MUSIC THEORY:

THE TL;DR VERSION

By: Reginald Young / Neon The Rex

“Learn the rules like a pro,

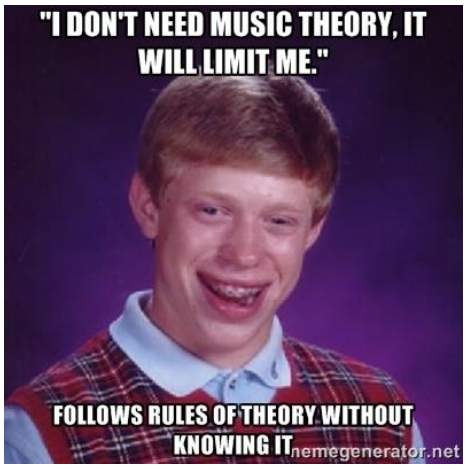
so you can break them like an artist.”

-Pablo Picasso

WHY MUSIC THEORY MATTERS

Composing without music theory is like mixing without EQ. It's possible, but I don't recommend it.

The main problem with ignoring theory is that, chances are, you've grown up surrounded by Western music. And your ears probably prefer Western music norms. So the music you inherently prefer to compose will follow the rules of Western music. And by "rules of Western music," I mean music theory. To break the rules, you have to realize you unconsciously follow them, which requires learning them. Once you learn theory well, you'll see how to treat the "rules" instead as "guidelines."



Also, a tip on "studying" the theory concepts in this pdf: USE THEM. Write songs for the sole purpose of exploring diatonic chords, or do whatever you need to do to make things stick. Just use theory in any way you can and push into territory you're uncomfortable with as often as you can in order to make it familiar and easy

TL;DR: STFU and learn music theory

DISCLAIMER

This guide is not:

Academia-oriented
Comprehensive
Perfect

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If you find any errors, please let me know so they can be corrected!

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TABLE OF CONTENTS

BASIC MELODY

THE MAJOR SCALE

All scales are built on the concept of "steps," which are either half or whole.

A half step is the distance between a white key and the black key next to it on the piano. Or the distance of one fret on a guitar. The first two notes of the jaws theme are a half-step. The 2nd and 3rd notes of "Happy Birthday" are the distance of a whole step.

Two halves make a whole; Add two half-steps together and you get a whole-step.

Side note: Half-steps can be called semitones; Whole steps can be called whole tones.

We can stack these steps on top of one another. As I tell my guitar students, imagine a ladder. Some steps in the ladder are 6 inches from the next, some are 12 inches. Stack a bunch of those steps together and you can climb to the next story of a building.

This is the idea behind a scale; steps are organized in such a way that they arrive one octave up. "An octave" refers to a note twelve semitones above another. It's important to know that an octave is the repetition of the same note. "C" an octave up is still a "C," right? It's just… higher, that's all.

With that in mind, here's a major scale formula:

Note:	1	2	3	4	5	6	7	1
Step:	Whole	Whole	Half	Whole	Whole	Whole	Half	

So what does that all mean? Here's the way I notate it. A "^" means a half-step:

1 2 3^4 5 6 7^1

Notice, first of all, that I repeat "1" once the scale hits the octave. This is because it's not a new note, remember? A "C" played an octave above another "C" is still a "C."

Alright, so that formula shows you that there are two half-steps in the major scale. One is between 3 and 4, and one between 7 and 1.

On a piano, if you play a scale starting on C, you'll notice the half-steps line up with the places where no black keys are present. Two white keys without a black key in between them on a piano are a half-step apart. Or on an open guitar string, you would play the frets: 0-2-4-5-7-9-11-12.

TL;DR: Scales are built by stacking half-steps and whole-steps. The major scale is made of five whole steps, and two half-steps: between 3 and 4, and between 7 and 1. It can be written like this, where "^" means half-step: 1 2 3^4 5 6 7^1.

THE MINOR SCALE

There are two approaches to understanding the minor scale. Both are important.

First, the minor scale is like the major scale: It is made of five whole steps and two half-steps. However, the steps are arranged differently. It can be written like this, where "^" means half-step:

1 2^3 4 5^6 7 1

The half-steps in a minor scale fall between 2 and 3, and 5 and 6.

That is the last time I will ever write a minor scale without notating any flats. And here's why:

The second (and much more common) way to conceive of the minor scale is by taking a major scale and flatting (aka, lowering by a half-step) the 3rd, 6th, and 7th notes. We will write these from now on as b3, b6, and b7. So you can think of a minor scale compared to a major scale like this (again, ^ = half-step):

Major	1	2	3^	4	5	6	7^	1
Minor	1	2^	b3	4	5^	b6	b7	1

Notice that by flatting the third note of the scale, you move it farther from 4 and closer to 2. This causes the half-step to move from between 3 and 4 to between 2 and 3. The same thing happens when you shift both 6 and 7 down a half-step.

TL;DR: A minor scale is made of 5 whole steps and 2 half-steps. The half-steps fall between 2 and 3, and between 5 and 6. You can get a minor scale by flatting the 3rd, 6th, and 7th notes of a major scale. It can be written like this, where "^" means half-step: 1 2^b3 4 5^b6 b7 1.

INTERVALS

The word “interval” refers to the distance between two notes. The basic intervals are: Unison, 2nd, 3rd, 4th, 5th, 6th, 7th, and octave.

Each interval can be raised or lowered. We can divide the intervals into two groups:

Group 1: Unison, 4th, 5th, and octave.

Group 2: 2nd, 3rd, 6th, and 7th.

Intervals in the first group are called “perfect.” Raising them by a half-step results in an “augmented” interval (for example, an augmented fourth). Lowering them by a half-step results in a “diminished” interval (for example, a diminished fifth).

The second group is the “major/minor” group. These intervals as referred to as “major” when they are unaltered (Ex.: a major third). If they are lowered by a half-step (aka “flatted”) then they are called minor intervals (Ex.: a minor 6th).

Here’s the basic intervals and their distance:

Interval	Distance
Unison	0 steps
Diminished or flat 2nd	1 half-step
(Perfect) 2nd	1 whole-step
Minor 3rd	1 whole-step + 1 half-step
Major 3rd	2 whole steps
Perfect 4th	2 whole steps + 1 half-step
Augmented 4th/ Diminished 5th	3 whole steps
Perfect 5th	3 whole steps + 1 half-step
Minor 6th	4 whole steps
Major 6th	4 whole steps + 1 half-step
Minor 7th	5 whole steps
Major 7th	5 whole steps + 1 half-step
Octave	6 whole steps

Side note: You will see varying notation and terminology for intervals. A diminished fifth can be written as “d5.” Guitarists tend to call a diminished fifth a “flat-five.” In general, there are usually several ways to refer to music theory concepts, so choose the one that you understand the best.

We can also divide them into two different groups based on their consonant and dissonant nature:

- Consonant intervals:
    - Unison
    - Octave
    - 3rds
    - Some 4ths
    - 5ths
    - 6ths
- Dissonant intervals:
    - 2nds
    - Some 4ths
    - 7ths
    - Augmented/diminished intervals

One last note: It can be beneficial to think of a certain interval as a compound of two other intervals. For example, I think of a 5^{th} as adding a minor 3^{rd} and major 3^{rd}. A 6^{th} is a 5^{th} with an added 2^{nd}, etc. These are just cognitive tricks that will come with practice.

TL;DR: An interval is the distance between two notes. The basic intervals are: unison, 2^{nd}, 3^{rd}, 4^{th}, 5^{th}, 6^{th}, 7^{th}, octave. The perfect intervals are: Unison, 4^{th}, 5^{th} and octave. The major/minor intervals are: 2^{nd}, 3^{rd}, 6^{th}, and 7^{th}. The consonant intervals are: unison, 3rds, some 4ths, 5ths, and 6ths. The dissonant intervals are: 2nds, some 4ths, 7ths, and augmented/diminished intervals.

RELATIVE AND PARALLEL SCALES

Parallel and relative keys and scales come in handy more than you can imagine.

