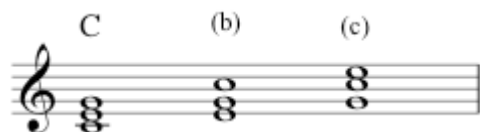


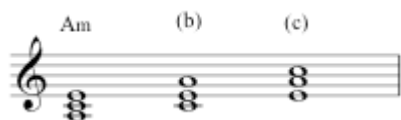
Segment 1: Chord Inversions

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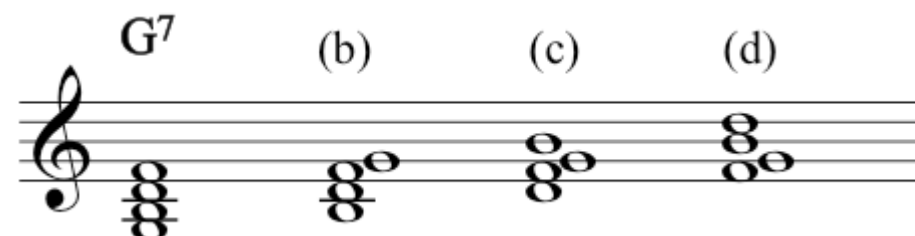
Here are the inversions of the C major triad:



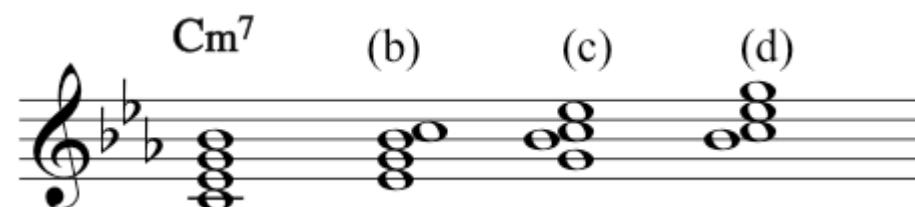
And the inversions of the A minor triad:



And inverting a dominant seventh chord:



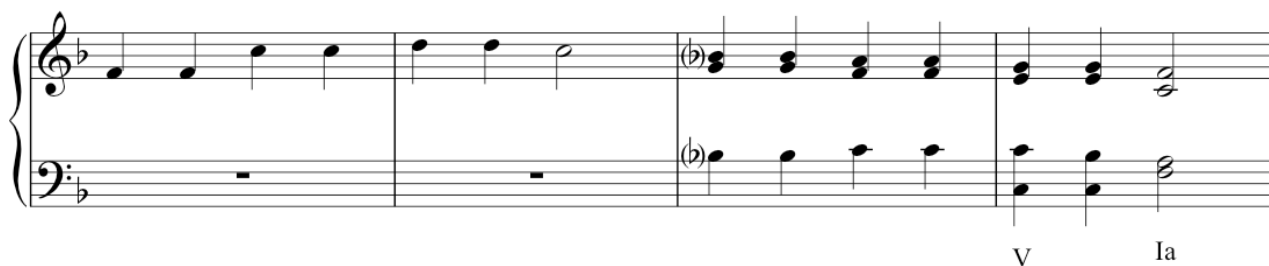
Other types seventh chords can also be inverted three times. Here is C minor 7:



Practice inverting triads and seventh chords on the keyboard, and also write them down.

Using the root position for a final chord

Twinkle Twinkle Little Star finishing on the root position tonic triad:



(Played at approximately 04:15)

Chord progressions - Ic V7 I:

In F major:

Ic V7 I

F maj C7 F maj

Passing second inversion

At 05:50 in the video, John played this example where the second inversion is again used. We are still in F major:

IVb Ic iib

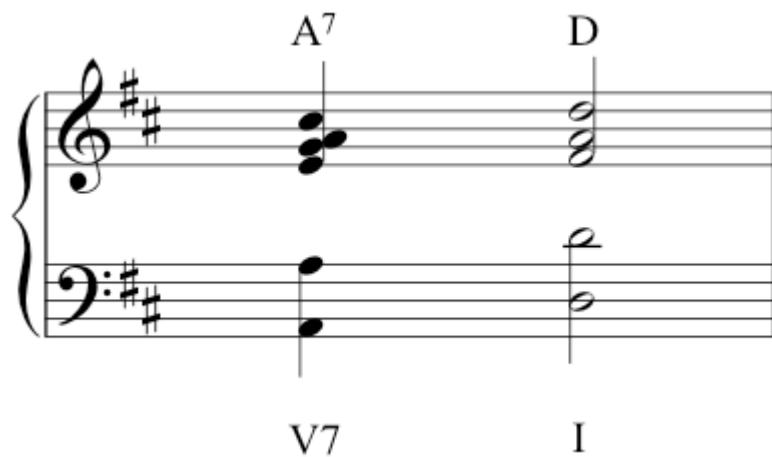
Bb maj F maj G minor

Note this example is unfinished-it would probably continue-maybe back to the V and then on to I.

