

Jim's grammar lessons

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January 19, 2014



0.1 Lesson 1

In article <93040.150046DAHUGH@LIVERPOOL.AC.UK>, DAHUGH@LIVERPOOL.AC.UK writes:

Could anyone shed some light on how to decide which mode to play over a chord progression? I've heard of Satch, Vai etc. talking about playing in a lydian tonality. What does this mean? How would you know to play for example D dorian or G Mixolydian when they contain the same notes? I'm lost.

The answer to your question has many sides; I will make suggestions for further study later; meanwhile, I go directly to your request: shed *some* light.

First, given a chord progression, the scales you would play over that progression come from the chords, not the chords from the scales.

(Note, I have been evaluating new information wrt this point, and my conclusion now, is: chronologically/historically, melodies and scales came first, then chords were built from the scales. However, from a -physical- standpoint, chords and scales -both- come from the harmonic overtone series, which provides information such as 'the safe low limit for a particular chord voicing'. More later.)

There are roughly 6 different chordal groupings you would need to worry about: Tonic major chords, tonic minor, supertonic major, supertonic minor, dominant and fully diminished. Each one of these has several possibilities for scales to go with them (however, there are also non-scalar possibilities as well). The first five groups mentioned can be said to 'come from a key' while the last (fully diminished) has no allegiance to any key (due to the fact that this chord's four notes equally divides the octave and therefore has four possible roots). So I will refer to the first five as chord 'families' and the last as just a chord 'group'.

For this example I take the supertonic major family because of its simplicity. The word 'tonic' as used here refers to the first degree of the major or minor

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scale and 'supertonic' refers to the second. So, 'supertonic major chord family' simply refers to all (good-sounding) chords whose root is the second degree of a major scale. As you may recall, the Dorian mode is also built on the second degree of the major scale, and as you will see, the Dorian mode is a good scale to use on a II chord that comes from a major key.

I'm sure you know about triads and just a bit less sure that you're aware of chords with 7ths, but did you know that chords can have extensions? The 9th, 11th and 13th are the extensions on *family* chords (fully dim has no extensions, but... more later).

The supertonic major chord family (or just II chords coming from major – same thing) have the following intervallic structure:

Major 13th Perfect 11th Major 9th Minor 7th Perfect 5th Minor 3rd Root
 altho not all these notes need be present. If you bring the 9th, 11th and 13th down an octave, you get a (Major) 2nd, (perfect) 4th and (major) 6th, and now we can look at this chord as a scale:

Root, Major 2nd, Minor 3rd, Perfect 4th, Perfect 5th, Major 6th, Minor 7th, Root

which is the same as a Dorian scale. So: if you are given a Dm7 (II of C), you could play a D Dorian (or a C Ionian or G Mixolydian...) scale over that chord and it would sound fine.

I mentioned picking this family for its simplicity. It's so simple for three reasons: 1) there are no alterations (i.e., no flat nines or sharp fives, etc); 2) all notes come from the key; and 3) there are no sus 4ths nor added 6ths, the chord is just straight up root, 3, 5, 7, 9, 11 and 13. I have not discussed the chord families that have more than one possibility for certain intervals, for example the Dominant (built on the 5th degree of a major or minor scale), which can have a perfect fifth as well as a raised fifth and a lowered fifth. In the case where alterations are possible, a pure scale approach is less possible or desired.

I also haven't discussed soloing over the change of harmony, which is beyond the scope of this article. For this, I suggest taking a harmony course since while I can talk about chords in about 10-20 minutes, voice-leading over a change takes about a year. This class will necessarily involve reading and writing manuscript; in addition, I highly recommend you apply the concepts to your instrument at every step. (I still have yet to do this...):-)

If there's enough interest (as evidenced by email in my box), I will go through the other chordal groupings. Flames to /dev/null. Similarity or lack thereof to anyone's theory or opinion is purely coincidental and not my fault.

With this background, I now turn to Kenny A. Chaffin's question. While at least part of the answer is implied already, I make it explicit here.

Kenny,

You need the modal *fingering patterns* so you can play any scale no matter where your left hand is. Modal *compositional approach* has to do with the fact that each mode has a different flavor, and as I implied above, can be (at least sometimes) derived from the chord that's happening at the time.

Practice two-octave scales for each mode in one key all the way up and down the neck. Do this with up-down picking. Repeat with down-up picking.

If you're really interested in modes, repeat previous paragraph with a tone generator sounding mode root, for example in C major: repeat with synth playing C, repeat with synth playing D, E, F, G, A and B.

Repeat previous two paragraphs for all keys in this order: F C G D A E B Gb Db Ab Eb Bb F. You will notice with each key change that only one note changes, and only a half step.

When you get *really fast*, you will be able to do all this once a day. This constitutes modal *fingering* and modal *ear training* combined. You will probably need 6 months to a year working on this stuff; use a metronome and practice slowly and gradually increase over a period of at least 3 months. Be *carefull*, otherwise you'll get tendonitis like Yngwie. *Always* warm up, especially when you develop any kind of speed.

If you do this, you will gain the ability to start in playing and knowing where you are on your fingerboard immediately no matter where your hand was before, including completely off the guitar. If not, you won't...

Of course, this is another area that I have yet to accomplish... So you can start by just listening to the different qualities of the modes.

Apparently, there's some interest in chordal theory. Give me some time and in the next few days I'll start talking about the versatile dominant structure.

For those who want something to do, play and write these chords. Suggestion: write Xmi7, Xmi9, Xmi11 and Xmi13, where X is the second degree in each of fifteen major key signatures (so that's 15 times four = sixty chords.)