Think of them like this:

- Parallel scales: Same root note, different whole/half-step pattern
- Relative scales: Different root note, same whole/half-step pattern

Examples:

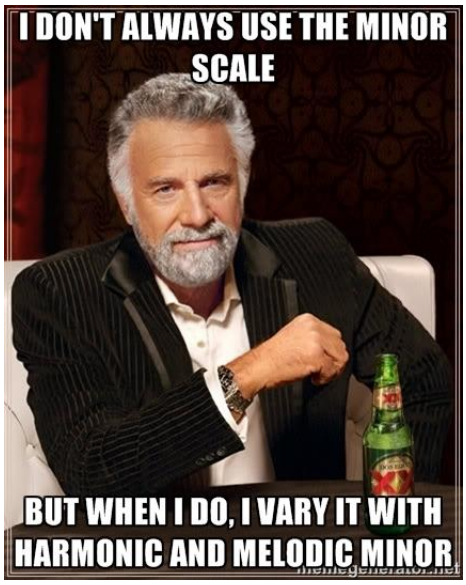
- Parallel: C major is parallel with C minor.
    - C major: C D E^F G A B^C
    - C minor: C D^Eb F G^Ab Bb C
    - Thus: same root note, different whole/half-step pattern
- Relative: C major is relative to A minor.
    - C major: C D E^F G A B^C
    - A minor: A B^C D E^F G A
    - Thus: different root note, but the whole/half-steps fall in the same places

Parallel is pretty straightforward, but relative might take some more explaining. Relative scales/keys have the same order of half and whole steps, they just start in different places. In fact, relative scales are basically modes (more on those shortly!).

TL;DR: Parallel scales have the same root note, but different whole/half step order. Relative scales have a different root note, but same whole/half step order.

HARMONIC AND MELODIC MINOR

First let's refresh the natural minor scale formula.



Where "^" denotes a half-step, the formula is:

1 2^b3 4 5^b6 b7 1.

However, there are two very common variations of the minor scale: harmonic and melodic. The simple explanation is that they lead better to the root note (the "1" of a scale).

Here's the harmonic minor scale formula:

1 2^b3 4 5^b6 7^1.

Notice that there are three half-steps in this scale, rather than two. They occur between 2 and b3, 5 and b6, and 7 and 1.

Also, note that because the 7th is not flatted, the distance between b6 and 7 is not a whole-step, like it is in natural minor, but a whole-step and a half (three semitones).

Melodic minor is slightly more complicated. Melodic minor factors in the unusual gap (the three semitones) between the b6 and 7 and raises the 6th by a half-step. But here's the catch: the 6th and 7th notes are raised in melodic minor *only when it's played ascending.* If you're going down a melodic minor scale, it's played the same way as a natural minor scale.

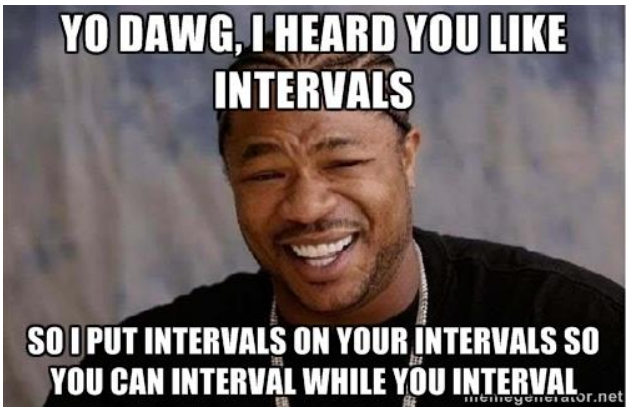
Melodic minor ascending: 1 2^b3 4 5 6 7^1

Melodic minor descending: 1 2^b3 4 5^b6 b7 1

Harmonic minor is played the same regardless of whether it's ascending or descending.

TL;DR: harmonic and melodic minor are two variations on the natural minor scale. The harmonic minor formula is: 1 2^b3 4 5^b6 7^1. The melodic minor formula depends on whether you are going up or down the scale. If you're going up, it's 1 2^b3 4 5 6 7^1; If you're going down it's the same as natural minor, 1 2^b3 4 5^b6 b7 1.

COMPOUND INTERVALS



Intervals that span a distance greater than an octave are called "compound intervals."

You can find out their value by adding 7 to the non-compound interval.

Ex.: a "10th" is the distance of a 3rd an octave higher (3 + 7 = 10). We add 7 because there are 7 notes in a scale. This may seem confusing because a scale is usually thought of as 8 notes, but remember that the 8th "note" is just a repeat of the first note; it's just an octave higher. So we add the interval to 7 rather than 8.

The most common compound intervals are:

- 9th
- 10th
- 11th
- 13th

(Note: 12ths and 14ths are possible, too).

If we plug them into our "interval + 7" formula, we get:

A 9th is a 2nd, because 7 + 2 = 9

A 10th is a 3rd because 3 + 7 = 10

A 11th is a 4th because 4 + 7 = 11

A 13this a 6th because 7 + 6 = 13

Compound intervals, like regular intervals, can be sharped or flatted. For example, jazz chords use a lot of "b9" ("flat nine") intervals in chords. Compound intervals come into play a lot in extended chords, but we'll get to those soon.

TL;DR: Compound intervals are intervals greater than an octave. The most common ones are 9ths, 10ths, 11ths, and 13ths. The formula for a compound interval's value is: (compound interval) – 7 = (interval value) or (interval) + 7 = (compound interval).

INVERTED INTERVALS

So far we've only talked above ascending intervals, or intervals whose "base" or "root" note is the lower one. But what if the root note is the higher of the two notes? Then you get something called an "inverted" interval.

The formula to figure out an inversion is: 9 – (interval) = (inverted interval). However, once you've found the new number value, you must flip the major/minor and diminished/augmented quality of the interval. Perfect intervals stay perfect when inverted.

Ex: A major 3rd is an inverted minor 6th. 9 – 3 = 6, then switch the "major" to "minor." A perfect fourth is an inverted perfect fifth because 9 – 4 = 5, and the quality (perfect) stays the same.

Here are some more:

Ascending interval	Inversion
Minor 2nd	Major 7th
Major 2nd	Minor 7th
Minor 3rd	Major 6th
Major 3rd	Minor 6th
Perfect 4th	Perfect 5th
Augmented 5th	Diminished 4th
Perfect 5th	Perfect 4th
Minor 6th	Major 3rd
Major 6th	Minor 3rd
Minor 7th	Major 2nd
Major 7th	Minor 2nd
Octave	Octave

The formula for inverting intervals works in the reverse manner, too. You can "un-invert" an inverted interval.

Ex: An inverted 4th is a regular 5th, and an inverted minor 7th is a major 2nd.

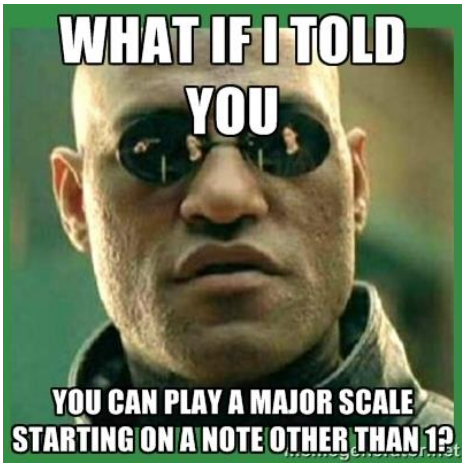
TL;DR: inverted intervals are intervals whose root note is the top note, rather than the bottom one. The formula for converting regular intervals to inverted ones, and vice versa, is: 9 – (interval) = (inverted interval). If the interval is major/minor, or augmented/diminished, you must flip its quality. Major becomes minor, augmented becomes diminished, perfects stay perfect.

MODES

We've touched on major and minor scales, but there's another type of "scale." It's a little more abstract in nature, but incredibly useful, and you need to have a thorough understanding before moving on to more advanced theory.

