MUSIC THEORY CHEAT SHEET MAJOR SCALES ****** Cb = Cb Db Eb Fb Gb Ab BbC = C D E F G A BC# = C# D# E# F# G# A# B#D = D E F # G A B C #Db = Db Eb F Gb Ab Bb CEb = Eb F G Ab Bb C DE = E F # G # A B C # D #F = F G A B b C D EF# = F# G# A# B C# D# E# G = G A B C D E F#Gb = Gb Ab Bb B Db Eb FA = A B C # D E F # G #Ab = Ab Bb C Db Eb F GBb = Bb C D Eb F G AB = B C # D # E F # G # A #

A#m= A# B# C# D# E# F# G#

Bbm = Bb C Db Eb F Gb Ab Bm = B C# D E F# G A Cm = C D Eb F G Ab Bb C#m = C# D# E F# G# A B Dm = D E F G A Bb C D#m = D# E# F# G# A# B C# Ebm = Eb F Gb Ab Bb Cb Db Em = E F# G A B C D Fm = F G Ab Bb C Db Eb F#m = F# G# A B C# D E Gm = G A Bb C D Eb F

===== CHORDS ======

MAJOR SCALES **********

I = I ii iii IV V vi viiº

Cb = CbEbGb DbFbAb EbGbBb FbAbCb GbBbDb AbCbEb BbDbFb

C = CEG DFA EGB FAC GBD ACE BDF

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

D = DF#A EGB F#AC# GBD AC#E BDF# C#EG

Db = DbFAb EbGbBb FAbC GbBbDb AbCEb BbDbF CEbGb

Eb = EbGBb FAbC GBbD AbCEb BbDF CEbG DFAb

E = EG#B F#AC# G#BD# AC#E BD#F# C#EG# D#F#A

- F = FAC GBbD ACE BbDF CEG DFA EGBb
- F# = F#A#C# G#BD# A#C#E# BD#E# C#E#G# D#F#A# E#G#B
- G = GBD ACE BDF# CEG DFA EGB F#AC
- Gb = GbBbDb AbBEb BbDbF BEbGb DbFAb EbGbBb FAbB
- A = AC#E BDF# C#EG# DF#A EG#B F#AC# G#BD
- Ab = AbCEb BbDbF CEbG DbFAb EbGBb FAbC GBbDb
- Bb = BbDF CEbG DFA EbGBb FAC GBbD ACEb
- B = BD#F# C#EG# D#F#A# EG#B F#A#C# G#BD# A#CE

MINOR SCALES **********

i = i iiº III iv v VI VII

Abm= AbCbEb BbDbFb CbEbGb DbFbAb EbGbBb FbAbCb GbBbDb Am = ACE BDF CEG DFA EGB FAC GBD A#m= A#C#E# B#D#F# C#E#G# D#F#A# E#G#B# F#A#C# G#B#D# Bbm = BbDbF CEbGb DbFAb EbGbBb FAbC GbBbDb AbCEb Bm = BDF# C#EG DF#A EGB F#AC# GBD ACE Cm = CEbG DFAb EbGBb FAbC GBbD AbCEb BbDF C#m = C#EG# D#F#A EG#B F#AC# G#BD# ACE BD#F# Dm = DAF EGBb FAC GBbD ACE BbDF CEG D#m = D#A#F# E#G#B F#A#C# G#BD# A#C#E# BD#F# C#E#G# Ebm = EbGbBb FAbCb GbBbDb AbCbEb BbDbF CbEbGb DbFAb Em = EGB F#AC GBD ACE BDF# CEG DF#A Fm = FAbC GBbDb AbCEb BbDbF CEbG DbFAb EbGBb F#m = F#AC# G#BD AC#E BDF# C#EG# DF#A EG#B Gm = GBbD ACEb BbDF CEbG DFA EbGBb FAC

