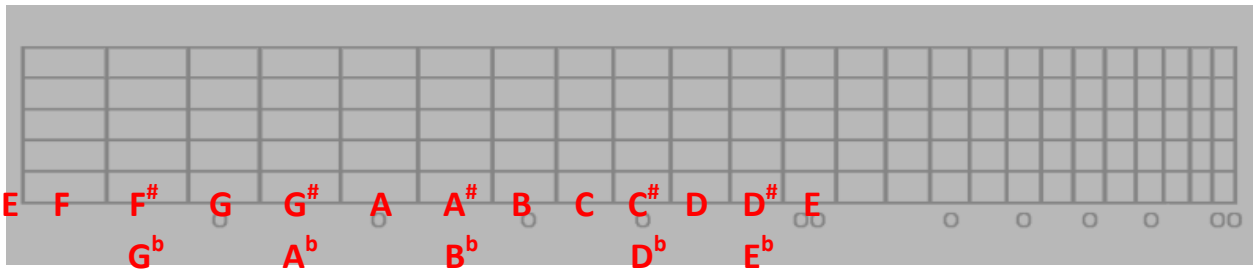
Chord Harmony

A song is written in a certain key.
This key is the 'home base' of the scale of notes that are being used in a song.
A scale is number of notes, stacked in a row in order of pitch from low to high.
A list of all possible notes we can play :

	1	2	3	4	5	6	7	8	9	10	11	12	1
All notes	C	C#	D	D#	E	F	F#	G	G#	A	A#	B	C
Enharmonic names*		Db		Eb			Gb		Ab		Bb		

Distance between each tone = ½ note (1 fret).
E.g. Distance between C and C# = ½ note (1 fret).
Distance between C and D = 1 whole note (2 frets)
Distance between D and F# = 2 whole notes (4 frets)

Enharmonic names*
these notes can have two names:
 # means raised with ½ note (C# is a raised C)
b means lowered with ½ note (Db is a lowered D)



Each scale is a subset of all these notes. Scales are made with a formula.
The scales we use mostly consist of 7 notes, with a set distance between each note.
This distance can be ½ note (1 fret), a whole note (2 frets), 1 ½ notes (3 frets), etc.
A 'major scale' (a.k.a. an ionic scale) has the formula 2-2-1-2-2-2-1.
This means that the distance between the first tone and the second tone is 2 x ½ note = 1 whole note (2 frets).
the distance between the second and third tone is 2 x ½ note = 1 whole note (2 frets).
the distance between the third and fourth note is 1 x ½ note (1 fret). Etc.

You can create a major scale on every note on the fretboard.
If you start with a certain note and follow the formula, you'll always end up with a major scale.
The note you start on is called the 'key'.
E.g. if you are playing in the key of G major the notes (and the distance between them) would be :

G	A	B	C	D	E	F#	G
2	2	1	2	2	2	1	

The chords we use in Pop and Rock music come from the major (Ionian) scale or one of the Minor scales (Aeolian, Dorian, Phrygian). We'll first take a look at chords derived from the Ionian Major scale

In Western Pop, Rock, Blues, Funk, etc. music we use what is called "tertiary" harmony.
This means that most common chords are stacks of third intervals; a major third (4x ½ note or 4 frets) or a minor third (3x ½ note or 3 frets).

The chords we can build from an Ionian major scale can be found by taking each of the notes of the scale as the root and using the formula 1-3-5. You skip a note up from the root (nr. 2) and add the one you land on (nr.3). You do the same again, skipping nr.4 and adding the next (nr.5).

This will result in a chord with tertiary harmony; major chord and minor chords.

If you write down the scale, start at a note (tonic) and skip every other note, you end up with a chord.
E.g. C = C D E F G A B C . Start at C (=1). The other chord notes are E(=3) and G (=5).
Start at D (=1). The other chord notes are F(=3) and G (=5).
Start at G (=1). The other chord notes are B(=3) and D (=5).
Note that when we 'calculate' the 3 and 5, we do this relative to each of the tonics we chose (=1).

Depending on the distance in notes between the 1 and the 3,
we end up with a major chord (4 x ½ note) or with a minor chord (3 x ½ note).
If we calculate the chords for each scale, we end up with this chord table:

Key						
I	ii	iii	IV	V	vi	vii
B	C#m	D#m	E	F#	G#m	A#dim
E	F#m	G#m	A	B	C#m	D#dim
A	Bm	C#m	D	E	F#m	G#dim
D	Em	F#m	G	A	Bm	C#dim
G	Am	Bm	C	D	Em	F#dim
C	Dm	Em	F	G	Am	Bdim
F	Gm	Am	Bb	C	Dm	Edim
Bb	Cm	Dm	Eb	F	Gm	Adim
Eb	Fm	Gm	Ab	Bb	Cm	Ddim
Ab	Bbm	Cm	Db	Eb	Fm	Gdim
Db	Ebm	Fm	G	Ab	Bbm	Cdim

Each Major Key has 7 notes and thus 7 chords.
Major chords are notated with capital Roman Numerals (I,IV,V).
Minor chords with small Roman Numerals (ii,iii,vi).
In a major key the chord on the 7th degree vii is never used; you can disregard it.
This is because the 5th of that chord (formula 1-3-5 on the 7th note of the scale) is lowered, which creates an unstable chord.

In a major key the I chord is called the Tonic, the IV chord is called the Subdominant and the V chord is called the Dominant. These are the three most important chords in a major key. These chords are Major.
The other three chords on the second, third and sixth degree are used as substitutes for the I,IV and V.
They are Minor chords.

Due to the notes in the chords the I chord can be substituted by the vii chord (e.g. C → Am)
the IV chord can be substituted by the ii chord (e.g. F → Dm)
the V chord can be substituted by the iii chord (e.g. G → Em)
This can be done because these 'substitute' chords have 2 notes in common with the chord they replace.

Chord	Notes in Chord	Substitute Chord	Notes in Chord
C	C E G	Am	A C E
F	F A C	Dm	D F A
G	G B D	Em	E G B

If a song only uses the 3-note chords (triads) from the left six columns of the chord table, the resulting sound can be described as 'folk', 'country', etc.
This is because there is a limited amount of tension in the chord progression; all the notes in all the chords come from one key and we have not added any 'extensions' to the chord.

Each of these chords has certain character which stems from the type of triad.
A major chord has the root, a major third and a perfect fifth.
It's "chord formula" is 1-3-5.
A minor chord has a root, a flatted third and a perfect fifth.
It's formula is 1-b3-5.
The unstable chord built on the 7th note (degree) has a flatted third and a flatted fifth.
The chord formula for this chord is 1-b3-b5.