Write straight up, i.e., F#mi7 (from the key of E major, 4 sharps) would be F#, A, C#, E; F#mi9 is F#, A, C#, E, G#, etc. For those interested in manuscript, a knowledge of key signatures is a must as well as knowing how to identify intervals on the staff. We will be developing the ability to spell the notes of a chord given its name and give the name of a chord when provided with its spelling. When given the spelling, identify the intervals from the root of the chord. Example: F#, A, C#, E, G# has a minor 3rd (F#-A), a perfect fifth (F#-C#), a minor 7th (F#-E) and a major 9th (F#-G#).

Here's a little quiz:

Spell and identify the major key:

Cm13 Dbm11 G-9 Fmi7 Abm11

Identify the name of the chord and the key:

Eb Gb Bb Db F Ab A C E G B D F# Bb Db F Ab C Eb G

B D F# A C# E G B D F# A C#

Also identify all the intervals with respect to the root.

Notice that these chords are built in thirds – hardly playable on a guitar. Why not find your own voicings? Remember that you don't need all the notes - leave some notes for the horns (or lead guitar or whatever) and the root need not be on the bottom (or even be present as long as someone's playing it). Use your ear! Find good-sounding voicings and write, post and use them!

0.2 Lesson 2

OK gang... This is the promised second chord study lesson.

As you recall, the last lesson concerned the minor 7 chords and their friends, minor 9 chords, minor 11 chords and minor 13 chords (rare). The structure of these chords are:

Major 13th Perfect 11th Major 9th Minor 7th Perfect 5th Minor 3rd Root

Note that all mention of intervals are intervals measured from the ROOT of the chord. The same is true for my first article.

Recall also that the goal of this series is to impart a knowledge of chords such as those you might see in a jazz fake book, for example

Dm11 G13 Cmaj.7

Specifically, the goal is to be able to spell a chord given its name and to give the name of the chord given its spelling. For 3 examples, the Dm11 above is spelled D, F, A, C, E and G; the G13 is G, B, D, F, A, C and E; and the C Maj. 7 is C, E, G and B.

Also, the chords covered here are ones that you could strike all the notes at the same time and hold them forever without being overly dissonant. Notes of chords which do not fall into this category would probably be considered non-harmonic or at least "un-hip".

(a quote from the first article:)

There are roughly 6 different chordal groupings you would need to worry about: Tonic major chords, tonic minor, supertonic major, supertonic minor, dominant and fully diminished. Each one of these has several possibilities for scales to go with them (however, there are also non-scalar possibilities as well).

(unquote)

We will now look at tonic chords in major (all this means is I'm referring to chords whose ROOT is the FIRST (or tonic) degree of a MAJOR scale. For short, I will refer to chords in this family as I-Maj. chords.

Since the chords dealt with in my last article had their ROOT be the SECOND (or supertonic) degree of a MAJOR scale, I referred to those (dorian) chords as II-Maj.

The first I-Maj. chord I discuss is a major triad with an added interval of a major 6th. In the key of C major, this would be (from the bottom) C, E, G and A; its name is C add 6 or just plain C6. The added 6th (*always* a major 6th) is a *substitute* for the interval of a major 7th, which leads to the second chord.

The next chord is a major triad with a major 7th interval. An example would be C Maj. 7 which would be spelled C, E, G and B. As discussed in the preceding paragraph, the add 6 chord is a substitute for the maj. 7 chord because the major 6th interval is a substitute for the major 7th interval. In the '40s, the add 6 chord was used exclusively to harmonize melodies at points of tonic major harmony. Presently (big band), major 7 and add 6 are used interchangeably.

Next is a major triad with an added 6th and major 9th. In the key of C, this would be C, E, G, A and D. Its name would be C 6/9 which is pronounced "Cee six nine". It substitutes for the following chord.

(Note that all chords in the same family can substitute for each other, e.g. if the fake book says C Maj. 7, could you substitute a C 6/9? Yes! How about a C Maj. 9? Absolutely! Or a C6? Definitely! Any other chord in the I-Maj. category would make a good substitute.)

Next is a major triad with the intervals of a major 7th and major 9th. The example would be (in the key of C major) C, E, G, B and D. C Maj. 9 is its name. Its (main) substitute is a C 6/9 due to the use of the substitute for the interval of a major 7th, which is a major 6th.

Next is a major 11 chord which, in the key of C major, would be spelled C, E, G, B, D and F. This chord has the same structure as a major 9th chord with an added perfect 11th. The name of this chord would be C Maj. 11.

This chord requires some discussion: the third of any chord is very impor-

tant since it determines whether the triad is major or minor. If you place a note in the chord which is overly dissonant with that third, you interfere with its "major vs. minor identification" function. The perfect 11th, being exactly an octave larger than a perfect fourth, is such a dissonance. It creates the interval of a minor 9th with the third, which is a very sharp dissonance.

For the reasons stated above, the next chord is almost always used instead of the preceding. In the key of C major, it would be C, E, G, B, D and F# (note *lydian* influence) and would be called C Maj 9 (+11) or C Maj 9 (#11). The structure is that of a Maj. 9 chord with an added augmented 11th. Here, the interval created between the third and the 11th of the chord is a *major* 9th, a mild dissonance, and the problems discussed above are no longer present. Note the syntax used: the altered interval(s) are in parentheses and the number outside the parens is the highest *unaltered* interval for that chord family. Since a '9' is outside the parens, the interval of the 9th in the chord is its highest unaltered interval.

