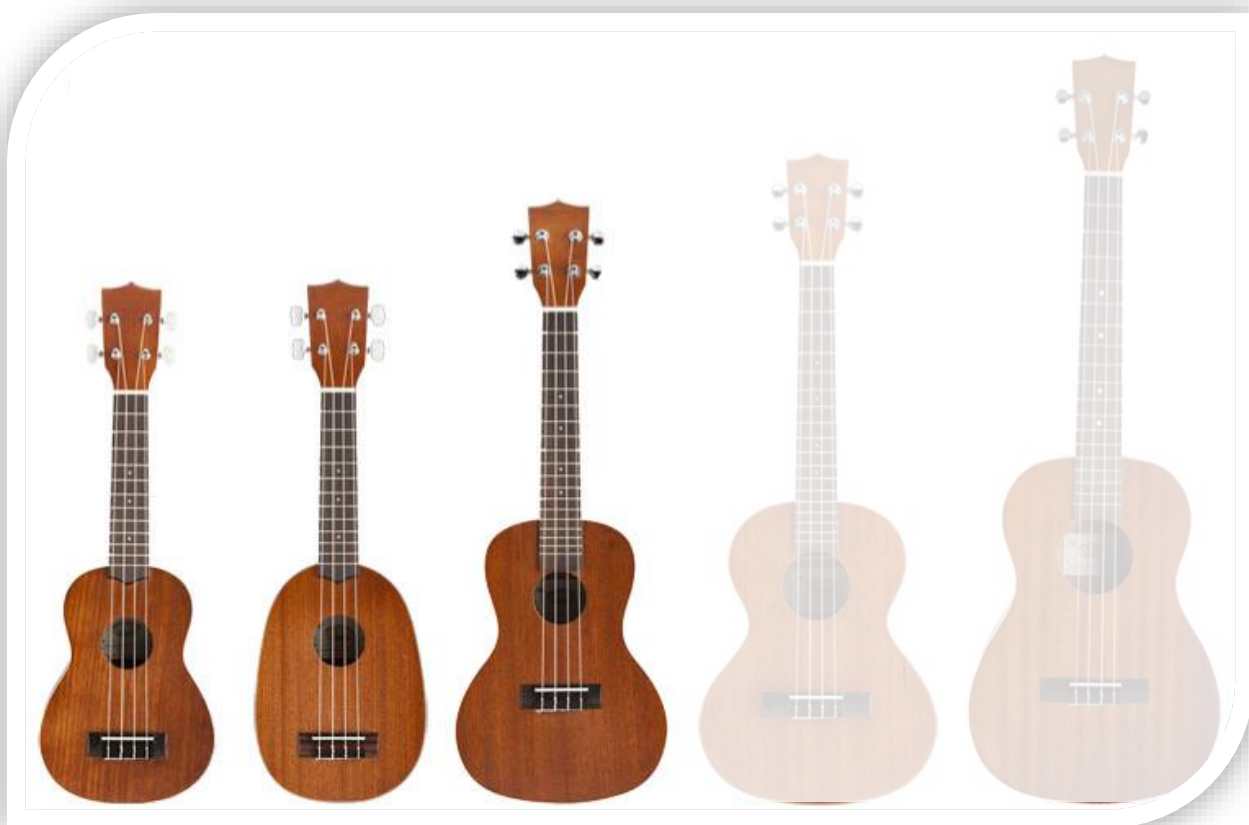




# UKULELE ADAPTED MUSIC THEORY FOR GCEA TUNING

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# Getting Started

This guide to music theory for the omnipresent family of ukuleles is written for the tuned **CONCERT/TENOR UKULELE** to **GCEA**. If you want the equivalent book for **BARITONE UKULELE** (DGBE tuning) it is available from the same place<sup>1</sup>.

The ukulele is popular (and becoming more so) for several perfectly good reasons:

- You can get started for quite a low price
- There is scope to increase the quality of your ukulele (both in price and in musical quality)
- You can sing and play at the same time
- The ukulele is MUCH easier to play than the guitar

Having been an avid guitar player most of my life (I got my first guitar aged 15 and that was 46 years ago) I switched to the ukulele as age caught up with my not-as-fast-as-they-used-to-be fingers. I *could* have switched to the tenor guitar but I think that most of these are a bit on the ugly side and they are usually very expensive. I'm not sure I understand why that is, to be honest.

I have noticed that most ukulele players are **not** dyed-in-the-wool musicians. Generally, they are people who know a few chords and like to think they can sing a bit. I'm not a musician either<sup>2</sup> so much of what is in this book is "pragmatic music theory".

If I can understand this stuff, I'm sure you can too.

I'm assuming several things:

- You can count up to 13 (although "up to 8" might be enough)
- You know that a scale is Do-Re-Mi-Fa-Sol-La-Ti-Do
- You are happy enough just using a standard western scale rather than anything exotic. If you were expecting the Phrygian dominant scale or the Byzantine scale you are going to be disappointed.
- You are not tone deaf (this is actually very rare so you probably aren't)
- The symbols for sharp (#) and flat (b) are familiar to you

Right through this book I will be using the flat (b) symbol for **notes** but I will use the regular keyboard symbols # and b for sharps and flats within **chords**. So, talking about the B-flat **chord** you will get **[Bb]** but for the B-flat **note** you will get B<sub>b</sub>. Sharps do not present any problem although the # (hash) is a little different from the ♯ (sharp) symbol. This is simply a reflection on how ukulele music is presented in general. Across the internet, the chord of B-flat is written as **[Bb]** with the only variety being in the type of parenthesis used. We only rarely use the sign for "natural" (♮) in this book, in case you haven't seen it before.

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<sup>1</sup> <https://ukuleleadapted.wordpress.com/>

<sup>2</sup> I'm a Chemistry Teacher

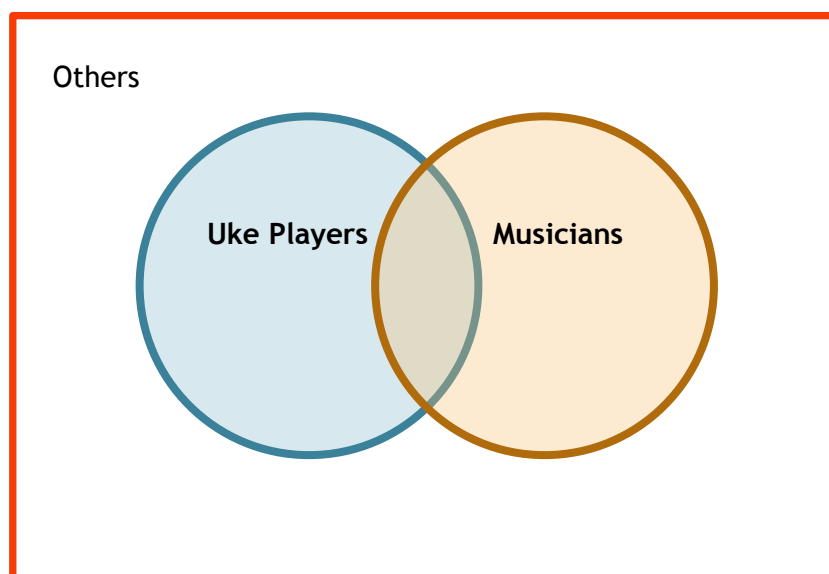
# How to Use This Book

I just admitted at the bottom of the previous page that I'm a teacher so you might expect this guide to ukulele music theory to have exercises to check your learning and understanding as you go along.

You'd be right.

At the end of most sections you will be confronted with some things to have a go at, just to see whether you are comfortable with what has gone before.

Unlike most (all?) other music theory books, you are **not going to be faced with music notation**. This is for ukulele players, not musicians<sup>3</sup>. The Venn<sup>4</sup> diagram below illustrates what I mean by that statement:



There are uke players who are musicians and those who aren't. There are musicians who are uke players and those who aren't. Some poor folk aren't either. Let's use a bit of Boolean<sup>5</sup> symbolism here. If you are a Uke Player **AND** Musician (i.e. in the overlap area) you *probably* don't need this book. If you are a Musician **NOT** a Uke Player you *really don't* need this book. If you are in the "Others" you *certainly don't* need this book. So it is really aimed at those in the pale blue zone.

**If you see yourself as being in the pale blue zone, this book is for you.**

I see myself as being in the pale blue zone.

<sup>3</sup> No irony or disparagement intended!

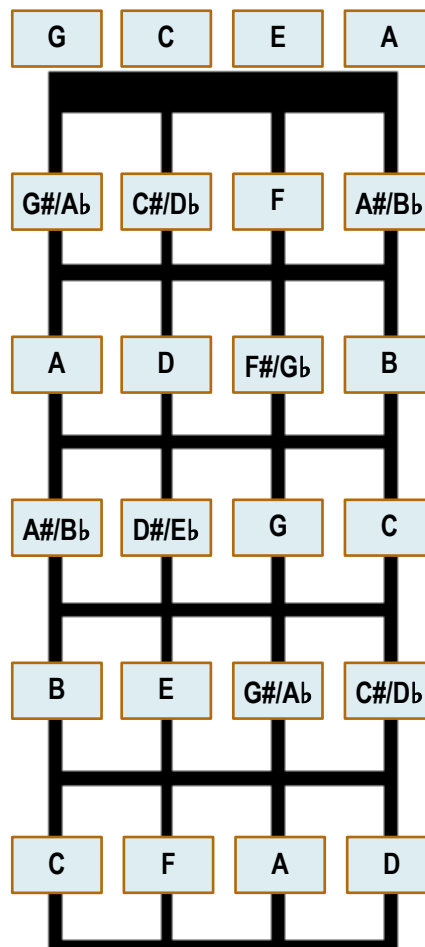
<sup>4</sup> Named after John Venn who created such things

<sup>5</sup> Named after George Boole who started this whole AND, OR, NOT stuff.

# Notes

The standard tuning for the Soprano or Concert Ukulele<sup>6</sup> is **GCEA**, where the G string is tuned “high” to give the “my dog has fleas” tuning. This is called a **re-entrant** G string and is unlike anything you would find on a guitar where the strings start with the lowest and go through to the highest. Most Tenor Ukuleles are also tuned with this re-entrant string too although a decent percentage do not have the re-entrant G string and this is the lowest, fattest string tuned lower than the C string. The most common tuning of the Baritone Ukulele is **DGBE**. Again, there is a possible re-entrant tuning with the D string tuned high or (alternatively and possibly more commonly) tuned low.

The notes produced on the four strings of the Concert/Tenor Ukulele fretboard are...



Don't worry if this looks a little bit complicated at the minute. It becomes simpler. Most of this book is about chords, not notes.

You will probably notice straight away that there are notes which only have one letter on them and notes that have two. Imagine you are playing a note somewhere on a

<sup>6</sup> The little ukuleles, as I think of them

ukulele. If you slide your finger one fret **up** the fretboard (towards the sound hole) you will have “sharpened” the note. If you slide your finger one fret **down** the fretboard you will have “flattened” the note. Now that “sharp” you played was a “flat” coming the other way, so every sharp note is the same ( $\equiv$ ) as the next flat note:

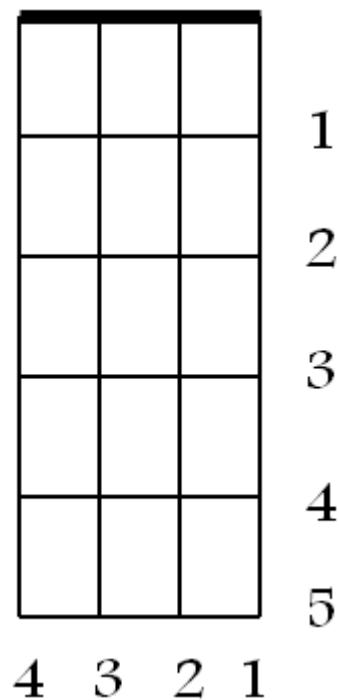
$$A\# \equiv B\flat \quad C\# \equiv D\flat \quad D\# \equiv E\flat \quad F\# \equiv G\flat \quad G\# \equiv A\flat$$

The reason that some are missing from this list is that they are only separated from the next note by one fret so  $E\# \equiv F$ , for example. So we don't generally use  $E\#$ . The same is true for  $B\#$ . It is the same as  $C$ .

## Exercise 1 - Notes

Using the diagrams on the previous page work out what the following notes are on **the Concert/Tenor Ukulele**:

- a) 1<sup>st</sup> string open \_\_\_\_\_
- b) 2<sup>nd</sup> string open \_\_\_\_\_
- c) 3<sup>rd</sup> string open \_\_\_\_\_
- d) 4<sup>th</sup> string open \_\_\_\_\_
- e) 1<sup>st</sup> string 3<sup>rd</sup> fret \_\_\_\_\_
- f) 4<sup>th</sup> string 2<sup>nd</sup> fret \_\_\_\_\_
- g) 2<sup>nd</sup> string 4<sup>th</sup> fret \_\_\_\_\_
- h) 1<sup>st</sup> string 5<sup>th</sup> fret \_\_\_\_\_
- i) 3<sup>rd</sup> string 4<sup>th</sup> fret \_\_\_\_\_
- j) 2<sup>nd</sup> string 5<sup>th</sup> fret \_\_\_\_\_





# The Capo

The capo is a device that can be placed across the fretboard on a ukulele to raise the pitch of the strings. If you are playing something in C major and it is a bit low for your singing voice, a capo across the second fret will raise it to D major without you having to do anything like transposing<sup>7</sup> in your head or learning new chords.

The capo is usually a nicely worked piece of metal with a good spring in it. There is a typical capo pictured on the right. In desperation a few years ago I used a pencil and two fat rubber bands. It worked.

The capo works pretty well up to the 3<sup>rd</sup> fret on smaller ukuleles and even up to the 4<sup>th</sup> or 5<sup>th</sup> fret on tenor ukes. Past that, the frets get a bit close together and getting your fingers into the small space available is difficult.



If you haven't got a capo, get one.

Typing "ukulele capo" into the Amazon search box works well. They cost very little. You can get a very good quality capo for under £10.

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<sup>7</sup> Changing a key

# A Bit of Physics

You can skip this bit if you don't like equations and/or numbers.

Although we remember Pythagoras for his “square on the hypotenuse...” stuff, it was in music that he made (I think) his most important contributions.

Imagine a taut string. Like a ukulele string. Not really that hard to imagine.

Pythagoras proposed that the fundamental frequency ( $f$ ) is inversely proportional to the length ( $L$ ) of the string.

$$f \propto \frac{1}{L}$$

So (this is what the “inversely proportional” stuff means), if you **halve** the length you will **double** the frequency. Pythagoras also found that the notes that “went well” together were related to simple fractions of the original string. A long time later, Marin Mersenne<sup>8</sup> fleshed this out a lot and gave us three laws that can be combined into one equation.

In Physics-speak and plain English these are:

Physics	Plain English
Frequency is inversely proportional to the length of the string.	The shorter the string the higher the note. Frets help with this idea.
Frequency is proportional to the square root of the stretching force	Tightening up a string will make the note higher. That's a common experience.
Frequency is inversely proportional to the mass of the string per unit length	Fat strings make lower notes than thin strings.

Put these together and you get:

$$f = \frac{1}{2L} \sqrt{\frac{F}{\mu}}$$

Where  $f$  is the lowest frequency (you can get harmonics mixed in),  $L$  is the length,  $F$  is the stretching force and  $\mu$  is the mass per unit length.

Amazing. But pretty obvious.

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<sup>8</sup> “The Father of Acoustics”

# Chords and other Notation

When you get a piece of ukulele music to play it is most usually written with what are called **inline chords**. Throughout this guide, these chords will be in **red**. Just to stand out. The big advantage of inline chords is that you can fit a lot of music on to one page so you don't need to turn pages. We will use inline chords (contained within square brackets)<sup>9</sup> throughout this guide.

The thing about ukulele music like this is that you **really do need to know the song before you play it**. You could put an unknown, unseen piece of music in front of a really good musician and they would be able to play it first time. **That isn't the case with inline chords**.

For example, a line or two from *Rhythm of the Rain* by The Cascades

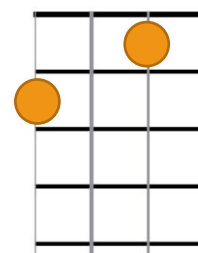
Intro: [C][Am][C][G7]  
[C]Listen to the rhythm of the [F] falling rain  
[C]Telling me just what a fool I've [G7] been  
I [C]wish that it would go and let me [F] cry in vain  
And [C]let me be a-[G7]lone a-[C]gain [G7]

The [C][Am][C][G7] at the start tells you that you have four bars as an introduction. If you know this song, you will know that it is in 4:4 time (four beats to the bar) and that [C][Am][C][G7] will be four beats of [C] followed by four beats of [Am] then the same for another bar of [C] and finally a [G7]. Sixteen beats in total.

One you get to the lyrics you have a [C] on the "L" of "Listen". When songs are written in ukulele style the chords are placed just in front of the words where the chord applies. You will notice "a-[G7]lone a-[C]gain [G7]" in the last line. The [G7] comes in on the "lone". The [C] comes in at "gain".

A **chord** is always a *combination* of notes. The smallest combination of notes is two (and we do see this in 5<sup>th</sup> chords or "power chords" as rock guitarists call them). The 5<sup>th</sup> chords are something of an exception though. Chords are normally *at least* three different notes and a lot of chords have 4+ notes. However, the ukulele has only got four strings so chords having more than four notes are not possible. Chords such as [F#m7add4add9] just don't work on a ukulele. The [F#m7] bit requires four notes (F#, A, C# and E). The **add4** (add the 4<sup>th</sup>) is B and the **add9** (added 9<sup>th</sup>) is a G#. That's six notes for four strings. Not possible, so don't expect to see chords like this.