Chord extensions

On top of the 3 note chords with the formulas 1-3-5 and 1-b3-5 you can add notes.
The notes are called "Extensions". They can give a chord more 'color'.
These notes are added to the "chord formula".

The most common extension is adding the 7th note in the scale up from each of the notes in the scale.
The formula we used to build chords on top of the scale notes was 1-3-5.
Skip one note up from the 5th note in the chord and add the one you land on.
The formula will become 1-3-5-7 .

If we change the formula of the triad 1-3-5 to 1-3-5-7 we end up with these chords:

Key						
I maj7	ii m7	iii m7	IV maj7	V 7	vi m7	vii m7b5
B maj7	C#m 7	D#m 7	E maj7	F# 7	G#m 7	A#m 7b5
E maj7	F#m 7	G#m 7	A maj7	B 7	C#m 7	D#m 7b5
A maj7	Bm 7	C#m 7	D maj7	E 7	F#m 7	G#m 7b5
D maj7	Em 7	F#m 7	G maj7	A 7	Bm 7	C#m 7b5
G maj7	Am 7	Bm 7	C maj7	D 7	Em 7	F#m 7b5
C maj7	Dm 7	Em 7	F maj7	G 7	Am 7	Bm 7b5
F maj7	Gm 7	Am 7	Bb maj7	C 7	Dm 7	Em 7b5
Bb maj7	Cm 7	Dm 7	Eb maj7	F 7	Gm 7	Am 7b5
Eb maj7	Fm 7	Gm 7	Ab maj7	Bb 7	Cm 7	Dm 7b5
Ab maj7	Bbm 7	Cm 7	Db maj7	Eb 7	Fm 7	Gm 7b5
Db maj7	Ebm 7	Fm 7	G maj7	Ab 7	Bbm 7	Cm 7b5

Note that we are remaining within the scale.
Each of these chords has a color.
This color can be defined as 'smooth' when you're adding a major 7th to a major chord.
You can add tension to a major chord when you add the flatted 7th to it. Etc.

If you are in the key of G for instance, the notes are :

G	A	B	C	D	E	F#	G
2	2	1	2	2	2	1	

Building a 4-note chord with the formula 1-3-5-7 would get you a chord with the notes G,B,D,F# .
Because the distance between the tonic G and the added note F# (the 7th from the scale) is 11 x ½ note we call this chord a 'major 7th chord' or 'maj7' or 'Δ7'.
The chord we end up with on the G tonic is a G maj7 .

Note: the 'maj' in major 7th refers to the 7th note. It has nothing to do with if the chord is major or minor. A chord is major or minor depending on the third of the chord.
Which means that there is actually a chord like Am^{maj7}.
Which is - an A minor chord with a C note in it, which is the flatted 3rd (or 3 frets) above the tonic
- and a major seventh, which is a G# (= 11 frets above the tonic).

If we remain in the key and build 4-note chords with the 1-3-5-7 method we end up with 4 different chords, each with their own chord formula:

maj7th chords	-	**the triad is major and the distance between the tonic and 7th note is 11 frets**
	-	**Chord Formula: 1 - 3 - 5 -7**
m7 chords	-	**the triad is minor and the distance between the tonic and 7th note is 10 frets**
	-	**Chord Formula: 1 - b3 - 5 -b7**
7 chord	-	**the triad is major and the distance between the tonic and 7th note is 10 frets**
	-	**Chord Formula: 1 - 3 - 5 - b7**
m7b5 chord	-	**not used in a major key: triad is minor, the fifth is lowered and the distance between the tonic and the 7th note is 10 frets.**
	-	**Chord Formula: 1 - b3 - b5 - b7**

In the key of G this results in:
G^{maj7} – Am^{7} – Bm^{7} – $Cmaj^{7}$ – D^{7} – Em^{7} – $F\#m^{7b5}$

For 4-note chords the same rules for substitution apply:
Due to the notes in the chords the I^{maj7} chord can be substituted by the vii^{m7} chord (e.g. C^{maj7} → Am^{7})
the IV^{maj7} chord can be substituted by the ii^{m7} chord (e.g. F^{maj7} → Dm^{7})
the V^{7} chord can be substituted by the iii^{m7} chord (e.g. G^{7} → Em^{7})
This can be done because these 'substitute' chords have 3 notes in common with the chord they replace. You can also substitute these chords by the associated triads, e.g. Cmaj7 → Am .

Chord	Notes in Chord	Substitute Chord	Notes in Chord
C maj7	C E G B	Am7	A C E G
F maj7	F A C E	Dm7	D F A C
G 7	G B D F	Em7	E G B D

Songs with 4-note chords have more color. Modern pop songs, jazz and blues use these chords.

Chord Formulas

Each chord has a chord formula. The sound a certain chord has stems from this formula.
Two chords with the same formula, built on different roots, will have the same character / color / flavor.

Because we mostly use tertiary harmony in Western Pop and Rock music most chord will have chord formulas like 1-3-5 or 1-b3-5 or 1-3-5-7, etc. But other formulas are possible too, each resulting in their own specific sound.

A chord with the formula 1-3-5-b7-9 is called a dominant ninth chord.
A chord with the formula 1-2-5 is a sus2 chord and the chord formula 1-4-5 results in a sus4 chord.

The numbers in these formulas refer to the distance between the root of the chord and the note you add. The number 4 for instance refers to the distance of a "perfect fourth" which is 5 frets.
We've seen that the number 3 means the chord has a "major third" in it, meaning 4 frets up from the root.

This is a table of the numbers, the intervals they result in and the name.

Number in Chord Formula	Distance to Root in Notes	Distance to Root in frets	Name of Interval
1	0	0	Unison
b2	½	1	Minor Second
2	1	2	Major Second
b3	1 ½	3	Minor Third
3	2	4	Major Third
4	2 ½	5	Perfect Fourth
#4 / b5	3	6	Augmented Fourth Diminished Fifth
5	3 ½	7	Perfect Fifth
#5 / b6	4	8	Augmented Fifth Minor Sixth
6	4 ½	9	Major Sixth
b7	5	10	Minor Seventh
7	5 ½	11	Major Seventh
8	6	12	Octave
b9	6 ½	13	Minor Ninth
9	7	14	Major Ninth
#9	7 ½	15	Augmented Ninth
11	8 ½	17	Eleventh
#11	9	18	Augmented Eleventh
b13	10	20	Diminished Thirteenth
13	10 ½	21	Thirteenth
#13	11	22	Augmented Thirteenth

Formulas for Chord Families

Adding any one of these notes to the chord formula will influence the sound of the chord.
The most important chord formulas can be divided into three 'families' of chords ;
major, minor and dominant.
We'll also include some chord formulas that are harder to categorize.

