Topic 4: More on Chords

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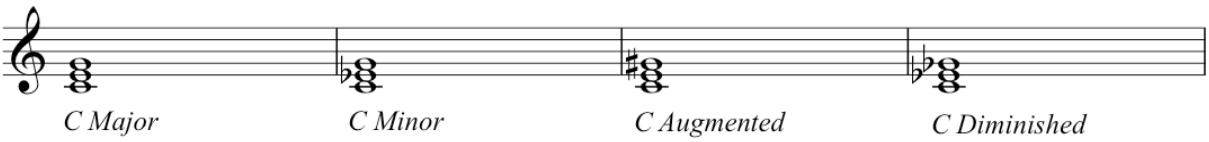
4.1. Listening to Triads

Video: Listening to Triads

Triad Types

As we have noted in this video and in a couple of the previous weeks, a triad is a 3-note chord containing a root, a third and a fifth. The following are all triads:



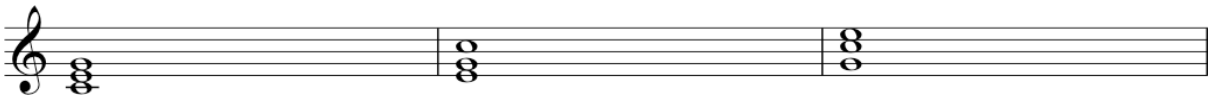
1. The major triad consists of a root (C), a **major** third (E) and a perfect fifth (G).
2. The minor triad consists of a root (C), a **minor** third (E-flat) and a perfect fifth (G).
3. The augmented triad consists of a root (C), a **major** third (E) and an **augmented** fifth (G-sharp) - incidentally, this means the intervals are consecutive *major* thirds.
4. The diminished triad consists of a root C, a **minor** third (E-flat) and a **diminished** fifth (G-flat) - incidentally, this means the intervals are consecutive *minor* thirds.

Inverting Triads

All of the triads above are in root position, that is to say that the root of the chord is the lowest pitch. However, triads do not need to be stacked root, 3rd, 5th from the bottom up, as is shown here. In fact, the notes can appear vertically in any order and still be identified as that same chord. There are conventions for understanding and communicating about this.

What's at stake is the position of the root note of the triad. We refer to this type of re-ordering as the *inversion* of the chord.

Look at the chords below:



As we can see, each chord contains the notes C E and G – but these notes are arranged in different ways in each of the chords. As each chord contains these notes, we can describe them all as C major triads. Actually, the fact that each of these chords differ in the way that the notes are stacked up does affect the sound of the chord and potentially also the ways in which they relate to other chords in a harmonic progression. As such, we need to be able to describe them individually.

1. If a chord has the root note as the lowest pitch then we describe it as being in ROOT POSITION, e.g. C E G, as above.
2. If a chord has the 3rd as the lowest sounding note then we describe it as being in *first inversion*, e.g. E, G C, as above
3. If a chord has the 5th as the lowest sounding note then we describe it as being in *second inversion*, e.g. G, C, E as above

Systems for labelling chords and inversions

This is a topic that we will address again more fully in Topic 5 of this course. But meanwhile, we need some information to use for now! One system that we often use in these videos employs a combination of roman numerals and the Latin letters a, b and c. So, let's take the example of a chord V (the dominant chord, the triad built on scale degree 5).

1. If it's in root position then we could describe it as Va (although in the case of root position chords the 'a' is often tacitly implied.
2. In first inversion, it could be described as Vb.
3. In second inversion it would be described as Vc.

For chords containing more than 3 notes, this system can be expanded. 7th chords, for example, which have four distinct notes can be in third inversion, which would be described as Vd.

ADDITIONAL MATERIAL

Visit Music theory lesson 2 for a nice, animated explanation of chord inversions from musictheory.net.

Transcript of the Video

0:00	In lecture one we saw that it's common to build triads. Just to remind you what a triad is, it's three notes played together. It's the simplest type of chord. So if we take any note. What we're going to do in order to build a triad is, play a note, then miss a note, then play a note, then miss a note. So if we think of a chord built on F, the lowest space on the stave, we're going to play the F, we're going to miss the line G, play an A, miss the line B, and play the note C. So we get our three note chord, using every other note. And when we play the notes stacked up like this. It's the bottom note, it's the first notes there that is the one that sort of sticks out to our ears, generally. Here's another triad. And let's hear another one, as well. Okay now let's just to demonstrate how we can pick out the bottom note from the triad. Zack I am going to play some chords in a row and when I finish the final triad I'd just like you to hum for me, sing the, the, the note that stands out to you, perceptually. Okay. La. Zack's singing the key note. In this case it was G, he was singing the tonic key note G. Let's try another one. La. He's singing the key note B. So although there were multiple notes being played, actually when we hear the triad, it's still the lowest note, it's the tonic that is the most important one perceptually. So, let's just think of another example here, we've got an A-minor chord, A, C and the E. Now, because the notes repeat across the octave and that keeps going on and on, we could repeat as many of the A and the Cs and the Es as we like, and put them all into, into some sort of voicing on any instrument. So we could have something like this. La. There we go, so the note adds of all those repetitions and the various voices that we're using. It's the, the bottom note of the

