

# ***The Raven's Spiral Guide to Music Theory***

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P	Preface
0	Introduction statement of purpose, notation
1	Scales diatonic, pentatonic, synthetic and alternate
-	Subsection 1: Key
2	Intervals list, harmonic significance
3	Chords charts ahoy!, major, minor, seventh, added, extended, altered, transcription
4	Harmonic progressions harmonic relationships, resolution, how to, musical philosophy, analyses
5	Melody deriving melody from harmony, analyses, basic counterpoint
6	Variations what they is
7	Rhythm percussive, melodic and otherwise
8	Lyrics why and how, singing, rapping
9	Microstructure, mesostructure and macrostructure bringing it all together
Z	Misc changelog, contact details, thanks

Planned

A	Further analyses
B	Bibliography
D	Discography

## **Preface**

G'day! This is Simon from the Raven's Spiral.

You have in your possession the Raven's Spiral Guide to Music Theory, or RSG2MT for short. Ugly abbreviations aside, this book will aim to teach you a thing or two about music theory without boring the arsehairs clean off you. It's been used as both an introductory primer and a refresher course for people like me who survived on a tiny wee smattering of music theory for ages without really having had a lot of cause to think about it.

The software I use to write my music is freeware, so the way I see it there ought to be a free guide to writing music in this day and age too. It will always be freely available on the Internet in one location or another.

Before i started writing this book, i hadn't found any really useful free resources online that teach about music theory. I've got the knowledge and the time to write a guide which is tantamount to spending a semester or two in a music theory class, so i'm putting my effort into compiling a small tome of info for those who want to learn.

Over time, this book is going to cover everything that an amateur composer ought to know to enrich their compositional capabilities: harmony, melody, rhythm and structure are all covered in various amounts of detail. It's not intended as a be all and end all guide--much of the material isn't explained with the amount of depth you'd get in a proper book you can buy from a store. That said, those books are usually expensive and require you to know how to read music. Yes, they will helpfully teach you how to read sheet notation, but you'll be pleased to know that i'm not going to force the issue at all.

That's right: you don't have to be able to read music to use this guide. It will serve you no advantage at all to be able to do so. I hate that so many theory books shut home musicians out that way.

What you will need handy is a keyboard instrument of some sort like a piano or synthesiser, or at least something to make music on. The examples are all keyboard-based, and given that my audience is primarily made up of people who use computers and that the most common explicitly musical interface to computers is the good old piano keyboard, this isn't a random choice.

[Stick short biography here]

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## 0.0 Basic notations and other starting points

### 0.1 Content and purpose

The stated purpose of this guide is to help composers without an academic background like me learn the basics of music theory. I don't feel a great need to explain how it is that people can start writing music without knowing at all about music theory, because chances are if you're reading this guide that's exactly what you've done.

There are much better books out there on the topic than the one i'm planning to write, but the main difference will be that this one will be free of charge to anyone with an Internet connection. This is how it should be in this day and age where free software is available to anyone who wants it but the secrets of composing music are hidden away in prohibitively expensive books about composition and so on, often forcing the reader to figure out things like sheet notation and do a heap of boring exercises at the end of each chapter.

Personally, i don't like those books too much, myself. The book I'm writing here is one for the sort of person who wants a vague groundwork of rules to give them structure which they can then bend and twist to their will. They want a way to write down their ideas and are curious to see how the chords they jam out relate to one another. They want to branch out and experiment with elements of music they don't know much about.

And they want to do this with the least effort and stress required. That's what this book is about and who it's for. It's not for seasoned musicians at all. A lot of it is likely to be totally inconsistent with wider music theory, for which i make no apologies whatsoever. It's also written to be a bit colloquial and fun instead of being completely straightforward.

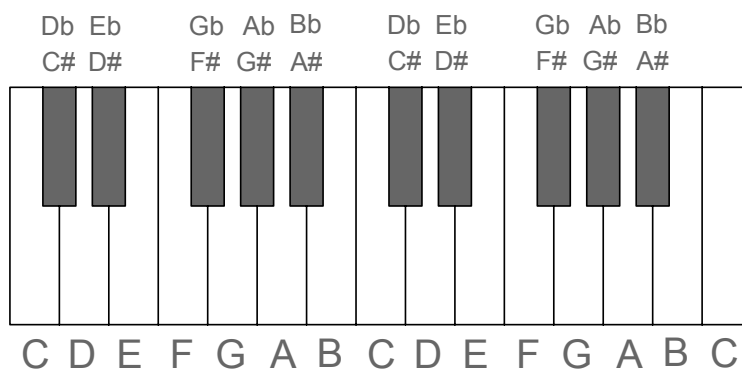
I see a need for this information and knowledge to be liberated for the good of all humankind, and i'm putting my effort where my mouth is.

Now, this book is laid out in chapters in order to group knowledge into sections like chords, rhythm, lyrics, melody, and all that kind of thing. This is not a proclamation that music is essentially melodic, not in the slightest, nor is it a proclamation that music must be composed in this order. It's a sacrifice to simple linearity.

### 0.2 Notations

One sort of notation i'm going to use should be immediately familiar, the other perhaps not so. There will also be some jargony words involved, but i'll explain them along the way. First off, the notes:

#### 0.2.1: Real notation



Here's a diagram of which notes are which—should you need it, of course.

Between C and C# is the distance of one *semitone*, because C# is one note away from C. Between C and D there is a distance of one *whole tone* because C is two notes away from D (counting C# of course). Between E and F, however, there is the distance of a *single semitone*, not a whole tone, and the same goes between B and C. From D# to F is the distance of one whole tone, because between D# and F is E.

From D to F is three semitones. From C to E is four semitones. From C to G is seven semitones. From C to the C above is twelve semitones.

The above knowledge is pretty fundamental and i'll be using them to teach you about other things like scales, so be sure you know what semitones and whole tones are before continuing.

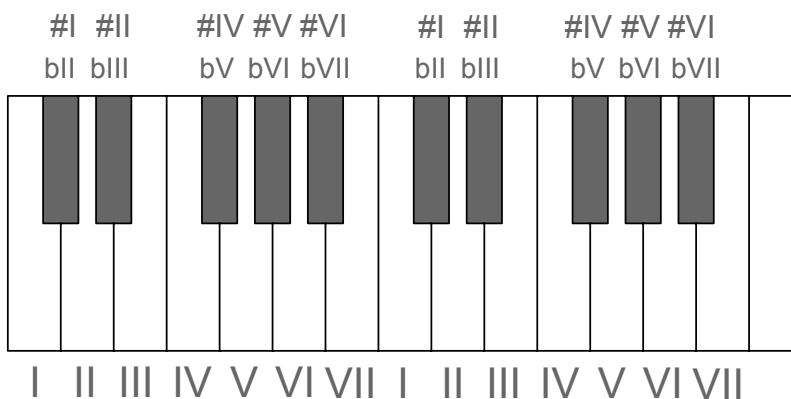
Sharps and flats are the next port of call. C# is one semitone up from C. If you sharpen C, therefore, it becomes C# (pronounced C sharp). Db is one semitone down from D. If you flatten D, you end up with Db (pronounced D flat). So in music, to sharpen something is to raise it by a semitone, and to flatten it is to lower it by a semitone.

The next word you should learn from this diagram is *enharmonic*. Two notes are enharmonic when they refer to the same pitch: C# and Db are enharmonic, as are F# and Gb. What determines the name you use for a note with more than one name has much to do with the key you're using.

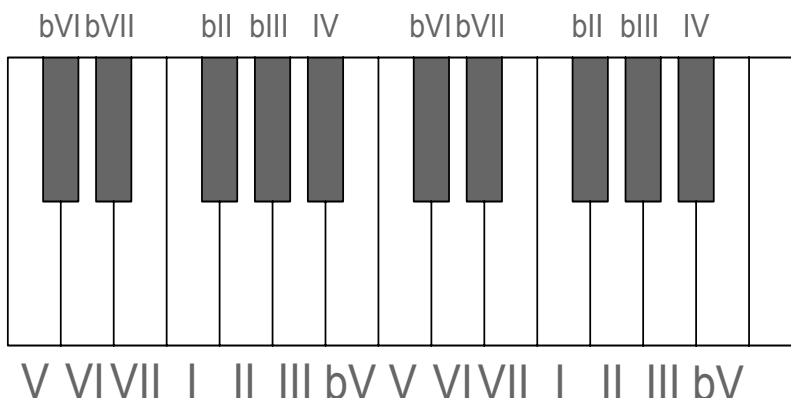
Keys are explained at the end of section 1.

### 0.2.2: Abstract notation

This sort of notation is adapted from music analysis and will be used exclusively for talking about chords.



The Roman numerals stand for notes in a key, except we're not specifying which one. The above example uses C as its fundamental or root note, represented by I. If the fundamental or root note were changed to F, then the abstract notes would map to the following real notes:



Here you can see that the I is now assigned to F. Whereas with C as I, IV is assigned to F, with F as I, IV is assigned to Bb. C therefore shares the same relation with F that F shares with Bb, and you'll learn to describe that relationship when we get to intervals.

Abstract notation is thus particularly useful for talking about chords in sequence without tying things down to a particular series of notes. As long as you can translate a string of Roman numerals in the place of actual notes to the key of your choice, any discussion of chord progressions won't seem as daunting.

In this document, **capitalised Roman numerals will refer to chords by their root note**. VI in the above example is not representative of the note D but the chord D. This needs to be made clear early on for the sake of establishing convention. **Lowercase Roman numerals will refer to individual notes**.

There's another set of things to learn called intervals, but they're something I'll deal with as an introduction to chords because they're more a harmonic matter than anything and you don't really need to know so much as yet. **Intervals will be represented with numbers** with sharpening or flattening as they need it, and will be used for spelling chords. They get their own section later, as well as lots of exemplification when we start on chords.

## 1.0 Scales: The New Menace

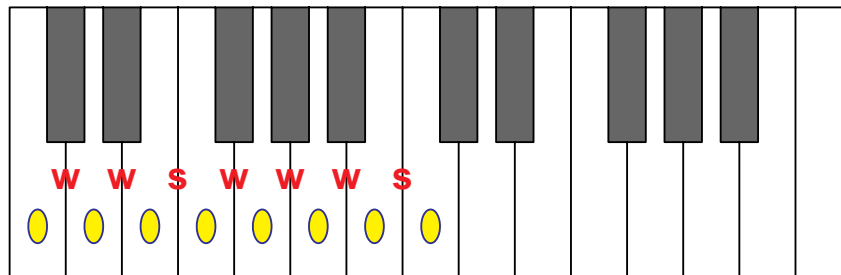
1.0.0. Scales function as a series of notes to pick melodies from. When a scale is presented in the abstract, it's given as a series of melodic intervals of semitones, whole tones, and in some cases (like the pentatonic) whole-and-semi-tones. In the diagrams these will be represented by **w**, **s** and **w&s** respectively. Each scale has a fundamental note which lends itself to the scale's name e.g. C major, B minor, D wholetone

Why's it important to know your scales? As i've suggested before, each scale is like a palette of notes to pick your melody from. That's not to say that the notes in a given scale are the only ones you're allowed to use for a whole song once you've decided on a scale, only that it's easier to stick with the rules until you learn how to break them.

### 1.1 Diatonic scales

#### 1.1.1: C major

C major is the first scale to cover because it's so obvious: It's the white notes on the keyboard starting at C.



Each of the notes with a yellow dot is included in the scale of C major. Those dots sit on the notes C, D, E, F, G, A, B and C again. Play it on your keyboard from bottom C to top C and you'll have done your first scale. Bravo.

Every major scale has that pattern of whole tones and semitones to it: two whole tones, a semitone, three whole tones, a semitone and you're back to where you started. That's what makes them major scales. By starting at different notes like D or F and rising up the scale with the same pattern you can derive any major scale you need.

#### 1.1.2: Other major scales and the Circle of Fifths

Let's work out the D major scale from this template, then. We start with D. One whole tone up is E. One whole tone up from E is F#, and one semitone up from F# is G. One whole tone up from G is A, one whole tone up from A is B, one whole tone up from B is C#, and then one semitone up from C# is D. Play the following notes in sequence: D E F# G A B C# D—it should have exactly the same tonality as playing C D E F G A B C, except it's a whole tone higher in pitch.

For those of you who like charts, here's all the major scales ordered by the mystical Circle of Fifths.

C major:	C D E F G A B C
G major:	G A B C D E F# G
D major:	D E F# G A B C# D
A major:	A B C# D E F# G# A
E major:	E F# G# A B C# D# E
B major:	B C# D# E F# G# A# B
F# (Gb) major:	F# G# A# B C# D# E# (F) F#
F major:	F G A Bb C D E F
Bb (A#) major:	Bb C D Eb F G A Bb
Eb (D#) major:	Eb F G Ab Bb C D Eb
Ab (G#)major:	Ab Bb C Db Eb F Gb Ab
Db (C#) major:	Db Eb F Gb Ab Bb C Db
Gb (F#) major:	Gb Ab Bb Cb (B) Db Eb F Gb

The way it works is this: the fifth of any note is the fifth note in its major (or minor) scale. G is the fifth of C, and the scale of G major has one sharp note in it, F#. D is the fifth of G and has two sharp notes in it, F# and C#. A is the fifth of D and has three sharp notes in it, F# and C# and G#. And so on.

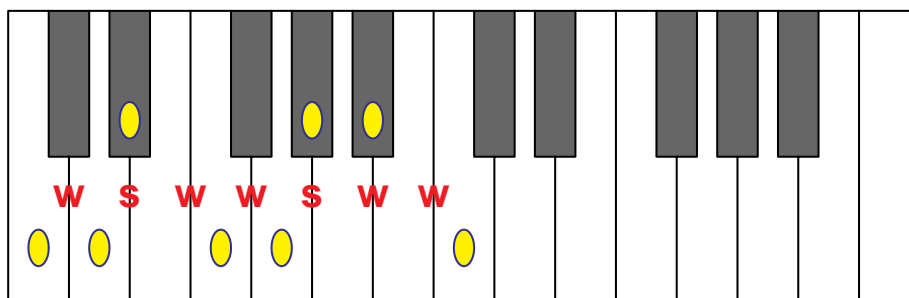
Conversely, C is the fifth of F, and F has one flat in it: Bb. F is the fifth of Bb, and Bb major has two flats in it, Bb itself and Eb. Eb is the fifth of Bb, and Eb has three flats: Bb, Eb, and Ab. And so on again.

The circle of fifths becomes a circle when it reaches F# in the sharp series and Gb in the flat series. F# and Gb are of course enharmonic, the same note. Therein is the circle.

### 1.1.3 Minor and relative minor scales

There are two flavours of minor scale: the natural minor, which is related to the major scales, and the harmonic minor, which is easily derived from the minor scale.

You can derive the natural minor scales from major scales in a couple of ways. Your first option is to flatten the third, sixth and seventh notes of each scale. When you do that to C major to get C minor, it looks like this:



The notes in the scale of C minor are C D Eb F G Ab Bb and C.

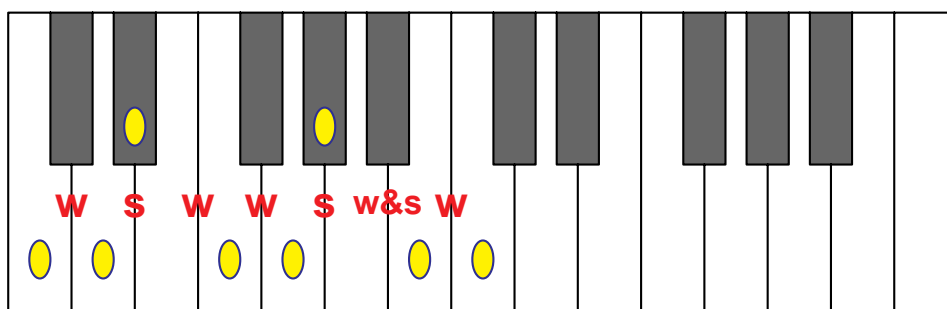
There's another way to tell what notes are in a particular minor scale by using a special relationship between the major and minor scales. Each major scale has a relative minor scale, you see, and you can determine the relative minor by using the major scale's sixth note.

In the case of C major, the sixth note of the scale is A. This means that A minor uses exactly the same notes as C major, except with a different starting point: A B C D E F G A. The scale of F major uses the same notes as its relative minor, the scale D minor: D E F G A Bb C D. Handy, that.

Here are the natural minor scales in chart form.

- A minor: A B C D E F G A
- E minor: E F# G A B C D E
- B minor: B C# D E F# G A B
- F# (Gb) minor: F# G# A B C# D E F#
- C# (Db) minor: C# D# E F# G# A B C#
- G# (Ab) minor: G# A# B C# D# E F# G#
- D# (Eb) minor: D# E# (F) F# G# A# B C# D#
- D minor: D E F G A Bb C D
- G minor: G A Bb C D Eb F G
- C minor: C D Eb F G Ab Bb C
- F minor: F Gb Ab Bb C Db Eb F
- Bb (A#) minor: Bb C Db Eb F Gb Ab Bb
- Eb (D#) minor: Eb F Gb Ab Bb Cb (B) Db

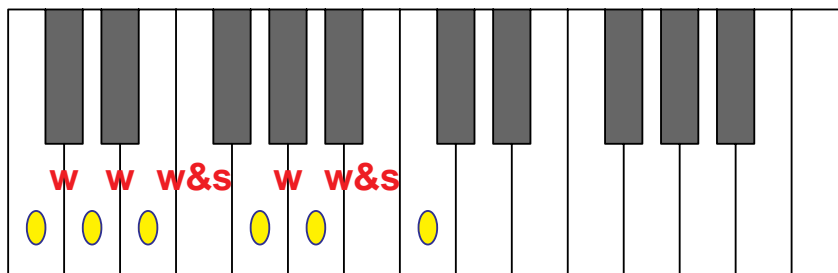
Harmonic minor scales are exactly the same as natural minor scales except that the seventh note of the scale is sharpened from the minor. Easy.