The most common chord formulas and their names are listed here.

Chord Symbol (Major Chords)	Name	Chord Formula
	Major	1-3-5
6	Major 6th	1-3-5-6
Maj7, Δ7	Major 7th	1-3-5-7
9	Major 9th	1-3-5-7-9
add 9	Major Added 9th	1-3-5-9
6/9	Major 6 / 9th	1-3-5-6-9
Δ7/6	Major 7th / 6th	1-3-5-6-7
Δ7/ #11	Major 7th Sharp Eleventh	1-3-5-7-#11
13	Major 13th	1-3-5-7-9-13

Note: Whenever the number 7 shows up in a chord formula, one needs to be careful.
In the formulas above the 7 means the major seventh; 11 frets up from the root.
In the notation C7 the 7th is actually a flatted seventh; 10 frets up from the root.
The chord formula for a C7 = 1-3-5-b7

Chord Symbol (Minor Chords)	Name	Chord Formula
m	Minor	1-b3-5
m6	Minor 6th	1-b3-5-6
m7	Minor 7th	1-b3-5-b7
m9	Minor 9th	1-b3-5-b7-9
m 11	Minor 11th	1-b3-5-b7-9-11
m7/11	Minor 7 / 11th	1-b3-5-b7-11
m add9th	Minor add 9th	1-b3-5-9
m Δ7	Minor Major 7th	1-b3-5-7
m6/9	Minor 6th / 9th	1-b3-5-6-9

Chord Symbol (Dominant Chords)	Name	Chord Formula
7	Dominant 7th	1-3-5-b7
7/6	Dominant 7th 6th	1-3-5-6-b7
7 sus4	Dominant 7th sus4	1-4-5-b7
7/11	Dominant 7th /11th	1-3-5-b7-11
9	Dominant 9th	1-3-5-b7-9
11	Dominant 11th	1-3-5-b7-9-11
13	Dominant 13th	1-3-5-b7-9-13
7b9	Dominant 7th flat 9th	1-b3-5-b7-b9
7#9	Dominant 7th sharp 9th	1-b3-5-b7-#9
7b13	Dominant 7th flat 13th	1-3-5-b7-9-b13

Chord Symbol (Other Chords)	Name	Chord Formula
dim	Diminished Triad	1-b3-b5
aug	Augmented Triad	1-3-#5
dim 7, o	Diminished 7th	1-b3-b5-bb7
aug 7	Augmented 7th	1-3-#5-b7
sus2	Suspended 2nd	1-2-5
sus4	Suspended 4th	1-4-5
m7b5 , Ø	Half Diminished	1-b3-b5-b7

Chord Progressions

Chord progressions consist of a number of chords, taken from one or more scales.
The I, IV and V chord are the most important chords in a major key.
The others can be added for variation.

In pop songs the chords can move freely from one to the other, with a few rules of thumb:
- generally the last chord in a song is the tonic / key in which the song is written*
- the strongest chord progression is from the V chord to the I chord
- if you add notes to a chord from a different scale, you'll be playing a chord from a different scale
- adding chords from a different scale adds tension to a progression

* We're not looking at songs that change key (modulate) just yet.

The V-I progression in the key of G would be a D-G or a D7-G or a D-Gmaj7, etc.
The relationship the tonics of these chords have, is the bases for this tension/resolution.
Even a Dm-G or Dm-G are relatively strong chord progressions.

The strength of the V- I progression and the amount of tension / release depends on the types of chords involved.
Generally a major chord as a V chord wants to resolve more than a minor.
This makes the D – G a stronger progression than a Dm – G.
And a dominant 7th chord as a V chord wants to resolve even more.
This makes a D7 – G an even stronger progression.

Anytime you have a V-I chord progression, you'll have some tension / resolution.
The distance between the tonic of the V chord and the tonic of the I chord is 5 x ½ note (5 frets).
Anytime there is a distance of 5 x ½ note between the roots of two chords, we have a strong chord progression.

In a major scale 5 of the 6 chords we use in pop music can function as a V chord for some I chord.
And even the m7b5 chord on the 7th degree can function as a V chord

The key of G has the notes G, A, B, C , D, E and F#.
In the key of G the distance between the G note and the C note is 5 x ½ note
the A note and the D note is 5 x ½ note
the B note and the E note is 5 x ½ note
the D note and the G note is 5 x ½ note
the E note and the A note is 5 x ½ note.
the F# note and the B note is 5 x ½ note

Any progression between chords that are built on a pair of these roots (G-C,A-D,B-E,D-G,E-A and F#-B) will have a strong tension/resolution .

This means that in the key of G:

the G wants to resolve to a C
the Am wants to resolve to a D
the Bm wants to resolve to an Em
the D wants to resolve to a G
the Em wants to resolve to an Am
the F#m7b5 wants to resolve to a Bm
(never used; if used the progression becomes F#m - Bm)

In general this means that:

the I chord wants to resolve to the IV chord
the ii^{m} wants to resolve to the V chord
the iii^{m} wants to resolve to the vi^{m} chord
the V chord wants to resolve to the I chord
the vi^{m} chord wants to resolve to the ii^{m} chord
the vii^{m} chord wants to resolve to the iii^{m} chord

Both the I-IV progression and the V-I progression use major chords.
The first chord being major makes for a stronger tension/resolution than if the first chord would be minor.

If we change the minor chord into major in one of the strong progressions described above, we'll be creating an even stronger progression.
To change a minor chord to major we need to raise the flatted 3rd of that chord by ½ note. This makes the distance between the tonic and the third of the chord 4 x ½ note (4 frets). The chord will become a major chord.

In the key of G this would mean:

Chord	Name	Notes in chord	Flatted 3rd	Raise the 3rd	Result	Name	Chord
ii^{m}	A^{m}	A C E	C	C#	A C# E	A	II
iii^{m}	B^{m}	B D F#	D	D#	B D# F#	B	III
vi^{m}	E^{m}	E G B	G	G#	E G# B	E	VI
vii^{m} **	F# ^{m}	F# A C#	A	A#	F# A# C#	F#	VII

** The dim chord on the 7th degree can be replaced by a regular minor chord in these cases by raising the flatted 5th to a perfect 5th.
Because this introduces another note from a different scale, it is only applicable in a V-I progression.

In a major key, changing the minor chords to major is a common alteration:
one of the minor chords will be replaced by it's major counterpart.
Although often used in a V-I progression they don't have to resolve to 'their' I chord.

Changing the minor chords into major adds notes from a different scale.
This makes for a stronger need to resolve.