This book (and this is the last time I'm going to say it) is for **GCEA** tuned ukuleles. So when you see a chord like that on the right you know it is a form of the [F] chord and, in numbers we would describe it as **2010**.



You will regularly come across an exclamation mark after a chord in ukulele sheet music. This is a "splang" or a single strum (often with a bit of extra force).

<sup>9</sup> People use normal brackets (Cm) and curly brackets {Cm} too. I don't.

Sometimes you might see chords which are exactly equivalent (in ukulele terms). For example **[D6]** and **[Bm7]** both contain the same four notes (D, F#, A and B) and, at best, are **inversions**<sup>10</sup> of each other. This gets explained later. There are LOTS of examples of this kind of thing.

Right through this book you will see chord diagrams with dots on them to show you where your fingers go (like the one on the previous page). Where a string is left “open” (i.e. there is no finger pressing down on it at any point) it is assumed to be played. You often see chords like **X232** where the X means “don’t play this string”. To be honest, I can’t be bothered with such things. The uke only has four strings. Play them all! If you want to play a balalaika that’s fine but you are going to need another book.

Meanwhile, let’s return to basics.

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<sup>10</sup> Same notes in a different order. C+E+G has E+G+C and G+E+C as inversions

# Major Keys

Major keys all follow the Do-Re-Mi-Fa-Sol-La-Ti-Do<sup>11</sup> pattern. What key they actually are depends on the pitch of the “Do” (with a long “o” to rhyme with “foe”). You will probably know the “*Do-a deer*” song from *The Sound of Music* with the incomparable Julie Andrews. That’s the usual Western musical scale.

## C Major

The “simplest” key (in that there are no sharp or flat notes) is C major where “Do” is the C note. On a piano this means “just the white notes starting with C”.

C major							
1	2	3	4	5	6	7	8
C	D	E	F	G	A	B	C
Do	Re	Mi	Fa	Sol	La	Ti	Do

You will notice that the 8<sup>th</sup> note is the same as the 1<sup>st</sup> note, only an octave<sup>12</sup> higher.

With each major key comes a set of chords.

A **chord** (we’ve said this already) is a **combination of notes**. The chords in the table below are all **triads** (three notes) apart from **[G7]** which has four notes. Because the key of **[C]** has no sharps or flats, none of these chords have any sharps or flats.

For C major:

C major							
1	2	3	4	5	6	7	8
[C]	[Dm]	[Em]	[F]	[G7]	[Am]	[Bdim]	[C]’

Chord	Notes			
[C]	C	E	G	
[Dm]	D	F	A	
[Em]	E	G	B	
[F]	F	A	C	
[G7]	G	B	D	F
[Am]	A	C	E	
[Bdim]	B	D	F	

The 5<sup>th</sup> chord in the sequence is called the **Dominant**. Although it is quite alright to play the dominant chord “as is”, it is often played as the 7<sup>th</sup> chord. So, **[G]** becomes **[G7]** in a lot of songs in the key of **[C]**.

<sup>11</sup> Sometimes you see “Ti” written as “Te”. Like it matters.

<sup>12</sup> An octave is so named because it is 8 notes higher. There isn’t a “zero” in Music.

This makes the 4<sup>th</sup> chord, **[F]**, the **Sub-Dominant**.

The 6<sup>th</sup> chord, **[Am]**, is the **Relative Minor**.

This same pattern is repeated through all the major keys. Knowing the 4<sup>th</sup>, 5<sup>th</sup> and 6<sup>th</sup> chords in a major key is a big help.

### Other Major Keys

When you start at different notes (to accommodate the range of a singer, for example), there needs to be **sharps** or **flats** introduced to ensure that this Do-Re-Mi... pattern is maintained.

So, sharps and flats...

If you play an D on a GCEA-tuned ukulele you would (probably) be playing the note from the 2<sup>nd</sup> fret on the 3<sup>rd</sup> string. D# would be on the 3<sup>rd</sup> Fret and D<sup>b</sup> would be on the 1<sup>st</sup> Fret. So a sharp **raises** the pitch of the note by one fret and a flat **lowers** the pitch of a note by one fret.

*Just a reminder: In most printed ukulele music the flat sign (b) is normally just a lower case B, **b**. So, instead of B<sup>b</sup>, expect Bb, especially in chords. It works well and is quick to type. The sharp sign, #, is called a "hash" on a keyboard and is in common use (hashtags in Twitter, for example). Throughout this guide we will be using a b for a flat in chords, the <sup>b</sup> symbol for a flat in notes and a # symbol for a sharp wherever.*

For up to five sharps:

Major Keys with Sharps									
Key	Sharps	1	2	3	4	5	6	7	8
<b>G</b>	1	G	A	B	C	D	E	F#	G
<b>D</b>	2	D	E	F#	G	A	B	C#	D
<b>A</b>	3	A	B	C#	D	E	F#	G#	A
<b>E</b>	4	E	F#	G#	A	B	C#	D#	E
<b>B</b>	5	B	C#	D#	E	F#	G#	A#	B

We will be looking at transposing keys later but it should be obvious that rather than play something in B major, playing it in C major is a greatly preferred choice.

The keys that contained flattened notes are (up to four flats) given in the table below:

Major Keys with Flats									
Key	Flats	1	2	3	4	5	6	7	8
<b>F</b>	1	F	G	A	B <sup>b</sup>	C	D	E	F
<b>B<sup>b</sup></b>	2	B <sup>b</sup>	C	D	E <sup>b</sup>	F	G	A	B <sup>b</sup>
<b>E<sup>b</sup></b>	3	E <sup>b</sup>	F	G	A <sup>b</sup>	B <sup>b</sup>	C	D	E <sup>b</sup>
<b>A<sup>b</sup></b>	4	A <sup>b</sup>	B <sup>b</sup>	C	D <sup>b</sup>	E <sup>b</sup>	F	G	A <sup>b</sup>

The same caveats that apply to sharp keys apply to flat keys too. Why play something in A $\flat$  major when A major is just a semitone higher. D $\flat$ ? Try D.

To be honest, the chances of you coming across something in 5 sharps (B major or G $\sharp$  minor) or 4 flats (A $\flat$  major or F minor) are pretty remote, although you do find the odd chord from these keys sneaking in. Different keys are largely there to accommodate different singers or different “moods” and pianists love them, it seems. For a simple little instrument like the ukulele you really need to know only a handful of keys to get away with playing just about anything. Transposing (changing key) comes later in the guide.

The GCEA tuning in means that keys with sharps are normally easier to play than keys with flats. The keys all of the “open” strings (no fingers on the fretboard) are keys with either no flats or sharps, or sharps. This means that uke players tend to like C, G, D and A as keys to play in rather than F, B $\flat$  and E $\flat$ . Players of other instruments (e.g. clarinet) are the total opposite.

In *alphabetical* order (all the playable major keys):

Key	1	2	3	4	5	6	7	8
<b>C</b>	C	D	E	F	G	A	B	C
<b>D<math>\flat</math></b>	D $\flat$	E $\flat$	F	G $\flat$	A $\flat$	B $\flat$	C	D $\flat$
<b>D</b>	D	E	F $\sharp$	G	A	B	C $\sharp$	D
<b>E<math>\flat</math></b>	E $\flat$	F	G	A $\flat$	B $\flat$	C	D	E $\flat$
<b>E</b>	E	F $\sharp$	G $\sharp$	A	B	C $\sharp$	D $\sharp$	E
<b>F</b>	F	G	A	B $\flat$	C	D	E	F
<b>G</b>	G	A	B	C	D	E	F $\sharp$	G
<b>A<math>\flat</math></b>	A $\flat$	B $\flat$	C	D $\flat$	E $\flat$	F	G	A $\flat$
<b>A</b>	A	B	C $\sharp$	D	E	F $\sharp$	G $\sharp$	A
<b>B<math>\flat</math></b>	B $\flat$	C	D	E $\flat$	F	G	A	B
<b>B</b>	B	C $\sharp$	D $\sharp$	E	F $\sharp$	G $\sharp$	A $\sharp$	B

There is a printable version of this table (bigger, easier to read) in the appendices.

There are also some omissions from this table. The key of C $\sharp$  is not there, for example.

Where C has no sharps or flats, C $\sharp$  has everything sharpened. The easiest way to play anything in C $\sharp$  is to put a capo<sup>13</sup> on the first fret and play it in C.

Perhaps even easier is **not** to play anything in the key of C $\sharp$ ! Remember, we are playing ukuleles here not grand pianos. There is nothing to be gained by playing in keys that require very complicated chord shapes and there is, in fact, quite a bit to be lost. Ukes tend to play best with as many open strings as possible and although using barre chords is easy enough, they always give a slightly muted sound compared to the open strings.

<sup>13</sup> Mentioned earlier

# So which chords should you learn?

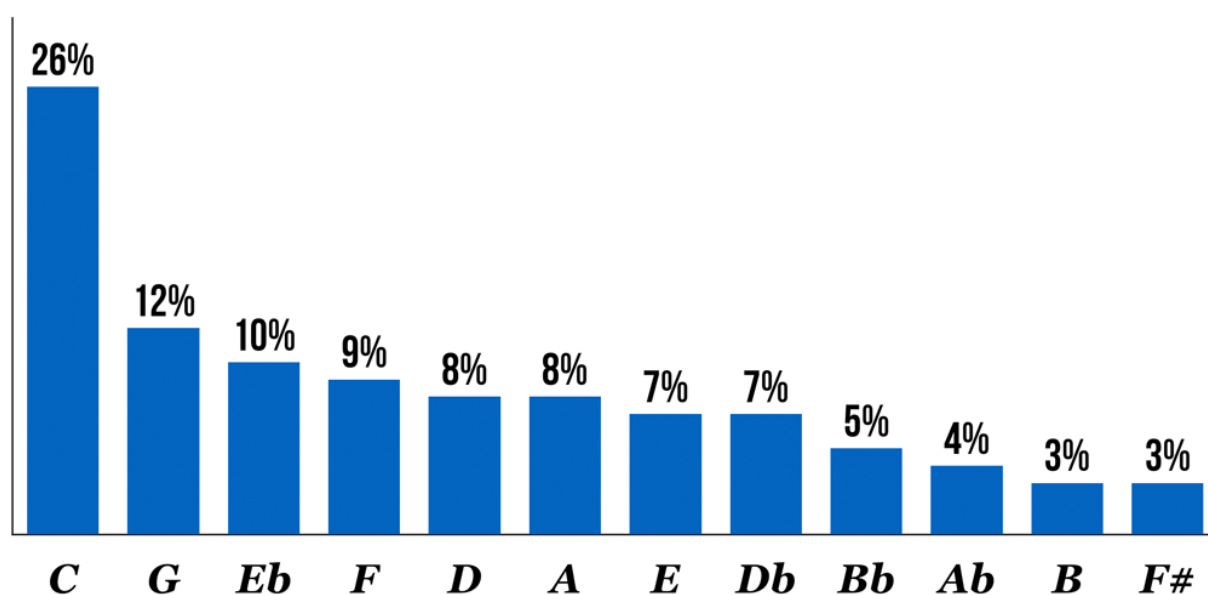
A quick scan through many ukulele books will show you that songs in C major, G major and D major are fairly common. Likewise, songs in F major. The forest of chords tends to thin out a lot beyond this. Moving to A major (three sharps), E major (four sharps) and B major (five sharps) sees a big fall-off in usage. With flats it is even more pronounced. B $\flat$  major (two flats) is rare, E $\flat$  major (three flats) is rarer and A $\flat$  major (four flats) is seldom seen in ukulele music.

To be honest, this makes perfect sense when you consider the strings of either the concert/tenor uke or the baritone uke. CGEA and DGBE contain not a single flattened note.

There is a really interesting blog called The Hooktheory Blog where there has been a pretty massive analysis of chord usage<sup>14</sup>.

The first question to ask is “what key”?

The findings (from 1300 popular songs) are shown in the chart below:



The appearance of E $\flat$  in that list is probably a reflection of the fact that this is a pretty common key on a piano and a lot of orchestral instruments prefer flats to sharps. Incidentally, where it says “C” on that chart, it also includes songs in the relative minor, A minor. Similarly, G contains songs in E minor and so on.

So, if you learn the chords for C, G, F, D, A and E you will have covered 70% of the “popular” songs. Anything that appears in E $\flat$ , play it in E. Anything in D $\flat$ , play it in D. Anything in A $\flat$ , play it in A. That gets you to 91%. More or less everything.

<sup>14</sup> <http://www.hooktheory.com/blog/i-analyzed-the-chords-of-1300-popular-songs-for-patterns-this-is-what-i-found/>



The survey in Hooktheory was carried out on all popular<sup>15</sup> songs written for any instrument. I wondered whether the results for ukulele would be much different so I counted the chords in all the songs in the Ukulele Wednesdays Song Book<sup>16</sup> which contains hundreds of songs. There were well over 7000 chords in this book and the results are unsurprising.

The top 10 chords are (in order): **[G][C][F][D][Am][A][Dm][Em][E7][D7]**  
These ten chords account for nearly 77% of the total.

The next 10 are (in order): **[G7][A7][Bb][Bm][F#m][C7][E][Eb][Em7][B7]**  
This next ten account for nearly 11% of the total number of chords. So together these 20 chords add up to 88% of the chords used.

So, all the **simple chords** in all the keys that you might end up playing things in are:

Key	1	2	3	4	5	6	7
<b>C</b>	<b>[C]</b>	<b>[Dm]</b>	<b>[Em]</b>	<b>[F]</b>	<b>[G7]</b>	<b>[Am]</b>	<b>[Bdim]</b>
<b>D<math>\flat</math></b>	<b>[D<math>\flat</math>]</b>	<b>[Ebm]</b>	<b>[Fm]</b>	<b>[G<math>\flat</math>]</b>	<b>[A<math>\flat</math>7]</b>	<b>[Bbm]</b>	<b>[Cdim]</b>
<b>D</b>	<b>[D]</b>	<b>[Em]</b>	<b>[F#m]</b>	<b>[G]</b>	<b>[A7]</b>	<b>[Bm]</b>	<b>[C#dim]</b>
<b>E<math>\flat</math></b>	<b>[E<math>\flat</math>]</b>	<b>[Fm]</b>	<b>[Gm]</b>	<b>[A<math>\flat</math>]</b>	<b>[B<math>\flat</math>7]</b>	<b>[Cm]</b>	<b>[Ddim]</b>
<b>E</b>	<b>[E]</b>	<b>[F#m]</b>	<b>[G#m]</b>	<b>[A]</b>	<b>[B7]</b>	<b>[C#m]</b>	<b>[D#dim]</b>
<b>F</b>	<b>[F]</b>	<b>[Gm]</b>	<b>[Am]</b>	<b>[B<math>\flat</math>]</b>	<b>[C7]</b>	<b>[Dm]</b>	<b>[Edim]</b>
<b>G</b>	<b>[G]</b>	<b>[Am]</b>	<b>[Bm]</b>	<b>[C]</b>	<b>[D7]</b>	<b>[Em]</b>	<b>[F#dim]</b>
<b>A<math>\flat</math></b>	<b>[A<math>\flat</math>]</b>	<b>[Bbm]</b>	<b>[Cm]</b>	<b>[D<math>\flat</math>]</b>	<b>[E<math>\flat</math>]</b>	<b>[Fm]</b>	<b>[Gdim]</b>
<b>A</b>	<b>[A]</b>	<b>[Bm]</b>	<b>[C#m]</b>	<b>[D]</b>	<b>[E7]</b>	<b>[F#m]</b>	<b>[G#dim]</b>
<b>B<math>\flat</math></b>	<b>[B<math>\flat</math>]</b>	<b>[Cm]</b>	<b>[Dm]</b>	<b>[E<math>\flat</math>]</b>	<b>[F7]</b>	<b>[Gm]</b>	<b>[Adim]</b>
<b>B</b>	<b>[B]</b>	<b>[C#m]</b>	<b>[D#m]</b>	<b>[E]</b>	<b>[F#7]</b>	<b>[G#m]</b>	<b>[A#dim]</b>

The common chords from my survey are in **bold**.

Some chords appear in several lists (that's why there are more than 20 chords highlighted) so it is not the case that the number of simple chords you need to know is the number of chords in the table. **[C]** for example appears as the **tonic chord** in C, and the **sub-dominant** (4<sup>th</sup> chord) in G. The chord of **[Am]** appears as the relative minor (6<sup>th</sup> chord) in C, the 2<sup>nd</sup> chord in G and the 3<sup>rd</sup> chord in F. The seventh chords in every key listed there are called "diminished" chords<sup>17</sup> and these are (like most of the others) made up from three notes.

<sup>15</sup> Define "popular"!

<sup>16</sup> <https://ukulelewednesdays.com/songbook/>

<sup>17</sup> In music, a diminished triad is a triad consisting of two minor thirds above the root.

## Exercise 2 - Major Keys

Complete the table for the major keys (based on which notes are sharps and flats rather than which notes they begin with – that would have been too easy):

KEY							
	A	B $\flat$	C	D	E $\flat$	F	G
	A	B	C $\sharp$	D	E	F $\sharp$	G
	A	B	C	D	E	F	G
	A	B	C	D	E	F $\sharp$	G
	A	B	C $\sharp$	D	E	F $\sharp$	G $\sharp$
	A $\sharp$	B	C $\sharp$	D $\sharp$	E	F $\sharp$	G $\sharp$
	A	B $\flat$	C	D	E	F	G
	A	B	C $\sharp$	D $\sharp$	E	F $\sharp$	G $\sharp$
	A $\flat$	B $\flat$	C	D	E $\flat$	F	G
	A $\flat$	B $\flat$	C	D $\flat$	E $\flat$	F	G
	A $\flat$	B $\flat$	C	D $\flat$	E $\flat$	F	G $\flat$

# Minor Keys

A **minor key** is quite different to a major key.