	triad that should stand out the most. So, though Nikki played lots of As, and lots of Cs, and lots of Es, the important thing was that perceptually, the triad was the root of the triad was the most important. It was the strongest, and that's what allowed me to sing the note A above the others. And that, and that's how we identify that chord as being an A triad. So, you'll remember from lectures one and two, that triads don't just have an identity. They don't just have a note name that identifies them. They've also got a kind of flavour or characteristic. And we've already heard, just now, two different types of characteristics. We've heard minor triads. And we've just heard major triads. So just a reminder about what, what's quite going on there. It, it's, it's something you've talked about already but it's also good to think of it in different ways. With that triad, we've got the interval of a perfect fifth. On the outside, from the top to the bottom, or from the bottom to the top. And then in the middle, we can carve up that pitch space, so that it makes – A major sound. Or a minor sound. So the important bit about that chord, and the thing that actually gives it its major sound or its minor sound. Is the third. So if we think about the first degree and the fifth degree of the triad we have got seven semitones between there and that's like we said what we call a perfect fifth. But importantly in distinguishing major and minor is actually the third that we want to look at. So, if between the root of the triad and the third. We have three semitones. We call this a minor third, so a triad with a perfect fifth and a minor third is described as a minor triad. If we had four semitones between the root and the third, we get a major third, and a triad with a major third and a perfect fifth, is a major triad. So, so just summing up. When we have triads, we can identify them, even though they're three notes, by one single note name, which is the root note. And we can also identify them as having a particular flavour or character, either major or minor, or diminished, or augmented. And we'll talk about those more a bit later. So, a little aside on triads before we move on. Some people might be watching these videos wondering why we've always had this group of notes in the same order, appearing one, three, five. What happens if we have a different order? That order that we've been using, one three five, is what's known as root position. Where the tonic note, the root occurs in the lowest position of the chord, now of course you can move

	around and do them in in other positions as well, so. Here we've got one three five, we course we could have three five one, or we could have five one three.
5:33	Now, the interesting thing perceptually about rearranging that order, is that the note that we're calling the root note is still the one that, that you use to identify the chord. So even when you've switched it round, that note, because of the relationships between the pitches when you play them together, that note is still identifiable as the root of the chord. So when we're talking about these triads being rearranged to use a music theory term, we're actually talking about 'inversions' - The notes have been inverted. We'll talk more about that in the next lecture, but we've also put some supplementary material up on this week's webpage, just so you can have a read in to, and, and become more familiar with it. From now, in this lecture however we're always going to keep everything in root position, just because it makes it really easy to talk about the first, the third and the fifth, and know where everything is.

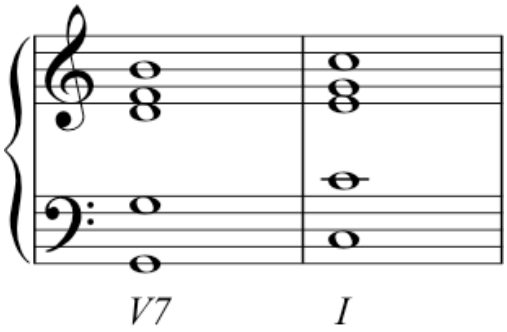
4.2. Elaborating Key, Triads and Scales

Video: Elaborating Key, Triads and Scales

Cadences

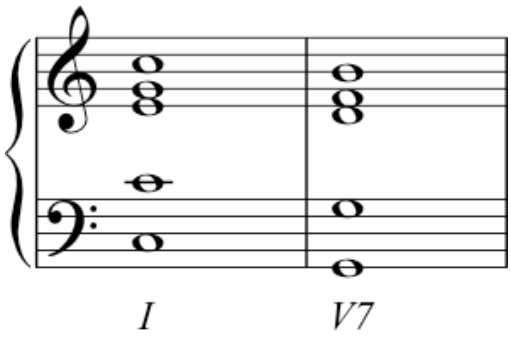
In this segment we introduced the idea of cadences. We'll talk about these some more yet through the course! But let's get started. In music, a cadence a melodic or harmonic progression that creates a sense of finality or a pause in the music. We mention two cadences in this section, one that sounds *finished* and one that sounds *unfinished*.

Let's look at the one that sounds finished, first:



As we can see we are in the key of C major and the chords are G7 followed by a C. Numerically speaking, this is chord V7 followed by chord I. This is known as a **perfect** cadence.