Examples:

G – C – A – D – G	**is a stronger progression than G – C – Am – D – G**
G – E – C – D – G	**has a major chord substitute (key of G holds an Em) that is not part of a V-I progression. It still sounds good.**

When this chord substitution is used, the melody/solo needs to be adjusted accordingly.
Most often on the chord that is made major, the melody can't hold the flatted third of that chord anymore, because the chord in the backing contains the major third.

This type of chord substitution is often used to modulate (temporarily) to a different key.

Examples:

G – C – D – G – E – Am	**The first four chords are in the key of G. The E makes for a strong tension / resolution to Am. If the chord progression stays on Am for a few bars, you'll start to feel the Am as the I chord. The chord progression has modulated.**

Major chord replaced by it's dominant chord

Anytime we see a V – I chord progression we can make the tension / resolution stronger by making the chord dominant. This means we add the flatted 7th to the chord.
This can be done with any major chord, even the ones that were substitutes for a minor chord.

Examples:

G – G7 – C	**is stronger than G – G – C**
G – C – D7 – G	**is stronger than G – C – D – G**
G – C – E7 – Am	**is stronger than G – C – E – Am which in turn is stronger than G – C – Em – Am**

This flatted 7th that is added to the chord is often not in the original key.
Notes that are not from the key a chord is in, will give the chord tension. The chord will want to resolve more eagerly.

In the key of G, the chord G7 will have an added F note. There is an F# in the key, not an F.
The chord gets (more) tension and will want to resolve in a V – I progression to the C chord.

Adding chords from the minor key with the same root

Modern pop, folk and rock music is rooted in the blues.
Blues is a mixture of major and minor keys.

A cliché blues progression is 12 bars long and uses three major chords, almost always played as dominant 7th chords, e.g. G7. These are the I^7, IV^7 and V^7 chords.
In a major key we only have a dominant 7th chord on the V chord, e.g. D7 in the key of G major.
This means that on the I and IV chord, we're introducing notes that are not part of the major scale.

In a blues in the key of G we would play a G7, which has an F note in it, and a C7, which has a Bb note in it.
Both the F and Bb are not part of the G major scale.

On top of that we're playing melodies that use notes out of the G minor pentatonic scale.
It's a minor scale (meaning it has a flatted third in it) and it only has five notes instead of the seven a regular major or minor scale has ("penta" is Greek for five).

Because many pop and rock songs use blues elements, we'll see chords out of the minor scale with the same root show up in a major chord progression.
In the key of G major we'll encounter chords out of the key of G minor.

The key of Gm has the same chords as the key of Bb major (see diagram – section 'Chords in Minor Keys').

Key of G	**G**	**Am**	**Bm**	**C**	**D**	**Em**	**F#dim**	**G**
Key of Bb	**Bb**	**Cm**	**Dm**	**Eb**	**F**	**Gm**	**Adim**	**Bb**
Key of Gm	**Gm**	**Adim**	**Bb**	**Cm**	**Dm**	**Eb**	**F**	**Gm**

If we compare these keys and study which chords can be added to the major key out of the minor key, we end up with:

Gm	**-**	**not used often, because this means a modulation from major to minor**
Adim	**-**	**not used**
Bb	**-**	**this is the bIII major chord in relation to the key of G major**
Cm	**-**	**this is the IVm chord in relation to the key of G major; not often used, has a very sad effect**
Dm	**-**	**this is the Vm chord in relation to the key of G major; not often used, has a sad effect.**
Eb	**-**	**this is the bVI major chord in relation to the key of G major**
F	**-**	**this is the bVII major chord in relation to the key of G major**

The result is that we can add the bIII, bVI and bVII chord to a major key to give the chord progression a rocky, bluesy sound.
To get this we've used the chords out of the minor scale with the same root and added them to the major scale

In modern pop / rock music we don't often play extensions on these chords .
If we do play them they are also taken out of the minor scale, so $bIII^7$, bVI^7 and $bVII^7$.

Borrowing these chords from the minor scale with the same root results in playing in 'mixed mode'.

<u>VII dim chord altered</u>

The 7^{th} degree of a major scale is a diminished triad or (in it's 4 note form) a m7b5 chord.
We can alter that chord to a regular minor by raising the flatted fifth of the chord to a perfect fifth.

In the key of G this would mean changing the F#dim to an Fm.
The 4-note version would be an F#m7.

And because we can replace any minor chord in a major key by it's major counterpart or the dominant of that chord with the same root, we can also add the VII major chord and the VII dominant chord to the mix of usable chord in a major key.
These latter substitutions can be done, because the VII chord can function as a temporary I chord in a progression to the IIIm chord.

In the key of G we would replace the F#m by the F# and / or the F#7.

Table for Chord options in a major key (triads)

Key							Mixed Mode			Min → Maj			Maj → Min		Dim →Min
I	ii	iii	IV	V	vi	vii	bIII	bVI	bVII	II	III	VI	iv	v	vii
B	C#m	D#	E	F#	G#m	A#dim	D	G	A	C#	D#	G#	Em	F#m	A#m
E	F#m	G#m	A	B	C#m	D#dim	G	C	D	F#	G#	C#	Am	Bm	D#m
A	Bm	C#m	D	E	F#m	G#dim	C	F	G	B	C#	F#	Dm	Em	G#m
D	Em	F#m	G	A	Bm	C#dim	F	Bb	C	E	F#	B	Gm	Am	C#m
G	Am	Bm	C	D	Em	F#dim	Bb	Eb	F	A	B	E	Cm	Dm	F#m
C	Dm	Em	F	G	Am	Bdim	Eb	Ab	Bb	D	E	A	Fm	Gm	Bm
F	Gm	Am	Bb	C	Dm	Edim	Ab	Db	Eb	G	A	D	Bbm	Cm	Em
Bb	Cm	Dm	Eb	F	Gm	Adim	Db	Gb	Ab	C	D	G	Ebm	Fm	Am
Eb	Fm	Gm	Ab	Bb	Cm	Ddim	Gb	B	Db	F	G	C	Abm	Bbm	Dm
Ab	Bbm	Cm	Db	Eb	Fm	Gdim	B	E	Gb	Bb	C	F	Dbm	Ebm	Gm
Db	Ebm	Fm	G	Ab	Bbm	Cdim	E	A	B	Eb	F	Bb	Gm	Abm	Cm

Table for Chord options in a major key (4-note chords)