"Modes," as they're called, are the 7 variable patterns of the standard major scale pattern. This can be a hard concept to wrap your mind around at first. The idea is that the major scale contains a set pattern of whole and half-steps, right? But normally we play the major scale from the first note, 1, to the octave above. We normally go from 1 to 1 (or 8, if it makes more sense to understand the octave, but remember it's just a repetition of the same note).

But what if, instead of starting and ending on the first note, we kept the same pattern of whole- and half-steps…but started and ended on the 2nd note? And then the 3rd? And then the 4th? We get 7 patterns, known as "modes."



The 7 modes are, in order: Ionian, Dorian, Phrygian, Lydian, Mixolydian, Aeolian, and Locrian.

Here's a chart to give you a better idea:

Mode	**Starting/ending note** (relative to a major scale)
Ionian	1
Dorian	2
Phrygian	3
Lydian	4
Mixolydian	5
Aeolian	6
Locrian	7

Memorize these. Come up with a mnemonic to help, a sentence where each word starts with the first letter of each mode: "I, D, P, L, M, A, L." Do whatever you need to remember the modes and their equivalent starting notes.

OK, so let's look more in depth at each mode pattern, with their starting note relative to the major scale (which is the Ionian mode):

Ionian	1	2	3	4	5	6	7	1
Dorian	2	3	4	5	6	7	1	2
Phrygian	3	4	5	6	7	1	2	3
Lydian	4	5	6	7	1	2	3	4
Mixolydian	5	6	7	1	2	3	4	5
Aeolian	6	7	1	2	3	4	5	6
Locrian	7	1	2	3	4	5	6	7

Now, if we remember that in the major scale half-steps occur between 3 and 4, and 7 and 1, we can establish a pattern of whole and half-steps for each mode.

Ionian: 1 2 3^4 5 6 7^1

Dorian: 2 3^4 5 6 7^1 2

Phrygian: 3^4 5 6 7 ^1 2 3

Lydian: 4 5 6 7^1 2 3^4

Mixolydian: 5 6 7^1 2 3^4 5

Aeolian: 6 7^1 2 3^4 5 6

Locrian: 7^1 2 3^4 5 6 7

But it makes more sense, for example, instead of imaging Lydian as "starting on the 4th note of a major scale," to instead imagine it as its own scale, with its own formula. So if we "re-align" the modes so that they each keep the same patterns of steps, but each starts on "1" (not the 1st of the major scale, but the first note of the mode pattern), then we get the following formulas:

Ionian: 1 2 3^4 5 6 7 ^1

Dorian: 1 2^b3 4 5 6^b7 1

Phrygian: 1^b2 b3 4 5^b6 b7 1

Lydian: 1 2 3 4^5 6 7^1

Mixolydian: 1 2 3^4 5 6^b7 1

Aeolian: 1 2^b3 4 5^b6 b7 1

Locrian: 1^b2 b3 4^b5 b6 b7 1

Note: “Ionian” is the same as major scale and “Aeolian” is the same as minor scale.

The above seven formulas are the most important part of this post. Memorize them. We’ll get into more how to use modes in a later post, but you can start experimenting now. An easier way to remember them is to think of each as some variation on a major or minor scale. For example, here’s how I imagine them:

- Ionian:
  - 1 2 3^4 5 6 7 ^1
  - The major scale
- Dorian:
  - 1 2^b3 4 5 6^b7 1
  - The minor scale with a natural 6^{th} instead of a b6
- Phrygian:
  - 1^b2 b3 4 5^b6 b7 1
  - The minor scale with a b2
- Lydian:
  - 1 2 3 #4^5 6 7^1
  - The major scale with a #4
- Mixolydian:
  - 1 2 3^4 5 6^b7 1
  - The major scale with a b7
- Aeolian:
  - 1 2^b3 4 5^b6 b7 1
  - The minor scale
- Locrian:
  - 1^b2 b3 4^b5 b6 b7 1
  - The minor scale with a b2 and b5

Modes are annoying to learn at first but they come in handy a lot for sprucing up your music (we’ll get to that later). For now, make sure you understand the formulas for each, and spend time playing each to get a feel for how each sounds.

Side note: modes are technically not scales. Academia will get flustered if you say “the Lydian scale.” But that shouldn’t stop you from experimenting and treating them like scales, if that’s what sounds good to you.

TL;DR: Modes are important. They are the 7 different possible patterns that you can get from the standard major scale whole- and half-step pattern. The 7 are: Ionian, Dorian, Phrygian, Lydian, Mixolydian, Aeolian, and Locrian. See above for formulas.

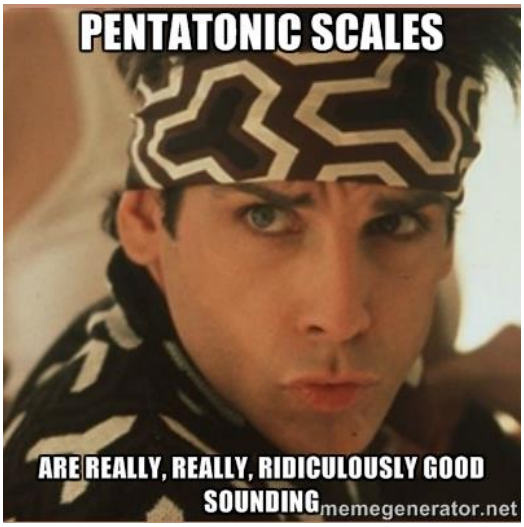
PENTATONIC MAJOR AND MINOR

Pentatonic scales are scales that have only 5 notes (the prefix “penta-” refers to the number five).

The formulas:

- Pentatonic minor: 1, b3, 4, 5, b7
- Pentatonic major: 1, 2, 3, 5, 6

So, how do you use pentatonics?



Pentatonic scales sound good. Like, really good. They’re commonly associated with blues and rock, but they’re found in every genre, including, of course, EDM. Justice uses pentatonic scales. So does Mord Fustang. So does Tiesto. So does Daft Punk (main riff from Da Funk, for example). So does every musician, whether they realize it or not. So, USE THEM.

Wait, where do those formulas come from?

Warning: this is going to get a little dense, and you don’t need to know the “why” in order to use pentatonics effectively. But for the brave among you, let’s dig in…

The “backbone” notes of a scale that give it its basic fundamental qualities are the 1, 3, and 5. We want those notes in our scales. With that in mind, we can cut out “unnecessary” notes from a major and minor scale by eliminating notes that are a half-step away from any of those three notes. I like to think of it like “we eliminate unnecessary notes so that there is more focus on the important ones — the 1, 3, and 5.”

So, looking at a major scale formula:

1 2 3^4 5 6 7^1

We can eliminate the notes that are a half-step away from 1, 3 or 5. Those notes are 4 (half-step from 3) and 7 (half-step from 1). Thus, we get pentatonic major: 1, 2, 3, 5, 6.

Same goes for pentatonic minor:

1 2^b3 4 5^b6 b7 1

Which notes are a half-step from 1, 3, or 5? 2 and b6. Thus, we get 1, b3, 4, 5, b7.

TL;DR: Pentatonic scales consist of 5 notes. They're incredibly useful and sound amazing. The pentatonic major scale is: 1, 2, 3, 5, 6. The pentatonic minor scale is: 1, b3, 4, 5, b7.

DESCRIBING MELODIES

The vast majority of note movements in melodies can be divided into four categories:

1. Neighboring tones
2. Passing tones
3. Pedal points
4. Chordal skips (arpeggios)

A neighboring tone is a note next to another. For example, if you played the notes C, D, C, the D would be a neighboring tone to C.

A passing tone is a note that connects two others. For example, if your melody moved from C to E, playing a D in between would be a passing tone

A pedal point is a note that is constantly returned to. For example, you could have a melody that goes E-F-G, but insert a C pedal point between each note like: C-E-C-F-C-G-C.

A chordal skip is more familiarly known as an arpeggio. It is when you play each note of a chord separately. For example, a C major arpeggio melody would be C-E-G. Note: it can be inverted, like G-C-E.

TL;DR: Just read it, it's short.