Let's go back to C major and change it to C minor (notes changed are highlighted):

Key	1	2	3	4	5	6	7	8
<b>C major</b>	C	D	E	F	G	A	B	C
<b>C minor</b>	C	D	E $\flat$	F	G	A $\flat$	B $\flat$	C

You will notice that the 3<sup>rd</sup>, the 6<sup>th</sup> and the 7<sup>th</sup> have all been flattened. You saw exactly the same notes flattened in the key of E $\flat$  major, but they were in a different order.

Another example:

Key	1	2	3	4	5	6	7	8
<b>A major</b>	A	B	C $\sharp$	D	E	F $\sharp$	G $\sharp$	A
<b>A minor</b>	A	B	C	D	E	F	G	A

Again, the 3<sup>rd</sup>, 6<sup>th</sup> and 7<sup>th</sup> have all been flattened changing from C $\sharp$  to C, F $\sharp$  to F and G $\sharp$  to G. You might have noticed that the key of A minor has the same notes in as C major.

Minor scales provide a more complex, often darker and “sadder”, sound than major keys<sup>18</sup>.

Minor keys have different chords associated with them and (here it gets complicated) there are different kinds of minor keys. Let's work through the complications starting with C major.

The **relative minor** for C major is A minor. Neither C major nor A minor have any sharps or flats. So the notes in these two related keys are:

Key	1	2	3	4	5	6	7	8
<b>C major</b>	C	D	E	F	G	A	B	C
<b>A minor</b>	A	B	C	D	E	F	G	A

There are also **harmonic minor scales** where the 7<sup>th</sup> note is **not** flattened. These are actually quite common in popular music. The notes are:

Key	1	2	3	4	5	6	7	8
<b>A min natural</b>	A	B	C	D	E	F	G	A
<b>A min harmonic</b>	A	B	C	D	E	F	G $\sharp$	A

This use of the G $\sharp$  in A minor (harmonic) sounds “right” and lets us use [E7] to go with [Am] in songs.

There is another type of minor scale called the “melodic” and this is different going up and coming down. Hard to believe...

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<sup>18</sup> The “meanings” of all the different keys are given in Appendix 1

Going “up”, only the 3<sup>rd</sup> is flattened.  
Coming “down” you get a flattened 3<sup>rd</sup> 6<sup>th</sup> and 7<sup>th</sup>.

None of this affects chords too much so let’s move on....

The most common melodic minor keys are shown below:

Key	Sharps/Flats	Relative Major
<b>A minor</b>	None	C major
<b>E minor</b>	F#	G major
<b>B minor</b>	F# C#	D major
<b>F# minor</b>	F# C# G#	A major
<b>D minor</b>	Bb	F major
<b>G minor</b>	Bb Eb	Bb major
<b>C minor</b>	Bb Eb Ab	Eb major

There is no point in getting hung up on minor keys (in whatever form) when you are dealing with inline chords and a ukulele. You just need to know they are there and sound different to a major key.

# Chords

A chord is formed from two or more notes being played together or (in an arpeggio) slightly apart or “spread out”. The ukulele has four strings so the maximum number of notes that can be played together simultaneously is (obviously) four.

A good proportion of ukulele players put their fingers in a particular position (for a chord that they know) and strum away. They know, for example, that the chord **[C]** is **0003**. Knowing that the fingers in these positions results in a **[C]** chord **may** be enough.

But it may not be.

It depends on where you want to be on the Venn diagram from a few pages back.

It is fine knowing that **0232** is a **[G]**, but why is **[G7] 0212**? Why is **[Dm] 2210**? Why is...? The questions mount up quickly.

Let's have another look at an earlier table with only the popular keys left in it:

Key	1	2	3	4	5	6	7	8
<b>C</b>	C	D	E	F	G	A	B	C
<b>D</b>	D	E	F#	G	A	B	C#	D
<b>E</b>	E	F#	G#	A	B	C#	D#	E
<b>F</b>	F	G	A	Bb	C	D	E	F
<b>G</b>	G	A	B	C	D	E	F#	G
<b>A</b>	A	B	C#	D	E	F#	G#	A

Get used to counting from the tonic note (the first one).

We'll be using this table a lot.

When we build chords we always adopt the same “formula” or combination of notes in that key. So, for example, when we build a “major” chord (such as **[C]** or **[G]** or **[D]**) we use the 1<sup>st</sup>, 3<sup>rd</sup> and 5<sup>th</sup> notes in the scale. This formula for a major chord works across every key. The notes are always different but the **gaps** between the notes are always the **same**. The chord of **[C]** is C+E+G and the chord of **[G]** is G+B+D but in each case the 1<sup>st</sup> note is combined with the 3<sup>rd</sup> and the 5<sup>th</sup>.

The same is true for minor chords where the formula is 1<sup>st</sup>, flattened 3<sup>rd</sup> and 5<sup>th</sup>. So we get **[Am]** with A+C+E and **[Bm]** with B+D+F#. Different notes but the same underlying combination of 1<sup>st</sup>, flattened 3<sup>rd</sup> and 5<sup>th</sup>.

The next table shows the different formulae used to make up all the chords you are likely to come across in playing the ukulele.

## Building Chords<sup>19</sup>:

Chord	Example	Root	Other notes		
<b>major</b>	<b>[C]</b>	<b>1</b>	<b>3</b>	<b>5</b>	
<b>minor</b>	<b>[Cm]</b>	<b>1</b>	<b>b3</b>	<b>5</b>	
<b>7<sup>th</sup></b>	<b>[C7]</b>	<b>1</b>	<b>3</b>	<b>5</b>	<b>b7</b>
<b>minor 7<sup>th</sup></b>	<b>[Cm7]</b>	<b>1</b>	<b>b3</b>	<b>5</b>	<b>b7</b>
major 7 <sup>th</sup>	[Cmaj7]	1	3	5	7
diminished	[Cdim] or [C°]	1	b3	b5	
diminished 7 <sup>th</sup>	[Cdim7] or [C°7]	1	b3	b5	bb7
augmented	[Caug] or [C+]	1	3	#5	
6 <sup>th</sup>	[C6]	1	3	5	6
suspended 4 <sup>th</sup>	[Csus4]	1	4	5	
suspended 2 <sup>nd</sup>	[Csus2]	1	2	5	
added 9 <sup>th</sup>	[Cadd9]	1	3	5	9
minor 6 <sup>th</sup>	[Cm6]	1	b3	5	6
7 <sup>th</sup> suspended 4 <sup>th</sup>	[C7sus4]	1	4	5	7

The really important chords are highlighted in bold across their rows. You may be surprised to see the 6<sup>th</sup> chord not in bold. Are they not common? Well, yes, but every 6<sup>th</sup> chord is *also* a minor 7<sup>th</sup> chord on a ukulele. [C6] ≡ [Am7], [G6] ≡ [Em7] and so on<sup>20</sup>.

Another thing that you might have noticed the diminished 7<sup>th</sup> entry. This is an interesting one. There looks to be a typing mistake: bb7. There may be many typing mistakes in this book, but this isn't one of them. It turns out that a LOT of ukulele chord sheets have their diminished chords wrong! A diminished is 1<sup>st</sup> + b3<sup>rd</sup> + b5<sup>th</sup>. What is nearly *always* shown is a diminished 7<sup>th</sup> and the b7<sup>th</sup> is in fact also extra-flattened, to a doubly-flattened bb7. The diminished 7<sup>th</sup> chord is nearly always easier to play than a straight diminished chord so go for them every time.

There are some additional “exotic” chords which are something of a rarity and we will cover them later. Some have a lovely sound and it would be wrong to leave them out.

<sup>19</sup> There is a bigger version of this in the appendices

<sup>20</sup> ≡ means “equivalent to” rather than “equals”

# Major Chords

All the major chords are triads<sup>21</sup> made up from the same pattern of notes. Not the same notes, the same **pattern** of notes. They all contain the 1<sup>st</sup>, 3<sup>rd</sup> and 5<sup>th</sup> notes in the key.

**Major Chord** = 1<sup>st</sup> + 3<sup>rd</sup> + 5<sup>th</sup>

Translating this into the notes of the common major chords:

Chord	1	3	5
[C]	C	E	G
[D]	D	F#	A
[E]	E	G#	B
[F]	F	A	C
[G]	G	B	D
[A]	A	C#	E

What this tells us is that a [C] chord is made up of a C+E+G.

A [D] chord is D+F#+A and so on.

The major chord is **always** built like this.

For the ukulele, with its four strings, any one of the notes in the major triad could be repeated. Similarly, these notes might not always be in the order 1<sup>st</sup> + 3<sup>rd</sup> + 5<sup>th</sup>. They might be 3<sup>rd</sup> + 1<sup>st</sup> + 5<sup>th</sup> or any other combination. These are called **inversions** and they are really common on a ukulele where getting the notes in the “right order” is sometimes impossible. To be honest, there is no “right order” and you (theoretically) can play any inversion you like. Some inversions require contortion and dislocation of finger joints so these are best avoided.

---

<sup>21</sup> Three notes.

### Exercise 3 - Major Chords

Fill in the table below.

None of the chords are necessarily in the order 1<sup>st</sup> + 3<sup>rd</sup> + 5<sup>th</sup> so there are a lot of inversions here. The good news is that there are only major chords here. The bad news is that some chords appear twice:

Major Chord			
	E	C	G
	F	A	C
	B $\flat$	D	F
	A $\flat$	E $\flat$	C
	D	B	G
	B $\flat$	E $\flat$	G
	B	E	G $\sharp$
	C	A	F
	D	F $\sharp$	A
	C $\sharp$	E	A
	D	F	A

Hint:

If you put these notes into “scale order” (so E C G becomes C E G for example) it all becomes rather more evident.



# Minor Chords

A major chord just has the letter of the chord within square brackets. So **[C]** means the chord C major. For minor chords we add a small “m” after the tonic note. So the chord of C minor becomes **[Cm]**. Sometimes you will see this as **[Cmin]**.

Not here though.

The only difference between a major chord and a minor chord is that the 3<sup>rd</sup> is flattened in the minor chord. So **[C]** is C+E+G and **[Cm]** is C+E<sup>b</sup>+G. Wherever the 3<sup>rd</sup> is in the chord, it needs to be taken down a fret to give the flattened third.

**Minor Chord = 1<sup>st</sup> + <sup>b</sup>3<sup>rd</sup> + 5<sup>th</sup>**

The notes in the common minor chords are thus:

Chord	1	<sup>b</sup> 3	5
<b>[Cm]</b>	C	E <sup>b</sup>	G
<b>[Dm]</b>	D	F	A
<b>[Em]</b>	E	G	B
<b>[Fm]</b>	F	A <sup>b</sup>	C
<b>[Gm]</b>	G	B <sup>b</sup>	D
<b>[Am]</b>	A	C	E

Minor chords always sound a little sad. To be honest, that is probably the easiest way to spot them. Our ears are good at “happy” and “sad” sounds.

Sometimes it is easy to spot that a minor chord has been formed. Think of the **[D]** chord, **2220**. In terms of the notes, that is A D F# A. The 3<sup>rd</sup> note in the key of D is F#, so **[Dm]** would have an F instead of the F#. So that **2** on the second string would become a **1** and the whole chord would be **2210**. Major to minor.

## Exercise 4 - Minor Chords

Fill in the table below.

None of the chords are necessarily in the order 1<sup>st</sup> + b3<sup>rd</sup> + 5<sup>th</sup> so there are a lot of inversions here. The good news is that there are only major chords here. The bad news is that some chords appear twice:

Minor Chord			
	E $\flat$	C	G
	F	A $\flat$	C
	B	D	F $\sharp$
	A	E	C
	D	B	F $\sharp$
	B $\flat$	E $\flat$	G $\flat$
	D $\sharp$	B	G $\sharp$
	C	A $\flat$	F
	C $\sharp$	F $\sharp$	A
	C $\sharp$	E	G $\sharp$
	F	A $\flat$	C
	A	C $\sharp$	E

Hint:

If you put these notes into "scale order" (so C E A becomes A C E for example) it all becomes rather more evident.

# 7<sup>th</sup> Chords

The 7<sup>th</sup> chords are built around a major triad (1<sup>st</sup>+3<sup>rd</sup>+5<sup>th</sup>) but then they have a fourth note added – a **flattened 7<sup>th</sup>**. When you are playing a piece of music on the ukulele you always have a choice with 7<sup>th</sup> chords – to play or not to play?

**7<sup>th</sup> Chord** = 1<sup>st</sup> + 3<sup>rd</sup> + 5<sup>th</sup> + b7<sup>th</sup>

To be honest, the number of times you can (for example) get away with playing [G] rather than [G7] is nearly 100%, but let's discuss them here for completeness.

So, the notes in the common 7<sup>th</sup> chords are:

Chord	1	3	5	b7
[C7]	C	E	G	B $\flat$
[D7]	D	F $\sharp$	A	C
[E7]	E	G $\sharp$	B	D
[F7]	F	A	C	E $\flat$
[G7]	G	B	D	F
[A7]	A	C $\sharp$	E	G

This is the first chord where you need all four strings on the uke so it does limit you a bit when it comes to possible inversions of the 7<sup>th</sup> chord. With a chord like [C] you have three notes and four strings. For [C7] you have to put in the extra note (a B $\flat$ ) in the case of [C7] so you are a little more restrained in your choice of finger positions. You don't have the same "degree of freedom".

Again, with ukuleles, there is no real "preferred order" to the notes.

## Exercise 5 - 7<sup>th</sup> Chords

Fill in the table below to add in the 7<sup>th</sup> note that is missing

7 <sup>th</sup> Chord				
<b>[C7]</b>	C	E	G	
<b>[G7]</b>	G	B	D	
<b>[F7]</b>	F	A	C	
<b>[E7]</b>	E	G#	B	
<b>[A7]</b>	A	C#	E	
<b>[Bb7]</b>	B	D	F	
<b>[C#7]</b>	C#	E#*	G#	
<b>[B7]</b>	B	D#	F#	
<b>[Eb7]</b>	E <sub>b</sub>	G	B <sub>b</sub>	
<b>[D7]</b>	D	F#	A	
<b>[G#7]</b>	G#	B#**	D#	
<b>[Db7]</b>	D <sub>b</sub>	F	A <sub>b</sub>	

\* E# is really F but the “context” here is to have E#. There is NO DIFFERENCE on a uke.

\*\* A similar story for B#. It is really C

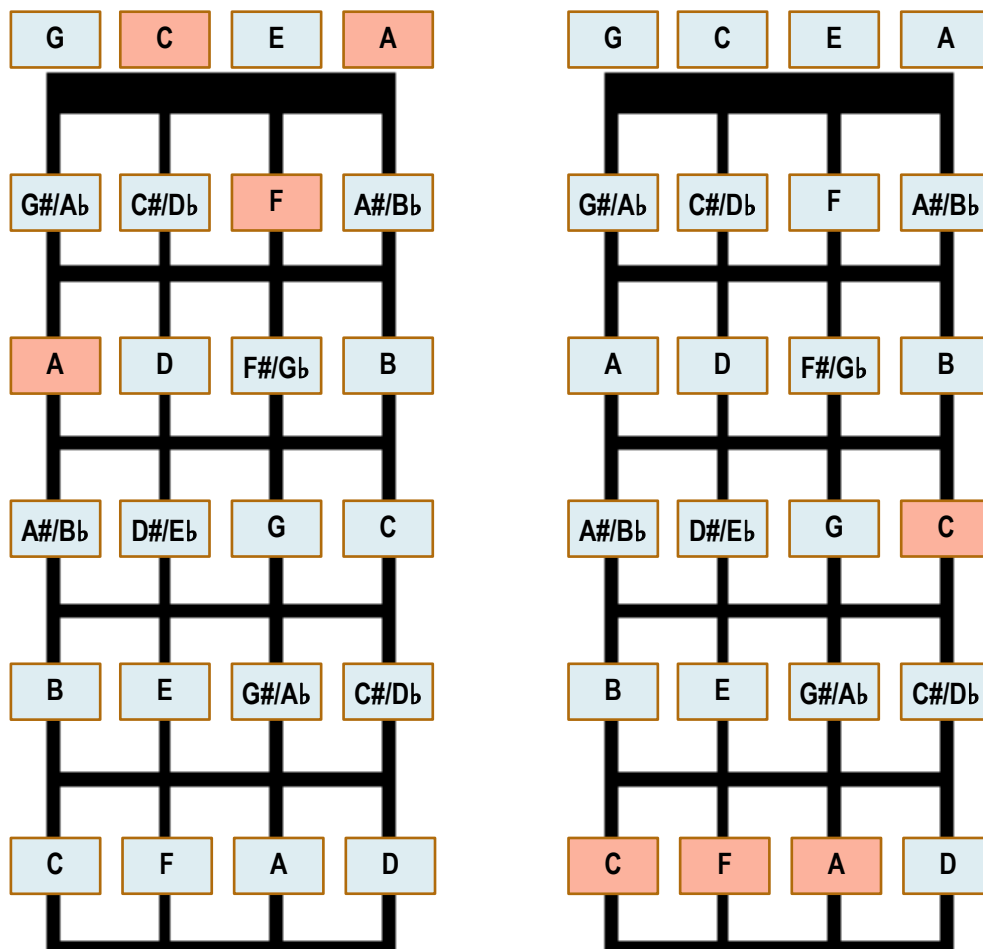
# Inversions

We are going to take a short break from building chords via their formulae to look at how these chords translate on to the frets of a ukulele.

Consider the chord of **[F]**. It can contain the notes F, A and C. Anything else and it is a different chord! However, there is no requirement that the notes be in that ascending order. Where you have notes in a different order the chord is said to be an inversion.

The way that ukuleles work means that inversions are really common.