Segment 2:

Segment 2 Cadences

Here is the **perfect/authentic cadence** again in D major:



Musical notation for a perfect/authentic cadence in D major. The key signature has two sharps (F# and C#). The notation shows two measures. The first measure contains an A7 chord (V7) in the treble clef and a D2 note in the bass clef. The second measure contains a D major chord (I) in the treble clef and a D2 note in the bass clef.

Here is the **imperfect/half cadence** example played by John:

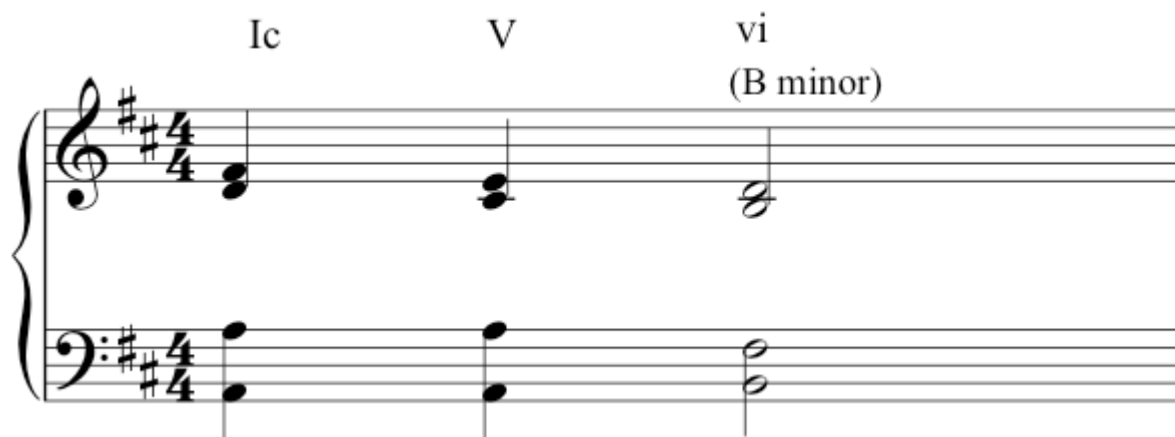


Musical notation for an imperfect/half cadence in D major. The key signature has two sharps (F# and C#). The time signature is 4/4. The notation shows five measures. The first four measures contain D major (I), A major (V), D major (I), and D major (I) chords. The fifth measure contains an A major (V) chord.

Note only the last 2 chords are the actual imperfect cadence- D major to A major.

The interrupted/Deceptive cadence:

Here in D major, finishing on the vi chord, which is B minor.



Musical notation for an interrupted/deceptive cadence in D major. The key signature has two sharps (F# and C#). The time signature is 4/4. The notation shows three measures. The first measure contains a D major chord (Ic). The second measure contains a D major chord (V). The third measure contains a B minor chord (vi (B minor)).

Compare this to the perfect/authentic cadence example:

Ic V I

Note again the first chord is played for Context- the actual cadence is V – vi.

The minor key example in G minor:

Ic V VI
(Eb maj)

Compared to the minor key perfect/authentic cadence:

Ic V I

The Plagal Cadence:

Plagal cadence in rock:

E D A E

oh I get high with a little help from my friends-

(Note- chords fall approximately with lyrics, as shown)

This chord progression could be called a mixolydian cadence. Remembering the modes from lecture 1 we found that the mixolydian started on G for white notes, but as John showed we can transpose that (in the same way we have been transposing major and minor keys) - so here the tune follows the mixolydian mode in E. For more on his very common progression (in rock and funk) check out Professor Phil

Tagg: <http://www.youtube.com/watch?v=vmiUs9KUExE>

Segment 3: Chord Names

Segment 3: Chord names

We have already looked at all the diatonic triads but now we introduce all the formal names.