Note carefully here that this means there are two versions of the 11th! In this case, the *altered* (raised) 11th is preferred. However: you have to know that the unaltered 11th is a perfect 11th (even tho it's rarely used and even undesirable for the reasons discussed above.)

The next chord is called a major 13 chord and its structure is that of a maj. 11 chord with the interval of a major 13th added on top. In the key of C major, that would be C, E, G, B, D, F and A. The problem described in the description of the major 11 chord (perfect 11th produces too much dissonance with the major third) also exists here. For this reason...

The next chord's type is a major 13 with a raised 11th. This alleviates the dissonance problem between the third and 11th. Its structure is that of a major 9 w/ raised 11th with an added major thirteenth. In the key of C major, this is C, E, G, B, D, F# and A.

The last two chords have a frozen suspended fourth in them. In Bach's time, a "sus 4" is a note in a chord located a perfect fourth above its root, and this "suspension" note would "resolve" to the third of the chord within the same harmony. There are other requirements for this (melodic) device, but to describe them all would unnecessarily bog us down. I refer those interested to Gordon Delamont's "Modern Harmonic Technique Vol. 2", chapter 3. The term "frozen suspension" simply means that the suspension note remains in the chord and does not resolve.

The first of these is a major 7 sus 4, it has a root, *no* third, perfect 4th and major 7th. In the key of C major: C, F, G and B. Its name (for the key of C major) is C Maj. 7 (sus 4). Note that the "sus" can be notated four ways in the alphabetical chord system: sus, (sus), sus 4, (sus 4), so other names for this chord include C Maj. 7 (sus), C Maj. 7 sus, and C Maj. 7 sus 4. So, this chord could be notated in three other ways: C Maj. 7 (sus), C Maj. 7 sus 4, and finally C Maj. 7 sus.

The last chord in this family is a Major 9 with a sus 4. The structure is that of a major 7 sus 4 with an added major 9th. In the key of C major, that would be C, F, G, B and D.

Look carefully at the composite intervallic structure for I-Major chords:

Major 13th Perfect 11th Augmented 11th Major 9th Major 7th Major 6th
Perfect 5th Perfect 4th Major 3rd Root

Did you notice that the augmented 11th (an alteration!) is not stacked

If we "scalize" the structure (look at the 9th, 11th and 13th as the 2nd, 4th and 6th, we can come up with at least two different scales for improvising on this chord type:

Root, Maj. 9th, Maj. 3rd, Prf. 4th (the sus!), Prf. or Aug. 11th, Prf. 5th, Maj. 6th (or 13th), Maj. 7th, Root.

So it looks like the two scales that would work are ionian and lydian. Note that with ionian, you must use its perfect 4th with care as it shows a strong tendency to lead to the (major) 3rd.

Compare this with the structure of the II-Major family:

Maj 13th — Maj 13th P 11th A 11th — P 11th Maj 9th — Maj 9th
 Maj 7th_i — — — — — Min 7th Maj 6th_i — — — — — NO 6th! P 5th —
 P 5th P 4th_i — — — — — NO 4th! Maj 3rd_i — — — — — Min 3rd Root
 — Root

I-Maj. II-Maj.

”Scalizations”:

I-Maj:

Root, Maj, 9th, Maj, 3rd, Prf. 4th (the sus!), Prf. or Aug. 11th, Prf. 5th, Maj. 6th (or 13th), Maj. 7th, Root: Lydian mode or Ionian mode.

II-Maj:

Root, Major 9th, Minor 3rd, Perfect 11th, Perfect 5th, Major 13th, Minor 7th, Root: this scale is the Dorian mode.

0.3 Lesson 3 - Dominant Chord Structures

Yet another chord structure is explored in this, my third chord lesson. So far, we have examined two chord structures, namely tonic (I) chords that come from a major key (I-maj. for short), and supertonic (II) chords that come from a major key (II-Maj. for short).

A comparison of the structures of these chords by intervallic chordal member:

Maj 13th — Maj 13th P 11th A 11th — P 11th Maj 9th — Maj 9th
Maj 7thi ————iMin 7th Maj 6thi ————iNO 6th! P 5th —
P 5th P 4thi ————iNO 4th! Maj 3rdi ————iMin 3rd Root
— Root

I-Maj. II-Maj.

To keep us on track, here are relevant quotes from previous articles:

Quote from second article:

Note that all mention of intervals are intervals measured from the ROOT of the chord. The same is true for my first article.

Recall also that the goal of this series is to impart a knowledge of chords such as those you might see in a jazz fake book, for example

Dm11 G13 Cmaj.7

Specifically, the goal is to be able to spell a chord given its name and to give the name of the chord given its spelling. For 3 examples, the Dm11 above is spelled D, F, A, C, E and G; the G13 is G, B, D, F, A, C and E; and the C Maj. 7 is C, E, G and B.

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at the same time and hold them forever without being overly dissonant. Notes of chords which do not fall into this category would probably be considered non-harmonic or at least "un-hip".

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There are roughly 6 different chordal groupings you would need to worry about: Tonic major chords, tonic minor, supertonic major, supertonic minor, dominant and fully diminished. Each one of these has several possibilities for scales to go with them (however, there are also non-scalar possibilities as well).

(unquote)

With old business out of the way, let's examine the dominant structure.

The dominant chord structure is the most flexible structure we will look at. A light root-3rd-7th voicing can be made dark and rich by the addition of altered fifths and ninths. The darkness can be replaced by richness alone by using the unaltered versions. In fact, we will see that the entire chromatic scale less two notes can be used in solos.