Let's look at the one that sounds unfinished, next:



Again, we are in the key of C major but this time the chords are a C followed by G7. Numerically speaking this is chord I followed by chord V7, i.e. the reverse of the example above. This is known as an **imperfect** cadence. This sounds unfinished (hence, *imperfect*) because it finishes on the dominant. In this case, a dominant seventh chord. We know that this chord is unstable and sounds as if it requires a resolution.

Transcript of the Video

00:00	In lecture two, Zack and I described the concept of keys and key signatures. You'll remember that when we travel through the octave using scales, we get distinctive internal patterns of intervals that arise. And you'll remember the major scale has that distinctive pattern of tone, tone, semitone, tone, tone, tone, semitone. And you remember us talking about key signatures and saying that they're a way for us to signal right in the very start of a piece of music, what sharps and what flats we're going to have in any given key. This came from the idea that some scales were built up, and we needed to use some sharps and some flats when we were using a tonic that wasn't C. So, this then allows us to use any one of our pitch classes, and that is any one of the twelve note names as our tonic, so that we can build patterns of tones and semitones or scales, or melodies or chords in any of these given keys. Now, it'll help you, when you're trying to become fluent in reading and writing music, to try and get these memorized as much as possible. If you look back at week two, there are some tips and mnemonic devices for how to actually go about doing this.

01:15	Okay so, at the start of this lecture, we were looking at triads, and we were looking at perceptual effect of those note groupings. So that one, just one of the notes that was there, was the more important one, was the one we can use to identify that triad, had that overarching label for that triad. Well, within a key, the relationships between and within those triads and how we use them can also contribute to that overarching sense of tonality, by which we mean the quality of the key.
01:55	So we've been using words like harmony and harmonic structure. And these are words and phrases that you hear when we're talking about music often. What do I actually mean by these phrases? Now is a probably a good time to actually think a bit more precisely about we're saying. Yeah. Well, harmony describes the effect of those triads that we've been talking about. And the relationships and the patterns between the triads when we use them in a key. Key and harmonic structure, or key and harmony, are the two most important building blocks for music that sits in a tonal tradition. So to explain this more, I'm now going to sing you a familiar tune; you can follow the melody on the stave notation on the screen. Instead of using the words that you'll be familiar with, I'm just going to use the scale degree numbers when I'm singing. One, one, five, five, six, six, five. Four, four, three, three, two, two, one. Five, five, four, four, three, three, two. Five, five, four, four, three, three, two. One, one, five, five, six, six, five. Four, four, three, three, two, two, one.
03:14	You can hear a couple of things, a couple of features in that familiar song. The first one that we're going to point out, is that you got a very strong tonal identity. I was singing in C. And C is the tonic. And it came across very clearly. Another thing we can think about relates to the structure of the music. So as the melody progresses, there are points. It comes to rest, but it doesn't feel completely finished. There are other points where the music comes to rest but does feel finished and does feel 'closed'. Now these points are what we know as cadences. Let's look at a couple of those cadences from the familiar song. A cadence that comes to rest but sounds open and unfinished. We've got one up above the world so high, like a diamond in the sky. It rests, but it's not finished. And we can compare that with the return at the end. *Twinkle, twinkle little star, how I wonder*

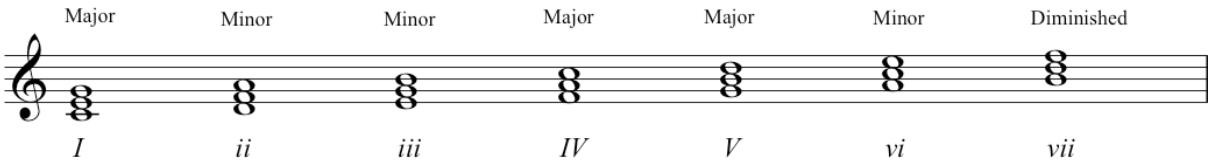
	what you are. What's causing that effect then? Well, in order to think about, we really want to look at the scale degrees again. Before we do that, let's just think about the key of C as a whole. So we got, one, two, three, four, five, six, seven, and back to one again for our tonic.
04:37	We know that triads that are built on the tonic and the dominant have particularly strong structural properties, harmonically, they're very strong. So let's see which scale degrees feature in the dominant triad. We've got a five, and we've got a seven, and we've got a two. I mean, we've got the fifth and the seventh and the second degrees of the scale present. For the tonic triad, we've got the first, and the third, and the fifth degrees of the scale present.
05:08	So let's go back to our melody again and look at this in a bit more detail. Well, if we look at one of the points that the music came to rest but didn't feel finished, we get. We had five, five, four, four, three, three, two, five, five, four, four, three, three, two. So the five and the two really stand out to us, and that's what gives us that feeling - of it not feeling quite finished, the two notes that belong to the dominant chord. Especially when we compare that to the phrase that did sound finished. Four, four, three, three, two, two, one. And when we're coming down there, we're coming back away from the tonic chord. Sorry... we're coming back from the DOMINANT chord back to the, the tonic chord. And this is another example of a cadence.
05:52	So music theory, we call those cadences where we sit and hang around but at the dominant open, unfinished chord. We call that an imperfect cadence, and we contrast that with a perfect cadence. And that's where we've travelled back from a dominant. Chord back to the tonic. And we've come home again. There's a lot more to say about cadences. And we'll go a bit further in this lecture later on, but you'll go further still in the final lecture.