On the two diagrams below the fretboard (up to the 5<sup>th</sup> fret) of the GCEA-tuned ukes are shown two inversions of the **[F]** chord:

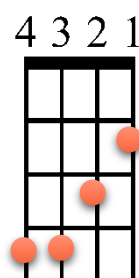
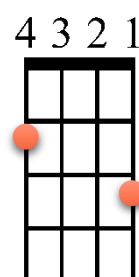
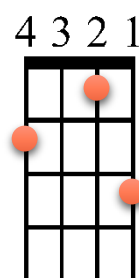
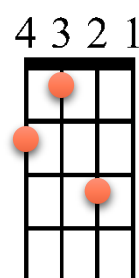
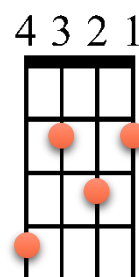
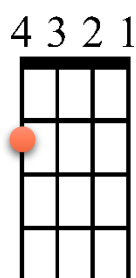
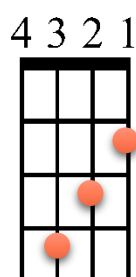
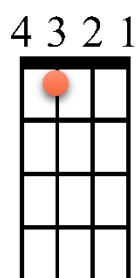
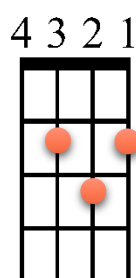
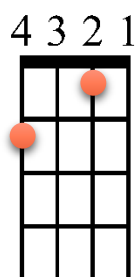


The inversion on the left (and probably the most common way of playing an **[F]** on the standard uke) has four notes in the order ACFA. The inversion on the right has notes in the order CFAC. Both are **[F]** chords. The uke is fairly adaptable to handling inversions and we will mention the occurrence of inversions only rarely from now on.

It is worth pointing out and reiterating the fact that these two shapes contain *just* the notes F A and C; no others.

## Exercise 6 - Inversions of Common Chords

There are two sets of chords in two columns. Draw and label lines between the chords that are inversions of one another. One has been done for you. Any string without a dot is assumed to be open.



Inversions of [F]

# Minor 7<sup>th</sup> Chords

The minor 7<sup>th</sup> chords are built around a minor triad (1<sup>st</sup>+b3<sup>rd</sup>+5<sup>th</sup>) but then they have a fourth note added – a flattened 7<sup>th</sup> added in. They are quite a common sight in ukulele music.

**Minor 7<sup>th</sup> Chord = 1<sup>st</sup> + b3<sup>rd</sup> + 5<sup>th</sup> + b7<sup>th</sup>**

Like 7<sup>th</sup> chords, the number of times you can get away with playing [Am] rather than [Am7] is nearly 100% of the time.

So, the notes for the common minor 7<sup>th</sup> chords are:

Chord	1	b3	5	b7
[Am7]	A	C	E	G
[Bm7]	B	D	F#	A
[Dm7]	D	F	A	C
[Em7]	E	G	B	D
[F#m7]	F#	A	C#	E
[Gm7]	G	Bb	D	F

The eagle eyed amongst you will have spotted something curious about minor 7<sup>th</sup> chords. Every minor 7<sup>th</sup> is, in fact, an inversion of the 6<sup>th</sup> chord of the relative major.

Just so that you have all this in a table:

minor 7 <sup>th</sup>	equivalent 6 <sup>th</sup>	Notes			
[Am7]	[C6]	A	C	E	G
<i>keys with sharps</i>					
[Em7]	[G6]	E	G	B	D
[Bm7]	[D6]	B	D	F#	A
[F#m7]	[A6]	F#	A	C#	E
[C#m7]	[E6]	C#	E	G#	B
<i>keys with flats</i>					
[Dm7]	[F6]	D	F	A	C
[Gm7]	[Bb6]	G	Bb	D	F
[Cm7]	[Eb6]	C	Eb	G	Bb
[Fm7]	[Ab6]	F	Ab	C	Eb

## Exercise 7 - Minor 7<sup>th</sup> and Equivalent 6<sup>th</sup> Chords

Fill in the blanks in the table:

Minor 7 <sup>th</sup>	6 <sup>th</sup>	Notes			
[Em7]		G		B	
[Dm7]			F		A
	[C6]				G
[D#m7]		D#	F#	A#	
	[D6]	F#			B
[Bbm7]		B <sub>b</sub>	D <sub>b</sub>		
	[Gb6]		E <sub>b</sub>	G <sub>b</sub>	



# Major 7<sup>th</sup> Chords

Some of the most beautiful chords, when played as individual notes<sup>22</sup>, sound awful when strummed. I think that the Major 7<sup>th</sup> chords sometimes fall into this category. Most of the chords coming up sound a bit “off” compared to major chords and minor chords (and even 7<sup>th</sup> chords) but they add a lot of colour to a piece of music.

**Major 7<sup>th</sup> Chord = 1<sup>st</sup> + 3<sup>rd</sup> + 5<sup>th</sup> + 7<sup>th</sup>**

The Major 7<sup>th</sup> chords (usually shown, for example, as [Cmaj7] or [Gmaj7] but you might come across them as [CM7]) are composed of the major triad (1<sup>st</sup> + 3<sup>rd</sup> + 5<sup>th</sup>) with a 7<sup>th</sup> added. They differ from the normal 7<sup>th</sup> chords in that the 7<sup>th</sup> is *flattened* there. So, [C7] would be C + E + G + B $\flat$  but [Cmaj7] is C + E + G + B. The proximity of the C and the B makes the chord a little jarring but, at the same time, quite beautiful. These chords have something of a “haunting” sound.

The commonest Major 7<sup>th</sup> chords are:

Chord	Root	3 <sup>rd</sup>	5 <sup>th</sup>	7 <sup>th</sup>
[Cmaj7]	C	E	G	B
[Dmaj7]	D	F#	A	C#
[Fmaj7]	F	A	C	E
[Gmaj7]	G	B	D	F#
[Amaj7]	A	C#	E	G#

Go on YouTube and listen to “*Old Friends*” by Simon and Garfunkel<sup>23</sup>. The opening few lines are alternating major 7<sup>th</sup> chords.

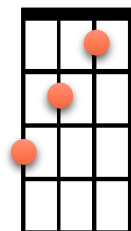
<sup>22</sup> This is called an “arpeggio” and playing like this is “arpeggiated”. It essentially means “spread out”.

<sup>23</sup> <https://www.youtube.com/watch?v=lyWx8bxw0ik>

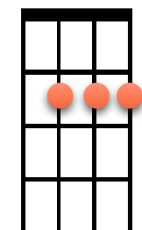
## Exercise 8 - Major 7<sup>th</sup> Chords

Identify these major 7<sup>th</sup> chords from their notes

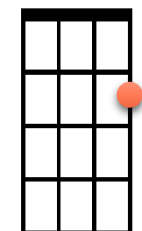
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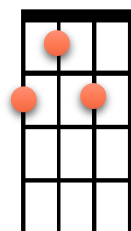
4 3 2 1



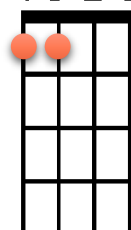
4 3 2 1



4 3 2 1



4 3 2 1



# Diminished and Diminished 7<sup>th</sup> Chords

Just like the maj7 chords in the section before, these chords have something of an off sound but are really beautiful chords when they are in the right sequence. After telling you about diminished chords we can then more or less forget them as the diminished 7<sup>th</sup> chords are so much more useful and accessible.

A diminished chord (often denoted with a “dim” or a “o” sign: [Cdim] or [C<sup>o</sup>]) is really one step further on from a minor chord. You will recall that the minor chord was a triad made up from the 1<sup>st</sup> + b3<sup>rd</sup> + 5<sup>th</sup>. In the diminished chord the 5<sup>th</sup> becomes a flattened 5<sup>th</sup> (b5<sup>th</sup>):

**Dim (°) Chord = 1<sup>st</sup> + b3<sup>rd</sup> + b5<sup>th</sup>**

**Dim 7<sup>th</sup> (°7) Chord = 1<sup>st</sup> + b3<sup>rd</sup> + b5<sup>th</sup> + bb7<sup>th</sup>**

You can see the progression in a table for the chords with an A root:

Chord	Notes		
[A]	A	C#	E
[Am]	A	C	E
[Adim]	A	C	E <sub>b</sub>

Going from the [A] to [Am] is achieved by flattening the 3<sup>rd</sup> and going from [Am] to [Adim] is effected by then flattening the 5<sup>th</sup>.

The trouble with straight diminished chords is that they are often quite tricky to play on a ukulele. Far easier are the **diminished 7<sup>th</sup>** chords. These are (in structure) very similar to the diminished chords but they have a flattened 7<sup>th</sup> note as well.

Taking the table above as an example:

Chord	Notes			
[A]	A	C#	E	
[Am]	A	C	E	
[Adim]	A	C	E <sub>b</sub> (or D#)	
[Adim7]	A	C	E <sub>b</sub> (or D#)	G <sub>b</sub> (or F#)

So the [Adim7] chord contains four **equally spaced** notes. You can see this easily in a line-up of notes starting with A:

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

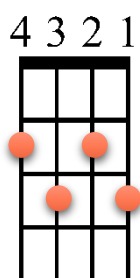
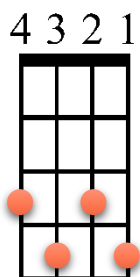
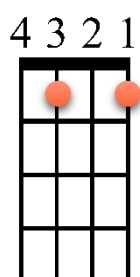
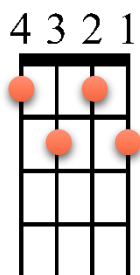
The notes in the **[Adim7]** chord are highlighted. This even spacing means that several chords contain exactly the same notes. In the example above where we looked at **[Adim7]**, the same notes are found in **[Cdim7]**, **[D#dim7]**, **[Ebdim7]**, **[F#dim7]** and **[Gbdim7]**. Six chords for the price of one!

It also means that dim7 chords repeat every four frets. If you play **[C#dim]** as **1212** you can also play it as **4545** and again as **7878**. Awesome.

When you next see a piece of ukulele music with diminished chords in, have a quick check whether it means “diminished” or “diminished 7<sup>th</sup>”. It probably doesn’t matter in all honesty.

## Exercise 9 - Diminished 7<sup>th</sup> Chords

Identify these diminished 7<sup>th</sup> chords from their **lowest** notes AND what other dim7 chord *could* they be:



# Augmented Chords

Just like the diminished and diminished 7<sup>th</sup> chords, these sound slightly jarring but can be really effective in providing a transition through a chord sequence. They are often shown with an “aug” label (e.g. [Caug]) or with a “+” sign (e.g. [C+]). I think the latter is ever so slightly more popular whereas I think “dim” is slightly more popular with diminished chords.

An augmented chord is derived from a major triad but instead of it being 1<sup>st</sup> + 3<sup>rd</sup> + 5<sup>th</sup> the 5<sup>th</sup> is raised half a tone (sharpened).

**Aug (+) Chord = 1<sup>st</sup> + 3<sup>rd</sup> + #5<sup>th</sup>**

Chord	Notes		
[A]	A	C#	E
[A+]	A	C#	E# (F)

A little like the diminished 7<sup>th</sup> chords, this gives a regular spacing along the notes and augmented chords can be called several things without changing your finger positions:

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

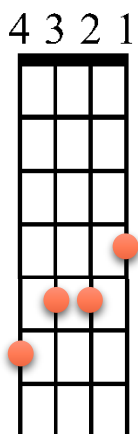
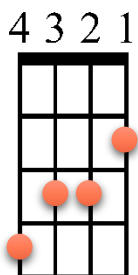
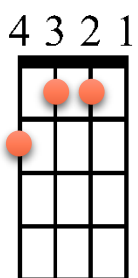
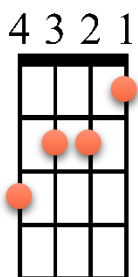
This regularity means that [A+] and [C#+] (and [Db+]) and [F+] are all inversions of one another. This time you get four chords for the price of one.

Augmented chords used to be very popular in Edwardian music hall material but that popularity has waned somewhat.

They do still crop up though.

## Exercise 10 - Augmented Chords

Identify these augmented chords from their **lowest** notes AND what other augmented chord *could* they be:



## 6<sup>th</sup> Chords

To make a 6<sup>th</sup> chord you simply add the 6<sup>th</sup> note to the major triad. We have already come across 6<sup>th</sup> chords in the section on minor 7<sup>th</sup> chords – they are (for all intents and purposes, on a ukulele) identical.

**6<sup>th</sup> Chord** = 1<sup>st</sup> + 3<sup>rd</sup> + 5<sup>th</sup> + 6<sup>th</sup>

Some 6<sup>th</sup> chords are shown below together with the equivalent minor 7<sup>th</sup>.

6 <sup>th</sup> Chord	Root	3 <sup>rd</sup>	5 <sup>th</sup>	6 <sup>th</sup>	minor 7 <sup>th</sup>
[C6]	C	E	G	A	[Am7]
[D6]	D	F#	A	B	[Bm7]
[E6]	E	G#	B	C#	[C#m7]
[F6]	F	A	C	D	[Dm7]
[G6]	G	B	D	E	[Em7]
[A6]	A	C#	E	F#	[F#m7]
[B6]	B	D#	F#	G#	[G#m7]

Note that the equivalent minor 7<sup>th</sup> chord has the same “first name” as the 6<sup>th</sup> note.

Very often, in guitar music, songwriters will add in a bass note that isn't really playable on the ukulele. For example, you might see [C/A] which means “a [C] chord with an A bass note” (basically, **X02010** on a guitar). For something like this [Am7] or [C6] works better on a ukulele.

Sometimes writers use interchangeable chords in the same song. Here are a few lines from *So Long Frank Lloyd Wright* by Paul Simon:

[Dmaj7]So [D7]long, [Bb7]Frank [C]Lloyd [F6]Wright  
[A7]I can't believe your [Dm]song [Dm7]is [F7]gone so [Bbmaj7]soon  
I [Bb]barely learned the [F]tune  
So [Gm]soon [Ebmaj7] [Em7b5]  
So soon

You will notice the [F6] and the [Dm7]. They are, on a ukulele, the same chord.



# Suspended 2<sup>nd</sup> and 4<sup>th</sup> Chords

A suspended chord (sus chord) occurs when the third is **omitted**, and **replaced** with either a 2<sup>nd</sup> or a 4<sup>th</sup>. The suspended 4<sup>th</sup> is much more common. The dissonance between the fourth and fifth or second and root creates “tension”. You always feel that the suspended chord should be going to or leading to something.

**Sus 2<sup>nd</sup> Chord** = 1<sup>st</sup> + 2<sup>nd</sup> + 5<sup>th</sup>

**Sus 4<sup>th</sup> Chord** = 1<sup>st</sup> + 4<sup>th</sup> + 5<sup>th</sup>

The abbreviation for suspended is **sus**, so you will see **[Csus2]** or **[Csus4]** written into the music.

The common **sus 2** chords are:

Chord	Root	2 <sup>nd</sup>	5 <sup>th</sup>
<b>[Csus2]</b>	C	D	G
<b>[Dsus2]</b>	D	E	A
<b>[Fsus2]</b>	F	G	C
<b>[Gsus2]</b>	G	A	D
<b>[Asus2]</b>	A	B	E

The common **sus 4** chords are:

Chord	Root	4 <sup>th</sup>	5 <sup>th</sup>
<b>[Csus4]</b>	C	F	G
<b>[Dsus4]</b>	D	G	A
<b>[Fsus4]</b>	F	B <sup>b</sup>	C
<b>[Gsus4]</b>	G	C	D
<b>[Asus4]</b>	A	D	E

All of the above are suspended **major** chords. What happened to the **minor** chords I hear you ask? Well, the difference between a major chord and a minor chord is the flattened 3<sup>rd</sup> and in a sus2 or a sus4 chord there is no 3<sup>rd</sup> (flattened or otherwise) to worry about. So a chord such as **[Am sus4]** simply doesn't exist as such. **[Asus4]** and “**[Am sus4]**” are identical.

It is relatively common to have a suspended 4th as part of a 7th chord. For example **[G7sus4]** is used quite a lot in the key of C major. The only difference in the composition of this chord is the added <sup>b</sup>7<sup>th</sup>.

An interesting feature of sus4 and sus2 chords is that a sus4 in one key is a sus2 in another. Take **[Dsus4]** as an example. This contains the notes D+G+A (1<sup>st</sup>+4<sup>th</sup>+5<sup>th</sup>). The chord **[Gsus2]** contains G+A+D (1<sup>st</sup>+2<sup>nd</sup>+5<sup>th</sup>). The same notes in a different order. We come across inversions all the time on the ukulele.

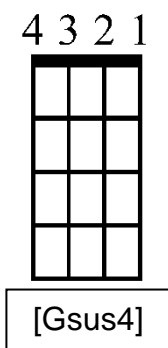
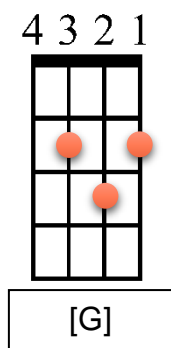
The common sus4/sus2 relationships are given in the table below:

sus4 chord	sus2 chord
<b>[Csus4]</b>	<b>[Fsus2]</b>
<b>[Dsus4]</b>	<b>[Gsus2]</b>
<b>[Esus4]</b>	<b>[Asus2]</b>
<b>[Fsus4]</b>	<b>[Bbsus2]</b>
<b>[Gsus4]</b>	<b>[Csus2]</b>
<b>[Asus4]</b>	<b>[Dsus2]</b>
<b>[Bsus4]</b>	<b>[Esus2]</b>

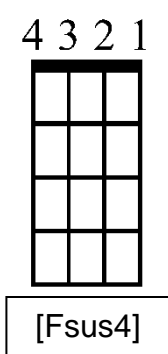
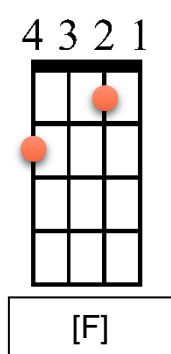
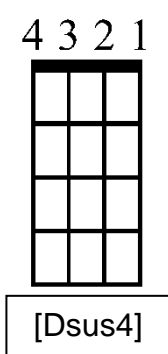
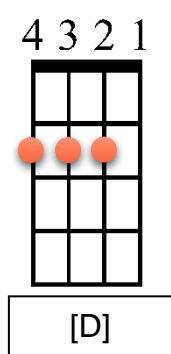
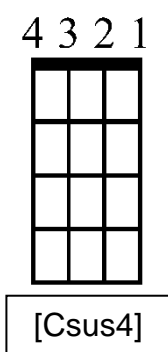
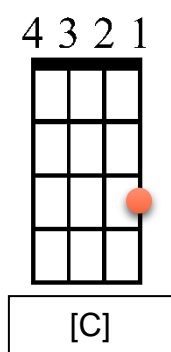
This is a handy one to remember as it saves you learning a lot of new finger positions.