G#m = G#BD# A#C#E BD#F# C#EG# D#F#A# EG#B F#A#C#

Ι	ii	iii	IV	V	vi	vii	numeral
1	2	3	4	5	6	7	scale degree
t	s	m	s	d	s	1	function
0	u	е	u	0	u	e	
n	р	d	b	m	b	а	
i	е	i	d	i	m	d	
С	r	а	0	n	e	i	
	t	n	m	а	d	n	
	0	t	i	n	i	g	
	n		n	t	а	t	
	i		а		n	0	
	С		n		t	n	
			t			е	

TONIC (I): A chord built on the 1st note of a scale: C SUPERTONIC (ii): A chord built on the 2nd note of a scale: Dm MEDIANT (iii): A chord built on the 3rd note of a scale: Em SUBDOMINANT (IV): A chord built on the 4th note of a scale: F DOMINANT (V): A chord built on the 5th note of a scale: G SUBMEDIANT (vi): A chord built on the 6th note of a scale: Am LEADING TONE (vii): A chord built on the 7th note of a scale: Bdim

Those technical names, tonic, supertonic, and so on, are what we mean by chord function. But instead of thinking of those seven functions separately, we can group them together into 3 simple categories: Tonic, subdominant and dominant.

The tonic chord is, of course, the I-chord. But you'll notice that occasionally a vi-chord can serve as a kind of substitute for the I-chord. There are several reasons for this, one being the context in which the chord is used. But another reason is that the vi-chord and the I-chord both share 2 notes. In C major, a I-chord uses the notes C-E-G, and a vi-chord uses the notes A-C-E.

Similarly, the subdominant chord is the IV-chord. But a ii-chord can often serve as a nice substitute for the IV-chord, mainly because the ii-chord (D-F-A) shares two notes that occur in the IV-chord: F-A-C).

So thinking that way, we've now got 3 major groupings of chords:

TONIC: I, iii, vi SUBDOMINANT: IV, ii DOMINANT: V, iii, vii

You'll notice that some chords can "function" in different ways; for example, the iii-chord can act as a tonic substitute, but also as a dominant substitute,

depending on context.

So given that quick background to how chord function works, I've listed some standard chord functions below, and then given several chord progressions that fit. In that sense, every progression listed under each function category has a similar sound, but yet all sound a little different:

TONIC-DOMINANT-TONIC

CGC C G Am C Am G C С Am G Am TONIC-SUBDOMINANT-TONIC CFC C Dm C С F Dm C C Dm F C C F Am C Dm Am Am Dm C Am TONIC-DOMINANT-SUBDOMINANT-TONIC CGFC C Em F C C Bdim F/A C/G C G Dm Am Am G F C HARMONY: Major scale Classical harmony is based on two scales. The major and the (harmonic) minor scale. Let us begin with the major scale. C major scale: W W W W н W н f b с' С d e g а 1 2 3 4 5 6 7 8 All the notes in the scale have a name: 1 : tonic 2 : supertonic : mediant 3 4 : subdominant 5 : dominant 6 : submediant 7 : leading tone

For the moment memorize the tonic (1), subdominant (4), dominant (5) and leading tone (7).

Triads The following three triads are the most important chords in classical harmony: tonic, dominant, subdominant.

Tonic

The triad over the tonic note (in C major the C major chord : c e g) is also called tonic. We will note the tonic as I. A piece (written in the C major) usually begins with the tonic (C major) tonic and almost always ends with the tonic tone.

Dominant

The triad over the dominant note (in C major the G major chord : g b d) is also called dominant and is noted as V. The dominant chord contains the leading tone which tends to resolve to the tonic.

Note that the notes in these three chords cover the whole scale:



Subdominant

The triad over the subdominant note (in C major the F major chord : f a c) is also called subdominant and is noted as IV.