## 1.2 Pentatonic scales

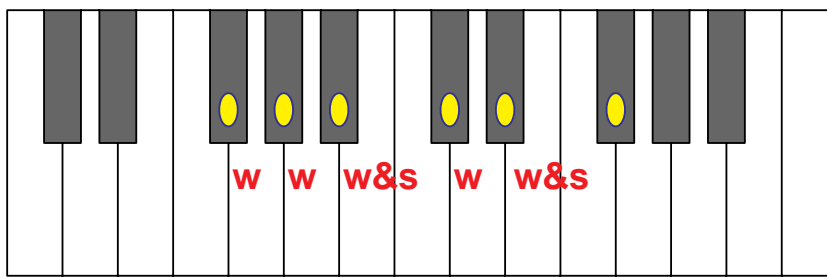
As their name suggests, pentatonic scales have five notes instead of seven. I'm introducing them in detail alongside the major and minor scales because they are much less likely to turn around and bite your ears off when you use them to write a melody. It's the truth.

Here's the C major pentatonic scale.



It's exactly like the C major scale with the fourth and seventh notes (F and B) missing. This is useful because it means there aren't any notes a semitone apart, and any note you play next to one another is unlikely to jar horribly with the one next to it.

If you want an easy-to-remember pentatonic scale, you can do no better than F# major pentatonic. This is why.



Yep, that annoying song people play with their knuckles on the piano is in F# pentatonic. Much Oriental music is in various pentatonic scales as well, and that's the mood pentatonic scales usually evoke.

Here's a chart of all the major pentatonic scales.

C major pent: C D E G A C  
F major pent: F G A C D F  
Bb major pent: Bb C D F G Bb  
Eb major pent: Eb F G Bb C Eb  
Ab major pent: Ab Bb C Eb F Ab  
Db major pent: Db Eb F Ab Bb Db  
Gb major pent: Gb Ab Bb Db Eb Gb  
  
G major pent: G A B D E G  
D major pent: D E F# A B D  
A major pent: A B C# E F# A  
E major pent: E F# G# B C# E  
B major pent: B C# D# F# G# B  
F# major pent: F# G# A# C# D# F#

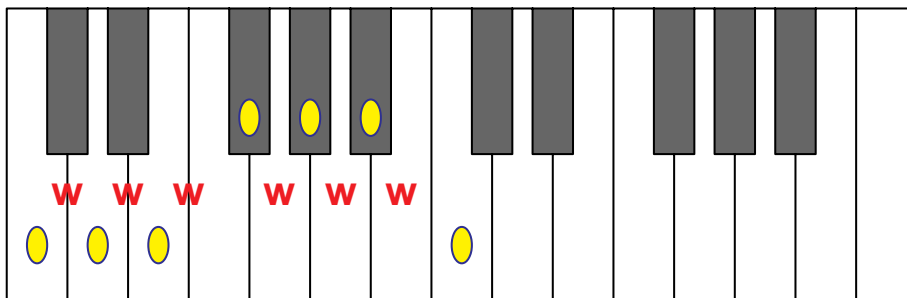
The minor pentatonic scales can be derived from the major ones using the relative minor method discussed in the last part, except of course it's the fifth note of the scale that forms the root note of the relative minor. Derived from the Eb scale, the C minor pentatonic scale is C Eb F G Bb C.

## 1.4 Synthetic and alternative scales

1.4.0: There are more scales than merely the pentatonics and the major/minors. Some of them might turn out to be very useful for you, so they're worth taking a look at even if only in passing.

### 1.4.1: Whote tone scale

Leave a whole tone between each note and you end up with a seven-note scale called a whole tone scale.



This is the scale you want when you feel like adding a touch of the mystical and strange to your music. It sounds quite distinct and fantastic when used right, and you can write acid lines with the whole tone scale very easily. Not that you should, of course, coz it's all over for acid isn't it? :)

### 1.4.2: Blues scale

### 1.4.3: Chromatic scale

The chromatic scale is a funny sort of scale, because it uses all twelve tones of the octave. This scale can be used in many ways and makes the major and minor diatonic scales seem pretty conservative. The root note of the scale as well as the subdominant and dominant are still as important in writing melodies in this scale, but the chromatic scale allows you to use any note you please. It takes a bit more practice to use it than the diatonic scales, and takes way more practice to use than the pentatonic scales.

The chromatic scale for C is as follows: C C# D D# E F F# G G# A A# B C.

The Aphex Twin has his fair share of chromatic melodies and chords, though—or maybe it's just that he doesn't bother staying in the same key for more than a second or two at a time because he's such a weirdo.

### 1.4.4: Microtonal scales

Microtonal scales go beyond the conventional twelve-tone scale and begin inserting notes in the semitone wide spaces between the notes. I've got even less experience with this sort of thing than I do with chromatic scales, but rumour has it that Wendy Carlos is a microtonal scale boffin. Microtonal scales are a bit further out than most composers need to consider, me included, but if you feel the need to investigate the sounds of these scales you should do a search for 'microtonal' on Google.

### 1.4.5: More scales than a fat bastard fish, mate!

It's very helpfully pointed out a scale chart at <http://www.harmony-central.com/Guitar/exotic-scales.txt> which was compiled by Alexander Edward Sager (aesager@acs4.acs.ucalgary.ca). I'll reproduce and analyse some of them into tones and semitones here. A lot of them are subtle variations of one another as you'll quickly notice when you play them. The scales are almost all spelt with C as the root note, so of course you can transpose them any way you like.

From the names of these scales you might guess that many of them are tied to particular cultures. The Byzantine scale for instance is distinctly Middle Eastern, and the five note scales are generally (though not always) used in East-ern Asia.

It's not at all impossible that some of my analyses of the spaces between the notes are wrong if not a bit confusing, so when in doubt use the given notes as your guide. Furthermore, I'm not going to go into detail on how these are meant to be used as I honestly wouldn't have a clue myself.

Five note scales:

Mongolian:	C D E G A C	.w.w.w&s.w.w&s.
major pentatonic (the black keys starting at F#)		
Japanese:	C Db F G Ab C	.w&s.w.w.w&s.w.
minor pentatonic (the black keys beginning at D#)		
Egyptian:	C D F G Bb C	.w.w&s.w.w&s.w.
in sen pentatonic (the black keys beginning at C#)		



Hirajoshi:	A B C E F A	.w.w.w&w.s.w&w
Kumoi:	E F A B C E	.s.w&w.w.s.w&w.
Iwato:	B C E F A B	.s.w&w.s.w&w.s.
Balinese:	C Db Eb G Ab C	.s.w.w&w.w&s.w.
Pelog:	C Db Eb G Bb C	.s.w.w&w.w&s.w.

#### Seven note major scales:

Oriental:	C Db E F Gb A Bb C	.s.w&s.s.s.s.w&s.s.w
Double Harmonic:	C Db E F G Ab B C	.s.w&s.s.w.s.w&s.s.
Enigmatic:	C Db E F# G# A# B C	.s.w&s.w.w.w.s.s
Major Phrygian:	C Db E F G Ab Bb C	.s.w&s.s.w.s.w.w.
Gypsy/Byzantine:	C Db E F G Ab B C	.s.w&s.s.w.s.w&s.s.
Persian:	C Db E F Gb Ab B C	.s.w&s.s.s.w.w&s.s.
Jewish:	E F G# A B C D E	.s.w&s.s.w.s.w.w.
Spanish:	C Db E F G Ab Bb C	.s.w&s.s.w.s.w.w.
Major Locrian:	C D E F Gb Ab Bb C	.w.w.s.s.w.w.w.
Lydian Minor:	C D E F# G Ab Bb C	.w.w.w.s.s.w.w.
Overtone/Acoustic*:	C D E F# G A Bb C	.w.w.w.s.w.s.w.
Leading Whole Tone:	C D E F# G# A# B C	.w.w.w.w.w.s.
Arabian:	C D E F Gb Ab Bb C	.w.w.s.s.w.w.w.
Hindu:	C D E F G Ab Bb C	.w.w.s.w.s.w.w.

\* The overtone scale is said to be the most psychoacoustically natural scale. Wouldn't know about that myself.

#### Seven note minor scales:

Javanese:	C Db Eb F G A Bb C	.s.w.w.w.w.w&s.w.
Hungarian Gypsy:	C D Eb F# G Ab Bb C	.w.s.w.s.s.w.w.
Mohammedan:	C D Eb F G Ab B C	.w.s.w.w.s.w&s.s.

#### Seven note scale pairs:

Hungarian Minor:	C D Eb F# G Ab B C	.w.s.w.s.s.w&s.s.
Hungarian Major:	C D# E F# G A Bb C	.w&s.s.w.s.w.w.w.
Neapolitan Minor:	C Db Eb F G Ab B C	.s.w.w.w.s.w&s.s.
Neapolitan Major:	C Db Eb F G A B C	.s.w.w.w.w.w.s.

#### Scales with more than seven notes:

Spanish 8 Tone:	C Db Eb E F Gb Ab Bb C	.s.w.s.s.s.w.w.w.
Octatonic var 1	C D Eb F F# G# A B C	.w.s.w.s.w.s etc
Octatonic var 2	C Db Eb E F# G A Bb C	.s.w.s.w.s.w etc

## 1.5 The modes

This is a set of scales with a history of use in the church. If you've ever heard anyone talk about ionian, mixolydian or lydian modes, they're easy enough to explain using only the white keys on a keyboard. To hear any of the following scales, start playing on the designated note and keep playing the white key to the right until you get to the same note you started on but an octave higher.

Ionian (major)	C	C D E F G A B C
Dorian	D	D E F G A B C D
Phrygian	E	E F G A B C D E
Lydian	F	F G A B C D E F
Mixolydian	G	G A B C D E F G
Aeolian (natural minor)	A	A B C D E F G A
Locrian	B	B C D E F G A B

Each mode, as with each scale, has a particular feel and use which you're best off discovering yourself instead of being told how to use them.

## Subsection 1: Key

What's the difference between scale and key? Let's clear this up now that I've used the word 'key' a few times before I say something stupid to the effect that the concept of a key is equal to the concept of a scale. Though they're related to one another, they're not equal at all. Though they may well refer to the same group of notes from time to time, their senses are very different.

When it's said that a song is in the key of C major, this means that the note C acts as the melodic centre of the song, and that the chord C acts as the harmonic centre. If a song is in the key of Bb minor, this means that Bb is the melodic centre of the song, and that the chord Bbmi acts as the harmonic centre. It's not that the key note or chord is necessarily the most frequent note or chord, or even played louder than other chords. To proclaim the key of a piece of music means that you're anchoring the music on a certain note and tonality (major/minor).

To state a key is to invoke a matrix of relationships between the key note and all other notes, and the key chord and all other chords. Every note you play is then of that key, and every chord you play is also of that key, because using those relationships and that structure all of the music in a particular key points tacitly back towards the key note and the key chord.

If this sounds like a tricky balancing act and that you'd rather take up painting instead of writing music, let me tell you this right away: music with no key at all is nowhere near as common as music with a key. It's only since the later 1890s that the idea of key came to be challenged by composers like Schoenberg with twelve-tone systems and serialism that threw out the idea of key centres to see what would happen. Music with a key comes far more naturally to a composer because with a centre comes a recognisable geography of sorts, whereupon the harmony and melody can come away from and head back towards this centre.

Brave new sounds aside, music with a key is familiar. Once you remove the familiarity of the key centre, you're navigating into much stranger waters where it will help to know rules before you break them.

If you've ever heard a piece of music referred to as *Such-And-Such In D Minor*, you'll have already encountered key designation: in this example, D is the designated key note which plays the role of a central note, and the piece will tend towards using the minor scale of the key note.

(That most infamous of songs reputedly in D minor, *Kyle's Mom's a Bitch in D minor*, isn't in D minor, for the record; it starts off around C major and ascends in key a few times, probably more in the movie version. Anyone who thinks therefore that Trey Parker doesn't know anything about music theory should immediately find *Cannibal The Musical* and check out the argument that the trappers have with the miners about singing off-key.)

The key of a song can change over the course of the song through key changes. If you can cast your mind back to the 1970s and 1980s where pop songs would frequently jump up a whole tone towards the end for the hell of it, that's an example of a key change. You don't hear key changes too much anymore in music, as they sound kind of retro.

Scales are like an expression of the key: scales speak more of a palette of available notes, with a given fundamental or root note that relates to all the other notes in the scale both harmonically and melodically.

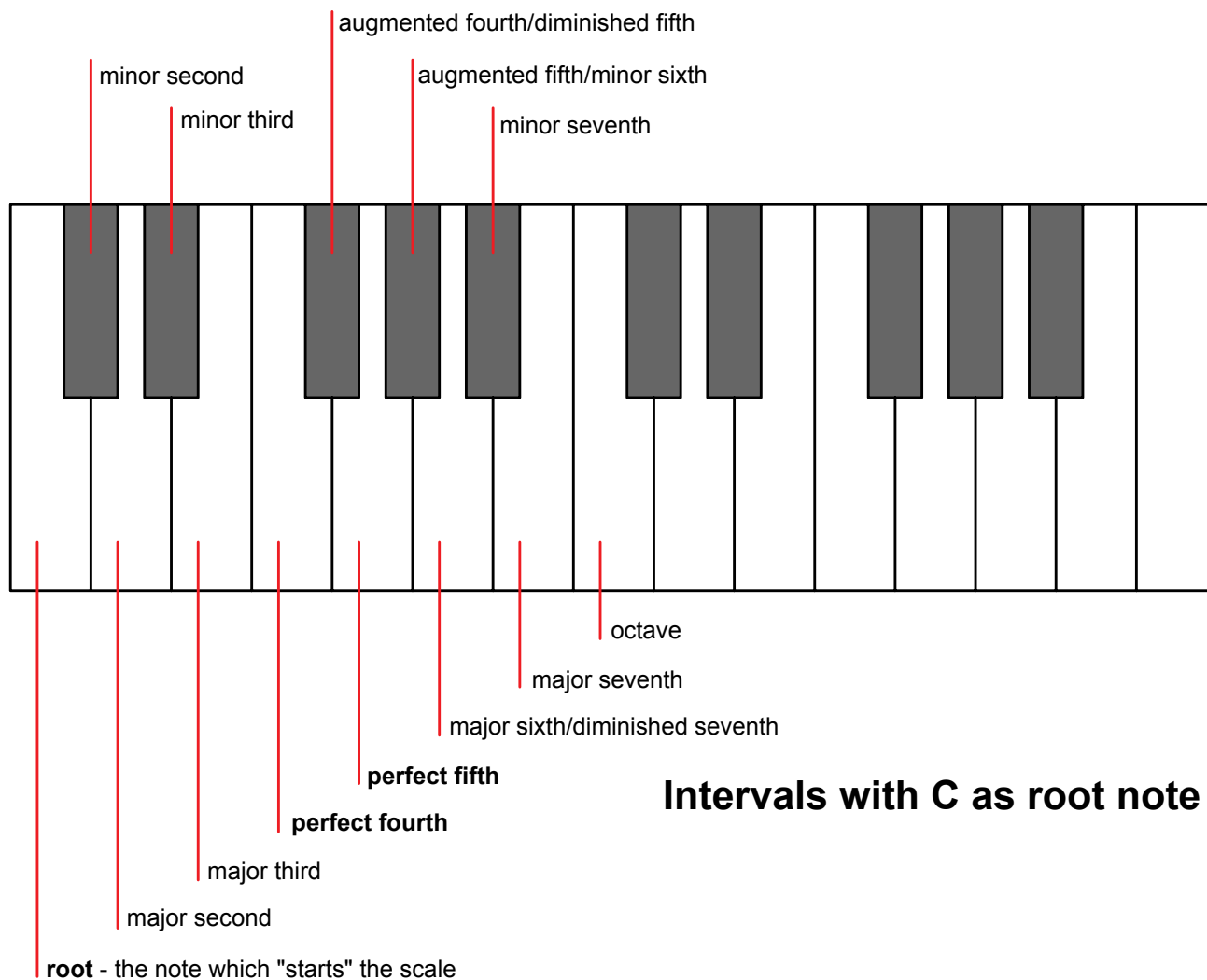
Key on the other hand describes a certain note along with a certain tonality which dominates the song and to which other notes and harmonies resolve. Resolution gets discussed later in the section on chord progressions.

You can go up and down scales, but you can't go up and down a key. A song can make use of a scale but you won't ever find a song designated in the key of C pentatonic. No such key exists.

## 2.0 Intervals

2.0.0: Intervals are measurements between notes, and the basis of *harmony*. You talk about intervals when you want to describe the tonal nature of chords, as opposed to just spelling them with Roman numerals. To speak of intervals involves two concepts, *consonance* and *dissonance*. Consonance and dissonance are traits of tone you can manipulate to whatever effect you please. Dark ambient music in particular benefits from as much dissonance and anti-melody as you can stir into it, and this chapter will give you some grounding in manipulating consonance and dissonance to your advantage. The tonality of a chord is a function of its constituent intervals.

### 2.1 Naming the intervals.



This chart gives us the intervals relative from C, which is only useful insofar as learning things from the basis of C is usually the easiest way to go. As with the abstract notation in section zero, the notes that the intervals denote change based on what the root note is determined to be.

The relationship between the root and the perfect fifth (with C as root, C and G) is very consonant indeed; if the relationship weren't consonant, guitar power chords wouldn't sound as good as they do. The two notes fit together well when played simultaneously. By contrast, the root and the minor second (C and C#) played together sound very jarring indeed.

The relationship between the root and the perfect fifth is described as being *consonant*, and the relationship between the root and the minor second, one semitone up, is described as being *dissonant*. The root and the major second (C and D) also create a bit of dissonance when played at the same time, but much softer dissonance than between the root and the minor second. By comparison, the root and the perfect fourth aren't quite as consonant as the root and the perfect fifth are either, partly due to simple acoustic relationships.

You can hear then that some notes are much more dissonant in combination with one another than others, and some sound more consonant in combination than others. It's a slide scale, not a matter of being one or the other, and right in the middle you have an interval called by various names: the tritone, the diminished fifth, and the augmented fourth

are three of its most common names. To hear this interval in action, play a C and an F# at once. It's a bit spooky, isn't it? The clergy used to call it *diabolus in musica* and eschewed its use in religious music.