Dominant chords are those whose ROOT is the FIFTH (or dominant) degree of a major scale. We can get dominant chords from the fifth of melodic and harmonic minor, as well as certain other modes of these scales. For short, I will refer to chords in this category as being in the V family.

As far as naming goes, recall that a "7" in an alphabetical chord symbol makes reference to the interval of a minor seventh above the root. We saw in the first lesson how this was used: Dm signified a D minor triad, Dm7 would add the interval of a minor seventh to that minor triad. So the symbol Dm7 seen in a fake book would be broken down like:

Dm 7 The TRIAD the MINOR seventh.

Dominant chords have a MAJOR third and a minor seventh, so one possible chord would be G7, the interpretation being:

G 7 The TRIAD The MINOR seventh.

Compare this to I chords in major: CMaj7 would be interpreted:

C Maj7 The TRIAD THE !!MAJOR!! SEVENTH!

Check this out! The m in Dm7 refers to the triad, while the Maj in CMaj7 refers to the 7th! Don't let this confuse you: The triad is *already* major, so it wouldn't do to say C Maj Maj 7! (meaning C Maj triad with a Maj 7th) Remember the triad naming rules: the note name by itself always means a MAJOR triad, i.e., C means C major triad; G means G major triad.

Observe the way the name is constructed: G7 (note name number) versus GMaj7 (note name modifier number) versus Dm7 (note name modifier number).

So dominant chords are generally named with a note name followed by a number. Let's look at the structure so far: a major triad with a minor seventh looks like:

Min 7th P 5th Maj 3rd Root

V

Play the chord. Hear the sound. Chords like this: G7, Eb7, B7, etc. Remember, when you look at the structure, the intervals directly above the root (the only ones so far) are the unaltered intervals for V family chords.

The fifth of the dominant can be raised or lowered one half step. If this is done, the altered fifth would be shown in parentheses: G7(b5) or G7(#5) or G7(-5) (this is the same as G7(b5)) or G7(+5) (same as G7(#5)). If you took

the 7 away, you'd have a major triad with a raised or a lowered fifth.

Our new structure looks like:

Mi 7 d 5th P 5 A 5 Ma 3 Root

V

Because I would like to eventually put all six chord family structures together in order to compare them, I would like to reduce their horizontal size. Take a look at this structure, *identical* but reduced:

-7 d5 P5 A5 M3 Root

V

PLAY these chords! Hear the sounds of the altered fifths! Get to a piano!
Your ear is too important to ignore! Some altered-fifth chords: G7(#5) F7(-5)
etc

Abbreviations used: abbrev. meaning examples — — — — — M major
M3 (major third) - minor -7 (minor seventh) P perfect P5 (perfect fifth) A
augmented A11 (augmented eleventh) d diminished d5 (diminished fifth) ! not
present !6 (sixths are not present in structure in the structure being discussed)

Because the diminished 5th and the augmented fifth are seen in the structure as to one side of the root, as opposed to directly above the root, it would be shown as an alteration (in parentheses). So that means the maj 3rd, the p 5th and the min 7th are unaltered intervals WITH RESPECT TO the dominant chord. Other chord structures have *different* unaltered intervals! And: that's how we can place them in their category. Compare it, for example, to the II-Maj structure, up to the seventh:

M3 — — Root — Root — — — — — P5 — d5 P5 A5 — — -3 —
 — — — — — -7 — -7 — — — — — II-Major — V —

From this chart, we can see that the intervals of the seventh in both structures is minor, but the thirds differ. In II-Major, the third is minor, but in V, the third is major, and in each the third is unaltered FOR THAT STRUCTURE.

Another way to use this comparison is for figuring out to which structure a given chord belongs, for example we can see that if we find a major third in the chord, it could not possibly be in II-Major. What if the chord is found to have the interval of a major 7th? Could it possibly be a dominant chord? More on this later.

Here's an important piece of trivia: The dominant chord structure is the *only* group of chords that can tolerate altered ninths. In all other families, the ninth is a major ninth. The dominant, on the other hand, has the minor ninth and the augmented ninth as possibilities. Here's the updated structure:

_____ -9 M9 A9 _____ -7 _____ d5 P5 A5 _____ M3 _____ Root
 _____ - V _____

So now there are at least nine possibilities, among them G9(+5), F#7(b5,#9), Db7(#9), etc.

Play all the possibilities. Bass players arpeggiate them or play them at high positions on the neck. Guitar players can just play the chords, but playing them as arpeggios is also valuable. To gain facility, take a specific chord and play it everywhere on the neck in all keys. With the possibilities that we have now, this will take you quite awhile.

Dominant chord structures can have two kinds of elevenths: the perfect eleventh and the augmented 11th (note lydian influence). As in I-Major, the

perfect 11th is problematic.

For more on this, I quote from the second lesson:

This chord requires some discussion: the third of any chord is very important since it determines whether the triad is major or minor. If you place a note in the chord which is overly dissonant with that third, you interfere with its "major vs. minor identification" function. The perfect 11th, being exactly an octave larger than a perfect fourth, is such a dissonance. It creates the interval of a minor 9th with the third, which is a very sharp dissonance.

(unquote)

If you see a chord such as G11 (normally G, B, D, F, A and C) in a fake book, you will want to drop the third (G, , D, F, A and C, note missing note). Note that here, you have a G as the root and D, F, A and C on top. The upper notes can be viewed (and written as) a Dm7. So you could write this chord as:

Dm7 / / / G

which means Dm7 on top, put a G in the bass. !Note! that this is different from

Dm7 — G

because this means play the two *chords* Dm7 on top of a G major triad.