BASIC HARMONY

TRIADS AND 7TH CHORDS

By definition, a chord consists of at least three different notes. Notice the word "different;" an octave doesn't count as a different note because it's a repetition (so for you guitarists out there this means a power chord isn't technically a chord).

Chords can be simple triads, but they can also be more complicated.

Rather than explain every possible chord out there, here are the most common ones and their formulas;

- Triads:
  - Major: 1 3 5
  - Minor: 1 b3 5
  - Diminished: 1 b3 b5
  - Augmented: 1 3 #5
  - Suspended: 1 (2 or 4) 5
- 7th chords:
  - Major 7th: 1 3 5 7
  - Minor 7th: 1 b3 5 b7
  - Dominant 7th: 1 3 5 b7
  - Half-diminished 7th: 1 b3 b5 b7
  - Diminished 7th: 1 b3 b5 bb7 (the double flat means it's lowered a whole-step rather than a half-step).

I mentioned "suspended chords." They're important, especially for making the kind of chords you need a huge ethereal house anthem. A "suspended" chord refers to a chord that replaces it's 3rd with a 2nd or 4th.

TL;DR: Another short one, just read it!

CHORD INVERSIONS AND VARIATIONS

So far the chords we've talked about were built with the root as the lowest note (1 3 5, for example).

However, chords can be found in other patterns. When the root is on the bottom, the chord is in "root position." When a note other than the root note is the lowest note, the chord is "inverted."

When the third is the lowest note, the chord is in "1st inversion."

When the fifth is the lowest note, the chord is in "2nd inversion."

When the 7th is the lowest note, the chord is in "3rd inversion."

Beyond inversions, the notes of a chord can be spread out or rearranged. A chord doesn't always have to be built in the order "1-3-5." For example, you could raise the 3rd an octave up, and voice a chord: 1-5-10. This works great for house supersaws, I find, because the third is often the main note that characterizes the sound of the chord. The root note gives your ear a foundation, the 5th strengthens and adds power, but the 3rd is the primary source of the harmonic quality. So putting the 3rd as the highest note can emphasize it strongly.

You can also double certain notes. For example, if you want a chord that sounds particularly strong, you could put two 5ths, an octave apart, and voice a chord: 5-1-3-5. These are just some ideas of variations. Chords don't have to be 1-3-5. They can be rearranged and spread out over many octaves.

Another option is delaying certain notes of a chord. One trick I love doing that reminds me a lot of Wolfgang Gartner's music is playing the 1st and 5th note of a chord, but delaying the 3rd for half a beat.

TL;DR: Chords can be inverted. The 3 main classes of inversion are: 1st (the 3rd is the lowest note), 2nd (the 5th is the lowest note), and 3rd (the 7th is the lowest note). The notes of a chord can also be rearranged or spread wider than an octave.

DIATONIC MAJOR CHORDS

Diatonic chords are the backbone of all harmonic progressions, so let's start with diatonic major chords.

The word "diatonic" means something along the lines of "in a scale." So, diatonic major chords mean chords that are built on the major scale. For now we'll be sticking with simple triads (remember: triads are three note chords consisting of a root note, a third, and a fifth).

So think of it like this: we can play a major scale using notes only, right?

But what if we played it using chords instead of just notes?

Well, how do we figure out what chords to use? We look at the distances between notes in the triad. The first chord is pretty simple, because it's a major chord. The root, third, and fifth of the first chord are based on the root note of a scale. So we get the notes 1, 3 and 5, right? And in a major scale, that's a major chord.

But what if we built a chord starting on the 2^{nd} note of the scale? We stack the notes a 3^{rd} and 5^{th} above that note, so we get the notes 2, 4 and 6. You can think of it like treating the 2^{nd} note of the scale as the new "root" note, and then just stacking on that new "root" note's relative "3" and "5." So what kind of chord is this? The distance from 2 to 4 in a major scale is a minor third (whole-step plus a half-step), and the distance from 2 to 6 is a perfect fifth. Thus, we have a minor triad (1, b3, 5). So the diatonic chord that's built on the 2^{nd} note of the major scale is a minor chord.

Repeat for every note of the scale, and you get these chord qualities:

1: 1, 3, 5: major

2: 2, 4, 6: minor

3: 3, 5, 7: minor

4: 4, 6, 1: major

5: 5, 7, 2: major

6: 6, 1, 3: minor

7: 7, 2, 4: diminished

I group these chords together in my head to help me remember:

- Majors: 1, 4, 5
- Minors: 2, 3, 6
- Diminished: 7

Alright, so now we need to talk about chord notation. Notation occasionally varies, but for the most part, it works like this:

- Major chords are written upper case Roman numerals
- Minor chords are written lower case Roman numerals
- Diminished chords are written in lower case Roman numerals, and have a little degree symbol (this: °)

So, if we write the major scale chords using Roman numerals, this is what it looks like:

I-ii-iii-IV-V-vi-vii°

TL;DR: Chords can be built from every scale degree of a scale. The diatonic major scale chords are: I-ii-iii-IV-V-vi-vii°.

DIATONIC MINOR

As mentioned, “diatonic” refers to notes in a key. If we play a scale with diatonic chords, there are certain chord qualities that we must follow to be in key.

We can play the diatonic minor scale in chords, and if we write it out, the chord qualities are:

i-ii°-bIII-iv-v-bVI-bVII

Memorize that pattern and the major scale pattern from the previous post!!!!1!ONE!!1!

But here’s the thing, most of the time the minor scale isn’t played exactly like that. Remember how we have two variations on the minor scale, melodic and harmonic? And remember how I mentioned those evolve because “they lead better to the root note”?

Well here’s why.

In almost all Western music, the central, most basic chord progression is V-I (see lesson on dominants). It’s everywhere. It drives everything. Your ears love it, because it sounds so good. The vast majority of songs you’ve ever heard use it. Even if something doesn’t seem to outright have a V-I progression, it’s probably hiding (we’ll get to how that can be done later).

Why does it sound so good? Mainly it stems from the 7^{th} note of the scale. The V chord contains 5, 7, and 2 (we stack notes a third apart to get a basic diatonic chord, remember?). And in a major scale, the 7^{th} note is a half-step from the root, which makes your ears want it to resolve to the root. This is a simplified explanation, but you’ll hear it better by playing it (play a G chord followed by a C chord; You’ll see how well it resolves).

Now look back at the diatonic chords for a minor scale. The fifth chord is minor, not major, which means it’s made up of 5, b7, and 2. Note: Not 7, but b7. The pull isn’t as strong to the root note (a whole step is further than a half-step, and less driving), which makes the resolution weaker.

Thus, enter harmonic minor.

Remember how harmonic minor has a “raised” 7^{th}? Well, that’s because it changes the “v” chord to a “V” chord (changing it from minor v to major V), giving us a resolution as strong as the one in a major scale. So while the natural diatonic minor scale chords have a minor five chord, be aware that often it’s converted to a major five chord by raising the b7 of the scale.

TL;DR: The diatonic chords of a minor scale are: i-ii°-bIII-iv-v-bVI-bVII. Often the “v” chord is turned into a “V” chord for resolution purposes, which results in the harmonic minor variant.

5-6 TECHNIQUE

The 5-6 trick works like this: You have a chord with the voicing 1-3-5. Then, you raise the 5^{th} to a 6^{th}, so the voicing is now 1-3-6. Sounds, simple, right? It is, and it's incredibly effective.

What this simple movement does is change the chord from a root, or Roman numeral "I" chord, to a VI chord. Remember that chords are mainly built by stacking thirds, so the "I" and "VI" chord look like this:

I = 1, 3, 5

VI = 6, 1, 3

So by changing the 5 of the "I" chord, we get the same notes as the VI chord, just in an inversion. This is an incredibly common and incredibly useful trick. I hear it all the time in EDM, from Knife Party to Disclosure.

This trick can also work the other way. You can move from a "VI" chord to a "I" chord by going from a 1-3-6 triad, to a 1-3-5 triad.