Explore the interval relationships yourself using a keyboard, because they're definitely worth knowing when you want to make up your own chords from scratch.

- Very consonant intervals: fifth, octave
- Quite consonant intervals: either third, major fourth, either sixth/diminished seventh
- Weird unsettling interval: augmented fourth/diminished fifth, aka the tritone or *diabolus in musica*
- Quite dissonant intervals: major second, minor seventh
- Very dissonant intervals: minor second, major seventh

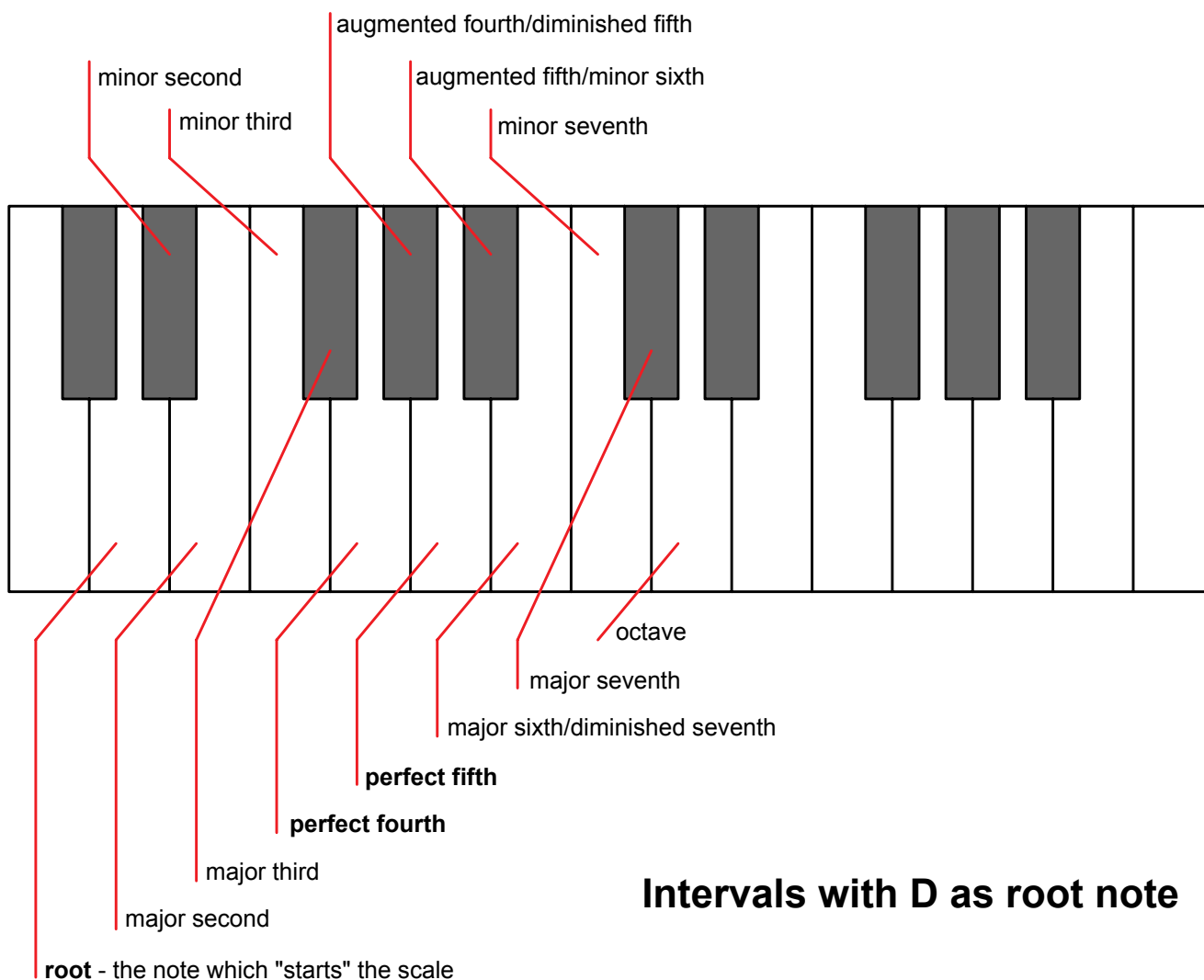
Any chord you play will ultimately be characterised by these dissonances and consonances.

Let's look at the C major chord for an example: C E G. Play all three notes at once.

Here we have a root note, a major third and a perfect fifth (C, E and G). The perfect fifth is totally consonant, and the major third is quite consonant. But also note that the perfect fifth of the root is the minor third of the major third (E and G), which adds to the consonance. If we were to add an F# to a C major chord and play it C E F# G, we'd have a note that would clash badly with G (minor second), quite a bit with E (major second) and would unsettle C a bit (augmented fourth). The sound of the chord doesn't change that much as it would if we were to change the boundaries of the chord by adding something lower than C or higher than G: the outer notes of the chord are important too.

A C major chord with an added sharpened fourth is just a bit jarring, then, and now you know why.

Let's have a look at chords and afterwards i'll explain more about intervals. Here's an interval chart with D as the root note, just to keep you honest:



To finish off, here's a colourful and hopefully useful reference chart for your delectation, colour coded to make it easier

to use. Not easier on the eyes, perhaps, but here it is anyway:

	<i>root/tonic</i>	<i>minor second</i>	<i>major second/ninth</i>	<i>minor third</i>	<i>major third</i>	<i>perfect fourth/major 11th</i>	<i>tritone</i>	<i>perfect fifth</i>	<i>minor sixth</i>	<i>major sixth/13th</i>	<i>minor seventh</i>	<i>major seventh</i>	<i>octave</i>
<b>C</b>	<b>C#</b>	<b>D</b>	<b>D#</b>	<b>E</b>	<b>F</b>	<b>F#</b>	<b>G</b>	<b>G#</b>	<b>A</b>	<b>A#</b>	<b>B</b>	<b>C</b>	
<b>C#</b>	<b>D</b>	<b>D#</b>	<b>E</b>	<b>F</b>	<b>F#</b>	<b>G</b>	<b>G#</b>	<b>A</b>	<b>A#</b>	<b>B</b>	<b>C</b>	<b>C#</b>	
<b>D</b>	<b>D#</b>	<b>E</b>	<b>F</b>	<b>F#</b>	<b>G</b>	<b>G#</b>	<b>A</b>	<b>A#</b>	<b>B</b>	<b>C</b>	<b>C#</b>	<b>D</b>	
<b>D#</b>	<b>E</b>	<b>F</b>	<b>F#</b>	<b>G</b>	<b>G#</b>	<b>A</b>	<b>A#</b>	<b>B</b>	<b>C</b>	<b>C#</b>	<b>D</b>	<b>D#</b>	
<b>E</b>	<b>F</b>	<b>F#</b>	<b>G</b>	<b>G#</b>	<b>A</b>	<b>A#</b>	<b>B</b>	<b>C</b>	<b>C#</b>	<b>D</b>	<b>D#</b>	<b>E</b>	
<b>F</b>	<b>F#</b>	<b>G</b>	<b>G#</b>	<b>A</b>	<b>A#</b>	<b>B</b>	<b>C</b>	<b>C#</b>	<b>D</b>	<b>D#</b>	<b>E</b>	<b>F</b>	
<b>F#</b>	<b>G</b>	<b>G#</b>	<b>A</b>	<b>A#</b>	<b>B</b>	<b>C</b>	<b>C#</b>	<b>D</b>	<b>D#</b>	<b>E</b>	<b>F</b>	<b>F#</b>	
<b>G</b>	<b>G#</b>	<b>A</b>	<b>A#</b>	<b>B</b>	<b>C</b>	<b>C#</b>	<b>D</b>	<b>D#</b>	<b>E</b>	<b>F</b>	<b>F#</b>	<b>G</b>	
<b>G#</b>	<b>A</b>	<b>A#</b>	<b>B</b>	<b>C</b>	<b>C#</b>	<b>D</b>	<b>D#</b>	<b>E</b>	<b>F</b>	<b>F#</b>	<b>G</b>	<b>G#</b>	
<b>A</b>	<b>A#</b>	<b>B</b>	<b>C</b>	<b>C#</b>	<b>D</b>	<b>D#</b>	<b>E</b>	<b>F</b>	<b>F#</b>	<b>G</b>	<b>G#</b>	<b>A</b>	
<b>A#</b>	<b>B</b>	<b>C</b>	<b>C#</b>	<b>D</b>	<b>D#</b>	<b>E</b>	<b>F</b>	<b>F#</b>	<b>G</b>	<b>G#</b>	<b>A</b>	<b>A#</b>	
<b>B</b>	<b>C</b>	<b>C#</b>	<b>D</b>	<b>D#</b>	<b>E</b>	<b>F</b>	<b>F#</b>	<b>G</b>	<b>G#</b>	<b>A</b>	<b>A#</b>	<b>B</b>	

## 3.0 Chords, and where to stick them

3.0.0: A chord, in simple terms, is when you sound three or more notes at once, and typically on the same instrument too—at least to begin with.

Traditional chords will always have a tonality: be it happy major, sad minor or the indecisive suspended. They'll have a root note, which is the harmonic anchor, and it won't always be the lowest note.

Three-note chords are called triads, and have nothing to do with Asian gangs with a penchant for naughtiness. On top of the triads you can stack even more notes to form sixths, sevenths, ninths, elevenths, or thirteenthths. (The insanity is usually brought to a halt in the proper music textbooks by the time fifteenthths come up.)

The simple triad will always have some flavour of fifth, be it perfect, augmented (sharpened) or diminished (flattened); it will also normally have a third which will be either major or minor. Whether the third is major or minor determines what's called the tonality, and this third sets the mood for pretty much the entire chord. It's so important that whether a chord is major or minor is second-fiddle only to what its root harmonic tone is.

Although you only need to sound three particular tones to play a triad, you can sound them with as many actual notes as you like and it'll still be that chord. To take an example, consider a common-or-garden guitar. A guitar has six strings, tuned E B G D A E from top to bottom (easy to remember: Easter Bunny Gets Drunk At Easter) and covering about two octaves, and hence you can play chords with up to six distinct notes over that more or less two-octave range. What usually happens is that a few of the notes are doubled up.

If you play the chord E major on a keyboard for example, you'll typically use three notes because that's all you need to sound this particular chord. Those notes are E, G# and B. On a guitar, you can play just one instance of each of these three notes but that's unusual: the usual E major chord on a guitar has three Es (one at the bottom, one at the middle, and one at the top), two Bs (one second-from-the-bottom and one second-from-the-top), and one G#.

Everything's more harmonically complicated on guitars; you may as well accept that right away.

That said, it's good fun to experiment by leaving notes out of chords. How much does the character of a chord change with the loss of one note, after all? Even better, just hold sound notes simultaneously at random until you find something you like. I'm only teaching you these rules with a mind to encouraging you to break them later, you know.

### 3.0.1: Harmony, arrangement and progression

What we get with chords are interval complexes, and a complex of intervals creates harmony. I reckon it's harmony that's fundamental to music, no matter how weird and avant garde that "harmony" is. Tones working in unison, drones sounding in unison, anything sounding in unison creates a harmony where the parts are both there in and of themselves, and creating this whole. Chords are truly the easiest introduction to that concept in music.

Just a melody playing solo by itself spells out dot-to-dot versions of the chords you're about to be introduced to. You just can't escape the chords. (Nor can you easily escape the f chords, but that's for another book entirely.)

You don't have to be obvious and play a chord completely on the one instrument. There's a "hollow" chord with no tonality called a power chord—it's only the root note and its fifth, without a third to determine tonality, and is a chord in the same sense that Pluto is a planet. My point is that you could conceivably play a chord progression (a series of chords) with power chords on one instrument and spell out the tonality on another.

Deciding which instruments are going to do what is called arranging, and chords are also more or less the first opportunity you've got to think about that kind of thing.

Arranging gets a look-in in the last chapter on structure, and progressions are covered later in this chapter and in the variation chapter.

### 3.1.-1: Introduction to the chord dictionary

The format of this dictionary won't make it immediately obvious what all these chords are, nor does it seek to make obvious how the chords relate, how to use them, how to twist and permute them, how to make people spontaneously orgasm with them, or anything that complicated.

The basic philosophy of the chord dictionary is to throw a heap of chords at you and give them names. That's all. The complicated stuff I'll leave for later. At this point it's more important to attempt to give you a grand tour of harmony

rather than immediately dig you into a pit going into the compositional relationships between the different triads, sevenths, and so on.

The best thing to do at this point would be to have a polyphonic keyboard of some sort ready, and when you want to hear what a chord sounds like, just play it on your keyboard. The chords are spelled mainly in the key of C for your convenience, although some of the more compact chords are spelled in the key of D as well.

## 3.1 Triads

3.1.0: Triads are chords which are composed of three notes, hence the term 'triad'. There are four basic triads, and two others which are also useful and crop up more than occasionally.

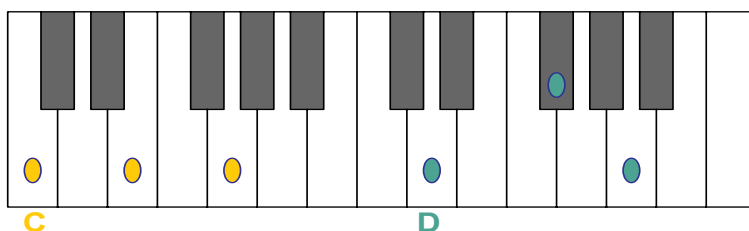
### 3.1.1: Major

Transcription: I (C, D)

Spelling: 1 3 5 (C E G, D F# A)

Structure: root, **major third**, perfect fifth

This triad is so fundamental to music in general that it's hard to think of music without it. It's so basic, so unbelievably ubiquitous and so useful that it's required knowledge for anyone who wants to know anything about music. At all. Yeah.



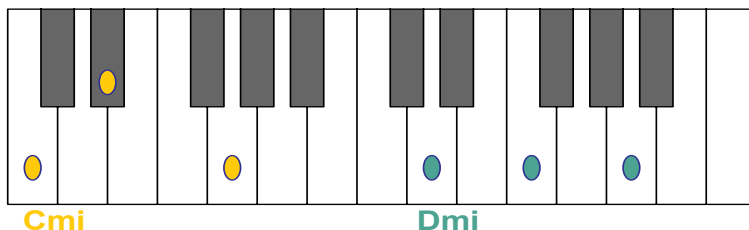
### 3.1.2: Minor

Transcription: Imi (Cmi, Dmi)

Spelling: 1 b3 5 (C Eb G, D F A)

Structure: root, **minor third**, perfect fifth

Another deeply fundamental triad, this is the more melancholy of the two main chords in music. You'll know it when you play it.



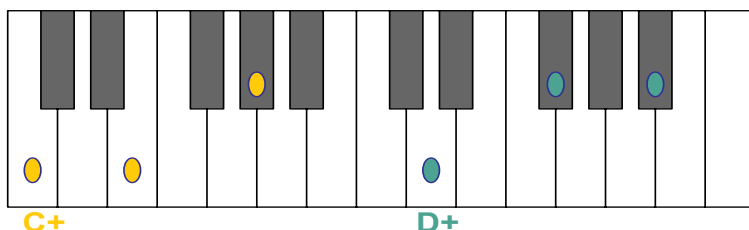
### 3.1.3: Augmented

Transcription: Iaug or I+ (Caug, D+)

Spelling: 1 3 #5 (C D G#, D F# A#)

Structure: root, major third, **augmented fifth**

A chord that was meant for sci-fi, truly ruly. Replacing the perfect fifth of the major and minor triads we have instead a raised or augmented fifth. This chord likes to resolve down to a major chord with the same root for a sci-fi sound, or even a minor chord with a root a semitone above (Caug, C#mi).



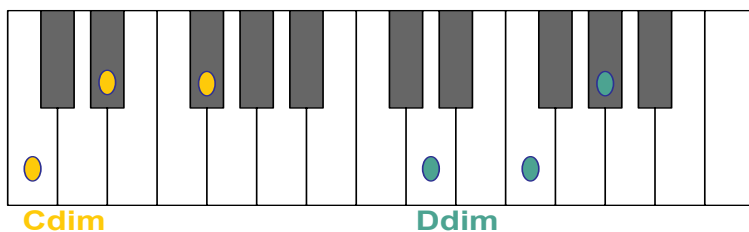
### 3.1.4: Diminished

Transcription: Idim or I° (Cdim, D°)

Spelling: 1 b3 b5 (C Eb Gb, D F# Ab)

Structure: root, minor third, **diminished fifth**

This chord is built on two minor third intervals between the root and the minor third, and the minor third and the diminished fifth. As such it's not a very cheerful chord at all, and like the augmented prefers to resolve to something else rather than carry the weight of any melody for too long by itself.

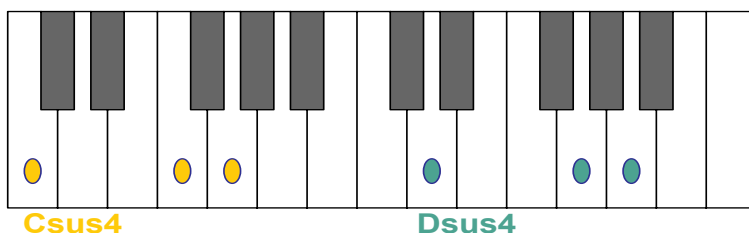


### 3.1.5: Suspended fourth

Transcription: Isus4 (Csus4, Dsus4)

Spelling: 1 4 5 (C F G, D G A)

Structure: root, **perfect fourth**, perfect fifth



Suspended chords are chords without a major or minor third in them. They're called suspended because without the third to determine whether it's major or minor, it has a certain suspended neutrality about it which wants to resolve to something else. The suspended fourth is the more common of the suspended chords, and works pleasantly as a variant with the major.

