

Chord Extensions

So far we've looked at intervals, the major and minor scales, and seen the relationship between them. We've also derived the chords that come from the major scale – triads and then 7th chords. Let's take the chords a little further and look at the 'extensions', the 9th, 11th and 13th over various 7th chords

What do the 9th, 11th and 13th extensions represent?

These numbers represent notes that can be thought of as "optional extras" to be added on top of a chord. Chords with extensions offer richer tonal colouration than the more conventional triads and 7th chords.

First a little recap

Remember that we worked out the chord of G Maj7 [Root, Major 3rd, Perfect 5th, Major 7th] by using the notes from the key of G major, looking first from the tonic [the first note in the scale].

The scale of G major:

Degree:	Tonic	2nd	3rd	4th	5th	6th	7th
	G	A	B	C	D	E	F#
	↓		↓		↓		↓
	G		B		D		F#
Interval:	Root		Major 3rd		Perfect 5th		Major 7th

The example above illustrates the chord of G Maj7 being derived from the key of G major.

Rule: notes within the chord of X Maj7 are derived from the key of X major.

Examples:

The key of F is used to derive F Maj7 [and it's extensions]

The key of Bb is used to derive Bb Maj7 [and it's extensions]

And so on

Extensions over a Maj7 chord:

Extensions stack in 3rd intervals over 7th chords.

Just like the Maj7 chord's intervals, the extensions over X Maj7 are also calculated from the key of X major.

We can work out the extensions by running through the notes of the scale and then simply keep counting on further into the next octave.

The scale of G major across two octaves:

Interval:	Tonic	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	11th	12th	13th	14th
Note:	G	A	B	C	D	E	F#	G	A	B	C	D	E	F#

Using the G major scale above, we can see the extensions generated as follows:

G Maj9 [spoken G major nine] is built upon the G Maj7 with the addition of the major 9th

This is therefore calculated from the G major scale so the 9th is A. [G, B, D, F#, A]

The spelling of the Maj9 chord is:

Root, major 3rd, perfect 5th, major 7th, major 9th

G Maj11 [spoken G major eleven] is built upon the G Maj7 with the addition of the 9th and 11th

This is calculated from the G major scale so the 9th is A and the 11th is C. [G, B, D, F#, A, C]

The spelling of the Maj11 chord is:

Root, major 3rd, perfect 5th, major 7th, major 9th, perfect 11th [because it is an extension of the 4th]

G Maj13 [spoken G major thirteen] is built upon the G Maj7 with the addition of the 9th, 11th and 13th

This is calculated from the G major scale so the 9th is A, 11th is C and the 13th is E. [G, B, D, F#, A, C, E]

'Added' notes:

When looking at the Maj7, Maj9, Maj11 and Maj13 chords the notes all stack up in a way where each chord is essentially built upon the last. However, you can 'add' extension notes individually to a chord so that you do not need to have all extension notes.

The name these chords, you work out the highest chord name where the notes stack in 3rd intervals and then "add" the additional extensions.

Examples:

Imagine a G major triad with an additional 9th but the 7th was not required.

The G major triad is the highest chord name where the 3rd intervals are unbroken and the 9th is added.

This therefore the chord of G with an added 9th - G, B, D, A

Name: G add 9

Imagine a G Maj7 chord had an added 13th the 9th and 11th were not present.

The G Maj7 chord is the highest chord name where the 3rd intervals are unbroken and the 13th added.

This therefore the chord of G Maj7 with an added 13th - G, B, D, F#, E

Name: G Maj7 add 13

Extensions over minor chords:

The 'minor' extended chords follow slightly different rules.

Consider the chord to be made up of two parts

1 - the minor triad [Xm] or the minor triad with the 7th [Xm7] – these note values are determined by the minor key from which this chord is derived [the chord of Xm in the key of Xm]

2 - the extensions – these are the notes above the 7th [the 9th, 11th and 13th] and are derived from the major key upon which the minor chord is rooted.

The extension notes above the chord of Xm7 are therefore derived from the key of X major.

This time the extension notes however are calculated from the major scale.

Em11 [spoken E minor eleven] is therefore worked out in two parts

The Em7 part comes from the key of Em, the extensions come from the key of E

Em11 contains - E, G, B, D, F#, A

The spelling of the m11 chord is:

Root, minor 3rd, perfect 5th, minor 7th, major 9th, perfect 11th

Em9 add 13 [spoken E minor nine add thirteen] is an Em9 chord with the 13th added [with no 11th]

Em9 add 13 contains - E, G, B, D, F#, C#. [the note A is omitted]

The spelling of the m9 add 13 chord is:

Root, minor 3rd, perfect 5th, minor 7th, major 9th, major 13th

Getting the idea?

Lastly, the slightly more awkward chords to handle, the 'dominant chords'.

Again these follow exactly the same rules but with one main difference.

The root note is the Dominant note [5th degree] from another major key.

This means that the chord of D7 [spoken D seven] is taken from the major key where the root note D is the 5th from another key – D is the 5th in the key of G major, and so this key is used to work out the extensions.

Examples:

D11 [spoken D eleven]

The root D is a perfect 5th above the note G so the key of G major is used to derive the notes of the chord.

D11 contains - D, F#, A, C, E, G [from the scale of G major: G, A, B, C, D, E, F#]

The spelling of the dominant 11 chord is:

Root, major 3rd, perfect 5th, minor 7th, major 9th, perfect 11th

B9 [spoken B nine]

The root B is a perfect 5th above the note E so the key of E major is used to derive the notes of the chord.

B9 contains - B, D#, F#, A, C# [from the scale of E major: E, F#, G#, A, B, C#, D#]

The spelling of the dominant 9 chord is:

Root, major 3rd, perfect 5th, minor 7th, major 9th

G7 add 13 [spoken G seven add thirteen]

The root C a perfect 5th above the note C so the key of C major is used to derive the notes of the chord

G7 add 13 contains - G, B, D, F, E [from the scale of C major: C, D, E, F, G, A, B]

The spelling of the dominant 7 add 13 chord is:

Root, major 3rd, perfect 5th, minor 7th, major 13th