Method 3

By James Hober

Method 3 was the last attempt Ted Greene made at a procedure for classifying four-note chords into his fourteen voicing groups. In the unfinished state in which Ted left it, Method 3 is the most problematic of the three methods. I wonder if Ted would have abandoned it had he explored it further. Nevertheless it does reveal interesting things about the V-System. And I have used computer programming to complete his Method 3 in two ways.

Method 3 involves intervals. You are no doubt familiar with simple intervals: perfect unison, minor second, major second, minor third, etc. These can be written respectively: P1, m2, M2, m3, etc. Ted would refer to these, as I just have, in the traditional way. At other times, he would reference the major scale so that b2 meant minor second and 2 meant major second. Similarly, he used 4 to indicate a perfect fourth and #4 an augmented fourth. In other words, he'd write an interval diatonic to the major scale with just the number. The other intervals, not diatonic to the major scale, he'd write with a sharp or flat sign preceding the number.

Ted also referred to compound intervals, those larger than an octave, both ways: minor ninth or b9, major ninth or 9, minor tenth or b10, and so on. Speaking of compound intervals, some may be familiar to you, like 9, 11, and 13. Others may not be. Minor seventeenth, anyone? b19? Particularly when we get larger than 2 octaves (which is a perfect fifteenth, by the way), most of us are lost or have to start calculating. For such huge intervals, Ted indicated in parentheses the simple interval that you get by eliminating its octaves: #18 (#4).

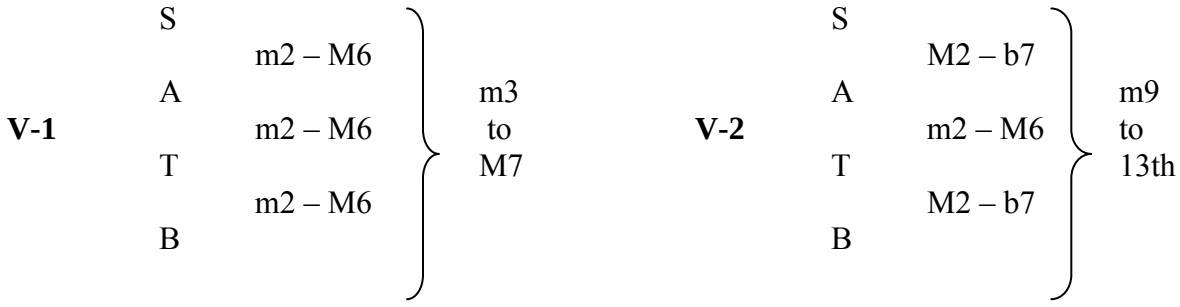
Ted's idea for Method 3 was that you would look first at the interval between the bass and soprano (the outer voice interval). Then, if necessary, you'd look at the intervals between the bass and tenor, between the tenor and alto, and between the alto and soprano (the adjacent voice intervals). By examining the outer voice interval and the three adjacent voice intervals, Ted believed that you could identify a chord's voicing group.

Here is an exact transcription of what Ted left in his personal notes about Method 3 (except the intervals in red were calculated and added by me on 3/18/2010):

3) My latest method which I once began & never finished (but did here)

a) Largest & smallest possible REAL INTERVAL available between each adjacent pair of voices in each Voicing Group and

b) between the outer voices, ←This governing the overall range.



V-3

S		
A	m3 – M7	M9
T	M2 – b7	to
B	m2 – M6	b14th (b7)

V-4

S		
A	m2 – M6	M9
T	M2 – b7	to
B	m3 – M7	b14 (b7)

V-5

S		
A	M2 – b7	m10 (m3)
T	m3 – M7	to
B	M2 – b7	14th (M7)

V-6

S		
A	m2 – M6	m10 (m3)
T	m2 – M6	to
B	m9 – 13	14th (M7)

V-7

S		
A	M2 – b7	m16th (m9)
T	m2 – M6	to
B	9 – b14 (b7)	20th (M6)

V-8

S		
A	m3 – M7	m16 (m9)
T	m3 – M7	to
B	m3 – M7	20 (M6)

V-9

S		
A	9 – b14 (b7)	m16 (m9)
T	m2 – M6	to
B	M2 – b7	20 (M6)

V-10

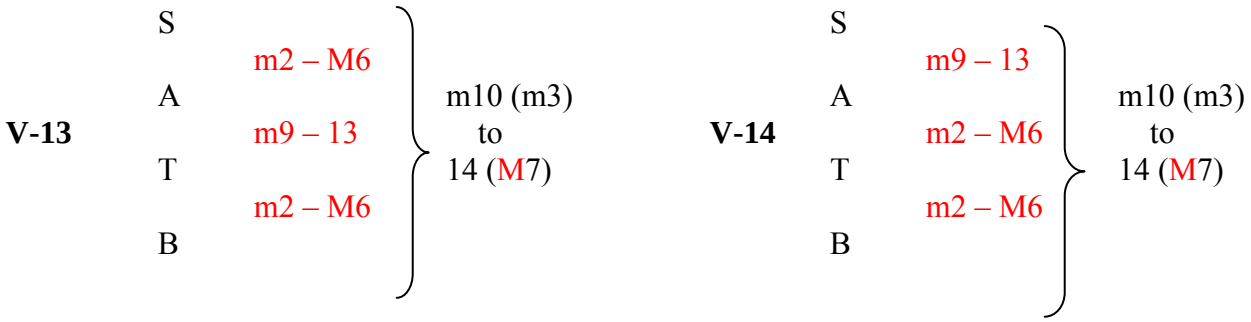
S		
A	M2 – b7	m16 (m9)
T	m9 – 13	to
B	M2 – b7	20 (M6)