4.3. Building Triads

Video: Building Triads

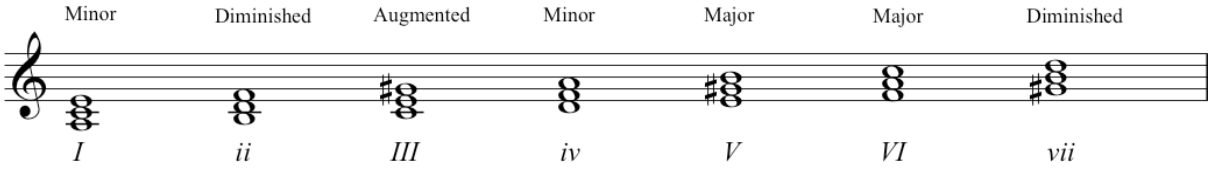
In the video for this segment, we talked about building triads on each degree of the major scale and minor scale. The following should be useful for reference.

Triads built on each degree of the major scale



This is shown in C major for ease of illustration, but the pattern is the same in any major key

Triads built on each degree of the minor scale



This is shown in A minor (built on the harmonic minor scale) for ease of illustration, but the pattern is the same in any minor key.

Transcript of the Video

00:00	In the last section, we talked a lot about the dominant triad and I talked a lot about the tonic triad, but actually as we talked about in week one, we can build a triad on any note within the scale and that's exactly what we're just going to do now. Yep, we're going to start with chord scale degree one. going to go up through all the scale degrees one, two, three, four, five, six, seven, one and we're going to build a triad on each scale degree. Now, just to be clear in how we're, how we're, we're notating these things for, for, for, for differentiation we're using numbers for scale degree one, two, three, four, five, six, seven. When we build triads on each of those scale degrees, that triad is also chord I (one) or chord V (five) or chord IV (four). We use Roman numerals when we, when we're talking about chord or triad numbers instead of normal numbers. Okay, so if we take C as our tonic in this case. We're going to build a triad on C, it's the first degree of the scale, and as Nikki said, we're going to call that chord one. Now on a major key, let's hear that again. We've got a major chord. Okay, let's go in to chord two. Chord two in the major key is minor, chord three is minor. Chord four is major. Chord five is major. Chord six is minor and chord seven is the one that was different. This is a diminished triad. Just to recap, between the

	first and the fifth, we've actually got a diminished fifth, not an interval of perfect fifth as we have with the others. This would be a perfect fifth. This is slightly smaller, so we get a diminished fifth and in between we've got minor third from the first to the third. So, a diminished fifth and a minor third gives us a diminished triad. Chord seven is a diminished triad.
01:54	Now, what's important to spot here as we go up the major scale is that we've got yet another pattern emerging in music theory. You remember that our major scale always has the pattern of tone, tone, semitone, tone, tone, tone, semitone intervals as we ascend the scale degree numbers. When we build a triad on every single, every single scale degree, traveling up the octave, we get that pattern of major, minor, minor, major, major, minor, diminished. That pattern stays the same, whichever [major] key you're playing in. Chord five is always major, chord two is always minor.
02:35	So we can take any note and build a triad on it. But actually, it seems that when we look at music, and when we analyse pieces of music, there are some chords that get more use, some chords are used more often than others. We saw with *Twinkle Twinkle*, with our little example, it was chord one and chord five, it was the tonic and the dominant triads that were really important structurally. In common practice music theory, chords one, five, and also chord four are the three sort of, most important structural building blocks. The subdominant, that's chord four, often appears before chord five and it sort of extends the whole structure that we've described with those perfect and imperfect cadences. But it's not just in big pieces of, of work from the common practice era that we see this. In fact, any diatonic melody, we can take and harmonize it with chords one, chords four or chord five. Since every single scale degree actually occurs in chord one, four or five, we can use these chords in conjunction with melodies built from this pool of notes. There's a lot more to say and we will go on soon, but first we have to carry on with our triad building exercise.
03:51	Okay. So now we've seen the patterns that come out through triads built in a major scale. But what happens when we do this with a minor scale? Well, as you've predicted, based on what you know from the major scale, we're getting a whole