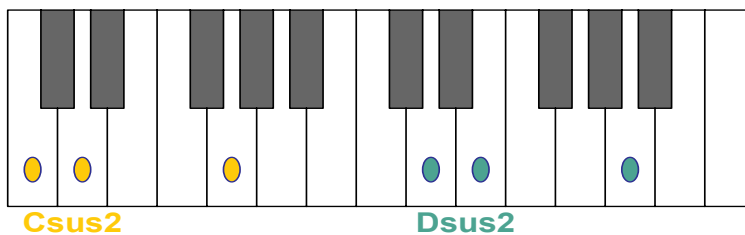
### 3.1.6: Suspended second

Transcription: Isus2 (Csus2, Dsus2)

Spelling: 1 2 5 (C D G, D E A)

Structure: root, **major second**, perfect fifth

Like the sus4, this is another chord that you can put in place of the major for variety's sake.



## 3.2 Major and minor sevenths

3.2.0: Take a triad, add either a minor or major seventh on top of it, and you get one of many flavours of seventh chord. Seventh chords all have four notes, and come in many different tonalities and feelings.

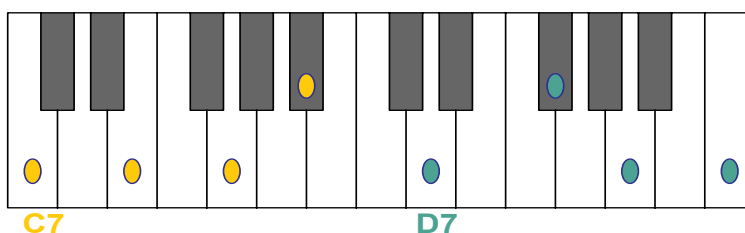
### 3.2.1: Seventh

Transcription: I7 (C7, D7)

Spelling: 1 3 5 b7 (C E G Bb, D F# A C)

Structure: major triad plus minor **seventh**

The bluesiest of all the chords is the seventh. A straight major triad with that minor seventh overtone to add a touch of melancholy to the proceedings, this is the hard-drinkin' chord.



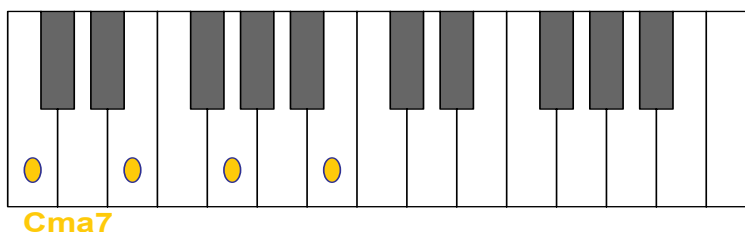
### 3.2.2: Major seventh

Transcription: Ima7 (Cma7)

Spelling: 1 3 5 7 (C E G B)

Structure: major triad plus **major seventh**

This jolly chord has a major seventh overtone which gives it a blissed out flavour, tailor-made for any sort of music which aims to relax the mind from dub to ambient jungle. One of my personal favourite chords.



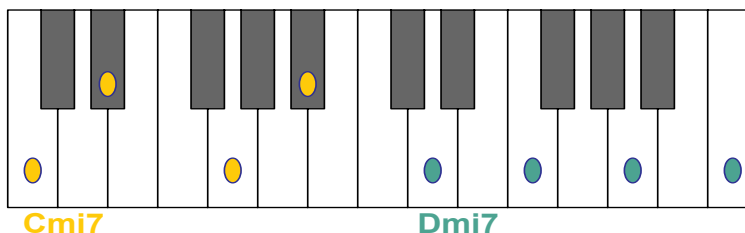
### 3.2.3: Minor seventh

Transcription: Imi7 (Cmi7, Dmi7)

Spelling: 1 b3 5 b7 (C Eb G Bb)

Structure: minor triad plus **minor seventh**

The moody minor seventh, much loved by drum 'n' bass producers when played on an electric piano.



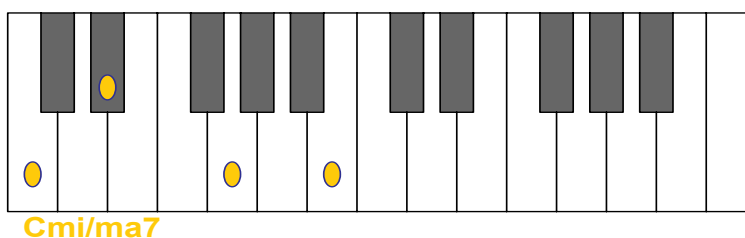
### 3.2.4: Minor/major seventh

Transcription: Imi/ma7 (Cmi/ma7)

Spelling: 1 b3 5 7 (C Eb G B)

Structure: **minor triad** plus **major seventh**

This is the chord that ate hope. Recalling the fruitier minor scale, the harmonic minor, this combines a stern major third with a jarring major seventh. Old horror movies surely ended on this chord many a time. I can almost see the aliens coming to earth now. Aie!

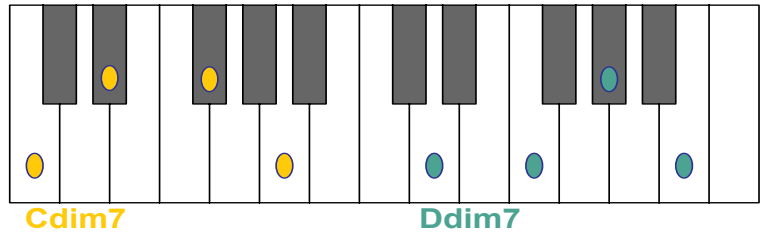




### 3.2.5: Diminished seventh

Transcription: Idim7 (Cdim7, Ddim7)  
Spelling: 1 b3 b5 bb7 [6] (C Eb Gb Bb, D F G# B)  
Structure: **dim. triad** plus **diminished seventh**

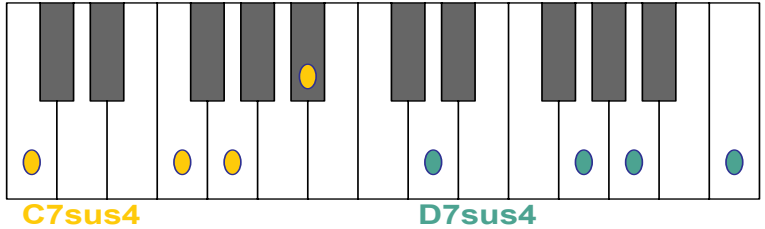
The diminished seventh is a strange one, and reveals why the major sixth is enharmonic with a seventh interval. The dim7 is made up of stacked minor thirds which bites its own tail: in Ddim7, F is the minor third of D, G#/Ab is the minor third of F, B is the minor third of G#/Ab, and D is the minor third of B. It's a useful substitution for any normal minor seventh chord.



### 3.2.6: Seventh suspended fourth

Transcription: I7sus4 (C7sus4, D7sus4)  
Spelling: 1 4 5 b7 (C F G Bb, D G A C)  
Structure: **suspended fourth** plus minor **seventh**

The seventh suspended fourth is an odd beast among the sevenths: with no major or minor tonality but a relatively complicated set of relations between its constituent notes, it's an interesting sort of chord. To listen to a 7sus4 would seem to indicate that it precedes something, but it's hard to say exactly what. Floaty sort of chord it is.



There are many more seventh chords to be explored, like the half-diminished (Imi7-5, I IIII bV bVII) and the seventh diminished fifth (I7-5, I IIII bV bVII), but you can fiddle with those yourself.

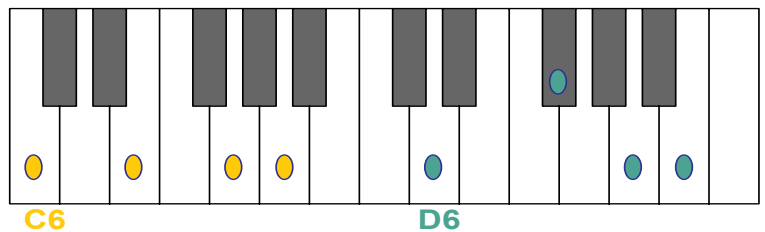
## 3.3 Added chords

3.3.0: Added chords are chords which have extra notes added to them, such as the sixth, the added second and the added ninth. There's an added eleventh and an added thirteenth too, but i don't even know how to use them yet.

### 3.3.1: Sixth

Transcription: I6 (C6, D6)  
Spelling: 1 3 5 6 (C E G A, D F# A B)  
Structure: major third plus major **sixth**

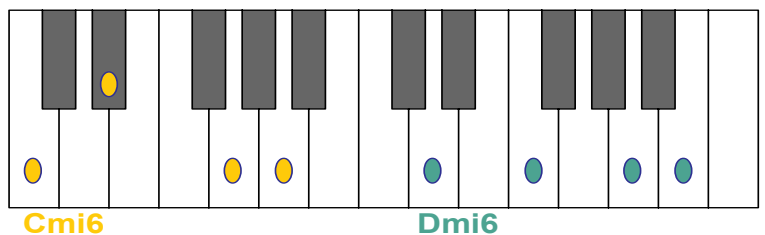
The sixth is a jolly and slightly smug sort of chord that secretly smokes opium. The peripheral sixth note means it doesn't quite resolve to a much more solid major triad, but lends it sort of a pompous flourish instead.



### 3.3.2: Minor sixth

Transcription: Imi6 (Cmi6, Dmi6)  
Spelling: 1 b3 5 6 (C Eb G A, D F A B)  
Structure: **minor third** plus major **sixth**

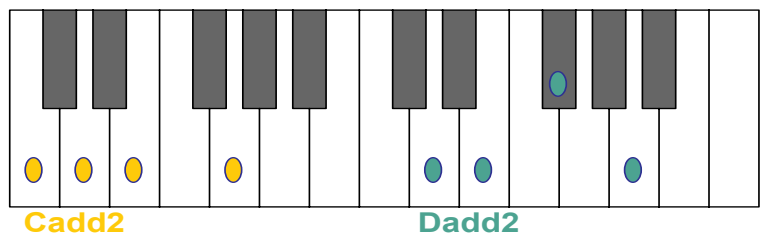
The minor sixth has a tritone interval that would leap out and smash you across the head if that were the sort of thing that tritone intervals were capable of. It exists between the second and fourth notes (the minor third and the sixth) and gives this chord a rather cool spooky brooding tonality.



### 3.3.3: Added second

Transcription: Iadd2 (Cadd2, Dadd2)  
Spelling: 1 2 3 5 (C D E G, D E F# A)  
Structure: major third plus major **second**

The added second sounds like a normal major chord but just a bit richer for having the second snuggled in between the root note and the third. The slight dissonance between the root, the second and the third is vaguely agreeable, i reckon.



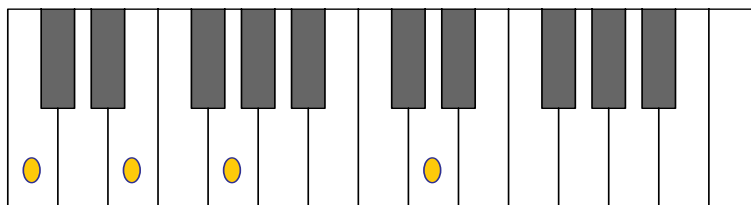
### 3.3.4: Added ninth

Transcription: Iadd9 (Cadd9)

Spelling: I III V II' (C E G D', D F# A E')

Structure: major third plus major **ninth**

The added ninth chord is a major third with a ninth floating over the top of it forming a fifth with the fifth note of the triad itself. It uses the same notes as the added second but with the second kicked up exactly one octave to form a ninth.



Cadd9

Try the minor added ninth (Cmiadd9, I bIII V II') for yourself.

## 3.4 Extended chords

3.4.0: Extended chords are chords which extend up past the sevenths and include the ninth (not the added ninth), the eleventh and the thirteenth. The extended chords are open to *alteration*, which means that you can take the fifth, the seventh, the ninth, the eleventh and the thirteenth and sharpen or flatten them to whatever effect you want. There are stacks of variations as you can probably guess, and given that i don't even get into that sort of thing myself i'm not even going to attempt to explain how to make use of such unwieldy big chords. A few variations on the ninth will have to suffice unless you want to go and check out a proper book on music theory.

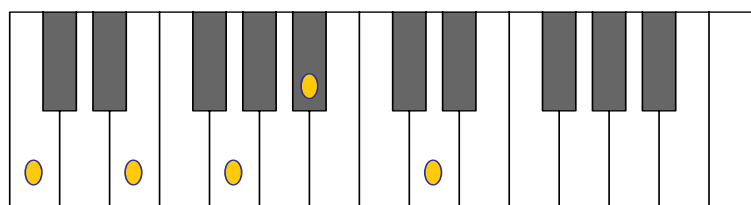
### 3.4.1: Ninth

Transcription: I9 (C9)

Spelling: 1 3 5 b7 9 (C E G Bb D')

Structure: seventh plus major **ninth**

The plain old ninth is derived from the seventh and adds a ninth (second interval plus a full octave) on top. It's a C connected to a Gmi at the G.



C9

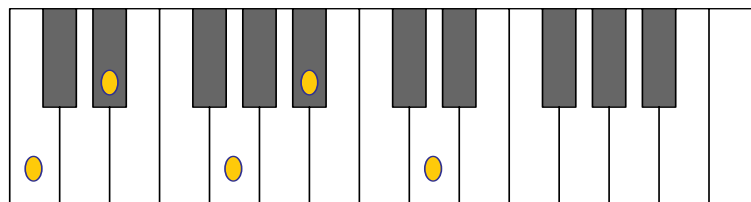
### 3.4.2: Minor ninth

Transcription: Imi9 (Cmi9)

Spelling: 1 b3 5 b7 9 (C Eb G Bb D)

Structure: **minor** seventh plus major **ninth**

The minor ninth is derived from the seventh and adds a ninth (second interval plus a full octave) on top. It's a Cmi and a Gmi connected at the G.



Cmi9

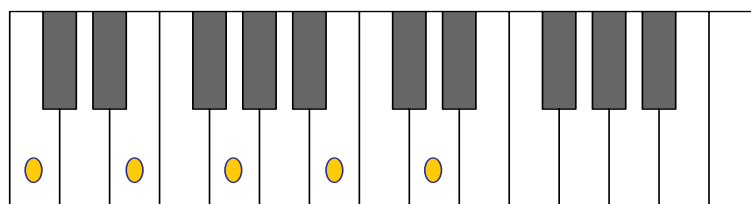
### 3.4.3: Major ninth

Transcription: Ima9 (Cma9)

Spelling: 1 3 5 7 9 (C Eb G Bb D)

Structure: **major** seventh plus major **ninth**

The major ninth is derived from the major seventh and adds a ninth (second interval plus a full octave) on top. It's a C and a G connected at the G.



Cma9

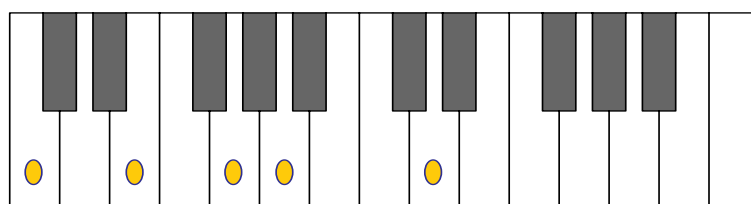
### 3.4.4: Six nine

Transcription: I6/9 (C6/9)

Spelling: 1 3 5 6 9 (C E G A D)

Structure: major triad plus major **sixth and ninth**

When the sixth puts aside the seventh and brings a ninth along for company, you end up with a six/nine chord. Again with that floating ninth on the top it can be a pretty sparkly-sounding chord, and it's also got that smug opium-smoking sixth chord sound.

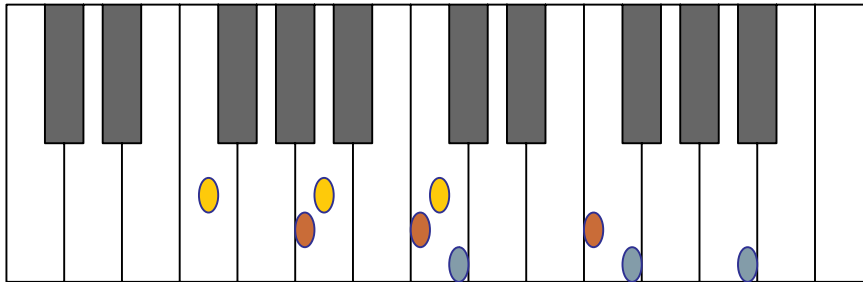


C6/9

## 3.5 Inversions

3.5.0: To invert a chord is to change the order of the notes around. In an inversion, the notes stay the same but their lowest-to-highest (effectively left to right) order changes. The way you write down inversions is in the form of what's known as a slash chord. Examples of slash chords are A/E, C/E and E/B.

3.5.1: Take the humble F chord (F A C). Its first inversion is A C F, and its second inversion is C F A.



To transcribe inversions, first write the name of the basic chord, then a slash, then the name of the lowest note. In the case of the chords in the diagram, the yellow dots would be written as F, the red ones as F/A, and the grey ones would be F/C.

Describing an inversion in words is a different story: you can say 'A minor slash C' if you like, but tradition has it that you say 'chord, nth inversion' or 'the nth inversion of chord'. The number of the inversion tells you which note of the uninverted chord is the lowest (excepting the root note); A is the first note after the root in the chord F major, so the red chord in the diagram above is the first inversion of the chord F major. Similarly, C is the second note after the root in F major, so the grey chord is the second inversion of the chord F major. Chords with more than three notes can have more inversions than just two, for instance.

### 3.5.2: Ynvert?

Because of the peripheral notes of each different different inversion, they differ in tonality and therefore in use; by using chord inversions, you can not only tweak the tonal nature of your chord. Uninverted, a major and a minor sound pretty vanilla; on their first inversion they acquire a sort of "tender", emotional sound with the major/minor tonality on the bottom, good for those climactic moments. With the fifth on the bottom, the chords sound a bit more subdued and grounded.

When you move into the third inversion of seventh chords with the seventh as the low note, things start to get more complicated-sounding and interesting.

The best thing about inversions is that they allow you to bleed from one chord to the other, relatively speaking, and with that in effect your music becomes more tonally subtle and interesting. Go from C to F playing normal triads: the leap is quite huge. Go from C to C/F (C F A) and you save the calories required to move one of your fingers, because it can stay where it is.