Also, note that those triads can be inverted, like:

"3, 5, 1" to "3, 6, 1"

or

"5, 1, 3" to "6, 1, 3"

And here's another idea for you to toy with: What would happen if, in a 1-3-5 triad, instead of raising the 5 to a 6, we lowered the 1? Or raised both 3 and 5? Or lowered both 1 and 3? This idea points to the concept that a chord relates to the chord before and after it, and a good progression should take that into consideration. How close are the chords? What notes are different? How can you use that to your advantage? Maybe you could make your melody follow the one note that changes in the chord progression, for example (like raising a 5 to a 6 in our 5-6 trick).

TL;DR: the 5-6 trick is a simple way to move between a "I" and a "VI" chord in a chord progression. It its basic form it is the movement from a 1-3-5 triad to a 1-3-6 triad.

PARTIAL CHORDS

What I mean by “partial chords” is chords that are missing a note or two. Remember that chords, by definition, have at least three different notes. We’ve talked about triads (chords consisting of only three notes) and 7th chords (chords including a 7th).

Your basic two options for “partial” chords are going to be taking out a 3rd or 5th. If we take out the 3rd of a minor 7th chord, we get the notes 1, 5, and b7. We can take out the 5th, too, and get: 1, b3, b7.

Both of those “partial” chords were in root position; Try inverting them, that’s where the real fun begins.

You can also take out the 3rd or 5th of a simple triad. Note that, because it only has two different notes, it technically couldn’t be described as a “chord.” But it can sound just as awesome, especially if you “double up” one of the notes an octave up or down.

TL;DR: Try taking notes out of your chords, and doubling up others, to get varied textures.

EXTENDED CHORDS

Extended chords are chords that include notes other than the 1, 3, 5, and 7.

The three most common extended chords are 9ths, 11ths, and 13ths.

Now, as we know from the compound interval article a 9^{th} is a 2^{nd} an octave up, an 11^{th} is a 4^{th} an octave up, and a 13^{th} is a 6^{th} an octave up. So what we're doing with extended chords is continually stacking 3rds onto our original 7^{th} chord.

Extended chord voicings:

9^{th} = 1, 3, 5, 7, 9

11^{th} = 1, 3, 5, 7, 9, 11

13^{th} = 1, 3, 5, 7, 9, 11, 13

Note that those voicings can be minor, diminished, augmented, etc. (For example, a minor 11^{th} = 1, b3, 5, b7, 9, 11).

So how do we use extended chords?

Listen to each of those chords, and toy around with them on your own. Ask yourself "how does this sound to me?" Personally, I find extended chords give an "ethereal" or "light" feel. I like to use them for creating a big, floating feel in a trance or house drop. You'll find them in Porter Robinson, Purity Ring, etc.. They're incredibly useful, can add fullness to a song.

And, of course, you can invert them, too.

One quick last note. An important distinction in chord naming is the difference between an extended chord, and an "add" chord. The common question to figure out how well someone knows music theory is to ask, what's the difference between a "9^{th}" chord and an "add 9" chord. An "add 9" chord simply adds a 9^{th} onto a triad. A 9^{th} chord is an extended chord that includes all stacked thirds up to a 9^{th}.

Better yet, here's the voicings:

Add 9 = 1, 3, 5, 9

9^{th} chord = 1, 3, 5, 7, 9

See what I mean? The 9^{th} chord is an extended chord *because it has all of the intervening notes*. Not just an added 9.

TL;DR: Extended chords are built by stacking 3rds onto a 7^{th} chord. The three fundamental extended chords are 9ths, 11ths, and 13ths. A chord with the word "add" is not an extended chord, but simply denotes you add the note (like an 11, in an "add 11" chord") onto the original triad.

DOMINANTS

A “dominant” note refers to the 5th note of a scale. However, you will most commonly find the word “dominant” referring to a chord built on the 5th note. Specifically, the V (and V7) chord.

Our V chord is voiced:

5-7-2

And our V7 chord is voiced:

5-7-2-4

This chord is incredibly useful and gives force to the most common chord progression in Western music: the V-I.

The V-I is everywhere. Most chord progressions that aren’t V-I are actually just disguised V-I’s. The progression is used so much because the V chord, especially the V7 chord, naturally pulls the human ear to the I chord. And it does that stronger than any other chord. Thus, it’s the most “natural” and “harmonious” way to end a musical phrase, or song, or whatever.

TL;DR: The dominant chord is everywhere in music. It is built on the 5th note of a scale, and is most commonly used in the V-I chord progression.

INTERMEDIATE MELODY

CONTRAPUNTAL MOTION ("COUNTERPOINT")

So this lesson is actually about "contrapuntal motion," not counterpoint. "Counterpoint" is often used to refer to contrapuntal motion, so this lesson is on what most EDM considers "counterpoint."

In essence, what we're looking at is how two notes move relative to each other.

We can divide contrapuntal motion into **four groups**:

1. Parallel motion
2. Similar motion
3. Contrary motion
4. Oblique motion

Explanations and examples:

1. Parallel motion is when two voices move in the same direction, and stay the same interval apart
    a. Example:
        i. Voice one: 1-2-3-5-1
        ii. Voice two: 3-4-5-7-3
        iii. This is parallel motion because the voices are always heading in the same direction and are always a third apart.
        iv. Note: the interval can change quality (major to minor, etc.) and still be parallel motion because it's still the same interval.
2. Similar motion is when two voices move in the same direction, and the interval between them changes.
    a. Example:
        i. Voice one: 1-2-3-5-1
        ii. Voice two: 3-4-6-7-5
        iii. This is similar motion because the voices always move in the same direction, but the interval distance between them changes. The interval pattern for the example is: 3^{rd}, 3^{rd}, 4^{th}, 3^{rd}, 5^{th}.
3. Contrary motion is when voices move in opposite directions. They can move by the same interval ("strict contrary motion") or by varying intervals.
    a. Example:
        i. Voice one: 1-2-3-5-1
        ii. Voice two: 8-6-5-3-5

iii. This is contrary motion because the voices move in opposite directions (voice one goes: up, up, up, up, down. Voice two goes: down, down, down, down, up). They move by varying intervals, so it is not “strict” contrary motion.

4. Oblique motion is when one voice stays the same pitch, and the other changes
    a. Example:
        i. Voice one: 1-1-1-1-1
        ii. Voice two: 3-4-6-5-3
        iii. This is oblique because the first voice plays the same pitch, 1, while the second moves over it.

Food for thought:

You can think of all of these options as ways to harmonize a melody (like parallel motion in 3rds). In that approach, one voice is given dominance over the other. But you could also give each note equal weight. Maybe they are counteracting melodies, both playing an equally important role.

TL;DR: The four kinds of contrapuntal motion are: parallel, similar, contrary, and oblique. Parallel occurs when two voices move in the same direction by a consistent interval. Similar motion occurs when two voices move in the same direction by varying intervals. Contrary motion occurs when two voices move in opposite directions (if they move in opposite directions by a consistent interval, it is called strict contrary motion). Oblique motion is when one voice plays the same pitch and the other voice moves.

PHRYGIAN DOMINANT

Phrygian Dominant is the name given to the 5th mode of the Harmonic Minor scale.

The formula for harmonic minor is:

1 2^b3 4 5^b6 7^1

(REMEMBER: The span between b6 and 7 is a one and a half-steps in harmonic minor, not just one step!)

So if we set a mode that begins and ends on the 5th note of that scale, we get:

5^b6 7^1 2^b3 4 5

But, let's "translate" that so that the 5th is the root (or the "1") note. In other words, we re-label the note values, without changing their distance to one another.

Distance	Half-step	Step and a half	Half-step	Whole step	Half-step	Whole step	Whole step
5th mode of harmonic minor	5	b6	7	1	2	b3	4	5
Phrygian Dominant	1	b2	3	4	5	b6	b7	1

So our Phrygian Dominant formula is:

1^b2 3^4 5^b6 b7 1

(Note: one and a half steps between b2 and 3!)

What's special about it? You've got a major 3rd in the same scale as a minor 2nd, minor 6th, and minor 7th. The major 3rd is the main defining note of our normally "happy" sounding major scale, but then you've got three minor notes that contrast with it.

