only from within the framework of the scale. Everything has been referenced to the root, or one-note. Whole-steps and half steps have been used to count our way through the scales, triads and chords. But perhaps a different approach could help to better recognize and visualize the chords and triads.

First, let's see how to define the intervals strictly by counting half steps and only half steps. **Figure 1** shows the number of half steps involved in each interval. Using the familiar C Major triad of C-E-G, or 1-3-5, from the C Major scale. You can see that C-E, or 1-3, is a Major 3rd but, in fact, it can also be identified as an interval of 4 half steps. Similarly, C-G, or 1-5, is a Perfect 5th that can now be identified as an interval of 7 half steps. Every interval can be counted by a specific number of half steps until the note names start to repeat. This happens, of course, when the octave is reached at 12 half steps. This is equivalent to 12 frets on the guitar or 12 adjacent keys on the piano. So **Figure 1** is a list of intervals measured only in half steps and repre-

sents the first departure from the usual way of visualizing intervals.

A second departure involves the concept of where to start counting these half steps. We've been counting from the root or one-note but we don't have to limit ourselves to that. Take the interval of E-G, or 3-5, from the C scale. If we start counting from the E instead of from the C this is an interval of 3 half steps. This turns out to be 1 half step less than was counted in the Major 3rd interval. The interval of 3 half steps, then, is a minor 3rd. The Major triad can now be defined as a Major 3rd interval (4 half-steps) followed by a minor 3rd interval (3 half-steps), which is different from our previous definition that a Major triad is a Major 3rd interval along with a Perfect 5th interval. Take a look at **Figures 2 & 3** to see how these two ideas vary.

Figure 2: C Major Triad visualized as a Major 3rd along with a Perfect 5th



Since each fret on the guitar is the same as one half step, the notes of a Major triad on the guitar can be found by moving up 4 frets (a M3) from the one-note followed an additional 3 frets (a m3) to complete the triad.

Now let's take the new method for defining triads and apply it to all the triads that relate to the Major scale. Remember that by starting at each successive degree of the scale and using every other note from the Major scale, all of the triads can be generated. I have done this and listed the results in **Figure 4** and then summarized them in **Figure 5**. There are only 4 possible permutations of the combinations of a Major 3rd interval and a minor 3rd interval. They are: M3-M3, M3-m3, m3-M3 and m3-m3. Even though the first permutation of M3-M3 does not occur in the Major scale triads as seen in **Figure 4**, I have included it in **Figure 5** for the sake of completeness. I find it quite interesting that although by definition a major scale does not have any minor intervals (relative to the one note), if you look hard enough you will discover that minor intervals are lurking within the triads, even in the major triad.

Figure 3: C Major Triad visualized as a Major 3rd followed by a minor 3rd

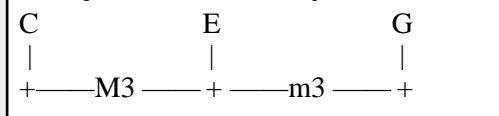


Figure 4: Intervals between the notes of the triads – List.

Degree of Scale	Type of Triad	1	2	3	4	5
1 Tonic	I Major	C	(M3)	E	(m3)	G
2 Super Tonic	ii minor	D	(m3)	F	(M3)	A
3 Median	iii minor	E	(m3)	G	(M3)	B
4 Sub Dominant	IV Major	F	(M3)	A	(m3)	C
5 Dominant	V Major	G	(M3)	B	(m3)	D
6 Sub Median	vi minor	A	(m3)	C	(M3)	E
7 Leading	vii° diminished	B	(m3)	D	(m3)	F
		1 ^	^	^	3 ^	^
		1 ^	^	b3 ^	^	^
		1 ^	^	b3 ^	^	b5
						5 Major (M)
						5 minor (m)
						diminished (dim)

Figure 5: Intervals between the notes of the triad – Summary.

1-3	3-5	Type of Chord
M3	m3	Major (Dominant)*
m3	M3	minor
m3	m3	diminished (1/2 diminished)*
M3	M3	augmented

* Determined only by succeeding notes added to the triad.

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What have we done in this session? Well, we've discovered that there is more than one way to define an interval. In addition to the combination of whole and half steps previously used to recognize intervals, the number of half steps (or frets) they contain can also identify them. We also discussed "re-visualizing" the triads as consecutive, self-relative intervals instead of overlapping, root-relative intervals. Hopefully, there was a re-discovery that there are different ways to visualize and structure information and that every variation provides another opportunity to create more mental pathways that link to the information stored in our brains. In the mean time keep your sights on new vistas and, as always, stay tuned.