The diatonic triads in F major:

I	ii	iii	IV	V	vi	vii
Fmaj	G minor	A minor	Bb maj	C maj	D minor	E dim

Tonic supertonic mediant subdominant dominant submediant leading tone

Also here in C major:

I	ii	iii	IV	V	vi	vii
Cmaj	D minor	E minor	F maj	G maj	A minor	B dim

Tonic supertonic mediant subdominant dominant submediant leading tone

Of course all these triads can be extended to seventh chords, as you saw in Lecture 2 here they are again in C

Seventh chords in C:

I _{maj7}	ii ₇	iii ₇	IV _{maj7}	V ₇	vi ₇	vii ₇
C _{maj7}	D minor 7	E minor 7	F _{maj7}	G ₇	A minor 7	B dim 7

Tonic supertonic mediant subdominant dominant submediant leading tone

Try to play through these triads and seventh chords on the keyboard.

Segment 4: Common Chord Progressions

Segment 04 Common Chord Progressions

Recapping here again is Ic V7 I:

Diagram illustrating the Ic V7 I progression in F major (4/4 time). The progression consists of three measures:

- Measure 1: Ic (F major) - Treble clef: F4, A4, C5; Bass clef: F3, A2, C3.
- Measure 2: V7 (C7) - Treble clef: G4, B4, D5; Bass clef: F3, A3, C4.
- Measure 3: I (F major) - Treble clef: F4, A4, C5; Bass clef: F3, A2, C3.

Here is that progression, still in F, in the context of the Christmas song 'Hark the Herald Angels Sing':

Diagram illustrating the Ic V7 I progression in the context of the Christmas song 'Hark the Herald Angels Sing' (4/4 time). The progression consists of four measures:

- Measure 1: Ic (F major) - Treble clef: F4, A4, C5; Bass clef: F3, A2, C3.
- Measure 2: V7 (C7) - Treble clef: G4, B4, D5; Bass clef: F3, A3, C4.
- Measure 3: Ic (F major) - Treble clef: F4, A4, C5; Bass clef: F3, A2, C3.
- Measure 4: I (F major) - Treble clef: F4, A4, C5; Bass clef: F3, A2, C3.

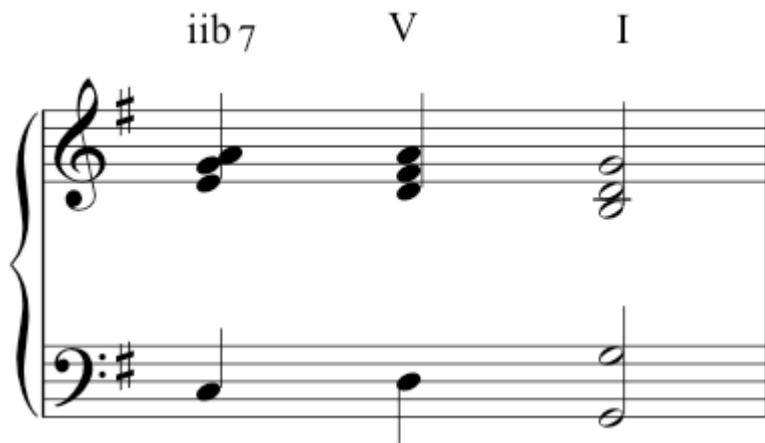
The iib V7 I Progression

Firstly, John played A minor 7. In the key of G major, this is the supertonic- ii, but as a seventh chord it is ii7. John then puts it into first inversion:

Diagram illustrating the ii7 and ii7b chords in G major (treble clef, 4/4 time):

- ii7 (A minor 7): Treble clef: A4, C5, E5, G5.
- ii7b (A minor 7b): Treble clef: A4, C5, E5, G5.

Here is that chord in context for the ii7b V I chord progression (very common in jazz also):



Circle of Fifths (in C major):

Here is the first example of the chord progression using the circle of fifths:



(Note this shows the chord names and the Roman Numerals: lower case Roman Numerals denote a minor chord except for viio, which denotes the diminished chord).

Here is the example played in G major:



Two things to note here- firstly John played it quite high so note the lower clef is also in treble clef instead of the usual bass clef. Secondly, I again wrote out all the chord names, which are now in the key of G, but the Roman Numerals remain the same- this is the advantage of that system, it is not key specific, which makes it

more flexible for analysis.

Here is the Vivaldi example (at 03:55 in the video):



This excerpt is in A minor and each bass notes is played twice, (repeated an octave lower). The sequence of bass notes is: D, G, C, F, B, E, A.