Key							Mixed Mode			Min → Dom			Maj → Min		Dim→Maj
I^{maj7}	ii^{m7}	iii^{m7}	IV^{maj7}	V^{7}	vi^{m7}	vii^{m7b5}	bIII	bVI	bVII	II^{7}	III^{7}	VI^{7}	iv^{7}	v^{7}	VII / VII^{7}
B^{maj7}	$C\#m^{7}$	$D\#m^{7}$	E^{maj7}	$F\#^{7}$	$G\#m^{7}$	$A\#m^{7b5}$	D	G	A	$C\#^{7}$	$D\#^{7}$	$G\#^{7}$	Em^{7}	$F\#m^{7}$	A# / $A\#^{7}$
E^{maj7}	$F\#m^{7}$	$G\#m^{7}$	A^{maj7}	B^{7}	$C\#m^{7}$	$D\#m^{7b5}$	G	C	D	$F\#^{7}$	$G\#^{7}$	$C\#^{7}$	Am^{7}	Bm^{7}	D# / $D\#^{7}$
A^{maj7}	Bm^{7}	$C\#m^{7}$	D^{maj7}	E^{7}	$F\#m^{7}$	$G\#m^{7b5}$	C	F	G	B^{7}	$C\#^{7}$	$F\#^{7}$	Dm^{7}	Em^{7}	G# / $G\#^{7}$
D^{maj7}	Em^{7}	$F\#m^{7}$	G^{maj7}	A^{7}	Bm^{7}	$C\#m^{7b5}$	F	Bb	C	E^{7}	$F\#^{7}$	B^{7}	Gm^{7}	Am^{7}	C# / $C\#^{7}$
G^{maj7}	Am^{7}	Bm^{7}	C^{maj7}	D^{7}	Em^{7}	$F\#m^{7b5}$	Bb	Eb	F	A^{7}	B^{7}	E^{7}	Cm^{7}	Dm^{7}	F# / $F\#^{7}$
C^{maj7}	Dm^{7}	Em^{7}	F^{maj7}	G^{7}	Am^{7}	Bm^{7b5}	Eb	Ab	Bb	D^{7}	E^{7}	A^{7}	Fm^{7}	Gm^{7}	B / B^{7}
F^{maj7}	Gm^{7}	Am^{7}	Bb^{maj7}	C^{7}	Dm^{7}	Em^{7b5}	Ab	Db	Eb	G^{7}	A^{7}	D^{7}	Bbm^{7}	Cm^{7}	E / E^{7}
Bb^{maj7}	Cm^{7}	Dm^{7}	Eb^{maj7}	F^{7}	Gm^{7}	Am^{7b5}	Db	Gb	Ab	C^{7}	D^{7}	G^{7}	Ebm^{7}	Fm^{7}	A / A^{7}
Eb^{maj7}	Fm^{7}	Gm^{7}	Ab^{maj7}	Bb^{7}	Cm^{7}	Dm^{7b5}	Gb	B	Db	F^{7}	G^{7}	C^{7}	Abm^{7}	Bbm^{7}	D / D^{7}
Ab^{maj7}	Bbm^{7}	Cm^{7}	Db^{maj7}	Eb^{7}	Fm^{7}	Gm^{7b5}	B	E	Gb	Bb^{7}	C^{7}	F^{7}	Dbm^{7}	Ebm^{7}	G / G^{7}
Db^{maj7}	Ebm^{7}	Fm^{7}	G^{maj7}	Ab^{7}	Bbm^{7}	Cm^{7b5}	E	A	B	Eb^{7}	F^{7}	Bb^{7}	Gm^{7}	Abm^{7}	C / C^{7}

This is a list of all the chords you can build with notes from the Ionian Major scales.
E.g. : C major scale: C,D,E,F,G,A and B . Chords in C Ionian: C,Dm,Em,F,G,Am and Bdim.

Key (major)						
I	ii	iii	IV	V	vi	vii
B	C#m	D#m	E	F#	G#m	A#dim
E	F#m	G#m	A	B	C#m	D#dim
A	Bm	C#m	D	E	F#m	G#dim
D	Em	F#m	G	A	Bm	C#dim
G	Am	Bm	C	D	Em	F#dim
C	Dm	Em	F	G	Am	Bdim
F	Gm	Am	Bb	C	Dm	Edim
Bb	Cm	Dm	Eb	F	Gm	Adim
Eb	Fm	Gm	Ab	Bb	Cm	Ddim
Ab	Bbm	Cm	Db	Eb	Fm	Gdim
Db	Ebm	Fm	G	Ab	Bbm	Cdim

If we list these chords starting and ending on the 6th degree, we'll have a list of all the chords of the Aeolian minor scales.
E.g. A Aeolian Minor: A,B,C,D,E,F and G. Chords in A Aeolian: Am, Bdim, C, Dm, Em ,F and G.

Key (Aeolian minor)						
i	ii *	III	iv	V	VI	VII
G#m	A#dim	B	C#m	D#m	E	F#
C#m	D#dim	E	F#m	G#m	A	B
F#m	G#dim	A	Bm	C#m	D	E
Bm	C#dim	D	Em	F#m	G	A
Em	F#dim	G	Am	Bm	C	D
Am	Bdim	C	Dm	Em	F	G
Dm	Edim	F	Gm	Am	Bb	C
Gm	Adim	Bb	Cm	Dm	Eb	F
Cm	Ddim	Eb	Fm	Gm	Ab	Bb
Fm	Gdim	Ab	Bbm	Cm	Db	Eb
Bbm	Cdim	Db	Ebm	Fm	G	Ab

We can see that the chords on the 1st, 4th and 5th note are now minor and the chords on the 3rd, 6th and 7th degree are major.

*** The chord on the 2nd degree is a dim chord. Contrary to the major scale, this odd chord will sometimes be used, predominantly in jazz. It will be played as a 4-note chord in a ii-V-i progression in minor. The chord will be a m7b5 chord. In pop and rock we don't encounter this chord.**

This is a list of 4-note chords built on the notes of the Aeolian minor scales:

Key (Aeolian minor)						
i^{m7}	ii^{m7b5}	III^{maj7}	iv^{m7}	vi^{m7}	VI^{maj7}	VII^{7}
G#m^{7}	A#m^{7b5}	B^{maj7}	C#m^{7}	D#m^{7}	E^{maj7}	F#^{7}
C#m^{7}	D#m^{7b5}	E^{maj7}	F#m^{7}	G#m^{7}	A^{maj7}	B^{7}
F#m^{7}	G#m^{7b5}	A^{maj7}	Bm^{7}	C#m^{7}	D^{maj7}	E^{7}
Bm^{7}	C#m^{7b5}	D^{maj7}	Em^{7}	F#m^{7}	G^{maj7}	A^{7}
Em^{7}	F#m^{7b5}	G^{maj7}	Am^{7}	Bm^{7}	C^{maj7}	D^{7}
Am^{7}	Bm^{7b5}	C^{maj7}	Dm^{7}	Em^{7}	F^{maj7}	G^{7}
Dm^{7}	Em^{7b5}	F^{maj7}	Gm^{7}	Am^{7}	Bb^{maj7}	C^{7}
Gm^{7}	Am^{7b5}	Bb^{maj7}	Cm^{7}	Dm^{7}	Eb^{maj7}	F^{7}
Cm^{7}	Dm^{7b5}	Eb^{maj7}	Fm^{7}	Gm^{7}	Ab^{maj7}	Bb^{7}
Fm^{7}	Gm^{7b5}	Ab^{maj7}	Bbm^{7}	Cm^{7}	Db^{maj7}	Eb^{7}
Bbm^{7}	Cm^{7b5}	Db^{maj7}	Ebm^{7}	Fm^{7}	G^{maj7}	Ab^{7}