The most important seventh is the dominant seventh:

Dominant seventh

If we build the seventh on the fifth degree of the scale then we get a dominant seventh chord (that's why this kind of seventh is called dominant) (in C major the G7 : g b d f) and is noted as V7. The dominant seventh contains a diminished fifth (b - f) which is considered as dissonance and must be resolved. In the classical resolution the leading tone (b) goes to the tonic (c) and the seventh of V7 (f) goes to the third of I (e):

Resolution

				-	
*	f	>	e		
	d	>	С	(or	e)
*	b	>	С		
	g	>	g		

V7 forces I to come. Try playing C \mid G \mid C and then C \mid G7 \mid C to note the difference. How does C \mid G7 \mid F sounds? The tonic I, the subdominant IV and the dominant (seventh) V7 are the main chords for (all the) songs of western music. Some songs do not have any other chords. I will list these chords for the more important keys:

Кеу	I	IV	V7		r	note	es d	of 1	the	dia	ator	nic
Eb	+ Eb	Ab	Bb7	+	!e	f	 g	!a	!b	с	 d	!e
Bb	Bb	Eb	F7	i	!b	с	d	!e	f	g	а	!b
F	F	Bb	C7	ĺ	f	g	а	!b	С	d	e	f
С	C	F	G7		С	d	е	f	g	а	b	С
G	G	С	D7		g	а	b	С	d	е	#f	g
D	D	G	A7		d	е	#f	g	а	b	#c	d
А	A	D	E7		а	b	#c	d	е	#f	#g	а
Е	E	Α	B7		е	#f	#g	а	b	#c	#d	е
В	B	Е	F#7		b	#c	#d	е	#f	#g	#a	b

Subdominant sixth

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Another fairly often used chord is the major sixth on the 4th degree, the subdominant sixth (f a c d) which is noted as IV6 when the fifth is not present and as IV56 (5 below 6) if the fifth is present. [Note that it is the same chord with a minor seventh on the second degree]. From now on we will only note it as IV6 and enclose the fifth in parenthesis if optional.

ii-V-I progression

With the use of tonic, subdominant sixth and dominant seventh we can play the most played progression in the world of modern music, the so called ii7-V7-I progression, which is actually a IV6-V7-I progression. Why don't we call it then IV-V-I progression? A lot do. We saw that IV6 is the same with the seventh on the second degree. People like ii-V-I more because sevenths are more common than sixths and moreover the movement in the bass is better because of the fourth fall: d falls to g and g falls to c.

Parallels

A chord is parallel to another chord if it is a third away. For example Am is the parallel minor of C. The same way C is the parallel major of Am.

Tonic parallel

On the sixth degree of the scale is the parallel minor of the tonic. This is noted as Ip or simply vi. (Am in C major). I is capital because the tonic is major and p is small because the parallel is minor.

Dominant parallel

On the third degree of the scale is the parallel minor of the dominant. This is noted as Vp or simply iii. (Em in C major) Subdominant parallel

On the second degree of the scale is the parallel minor of the subdominant. This is noted as IVp or simply ii. (Dm in C major)

Dominant seventh without root

On the seventh degree of the scale one finds the diminished triad which is a part of the dominant seventh. Therefore we denote the chord on this degree as V/7 or vii (The slash should come over V but that's not possible in ASCII). This chord relatively often replaces the V7 chord. Now we have triads on all degrees of the diatonic major scale:

	(c)		(d)	(f)		
g	а	b	С	d	е	f
е	f	g	а	b	с	d
с	d	e	f	g	а	b
С	Dm(7)	Em	F(6)	G(7)	Am	Bmb5
Ι	ii(7)	iii	IV(6)	V(7)	vi	vii-

[Note that the parentheses are not part of the notation. They should be erased if the optional note is present.] The dominant seventh V7 has the property that it establishes the key. One can find a (unaltered) G7 only in the key of C major, a C7 only in the key of F major, a D7 only in the key of G major and so on. Secondary dominants

Each chord can be reinforced by playing its dominant seventh before it. A commonly used chord is the double dominant which is the dominant of the dominant. In C major, G is the dominant so D7 is the double dominant seventh. A double dominant coincides with II7, ie with the major second degree (Notice that normally the second degree is minor). Play:

chords : C D7 G7 C (in C major) or chords : F G7 C7 F (in F major) ----harmony: I II7 V7 I

to get an idea of how it sounds. Note that a double dominant contains notes which are not in the scale. For example D7 is d #f a c, whereas #f is not in the C major scale.