## Exercise 11 - Suspensions

Shown below are several major chords. Use the blank fretboard to their right to draw the suspended 4<sup>th</sup> chord. Then, in the box, write which suspended 2<sup>nd</sup> chord this is equivalent to.



Which sus2?



# Added 9<sup>th</sup> Chords and 9<sup>th</sup> Chords

The added 9<sup>th</sup> chord (e.g. [Cadd9]) and the 9<sup>th</sup> chord (e.g. [C9]) look as though they have a lot in common and, indeed, they have. When you have a lot of strings available (e.g. six on a guitar) there is a real difference between the two. On the four strings of a ukulele, not so much.

For purists:

$$\begin{array}{ll} \text{9<sup>th</sup> Chord} & = 1^{\text{st}} + 3^{\text{rd}} + 5^{\text{th}} + \flat 7^{\text{th}} + 9^{\text{th}} \\ \text{Add 9<sup>th</sup> Chord} & = 1^{\text{st}} + 3^{\text{rd}} + 5^{\text{th}} + 9^{\text{th}} \end{array}$$

You can see the problem with the 9<sup>th</sup> chord straight away. It needs five notes. Five strings required. Only four available.

You can omit the 3<sup>rd</sup> or the 5<sup>th</sup> to add in the  $\flat 7^{\text{th}}$  and the 9<sup>th</sup> – the choice is yours. If it a minor 9<sup>th</sup> you are trying to play you should leave the 5<sup>th</sup> out because the 3<sup>rd</sup> is important in the minor chord. In a major chord it is safe to leave the 3<sup>rd</sup> out.

In guitar music you will also see 11<sup>th</sup> chords and 13<sup>th</sup> chords. These just add to the whole problem! Let's look at all of these "odd number" chords:

$$\begin{array}{ll} \text{7<sup>th</sup> Chord} & = 1^{\text{st}} + 3^{\text{rd}} + 5^{\text{th}} + \flat 7^{\text{th}} \\ \text{9<sup>th</sup> Chord} & = 1^{\text{st}} + 3^{\text{rd}} + 5^{\text{th}} + \flat 7^{\text{th}} + 9^{\text{th}} \\ \text{11<sup>th</sup> Chord} & = 1^{\text{st}} + 3^{\text{rd}} + 5^{\text{th}} + \flat 7^{\text{th}} + 9^{\text{th}} + 11^{\text{th}} \\ \text{13<sup>th</sup> Chord} & = 1^{\text{st}} + 3^{\text{rd}} + 5^{\text{th}} + \flat 7^{\text{th}} + 9^{\text{th}} + 11^{\text{th}} + 13^{\text{th}} \end{array}$$

A full 13<sup>th</sup> chord is made up of seven notes. That is a major triad plus a seventh, ninth, eleventh and the 13th. Since this is impossible to play on a six-string guitar and even more impossible on the ukulele, the fifth and the third are often left out (and sometimes even the root!). For example, C13 consists of the notes C, E, G,  $\flat B$ , D, F and A. This is clearly getting silly. We look for simpler alternatives where possible.

It is worth noting that an added 9<sup>th</sup> will do where a 9<sup>th</sup> is specified, an added 4<sup>th</sup> or a 7<sup>th</sup> with a suspended 4<sup>th</sup> will usually do where an 11<sup>th</sup> is specified and a 6<sup>th</sup> will cover the 13<sup>th</sup> chords.

So in ukulele terms:

$$\begin{array}{ll} \text{7<sup>th</sup> Chord} & = 1^{\text{st}} + 3^{\text{rd}} + 5^{\text{th}} + \flat 7^{\text{th}} \\ \text{"9<sup>th</sup> Chord"} & = 1^{\text{st}} + 3^{\text{rd}} + 5^{\text{th}} + 9^{\text{th}} \\ \text{"11<sup>th</sup> Chord"} & = 1^{\text{st}} + 3^{\text{rd}} + 5^{\text{th}} + 4^{\text{th}} \\ \text{"13<sup>th</sup> Chord"} & = 1^{\text{st}} + 3^{\text{rd}} + 5^{\text{th}} + 6^{\text{th}} \end{array}$$

Better still, avoid altogether.

# Minor 6<sup>th</sup> Chords

The minor 6<sup>th</sup> chord seems to crop up quite a lot and, for all that it contains a certain amount of dissonance, it has its place here.

**Minor 6<sup>th</sup> Chord = 1<sup>st</sup> +  $\flat$ 3<sup>rd</sup> + 5<sup>th</sup> + 6<sup>th</sup>**

So, for something like **[Am6]** we would have the notes A+C+E+F#. It is those last two notes that provide the jarring dissonance of the minor 6<sup>th</sup>.

Sometimes the minor 6<sup>th</sup> can be a chord *en route* to somewhere else. For example, **[Em7]→[Em6]→[C]→[Cmaj7]** where the D in the **[Em7]** runs through C# in the **[Em6]** and the C in **[C]** leading to the B in **[Cmaj7]**. Pretty.

The most common minor 6<sup>th</sup> chords are:

Chord	Root	$\flat$ 3 <sup>rd</sup>	5 <sup>th</sup>	6 <sup>th</sup>
<b>[Am6]</b>	A	C	E	F#
<b>[Bm6]</b>	B	D	F#	G#
<b>[Dm6]</b>	D	F	A	B
<b>[Em6]</b>	E	G	B	C#
<b>[Fm6]</b>	F	A $\flat$	C	D
<b>[F#m6]</b>	F#	A	C#	D#
<b>[Gm6]</b>	G	B $\flat$	D	E

# 5<sup>th</sup> Chords

Every chord we have looked at, so far, has had three or more chords.

Enter the 5<sup>th</sup>!

**5<sup>th</sup> Chord** = 1<sup>st</sup> + 5<sup>th</sup>

A 5<sup>th</sup> chord, like the name suggests has only two notes: the root note and the 5<sup>th</sup>. This makes for a very raw sound but, nevertheless, they get used a lot, especially in rock music where they are given the general title of “power chords”.

There is a place for 5<sup>th</sup> chords on the ukulele too. If you play the four strings of your ukulele with a finger pattern of **0033** you will be playing **[C5]**. In this **[C5]** chord the notes are G+C+G+C and, again, there is no 3<sup>rd</sup> added in.

Similarly if you play the chord shape **0235** you will be playing **[G5]**.

The big advantage of 5<sup>th</sup> chords is that, lacking a 3<sup>rd</sup>, you can play a 5<sup>th</sup> instead of playing a major or a minor. So if you see **[Cm]** coming into view and your fingers just aren't “there”, play **[C5]** and few people will be any the wiser.

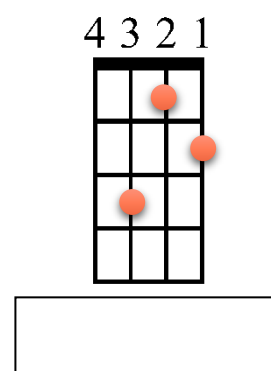
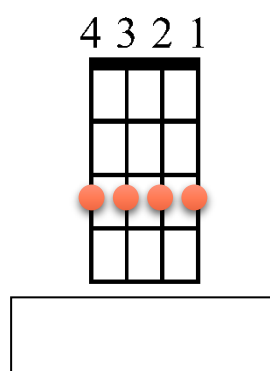
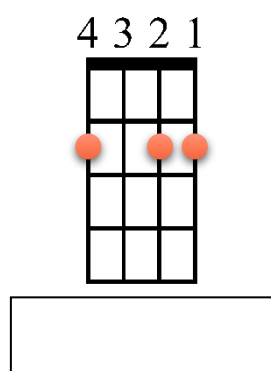
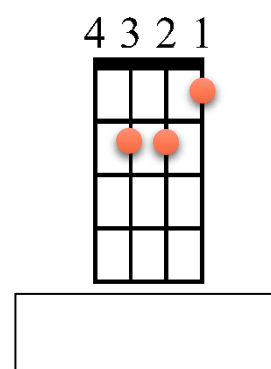
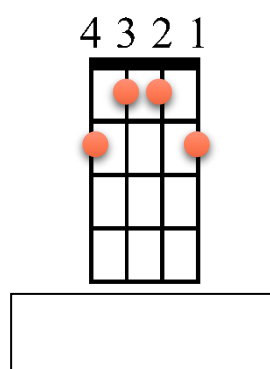
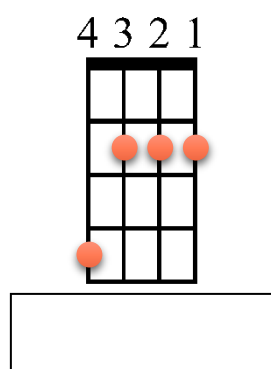
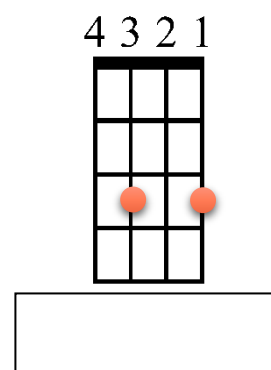
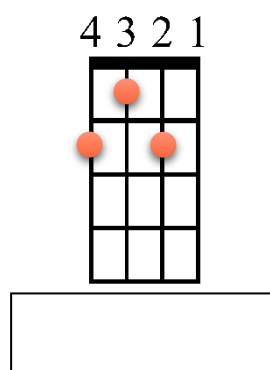
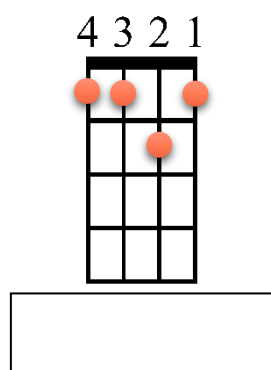
The big disadvantage is that the chord shapes are often quite difficult. **[C5]** and **[G5]** are fine but most of the others are a bit on the tricky side.

I'm assuming that 3<sup>rd</sup> chords also exist where it is just the 1<sup>st</sup> plus 3<sup>rd</sup>. To be honest, I've never seen them.

## Exercise 12 - Rarer Chords

What would you call these chords?

(There may be several correct answers)



# Changing Key

Most of the time, we ukulele players are just bashing out someone else's music, but there will come a point where the key it is written in is simply not suitable for you voice (or that of your singer, if not you). This is where you need to be able to change key. If you need to go **up** a little you can always use your capo, but there are times when even this will not do and a capo is no use at all if you want to go **down** (e.g. when the key a song is written in is simply too high for your voice).

Changing key is known as transposing.

If you have your ukulele music in an editable format (e.g. Word on a PC or Pages on a Mac) you can change it within the software. Be careful when you are doing this. Imagine transposing from C major to G major. If you are changing all the [C] chords to [G] you may already have some [G] chords in the song. So when you change them to [D], all the ex-[C] chords change as well. Utter chaos!

What I do (because I always use [ ] square brackets for chords) is to change the right-hand bracket to a curly bracket so that my chords look like [ ]. This means that I can transpose the chords and change the curly bracket back to a square bracket as I do so. Unchanged chords will have a curly bracket in there and be relatively easy to spot.

If you are changing key on the fly as you play it gets a little harder. Most of us can go up or down (a little harder) a key (C → D or G → F for example) but it usually pays to scribble the new chords on to the music rather than overload an old brain when it is already busy.

Use the tables below to help you transpose:

C major	[C]	[Dm]	[Em]	[F]	[G7]	[Am]	[Bb]	[D]
G major	[G]	[Am]	[Bm]	[C]	[D7]	[Em]	[F]	[A]

C major	[C]	[Dm]	[Em]	[F]	[G7]	[Am]	[Bb]	[D]
F major	[F]	[Gm]	[Am]	[Bb]	[C7]	[Dm]	[Eb]	[G]

D major	[D]	[Em]	[F#m]	[G]	[A7]	[Bm]	[C]	[E]
G major	[G]	[Am]	[Bm]	[C]	[D7]	[Em]	[F]	[A]

D major	[D]	[Em]	[F#m]	[G]	[A7]	[Bm]	[C]	[E]
F major	[F]	[Gm]	[Am]	[Bb]	[C7]	[Dm]	[Eb]	[G]



## Exercise 13 - Transposition Practice

Transpose this 60's classic from D major back down to C major.

### Different Drum

Mike Nesmith (recorded by the Stone Poneys and others)

Intro: [D][F#m][G][A] [D][F#m][G][A]

[D]You and [F#m]I [G]travel to the [A]beat of a [D]different [F#m]drum  
Oh [G]can't you [A]tell by the [D]way I [F#m]run  
[G]Evertime [A]you make eyes [D]at [F#m]me [G]woah [A]ohh---

[D]You cry[F#m] and [G]moan and say [A]it will [D]work out [F#m]  
But [G]honey child [A] I've [D]got my doubts [F#m]  
You [G]can't see the forest for the [A]trees

Oh! [G]Don't get me wrong it's not that I'm knockin'  
It's [A]just that I'm not in the market  
For a [G]girl who wants to [A]love only [D]me [D7]  
Yes and [G]I ain't saying [A]you ain't pretty  
[D]All I'm [F#m]sayin's [Em7]I'm not [D]ready  
For [E7]any person, place or thing  
To [Em7]try and pull the reins in on [A7]me

So [D]Goodbye[F#m] [G]I'll be [A]leavin' I [D]see no sense [F#m]  
In this [G]cry-in' and [A]grievin'  
We'll both [D]live a lot [F#m]longer [G]if you [A7]live with[D]out me [F#m][G][A]

Instrumental : [D][F#m][G][A] [D][F#m][G][A]

Oh! [G]Don't get me wrong it's not that I'm knockin'  
It's [A]just that I'm not in the market  
For a [G]girl who wants to [A]love only [D]me [D7]  
Yes and [G]I ain't saying [A]you ain't pretty  
[D]All I'm [F#m]sayin's [Em7]I'm not [D]ready  
For [E7]any person, place or thing  
To [Em7]try and pull the reins in on [A7]me

So [D]Goodbye[F#m] [G]I'll be [A]leavin' I [D]see no sense [F#m]  
In this [G]cry-in' and [A]grievin'  
We'll both [D]live a lot [F#m]longer [G]if you [A7]live with[D]out me [F#m][G][A]

Instrumental: [D][F#m][G][A] [D][F#m][G][A][D]!

**Blank songsheet on the next page**

Put your chords in here

## Different Drum

Mike Nesmith (recorded by the Stone Poneys and others)

Intro: [ ][ ][ ][ ] [ ][ ][ ][ ]

[ ] You and [ ] I [ ] travel to the [ ] beat of a [ ] different [ ] drum  
Oh [ ] can't you [ ] tell by the [ ] way I [ ] run  
[ ] Evertime [ ] you make eyes [ ] at [ ] me [ ] woah [ ] ohh---

[ ] You cry [ ] and [ ] moan and say [ ] it will [ ] work out [ ]  
But [ ] honey child [ ] I've [ ] got my doubts [ ]  
You [ ] can't see the forest for the [ ] trees

Oh! [ ] Don't get me wrong it's not that I'm knockin'  
It's [ ] just that I'm not in the market  
For a [ ] girl who wants to [ ] love only [ ] me [ ]  
Yes and [ ] I ain't saying [ ] you ain't pretty  
[ ] All I'm [ ] sayin's [ ] I'm not [ ] ready  
For [ ] any person, place or thing  
To [ ] try and pull the reins in on [ ] me

So [ ] Goodbye[ ] [ ] I'll be [ ] leavin' I [ ] see no sense [ ]  
In this [ ] cry-in' and [ ] grievin'  
We'll both [ ] live a lot [ ] longer [ ] if you [ ] live with[ ] out me [ ] [ ] [ ]

Instrumental : [ 11 11 11 1 1 11 11 11 1

Oh! [ ] Don't get me wrong it's not that I'm knockin'  
It's [ ] just that I'm not in the market  
For a [ ] girl who wants to [ ] love only [ ] me [ ]  
Yes and [ ] I ain't saying [ ] you ain't pretty  
[ ] All I'm [ ] sayin's [ ] I'm not [ ] ready  
For [ ] any person, place or thing  
To [ ] try and pull the reins in on [ ] me

So [ ] Goodbye[ ] [ ] I'll be [ ] leavin' I [ ] see no sense [ ]  
In this [ ] cry-in' and [ ] grievin'  
We'll both [ ] live a lot [ ] longer [ ] if you [ ] live with[ ] out me [ ] [ ] [ ]

Instrumental: [ 11 11 11 1 1 11 11 11 11 11 ]

# Questionable Chords

Consider the chord **2020**. On a GCEA tuned uke this contains the notes A+C+F#+A which, let's face it, looks like **[D7]**...without an D. Chords which don't contain the root note are always open to question and always need a little explanation as a footnote. It might be better, to be honest, to give them a name which describes them better than "**[D7]** without an D" and, to be honest, **[D7]\*** doesn't do it either.