V-11

S		
A	m9 – 13	16 (M9)
T	M2 – b7	to
B	m3 – M7	b21 (b7)

V-12

S		
A	m3 – M7	16 (M9)
T	M2 – b7	to
B	m9 – 13	b21 (b7)



I believe that Ted capitalized and underlined "REAL INTERVAL" in his description to emphasize that Method 3 was not about the chord tone gap sizes of Method 2. Instead, with Method 3, Ted wanted to investigate the **intervallic** gaps, that is, the musical intervals of V-System chords.

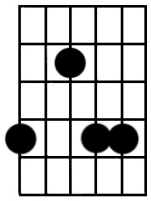
For each voicing group, to the right of the curly bracket, Ted shows the range of possible intervals between the outer voices. A V-1 can span from a minor third to a major seventh. (Any four-note chord with an outer voice interval of less than an octave must be a V-1.) A V-2 can span from a minor ninth to a major thirteenth. A V-3 can span from a major ninth to a minor fourteenth. And so on.

To the left of the curly bracket, Ted shows the range of possible adjacent voice intervals. But he only completed the adjacent voice intervals for V-1, V-2, and part of V-3.

Notice that he says he never finished Method 3. Then in a comment dated later, he writes, "but did here." Actually he still hadn't really finished it. He only finished calculating the possible outer voice intervals for every voicing group. I calculated the remaining adjacent voice intervals and completed his Method 3 table in 2010. To do so, I figured out that I had to systematically invert the chord cluster with three adjacent half steps, the most dissonant and extreme, in terms of interval content, of the 43 four-note qualities. After doing this for all fourteen voicing groups, I had to analyze the interval content of the resultant 56 voicings (4 inversions x 14 voicing groups). My completion of Ted's table is shown in red above.

The table is quite interesting in describing the ranges of interval content for the each of the fourteen voicing groups. Can it be used to classify any four-note chord? Unfortunately, no. It does not completely funnel. That is to say, we can examine the intervals of a given chord and Ted's table may not eliminate thirteen voicing groups and resolve to a single correct one.

Let's try this with the following Δ7 chord:



The outer voice interval (bass to soprano) is a perfect twelfth (an octave plus a perfect fifth). From the table, you can see that this interval is in range for only the following voicing groups: V-2, V-3, V-4, V-5, V-6, V-13, and V-14. Using the outer voice interval, we've eliminated half of the fourteen voicing groups for our Δ7.

The interval from the bass to tenor is a minor sixth. That eliminates V-6, which has a bass to tenor range of minor ninth to major thirteenth. We're still left with six possible voicing groups.

The interval from the tenor to alto is a perfect fifth. That eliminates V-13. We're down to five possibilities.

The interval from the alto to soprano is a major third. That eliminates V-14.

We are still left with four possibilities: V-2, V-3, V-4, or V-5. Ted's Method 3 table can't tell us which of these four is the correct voicing group for our Δ7 chord. It does not completely funnel.

Perhaps you already know that our example Δ7 is a V-4. If so, you recognize it from your previous experience with the V-System, not from Ted's Method 3 Table above. Either Method 1 or Method 2 can be used to identify the chord as a V-4. But for this chord and many others, Ted's Method 3 table won't resolve to a single voicing group.

So what good is Method 3? Did Ted just make a mistake? Actually it is very helpful and interesting to examine the interval content of V-System chords, especially the interval between the outer voices. Here is a chart I made that illustrates the outer voice interval ranges for all the voicing groups:

The Spectrum of Outer Voice Spans (Bass to Soprano)