A well known novelty hardcore tune in the early 1990s used the following inversion-laden chord sequence to quite nice effect here and there. See if you can guess which of the hundreds I'm talking about from playing these chords:

C	F/C	Dmi	G/D	
C	F/C	Dmi	G/D	C/E

That's right: it's *Sesame's Treat* by the Smart Es. Now you've got no basis whatsoever to think inversions are too fancy, not if they turned up in a song whose main claim to fame was sampling the theme of a kids TV show. No.

### 3.5.2: When is an inversion not an inversion?

A criticism that classical musicians like to level against jazz/pop notation (which is what I'm using) is that it's ambiguous with inversions and bass notes outside the chord. The reason for this is that they're written exactly the same way: if you want to play a C chord with an A bass note, you write it C/A. That's when an inversion's not an inversion.

Classical music's solution to this is to use a numerical system for notating chords, and the first time you see it you **will** run screaming just the same as I did. It's based on the intervals from the root note: C 6 4 to them is C/G to us (the root note is assumed to be G, which is four notes down from C and six down from E), and C 3 6 to them is C/E to us (by reasoning along similar but corresponding lines). It looks more like C<sup>6</sup><sub>4</sub> when properly written, and it gets even uglier

where sevenths and other extended chords are involved.

Fair enough though, if your brain works that way then by all means use that sort of notation. But don't ask me for advice on chord progressions if you do.

## 3.6 Chords and keys

3.6.0: For convenience's sake, let's think of keys as being synonymous with full diatonic major or minor scales. Each key provides a palette of notes to form melodies and chords from, and since this is the chord section we'll look at chords in a given key first.

### 3.6.1: Major keys and triads

The key of C has the following notes: C D E F G A B C. With these notes we can form the following triad chords:

			in abstract
major triads:	C	C E G	I
	F	F A C	IV
	G	G B D	V
minor triads:	Dmi	D F A	IIImi
	Emi	E G B	IIIImi
	Ami	A C E	VIImi
diminished:	Bdim	B D F	VIIIdim

We can group these triads into three broad groups: *dominant*, *subdominant* and *root*. The dominant group, G, Emi and Bdim, are so named because Emi and Bdim share two notes each with the dominant V note G. (The fifth is also known as the dominant, please pardon all the redundant naming.) The subdominant group, F, Dm and Am, are so named because Dmi and Ami share two notes each with the subdominant IV note F. (The fourth is also known as the sub-dominant, being as it is one note below the dominant.) The root group has only C in it, but C's such an important chord in its own major key that it deserves its own group. So there.

When you use a subdominant chord, the harmony travels away from the root, and when you use a dominant chord it travels back towards the root. Try playing a chord sequence starting with C, then use a couple of subdominant chords, then use some dominant chords and finish again on C. Then play the same thing backwards. The first one should sound much more definite and decisive in the way it ends, because dominant chords move back towards the root note more decisively than do the subdominant ones.

For the ultimate in decisive endings, finish any chord progression with the V chord (G in this example) before slamming the I chord home (C in this example). Nearly all classical music does this, especially the final two chords of the last movement of a symphony. The V-I progression in a symphony is usually the audience's cue to wake up and start clapping loudly.

So, for any key the following can be said:

—the following chords are dominant and move towards the root harmonically: IIIImi, V, VIIIdim.

—the following chords are subdominant and move away from the root harmonically: IIImi, IV, VIImi

### 3.6.2: Major keys and sevenths

The key of C still has the following notes: C D E F G A B C. With these notes we can form the following sevenths:

			in abstract
major 7ths:	C	C E G B	I <sup>ma7</sup>
	F	F A C E	IV <sup>ma7</sup>
7ths:	G	G B D F	V <sup>7</sup>
minor 7ths:	Dmi	D F A C	IIImi <sup>7</sup>
	Emi	E G B D	IIIImi <sup>7</sup>
	Ami	A C E G	VIImi <sup>7</sup>

With B you get a funky altered seventh called Bmi7b5 (B minor seventh flat fifth), which is Bdim with a minor seventh interval on top. Why not Bdim7? Remember that Bdim7 (spelt B D F G#) has a diminished seventh (G#), not a minor seventh (A), and that a diminished seventh is the same as a major sixth.

Bmi7b5	B D F A	VIIImi7b5
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When would you use such a chord? I'm not sure myself. But for the sake of completeness, there it is.

### 3.6.3: Minor keys, triads and sevenths

Remember what I said about relative minors, how they're intimately related to their major scale? The chords available in a major scale are the exact same chords you get in the relative minor scale, except that in the minor scale another chord becomes important.

Let's see about A minor's triad chord palette, then. It should look pretty familiar, although note that the abstract designations of the chords have changed to reflect A as a root note. Note that the IV and V chord share the same tonality (i.e. major/minor status) as the root note's chord in both the major and minor keys.

minor triads:	Ami	A C E	I mi
	Dmi	D F A	IV mi
	Emi	E G B	V mi
major triads:	C	C E G	bIII
	F	F A C	bVI
	G	G B D	bVII
diminished:	Bdim	B D F	II dim

As for the sevenths of A minor, it's the same story: the exact same chords of C major except with reassigned function within the A minor key.

minor 7ths:	Ami	A C E G	I mi7
	Dmi	D F A C	IV mi7
	Emi	E G B D	V mi7
major 7ths:	C	C E G B	bIII ma7
	F	F A C E	bVI ma7
7ths:	G	G B D F	bV7
Bmi7b5		B D F A	II mi7b5

Yet again, the chords can be classified into dominant and subdominant groups. To the dominant (V) group belong the Vmi chords Vmi and Vmi7 as well as the bIII chords bIII and bIII ma7 and the bV chords bV and bV7. To the subdominant (IV) group belong the chords IVmi, IVmi7, bVI, bVI ma7, II dim and II mi7b5.

The characteristics of moving towards or away from the root that the dominant and subdominant have (respectively) also function for the minor key chords as they do in the major key.

### 3.5.4: What should it matter whether chords move towards or away from the root note, Simon?

It's all to do with the dynamics of the chord progression and therefore the dynamics of the song, dear reader. And chord progressions deserve their very own chapter after all this formative stuff about what chords have what forms, what chords belong to a certain key and how to transcribe the chords you come up with, which I'll talk about next.

Any piece of music is a dynamic, dramatic, self-contained little world of sound, after all, be it classical or grunge or techno or whatever. If it moves you in some way through rhythm or melody or harmony, it's doing its job.

More on that later. Let's talk transcription.

## 3.7 Transcribing your chords

3.7.0: Transcribing what music you write means you can share it on paper without having to actually play it to someone else.

### 3.7.1: Abstract or key-specific?

Use whatever you're comfortable with using. Keeping things abstract makes transposing—taking melody/harmony from one key and rewriting it in another—much easier, because in order to transpose you have to abstract the melody/harmony away from one key and recast it to another. If you start in the abstract you're in much less trouble when or if you transpose. Viewing in the abstract also lays bare the functions of the different chords and melody as they relate to the root, which is also interesting. And there are those who have a perverse fascination with Roman numerals after all..

If on the other hand you just want to write things down without worrying about the deeper functions of the chords and the key they're a part of, write things in terms of real notes. Less hassle.

### 3.7.2: To spell or not to spell

If you're not sure what a chord is but you need to write it down anyway, spell it note for note. Obvious advice, really, but if you happen to write down the name of a chord wrong in some transcription only to come back and discover the chord progression you once loved now sounds horrible.. well.. better to be safe than sorry.

### 3.7.3: Altering chords

To transcribe an altered chord—one with extra notes or flattened/sharpened notes or whatever, like Bmi7b5—simply write down the closest you can get to it, say Bmi7, then change it with the following steps starting from the highest interval and working your way down:

- if a note is added to the chord, use 'add' and then show its interval
- if a note is sharpened or flattened (see below), use a # or b sign and then show its interval
- if a note is omitted from the chord, use a minus sign and then the interval of the note. Dmi7-5

Don't forget to add a slash and an alternate bass note if the chord is inverted

Remember you can only alter the following intervals in any chord: fifth, ninth, eleventh, and thirteenth. Why only these intervals? If you alter the root note, it becomes a different chord; if you alter the third, it becomes either major, minor or suspended; if you alter the seventh, it becomes a major, minor or diminished seventh. These are all things which can be represented in the chord's normal name.

Of course if you're making huge chromatic chords, that is to say chords which employ notes that aren't part of the designated key, you're probably better off spelling them rather than trying to figure out what a music theorist would call them. If it's a toss-up between [C Db D F Ab B] and Fmi6(addb6, #4)/C, it's quicker to write the chords down than work from a normal chord to some gross alteration.

If you want a good priming experience on chromatic and atonal harmonies, by the way, check out some of the more abstract music from Stanley Kubrick's *2001: A Space Odyssey*. The music of a composer by the name of Gyorgy Ligeti that appears on that soundtrack is a fantastic introduction, specially the 'eeee' music that comes on whenever someone's examining the monolith. Good stuff, and an area not too much explored in mainstream techno harmonically (melodically it's had a pretty fair run with more abstract varieties of acid).

## 4.0 What to do with all those chords: progressions and beyond

4.0.0. At this point it's fair to say i've been pretty spare with regards to talking about melody. Melody isn't my area of interest, and to hear overt melodies in my own music is a rare thing indeed. The good thing about harmony is that once you know enough about it you can more or less fake melody by "connecting the dots" between specific notes in the chord progression.

Melodies often play with the chords obediently. Every once in a while they leap out of predictable harmony and drag the chord progression towards something much more interesting, and it's there that you can start breaking the "rules" of which chord belongs with which key and so on: when you know better than to follow them.

### 4.1 Progressing through time

4.1.0: A chord progression is exactly what it sounds like: a sequence of chords. To write a chord progression isn't a particularly challenging thing, which i'll now demonstrate by writing a quick four chord loop. If you can play this yourself on a MIDI keyboard or write it in a tracker, it'll save me making MP3s to demonstrate.

#### 4.1.1: A four chord loop

C                      C7                      F/C                      Fmi/C

The notes you play in these chords are as follows:

C	C	C	C
E	E	F	F
G	G	A	Ab
	Bb		

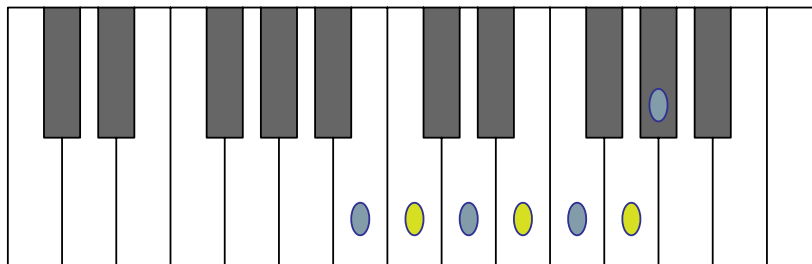
Looking closer, there's lots to see. The low peripheral note of each chord stays at C. The high peripheral note starts at G, leaps up to Bb and then works its way down semitone by semitone until it gets back to G. The middle note goes up from E in the first two chords to F in the second two.

These chords play well in sequence because there's slight changes from one chord to the next. This isn't the definitive example of a chord progression by a long shot, but it's a beginning.

Try replacing the final Fmi/C with a Bdim7, then compare that to a straight C chord (which comes next, given that this progression is looped).

C	C7	F/C	Bdim7	C
C	C	C	B	C
E	E	F	D	E
G	G	A	F	G
	Bb		Ab	

The relationship between Bdim7 and C might even be worth a graphic for demonstration purposes:



What you should notice in this diagram is that Bdim7 (in grey) surrounds C (in green), such that to go from one chord to the other means that all the notes of Bdim7 sort of collapse into one another to form C. I don't know if there's a music theory word for this particular effect or relationship but if ever there's cause to follow a seventh with a major chord, this would have to be one of the best reasons to do it. (Collapsing progressions or something, they'd be called.)

Note also that because the progression now ends with a dominant-series chord, the resolution of the progression is

much more satisfying and complete. The low peripheral note dips down to B before coming back up to C again, dynamically mimicking the downward motion of the higher peripheral note. The lower note resolves.

#### 4.1.2: Resolution the first: resolving to a harmony

I've been using the word *resolve* a bit extensively throughout this document so far, so it would pay to explain exactly what I mean when I talk about musical resolution.

Resolution, aside from meaning the amount of detail you have in pixels on a monitor screen, describes how something turns out. When it comes to music, resolution means two things: how and whether a particular note fits into a harmonic structure (chord) or clashes with it, and also when a note or chord takes itself back to the root or fundamental note or chord of the designated key.

The first meaning can be better demonstrated by playing a chord together and playing different notes over it: play a C chord, and then play the notes F and B over the top of it. Sounds pretty jarring, doesn't it? These two notes don't resolve well with C major because they're both only a semitone away from one of the notes in C major: F is right next to E and B is right next to C. Harmonic intervals like that aren't at all pleasant, but can all the same be bent to the advantage of more adventurous and avant garde composers.

Let's assume you're not quite that adventurous yet though, even if you do like Ligeti. (I do.)

The list of notes outside of C E and G that resolve with the C chord, given the criteria that you should try to keep simultaneous notes at least a whole tone apart (and that you want to work in a diatonic and not chromatic system), is as follows: D, A, A#/Bb. That gives you a palette of six resolving notes, three of which will resolve directly to harmonic elements of the chord, and three of which will resolve for the reason that they don't clash with any other notes. If you want to stay strictly to the scale of C major, the Bb is out of the running too.

You're now left with five notes to play over the chord of C: C D E G A. Oh look, it's our old mate the major pentatonic scale. Told you it was handy.

If you want to use a melody with F or B over a C major chord and have the notes resolve to the harmony, get the note *into the harmony of the chord* and if you can remove any notes in the chord with which F or B clash. For instance, F is part of Csus4, and B is part of Cma7. (Play a B over the top of Cma7 and it's instant bliss territory.)

So. That's one sort of resolution explained and an early introduction to the next chapter about melody, the 'fitting' sense of resolution. The other definition of resolution, the 'ending' sense, is a very early introduction to a section some way off yet.

#### 4.1.3: Resolution the second: resolving to the key chord or note

Pieces of music tend to be in a certain key. Once chromatic composition took hold and pissed off a perfectly good thing in the 20th Century under the likes of Schoenberg, this was no longer the case, but music that doesn't establish a fundamental or root note and some sort of tonality at any point is still vastly less common than music that does. All pop music resolves to a key. Electronic dance music (with the possible exception of certain older styles of acid and the newer styles grouped together under the heading of leftfield) all does.

It's not hard to spot music that doesn't resolve to a key at all—whatever melody and harmony there is in it sounds deeply unhooked and may even seem to be a series of almost random, disconnected, dauntingly toneless melodic and harmonic structures. It has a drifting and unanchored quality and tends to not "get to the point", at least not using melody or harmony.

Debussy's *Prelude to the afternoon of a faun*—highly recommended listening to anyone who's interested in hearing the philosophies of ambient music in the framework of orchestral composition, not to mention because it's a fantastic bit of music—has a quality of floatiness not too far removed from atonal and chromatic music, but it's not without resolution of any sort itself. The music changes its key with unprecedented speed and frequency to achieve its distinct quality as the lovely formless and floaty piece of music it is.

Most music isn't as progressive and complicated as Schoenberg's or Debussy's, however, and a key centre is almost always to be found. Much of the time the very first chord in the piece of music will tell you the key of the rest of the piece, although over time it's been discovered that you can begin pieces of music in other more interesting ways and introduce the key properly later on. It's this central key in the form of either a chord or a simple note that notes and harmonies are anchored to, and the key brings resolution to the song. It's the tonal anchor of the song.

In the form of its chord and its note, the key is intimately involved in the song's structure as long as it remains the key



in use; keys can change within songs; there are ways of making the transition between keys smoother using the right set of chords, too. It's perfectly possible to pop into one key briefly and then shimmy back to the original key if that's your thing.

When a song gets back to its key chord, it's said to have resolved. When a chord in a song is followed by the key chord, it's said to have resolved (to the key chord). Resolution in this sense is relative to the key of the song; if you're in the key of C, C can't resolve up to F unless you make F the key and start using the F key's chords.

Resolution is a key thing.

#### 4.1.4: Pattern, structure and beauty

That first progression from a couple of sections back is a rather advanced one to start with, but it does reveal how chord progressions often function—by pattern and structure.

This next bit is stating the blinding obvious, horribly so. Please read it and nod all the same.

Beauty in music comes from pattern and structure, and with added skill in constructing and manipulating pattern and structure with melody, harmony and rhythm (not that i've even touched on rhythm yet) comes more interesting music. It comes from how chords in sequence follow one another, the relationship between the notes in sequence and playing at the same time. Both similarity and difference between elements in sequence and simultaneity play a role in the structure and pattern accomplished.

This is why chromatic and atonal music, flaunting with experimental harmony and macrostructure, is still pretty much popularly marginalised outside of certain movie soundtracks. The structure's nowhere near as obvious by listening (unless you're a mathematician or musical genius) and hence not as enjoyable to as many people. I'm sure it's the case that certain educated people enjoy listening to serialist music (music derived from mathematically-derived formulae based on sequences of notes played backwards, in inversion and so on) because it's so underlyingly interesting and challenging, and i'm sure they enjoy it no less than i enjoy listening to Debussy's *Prelude*—but that's all a bit bloody conceptual to me.

Music is never ever a static structure and always an ever-changing one. To wit:

—if you use only one chord during a song, the way you play it is never the same and the melodies you can layer over it can change.

—if you play only the chord, the harmonic interaction of the different notes will change.

—if you play only one note during a song on a real instrument, the texture of the note changes as it's sustained.

—if you play one note on a synthesiser which can produce a steady waveform, the listener's mind ticks over in response to the tedium of hearing one note for five minutes and you still end up with structure.

—if you go the 4'33" John Cage route and play no notes at all, you get the above effect plus any ambient noises, and those are always changing too.