Armed as we now are with a little knowledge about how chords are constructed we can look at these chords a little closer.

So we know the notes are: A+C+F#+A. The A is clearly the root note (there are two of them!) and the C is a flattened third. We are looking at **[Am]** thus far. The F# is, like the case above, the 6<sup>th</sup> note in A so **2020** is **[Am6]** on a standard uke, not **[D7]** without an D.

Just about any chord with a missing root can be redefined as another chord that might be better named. The chord "**[Cm6]**" appears every so often as **0330** on the standard uke. In notes this is G+E<sub>b</sub>+G+A. There is no C in this **[Cm6]**. Admittedly, all the other notes appear in **[Cm6]** but the lack of a C is, I think, a problem. There root note is a G (it appears twice and is the lowest note as well) so is a **[G]**-something. The A is a suspended 2<sup>nd</sup> (replacing the 3<sup>rd</sup>) and the E<sub>b</sub> (or D# if you like) is a sharpened 5<sup>th</sup>. So **[Gsus2+5]** is probably the right description of the chord. This wouldn't have a C in it anyway. If the chord was re-cast as **5330** it would have a C as the root and would then be **[Cm6]** for sure!

There are plenty of chords like this.

Beware.

# Chords You've Never Seen Before

It happens to us all.

You are bouncing through some piece of music when a few lines further on you see a chord that you have never seen before. This happened to me recently when **[G7+5]** hove into view. It was four lines away so I had time to think. Do I just play **[G7]**? No, that won't do because the 5<sup>th</sup> is part of the **[G7]** chord and it wants me to sharpen the 5<sup>th</sup>. What about **[G+]**? That might do but the 7<sup>th</sup> is missing from that. OK, so what **IS** the 5<sup>th</sup>? G-A-B-C-D. **D is the 5<sup>th</sup>**. So I need a D# (or an E<sup>b</sup> - same thing) rather than a straight D in the **[G7]** chord. **[G7]** is **0212**. The D in that chord is on the 3<sup>rd</sup> string so the chord would need to be **0312**. Gotcha. Put my fingers in the normal **[G7]** position (**0212**) and then use my spare finger to make it **0312**. A few seconds later, danger had passed and my **[G7+5]** had worked. To be honest, **[G+]** would have worked too but I panicked.

There are a few lessons in this. The obvious first is that a quick look at the chords before you start playing is always a good idea. The second is that knowing where the notes are on the fretboard is really helpful. The third is that knowing how chords are put together is a major plus.

A lot of ukulele music already has the chord patterns for standard GCEA-tuned ukes on the page as graphics. But a lot doesn't. Being able to formulate some kind of chord shape that satisfies the music becomes something of a regular occurrence.

When you are confronted with a chord you haven't seen before, try this:

1. The chord will have a first letter ranging from **[A]** to **[G]**. Start with the major chord of this shape and work from there. You may (eventually) find that there is a better inversion of this chord but we can cross that bridge a little later.
2. Is it a minor chord? If so, you need to have a  $\flat 3^{\text{rd}}$ . Start with the letter and move on two letters to the 3<sup>rd</sup>. Identify your 3<sup>rd</sup> and flatten it. **[D]** is **2220** **[Dm]** is **2210**. **[A]** is **2100** **[Am]** is **2000**. **[G]** is **0232** **[Gm]** is **0231**. You can see the 3<sup>rd</sup> getting flattened in each case.
3. What comes after the main instruction? Get ready to count here. You need to know the sharps and flats in the root key. For a **[C]**-based chord it may be **[Csus2]** with the 3<sup>rd</sup> replaced by the 2<sup>nd</sup>, **[Csus4]** with the 3<sup>rd</sup> replaced by the 4<sup>th</sup>, **[Cdim7]** with the 5<sup>th</sup> flattened and a  $\flat 7^{\text{th}}$  added in, **[C5]** with no 3<sup>rd</sup> at all, **[C+]** with a sharpened 5<sup>th</sup>, **[C6]** with a 6<sup>th</sup> added, **[C7]** with a  $\flat 7^{\text{th}}$  added, **[Cmaj7]** with a 7<sup>th</sup> added, **[Cadd9]** with a 9<sup>th</sup> added.
4. Add these additional notes to your shape and you've got yourself a chord. With practice you can do this in about 5 seconds. Earlier on it might take a bit longer.

# How Chords Develop

The next few pages will cover each of the **main**<sup>24</sup> chord families in terms of the structures they contain. Fortunately, the uke only has four notes per chord. There are some chords missing, but not many. The chords are not meant to be a reference collection but to show how the chords are constructed.

Go and buy a book from **[www.halleonard.com](http://www.halleonard.com)** if you want a reference book.

On these pages you can see how the “shapes” (where you put your fingers in other words) change when a new chord forms.

On each page we start off with the major chord in the middle of a page. There are then arrows going to other chord shapes. Each arrow has an “operation” attached. For example, we have to flatten a 3<sup>rd</sup> to change a major chord into a minor chord. This change will be highlighted by an orange dot becoming a green dot. When a chord changes by adding a note (rather than simply changing a note) the addition is shown in blue.

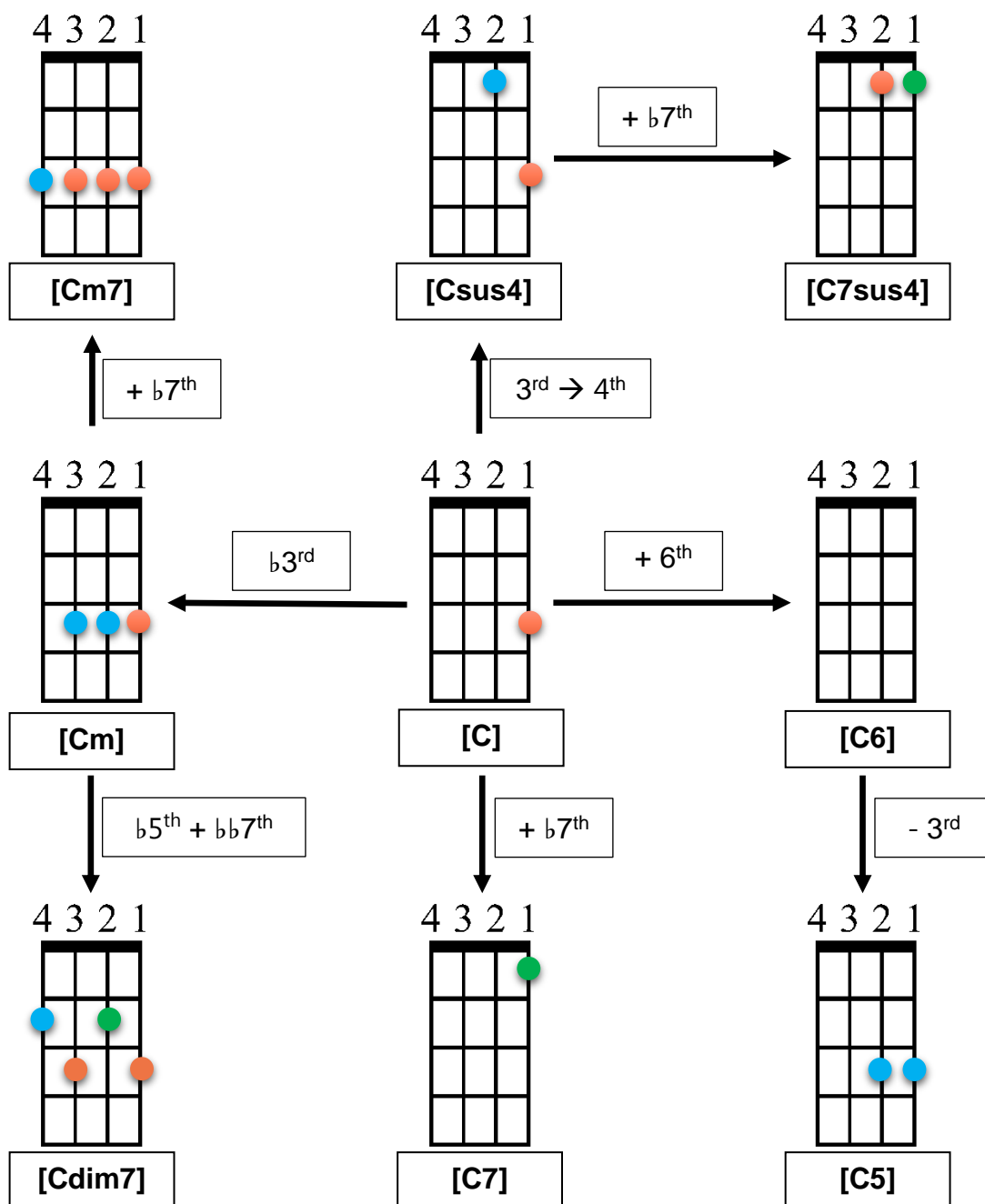
Hopefully you will be able to see how the chords develop. Every diagram is relative to the chord it came from, not the central chord. Only changes and additions are noted by colour changes.

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<sup>24</sup> Some of the “never played chords” are missing

# C Chord Family

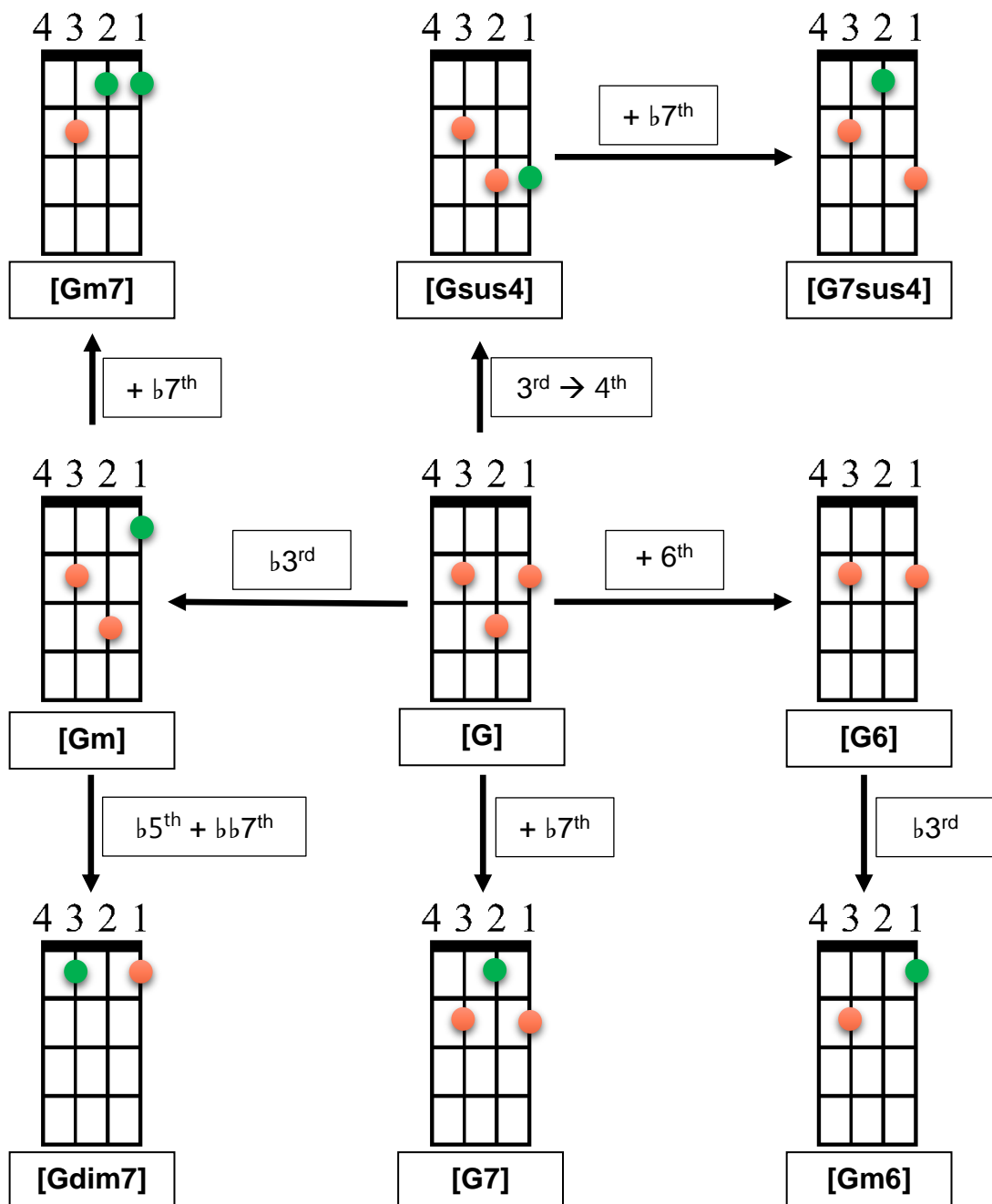
These diagrams show how chord shapes develop. Starting off with **[C]** notes are **changed** (in green) or **added** (in blue) to show how new chords are created from old chords.



Note that the final (bottom right-hand corner) chord here is **[C5]** rather than **[Cm6]** to match the other pages. **[C5]** is such a useful chord that it is well worth inserting here.

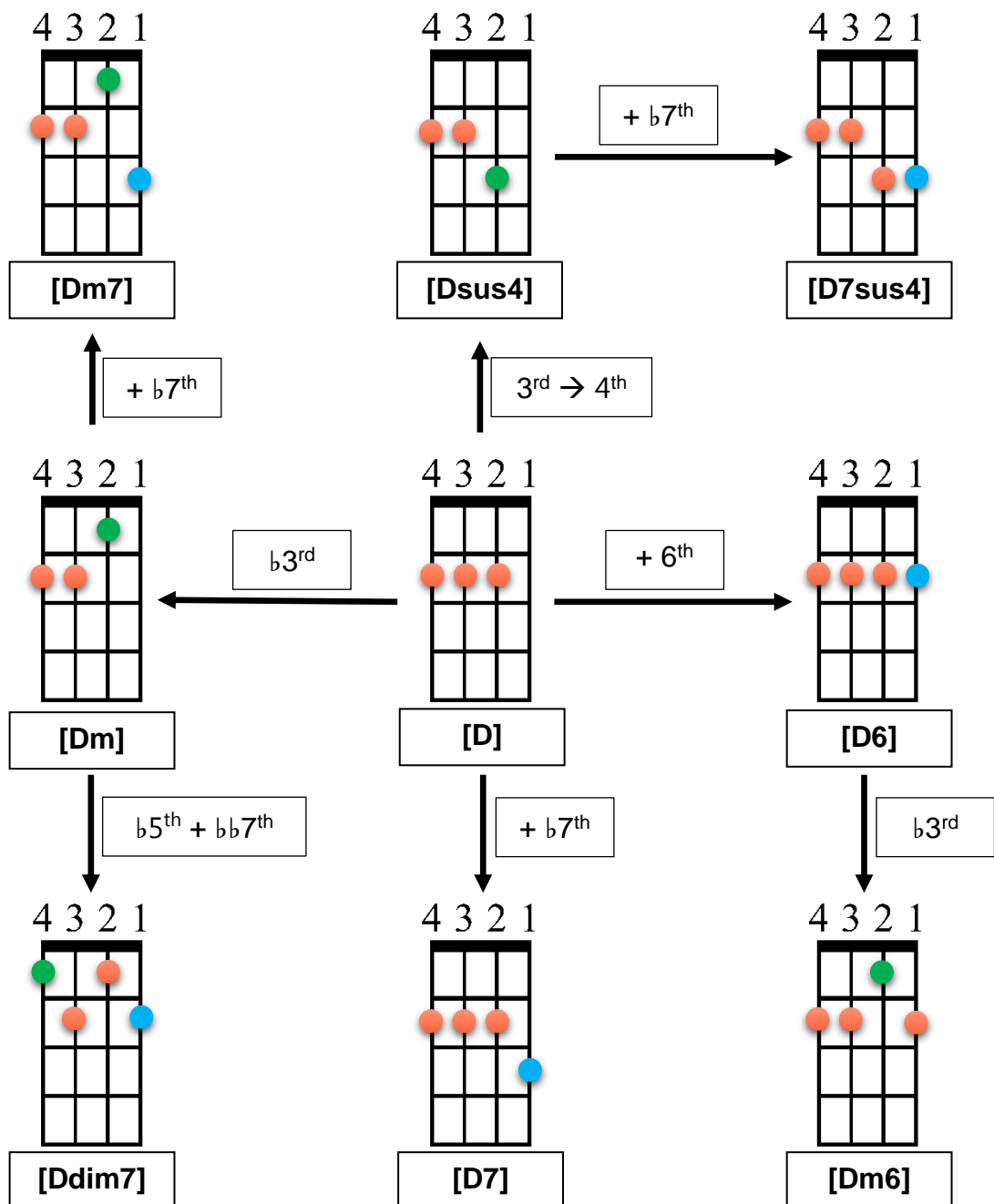
# G Chord Family

These diagrams show how chord shapes develop. Starting off with **[G]** notes are **changed** (in green) or **added** (in blue) to show how new chords are created from old chords.