Phrygian Dominant is often associated with a "Middle Eastern" sound. You'll hear it every now and then in breakdowns. Feed Me and Porter Robinson quickly come to mind as two producers who use it on the regular.

TL;DR: The formula for Phrygian Dominant is 1^b2 * 3^4 5^b6 b7 1 and it's the 5th mode of harmonic minor.

THE DIMINISHED SCALES

Diminished scales are built on alternating whole and half-step intervals. We have two options for building them:

A. Start with a whole step (‘whole-half”)
B. Start with a half-step (“half-whole”)

Whole-half formula:

1 2^b3 4^b5 #5^6 7^1

Half-whole formula:

1^b2 b3^3 b5^5 6^b7 1

Both have the triad 1-b3-b5, and thus can be used over diminished chords.

An important thing to note is that these are “symmetrical” scales. In other words, because they are built by stacking the same repeated pattern, you can shift the root around.

For example, if take the first version:

1 2^b3 4^b5 #5^6 7^1

And play it starting on the b3, you’ll get the same scale, just a step and a half up. This makes the scale GREAT for changing keys.

These scales typically have a darker, more “evil” sound, and can be used well in songs that focus around chromatic melodies or progressions.

TL;DR: Diminished scales are built by alternating whole and half-steps. The whole-half step diminished scale formula is 1 2^b3 4^b5 #5^6 7^1. The half-whole step diminished scale formula is 1^b2 b3^3 #4^5 6^b7 1.

THE WHOLE TONE SCALE

Whole tone scale

The whole tone scale is built by stacking whole tones. Its formula is:

1 2 3 #4 b6 b7 1

The scale has a very “dreamy” sound and is good for ethereal music. It goes well with the Lydian mode because both have a major 3rd and augmented 4th.

TL;DR: This one’s short so just read it.

THE ALTERED SCALE

The altered scale is actually the 7th mode of melodic minor, but it's easier to think of it on its own. Its formula is:

1^b2 b3 b4 b5 b6 b7 1

Where would you use it?

It's used a ton in jazz over altered dominant chords. If you ever find yourself wanting to spice up the end of a chord progression that ends in V-I (almost all of them do…), you can alter the V chord and throw a quick run or arpeggio from the altered scale over it.

TL;DR: the altered scale has the formula 1^b2 b3 b4 b5 b6 b7 1 and is mainly used over altered dominants.

HOW TO HARMONIZE A MELODY

A common question on EDM forums is “how do I harmonize a melody?”

The most straightforward way to harmonize a melody is to play the same melody a certain interval above your original melody. Most commonly, this is done in thirds.

Let’s say we have a melody in minor that goes:

1-b3-4-5-1

If we want to harmonize it with thirds, we just find the notes a third (major or minor) above each note in that melody. So we would get:

Original	1	b3	4	5	1
Harmony	b3	5	b6	b7	B3

(Note: The quality of the third depends on the note you’re building on. The distance between 1 and b3 is a minor third, while the distance between a b3 and 5 is a major third. Yet another reason why knowing your diatonic chords is important! By learning diatonic chords, you automatically know the quality of the third that will go above a certain note in a scale.)

We could also harmonize it with fifths above the notes in the melody:

Original	1	b3	4	5	1
Harmony	5	b7	1	2	5

Keep in mind, too, that those are only examples of harmonizing above the original note. You can harmonize below it, too.

You also don’t have to exactly follow the original melody in regard to rhythm, and you don’t have to keep the same interval for the whole harmonization.

TL;DR: To harmonize a melody, your main options are:

- **Intervals:**
  - **3rds**
  - **4ths**
  - **5ths**
  - **6ths**

    - **Octaves**
    - **(Try compound intervals, too!)**
- **Direction**
    - **Above the original note**
    - **Below the original note**
- **Movement**
    - **Rhythm**
        - **Same**
        - **Different**
    - **Interval distance from original note**
        - **Consistent**
        - **Different**

HOW TO MAKE A MELODY OVER A CHORD PROGRESSION

In general terms, the easiest way to find a melody to go over a chord progression is to look at the notes in a chord and the notes in the following chords, and find a way to connect them.

Let's take the chord progression "i-bVI" in a minor key.

The "i" chord contains the notes 1, b3, and 5

The "bVI" chord contains the notes b6, 1, and b3.

So look at those two chords. We've got two notes that overlap: 1 and b3. If we want to emphasize the closeness of the chords, you could write a melody that uses those two notes. Maybe you start on 1 over the "i" chord, and rise to the b3 over the "bVI" chord.

But we've also got a pair of notes that don't overlap: the 5 and b6. So, if we wanted to emphasize the difference between the two chords, we could write a melody that focuses on those notes. Maybe your lead starts on 5 and raises a half-step to b6, for example.

Here's another example: i-bVII

Our "i" chord has the notes 1, b3, and 5

Our "bVII" chord has the notes b7, 2, and 4

Notice that this time there isn't an overlap. And, remember, there's no one "right" way to write music, so how you write a melody over those chords is entirely up to you. But a good place to start is to ask yourself "how do I want to highlight the underlying notes of the chords?"

For example, maybe you want a melody that changes only by a half-step, to make the chords feel like they're close. In that case, you could start on the b3 over the "i" chord and move to the 2 over the "bVII" chord, because the b3 and 2 are a half-step apart.

Or maybe you want to use a larger interval that jumps (maybe you want to throw some portamento on the melody's note transitions), so you could then look for notes farther apart. For example, you could play a b3 over the "i" chord, and play a b7 over the "bVII" chord.

Also, you could approach it by emphasizing a particular note of every chord. Maybe you want to emphasize the root note of each chord in the progression. You could play a 1 over the "i" chord and a b7 over the bVII chord. Maybe you want to emphasize the third of each chord (the b3 of "i" and 2 of bVII). Etc.

TL;DR: To find a melody to fit over a chord progression, look at the notes in each chord and how they relate to the notes in the chords around it. Ask questions like “do I want the transition to emphasize nearness, or distance? Do I want it to emphasize certain notes of each chord?” etc..

MELODIC CHROMATICISM

Chromatisim, in most basic terms, is the use of non-diatonic notes.

We can break it into two options: harmonic and melodic.

Melodic chromaticism is the use of non-diatonic notes in melodies.

Melodic chromaticism is often used to pass from one diatonic note to another. For example, in a melody you could move from 4 to 5 via half-steps, and play a b5 in between.

You can also use neighboring chromatic tones. Perhaps your melody goes:

1-b3-4-5

You can change it up by using the lower neighboring chromatic tones (so the notes a half-step below the notes):

1-b3-b4-4-b5-5-1

Here's a good example of how to use them: in a chorus' melody, I love using chromatic passing notes the last time a chorus plays in a song. That helps create diversity and make the last repeat really stand out with some good drive. It mimics the other choruses, but provides something new.

TL;DR: Melodic chromaticism is the use of non-diatonic notes in melodies. It can be used to pass from one diatonic note to another, or it can be used as a neighboring tone, among other uses.

INTERMEDIATE HARMONY

SECONDARY DOMINANTS

Question: What would happen if we used a dominant chord…that's not actually the dominant of the key we're in? In the key of C, G7 is the V7 chord…but what if we used D7?

Answer: Secondary Dominant.

This kind of chord is great. Srzly.

A secondary dominant is a dominant chord that resolves to a chord *other than the tonic (root) chord.*

How does that work? Well, a chord that has the qualities of a dominant chord pulls the listeners' ears to the chord a fifth below it. Normally, this is the "I" chord, so the progression is V7-I.

But with secondary dominants, because the "dominant" chord is not the V7 chord, it pulls our ears to a different place. Here's an example:

VI7-II-V7-I

So we start with a dominant seventh chord (voiced: 1 3 5 b7) based on the 6^{th} note of the scale. But, because it's not the natural V chord, it pulls out ears to a place other than "I." Specifically, it pulls our ears to a place a fifth below it, or the "II" chord.

Think about it like this: it works by temporarily pretending our "II" chord is the root chord.