Many patterns can be broken down to increments of semitones and whole tones, two quite elementary distances. Maybe the chord G resolves down to the chord C (in the key of C of course) more solidly than any other chord because the B note in G can be heard to "turn into" the note of C, which is the fundamental note of the key. One semitone up to get to that all-important resolution.

Heh. Just an idea, that.

#### 4.1.5: Let's talk about chord progressions again, shall we?

As i've already hinted if not outrightly declared in my discussion of chords and keys, certain chords are more important in a chord progression than others are. The fundamental or root chord, that which carries the tonality and fundamental note of the operational key, is the most important. The IV and V chords (whether major/minor, seventh, added-to, etc) establish the key along with the fundamental or root chord. The remaining chords in the key will also play a role, but it's generally those three chords that are the ones which take charge in the song.

*Especially* in pop music.

So many pop tunes can be played with little more than the old I, IV and V chords that books have been written with titles like *Play All These Songs With Just Three Chords*. And the books even live up to that rather strange-sounding promise.

You can go off and play the I, IV and V chords in any combination you like and discover how head-nobbingly done to death they are in your own time after i give you a map of the twelve bar blues, but i don't want to talk about the root,

subdominant and dominant chords beyond that they're important. It's only worth stating the once, because you'll soon find out how relevant they are to chord progressions.

If you write a chord progression without either the IV or V chords though, it won't sound all that odd unless you drop the I chord. It's only once you don't use the I chord often enough that things can beg for resolution. New Order's *Bizarre Love Triangle* only resolves to its root chord once every eight bars, for instance.

IV	V	III <sup>mi</sup>	IV
IV	V	I	IV

The song's almost always searching for that root chord to resolve to, which gives it a searching quality besides. The root chord in the chorus falls underneath the lyric (I'm waiting for the final moment you) "say the words that" (I can't say), sung in on a high note. It's a nicely effective synergy between melody, harmony and lyrics, that moment.

A quick fact for those of you who like everything reduced down to basic maths and physics: two notes an octave apart have the frequency ratio 2:1, two notes a fifth apart have the frequency ratio of 3:2, and two notes a fourth apart have a frequency ratio of 4:3. No other notes share such a neat relationship. (Two notes a semitone apart have a frequency relationship roughly equal to 1:1.05946; a whole tone means a frequency relationship of approximately 1:1.12246 between two notes.)

#### 4.1.6: I got the blues

The *twelve-bar blues* is a genuine classic progression. Its bleached seventhless variant goes like this.

I	I	I	I
IV	IV	I	I
V	IV	I	V

It's all I, IV and V. Yawn.

A more interesting variant goes like this.

I	I	I	I
IV <sup>7</sup>	IV <sup>7</sup>	I	I
V <sup>7</sup>	IV <sup>7</sup>	I	V <sup>7</sup>

The twelve bar sticks to the root, subdominant and dominant chords (**not** chord groups, chords). It's the most unsubtle chord progression around these days but it's still as versatile as ever it was when you pop some lyrics over it, and its familiarity means you can comfortably experiment a lot more with melodies in it as opposed to an unfamiliar chord progression.

You can go on writing progressions with I IV and V all you like, but it'll sound a bit boring.

#### 4.1.6: A less hackneyed chord progression to try for yourself, and further suggestions

Let's look at a progression where one of the notes in the centre stays the same, in this case good old C. These are the chords that came to mind when i thought about which chords had a C in them. I've got a minor triad, an inverted major, a sixth and a minor seventh.

	Ami	C/G	Ab6	Dmi7/A	(Ami)
low	A	G	Ab	A	A
mid	C	C	C	C	C
high-mid			Eb	D	
high	E	E	F	F	E

As you can see, the high note E effectively breaks into two separate notes before converging back on E again at the end of the loop. The low note moves around by whole tone and semitone before it gets back to A early in anticipation of the Ami at the recommencement of the loop. C is included in all the chords, tying them all together.

The low peripheral note moves around in steps of a semitone and a tone, a very common strategy.

The peripheral notes move around a centre note. That's the maths of it. How this rather odd chord progression makes you feel as a person is another matter entirely, i'd suspect.

This example is in the key of A minor, which you can tell because most of the chords use exclusively white keys. It admittedly leaps rather suddenly into another key when it gets to Ab6 (could be any number of keys, really) but comes back again in time for Dmi7/A.

## 4.2 Further study and some thoughts on musical precedents

You can find more chord progressions on paper by looking for guitar tabs on the web. If you can, looking through sheet music for popular bands like Metallica and Pink Floyd will also hit paydirt: there'll be a musical staff with notes on it for the lead in such books, but on top of the staff there's usually an indication of what chord to play.

Failing that, try working out the chords for some of your own favourite songs. It might take a while, specially if there's some suspended fourths in there, but being able to figure out what makes your favourite songs so good—from both the perspective of dry analysis and emotional appreciation—can help you along greatly in your own composing.

The bottom line is this: as a composer you should listen to any sort of music you possibly can and absorb it—all of it contributes to your personal vault of musical manoeuvres in terms of melody, rhythm, lyric and harmony. Music is all about borrowing and reusing other people's ideas, synthesising them together in one's own style to make something unique.

It's not just sampling i'm talking about either: virtually every symphony written after Beethoven did his bit has an element of Beethoven in it. Because he was so good at doing what he did, people would be daft not to ride the wave of inspiration set in motion by Ludwig van.

That's how it's always been, and that's how it still is, and it's going to stay that way for some time to come. Ninety-nine percent of composers and producers are fooling themselves if they dare ignore what's come before them, and to a great extent if they ignore what's coming up around them, and to as nearly a great extent if they only pay attention to one small area of music like trance or electroacoustic or rock.

Inspiration and precedent are truly everywhere, and there are no final rules on how your inspiration strikes.

I can't teach you how to write an unconditionally interesting chord progression anyway. I'm not about to try to. You can always learn interesting things from other music, even bad music (to the effect of "This sucks.. but why?").

## 5.0 Melody

6.0.0: Until i knew about music theory, good melodies were hard. Really hard. I'm not a person with a grand innate sense of melody when it comes to composing, although i can whistle a tune and usually i can sing in harmony off the top of my head. I eschewed melodies for the longest time until i found out that it's easy enough to fake a serviceable melody from the harmonic elements of the song. Then i found out that the melody can actually conduct the harmonic part into interesting new places and began to appreciate that the melody and chords are interesting playmates.

Although melody is simpler than harmony with just the one note playing as opposed to a single chord, it's easier to teach about notes, then chords and harmony, and then melody afterwards as an extension of harmony.

### 5.1 Writing a melody

#### 5.1.1: Principles of writing a harmonic melody

A harmonic melody is one which sticks pretty close to whatever harmonic structure is present in the song. A really basic example of a harmonic melody is one which uses only the notes of the chord playing at the time. At that level it's simple, but a little bit boring if you're only using triads. A slightly looser format is to adapt a palette of notes from both the key you're working in, the current chord and the whole tone principle discussed earlier: use the notes of the chord, work out what other notes can be played without clashing with the notes of the chord by being a semitone away, and then take out whatever notes aren't in the scale/key you're using.

Melodies can be thought of in terms of nodes and paths. A node note would ideally be one of the notes of the chord, and path notes are those which travel between the nodes. Path notes are transient in that they're only there to get from A to B and don't last long. They're less significant than the node notes which are by comparison more consonant with the harmony and are usually held for longer. Paths can also encircle nodes without moving to a new note. A path can progress by semitones, whole tones, whole and a half tones, or make even larger jumps depending on the desired effect.

Melody's the winding path through the harmony, as i see it. It skips on and off the notes of the harmony to accentuate them, occasionally stepping off the path altogether to jump between notes on the scale. It may not be this to everyone but if you've never written a melody before, this is a good framework to begin with until you can discard it.

#### 5.1.2: An example harmonic melody using nodes and paths

Part of the major progression from *Chronologie pt 4* by Jean-Michel Jarre will analyse nicely into a node-and-path melody for our purposes. (If you don't know this song, the album's been remastered and rereleased on CD so you should acquaint yourself with it at your local CD shop of choice as soon as you can. My bandmate Jeremy reckons we should play it during a DJ set one night to see whose head explodes.)

The key is C. I'm not just saying that for convenience like i usually do: this song really is in C.

Chord:	C	G	Dmi	F
Notes in chord:	C E G	G B D	D F A	F A C
Inverted:	G C E	G B D	A D F	A C F
Melody:	E : F E	D:	D E F: E D	C: D
Node:	E	D	F	C

Any note with : is held for a significantly long time.

In the first phrase, the functional melodic node is E. The melody anticipates the step down to D by first rising up to F, then hitting E again before coming down to the node note D in the second section and holding there. The third section sees a note-by-note rise from D up to the next node, F, and then a descending series of notes down to the fourth section's node, C.

The first and third sections have nodes which function as the thirds of their respective chords: E is the third of C, and F is the third of Dmi. By contrast, the second and fourth sections have nodes which function as fifths of their respective chords: D is the fifth of G, and C is the fifth of F.

Getting a long melody out and written need not be much harder than setting yourself some node notes determined by the harmony and connecting them with path notes. If that's not the most useful secret about writing melodies ever given away, i'd dearly like to see what is.

### 5.1.3: An example melody from pop music

Let's use the melody from the chorus of *Bizarre Love Triangle* for further analysis, setting it in the key of C for the sake of it being easy to read:

Chord:	F	G	Emi	F
Notes in chord:	F A C	G B D	E G B	F A C
Melody:	A B C D (E)	E D C B G	*G F E D (C)	C D A [G]
	(*melody goes up an octave in this phrase)			

Most of the notes in this melody are adjacent to one another, stepping up and down the scale a semitone and whole tone at a time. Don't underestimate this deceptively simple technique.

The notes in round brackets (E and C) are anticipations of the next chord in the progression, another well-used technique which keeps the song rolling along. In the case of the E, it combines with the G chord to suggest a sixth chord, harmonically enriching the proceedings. The C during the E minor is part of the F; with the melody passing over the notes G E and C in that same phrase, the melody spells out an absent C chord.

### 5.1.4: When melody drives harmony

To end up with more interesting chords, bend them around a melody a bit. As I said before, if you want a melody to fit some chords but the chords jar with the melody, change the chords so that the melody is to some extent inherent in the harmony. If you've got an F in your melody which you like in the context of the melody but that jars in the context of the harmony, change the C to a Csus4. If you've got an A in your melody which you want to make more significant, change the C underneath to a mellow C6.

Harmony and melody that dynamically react to one another in profound and interesting ways are usually good things, unless you're aiming to be uninteresting with your music in which case you only need to pick the one chord to play for an hour.

More about switching chords around for fun will be explored more fully later in the next section on variation.

## 5.2 Melody in Counterpoint

### 5.2.0: Counterpoint, or What Took Me Weeks To Figure Out

Counterpoint, like Holst's *Mars*, is one of these things we've all heard but we haven't necessarily known what we're listening to. Bach was the King of Counterpoint in his time, and thus if you write counterpoint you'll probably end up sounding like him a bit. Except not as good.

Counterpoint involves layering two or more melodies one on top of the other in order to suggest harmony. There are a heap of rules governing which intervals you're meant to use; these were later built on by some bloke called Fux (ooer) after Bach's time into different "species" of counterpoint, which determines how many notes of the base melody or *cantus firmus* go with however many notes of the other parts of the counterpoint. The suggestion of rules may turn some of you right off, but in all honesty breaking them unintelligently leads to pretty poxy results.

Suffice it to say that counterpoint could give electronic dance music a completely giddy spin if anyone decided to sit down and actually write a counterpoint that bopped along to the Amen break.

What follows is a very, very basic primer on counterpoint. If this piques your interest, go and find yourself a book and study up on musical notation because almost all of them will use that instead of the sort I use.

### 5.2.1: Melody on Melody

The base melody should have a distinct character of its own, and according to The Rules shouldn't go up or down for longer than three notes at a stretch or leap any more than an octave at a time. Just to keep things simple I'll provide a melody that uses the same note lengths all the way through.

This particular melody is sort of dramatic and minor key to make a change from all the other major key stuff I've been throwing at you in this book.

Just to be clear,  $D'$  is one octave above  $D$ , and  $D''$  is two octaves above  $D$ , and  $D,$  (that's a D with a comma after it) is one octave below  $D$ .

A' G# A' D' E' F' E' D' A# A# G F A D

No, that's rubbish for our purposes right now. But notice how you've got sort of a progression of notes A, E, and A# that suggest the uppermost notes of the chords Dmi, A, and Gmi/D? And the last three notes of the melody are the notes of the Dmi chord itself. If you decide to play the G in that sequence in a chord it turns out sort of smoky.

Ahem. Back to it.

C' D' E' G A B A E G C' B G C'

That'll do. In that melody you can probably already hear the obvious chord progression leaping out and beating you over the head with its obviousness. But let's get another melody going on top of it.

Now the rules of counterpoint tend towards favouring certain intervals. Octaves and fifths aren't very interesting or useful because they don't do very much; fourths and sevenths are so-so; sixths and seconds are okay once in a while but thirds are generally the mainstay of the form. Even still, you can't use thirds all the time.

Let's go stupid with thirds and fourths/fifths to lay a boring and overly pleasant melody over this one.

C'	D'	E'	G	A	B	A	E	G	C'	B	G	C'
E'	F'	G'	C'	C'	D'	C'	G	B'	E'	D'	B	G

Well, it's okay. Not very lively or interesting though; the bottom melody moves more or less parallel to the top one and doesn't display a lot of dynamic character of its own, which is something that should also happen.

Bugger me it's cold today. Just thought i'd mention that. I've got this fuzzy costume sitting around and i'm wearing bits of it to make sure i don't freeze my toes off. Brrr!

And now for something that has a bit of its own character.

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

It's still a long way off from Bach but you can see a few sevenths and even the old *diabolus in musica* tritone (B-F) make an appearance. This one's got more motion than the counterpoint above it simply because its sounds more like two melodies moving gracefully over one another rather than two-note chords being played at speed. That's when you know you've got a good counterpoint, when you get characterful melodies that form harmonies before your very ears.

Fux (ooer) talked about five species of counterpoint as well, which were respectively: note for note (as above); two or three notes in the melody to one note in the cantus firmus; four or six notes in the melody to one note in the cantus firmus; one note to the counterpoint to one in the cantus firmus except that the counterpoint is offset slightly, forming a syncopated counterpoint; and a mixture of the preceding four styles.

Syncopation will be explained in the rhythm section. Syncopation is fun.

### 5.2.2: Have you heard it upside-down and backwards yet?

Counterpoint theory also goes into things like manipulating the cantus firmus to turn it upside-down (inversion) and/or play it backwards (retrograde), as well as diminution (halving the length of the notes) and augmentation (doubling the length of the notes). The example i've got here, which is from J S Bach's *Art of the Fugue*, has a *cantus firmus* that goes

D A F D C# D E F

The inversion of that goes

A D F A Bb A G F

It's more obvious if you look at it in staff notation that an inversion simply means using one of the notes, F in this case, like a central pivot and inverting all the other notes as intervals around it. Represented as distances from F, the cantus

firmus becomes

-2    +2    0    -2    -3    -2    -1    0

and in order to invert it, we just change the plusses to minuses and vice versa. Multiply the whole row by -1.

+2    -2    0    +2    +3    +2    +1    0

D is two scale notes down from F; inverted, you go two notes up from F to get to A, and vice versa with A inverting to D. C# is an altered C, three scale notes down from F, so that inverts to Bb above F. The rest of the inversion should be self explanatory enough.

Retrograde just means playing the cantus firmus backwards. Going from this

D    A    F    D    C#    D    E    F

to this

F    E    D    C#    D    F    A    D

doesn't take too much brainpower. Unless you have a habit of losing your place.

Retrograde inversion is when you've got the cantus firmus melody upside-down and backwards at the same time.

The serialists went in for doing retrograde and inverted melodies as well, but you don't get much joy out of playing confusing atonal drivel upside-down or backwards or forwards or loud or soft or at all. Whoever let serialism kick traditional melody and harmony out of the equation at the expense of listenability should be dangled headfirst from one of Karlheinz Stockhausen's helicopters with a cello stuck up them. Ranting about serialism may well make me sound like a heathen, but as far as i'm concerned it's the equivalent of saying there's something wrong with me because i haven't got any body piercings or i don't like being whipped for fun.

And for those of you who haven't the slightest clue what serialism is, don't bother finding out. It was a long period of early-to-mid 20th Century musical ideology which decided that to be truly cutting edge it was time to abandon tonal centres and write music without any key or formal harmony at all. It doesn't do much for me but it certainly was something different at the time.

On the other hand, i like Ligeti so maybe it's just particular composers that stuffed up a good idea.

## 6.0 Harmonic progressions

6.0.0: A note on the word 'variation': i'm not using the word variation in the classical sense of being a form like a sonata or rondo, more like 'harmonic substitution'. If you knew that, you shouldn't be reading this book because you probably know more than I do about music.

Variation is where you take a phrase of melody, or a chord progression, or even a whole song and tweak it a bit so that it's similar but different enough to drive things forth. It could be changing a note here or there but keeping the general rhythm and character of the original, changing one chord for another and bringing out different harmonic feelings, transposing a major-tone melody into a minor-tone melody, or even playing the same music on different instruments.

Variations are an important compositional device for keeping songs fresh and interesting while they progress, providing new twists on familiar and established harmonies and melodies. Variations in this sense are almost constant in classical music, quite present in pop music, and very curious in electronic dance music.

For a really good example of variation in action, watch the bit in the movie *Amadeus* where Mozart is sitting at the piano improvising variations on Salieri's march, or at the party where he plays the same piece of music in the style of different composers.

### 6.1 Tweak'n

#### 6.1.1: Pick a chord, any chord

For this section to work, we'll need to come up with a chord progression to play with. I'll volunteer a version of one of my own, the song variously known as *Kwinkunx* when it's in the key of F and beatless or *Chillagoe* if it's in the key of E with a beat. It goes like this:

I	Vimi	I	VI	VI	mi
VII	IV	VI	IV	V	

Let's translate that to the key of F so we've got some proper chords to work with.