	new set of internal regular patterns emerging when we go through. The triads are built on each degree of a minor scale. We're going to use A minor this time, so, rather the c major, we're shifting to its equivalent minor. Starting with chord one. So chord one in A minor. You've guessed that is a minor, so that's a minor chord, on chord one. If we move up to chord two, we get a diminished triad. So it's like, it's like the seventh chord from a major scale, it's got that same diminished quality. Okay, then if we move on to chord three, we get something interesting happening here because we're in our minor key. Now you'll remember from week two we talked about different types of minors. We were looking at this just now, we're going to look at the harmonic minor, and that gives us a new chord on chord three that we've not discussed yet. So we've got a major third, but if you look at the distance between the root of the chord, and the fifth. We've actually got 8 semitones now, which is one semitone more than the perfect fifth that we've already talked about. This is called an augmented fifth. So a chord that has a major third and an augmented fifth, we're going to call an augmented triad. And you don't realize that this is happening because chord three has the scale degrees three and five and seven in it. And you'll remember that what characterized the harmonic minor scale was it had a sharpened seventh. Okay, moving on to chord four. We've got a minor triad. And then going onto chord five, we've got a major triad, again encompassing the G-sharp that was important. We now have our major triad. We move onto chord six, we've got a major triad. And then we go to seven. We're back to another example of a diminished triad and back to the tonic again. Okay, so the properties that we get from the triads that we're building in the harmonic minor scale give us a really distinctive set of distinctive set of, of patterns, of triads that emerge. We've got a mix of diminished; we've now got augmented and we've also got that major fifth happening on, on, on the when we build up from the, from the fifth degree of the scale because we've got that leading note because we've got that sharpened seventh. So, it's really unambiguous. So, moving around in different keys, that pattern of triads would emerge from any key notes using a harmonic minor scale.

4.4. Harmonising melodies

Video: Harmonising melodies

In this segment we spoke about harmonising melodies. The following Wikipedia page may be of interest if you would like to do some further reading in this area: Harmonisation.

You could also recap the video of Introduction to chords in which Richard discussed the 3-chord-trick (a method for harmonising diatonic melodies). Now that we have explored more chord types, the same rules apply and you can use them to harmonise melodies using more than just the primary chords I, IV and V.

You may like to try this for yourself. Take a simple well-known melody and create a harmonisation for it (i.e. choose chords to go with the melody). This is not only good fun, it also ties your theoretical knowledge into your aural skills and helps you to understand these concepts more thoroughly.

Transcript of the Video

00:00	Okay, so we've looked at a lot of different chord types now. And we've built triads on every degree of the major scale and every degree of the minor scale. And we've heard a lot of different quality of chords coming through. Now, we know that we can actually harmonize any diatonic melody just with the chords that you build on the tonic, the subdominant and the dominant. But we also now know that there's all these other chords that we could use, so it's, it's a time to start perhaps playing around with that and hearing what we can do using that familiar melody again, *Twinkle Twinkle Little Star*. Okay, so we've had this melody in **week one**. You know, we've used that a few times today. So far today, we've talked about harmonizing it just with chord five, the dominant, and chord one the tonic. And we had the kind of important structural impact that this has on the melody.

00:55	Now we're going to hear it just with chords one, four and five. And then we're going to take some other chords and make it sound a wee bit more interesting. So, Nicky is going to play the guitar. It's not my guitar. This is Zack's guitar and he's been very kind and trusting by lending it to me because I'm not really a guitarist. But we thought that probably quite a lot of you will guitars around at home. And also we're going to sort of teach you turning around in this, in this format. Might just give you a break from where we've been teaching at the piano and, and give you an insight to how we learn to do things as well. Okay. So I'm going to sing the melody, Nikki is going to harmonize it using chords one, four, and five. Okay, so it's just the first phrase but we're using chords one, four, and five, and you hear how the, how the melodies sounds and you hear its cadential point. So, let's try something different. Let's take another one of the chords we've learned, and this is arguably the next most important and the next most common chord. We're going to use chord six this time. Okay dokey. In the key of G, that is the chord of E minor. That's chord two, we're going to have. That's chord two. We're going to have chord six, which is E minor. There you go... in the key of G. Thank you. Okay. So what I want you to do is just have that just as the last chord in that phrase. Mh-hm. We're going to hear how just a subtle change in chord makes a real difference to the feel and the overall effect of the harmonization of the melody. Okay, so let's try again.
02:35	Okay, so again, we've got this, a completely different sound when we arrive at that chord. And it's interesting because it gives the melody a different colour. And it gives us a new direction to go off in. But it kind of worked because that chord that we just used, chord six, has a scale degrees in it, six, one, three. And that overlaps a lot with the scale degrees that you get in the tonic chord one, three and five, which we were using before. Okay. Let's try a different one. This time what we're going to do is we're going to extend the feeling that we get towards the end of the phrase. What I want you to do is just before the five chord, which in the key of G is D, I want you to just put an A minor chord in it. Which I already practiced. Now's your chance to have the A minor chord in place. There it is. That's it. A minor. Okay? So that's chord two in the key of G. G chord one, A minor is chord two. Let's try exactly the same thing again and see what happens. All right? Okay.