# D Chord Family

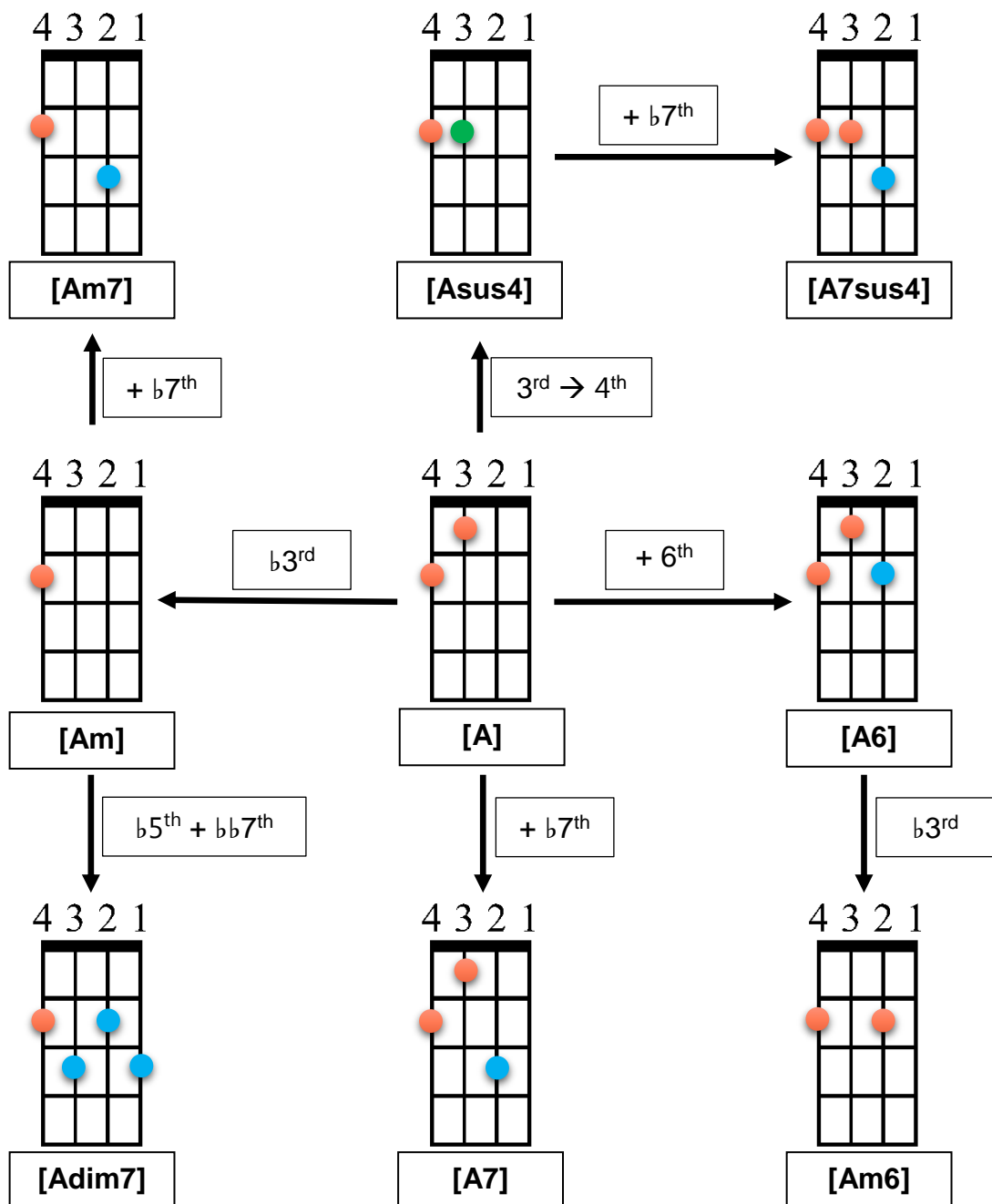
These diagrams show how chord shapes develop. Starting off with **[D]** notes are **changed** (in green) or **added** (in blue) to show how new chords are created from old chords.





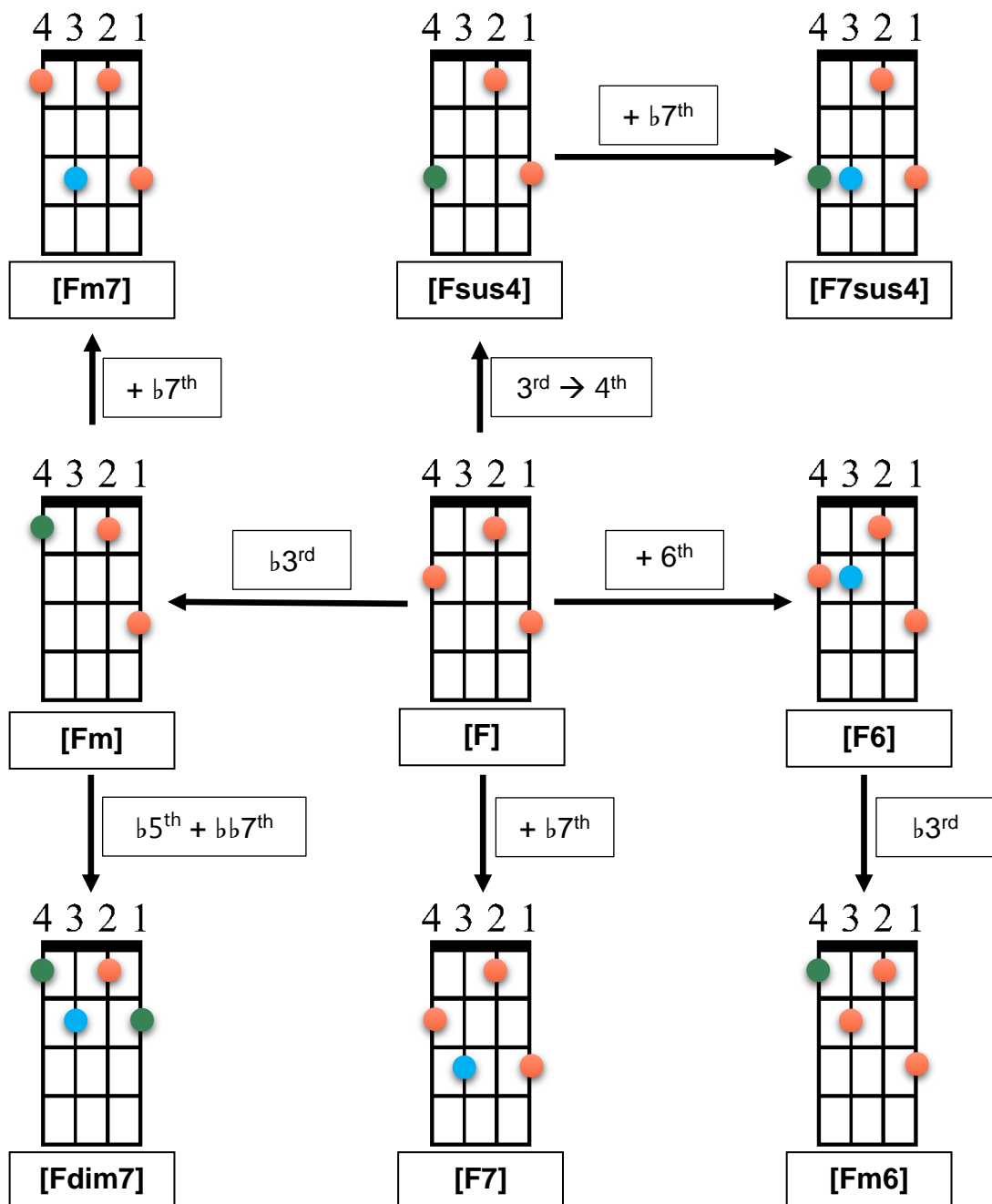
# A Chord Family

These diagrams show how chord shapes develop. Starting off with **[A]**, notes are **changed** (in green) or **added** (in blue) to show how new chords are created from old chords.



# F Chord Family

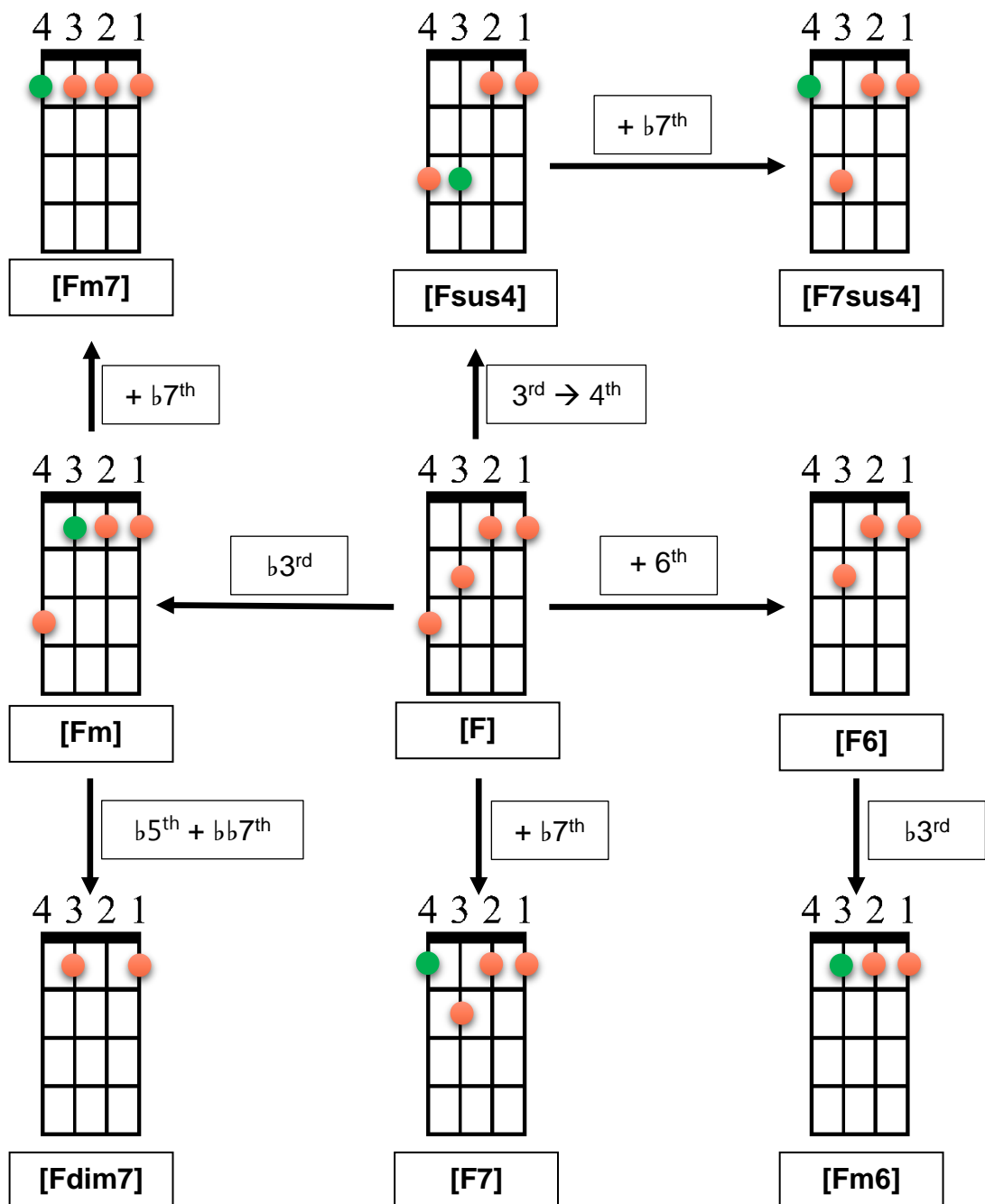
These diagrams show how chord shapes develop. Starting off with **[F]** notes are **changed** (in green) or **added** (in blue) to show how new chords are created from old chords.



The inversion of **[F]** shown in the centre of this page is (in my opinion) better than the **2010** chord that is usually played. It doubles up on the 5<sup>th</sup> rather than doubling up on the 3<sup>rd</sup> and it makes changing chords within C major that bit easier.

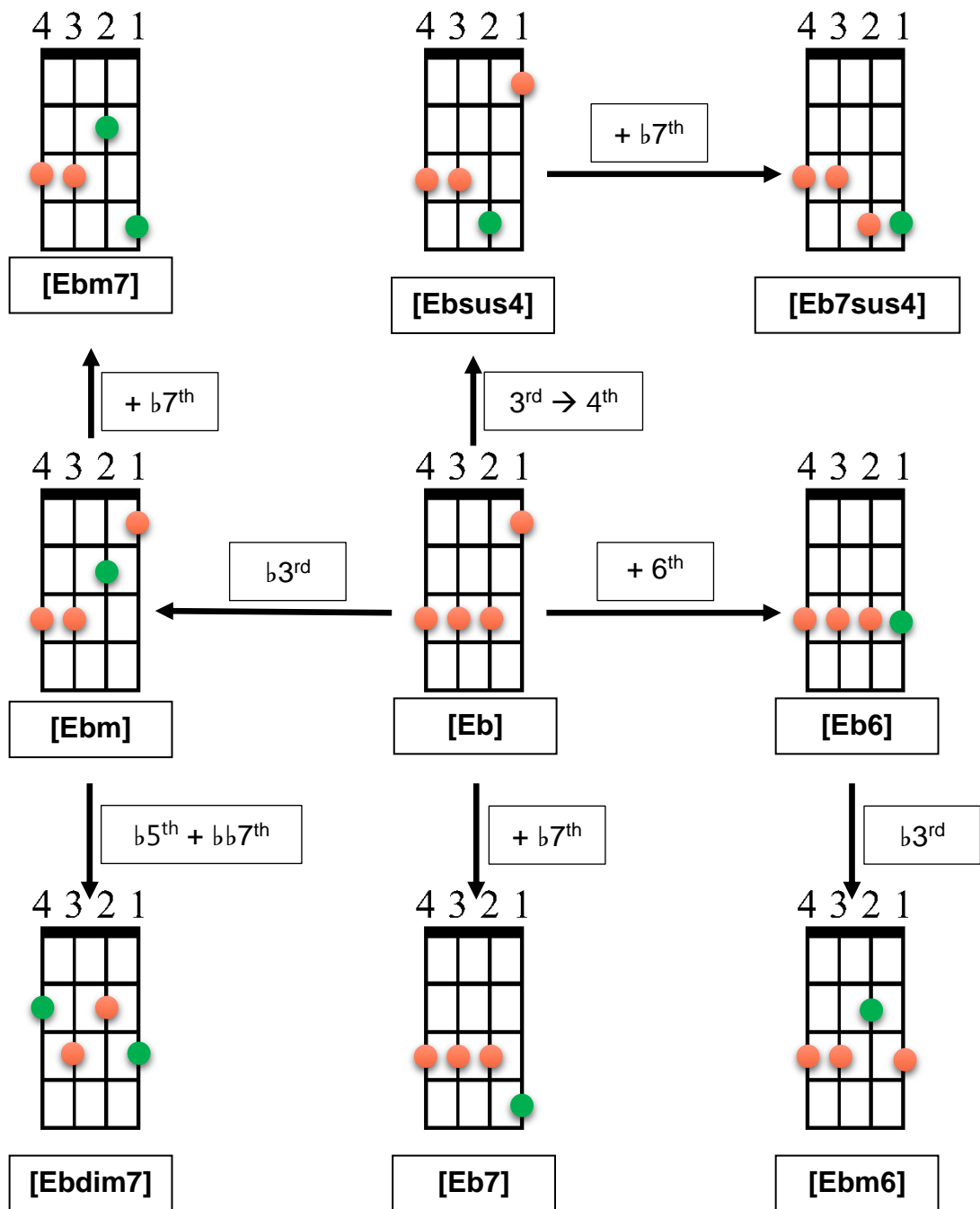
# B $\flat$ Chord Family

These diagrams show how chord shapes develop. Starting off with [B $\flat$ ], notes are **changed** (in green) or **added** (in blue) to show how new chords are created from old chords.



# E<sub>b</sub> Chord Family

These diagrams show how chord shapes develop. Starting off with **[Eb]**, notes are **changed** (in green) or **added** (in blue) to show how new chords are created from old chords.



# Synoptic Questions

1	What might the chord <b>[Em+5]</b> be more commonly written as?	
2	The chord <b>[Fm7]</b> contains the same four notes as which 6 <sup>th</sup> chord?	
3	<b>[Dsus4]</b> might also be written as <b>[Asus2]</b> . True or false?	
4	The chords <b>[Edim]</b> and <b>[Bbdim]</b> are essentially the same. True or false?	
5	The chord <b>[Am sus4]</b> and <b>[Asus4]</b> doesn't exist. Why?	
6	What three notes make up the <b>[Bm]</b> triad?	
7	What four notes make up <b>[D7]</b> ?	
8	Why is a 9 <sup>th</sup> chord unplayable on a ukulele?	
9	Is there a simpler way of expressing <b>[Fm+5]</b> ?	
10	What notes are in the <b>[C5]</b> chord?	
11	Which chord contains F# C# and A?	
12	Which major key has three flats?	
13	What is the relative minor key of D major?	
14	Why do we tend to avoid A $\flat$ as a major key when playing ukulele?	
15	What notes are in <b>[Csus4]</b> ?	
16	What notes are in <b>[Fsus2]</b> ?	
17	What notes are in <b>[E7+5]</b> ?	
18	What is the difference between the chords <b>[Adim]</b> and <b>[Adim7]</b> ?	
19	What notes are in <b>[F+]</b> ?	
20	What is an inversion?	
21	Changing <b>[E]</b> to <b>[Em]</b> requires which note to be flattened?	
22	Changing <b>[E]</b> to <b>[E+]</b> requires which note to be sharpened?	
23	Which major key has B $\flat$ as the only flattened note?	
24	What is the sub-dominant chord of the key of D major?	