F	Dmi	F	Dmi	
Eb	Bb	Eb	Bb	C

#### 6.1.2: Vague variation

Let's start with a variation that plays on the F and Eb chords. This is a pretty extreme variation on the original chord sequence, but could well be used as a break between repetitions of this progression.

F	Dm/F	F	Dm/F
Eb	Cmi/Eb	Eb	C/E

With a bassline of some sort playing F for the top row and Eb and E for the other, there's a variation. Here you've got a vague variation of the original sequence. It's in the same key and has some of the same qualities in that there's a temporary shift down to the key F minor on the second row (because Eb and Cmi are both F minor chords, no matter how natural they sound next to F and Dmi after years of freely nipping back and forth between major and minor keys with the same key note), but it's not overly much like the original chord progression at all.

Here we've taken a vague harmonic progression and turned it into a quite different set of chords which could alternate with the form of the original progression in a song.

#### 6.1.3: Slight variation and note smearing

The version of *Kwinkunx* on CD has a chord progression like this.

F	Dmi	F	Dmi	
Ebsus2	Bbsus2	Ebsus2	Bb	C

Note smearing is the name i give to when the form of one chord affects the chord coming after it to the extent where novel notes are passed along. *Kwinkunx* loses a lot of its subtle harmonic flavour when the sustained chords are played as major triads.



Characteristics from Dmi bleed over an F to Eb to turn Eb-G-Bb into Ebsus2—Eb-F-Bb, giving the VII chord characteristics of both F and Dmi before it and altering its major tonality to that of the more furtive sustained triad. This quality makes both the Ebsus2 and the Bbsus2 more inclined towards carrying the song along to a resolution at F.

For the sake of the exercise, there's nothing to stop us from playing Ebsus2 for beat or two then playing a normal Eb, and then playing up to an Ebsus4 if we were feeling particularly decorative and fidgety.

For this sort of variation, try changing the notes of the specific chords in the progression just slightly to see what you can come up with. Suspended fourths, sevenths, added seconds, added ninths—use your intuition and experiment to see what makes the chord progression sound interesting. For an extra lark, you could use the plain progression at the beginning of the song and then use ornamental versions towards the end. Or the other way around even, starting with subtlety and complexity and then moving ultimately to simple chords with all their associated directness and power.

#### 6.1.4: Direct major/minor variation

This isn't a particularly hard trick, just a slightly fiddly one. Here's a melody. 'G stands for the G of the octave below the melody, given that octaves start and stop at C.

C	'G	C	E	F	D	F	D
'B	'G	'B	D	C	'G	C	

The underlying chord progression is C F G C if you can't tell.

Translated to abstract notation, we get the following.

i	'v	i	iii	iv	ii	iv	ii
'vii	'v	'vii	ii	i	'v	i	

I want to transpose this melody to the scale of A minor, C major's relative minor, and create a variation on this major scale melody.

The difference between the major and natural minor scales is that the third, sixth and seventh notes are all flattened. The above melody transposed to a minor scale yields this.

i	'v	i	biii	iv	ii	iv	ii
'bvii	'v	'bvii	ii	i	'v	i	
'A	'E	'A	'C	D	'B	D	'B
'G	'E	'G	'B	'A	'E	'A	

It can sound better. Moments like these are what alternate minor scales are for.

In the harmonic minor, which we're going to use instead of the natural minor, only the third and sixth notes are flattened relative to the major scale. The seventh is left only a semitone away from the root note which gives the scale a bit more tension.

i	'v	i	biii	iv	ii	iv	ii
'vii	'v	'vii	ii	i	'v	i	
'A	'E	'A	'C	D	'B	D	'B
'G#	'E	'G#	'B	'A	'E	'A	

That sounds much better, doesn't it? The G# provides more interest than that limp old G, playing off the semitone distance away from the functioning key note A.

Now play the original melody, then the harmonic minor version. That's a tidy direct major/minor melody variation for you.

#### 6.1.5: Things to try

When you come up with the task of doing variations on melody, try going up where the original goes down, or down where the original goes up. Find new pathways between your notes. Swap bits of the melodic phrase around so that the third bit is where the second bit is, or something.

With harmonic variations, try altering single notes by a whole tone or a semitone for different interval results. Substitute a major chord for its relative minor, or a relative minor for its major. Add, subtract or move notes. Cut off the progression halfway through and use a different set of chords to point it in a different but equally interesting direction. Use the method discussed for melody to transpose a major progression to a minor one, or vice versa.

Part of writing variations is experiment, and the longer you do it part of it is experience informing your decision on how to create a variation.

### **6.1.6: Electronic dance music variations**

Electronic dance music is often driven by variations on the count of its typically ignoring the usual form of pop music with verses and choruses.

Some variations within different songs, especially from the late 1980s and early 1990s, are so wild that they don't appear to be parts of the same song (and with sampling that's often the case). They tootle along happily for a few beats and then turn a 90 degree snap corner and lose the beat to bounce about with something totally different, only to return back to the exact first motif again.

To go from a screaming diva to a piano lead or something, then to a string-driven bit and then to just a bassline to cool things off is less like writing variations on a theme, and more like coming up with a sequence of motifs all composed in a designated key so they fit together.

Such stuff will be covered in detail later on talking about macrostructure.

## **6.2 When and how to use variations**

6.2.0: A rule of thumb would be to establish some convention or motif, then introduce variations. It's repetition without being repetitious, which is really all music is.

### **6.2.1: Motif, variation in sequence**

First play your melody, then play the variations of the motif across different permutations of chords and whatnot. This creates a longer melody and song from a simple beginning.

### **6.2.2: Intro**

One of the most common uses of variation in pop music is using a variation of the chorus as an introduction to the song, establishing or at least hinting at the licks to be expected in the chorus. Given that the chorus is the part of the pop song that is designed to suck you in the hardest, it makes sense for a permutation of it to show up at the beginning of the song.

### **6.2.3: Distractions**

If your techno song is ten minutes of boring looped shite, try taking some of the chords and melody off for a spin around the countryside for thirty-two beats or more before returning back to the main loop again.

## **6.3 Modulation**

### **6.3.1: What is modulation, then? Why should i care?**

Modulation is simply travelling from one key to the other by using a sequence of chords. It requires some knowledge of which chords fit inside which keys and how they relate to what other chords, but not a great deal.

Modulating to another key is useful because it means you can play exactly the same thing as you've played before and it'll still sound interesting. Key changes are the musical equivalent of something for almost nothing.

Basically you have your starting key, and the chord or key you want to get to. Modulating is getting from A to B by following a path of chords through intermediate keys if need be, depending on how fiddly you want to make it. The way this is normally done is by following the circle of fifths

### **6.3.2: What's the circle of fifths? It sounds familiar**

The circle of fifths is a pattern that results in following the dominant chord in one direction and the subdominant chord

in the other direction. For the purposes of this document, it's going to be a line of fifths:

G is the dominant of C. D is the dominant of G, A is the dominant of D. E is the dominant of A. B is the dominant of E. F# is the dominant of E. C# is the dominant of F#.

Conversely, F is the subdominant of C. Bb is the subdominant of F. Eb is the subdominant of Bb. Ab is the subdominant of Eb. Db is the subdominant of Ab. Gb is the subdominant of Db.

Wait a second, we've just gone around in a circle! Db is the same as C# and Gb is the same as F#!

That's what makes it a circle, then. When X is the dominant (fifth note) of Y, Y is the subdominant (fourth note) of X. Simple, really.

### 6.3.3: So modulate already!

So say if we want to get from a C chord in the key of F to an E chord in the key of E. We follow the circle of fifths.

C      G      D      A      E

That's pretty linear. Once we've hit the A chord we're close enough to the key of E to start using some of E's characteristic chords like B7, C#mi or F#mi, just to show we've arrived. B7 in particular is very useful because E is the chord it wants to resolve to more than anything in the world.

It needs to resolve to E or it will explode! (That happens to it sometimes.)

C      G      D      A      B7      E

### 6.3.3: But then again..

E is pretty close to C, so we might get away with just sliding on up there.

C      D      B      B7      E

The fact that B and D share that F# in common makes pivoting from one key to another less awful.

As with everything, no amount of theory can tell you what's going to work, sound good or grate your nerves either through mundane familiarity or by sounding totally alien and weird.

## 7.0 Rhythm and percussion

7.0.0: Rhythm is.. well.. rhythm. The beat. Metre. Loop. What's not melody. What's not harmony. What the drums contribute. Where the groove happens. What James Brown is talking about when he goes on about the One.

### 7.1 Numbers

When you talk rhythm, you invariably end up talking about numbers for some reason. If you'd like to know why, count to eight in time.

One. Two. Three. Four. Five. Six. Seven. Eight. (Looks like an ApeX Twin tracklisting, doesn't it?)

There's no easier system, to put it bluntly.

#### 7.1.1: Counting the beats

1	2	3	4
1	2	3	4

Think of these numbers as points where something could happen: beats. Here, the beat count goes up to four then returns back to one. This amount of musical time measured out in a set number of beats is traditionally called a bar. It's not a horribly difficult word to deal with so we'll keep with tradition here.

The number of beats in a bar as well as how long those beats go for form a thing called a time signature. In sheet music, you'll see it represented by the number of beats in the bar over the top of how long those beats go for.

If you want, you can have three beats to the bar. This is commonly known as waltz time.

1	2	3
1	2	3

You can do five beats to the bar. The most ubiquitous example of music with five beats to a bar is the original *Mission: Impossible* theme.

1	2	3	4	5
1	2	3	4	5

You can do seven if you really really want to. Bands like Tool do well off strange beat counts like this.

1	2	3	4	5	6	7
1	2	3	4	5	6	7

The song *Some Velvet Morning* as originally performed by Nancy Sinatra and Lee Hazlewood has verses with four beats to the bar; these subtly leads into choruses with three beats to the bar.

You can measure the tempo of music by how many beats hypothetically occur in one minute. You can also measure it using Italian, I'm told.

#### 7.1.2: Marking, accenting and skipping the beats

Typically the drumkit is the musical element that has the most to do in terms of marking the rhythm. That's not to say that rhythm is only the domain of the drums--the bass part, for instance, sets a harmonic foundation while driving the rhythm along as well. And the rhythm guitar--it's not called a rhythm guitar for nothing, know what i mean?

But let's talk about drum programming for a second. Right now i'm listening to a song which has a pretty basic drum-beat:

1	2	3	4	(1)
kick	snare	kick	kick	snare

The kick drum is also known as the bass drum. It goes DOOF. The snare drum goes SNAP. You probably knew that already. Along with tomtoms (an onomatopoeic name), high-hats (closed: tit!, open: tssht!) and various other arranged metal discs like crash (kssh!), splash (splshhh!) and ride (tang!) cymbals, these form the basis of the stock standard

pop drumkit on which most drum machines are based. Of course with technology in the state it's in you can make a rhythm out of any sound effect you like however you like these days, but the pop drumkit is a good place to start because it's an adaptable framework.

Back to the beat from this song: the gentle interplay of the kick and snare is not all that's going on, there's a tambourine in there too. And it's getting louder in time with the snare. It's accenting the 2 and the 4 beat.

Now this other song i was just listening to is doing another thing with its beats:

1				2				3				4
kick	-	-	kick	snare	-	-	snare	X	snare	kick	-	snare

X marks the beat that should be there. And although there's a beat, there's no drum hit there, just silence. There are however two snare hits either side of it, bracketing the dead space. This gives the beat a bit more groove than it would otherwise have. The 3 is the beat that's most often skipped (usually bracketed) in drum programming.

Check out the Amen break: there's no snare or kick on the three at all.

Check out two-step, the musical genre that's only allowed to have one rhythm pattern: the three beat is vacant.

Just listen to the classic Funky Drummer breakbeat: same story, nobody's home at number three.

Incidentally, what James Brown and his various musical collaborators meant by their music being on the one was that they accented beat one very heavily. Definitely check out Mr Brown's music for an unsurpassable lesson in the ways of prototypical and potent funk.

This Ween song i'm listening to (*Mutilated Lips* if you're interested) is a bit rhythmically kooky; during the verse it's got this oddly reggae-ish thing going (reggae likes putting a kick on the 2 and 4):

1		2		3		4
x		kick & tamb		x		tamb tamb

Tamb stands for tambourine, if you haven't guessed already. The percussion section gets away with this sparseness by having a maracca shaking a regular beat on sixteenths (more on ordinal numbers soon) and someone playing bongos, generally accenting the 2 and 4 to fill things out. There's also an acoustic guitar that accents the 2 and brackets the 3.

During the chorus, it's a different story; the tambourine starts doing the sixteenth beats and the kick wakes up:

1		2		3		4
kick	kick	bongo		kick	kick	bongo

Slightly more conventional. Right, now to explain what sixteenths are.

### 7.1.3: Between the beats

The beats are places where the heaviest aspects of the rhythm happen: in dance music, the beat we've discussed is where the doof drum goes. Doof doof doof doof. You all know that one. And there's nothing wrong with the doof doof beat if that's all you need.

That's not to say there's no rhythm happening between the beats at all, far from it.

We can subdivide things down even further than beats. The traditional musical measures of length are based on four beats to a bar. Since you get four beats in a bar, they're called quarter lengths, since the four beats divide the bar into even quarters. You can have eighth lengths as well. And sixteenths. And thirty-seconds. The higher the ordinal number, the shorter the length is and the more frequently you'll hear it.

So when i say the maraccas in the Ween song are on the sixteenths, that means they sound four times for every beat:

1				2				(3)
chi	cka	chi	cka	chi	cka	chi	cka	chic..

It's common for most dance music to have some form of high-hat or a bass line or an uninspiring arpeggio marking

the sixteenths steadily. It gives the song a more frantic sound than it would otherwise have, makes it generally more energetic, which is most of the point with dance music I suspect.

In this other song, the hats are on the eighths:

1		2		3		4	
kick		snare		kick	kick	snare	
hat	hat	hat	hat	hat	hat	hat	hat

The eighths are also common anchors for the good old ride cymbal, which is typically used as a variant of the high hat during the chorus. Or is it the verse. I don't remember. But real drummers switch from the ride to the high hat and back again, they don't mix the two up very often that i've noticed.

The rhythm permeates everything, not just the percussion section. More profound comments about this are to follow.

## 8.0 Lyrics

8.0.1: Language has always been there to put specific ideas into someone else's head, whether or not you had those ideas first yourself. If music is raw emotion, lyrics channel the emotions down particular meaningful conduits into a richer and more nuanced human experience.

Now that Wendy Carlos has (some would say irresponsibly) used vocoders to harmonise the human voice, everyone in the world can sing one way or another, whether they're vocally able to or not. Rapping is a good way of getting a lot of stuff said in a short amount of time and keeping the attention of whoever's listening.

### 8.1 How? And why?

8.1.1: I can't really write lyrics in a traditionally pop sense. I have trouble with it because after a couple of rhyming couplets I often lose my muse. I'm left with something interesting but very short, normally. So I'm not the best person to write about lyrics, which is going to make this section relatively short.

In pop music, nine times out of ten there will be a chorus that drives home the central theme of the song, and all the catchiness and parrotability will be focussed here. Verses take off from the chorus and usually return right back to it. It's the formula, and frankly it's a nice easy formula to follow.

Convention says that pop lyrics should rhyme and be in time with the music. I've never been one to follow convention religiously, I'm just mentioning this out of courtesy to tradition more than anything. Actually I'm not sure if opera rhymed very much, and I have a vague feeling the *Ode to Joy* rhymes. (It's all part of the same musical continuum innit?)

Now lyrics ought to be about something, though you can sing random fluff the way Brian Eno used to if you like. The chorus is where the theme of the song is brought to a head, and the verses are where the story is told or the themes are explored in different detail. Even MC Hawking knew this when he penned *Entropy*: he goes into the second law of Thermodynamics in the verses and keeps the chorus to a simple "You down with entro-py?" call and return.

The MC Hawking song does exist, by the way, and it's both hilariously funny and wonderfully put together.

If you're not into writing verses and choruses for whatever reason, you're not alone by any stretch of the imagination, but you should probably still write lyrics **about** something. It's easy enough to do a song with sung verses but without lyrics in the chorus, hypothetically, as long as your chorus still has a lot of character. Bo Diddley did it with his eponymous track *Bo Diddley*, singing the verses and introducing a higher guitar lick to let you know the chorus is upon you. Then there's Led Zeppelin's *Black Dog*, which drops the accompaniment altogether for the sung parts and starts it up again when Robert Plant's done his wailing. It just lets people know things are going somewhere.

Music is always something of a dance where sometimes you're stationary, sometimes you're moving, sometimes you're going in a circle, but the next chapter covers all that kind of thing.

If you want to know how good lyrics feel, listen to music that moves you. Take notes. Brainstorm.

And remember, they're lyrics, not poetry. Poetry is usually unaccompanied. Some lyrics do look absolutely rubbish when divorced from their musical context.

8.1.2: So what's on your mind? Sex? Relationships? Furry animals? Astrophysics? It can probably be turned into a song if you're willing to commit your thoughts and feelings to words.

Lyrics are generally at their most vivid drawn from real life, where all the humour, anguish, and other stuff has been played out already. Those sorts of lyrics are more a case of documenting what happened, changing a couple of names if you think the people involved would object to being put into a song, and telling the story of what happened.

Maybe it's not a story you want to tell but a feeling you want to share and evoke: if you've been there, it'll certainly help. If you're terrified of being kidnapped by aliens and you have amazing paranoid fantasies, spend a verse on them each and make the chorus **THEY'RE COMING!!**, screamed as terrified as you can make it.

Any human situation or feeling can be turned into a lyric, honest. You just have to get a feeling for what to describe and sing about. For that, it's back to other people's music. And probably lyrical poetry wouldn't hurt either. You've still got some Shakespeare poems lying around from high school, right?

And then all the killer lyrics in the world won't matter a whit if your delivery is either inappropriate or flat.

## 8.2 Lyrical devices

8.2.0: There's sentences, and then there's lyrics. What makes lyrics interesting? Correspondences and repetitions, like much poetry. It won't make the substance of your lyrics any better, but it might make them marginally more interesting to listen to.

