

Harmonic Equivalence

by Russell Schmidt

between common chord symbols

as demonstrated with typical four-note voicings

[Note: Courtesy accidentals provided throughout for clarity]

When exploring jazz harmonies, it can be helpful to understand how chord symbols that look quite different may actually be closely related. This knowledge can help a keyboardist, guitarist, or composer/arranger realize that voicings for harmonies they already know might also work for other harmonies as well. And that means you don't always have to keep learning new sets of voicings for each new chord symbol you find. The intent of this handout is to emphasize the harmonic equivalence of these interrelated chords in ways that are advantageous to performers and writers.

Let's work from the premise that you want to develop more four-note voicings. Perhaps you are a guitarist or keyboardist who has been playing a lot of three-note voicings and you want to expand your vocabulary. Or perhaps you need to arrange a piece for four horns and rhythm section and you want to have solid voicings for your horn players.

One neat facet of harmonic equivalence is that the exact same four-note voicings can effectively represent very different harmonies. Sometimes those relationships are clear and obvious. For instance, the only real difference between Cmi7 and Eb6 is how we perceive the harmony based on the lowest note. But really, Cmi7 and Eb6 contain the exact same four notes. The difference is a matter of inversion: which pitch is in the bass. Regardless, the four-note voicings chosen to represent Cmi7 and Eb6 are going to be identical because the pitch content of each chord (C, Eb, G, and Bb) is also identical.

The image shows a musical staff with two systems of staves (treble and bass clef). The first system shows two bars: the first bar is labeled 'C mi7' and the second bar is labeled 'Eb6'. Both bars show a four-note chord in root position. The second system shows a third bar labeled 'Sample voicing' containing the same four notes as the previous bars. Below the sample voicing, the text '(Cmi7) (Eb6)' is written.

In the first two bars shown at left, the two chords in question are presented in "root position" (having the root of the chord as the bass note) and in "close position" (voiced so that all notes in the chord span less than one octave). A brief look at the harmonies confirms they contain the same four notes. Now in looking at the third bar, we see a sample voicing---containing those same four notes---which works quite well for either of those chord symbols. Try it at a piano with each of the two (cued) bass pitches under the sample voicing. [By the way, *that* chord is shown in "open position", spanning *more* than one octave.]

The image shows a musical staff with two systems of staves (treble and bass clef). The first system shows two bars: the first bar is labeled 'C mi7' and the second bar is labeled 'Ab Delta9'. Both bars show a four-note chord in root position. The second system shows a third bar labeled 'Sample voicing' containing the same four notes as the previous bars. Below the sample voicing, the text '(Cmi7) (Ab Delta9)' is written.

But harmonic equivalence can also exist between four- and five-note harmonies. Let's compare Cmi7 to AbΔ9. When trying to represent a five-note harmony with a four-note voicing, the root can commonly be omitted, leaving the "upper structure" (3rd, 5th, 7th, and 9th) remaining as the notes used in the voicing. And the upper structure of AbΔ9 is C (3rd), Eb (5th), G (7th), and Bb (9th), the same four notes as are found in Cmi7. Again, try the third bar shown at left on a piano, listening for how the two different (cued) bass pitches reorient your sense of the harmony implied by the sample voicing. It becomes clear the same four-note voicing "works" for different four- and five-note harmonies.

Performers please note that if you are playing without a bassist (let's say solo guitar accompaniment behind a vocalist), then you might *not* want to omit the root. But in most other circumstances like this---representing a five- or six-note harmony with only a four-note voicing---it is fine, even preferable, to leave the root to the bassist and play (*or arrange*) just the upper structure of the harmony. As another example, even with solo piano, it is easy to play the root while depressing the sustain pedal, then move up in register to play a four-note voicing that does not include that bass pitch (to represent a harmony having five or more notes). The root just isn't always necessary in your upper structure voicings.

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between common chord symbols

C Δ 7 D¹³_{sus} *Sample voicing*

(C Δ 7)(D¹³_{sus})

Harmonic equivalence can even exist between four- and six-note harmonies. When trying to represent a six-note harmony, such as D¹³_{sus}, with a voicing of only four notes, one would typically omit both the root and 5th, once again leaving the fundamentals to the bass(ist). What remains for the four-note voicing is G (4th), C (7th), E (9th), and B (13th), the same notes as are found in C Δ 7. Once again, in this reductive way, different chord symbols end up being equivalent to one another, at least regarding how one might *voice* them. As before, try the third bar shown at left on a piano, listening for how the two different (cued) bass pitches re-reference your sense of the harmony implied by the sample voicing.

But how is this information really helpful? Let's explore this with three common chord types: Major 7th, minor 7th, and half-diminished 7th chords. They are shown below in a couple of ways, but pay closest attention to the 4th measure in each of the next three grand staves. It is *there* you will find harmonic equivalence present between the various chord symbols shown.