	So the progression we got there was two, five, one in the key of G. And this is really important. Particularly for those of you who've maybe come to this course from a jazz background. This is something you'll recognize, whether or not you're necessarily familiar with theory of it. But that's a sound that's really important.
04:10	And I think that's enough for me massacring Zack's guitar. So, now what we are going to do is get back to the piano, and we are going looks again at some more of these typical patterns where we are using cords like two and six, to extend and elaborate the basic harmonic functions that we've seen. We can get with mainly chords one and five, and sometimes with chords one, four, and five. So we've now seen that there are some really important structural moments called cadences. And we've seen a few ways that we can travel. We know that we have to go from five to one. We've seen from the *Twinkle Twinkle Little Star* examples there that a common way of getting to the five to the one is to put a chord four in beforehand. And that sort of elaborates and extends that progression. So if we were in G major, then a four, five, one progression would sound like this. But there are other ways of heading back to the tonic. Yeah, and another way to do that is to change our dominant chord in some way so that it gives us greater pull back to the tonic. So let's jump back into the key of C, just for ease of example at the moment. So if we're in the key of C. Our fifth note is G. So if we build our triad. From there we get G, B, D. That's a dominant triad. Dominant triad and it uses five, seven, and two.
05:36	Now, if we add the fourth degree of the scale to that as well, again we see it's a third up from our fifth degree there, of the, of the chord, G B D F. And this is our dominant seventh chord, we've altered our dominant drive in a way by adding this extra note and given it a greater sense of pull towards the tonic. So let's hear how that would play out in that sort of cadential sequence, so the pattern I'm going to play now is chord five, then chord five-seven or dominant seven, and then back to one. So in C major we will have... That's quite a strong cadence isn't it? With the way that the five goes to the one. So, let's just look about what, what's working, what's working within that cadence. We've got the G, the B and the D in it. Now that chord, we're saying is a dominant triad of C major, but you might be thinking, what other chords could that be? That could be... Well, it's just a G major triad so in theory it could be G major, chord one in the key of G major.

06:48	Okay, if we were adding a seventh to it in, in the key of G major that would have to be this note wouldn't it. Because we've got F-sharps in G major. So if we had a seventh chord built on G it would sound like this. And that's not what we're hearing at all. So one reason that this five, five, seven, one movement sounds quite strong is it's really, really giving us quite emphatically our sense of 'key' when we get the G seven with F natural, we know we're not in G major. So we know that that chord is probably going to take us back somewhere in C. The other important features of that dominant seventh chord is that it's not only got the leading notes in C major, which is B, and that wants to lead us back to C. So the dominant seventh has got that leading note from C, from B to C, from seven to one. The other thing that's going on in a dominant seventh chord is it's got a four that also wants to move a semitone. That's the other semitone that happens in our major scale and that wants to come from four down to three. So, there's two types of harmonic movement that happen in that dominant seventh that can resolve this back to the one. Let's just listen to the five, five, seven, one again. See, it's got two harmonic pulls in it, going in different directions. So you might have been wondering now that we just introduced four-note chords to you, why we've only been using three notes up till now.
08:20	Well, there's absolutely no reason why you should have to, we've been talking triads because it's a good way to illustrate how chords work within keys. But there's some styles of music that almost always use more extended chords. Jazz is a good example of this where you'll have seventh chords, ninths, elevenths, thirteenths and a lot of alterations to these scale degrees. But, actually, we've been talking about harmonic function in a way that focuses on the, the tonic, the subdominant, and the dominant. When we're talking about other, other styles of music that use more extended chords, this doesn't change. It still works in the same way, but what's important is addition of extra notes to the chords gives it a definite colour, definite flavour, and sometimes softens the way that the chords move from one to another. So we've just heard that progression five, five-seven, one and we've heard how strong a perfect cadence that is with the dominant seventh leading back to the tonic. How about instead of five, five, seven, one, we use the progression two, five, seven, one? Let's hear how different that sounds.