### 8.2.1: Rhyming and other repetition

Lyrics don't always rhyme, but they normally do. I don't want to waste time on what it means for two words to rhyme, but if you read between the lines you're likely to find out what I'm on about without too much pain gained.

The rhymes typically go at the end of something (e.g. a bar) and are evenly spaced.

*I like meat!  
It's nice to eat!  
I'd eat it every day  
If I could find a way.*

Apologies to any sensitive vegetarians.

You can put the rhyming words at the beginning of the bar to experiment if you really think it'll work:

*Meat i like  
Eating it's fun  
...*

But the expectation is almost always for a rhyme at the end of the word. You're expecting a rhyme for 'fun', aren't you?

You can repeat anything else you like, like the beginning of the word (alliteration)

*Stop sticking stickers on the stones in the street!*

Repeat individual words or phrases:

*Take my pizza!  
Take my pie!  
Take my Panadol!  
Let me die!*

And yes I like nonsense lyrics about food. Nonsense is good, food-related nonsense even better.

### 8.2.3: Deliverability and listenability

The lyric is the marriage of sound and meaning. Both of these things matter, probably more sound than meaning most of the time. That's not to say meaning doesn't matter at all, only that it takes second-fiddle to how it sounds.

With rapping in particular, the words are crammed often together like sardines, and a lot of road-testing is highly advisable to make sure each word flows euphoniously to the next.

Don't commit 100% to a lyric of any sort unless you've tried it and you're completely comfortable with it. The lyric does not need to be sensible, but it does need to be physically singable and sonically understandable. Wrapping your face around an awkward lyric take after take is no fun, after all. It should be as natural as can be to sing.

## 8.3 The delivery

8.3.0: Now that you've got some lyrics, what about incorporating them into a song? Well, you can just speak them over the top of the music if you really want to, but there are other avenues.

### 8.3.1: Singing



Singing not everyone can do well. Johnny Rotten taught us nothing if not that what constitutes singing can be pretty much anything you feel like spitting into a microphone. Wendy Carlos taught us that all you have to do is move your mouth at a mic and a synth can take care of the tune for you. If you've got a vocoder and a good carrier wave, your only task is speaking in time. This is probably more embarrassing than singing but even tone-deaf people can do it.

If you decide to have singing in your song, you'll need a melody to sing. That came up a couple of chapters ago. Singing's quite good for coming up with melodies as long as you're relatively intuitive when it comes to what notes work over what chords. You can sing a two part melody if you feel like coming up with that much melody.

Singing is acting: try different voices; imitate other singers; gesture wildly as you pour your heart out through these fine fine lyrics you've got. And if you really don't want to sing, rap.

### 8.3.2: Rapping

What singing is to voice and melody, rapping is to voice and rhythm. That's all. I'm not going to get into any discussions specifically about race, class, violent impulses or sexual appetite here, because none of that is relevant to a discussion of form. Content, maybe, but not form.

That said, the form of rap typically comes with a certain attitude, and at this stage in its lifespan this attitude is well into the realm of self-parody. You don't have to follow the prevailing bulltwang of the times and pretend to be a hardcore ghetto boyeeee when you're a white middle class tweed from Australia who'd probably be completely culture-shocked if he ever got anywhere near the Bronx. All you need to do to dissuade yourself that all rappers are foul-mouthed, self-aggrandising, violent and horny is to hunt down De La Soul's first album, or even some old Sugarhill Gang or Grandmaster Flash and the Furious Five. Or the Beastie Boys, who were white rappers long before Eminem took the stage, thank you clever record company marketroids.

Rapping, like singing, is for everyone to do but only few can do it all that well. Some people sing badly and they're ridiculed. Some people rap badly too, normally while they're trying to show how tough they are (as opposed to talented). It is your perfect right to laugh at such people, but be careful of the gun-toting ones on a psychosis-inducing amount of crystal meth: they might take it personally.

Rapping allows a higher density of words than singing, since the focus isn't on harmony or melody of any sort but pure, raw information set to a rhythm. Opinion pieces and minor essays on subjects of import make good material for rapping.

Again, actual songs can teach you a lot more than a book can so go and find some tunes you like (my preference is for old school rap like Sugarhill Gang when it was still fun party music) and absorb them. Listen to the delivery, the lyrics, the accompaniment too.

To begin with, the rhymes were pretty regular at the end of each line, but as time's gone on the rhymes have become more freestyle than that. Example in point (and I hereby apologise for being white):

Old style:        *I like pizza, i like Sprite,  
I like surfing the 'Net all night*

Newer style:    *I like pizza, and every night,  
I get tight  
with a Sprite  
and surf the 'Net all night*

There's lots more rhyming in the second one, and it's a bit more rhythmically complicated than just hitting the rhyme on every four.

## 9.0 Macrostructure, mesostructure, and microstructure

9.0.0: The magic numbers so often are powers or multiples of powers of two.

### 9.1 Structures, functions

9.1.1: The following pages might redefine the way you listen to and write music.

Think of macrostructure as blocks of harmonic progressions: choruses, verses, intros. Think of mesostructure as the chords that make up those chord progressions and the relationships between them. Think of microstructure as the notes that make up the chords.

In terms of these three levels of music:

- think of movement or motion as changes of any sort from one note or sound to another;
- think of population as how much is going on, like the cast of musical characters;
- think of permutation as mutations or changes at any of these three levels;
- think of rotation as returning to a prior point and continuing on, something like a loop;
- think of evolution as how much things are built on over the course of the piece.

Use these concepts to listen to all the music you've ever loved or hated. There is no longer a universal prescribed way to make music; there is no longer a mandatory understanding of what constitutes a melody or a harmony or a rhythm now that the philosophical turmoil in music of the 20th Century has taken out any notions of compulsory thought in music. Musicians are for the first time free to record the sound of themselves having a satisfying morning piss and calling it music. (Take a bow, Richard James, you utter utter wanker.)

That said, there's still more than all sorts of music in the world, and if the aesthetic appreciation of Aphex Twin's urinating noises isn't your thing then, well, i don't blame you.

9.1.2: Play a single note on the instrument of your choice or click your finger. This is microstructure. (Micro of course means little.) In the realm of microstructure arises acoustic texture: timbre.

Microstructure by its very definition is always moving. Microstructure is basic and atomic to music. Sounds, whether atonal or tonal, are musical atoms. Some of these atoms are short and sweet, some of them are prolonged (string pads, screams, crash cymbals). Microstructure is usually one-dimensional on its own level. Microstructure is what you see on an oscilloscope. Microstructure is the contrast between a piano, a guitar and a human voice all sounding middle C.

Permutation on a microstructural level could be playing the note louder or softer, banging the drum harder, or lifting the low pass filter up a bit to let more sparkle through.

Any way of thinking about any sound is of course arbitrary, liquid and ultimately for convenience's sake. Is a solo instrument a component of the other harmonic elements? In the sense of contributing to the melody of a song, sure. In the sense of being the same instrument, no. In the sense of reinforcing the harmony, yes. And so on. If you want to go to the other extreme, you can break down a sound into its own different bits (upper and lower, or tonal and atonal, or funny and stuffy, or...)-

Basically any way you choose to divide sound and music up for the sake of looking through it every possible way you can to learn something more about music, you can. Many of these analytical paths will be dead ends, but many won't be. Any way you choose to interpret these three structural concepts for your own use is okay, as long as it works and you're not "objectively" discrediting someone's works with them. ("Oh that Philip Glass is crap, his works concentrate too much on mesostructural permutation...")

9.1.3: Play a few notes, either all at once or in a row. Click your fingers and tap your knees in time. This is mesostructure. (Meso means middle.) In the realm of mesostructure arises musicality: harmony, melody, licks, motifs and rhythm.

Mesostructure is when microstructure gets a context next to other microstructures; mesostructure is complexes of microstructure. A complex of notes stacked on top of one another is a chord, and played one after the other it's a melody. Melodies stacked onto one another form chord progressions. A complex of percussive sounds is a rhythm. This is where the music starts making its actual appearance.

Rhythmic, melodic and harmonic sequences can be thought of as phrases.

Permutation on a mesostructural level would be changing the order of the notes for variety, changing the notes around themselves, throwing in an extra snare into the rhythm for effect; evolution is permutation designed to make the chords more or less heightened, the melodies more or less complicated, Rotation is going back to the beginning of the melodic or rhythmical phrase: the ubiquitous loop, much more common in rhythm than in melody until recently.

9.1.4: Play a few phrases one after the other, repeating some as verses and using the catchy one as a chorus, and make a little song. This is macrostructure. (Macro means big.) In the realm of macrostructure arises structure: choruses, verses, and some other things i don't have a word for.

Macrostructure is what happens when the chord sequences string together along with the rhythm and make even bigger structures. The relationship that macro has to meso is somewhat analogous to the relationship that meso has to micro.

When you hear someone complaining that techno has no B section, it lacks macrostructure. It's like reading one paragraph of a story over and over again sometimes.

## 9.2 Mapping music

9.2.1: To get a better understanding of ambient music, specifically Brian Eno and the Orb, specifically *Thursday Afternoon* and *Blue Room* respectively, i once made a map of each of these songs. I didn't write down musical notation so much as take notes, invent symbolic keys and produce sort of a long strip of words and icons, with the horizontal plane expressing time in minutes. Since i was working on lined paper, i turned the page around and used the lines to represent 20 second intervals for Blue Room and 30 second intervals for Thursday Afternoon. This is how i made my maps. Abstract as they were, the process of making them was invaluable.

If it were a shorter song, each line could have been bars or even beats. All that traditional musical notation really is is a map from which you can reconstitute notes with the right knowledge of how to read the notation. It's mesostructural, mainly, with smatterings of microstructure as they become important, and the macrostructure's just there.

But if you need to get an idea down on paper (usually quickly) or make a map to study say a forty minute piece of music all at once without a great deal of detail, this is an idea. You can map at the level of mesostructure with notes and chords, or map at the level of microstructure with particular sounds at particular points, or map at the level of macrostructure with where each sequence goes.

### 9.2.2: The macrostructure of the pop song, an example to originate some notation

Notation of the sort i'm about to use will help to flatten out the time of a song into something visual that you can take in simply by looking at it. If you've got anything against analysis, whether on principle or just because you enjoy being wishy-washy, you might gain some helpful knowledge from this part.

As said before, pop songs traditionally go like this for reasons which are probably more to do with the blues than i can really appreciate:

1. Intro
2. Verse
3. Chorus
4. Verse
5. Chorus
6. Middle Eight
7. Verse
8. Chorus
9. Outro

The intro and the outro are often based on the chorus. Each verse is going to sound more or less the same. So we can represent it this way:

C[intro] V[verse one] C[chorus] V[verse two] C[chorus] M[middle eight] V[verse three] C[chorus] C[outtro].

Think of C, V and M as prototype sequences of a sort, and think of the descriptions in brackets as names of variants on those prototypes. The verses are all going to have different lyrics, of course, and the choruses are all going to be more or less the same.

So while verse one has say a chord structure of C Dm F Am and begins *Ooh mama baby wanna dance all night witchoo*, verse two might have a chord structure of C Dm F Am and begin *Ooh baby mama wanna shag all night*

*witchoo*, and verse three might be shortened by half and have a chord structure of something like C Dm7 F Am7 and begin *Ooh mama baby wanna marry you*. Or something. But ultimately these three verses are pretty similar and all derive from the same few chords. Rotation and permutation again, that is. Basic elements tweaked and repeated.

You can then go down and specify the mesostructural bits of the song to make a guide to all the letters:

C: C G/D Dm F/C C G/D Dm F  
V: C Dm F/C A/C C Dm F/C A/C C Dm F/C A/C C Dm A/C F/C  
M: C F/C Em G/D C F/C Em G/D

You can go all the way down to melody level if you want, as well as writing down verses, but i really don't feel like doing that. But you could if you wanted to.

Note that C and V rotate a number of times around the same sequence of chords, especially the verse. It doesn't have to be this way, of course.

Notice as well how there's lots of powers of two involved: the chorus has a sequence of eight chords, presumably all held for four beats or so. The verse has sixteen chords. The middle eight has eight chords. You can muck around with these powers of two if you want, and you'll probably come off sounding pretty avant-garde for it: why not pop an extra bar or two onto the end of your verse? Why not delete all the bits where the chorus has no singing in it?

Why not indeed.

### 9.2.3: Structural extremes at odds

Let's loosen things up a bit and look into other structural ideas. One that became popular and informed a lot of techno is where you get things in looping sections, and each section just keeps looping around and around until it's time to start something else. This music leaves macrostructure mainly to chance, loops the mesostructure and wants to do nothing but hang onto that loop for the purposes of tweaking the texture and making you dance. It's simple music.

People bitch about dance music because it's got no concept of actual songwriting. That's about right, and it's mainly because the people who kicked off the brand of dance music popular since the 1980s and 1990s (as opposed to other brands) were really not interested in making music for old farts to listen to. So yes, instead of learning about music theory like good little students they instead pioneered repetition and disharmony for a new generation. And why not.

Then you get the other end of the spectrum: older classical music. Anyone who's ever listened to classical music will know it just doesn't stay still, and although it might return to certain motifs (melodies, chord progressions) it's a tumult of.. well.. music. In its traditional sense.

Played on instruments that were absolutely thrashed by the time synthesisers were invented, sure, but still.

There's more musical ideas in ninety seconds of Beethoven than there is in a double-CD set from Ministry of Sound and you know it. But there's probably more interesting sonic textures and groovy noises in that double-CD set than there is in Beethoven's entire repertoire. Now that technology's at a point where we can make bloody well any sound we like, the focus of music is shifting from the music we can make to the plain old noises we can make. For better or worse.

Nobody asked Beethoven to reinvent the violin (how would he have tuned it?), and modern electronic musicians are innovating their own noises with every new song they write.

So there. Of course you should go and investigate these extremes for yourself at once. Absolutely.

## 9.3 Getting it arranged

9.3.0: What's arranging? Arranging is picking your instruments and giving them notes to play and noises to make in order to make your music into a song. Until you've done that, it's all rather virtual and conceptual.

Unless of course you're like me and you prefer to write as you sequence or play, something like improvising in slow motion. Not as structured a method maybe. Alright, not at all. But methodically constructing music isn't always called for.

### 9.3.1: Transcribing the tones of your tbrain

There's a program called *Auralia* which will help no end in actually training your brain to be able to analyse and tran-

scribe a melody in your head and put it on paper. It's very very good. Yes, sometimes you'll have the luxury of instruments to figure out which notes and chords are what but that won't always be the case.

Let's be frank: there's no bigger pain in the arse than being caught somewhere with a killer bit of music in your head and no instrument available to help transcribe it on. In a car, like i was today. There was barely enough time to stop at the stop light and grab my book and write down the lyrics i'd come up with planning to transcribe the melody and chord progression later and by the time i got a moment to myself, it was all gone. Sod it. But i've got a chorus or verse for a future song in my wee book. It's on the pages after notes i took from a 10cc song called *I'm Not In Love* which i just found out about the other day. Nice song, it is.

Anyway, arrangement. As was touched upon in the section on chords, arrangement is the art of rendering your music across your instruments. What you arrange depends on how much you've got to begin with, and how much you want to pack in.

But that may all be moot, because you may well just experiment until you find something you like, and arrange on the fly to what suits you based on what you came upon. I know i do.

For those who want something a bit more in-depth, stay tuned. I'll come up with something.

## Z.0 Appendices

### Z.1 Changes

0.3.1 (46 Cha 3170/15 Feb 2004)

- added interval chart

0.3 (45 Cha 3170/14 Feb 2004)

- extra bits in scales section
- big addition to interval section
- longer introduction to chords
- scrapped rhythm section and redid it
- added to lyrics section
- added preface
- renamed variations section to harmonic progression
- added to harmonic progression section
- added more on arrangement

0.2.6 (44 Cha 3170/12 Feb 2004)

- very minor copy changes

0.2.5 (34 Cha 3170/02 Feb 2004)

- changed lyrics section
- tweaked structure section

UNRELEASED

0.2.4 (26 Con 3169/21 Jun 2003)

- added to structure, lyrics and rhythm sections

0.2.3 (23 Con 3169/18 Jun 2003) - not publically released

- started structural section
- started lyrics section

0.2.2 (17 Con 3169/12 Jun 2003)

- got some fan mail today which prompted me to start writing again :)
- added subsection on basic counterpoint and a rant about serialism
- started rhythm section

0.2.1 (36 Aft 3168/24 Nov 2002)

- added subsection on key
- expanded section on variations
- added stub pages for other chapters

0.2 (36 Aft 3168/24 Nov 2002)

- added material on resolution, I/IV/V relations
- added melody chapter
- started variations chapter
- added index and front page

0.1.5 (34 Aft 3168/22 Nov 2002)

- added heaps more about scales
- edited other material to make it less harrowing to read

0.1.4 (34 Aft 3168/22 Nov 2002)

- added more scale stuff and notes on key vs scale
- fixed fluff in circle of fifths thingy
- changed chord spellings from Roman to Arabic numerals
- \* Roman numerals from now on refer only to chords, not to single notes
- added thanks bit

0.1.3 (33 Aft 3168/21 Nov 2002)

- added inversions and transcription info
- added chord progression chapter

- planned and plotted later sections

0.1.2 (33 Aft 3168/21 Nov 2002)

- added whole tone scale and modes

0.1.1 (32 Aft 3168/20 Nov 2002)

- PDF version with adapted guides, created better structure and added diagrams

0.1 (32 Aft 3168/20 Nov 2002)

- GIF-only version

Planned for the future

- more examples

## Z.2 Find Me

Email: [womble@arach.net.au](mailto:womble@arach.net.au)

ICQ: 11029830

Yahoo: [kwookywomble](http://www.yahoo.com/kwookywomble)

AIM: [wanbuliao](http://www.aim.com/wanbuliao)

IRC: k-bird (Efnet)

KvR: [kurrelraven](http://www.kvra.com/kurrelraven)

Web: <http://www.ravenspiral.com/>

Details are correct as of 15 Feb 2004

## Z.3 Thanks to:

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