25	[G6] and [Em7] are inversions. True or false?	
26	[C][Am][F][G7] transposed to start with [E] would read....?	
27	[G][Em][Bm][Am][D] transposed to start with [C] would read...?	
28	If [C][G][Em][F] chords are played with a capo on the 2 <sup>nd</sup> fret, what are you really playing?	
29	If [F][Dm][Bb][C7] chords are played with a capo on the 1 <sup>st</sup> fret, what are you really playing?	
30	What four notes are used in [Cmaj7]?	
31	What four notes are used in [Dmaj7]?	
32	What four notes are used in [G6]?	
33	Name two major chords that contain an F#.	
34	Name three major chords that contain a G.	
35	Why is it possible to play a [G] when the music says [G7]?	
36	Why is it possible to play an [Ebdim7] when the music says [Adim7]?	
37	What is the difference between [Cadd9] and [C9]?	
38	What is the difference between [Dsus4] and [Dadd4]?	
39	You never see the [Bm sus 4] chord. Why?	
40	[G7sus4] contains which notes?	
41	Which chord contains only E, G# and B?	
42	If a chord is "diminished" what happens to it?	
43	[A5] contains which notes?	
44	[B7] contains which notes?	
45	A piece of music requires you to play [C6] but you play [Am7] by mistake. Will anyone notice?	
46	[G#dim] is 1212. What is an inversion of this chord?	
47	What notes are in [Cm9]?	
48	What notes are in [Em11]?	

# Summary

Well, that's about it.

Hopefully, you can now see where chords come from and be able to react with some confidence when you are faced with a new, never-seen-before chord.

Music Theory is (of course!) a much bigger topic than described here. We haven't even scratched the surface. But the intention was to alert you to the inescapable fact that the ukulele is a musical instrument and follows the same rules and restrictions as any other musical instrument.

Keep watching whatever space you found this book in. There will be more!

Enjoy your ukulele playing.

## Appendices

### Appendix 1: Characteristics of the Different Keys

Christian Friedrich Daniel Schubart (24 March 1739 – 10 October 1791), was a German poet, organist, composer, and journalist. He was repeatedly punished for his writing and spent ten years in severe conditions in jail.

He collected the ideas of many others into “Ideen zu einer Aesthetik der Tonkunst”<sup>25</sup> which was published in 1806. There are many other views/opinions on this but, to be honest, it is largely immaterial in ukulele playing. I just thought you needed this for the next time you do some composing.

C Major	Completely Pure.
C Minor	Declaration of love and at the same time the lament of unhappy love.
Db Major	A leering key, degenerating into grief and rapture.
C# Minor	Penitential lamentation and intimate conversations with God.
D Major	The key of triumph, of Hallejuahs, of war-cries, of victory.
D Minor	Melancholy womanliness, despair.
Eb Major	The key of love, of devotion.
D# Minor	If ghosts could speak, their speech would approximate this key.
E Major	Noisy shouts of joy, laughing pleasure.
E minor	Naive, womanly innocent declaration of love, lament without grumbling.
F Major	Calm.
F Minor	Deep depression and longing for the grave.
F# Major	Triumph over difficulty.
F# Minor	A gloomy key. Resentment and discontent are its language.
G Major	Everything rustic, idyllic and lyrical, every calm and satisfied passion.
G Minor	Discontent, uneasiness, bad-tempered gnashing of teeth.
Ab Major	Key of the grave.
Ab Minor	Heart squeezed until it suffocates
A Major	This key includes declarations of innocent love and satisfaction.
A minor	Pious womanliness and tenderness of character.
Bb Major	Cheerful love, clear conscience, hope for a better world.
Bb minor	Somewhat surly. Mocking God and the world.
B Major	Strongly coloured, announcing wild passions.
B Minor	This is the key of patience, of calm awaiting one's fate.

A load of tosh, to be honest.

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<sup>25</sup> Ideas in the Aesthetics of Music



## Appendix 2: Scales in the Common Keys

Key	1	2	3	4	5	6	7	8
<b>C</b>	C	D	E	F	G	A	B	C
<b>D<sub>b</sub></b>	D <sub>b</sub>	E <sub>b</sub>	F	G <sub>b</sub>	A <sub>b</sub>	B <sub>b</sub>	C	D <sub>b</sub>
<b>D</b>	D	E	F#	G	A	B	C#	D
<b>E<sub>b</sub></b>	E <sub>b</sub>	F	G	A <sub>b</sub>	B <sub>b</sub>	C	D	E <sub>b</sub>
<b>E</b>	E	F#	G#	A	B	C#	D#	E
<b>F</b>	F	G	A	B <sub>b</sub>	C	D	E	F
<b>G</b>	G	A	B	C	D	E	F#	G
<b>A<sub>b</sub></b>	A <sub>b</sub>	B <sub>b</sub>	C	D <sub>b</sub>	E <sub>b</sub>	F	G	A <sub>b</sub>
<b>A</b>	A	B	C#	D	E	F#	G#	A
<b>B<sub>b</sub></b>	B <sub>b</sub>	C	D	E <sub>b</sub>	F	G	A	B
<b>B</b>	B	C#	D#	E	F#	G#	A#	B

### Appendix 3: Chord Builder

Chord	Example	Root	Other notes		
major	[C]	1	3	5	
minor	[Cm]	1	b3	5	
7 <sup>th</sup>	[C7]	1	3	5	b7
major 7 <sup>th</sup>	[Cmaj7]	1	3	5	7
minor 7 <sup>th</sup>	[Cm7]	1	b3	5	b7
diminished	[Cdim] or [C°]	1	b3	b5	
diminished 7 <sup>th</sup>	[Ddim7]	1	b3	b5	bb7
augmented	[Caug] or [C+]	1	3	#5	
6 <sup>th</sup>	[C6]	1	3	5	6
suspended 4 <sup>th</sup>	[Csus4]	1	4	5	
suspended 2 <sup>nd</sup>	[Csus2]	1	2	5	
added 9 <sup>th</sup>	[Cadd9]	1	3	5	9
minor 6 <sup>th</sup>	[Cm6]	1	b3	5	6
7 <sup>th</sup> suspended 4 <sup>th</sup>	[C7sus4]	1	4	5	b7

## Answers to Exercises

### Exercise 1 - Notes

- |                                                |                      |
|------------------------------------------------|----------------------|
| a) 1 <sup>st</sup> string open                 | E                    |
| b) 2 <sup>nd</sup> string open                 | B                    |
| c) 3 <sup>rd</sup> string open                 | G                    |
| d) 4 <sup>th</sup> string open                 | D                    |
| e) 1 <sup>st</sup> string 3 <sup>rd</sup> fret | G                    |
| f) 4 <sup>th</sup> string 2 <sup>nd</sup> fret | E                    |
| g) 2 <sup>nd</sup> string 4 <sup>th</sup> fret | D# or E <sub>b</sub> |
| h) 1 <sup>st</sup> string 5 <sup>th</sup> fret | A                    |
| i) 3 <sup>rd</sup> string 4 <sup>th</sup> fret | B                    |
| j) 2 <sup>nd</sup> string 5 <sup>th</sup> fret | E                    |

### Exercise 2 - Major Keys

KEY							
B <sub>b</sub>	A	B <sub>b</sub>	C	D	E <sub>b</sub>	F	G
D	A	B	C#	D	E	F#	G
C	A	B	C	D	E	F	G
G	A	B	C	D	E	F#	G
A	A	B	C#	D	E	F#	G#
B	A#	B	C#	D#	E	F#	G#
F	A	B <sub>b</sub>	C	D	E	F	G
E	A	B	C#	D#	E	F#	G#
E <sub>b</sub>	A <sub>b</sub>	B <sub>b</sub>	C	D	E <sub>b</sub>	F	G
A <sub>b</sub>	A <sub>b</sub>	B <sub>b</sub>	C	D <sub>b</sub>	E <sub>b</sub>	F	G
D <sub>b</sub>	A <sub>b</sub>	B <sub>b</sub>	C	D <sub>b</sub>	E <sub>b</sub>	F	G <sub>b</sub>

### Exercise 3 - Major Chords

Major Chord			
[C]	E	C	G
[F]	F	A	C
[B <sub>b</sub> ]	B <sub>b</sub>	D	F
[A <sub>b</sub> ]	A <sub>b</sub>	E <sub>b</sub>	C
[G]	D	B	G
[E <sub>b</sub> ]	B <sub>b</sub>	E <sub>b</sub>	G
[E]	B	E	G#
[F]	C	A	F
[D]	D	F#	A
[A]	C#	E	A
[A]	A	C#	E

## Exercise 4 - Minor Chords

Minor Chord			
[Cm]	E $\flat$	C	G
[Fm]	F	A $\flat$	C
[Bm]	B	D	F $\sharp$
[Am]	A	E	C
[Bm]	D	B	F $\sharp$
[Ebm]	B $\flat$	E $\flat$	G $\flat$
[G $\sharp$ m]	D $\sharp$	B	G $\sharp$
[Fm]	C	A $\flat$	F
[F $\sharp$ m]	C $\sharp$	F $\sharp$	A
[C $\sharp$ m]	C $\sharp$	E	G $\sharp$
[Fm]	F	A $\flat$	C
[Dm]	D	F	A

## Exercise 5 - 7th Chords

7 <sup>th</sup> Chord				
[C7]	C	E	G	B $\flat$
[G7]	G	B	D	F
[F7]	F	A	C	E $\flat$
[E7]	E	G $\sharp$	B	D
[A7]	A	C $\sharp$	E	G
[B $\flat$ 7]	B	D	F	A $\flat$
[C $\sharp$ 7]	C $\sharp$	E $\sharp^*$	G $\sharp$	B
[B7]	B	D $\sharp$	F $\sharp$	A
[E $\flat$ 7]	E $\flat$	G	B $\flat$	D $\flat$
[D7]	D	F $\sharp$	A	C
[G $\sharp$ 7]	G $\sharp$	B $\sharp^{**}$	D $\sharp$	F $\sharp$
[D $\flat$ 7]	D $\flat$	F	A $\flat$	C $\flat$ (B $\natural$ )

## Exercise 6 - Inversions of Common Chords

Chord in first column	Links to...
1	3
2	1
3	2
4	5
5	4

## Exercise 7 - Minor 7th and Equivalent 6th Chords

Minor 7 <sup>th</sup>	6 <sup>th</sup>	Notes (can be in any order)			
[Em7]	[G6]	G	D	B	E
[Dm7]	[F6]	C	F	D	A
[Am7]	[C6]	C	E	A	G
[D $\sharp$ m7]	[F $\sharp$ 6]	D $\sharp$	F $\sharp$	A $\sharp$	C $\sharp$
[Bm7]	[D6]	F $\sharp$	D	A	B
[B $\flat$ m7]	[D $\flat$ 6]	B $\flat$	D $\flat$	A $\flat$	F
[Ebm7]	[G $\flat$ 6]	D $\flat$	E $\flat$	G $\flat$	B $\flat$

## Exercise 8 - Major 7th Chords

- 1 [Fmaj7]
- 2 [Dmaj7]
- 3 [Gmaj7]
- 4 [Amaj7]
- 5 [Emaj7]

## Exercise 9 - Diminished 7th Chords

- 1 [D#dim7][Ebdim7][Adim7][Cdim7][F#dim7][Gbdim7]
- 2 [Ddim7][G#dim7][Abdim7][Bdim7][Fdim7]
- 3 [Fdim7][Bdim7][Ddim7][G#dim7][Abdim7]
- 4 [Edim7][Bbdim7][C#dim7][Dbdim7][Gdim7]

## Exercise 10 - Augmented Chords

- 1 [F+][A+][C#+]
- 2 [E+][G#+][Ab+][C+]
- 3 [F#+][A#+][Bb+][D+]
- 4 [G#+][Ab+][C+][E+]

## Exercise 11 - Suspensions

[D]	0232	[Dsus4]	0233	[Gsus2]
[G]	0003	[Gsus4]	0013	[Csus2]
[A]	2220	[Asus4]	2230	[Dsus2]
[C]	2010	[Csus4]	3011	[Fsus2]

## Exercise 12 - Rarer Chords

[C#add9]	[C#m]	[G add Bb]
[F#m]	[G7+5]	[Dm+7]
[A13]	[Gm7] or [Bb6]	[D7+5]

## Exercise 13 - Transposition Practice

### Different Drum

Intro: [C][Em][F][G] [C][Em][F][G]

[C]You and [Em]I [F]travel to the [G]beat of a [C]different [Em]drum  
Oh [F]can't you [G]tell by the [C]way I [Em]run  
[F]Evertime [G]you make eyes [C]at [Em]me [F]woah [G]ohh---

[C]You cry[Em] and [F]moan and say [G]it will [C]work out [Em]  
But [F]honey child [G] I've [C]got my doubts [Em]  
You [F]can't see the forest for the [G]trees

Oh! [F]Don't get me wrong it's not that I'm knockin'  
It's [G]just that I'm not in the market  
For a [F]girl who wants to [G]love only [C]me [C7]  
Yes and [F]I ain't saying [G]you ain't pretty  
[C]All I'm [Em]sayin's [Dm7]I'm not [C]ready  
For [D7]any person, place or thing  
To [Dm7]try and pull the reins in on [G7]me

So [C]Goodbye[Em] [F]I'll be [G]leavin' I [C]see no sense [Em]  
In this [F]cry-in' and [G]grievin'  
We'll both [C]live a lot [Em]longer [F]if you [G7]live with[C]out me [Em][F][G]

Instrumental : [C][Em][F][G] [C][Em][F][G]

Oh! [F]Don't get me wrong it's not that I'm knockin'  
It's [G]just that I'm not in the market  
For a [F]girl who wants to [G]love only [C]me [C7]  
Yes and [F]I ain't saying [G]you ain't pretty  
[C]All I'm [Em]sayin's [Dm7]I'm not [C]ready  
For [D7]any person, place or thing  
To [Dm7]try and pull the reins in on [G7]me

So [C]Goodbye[Em] [F]I'll be [G]leavin' I [C]see no sense [Em]  
In this [F]cry-in' and [G]grievin'  
We'll both [C]live a lot [Em]longer [F]if you [G7]live with[C]out me [Em][F][G]

Instrumental: [C][Em][F][G] [C][Em][F][G][C]!

## Synoptic Questions

1	What might the chord <b>[Em+5]</b> be more commonly written as?	<b>[C]</b>
2	The chord <b>[Fm7]</b> contains the same four notes as which 6 <sup>th</sup> chord?	<b>[Ab6]</b>
3	<b>[Dsus4]</b> might also be written as <b>[Asus2]</b> . True or false?	False. <b>[Gsus2]</b> is true
4	The chords <b>[Edim]</b> and <b>[Bbdim]</b> are essentially the same. True or false?	True
5	The chord <b>[Am sus4]</b> and <b>[Asus4]</b> doesn't exist. Why?	The 3 <sup>rd</sup> is missing
6	What three notes make up the <b>[Bm]</b> triad?	B D F#
7	What four notes make up <b>[D7]</b> ?	D F# A C
8	Why is a 9 <sup>th</sup> chord unplayable on a ukulele?	Not enough strings
9	Is there a simpler way of expressing <b>[Fm+5]</b> ?	<b>[Db]</b>
10	What notes are in the <b>[C5]</b> chord?	C and G
11	Which chord contains F# C# and A?	<b>[F#m]</b>
12	Which major key has three flats?	E $\flat$
13	What is the relative minor key of D major?	B minor
14	Why do we tend to avoid A $\flat$ as a major key when playing ukulele?	4 flats = BAD!
15	What notes are in <b>[Csus4]</b> ?	C F G
16	What notes are in <b>[Fsus2]</b> ?	F G C
17	What notes are in <b>[E7+5]</b> ?	E G# B#(C) D
18	What is the difference between the chords <b>[Adim]</b> and <b>[Adim7]</b> ?	<b>[Adim7]</b> has a $\flat\flat 7$ added (F#)
19	What notes are in <b>[F+]</b> ?	F A C#
20	What is an inversion?	Same notes different order
21	Changing <b>[E]</b> to <b>[Em]</b> requires which note to be flattened?	G# to G
22	Changing <b>[E]</b> to <b>[E+]</b> requires which note to be sharpened?	B to B# (C)
23	Which major key has B $\flat$ as the only flattened note?	F major
24	What is the sub-dominant chord of the key of D major?	<b>[G]</b>

25	[G6] and [Em7] are inversions. True or false?	True
26	[C][Am][F][G7] transposed to start with [E] would read....?	[E][C#m][A][B7]
27	[G][Em][Bm][Am][D] transposed to start with [C] would read...?	[C][Am][Em][G]
28	If [C][G][Em][F] chords are played with a capo on the 2 <sup>nd</sup> fret, what are you really playing?	[D][A][F#m][G]
29	If [F][Dm][Bb][C7] chords are played with a capo on the 1 <sup>st</sup> fret, what are you really playing?	[F#][D#m][B][C#7]
30	What four notes are used in [Cmaj7]?	C E G B
31	What four notes are used in [Dmaj7]?	D A F# C#
32	What four notes are used in [G6]?	G B D E
33	Name two major chords that contain an F#.	[F#] [B] [D]
34	Name three major chords that contain a G.	[G] [C] [Eb]
35	Why is it possible to play a [G] when the music says [G7]?	The 7 <sup>th</sup> is not usually essential
36	Why is it possible to play an [Ebdim7] when the music says [Adim7]?	Same chord
37	What is the difference between [Cadd9] and [C9]?	No B $\flat$ in [Cadd9]
38	What is the difference between [Dsus4] and [Dadd4]?	There is no F# in [Dsus4]
39	You never see the [Bm sus 4] chord. Why?	The b3 <sup>rd</sup> is not there so it is not a minor
40	[G7sus4] contains which notes?	G D C F
41	Which chord contains only E, G# and B?	[E]
42	If a chord is "diminished" what happens to it?	The 3 <sup>rd</sup> and 5 <sup>th</sup> are both flattened
43	[A5] contains which notes?	A and E
44	[B7] contains which notes?	B D#F# A
45	A piece of music requires you to play [C6] but you play [Am7] by mistake. Will anyone notice?	No. Same chord
46	[Ebdim] is 1212. What is an inversion of this chord?	4545
47	What notes are in [Cm9]?	C E $\flat$ G B $\flat$ D
48	What notes are in [Em11]?	E G B D A