Dominants of the rest of the chords are called simply secondary dominants. In the following we give all the secondary dominants of the C major scale. Secondary dominants are noted with a V in parentheses before the chord.

> A7 Dm , B7 Em , C7 F , E7 Am (V7) ii , (V7) iii , (V7) IV , (V7) vi

As secondary dominants we can also have secondary subdominants. They are noted as (IV) before the chord. Double subdominant is the subdominant of the subdominant. In C major, F is the dominant and Bb is the double dominant. A double subdominant coincides with bVII, i.e with the major lowered seventh degree.

Indeed any degree can appear as secondary. As we said a common progression is the ii-V-I progression. This progression can be played before any minor or major chord in a scale:

Dm7 G7 C , Am7 D7 G ii7 V7 I , (ii7 V7) V Em7 A7 Dm , F#m7 B7 Em , Gm7 C7 F , Bm7 E7 Am (ii7 V7) ii , (ii7 V7) iii , (ii7 V7) IV , (ii7 V7) vi

Minor scales

If we now take the natural minor scale:

W Н W Н W W М f а b С d е g а 2 b3 4 5 b6 b7 1

then we notice that

the tonic (a c e) is a minor chord and is noted as i. the subdominant (d f a) is also a minor chord and is noted as iv. the dominant (e g b) is also a minor chord and is noted as v. The natural minor scale has no leading tone (b7 in place of 7). Therefore it has no dominant seventh. The seventh in the fifth degree is a minor seventh. In order to restore this scale harmonically we raise the seventh (g -> #g); then we get a scale with a leading tone:

Н W н W W WH Н f #g a а h С d e 5 1 2 b3 4 b6 7

this is called the "harmonic" minor. That's why the name. We can now build a major dominant (e #g b) which is noted as V. The seventh on the fifth degree is also a dominant seventh (e #g b d) and noted as V7. With the help of the V7 we can establish the tonic i. The invented harmonic minor has an augmented second interval (WH) between the sixth and the seventh note. This does not sound melodically correct (I find it good sounding :-) so the sixth is raised too. Then we get the following scale:

W W W н M н W e #f #g a b c d а 2 b3 4 1 5 6 7

which is called (guess why) "melodic" minor. Notice that within this scale we have a major subdominant too. The only difference of harmonic minor with major scale is the flatted 3rd (b3 in place of 3). Chords on all degrees of the diatonic natural minor scale:

e	f	g	а	b	С	d
С	d	e	f	g	а	b
а	b	С	d	е	f	g
Am	Bmb5	C	Dm	Em	F	G
i	ii-	III	iv	v	VI	VII

Note that all the chords are the same with those of C major scale. But their function is different. Here is Dm iv, in C major it was ii and so on. Chords on all degrees of the diatonic harmonic minor scale:

			(b)	(d)				
е	f	#g	(a)	b	С	d		
С	d	е	f	#g	а	b		
а	b	С	d	е	f	#g		
 Am	Bmb	 5 C+	Dm(6)	E(7)	· ·) F	 G#mb5		
i	ii-	III+	iv(6)	V(7)	VI	#vii-		
Chords of	on all	degree	s of tl	he dia	atonic	melodic	minor	<pre>scale:</pre>
	(a)		(b)	(d)				
е	#f	#g	(a)	b	С	d		
с	d	е	#f	#g	а	b		
а	b	С	d	e	#f	#g		
Am	Bm	C+	D(6)	E(7)	F#mb5	G#mb5		
i	ii(Z	7) III+	IV(6)	V(7)	#vi-	#vii-		

The minor scales offer a big repertoire of chords to play. Other chords

The dominant ninth on the V degree. Noted as V9. In C major : G9 (g b d f a), in A melodic minor : E9 (e #g b d #f). The half-diminished seventh on the vii degree. Noted as V/9 or vii7-5. It is a dominant ninth with no root. In C major : B7b5 (b d f a). In A melodic minor : G#7b5 (#g b d #f).