The perfect 11th can also be viewed as a sus 4. For example, the perfect 11th above G is C, which is also a perfect 4th. Recall from lesson 2 that sus 4 chords have no third.

Dominant chords can also have raised 11ths, in which case the third of the chord can comfortably exist. This would introduce a "lydian" flavor to the chord, which would otherwise be a "mixolydian" flavor. This is because it would have the "mixolydian" interval of the minor seventh and the "lydian" raised 11th. Otherwise unaltered chords of this variety are called, therefore, "lydian dominant" chords, such as G9(+11), E7(#11), etc.

The structure so far: ————— — P11 A11 — — -9 M9 A9 — — -7 — — d5 P5 A5 — — P4 — — M3 — — Root — ————— — V — —

Recall from previous lessons what the number outside any parentheses means: that number says that the HIGHEST *unaltered* interval is that number. The 6th does not exist in dominant harmony, but the 13th does. What does this mean? The 13th IS the 6th! In dominant harmony, the interval of the minor seventh is always present in the chord, so a G add 6 (or G6) is *not* dominant harmony. This is because the chord symbol says that the 6th is the highest unaltered interval, which conflicts with my statement that dominant chords always have sevenths. Recall that an added 6th (always a major 6th) is a substitute for a *major* seventh. Given this, our G add 6 chord, with its major third and major seventh substitute, is I-Major harmony. (see lesson 2 for details)

However, dominant chords *can* have 13ths, because the 13 in a chord symbol like G13 implies the existence of at least the major 9th and minor 7th. The major 13th is the norm. Although most of the time the minor 13th should be looked at as an augmented fifth (that way, you don't go adding more than one fifth), the minor 13th is also possible.

Here is the full dominant structure:

————— — -13 M13 — — P11 A11 — — -9 M9 A9 — — -7 — — !6 — — d5 P5 A5 — — P4 — — M3 — — Root — ————— — V — —

PLAY THESE CHORDS! Some will be ugly at first; you'll get used to them. Once you've exhausted the possibilities, start deciding which ones you like. That's how to build your chordal vocabulary.

Some dominant chords: G7(b5), F13(+11), Eb9(#5,#11,b13)... the list goes on and on.

Let's take all the structures we have so far and put them side-by-side:

_____ — -13 M13 — M13 — M13 — — P11 A11
 — P11 — P11 A11 — — -9 M9 A9 — M9 — M9 — — -7 — -7 — M7 — — !6
 — !6 — M6 — — d5 P5 A5 — P5 — P5 (A5) — — P4 — !4 — P4 — — M3 —
 -3 — M3 — — Root — Root — Root — _____
 — V — II-Major — I-Major — _____

Notice that THE EXTENSIONS (9ths, 11ths, 13ths) DON'T TELL YOU MUCH in the way of comparison! In fact, the unaltered extensions are *always!* *major* ninth, *perfect* eleventh and *major* thirteenth. So how do we compare chords? The fifths don't provide much information either, and the roots provide exactly no information.

What's left? The third, the seventh and their substitutes. That's all! By determining the types of the third and the seventh, you can immediately place the chord in one of the categories so far, and we will see in the next three lessons that the third and the seventh (or substitutes thereof) will always categorize any chord into one of six chord categories, either one of five families, or the fully diminished chord group.

What are the category names of the following chords? C7(+5) F#m7 D# Maj. 9 (#11) Ab9 Gm9 F6 Db6/9 Eb13 sus What chord members do they have (list all the intervals in the chords)? What are their exact spellings?

Measure the intervals of all the following spellings, and categorize each. Then determine their exact name. E G# B D F# A C# G B D# F# A C# D F# A C Eb G# Bb B E F# A C# F# A C# E G# Bb Db F Ab C Eb G Gb Bb D Fb Abb Cb Eb Gb Bbb Db F Ab Eb G Bb C F C F G Bb D F Bb C Eb G A C# E G# B# D# D F A C E G B

"Scalizations":

V:

Root, Min. 9th, Maj. 9th, Aug. 9th, Maj. 3rd, Prf. 4th (the sus!), Prf. or Aug. 11th, dim. 5th, Prf. 5th, Aug. 5th, Min. 13th, Maj. 13th, Min. 7th, Root. Note: perfect 4th is same note as perfect 11th, except is 1 oct. lower enharmonic equivalents: dim. 5th and Aug 11th, Aug. 5th and Min. 13th Disregarding the troublesome perfect 11th and the sus 4, this is the entire chromatic scale except for the perfect fourth and the major 7th. Many scales are obviously possible, the most basic being mixolydian, another often-used one being mixolydian with a raised 4th. The "blues" scale will also work. This is a minor pentatonic scale with an added chromatic tone between the 4th and 5th.

I-Maj:

Root, Maj. 9th, Maj. 3rd, Prf. 4th (the sus!), Prf. or Aug. 11th, Prf. 5th, Maj. 6th (or 13th), Maj. 7th, Root: Lydian (if 3rd present) or Ionian (if sus-4 alignment)

II-Maj:

Root, Major 2nd, Minor 3rd, Perfect 4th, Perfect 5th, Major 6th, Minor 7th, Root: Dorian mode.

References

If you don't know how to identify intervals, modes, key signatures, rhythms, major and minor scales, chromatic scales or you want to know how to write any of the above, see E. D'Amante's "Fundamentals of Music". One can get info., from Ardsley House Publ. Co. at 320 Central Park West; New York, NY 10025.