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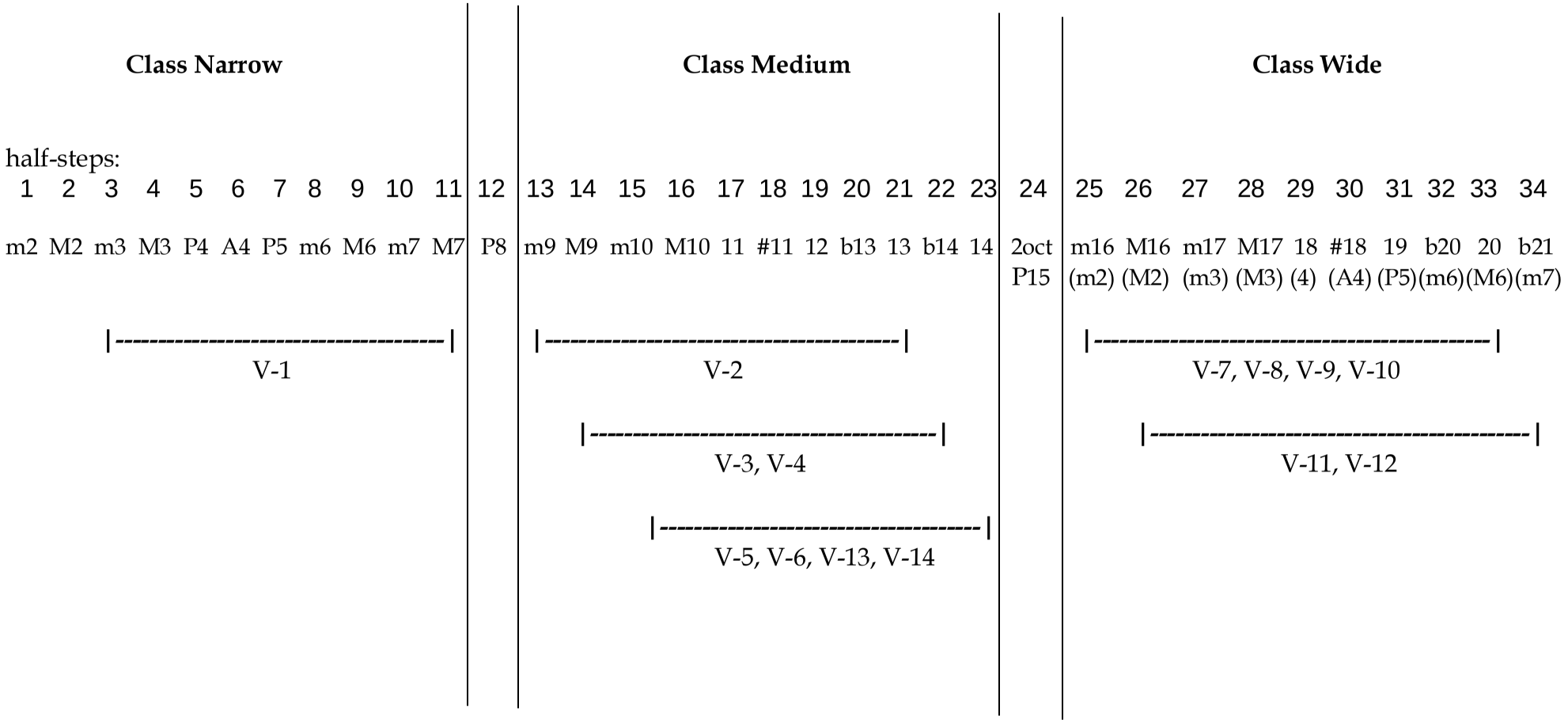

V-1 is the sole occupant of what I call Class Narrow because only V-1s span less than an octave. (Ted emphasized this V-1 outer voice test in his personal notes a number of times.) The other voicing groups fall into two classes that I have named Class Medium and Class Wide. Because there are no octave doublings in the V-System, the vacant octave and two octaves spans clearly demarcate the three classes.

Why is the outer voice interval important? Seeing, on the guitar fingerboard, the interval between a chord's outer voices is a very visual approach, the kind Ted valued highly. Just as a chord has a visual shape, the bass and soprano alone form a characteristic interval shape on the neck. Ted viewed that interval shape as the governing principle for Method 3. His intuition told him that the intervals of the adjacent voices could further sort the chord into one of the fourteen voicing groups. But his table, even completed, doesn't completely funnel down to a single voicing group for many four-note chords.

For a long time I puzzled over Method 3. I wondered if I was missing something. It seemed like knowing the interval content of a chord **should** be enough to categorize it into a single voicing group. Eventually I realized that in a way Ted was right. It is enough. But not with Ted's table alone.

It takes many tables. I have used computer programming to generate many Method 3 tables. I had to work out a complicated algorithm to compute every possible V-System voicing and its interval content.

As we saw in previous chapters, Method 1 and Method 2 elegantly need only a single table each. But to funnel, Method 3 requires many tables. Ted's single Method 3 Table above provides an **overview** of the interval content of all V-System Chords. But it doesn't funnel. That is, it doesn't resolve all V-System chords to a single voicing group. My computer generated multiple Method 3 tables do funnel.

For details, please see my *Method 3 Computer Completion by Quality* and *Method 3 Computer Completion by Outer Voice Span*. *Method 3 Computer Completion by Quality* contains 43 tables, one for each of the 43 qualities. *Method 3 Computer Completion by Outer Voice Span* contains 32 tables, one for each of the possible outer voice intervals. Its 32 tables reveal a beautiful, fractal-like pattern to the V-System.

Lastly, I believe that Ted conceived of Method 3 as a recognize method. With my Method 3 computer-generated tables you can classify any four-note chord into one of his fourteen voicing groups. But Method 3 is not used to build V-System chords. You could, I suppose, use *Method 3 Computer Completion by Quality* to look up intervals that could be used to build a chord but you'd still have to use some trial and error with the intervals listed. For building V-System chords from scratch, Method 1 or Method 2 is the way to go.

—James