Autumn leaves(played at 04:33)



I have written the chords out as whole notes, stacked in thirds in order to make it easy to see them, but this is not how John played them. (Jazz players will mainly read from the lead sheet symbols, and then choose the rhythms and inversions as they go).

Circle of fifths with inversions:



Here the second, fourth and sixth chords are in first inversion. Note how this makes the bass line smoother.

Using the circle of fifths to modulate to the relative minor (key of C major):

Chord names: C, F, B dim, E major, A minor

Roman numerals: I, IVmaj7, viio7, III (really V/vi), vi

Here the circle of fifths stops at A on the relative minor. The difference from the earlier example is that instead of the fourth chord being iii (E minor) it's been changed into III (E major), by moving the G natural to a G#. This E major is the V of A minor, so helping to give a sense of modulation rather than just carrying on through the circle back to C.

Using circle of fifths to modulate to another key:

Chord names: C, F#°7, Bm7, Em7, Am, D7, G

Roman numerals: I or IV, vii7, iii7, vi7, ii, V7, I

In this case John went from C major to G major. Imagine that the music was just in C major- so then C was I, but now that we want to move to G, we'll re-think of C as IV. (This is sometimes called a pivot chord)

The next chord is F# half diminished (in lecture 4 Zack and Nikki showed the difference between the diminished seventh and half diminished seventh). The point is that the F# chord is moving us into the tonality of G major- from there it's just: iii7 vi7 ii V7 I.

(Another very popular sequence in jazz and Tin Pan Alley songs)

Segment 5: Modulation

While shepherds watched their flocks by night:

V/V	V
(Gmaj)	(Cmaj)

V/vi	vi
(E maj)	(A minor)

Secondary dominants-V/V:

instead of:

Am⁷ D G

ii⁷ V I

we can have:

A⁷ D G

V/V V I

V/V Secondary dominant as used by Bach in Wie schon leuchtet der Morgenstern:

V/V V I

(F7) (Bbmaj) (Ebmaj)

Bach Prelude in C major:

We will now turn to the Bach prelude in C major (BWV 837- for your interest BWV stands for Bach-Werke-Verzeichnis -Bach Works Catalogue, which was compiled in 1950).

This is going to tie together nearly all that we've done, and in fact go a little beyond what we have covered, so don't be dismayed if you don't understand everything.

Here is the score. As you listen to the piece, follow the score- with a few tries even if you are new to reading music you should be able to follow it. Note that the bar numbers are written above the bar lines.

1 2 3

4 5 6 7

8 9 10

11 12 13

14 15 16

17 18 19

20 21 22

The image shows a musical score for a 35-bar piece in C major. The score is divided into four systems of three bars each. Each bar features a different chord in an arpeggiated style in the right hand, while the left hand provides a steady bass line. The piece concludes with a final chord in bar 35.

Firstly it is 35 bars long and in the key of C major. Each bar has a different chord, played in an arpeggiated style; that is playing each note of the chord separately but fast, so you still perceive it as a chord. The rhythm is very consistent throughout giving a clear sense of pulse, and with the harmony changing every bar, the meter is also very clear. (John plays it in an authentic way with a consistent pulse, just a *ritardando* at the end. In my opinion, many pianists try to “milk” the piece, taking rhythmic liberties as they try to be too expressive).

For this harmonic analysis I'm going to use the Roman Numeral notation for most of the chords, with the inversions: b- first inversion, c – second inversion and d- third inversion for a seventh chord.

I will use the 7th symbol for any seventh chord. Going back lecture 4 we found that all chords can be extended to include their seventh. Here Bach uses Dominant seventh, and major seventh (so C major 7: C, E, G, B natural-play it and it will sound quite jazzy). The minor seventh and diminished seventh are also used, more on those when we get to them.

Also remember the secondary dominants: firstly V/V, which in C major is a D major (II) leading to G. Secondly there is a V/ii, which here is A major to D minor, and finally V/IV which is C7 to C major. (I'll explain more of that when it comes up).

Another thing to notice is that most of the time the bass notes move stepwise from bar to bar-only moving up or down to the next nearest note, or often they stay the same. This makes things move smoothly and is called voice leading. Only at bars 10, 11, 18, 19, 21 and 32 are there bigger jumps or leaps.

Here we go - a bar by bar analysis.