Most of the chordal theory you have seen and will see here is described in E. D'Amante's "All About Chords". In particular, the chordal groupings are taken from D'Amante's Music 2A class, which begins with triads, goes all the way to the 13th and contains several sections on chordal function, which is beyond the scope of these articles. If you are interested in receiving information about All About Chords, send a post card requesting information from Encore Music Publ. Co. at P.O. Box 315 Orinda, CA 94563.

D'Amante was my teacher; he was the best theory teacher I have had to date by several levels of magnitude. I used to say, "He scrambles my brains every day and I love it." He is completing work on an ear training text; it should be ready shortly.

While this theory stuff is interesting and can be useful for things like figuring out what was in a composer's mind when he wrote the piece you're examining, or writing your own tunes, nothing substitutes for your ear. Play everything you write! Play every chord in all these lessons! (damn, that's a lot of chords...) Experiment with all three chord structures! Find all the ugly sounds! Find all the light sounds, and the heavy ones! Find all the wondrous sounds! Find all the strange-but-beautiful sounds! Build your vocabulary, then decide what you like.

See you next time.

0.4 Lesson 4 - Fully Diminished Chords

So far, we have looked at the structures of the I and II chords that come from major keys, and the dominant chord. For a comparison of their structures, I give you the following table, quoted from the end of the last lesson:

_____	— -13	M13	— M13	— M13	— — P11	A11
— P11	— P11	A11	— — -9	M9	A9	— M9
— M9	— — -7	— -7	— M7	— — !6		
— !6	— M6	— — d5	P5	A5	— P5	— P5 (A5)
— — P4	— !4	— P4	— — M3	—		
-3	— M3	— — Root	— Root	— Root	— — — — —	
— V	— II-Major	— I-Major	— — — — —			

Notice that THE EXTENSIONS (9ths, 11ths, 13ths) DON'T TELL YOU MUCH in the way of comparison! In fact, the unaltered extensions are *!always!* *major* ninth, *perfect* eleventh and *major* thirteenth. So how do we compare chords? The fifths don't provide much information either, and the roots provide exactly no information. In the main, the third and the seventh will provide the keys to determine the family identity to which a given chord belongs.

¿From the second article:

Note that all mention of intervals are intervals measured from the ROOT of the chord. The same is true for my first article.

Recall also that the goal of this series is to impart a knowledge of chords such as those you might see in a jazz fake book, for example

Dm11 G13 Cmaj.7

Specifically, the goal is to be able to spell a chord given its name and to

give the name of the chord given its spelling. For 3 examples, the Dm11 above is spelled D, F, A, C, E and G; the G13 is G, B, D, F, A, C and E; and the C Maj. 7 is C, E, G and B.

Also, the chords covered here are ones that you could strike all the notes at the same time and hold them forever without being overly dissonant. Notes of chords which do not fall into this category would probably be considered non-harmonic or at least "un-hip".

(unquote)

From the first article:

There are roughly 6 different chordal groupings you would need to worry about: Tonic major chords, tonic minor, supertonic major, supertonic minor, dominant and fully diminished. Each one of these has several possibilities for scales to go with them (however, there are also non-scalar possibilities as well).

(unquote)

We now turn to the bridging group of chords. The bridging group consists of fully diminished 7th chords. Bridging chords have NO extensions. Bridging chords do not come from a key; they are, in this sense, "man-made".

All diminished chords, whether fully diminished or half, have a diminished triad. To review: A diminished triad has a root, a minor third and a diminished fifth.

d5 m3 root

For example C, Eb and Gb is a diminished triad.

Overall, there are two choices for the seventh: either minor or diminished. So what does 'fully' and 'half' mean? What are the halves? Here's the answer: The matter of full versus half involves the triad as one half and the seventh as the other half. So: if the triad is diminished and the seventh is minor, then only half of the chord is diminished, so we call this structure:

-7 d5 m3 root

a half-diminished seventh chord. (On C, this is spelled C, Eb, Gb and Bb.)

On the other hand, if BOTH the seventh AND the triad are diminished, as in:

d7 d5 m3 root

then the chord is a *fully* diminished seventh chord.

In this lesson, we deal only with fully diminished seventh chords, leaving the half-diminished seventh to be discussed later.

Before, I said that one of the chord groupings is not what is referred to here as a family, but is just a group. This is because chords from this group do not come from (or have any particular 'allegiance' to) any particular key. The bridging group (the subject of this lesson) is the chord group that is not a family. Here's why:

If we look at an octave and look at all notes possible, we see that there are twelve different notes. This does not include the top note, which is just a repeat of the bottom. This is called a chromatic scale.

One possible chromatic scale (on C):

C C# D D# E F F# G G# A A# B (C)

Since we have 12 different notes, it's possible to divide this octave equally. The even divisions of 12 are 2, 3, 4 and 6.

For example, a whole-tone scale is formed by taking every other note of a chromatic scale. A C whole-tone scale looks like this:

C D E F# G# A# (C) C C# D D# E F F# G G# A A# B (C)

A chromatic scale is all half steps; a whole-tone scale is all *whole* steps. So a whole-tone scale is said to equally divide the octave. How many different notes are there? Each tone is two half steps from the last, and there are 12 half steps in a chromatic scale. 12 divided by 2 is 6, so there are 6 (different) notes in a whole-tone scale. If there are 6 different notes in a whole-tone scale, how many different whole-tone scales are there? 12 divided by 6 is 2, so there are only two different whole-tone scales: on C, and on C#. Why not on D? Because a D whole-tone scale is exactly the same as a C whole-tone scale.