An Aeolian minor scale has:

- a major second distance between tonic and major second = 2 x ½ note (2 frets)
- a flatted third „ „ „ „ flatted third = 3 x ½ note (3 frets)
- a perfect fourth „ „ „ „ perfect fourth = 5 x ½ note (5 frets)
- a perfect fifth „ „ „ „ perfect fifth = 7 x ½ note (7 frets)
- a flatted sixth „ „ „ „ flatted sixth = 8 x ½ note (8 frets)
- a flatted seventh „ „ „ „ flatted seventh = 9x ½ note (9 frets)

The Ionian Major scale has a formula: 2,2,1,2,2,2,1 that describes the intervals between each note of the scale.
This formula makes for a certain type of sound, in this case the "Doe a Deer, a Female Deer, Ray, a drop of Golden sun, …" sound.
Each set of notes that has this formula will be an Ionian Major scale.

The Aeolian Minor scale also has a formula: 2,1,2,2,1,2,2. Each set of notes that has this formula will sound like and is an Aeolian Minor scale.

Alternative chords in a minor key

Depending on the flavor and sound a progression in minor is going for, you'll see a number of alternative chords show up.

In major keys we disregard the dim chord built on the 7th degree. This chord is a minor chord with a flatted fifth in it, which is an unstable interval.
All other chords from the scale have a distance of 7 x ½ note between the root of the chord and the fifth of the chord.
This interval is called a perfect fifth and is a stable interval.
In a dim chord that distance is lowered with one half note to 6 x ½ note; a flatted fifth.

In a minor key that dim chord is now the 2nd degree and this is an important chord.
In pop and rock music this dim chord is almost always altered.
The flatted fifth of the chord is raised ½ note and becomes a perfect fifth.
The resulting chord is a regular minor chord.

In the key of Em the 2nd degree is an F#dim (triad) or F#m7b5 (4-note) chord.
By raising the flatted fifth C we end up playing a C# which leads to the chords F#m / F#m7.

When we alter this note, we've actually changed the scale we're playing.
Instead of playing a C note in the E Aeolian Minor scale (E,F#,G,A,B,C,D,E) we're now playing a C#.
This leads to a different minor scale, called Dorian.
The notes of an E Dorian scale are E,F#,G,A,B,C#,D,E .

The C note in the E Aeolian Minor scale formed a flatted 6th interval with the tonic.
This interval is now enlarged to a major 6th C# , which is 9 x ½ note.
Because this C# note is also part of other chords in that scale, these chords are also effected.

The C is part of the iv chord Am. If we raise that C to a C# we end up with an A or A7

Getting rid of the odd dim chord on the 2nd degree in a minor scale means raising it's fifth with ½ note. The consequence is that we end up with a ii^{m} and a IV chord.

Key (Dorian minor)						
i	ii *	III	iv	V	VI	VII
G#m	A#m	B	C#	D#m	E	F#
C#m	D#m	E	F#	G#m	A	B
F#m	G#m	A	B	C#m	D	E
Bm	C#m	D	E	F#m	G	A
Em	F#m	G	A	Bm	C	D
Am	Bm	C	D	Em	F	G
Dm	Em	F	G	Am	Bb	C
Gm	Am	Bb	C	Dm	Eb	F
Cm	Dm	Eb	F	Gm	Ab	Bb
Fm	Gm	Ab	Bb	Cm	Db	Eb
Bbm	Cm	Db	Eb	Fm	Gb	Ab

Key (Dorian minor)						
i^{m7}	ii^{m7b5}	III^{maj7}	iv^{m7}	vi^{m7}	VI^{maj7}	VII^{7}
G#m^{7}	A#m^{7}	B^{maj7}	C#^{7}	D#m^{7}	E^{maj7}	F#^{7}
C#m^{7}	D#m^{7}	E^{maj7}	F#^{7}	G#m^{7}	A^{maj7}	B^{7}
F#m^{7}	G#m^{7}	A^{maj7}	B^{7}	C#m^{7}	D^{maj7}	E^{7}
Bm^{7}	C#m^{7}	D^{maj7}	E^{7}	F#m^{7}	G^{maj7}	A^{7}
Em^{7}	F#m^{7}	G^{maj7}	A^{7}	Bm^{7}	C^{maj7}	D^{7}
Am^{7}	Bm^{7}	C^{maj7}	D^{7}	Em^{7}	F^{maj7}	G^{7}
Dm^{7}	Em^{7}	F^{maj7}	G^{7}	Am^{7}	Bb^{maj7}	C^{7}
Gm^{7}	Am^{7}	Bb^{maj7}	C^{7}	Dm^{7}	Eb^{maj7}	F^{7}
Cm^{7}	Dm^{7}	Eb^{maj7}	F^{7}	Gm^{7}	Ab^{maj7}	Bb^{7}
Fm^{7}	Gm^{7}	Ab^{maj7}	Bb^{7}	Cm^{7}	Db^{maj7}	Eb^{7}
Bbm^{7}	Cm^{7}	Db^{maj7}	Eb^{7}	Fm^{7}	Gb^{maj7}	Ab^{7}

Replacing the Vm with a V major chord in a Minor scale.

In the chapter about major chords we've seen that the V- I progression is the strongest progression we know in music. In the Aeolian and Dorian minor keys, the V chord is a minor chord.
We've seen that we can replace that minor chord by it's major counterpart, to create a tension / resolution that is stronger. To do this we have to raise the flatted third in the Vm chord with ½ note and make it into a major third.

In the key of Em this would mean playing a B7 chord instead of a Bm.
Sometimes both the Bm and B chord are used in the same song. The stronger tension / resolution is often held back till the end of the chord progression to get a more satisfying return to the home base.

In pop, rock and folk music altering that chord does NOT have an effect on the other scale notes.
The flatted third of the Vm chord is temporarily raised. In the rest of the progression we don't change that specific note.

In the key of Em we raise the D note in the Bm to a D#. That D is also part of the G chord on the IIIrd degree. We do not raise that particular D note, because the resulting Gaug chord would be unstable.