The (full) diminished seventh on the vii degree of the harmonic minor. Noted as V/b9 because of the lowered (minor) ninth wrt to the dominant or viio (The circle o denotes a full diminished seventh). In A harmonic minor : G#dim (#g b d f)

Altered chords

The following chords are called altered because not all of their notes belong to the scale they appear. Neapolitan sixth

The lowered subdominant sixth of the (harmonic) minor scale. Noted as iv-6 or N6. In Am : Dm-6 (d f !b) is the same chord with Bb. Note that we don't include the fifth (a) in the Dm-6. As a seventh chord the neapolitan appears as a dominant seventh, i.e. Bb7 (!b r f !a), which means that the fifth of subdominant Dm is altered too. Note that one can have a neapolitan sixth in a major scale. In this case one has to

take the lowered sixth of the minor subdominant. For example in C major, iv-6 : Fm-6 (f !a !d) same with Db. The seventh Db7 is used too.

The neapolitan sixth can be noted as bII or bII7. This chord is a substitute for the dominant V7 both in major and minor mode. It is called the tritone substitution since the roots of bII7 and V7 are a tritone (diminished 5th) away from each other. Actually the chords V7b5 and bII7b5 are identical to each other.

Example: G7b5 : g b !d f and Db7b5 : !d f !!a !c. Check this out!

Altered dominants

The notes that should be raised or lowered are noted with # or b, or sometimes with + or - respectively. Examples: D7#5 or D7+5, D7b9 or D7-9, The symbol "alt" is used to notate a dominant seventh with both altered fifth and ninth: Galt = G7b5b9 or G7#5#9.

Modulation

Sometimes a piece written in the key of C major modulates in the key of its relative minor Am or dominant G major or subdominant F major or whatever key you want. We say that a piece modulates in another key when it has changed the tonic to another key for some relatively long part of the piece. However changes of keys can be short too. A short change is noted with parenthesis when it ends to the tonic and with angle parenthesis when it does not end to the tonic (though excepted). Examples (these are right out of my head, I didn't even play them; who knows? they may sound good :-) :

D7 Gm (Em7 A7) D7) G7 C. C: ((V7) iv (ii7 V7) V7) V7 I [Bb Gm F7] F C G7 C. C: [I vi V7] IV I G7 I. ^ here is Bb excepted

Tonic, Dominant and Subdominant (Pre-Dominant)

This chapter is a short review of the basic concepts concerning the relationship between tonic, dominant and subdominant harmonies.

Tonic

Tonic is the chord of rest, resolution. In tonal music, it is the magnet drawing all harmonies towards itself. It is the center of gravity around which the various other harmonies revolve. Even distant harmonies, like comets, are ultimately influenced by its gravitational pull.

In the major key, the brightness of the major tonic brings a sense of confidence, stability, triumph. When tonic becomes minor through modal shift, there is change of mood to something more inward and perhaps mysterious. Minor music need not be sad—one thinks of the opening of Mendelssohn's A Midsummer Nights' Dream, where the

minor music is full of dance-like wonder, but even here it is the mysterious wonder of the fairie world of Shakespeare's play, not the bright happy world of the courtly dance.

In a minor key, the shift to major is often quite dramatic. In Baroque music it was virtually forbidden to end a work in the minor key, with all minor-key music by necessity ending with a Picardie third. The only exception to this rule was in dramatic music, some oratorio or opera, where by dramatic necessity the tragedy of a scene or a text necessitated a minor cadence.