C Δ 7 (a.k.a. C Δ Ma7) Arpeggiated, in close position Arpeggiated, in open position* C Δ 7 ≈ A mi 9 ≈ D¹³_{sus}

Chord in root position (and close position) *(Sample voicing)*

C mi 7 (a.k.a. C-7) Arpeggiated, in close position Arpeggiated, in open position C mi 7 = E \flat 6 ≈ A \flat Δ9 ≈ F⁹_{sus}

Chord in root position (and close position)

C \emptyset 7 (a.k.a. C mi 7(\flat 5)) Arpeggiated, in close position Arpeggiated, in open position C \emptyset 7 = E \flat mi 6 ≈ A \flat 9 ≈ D7_{alt.} ≈ F7(\flat 9)

Chord in root position (and close position) (a.k.a. D7(\flat 9))

Returning to the question of how this information can be helpful, consider this (from a performer's perspective): if a guitarist or keyboardist chooses to practice the four-note voicings shown for Major 7th, minor 7th, and half-diminished 7th chords in all twelve keys, you will actually have practiced *twelve different types of common chord symbols* in all twelve keys. You won't have learned 36 chords (and four voicings for each, given the arpeggiation); you will have learned 144 chords (with four voicings for each). The fingers will have *already practiced* the different voicings. So it then becomes a matter of mental acuity to remember that C mi 7 ≈ F⁹_{sus} and so forth.

The more you learn about the relationships between these harmonies, the quicker you realize (as a performer *or* a composer/arranger) that complex chords can be voiced successfully without every note actually being present in the voicing used. And how to memorize the sorts of relationships detailed on the previous page? There is no single, right path that works for everyone, as different people learn best in a variety of ways.

For those who've had some classical theory training, relative major/minor relationships may stand out: compare CΔ7 to Ami9 *or* Cmi7 to Eb6. For those who've had a chance to study some jazz theory, the tri-tone relationship between Ab9 and D7alt. will be readily apparent. For those familiar with function, you might see the relationship between Cmi7 (often a *ii* chord in the key of Bb Major) and F9sus (a suspended V7 chord). When thinking about function, it becomes easier to view F9sus as Cmi7/F, as though the *ii* chord is sounding over the V in the bass. (A similar relationship exists between CØ7 and F7(b9)sus: the former harmony as a *ii*Ø and the latter harmony a suspended/alterd V7, both drawn from Bb minor.)

For some, none of the above will *yet* be useful information. If that's the case for you, then that simply means you need to memorize the relationships and spacing between related harmonies. Consider the CΔ7 ≈ D13sus relationship shown previously. Be able to think that through to other keys. Work to remember that when you have a Major 7th chord---let's choose FΔ7---you create another useful harmony when you put that chord over a bass pitch one whole-step higher. In creating "FΔ7/G", you've actually found G13sus.

A solid long-term goal for performers is correctly remembering these relationships *as you need them in real time*. As alluded to at the end of the previous page, mastery of this harmonic theory actually makes things *easier* for your fingers (specifically regarding "muscle memory" issues for guitarists and keyboardists), because there is less to learn *physically*. But that only proves true **if** your thinking is nimble enough to remember these sorts of cross-relationships: EΔ7 ≈ C#mi9, Ami7 ≈ D9sus, FØ7 ≈ Db9, and so forth.

If all this harmonic theory is new to you, then *this is a great place to stop* because there is already so much to consider here. I've chosen the three main chord types shown previously---Major 7th, minor 7th, and half-diminished 7th chords---very intentionally, for reasons that relate to their versatility and usefulness in *ii* -V7 - *I* progressions (not just as 7th chords but, through harmonic equivalence, as 9th chords in *ii* -V7 - *I*'s as well). So best to work on the mastery of those materials before moving on.

But for those who are ready to learn even more regarding harmonic equivalence, below you will find a pair of additional relationships (shown in a more reduced format), with dominant 7th and fully-diminished 7th chords serving as the benchmark harmonies. Note that there are harmonic relationships *not* shown which *are* indeed possibilities. For example, you could place C7 over Db (which *isn't shown below*) and end up with a lovely harmony: Db°7(Δ7), a chord that includes both the fully-diminished 7th and Major 7th in it. But it is a rarely seen chord symbol in printed music, so learning that cross-relationship holds limited value. Instead what are shown below are examples of more common chord symbols, things that will be of greater use to performers and writers alike as they develop their harmonic skills.

C7 C7 ≈ F#7 (b9/b5) ≈ AbΔ9(#5) C°7 C°7 = Eb°7 = F#°7 = A°7 ≈ B7(b9) ≈ D7(b9) ≈ F7(b9) ≈ Ab7(b9)

(Note the enharmonic spelling of the sample voicing for C°7 here)

In closing, the goal is to be as facile in *thinking* about harmony as your fingers are trained to be when playing it. If you can achieve some mastery of this harmonic theory, then you'll be able to accomplish even more with the technique you already possess.

**The open position voicings arpeggiated on the second page are in "Drop 2" format. Unlike close position voicings, where all the notes must be placed as near to each other as possible (to span less than one octave), there are numerous ways to create open position voicings, where the interval between the highest and lowest notes in the voicing exceeds one octave. "Drop 2" chords are very popular with guitarists and pianists as they often have a very stable outer interval (a Major or minor 10th), usually about 75% of the time.*