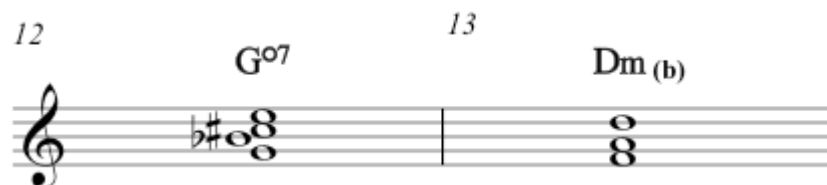
Things start off quite straightforwardly- the first 5 bars establish the tonic key:

Bars 1 - 4: I, ii7d, Vb, I,

Bar 5: the relative minor - vib.

Bars 6 and 7: II7d,(D7 third inversion) which is V7/V, V-

Bars 8 – 11: Imajr7d, (C major with a B in the bass) vi7, V7/V, V this is a modulation to the dominant (G) Bars 12 and 13: G diminished seventh – Vo7, (spelled G, Bb, C#, E). Diminished chords are dissonant (play it to hear!), and can lead in many directions. In this case the chord has a dominant function that makes it lead to the ii chord (D minor). To see how this works we need to look at voice leading- how notes in a chord can move short intervals to make a new chord. Here the Bb leads down to A, and the C# leads to D, so Bar 13 is iib this shows it simplified:



Bar 14: another tricky one: it's an F diminished chord. F should be IV, but this is ivo7, but again through leading tones it acts like a dominant, bringing us back to the I on bar 15.

Bars 15 – 19: Ib, IVmajor7d, ii, V, I. This is a return to the tonic at the halfway point. Note bar 19 is identical to bar 1, but one octave lower.

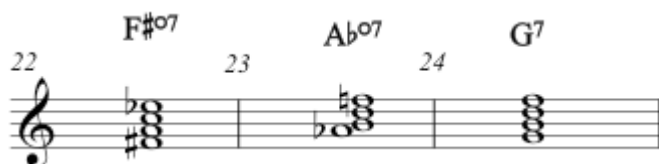
Next comes a C7. C7 is the V7 of F major i.e. V7/IV:

Bars 20 and 21: V7/IV, IV.

Things become more tricky now.

Bar 22: F#o7 (F#, A, C, Eb). This could be expected to lead to G because of voice leading, but instead it moves to:

Bar 23: Abo7 (Ab, B, D, F but there is also a C in the chord). This really ramps up the tension- John told me that some music publishers actually added a bar of C minor in between 22 and 23; they couldn't handle it, or thought it was 'wrong'! However through very elegant voice leading this Ab diminished leads to V: Here is another simplified illustration of bars 22 – 24:



Note that for bar 23 to change to bar 24 only the Ab has to move down to a G- that is the smooth voice leading. (By the way this is also very jazzy progression, much loved in bebop of the 1940's).

Bars 24-27: V7, Ic, V7sus4, V7. The V7sus4 means a G7 chord without a third-spelled G, C, D, F. The C is a dissonance that 'wants' to move down to B (which it does to G7 in the next bar). It is called a suspension- hence the sus. abbreviation.

Bar 28: Ebo7: another one that defies easy explanation. I think of it as Eb diminished over G natural-(G, Eb, F#, A, C)-if you just play it as a chord out of context it sounds pretty dissonant-full of 'wrong notes'! However, in context, it has a dominant function, leading to Ic:

Bars 29 – 31: Ic, V7sus4, V7.

Note bars 24 to 31 have all had a G in the bass (called a pedal tone). Now the pedal is going to drop to C.

Bar 32: C7 or V7/IV, the subdominant leaning that John mentioned. This leads to F, (still over the C pedal), but before we have time to feel like we could be in F major, Bach goes back to G7 (dominant of C) and so to the C major finish:

Bar 33-34: Ivc, V7, but over C pedal.

Again this creates more tension, but finally we come back home:

Bar 35: I.

Well that was a lot and again don't worry if you didn't follow it all, this would be pretty challenging for a lot of third year music students! (This analysis is more detailed than we would expect you to do in the final assessment). The real point is that all these technical aspects we have been looking at come together to make music that is compelling and propels itself forward- and has done for three hundred years. It has been copied, ripped off, used as background for other tunes (Charles Gounod's Ave Maria), etc.

Here's a summary:

Bar 1-5 set up the the tonic

Bar 10 is a modulation to the dominant

At *Bar 19* there is a full return to the tonic.

Bars 20 to 23 increase the tension, and at *Bar 24* the G pedal is introduced and tension starts to ease.

At *Bar 32* the C pedal is introduced and V7/IV, IVc, V7 take us back to I.