3 goes into 12 as well. We can come up with a "scale" whose tones are three half steps apart, and which equally divides the octave:

C D# F# A (C) C C# D D# E F F# G G# A A# B (C)

We can do the same for a "scale" whose tones are four half steps apart. Four goes into 12 three times, so there will be three different notes:

C E G# (C) C C# D D# E F F# G G# A A# B (C)

If there are two tones, they will be spaced *six* half steps apart:

C F# (C) C C# D D# E F F# G G# A A# B (C)

If we thought of some of these as chords, how would you tell for sure what the root of the chord is? You can't tell for sure! The C-E-G# happens to be an augmented triad. It would sound EXACTLY the same as an E augmented triad! It would sound EXACTLY the same as a G# (or Ab) augmented triad! If there are no chords before or after (one-chord jam), you can't tell (by listening) what key it comes from or even what its root is! (Bass players: this gives you the POWER to decide the root! Others: be NICE go your bass player! He/she has power!)

A fully diminished chord equally divides the octave. Each note is three half steps from the previous and from the next. A distance in pitch of three half steps is also known as a minor third, so fully diminished chords can be also viewed as a series of minor thirds.

The structure, again, is

d7 d5 m3 root

and the spelling of a C fully diminished seventh chord is C, Eb Gb and Bbb (the *diminished* seventh). C to Eb is a minor third, Eb to Gb is a minor third, Gb to Bbb is a minor third and if we look at the Bbb as A for a moment, we can see that A to C is a minor third.

C Eb Gb Bbb (C) C C# D D# E F F# G G# A A# B (C)

So: fully diminished chords equally divide the octave. This means that fully diminished chords can have any of their chord tones (root, 3rd, 5th or 7th) be the root. This means we have four fully diminished chords in one!! So: C fully dim. 7 is the same as Eb fully dim. 7 is the same as Gb fully dim. 7 is the same as A fully dim. 7. They are the same because they have exactly the same notes!

How many different fully diminished 7th chords are there? There are four different notes, so 12 divided by four is three therefore there are three different fully diminished seventh chords: on C, on C# and on D.

Given this vagueness and ambiguity, why does it matter how we spell these chords? Why not spell a C fully diminished seventh chord as C, Eb, Gb and A? The answer is that there is the 'strictly legit' way of spelling in which the A must be spelled as Bbb in the above example (after all, B anything is a seventh above C, while A anything above C is a 6th), and there is the way of spelling that involves options, an example of which would be re-spelling the 'legit' Bbb

as an A.

Remember: the options are *only* applied to fully diminished chords!

There are three spelling options for notes in fully diminished chords.

First, avoid double-flats. For example, Fbb should be spelled as Eb, and Bbb should be spelled as A. A Gb fully diminished chord's legit spelling is Gb, Bbb, Dbb and Fbb... very messy for the reader... With options, this chord is spelled Gb, A, C and Eb. (this example will be used again; keep it in mind...)

Secondly, Fb and Cb should be avoided. Respell Fb as E and Cb as B.

The last option is a bit more complex. As stated to me originally, "Avoid black keys as FLATTED roots." There are some provisos to this one, however. If you are wearing the arranger's hat, keep the root that's there. But if you have a choice (say, if you're composing the tune), then prefer the sharped enharmonic equivalent. Instead of writing Bb fully diminished (which would be Bb, Db, Fb and Abb legit and Bb, Db, E and G using options), write A# fully diminished instead: A#, C#, E and G (notice we didn't need options here). Instead of that *particularly* messy Gb fully diminished from the above example, write F# fully diminished instead: F#, A, C and Eb (again, no options necessary).

To summarize the options, I say again that options should **ONLY** be used on fully diminished chords. Options should **NOT** be used on chords that come from a family grouping, such as I-major, II-major or V.

o Avoid double flats: respell as simplest enharmonic equivalent i.e., Bbb should become A
o Avoid Fb and Cb respell Fb as E respell Cb as B
o In situations where you have creative choice, prefer a sharp as opposed to a flat in the name of a root on a black key. i.e., instead of a chord like Gb, Bbb, Dbb and Fbb, choose F# for the root, as F#, A, C and Eb. (Composers generally have creative choice; arrangers generally do not.)

No extensions??

That's right. Fully diminished chords have no 9ths, 11ths or 13ths. In the example of a C fully diminished 7th chord (as in all fully diminished chords), all the notes are a minor third apart. With this in mind, let's look for extensions: C is the root; a minor third up is Eb, the third, a minor third up from that is Gb, the fifth and a minor third up from that is Bbb, the seventh. Applying options, we respell the Bbb as its enharmonic equivalent, A. ¿From A, we go up a minor third to find... C. So is C the ninth? If it is, we have an inconsistency, because C is actually the root. Hence, there is no ninth, and therefore also no eleventh or thirteenth.

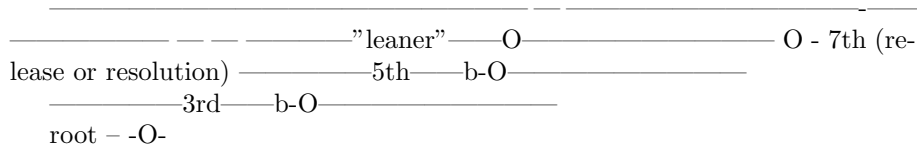
So there's no such thing as a fully diminished 9th chord, no fully diminished 11th and no fully diminished 13th, because these notes are simply repeats of the lower notes. However: there are other notes that work with the chord.