Chord options in minor keys :

Key (Aeolian minor - Triads)						
i	ii *	III	iv	V	VI	VII
G#m	A#dim	B	C#m	D#m / D#	E	F#
C#m	D#dim	E	F#m	G#m / G#	A	B
F#m	G#dim	A	Bm	C#m / C#	D	E
Bm	C#dim	D	Em	F#m / F#	G	A
Em	F#dim	G	Am	Bm / B	C	D
Am	Bdim	C	Dm	Em / E	F	G
Dm	Edim	F	Gm	Am / A	Bb	C
Gm	Adim	Bb	Cm	Dm / D	Eb	F
Cm	Ddim	Eb	Fm	Gm / G	Ab	Bb
Fm	Gdim	Ab	Bbm	Cm / C	Db	Eb
Bbm	Cdim	Db	Ebm	Fm / F	G	Ab

Key (Aeolian minor – 4 Note Chords)						
i^{m7}	ii^{m7b5}	III^{maj7}	iv^{m7}	vi^{m7}	VI^{maj7}	VII^{7}
$G\#m^{7}$	$A\#m^{7b5}$	B^{maj7}	$C\#m^{7}$	$D\#m^{7}$ /D#7	E^{maj7}	$F\#^{7}$
$C\#m^{7}$	$D\#m^{7b5}$	E^{maj7}	$F\#m^{7}$	$G\#m^{7}$ / G#7	A^{maj7}	B^{7}
$F\#m^{7}$	$G\#m^{7b5}$	A^{maj7}	Bm^{7}	$C\#m^{7}$ / C#7	D^{maj7}	E^{7}
Bm^{7}	$C\#m^{7b5}$	D^{maj7}	Em^{7}	$F\#m^{7}$ /F#7	G^{maj7}	A^{7}
Em^{7}	$F\#m^{7b5}$	G^{maj7}	Am^{7}	Bm^{7} / B7	C^{maj7}	D^{7}
Am^{7}	Bm^{7b5}	C^{maj7}	Dm^{7}	Em^{7} / E7	F^{maj7}	G^{7}
Dm^{7}	Em^{7b5}	F^{maj7}	Gm^{7}	Am^{7} / A7	Bb^{maj7}	C^{7}
Gm^{7}	Am^{7b5}	Bb^{maj7}	Cm^{7}	Dm^{7} / D7	Eb^{maj7}	F^{7}
Cm^{7}	Dm^{7b5}	Eb^{maj7}	Fm^{7}	Gm^{7} / G7	Ab^{maj7}	Bb^{7}
Fm^{7}	Gm^{7b5}	Ab^{maj7}	Bbm^{7}	Cm^{7} / C7	Db^{maj7}	Eb^{7}
Bbm^{7}	Cm^{7b5}	Db^{maj7}	Ebm^{7}	Fm^{7} / F7	Gb^{maj7}	Ab^{7}

Key (Dorian minor - Triads)						
i	ii *	III	iv	V	VI	VII
G#m	A#m	B	C#	D#m / D#	E	F#
C#m	D#m	E	F#	G#m / G#	A	B
F#m	G#m	A	B	C#m / C#	D	E
Bm	C#m	D	E	F#m / F#	G	A
Em	F#m	G	A	Bm / B	C	D
Am	Bm	C	D	Em / E	F#	G
Dm	Em	F	G	Am / A	Bb	C
Gm	Am	Bb	C	Dm / D	Eb	F
Cm	Dm	Eb	F	Gm / G	Ab	Bb
Fm	Gm	Ab	Bb	Cm / C	Db	Eb
Bbm	Cm	Db	Eb	Fm / F	Gb	Ab

Key (Dorian minor – 4 Note Chords)						
i^{m7}	ii^{m7b5}	III ^{maj7}	iv^{m7}	vi^{m7}	VI^{maj7}	VII^{7}
G#m^{7}	A#m^{7}	B^{maj7}	C#^{7}	D#m^{7} / D#7	E^{maj7}	F#^{7}
C#m^{7}	D#m^{7}	E^{maj7}	F#^{7}	G#m^{7} / G#7	A^{maj7}	B^{7}
F#m^{7}	G#m^{7}	A^{maj7}	B^{7}	C#m^{7} / C#7	D^{majj7}	E^{7}
Bm^{7}	C#m^{7}	D^{maj7}	E^{7}	F#m^{7} / F7	G^{maj7}	A^{7}
Em^{7}	F#m^{7}	G^{maj7}	A^{7}	Bm^{7} / B7	C^{maj7}	D^{7}
Am^{7}	Bm^{7}	C^{maj7}	D^{7}	Em^{7} / E7	F^{maj7}	G^{7}
Dm^{7}	Em^{7}	F^{maj7}	G^{7}	Am^{7} / A7	Bb^{maj7}	C^{7}
Gm^{7}	Am^{7}	Bb^{maj7}	C^{7}	Dm^{7} / D7	Eb^{maj7}	F^{7}
Cm^{7}	Dm^{7}	Eb^{maj7}	F^{7}	Gm^{7} / G7	Ab^{maj7}	Bb^{7}
Fm^{7}	Gm^{7}	Ab^{maj7}	Bb^{7}	Cm^{7} / C7	Db^{maj7}	Eb^{7}
Bbm^{7}	Cm^{7}	Db^{maj7}	Eb^{7}	Fm^{7} / F7	Gb^{maj7}	Ab^{7}

Changing keys (modulation)

A key change means that the song gets a different 'home base'; it feels like the song has a different I chord than it started out on.
We tend to speak of modulation if this is the case for a longer period in the chord progression.

The most common key change is to one of the other chords in the original key.
If the original key is C, the chords in the key are C,Dm,Em,F,G,Am,Bdim .
Cliché modulations are to the key of Dm,Em,F,G and Am.

Songs in pop and rock music don't often modulate to more than one other key.
A verse could be in one key and the chorus could be in another or at the end of the song it modulates up, to create some extra excitement.

Most of the songs written on guitar do not modulate.

This is due to the fact that modulation almost always involves playing more bar chords.
Most songwriters in country, folk and pop tend to steer away from using too many bar chords, because they're harder to play.
You need more strength and during your singing you'll need to keep looking at the neck of the guitar to make sure your bar chord is positioned in the right fret.

Most acoustic guitar players like to have open strings to their chords; it makes the guitar ring through more. The bar chord creates a more 'closed' sound, that will be featured more on an electric guitar.

There are several types of modulation.
If you change to a key that only differs one or two notes with the original key, you modulate to a 'near' key. The amount of sharps (#) and flats (b) is almost the same.
You can even modulate to a key that has the same amount of sharps and flats : the relative minor or relative major.
A distant key does not have a lot of notes in common with the original key.
The more distant a key is to the original key, the more unusual the modulation will sound.