	Here's five, five, seven, one. And here's two, five, seven, one. Harmonically speaking, that last cadence, two, five, seven, one, has got a lot of strong things going on.
09:46	It's, it stays very securely within the key. It shows us always where our tonic is, but it's never static. It's got major and minor chords happening in it, and it's got that dominant movement that dominant seventh movement that gives us the leading note to the tonic, and also gives us that semitone action between, from scale degree four going down to three. It's also got a really nice, secure, and definite movement happening in the bass. So when Nikki played it, you have the top part there, the higher sounding notes move nice and smoothly from one to the next, moving in quite, small jumps. But actually what was happening in the bass was that we had a big jump from the D up to the G, and then down to the C. So what happened was, we went from the D, up four notes to the G. And then down five notes to the C. These are big movements, if this were a physical structure then you could think of it as being really solid. We've got really big, wide placed pillars giving you a good foundation on the ground leading up to the supporting structures the, the highest of happening at the ceiling. So what we should do actually, is just look at what this notes actually were and then maybe draw your attention to a pattern that you remember from **previous weeks**. So if we look at the D to the G. This is a fourth, and then from the G to the C, this is also a fourth. So you might remember the circle of fifths when we were talking about key signatures. What we said is that if you went clockwise in the circle of fifths, each jump that you made progressed you a fifth, a perfect fifth. But we actually said if you looked anti-clockwise round the same circle, you would move in fourths. D to G, is a fourth, and G to C is a fourth. Regardless of the fact that when we actually played the piece of music we moved from a G down to a C. This again serves to show that up a fourth and down a fifth are equivalent, they take you to the same note.
11:41	Some harmonic progressions sound more logical and flowing than others and they tend to get used more than others. And quite often it's this root movement of the chord working with the cycle of fifths that's actually producing this very flowing sound. Another feature of a harmonic progression that can make it sound really coherent, is where a particular pattern gets repeated within the progression. So,

	some of the most memorable harmonic progressions, that get most commonly used, might include both circle of fifths, and they might keep going with that some way. We've included an example here and you might well recognize this one. There's some more in the supplementary material for you to follow up with.

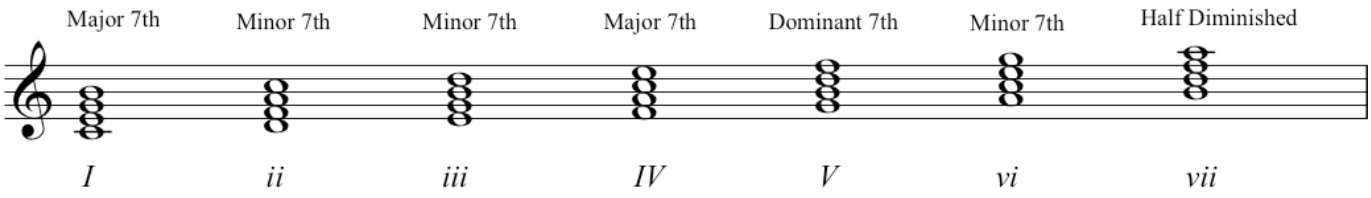
4.5. Seventh chords (and summary)

Video: Seventh chords

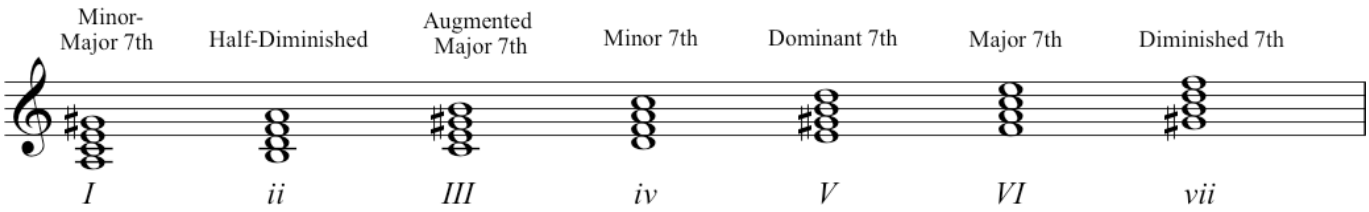
Building 7th chords on each degree of the major and minor scales

In the video for this segment, we built 7th chords (i.e. four-note chords) on each degree of the major and harmonic minor scales. The following graphics will be useful for your reference.

Seventh chords built on each degree of the **major** scale (shown in C major for ease of illustration but the pattern is the same in any major key):



7th chords built on each degree of the **minor** scale (shown in A harmonic minor scale, for ease of illustration).