Secondary dominants are kind of hard to grasp at first, so don't worry if you don't get it the first time. Once it clicks though, it's unbelievably useful and comes up everywhere.

Here's another example to help:

II7-V7-I

In that example, the II7 chord functions as the V7 of the V7 chord. It leads us to the V& because it's the V7 of V7.

A DOMINANT WITHIN A DOMINANT? CHORD-CEPTION.

But actually, "chord inception" is a really good way to think about secondary dominants.

Why would you use them?

To expand chord progressions beyond just two to four chords (EDM is guilty as hell of simple chord progressions). To change keys. Modulation.

TL;DR: Secondary Dominants are dominant chords that lead to chords other than the tonic. They're incredibly useful for spicing up your chord progressions, key changes, etc.

ALTERED CHORDS

An altered chord is a chord that has a diatonic note (so, a note normally in the scale) replaced by (or "altered") a neighboring chromatic pitch.

There are a lot of options for altered chords, so I'll just go through a few to give you some ideas.

Altered root

We can replace the root of a chord with an augmented root. For example, we could do a minor 7^{th} chord with an augmented root: #1 b3 5 b7

Altered 2^{nd} (more commonly known as an altered 9^{th})

We could flat the 9^{th} of a dominant chord, and get the voicing: 1 3 5 b7 b9

Altered 4^{th}

We could add an augmented 4^{th} over a major triad and get: 1 3 5 #11 (remember that an 11^{th} = a 4^{th} an octave up).

And you can experiment with altering 3rds, 5ths, 6ths, and 7ths too.

Why would you use an altered chord?

Chromaticism, for starters. Often, these notes are used for "passing" purposes, where "passing" refers to moving from one note to another. Say, for example, if we had a melody that moved from a 5 to a 4, we could use an altered chord that included a #4 in between, to lead the listeners' ears chromatically from 5 to 4.

They're also incredibly useful for creating a much fuller sound (think Amon Tobin style production).

TL;DR: Altered chords are chords that include a note that is not in the diatonic key or scale. They can be used to strengthen progressions via chromaticism, and they can also be used to add fullness and diversity to your chords.

APPLIED CHORDS

When applying chords, remember to wash the surface thoroughly. Let the first coat dry for two hours and then apply a second coat.

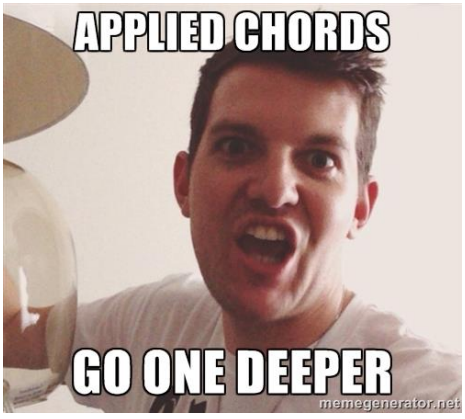
Ok, but really, what are applied chords?

Let's go back to the whole "Chord-ception" idea introduced in the secondary dominant lesson. There, we talked about how the V7 chord resolves to I. But we can take a step back and instead of using the regular V7 chord of the scale, use the V7 chord based on a chord other than I. So, for example, in C major, instead of going from G7 (the V7) to C (the I), we could take the V7 of the III chord. The III chord is E, so we take the V7 chord *as it is applied to the III chord.* In this case, that means B7. B7 is the V7 chord of E. But B7 is not in the key of C.

The way I think of it is that a secondary dominant is a non-diatonic chord that functions diatonically. It does not belong to our key, but it fits because it has a diatonic function. It *relates* to a chord in the key in a pleasant sounding way.

Now, let's take that concept further. What if, instead of applying a V chord, we applied a II chord? Often times, a V-I progression is lead by a II chord, so we get: II-V7-I.

BUT WE NEED TO GO DEEPER. One deeper, to be exact, Mr. Francis.



What if we applied that progression to a note other than the root note, similar to what we did with secondary dominants?

Let's take that example of C major from before.

We have the applied V7 chord (B7) of the III chord (E) of C major:

B7-E-C

Now let's add an applied II chord to that. To do this, ***treat the III chord as a I chord and find the relative II chord***. In E major, F# is the II second. So we add it:

F#-B7-E-C

Both F# and B7 are applied chords because they function relative to C.

These applied chords are often notated as "** of **." For example, B7 would be written as "V7 of III" and F# would be written as "II of III."

You can apply more chords than just V and II. Try all of them. Try applying II chords, III chords, IV chords, etc. and find out what you like.

Tl;DR: Applied chords occur when you treat a non-root note temporarily as the root note, and apply diatonic chords to that new root. It can be done with all possible diatonic chords, though some work better than others.

MIXTURE PART I: WHAT IS IT?

Never heard of chord mixture? All the cool kids do it.

Ratatat. Pretty Lights. Noisia. Daft Punk. Calvin Harris. Swedish House Mafia. Purity Ring. Avicii.

They all use chord mixture. And whether or not they even know what it is, they use it A LOT.

If there's anything you should learn from this TL;DR music theory guide, it's the idea of mixture. Because chord mixture is one of the most consistent differences I hear between music that is "normal, generic, and average," and music that is "innovative, interesting, and catchy."

(Quick sidenote: make sure you have memorized and are familiar with the natural major and minor diatonic chords before trying to read this!)

(Also, remember that an uppercase chord is major, a lower case chord is minor. And if the chord is flat, there will be a "b" before it. So bIII is a major chord built on the flat third, while iii is a minor chord built on the major third.)

So what is "mixture?"

Mixture, in general terms, means using chords that aren't normally in the key or scale you're using. This is commonly called "borrowing."

Mixture can be divided into **three types**:

- Simple
- Secondary
- Double

These are best understood by using examples to illustrate their definitions:

- **Simple Mixture** refers to borrowing a chord from a parallel scale or mode.
    - Example: I-bIII-V-I
        - 1. We take a progression in major: I-iii-V-I
        - 2. The three chord in a minor key is bIII
        - 3. We substitute bIII for iii (or rather, we use the three chord from the minor scale instead of the three chord from the major scale)

        - 4. Thus, we get the simple mixture progression: I-bIII-V-I
    - In basic terms: we replace a chord from the key we're in with a chord from a parallel scale or mode.
- **Secondary Mixture** refers to altering the quality of a chord without using scale degrees from a parallel scale or mode.
    - Example: I-III-V-I
        - 1. We take the progression in major: I-iii-V-I
        - 2. We alter the quality of the iii chord and make it major (III)
        - 3. Thus, we get: I-III-V-I
    - In basic terms: you alter the quality of a chord in the key you're in.
- **Double Mixture** refers to a combination of simple and secondary mixture: it is when you borrow a chord from a parallel scale or mode, and alter the quality of the chord.
    - Example: I-bvi-V-I
        - 1. We take the progression in major: I-vi-V-I
        - 2. The six chord in minor is bVI
        - 3. We swap out the vi chord for the bVI chord (simple mixture!)
        - 4. We alter the quality of the chord we swapped in, so bVI becomes bvi (secondary mixture!)
        - 5. Thus, we get: I-bvi-V-I
    - In basic terms: we replace a chord in the key we're in with a chord from a parallel scale, and we then alter the quality of that borrowed chord.

Mixture can be an abstract concept, so spend a few days experimenting and finding out what you like.

In the next lesson, we'll go through a few examples from songs.

TL;DR: Chord mixture is the borrowing of chords not in the scale or key. It can be divided into three categories: simple (borrow a chord from parallel scale or mode), secondary (alter the quality of a chord in the scale or mode), and double (borrow a chord from a parallel scale or mode and alter its quality). It adds unbelievable texture to your music and helps break away from commonly progressions.

MIXTURE PART II: "WHY USE IT?" AND EXAMPLE I (VIVA LA VIDA)

Viva la Vida - Coldplay

Main progression: C-D-G-Em

So Viva la Vida is based in the key of C major.

(Side note: a good way to figure out the key of a song when the chords don't all fit perfectly into a natural key is to use your ears: where do they lead you to resolve? In this case, C).