Any of the notes can be "leaned" on to introduce more tension, and "released" to relieve that tension. In the case of the fully diminished chord, any note can be leaned on by raising it a major second. The "leaned" note is released by lowering it to its original, as in the following treble clef examples:

7th O ————— 5th — b-O —

— 3rd — b-O —

root — -O- can become



In the first example, we see a C fully diminished chord. In the second, the seventh is "leaned" on WHEN THE WHOLE CHORD IS STRUCK, and released while the chord is still playing.

The seventh, A, is raised a major second to become B, which is struck with the chord. This is the "leaning". Later, while the chord is sounded, the B is brought back down to A. This is the "release". Get to a piano and play this!!

You could do the same thing to the fifth, you'd get Ab going to Gb. If you did it to the third, you'd get F to Eb... You could even do it to the root! You would get D going to C.

In some types of music, the leaned note is frozen, and does not release. In others, you can lean on two notes (generally better the fifth and seventh) at once, releasing them, or not...

The Fully Diminished Scale

The fully diminished scale consists of all the chord tones of the fully diminished chord, plus all the leaner notes. Remember: each leaner note is located a major second above any chord tone of a fully diminished chord. So for example, the chord tones of C fully diminished 7th are C, Eb, Gb and A:

C Eb Gb A (C) C C# D D# E F F# G G# A A# B (C)

The leaner notes (I'll put them on the bottom) are:

C Eb Gb A (C) C C# D D# E F F# G G# A A# B (C) D F Ab B

And: the leaner notes also form a fully diminished chord! (Were you surprised?) Here they are on the same (top) side this time:

C D Eb F Gb Ab A B (C) C C# D D# E F F# G G# A A# B (C)

Notice the pattern of the scale: Whole step, half step, whole step, half step, whole step, half step, whole step, half step. So we are alternating whole steps with half steps.

Remember: to form a fully diminished scale that fits with a fully diminished chord, start at the root and alternate upward, starting with a whole step (C to D, in this case) and continuing half step, whole step, half, etc until you get to the top.

Naming Fully Diminished Chords With "Leaner" Notes

As I said earlier, the fully diminished chords have no extensions, i.e., no 9ths, 11ths or 13ths. Given this, there must be a different mechanism for naming fully diminished chords with these leaner notes. The standard way is to use the word "add" followed simply by the letter name(s) of the leaner note(s). For example, C, Eb, Gb, and B would be C fully dim. 7 add B.

Note: Just using monospaced ascii (as I'm forced to at the moment), there is no way to really show the way the chord symbols are written. You do want to see them. Suggestions? .gif? .ps? I'd like it to be something everyone can see, so portability is important. It would make staff examples easier too.

If we were to alternate starting with a half step, we would actually get a scale that would fit a dominant chord.

Do Fully Diminished Chords Exist?

There are two groups of theorists and composers on opposite sides of this issue. One group thinks that the VII chord which can be either a fully- or

half-diminished chord, is truly a chord that stands on its own merits and has its own beauty.

(maybe add support for the pov described above here)

The other group feels that the fully diminished chord functioning as an altered VII chord in a minor key, does not exist. These folks prefer to take the root of that fully diminished chord down a major third to find its "true root", on V, not VII. Overall, they feel that fully diminished chords exist only in theory, and are really dominant chords. For more information on finding the "true root" of a chord, research the harmonic overtone series. A good treatise is in Gordon Delamont's "Modern Harmonic Technique, Vol. I", pp. 25-36.

I use this point of view to show how the dominant chord is related. To illustrate, we will take a B fully diminished 7th, spelled B, D, F and Ab. The root here is B. We will add a note a major third below, giving G, B, D, F and Ab. What kind of chord is this? The root is G, and recall that we look at the third and seventh to determine the overall quality. G to B is a major third and G to F is a minor seventh. Recall from the previous lesson that a major third and minor seventh make a dominant chord. G to D is a perfect fifth, not much surprise there. But G to Ab is not a major ninth, it's a minor ninth. That makes the name of this chord, a G7(b9).

Looking at this situation in terms of the chromatic scale:

root third fifth seventh B D F Ab G G# A A# B C C# D D# E F F# G G#

we now add a note a major third below the root, B to get G, which we are calling the "true root".

Root third fifth seventh flat ninth G B D F Ab G G# A A# B C C# D D# E F F# G G#

Look now at the whole step-half step fully diminished scale on B:

B C# D E F G Ab Bb B C C# D D# E F F# G G# A A# B

Notice there is a G! This means the fully diminished scale built on the original B fully diminished chord fits this new G7(b9) chord! How do we know, theoretically speaking? Because all the notes of the chord are in the scale! Observe:

third fifth seventh root b9 third B C# D E F G Ab Bb B B C C# D D# E F F# G G# A A# B

Another way of looking at this, is that the third, fifth, seventh and ninth of a dominant chord with a flattened ninth form a fully diminished seventh chord. One of the leaner notes is the root! Guess what, folks? Any one of the leaner notes can be the root of a (different) dominant chord with a flat nine!

Let's look at the same B fully diminished scale, starting from the "true root" of G:

G Ab Bb B C# D E F G G# A A# B C C# D D# E F F# G

Same fully diminished scale. All the same notes. This works with a B fully diminished chord. This works also with a G7(b9) chord. Let's look closer at the pattern: notice we are still alternating whole steps and half steps... But: this time we are starting with a half step! So: we have found a scale that works well with a dominant chord with a flattened ninth: the half step- whole step fully diminished scale. We also know what works with a fully diminished chord: the whole step-half step fully diminished scale.

So: this seemingly mild-mannered fully diminished scale will work with no less than eight chords! I list them: B fully dim., D fully dim., F fully dim.,