Transcript of the Video

00:00	So we've had practice already, earlier on building triads on all the degrees of the major and minor scale. But now we know that we that we don't have to build chords with just three notes in them. We now know about four-note chords, so what we wanted to do was just spend a bit of time building four-note chords up from the triad. Missing out every other note but continuing on. So we got the first

	on we missed out on one we've got another one we miss that one, we've got another one, we miss that one. And then put another one in as well. We're going to do that for every scale degree and see what quality of chords emerge when we do that.
00:38	So we start on a major key, first of all. And again, we're going to use C, just because it's a nice easy one to show on the piano. So as Nikki said, we've got the 1st degree, 3rd degree, 5th degree, and the 7th degree. And actually what we is we've got the major triad that we're familiar with, but we've also got the interval of a major 7th from the root to the 7th. The major triad with the major 7th is a major 7th chord. Okay, the chord on, the chord built on the 2nd degree is minor triad with a minor 7th we're going to call that a minor 7th chord that's the same for chord C we've got a minor 7th chord. Chord 4, we have a major 7th chord. So we got a major triad with F to E in this case which is a major 7th on the outside. So it's a major triad with a major 7th, so major 7th chord. Then we got a major triad, but this time we've got a major triad with a minor 7th. And this is called a dominant 7th chord. It goes down to the 7th chord because it's, it's a 4th-note chord built up from chord 5 from the dominant and it's the one that you recognize. It's the dominant 7th chord and it's got important features in it. It's got a three, a four that wants to move to a 3 and a 7 that wants to move to a 1. The reason that it's got that going on is because that's where the semitones fall and you'll remember that. So, we want it wants to resolve - it wants to take us back to tonic and that's what distinguishes it. Okay, so that's chord five and remember we talked about that having a very important function. Moving onto six, we've got a minor triad, again with a minor 7th. We now know that this is a minor 7th chord. And then if we move to chord 7, we said that that was a diminished triad and it is but actually when we add the 7th on we have minor 7th between the root and the 7th. So diminished triad with a minor 7th is what's known as a half-diminished chord. So, let's just reiterate that. On chord one, we've got major 7th. Chord two, we've got minor 7th. Chord three, we've got minor 7th. Chord four, we've got major 7th. Chord five, we've got that all important dominant 7th. Chord six, we've got our minor 7th. And chord seven is a half-diminished chord. We've included some

	supplementary material that not only explains this, but also shows you some chord symbols that are used particularly in pop music and jazz.
03:13	All right, that was the major scale, that was building 7th chords on every single degree of the major scale. So now you know what we're going to do, we're going to do the same thing again but building 7th chords on every degree of the harmonic minor scale. We'll use A minor. Okay, so if we look at this, we know we've got a minor triad. Actually, if we use a harmonic minor, we've got a major seven, so we're going to call this a minor major 7th. Okay, moving on, we've got half diminished chord, so that a minor triad with. Sorry that's our diminished triads with a minor 7th. That's half diminished. Moving on, we've got that nice augmented sound that we got when we built the triad on chord three, but this time we got a major 7th with it. So this is an augmented major 7th. Chord four. We get our minor triad with a minor 7th, so it's a minor 7th chord. Chord five, we've got a major triad with a minor 7th. We've spoken about this as being our dominant 7th chord. So, as in the major scale, we've got that same pattern of intervals which contains in it. Those two important pulls, it's got a [scale degree] 7 that wants to move to a [scale degree] 1. And it's got a [scale degree] 4 that wants to move to a [scale degree] 3, if we're thinking about it in its key context. So, here I've got this chord chord five with a 7th on it and it wants to move to this chord one. When it does that, it's got a pull. Or it's got this pull. It wants to resolve in that fashion.
04:50	This is really important. This is why dominant's so important within the key. So it's called five dominant 7th. moving to chord 6th. We've got a major triad with a major 7th, so we get a major 7th chord. And then we've got a diminished triad, but with a diminished 7th and this is called diminished 7th chord. Okay, so let's just reiterate that. If we go back to chord one, we've got a minor major seventh. Chord two, half diminished. Chord three, augmented major seventh. Chord four, minor seventh. Chord five, dominant 7th. Chord six, major 7th. And chord seven is our diminished 7th chord.
05:32	So, let's sum up. Back in lecture 2, you heard how a given scale can lead our ears to hear one note after the whole scale as being the most important or defining

	note as being the key note. In this lecture, we've seen how a similar perceptual effect can happen with groups of notes with, with triads and with chords. So we started off by looking at triads and looking at how the notes work together to give us quality. So we said things like the chord was major, or minor, or augmented, or diminish. And then we took that one step further by adding another degree, we added the seventh, so it's a four-note chord. And we looked at the qualities that we got from these chords. So finally, what we're seeing in this lecture is how the putting together those courts can give us a really important and very strong structural effect. How the harmonic structures that arise, from especially chords like the tonic, the dominant, and the sub dominant had these, really commonly used together. To create overall structures, that reinforce our sense of key, that reinforce our sense of, of, of tonality, of tonal centre. And we've seen how other chords can be used to, to elaborate and and extend that harmonic structural experience. So, just remember to have a look at the supplementary material that is on this lecture's webpage.
06:55	In the next lecture, what you're going to go on to do is look more at chords within keys and how they actually work together.