The submediant chord in major and the mediant chord in minor form relative tonics to the main tonic of a key.

In Major, vi serves as the relative tonic, often providing a softening effect to the sustained brightness of the major tonic.

In minor, the mediant III triad often serves as the relative tonic, pulling the minor mode into a brighter tonality through the termporary establishment of III as a center of gravity, with the lowered VII triad (Bb in C minor) serving as the dominant of the relative tonic. Modulating to the relative tonic in minor is as easy as falling off the proverbial log. If the log is a large log, modulating to the relative tonic is probably even easier.

Dominant

Dominant is the chord of dynamic stress. In common practice harmony, it is the chord that requires resolution. Due to strong placement of the leading tone of the key as the third of the chord, it urges itself upwards to the tonic triad.

Dominant harmonies come in a few flavors:

the V triad is plain, unadorned and quite functional, especially in a simple harmonic context. V7 adds the weight of the tritone, created between the third and seventh of the dominant seventh chord. In this harmony, not only does the leading tone reach upward to the tonic root, but the seventh pulls downward to the third of the tonic triad. This is a fundamental force of nature in tonal music. the vii^o triad, best voiced with the third in the bass, lacks the root of the full dominant seventh chord, but possesses its same tritone. It is best to think of vii^o as a dominant seventh chord without the root. The resolution and function are the same.** viiº7, the fully diminished seventh chord, contains two overlapping tritones, thus increasing the tension and "need" for resolution. Think of this chord as a Dominant seventh flat 9 without the root. As we shall see, this chord has an ability to spin music to distant keys when spelled in different ways. (**it should be noted that vii^o can sometimes go to the iii chord when encountered in the context of a circle of fifths progression, i.e.-I, IV, vii^o, iii, vi, ii, V, I. Here, the diminished fifth relationship between IV and vii^o is lessened by the strength of the overall progression. We say this in the C minor fugue from the Bach Toccata, you may recall).

Historical note:

In later 19th century harmony and ultimately in Musical Impressionism, the stress of the dominant seventh type chord is placed in a broader harmonic context where the chord takes on a different emphasis, one of dynamic coloration. Increasingly, in part because the ear had had centuries to get accustomed to the sound of the major triad with the lowered seventh, the chord became less and less demanding of resolution and more of an accepting coloration with evocative poetic overtones. In Ravel and Debussy, for example, dominant seventh chords simply float along, often moving in parallel motion without any need or resolution. This is in part what gives impressionistic music its soft, brushed-over quality.

Subdominant

Subdominant has two characteristics:

1) The reciprocal realm.

In terms of harmonic dualism, always recall that we can create all the notes of the justly-tuned major scale by going up by fifths from, say C. Thus we find G, D, A, E and B, but not the F. The F can only be found by finding the reciprocal fifth of the tonic, the generating tone of the generating tone.

This gives the entire realm ruled over by the subdominant a more inward and mysterious quality. The C triad, when the subdominant of the subdominant (the Bb) is added, pulls tonal music into the subdominant, which is perhaps more like moonlight to the bright sunlight of the Dominant realm.

Recall that all other secondary domninant: V/ii, V/v, V/vi and V/iii are born from the overtonal realm above the dominant. Only the V7/IV points towards the subdominant.

2) The realm of the pre-dominant.

The subdominnat realm is as far from tonic as tonal music can venture. Once the subdominant is established, there is an inevitable swing back to the dominant realm. In this way of thinking, subdominant harmony can be thought of as pre-dominant harmony, in that these chords are eventually (if not immediately) followed by some form of dominant chord.

There is a family of triads that are all seen to precede the dominant:

IV ii and ii in first inversion, which shares a bassnote with IV Neapolitan sixth chord Augmented sixth chords V/V, except that this chord is less "reciprocal" than the others, in that partakes of the strong overtonal energy of the dominant of the dominant. IV and ii are well known to you. The next two chapters will cover the Neapolitan 6th and the Augmented 6th chords, respectively.