Modulating from C to D is more pleasant to the ear than modulating form C to C#;
D has only 2 different notes from C and C# has almost no notes in common with C.

Modulation to the relative minor or major

We've seen that the chord on the tonic of the key we're in can be substituted by the vi^{m} chord.
This is because that chord on the 6th degree has 2 notes in common with the I chord.
The scale that is built on that 6th degree is an Aeolian minor scale, which holds the exact same notes as the original major scale, but starts and ends on the 6th note from that scale.
In C this would mean playing the C major scale (C,D,E,F,G,A,B,C), starting and ending on the A note.

The chords that we can construct with the Aeolian minor scale notes are the exact same chords as in the original major key.
The Am Aeolian scale is the relative minor to the C Ionian major scale.
The C Ionian major scale is the relative major to the A Aeolian minor scale.

Changing keys between the major scale and it's relative minor is the most common modulation.
The chord progression will have the same chords as in the original key, but it feels like there is a different 'home base'.

A song in the key of C would modulate to Am, vise versa.

If this happens for only a few bars we call this 'temporary modulation'.
In many cases it's ambiguous in which of the two keys a song is played, because the chords are picked from the same group.
Most common modulation per key (to relative major/minor):

I – chord	Modulate to	vi^{m} – chord
C	↔	Am
G	↔	Em
D	↔	Bm
A	↔	F#m
E	↔	C#m
F	↔	Dm
Bb	↔	Gm
Eb	↔	Cm

The vi^{m} - chord is built on the 6th degree of the major scale.

The I – chord is built on the 3rd degree of the Aeolian minor scale.

How to modulate

It feels like we've modulated to a different key if for a longer period in the chord progression, the chords revolve around a different home base.

Staying on one chord that is not the I-chord for a longer period of time can achieve this feeling.
In a progression in the key of C, this would happen if you play an Am for four or eight bars in a row. Am would start to feel as the new key.
This feel of a new home base would also happen if Am is played and the other chords that follow have a IV or V relationship to the new home base, instead of the original key.

In the key of C the IV and V chord are F and G. Both these chords have a strong relationship with the I – chord.
All the other chords (ii^m, iii^m and vi^m) can be used as substitutes for the I,IV and V. Their relationship with the original tonic is weaker.

By moving to a new home base (modulating) these relationships change.
The new key will have a different IV and V chord and have different strong / weak relationships.
You'll feel a new home base when a song moves from the original key to it's relative major or minor and expresses the new key, by making use of it's new IV and V chord.

In a progression in C this would mean playing an Am chord and having the chord progression revolve around Am, Dm, and Em. These chords would start to feel as a new I, IV and V chord in the key of Am.

The same could happen vise versa.
If the original key is Am, the chords in the progression would predominantly be Am, Dm and Em. These are the I,IV and V in the key of Am.
You would feel like you've modulated, if the chord progression revolves around C, F and G for a number of bars. These are the I, IV and V chords in the relative major key of Am; C major.

Note: we've seen that there are more than one minor scales that all have alternative chords.
The most common being the V chord made major (originally it's a minor chord), the IV chord made major (was minor) and the II diminished chord made minor.
In chord progressions in a minor key, these alternative chords can show up.
All the above applies to all these minor scales, their chords and alternative chords in the minor progressions.

The V – I modulation

A modulation is often introduced by preceding a new I-chord with it's V chord.

If we're modulating to the relative minor (C → Am) we can precede the new I-chord by it's V chord, which is the iii chord in the original key (3rd degree in C = Em; Em = 5th degree in Am).
This chord is almost always made major (or even dominant) to make the modulation feel stronger.
The Em chord would be replaced by an E major or an E^7 chord.

In a minor key you can accentuate a modulation to the relative major by preceding it with it's V chord, which is the VII chord in minor.
In the key of Am the relative major is C. It's V chord is a G.

Intended Modulation	I → vi^m	C → Am	i^m → III	Am → C
Precede with it's V	I → iii^m → vi^m	C → Em → Am	i^m →VI → III	Am → G → C
Accentuate modulation	I → III → vi^m	C → E → Am	same	same
Accentuate modulation more	I → III^7 → vi^m	C → E^7 → Am	i^m → VI^7 - III	Am → G^7 → C

The V- I modulation where the V chord is major or dominant feels more satisfying and makes the key change more obvious.

A V chord can resolve to a major OR minor chord

A V chord can resolve to a major OR a minor chord.
E resolves to A because it's the V chord in the key of A major. But E or E^7 can also function as a V chord in the key of Am.

Originally the V chord in a minor key is minor (Em in the key of Am).
But we can alter that chord to a major chord to make the progression stronger.
This means that E can resolve to A or Am.

This means that any V chord can resolve to a major or minor chord.
This feature can be used to modulate to a different key.
Any major chord can function as a V chord to introduce a modulation
A dominant chord is even stronger

In the progressions above we modulated to the relative minor / major by means of a major chord (dominant chord) that was the V chord in the new key.
If the target chord can be altered from major to minor and vise versa we end up with these possible modulations:

Intended Modulation	I → vi^m I →VI	C → Am C → A	i^m → III i^m → iii^m	Am → C Am → Cm
Precede with it's V	I → iii^m → vi^m I → iii^m → VI	C → Em → Am C → Em → A	i^m →VI → III im → VI → iii^m	Am → G → C Am → G → Cm
Accentuate modulation	I → III → vi^m I → III → VI	C → E → Am C → E → A	same	same
Accentuate modulation more	I → III^7 → vi^m I → III^7 → VI	C → E^7 → Am C → E^7 → A	i^m → VI^7 → III i^m → VI^7 → III	Am → G^7 → C Am → G^7 → Cm

Modulating one whole note up

Another common modulation used in pop / rock music is by raising the key one whole note (2 frets), e.g. from C to D. This is predominantly done in major.

If we use the V7-I progression to establish the key, the progression would become:
I- VI^7 – II in which the II chord would be major and start functioning as a new I chord.
In the original key the II chord is minor.
In the key of C this modulation would be achieved in this progression: C – A^7 – D .

Modulating to the Tonic Minor

Moving to the tonic minor is another cliché modulation.
E.g. from D to Dm .

Because the V chord is often made major in minor key, that V chord will be the exact same chord as in the major key.
This means that using a V – Im progression does not clearly establish the new key.
If a IVm chord is added to the progression, the modulation is made even clearer.

Other modulations
There are a number of other modulation used in modern pop and jazz music. The more musically 'sophisticated' a song sounds, the more complex the modulations become.