So our chords in C major are: C-Dm-Em-F-G-Am-B°-C

Looking at the progression in Viva la Vida (C-D-G-Em), we see we have three chords that fit in the key: C, G, and Em. But we have one that doesn't: D.

D is the 2nd chord in C, but the 2nd chord in a major scale should be minor, right? (Know your diatonic chords!!!). So where does it come from, then?

Well, in a minor key the 2nd chord would be diminished. So Dm doesn't come from the parallel minor scale because it's a minor chord, not diminished.

Our next option, then, is that it's secondary mixture. This one makes sense, because we take the existing 2nd chord (which, in a major key, is naturally minor) and alter the quality to make it major.

The progression in Viva la Vida always sounds uplifting and happy to me. One explanation could be that it includes a major chord (D) where a minor chord (Dm) should be.

MIXTURE PART III: EXAMPLE II (LOUD PIPES)

Loud Pipes – Ratatat

First verse progression: Cm-Eb-Bb-Cm-F-Bb-C

Ratatat has some of the best chord borrowings I've ever heard. They're a great example of how a single "mixed" chord can add so much more to your music.

So we're in C minor (again, use your ears to find the key if you have trouble). The natural chords in C minor are:

Cm-D-Eb-Fm-Gm-Ab-Bb-Cm

So looking at our progression, we have three chords that are naturally in the key: Cm, Eb, and Bb. And we have one chord that doesn't fit: F major.

So what kind of mixture is it?

Well, the first question to ask is "is the chord that doesn't fit part of the parallel scale?" In major, the 4^{th} chord is major (so in C major, the chord is F). So, yes! It does. F major is the fourth chord from the parallell major scale. Thus, we've got simple mixture.

Loud Pipes is a great example of how, when you're in a minor key, borrowing chords from a parallel major scale can give the progression a much better "groove" feeling. The natural progression sounds soooooo boring in comparison.

MIXTURE PART IV: EXAMPLE III (GET LUCKY)

The one. The only. The song voted best of 2013 by Rolling Stone.

Progression: Bm-D-F#m-E

So we're based in Bm here. The natural chords in Bm are:

Bm-C#°-D-Em-F#m-G-A-Bm

So, looking at our progression, we have three chords in the natural B minor scale: Bm, D and F#m. But we have one that's not, E major. So where does it come from?

It's the fourth chord of the minor scale, so it should be a minor chord. But it's major. So we ask, "what is the quality of the fourth chord in the parallel scale?" In a major scale, the fourth chord is major. So we can say the progression from Get Lucky borrows the fourth chord from the parallel major scale.

Remember how Loud Pipes by Ratatat borrows the fourth chord from a parallel major scale? Same move as Get Lucky. In fact, it's one of the most commonly used chord mixture, because it sounds just so damn good. But it sounds even better if you do it with robot helmets.

(Side note: this progression can also be thought of as being in B Dorian. This points to one of my favorite parts of theory: a lot of things can be explained in multiple ways. The way you choose to approach them can be considered part of your compositional "style." I thought of this progression as mixture because I see mixture as incredibly common and crucial in successful pop. I also was taught to conceptualize songs as based in major or minor, rather than being based in a mode. But, again, that's not the only way. You might conceive of it as being in Dorian. It's all subjective, y'know? Music theory doesn't have to be seen as "rules" that limit…)

MIXTURE PART V: CONCLUDING REMARKS

Mixture is a very “trial and error” aspect of music theory. I find some mixed progressions to be some of the most beautiful chord movements you could ever use (borrowing a parallel fourth chord, like in Get Lucky). But there are other uses of mixture I hope I never hear again in my life. So experiment. Experiment a lot, and use your ears to decide.

So how do you use chord mixture?

I see mixture as a way to “break” the standard rules of chord movements. It adds so much texture to music that it should be an indispensable part of every musician’s arsenal. It’s a great example of how theory actually helps you break from rules. It’s a systematic way to look at the chord progressions that have been used over and over for hundreds of years, and find something new.

TL;DR: Use chord mixture.

PHRYGIAN II (NEAPOLITAN)

The Phrygian II chord, or Neapolitan chord, is a major chord built on the lowered second, that mostly appears in first inversion (third on the bottom).

So, it's voicing is: 4 b6 b2

Why would you use it?

It's mainly used to lead to the dominant chord, V. The reasons why are too complex for a TL;DR theory lesson, but play around with it. Try playing a bII-V-I progression, you might like what you hear.

TL;DR: The Phrygian II chord includes the notes b2 4 b6 and is usually found in first inversion. It leads incredibly well to the V chord.

SUSPENSIONS

Suspensions have two parts, and can be done in two ways:

Part 1:

1. You hold a note over from one chord into the next chord. The note you hold over takes place of a note that is usually part of the second chord, and the note that is held over replaces a note in the second chord.
    a. Example:
        i. Start with a "IV" chord: 4-6-1
        ii. Suspend the 4 in place of 3 in a "I" chord: 1-4-5
2. When you play a note that's not part of a chord in place
    a. Example:
        i. The chord: 1-2-5

Part 2:

The suspended "note" then resolves by stepwise motion. Stepwise motion means the note it resolves to is a neighboring note, so it's a half or whole step away.

So, to complete our examples:

1. Note held over from earlier chord:
    a. IV chord: 4-6-1
    b. I chord with suspended 4 in place of 3: 1-4-5
    c. Resolved I chord: 1-3-5
2. Start with suspended chord:
    a. 1-2-5
    b. Resolve: 1-3-5

Suspensions normally involved replace the 3^{rd} with a 2^{nd} or 4^{th}.

How would you use it?

It helps carry tension. A lot of Kaskade's stuff uses suspensions. Think about it like this: the drop in a big house track hits, but the initial chord seems to pull your ears to the next one. That's the effect a suspended chord has. Your ears crave resolution.

You can also use them to spice up chord progressions. For example, on the 2^{nd} repeat of a chorus, you could suspend every chord at the beginning of a measure. You get the same progression, just done in a different way.

Suspensions can be done with inverted chords, and can be done with notes are than the 3rd of a chord (try it in a triad by suspending the 5th; try it in a seventh chord by suspending the 7th by way of a 6th; Try it in an extended 9th chord by suspending the 9th via a 10th)

TL;DR: Suspended chords use notes not normally in a chord to replace a main note, and then resolve. You can use them to create tension and change up chord progressions.

ANTICIPATIONS

Anticipation is kind of like the cousin of suspension.

In essence, an anticipation is when a note from a chord is played before the rest of the chord is.

For example, maybe on a drop you play the 3rd note of the chord alone on the first beat, and then have everything else come crashing in with the full chord on the 2nd beat.

TL;DR: An anticipation is when you play a note from a chord before the rest of the chord is played.

CHORD MOVEMENT PATTERNS

One way to approach chord progression is to build them based on patterns. The most common ones you'll hear are:

1. Movement in thirds
2. Movement in fourths
3. Movement in fifths
4. Movement in sixths

(Note: the movements can be either up or down)

And, of course, the pattern usually leads to end in a V-I cadence.

Some examples:

1. In thirds, descending:
    a. i-bVI-iv-V-i
    b. The bVI is the chord a third below i, and the iv is a third below bVI
2. In thirds, ascending:
    a. i-iv-bVII-bIII-V-I
3. Fifths, descending:
    a. I-IV-vii°-iii-vi-V-I
4. Sixths, ascending
    a. i-bVI-iv-ii°-bVII-V-I

Keep in mind the pattern doesn't have to be the same interval every time. For example, you can alternate intervals. You could first move up by a fifth, then down by a third, and repeat that pattern. Like this:

i-v-bIII-bVII-V-i

Or you could put a pattern in your pattern. Maybe every chord movement is one interval greater than the one before it, like:

i-bIII-bVI-bIII-V-i

In that example, i-bIII is a third apart, bIII-bVI is a fourth apart, and bVI-bIII is a fifth apart.

TL;DR: chord progressions are often built around chord movement intervals. You could use consistent intervals, either ascending or descending (ascending thirds, descending fourths, etc.). You can also alternate the intervals that the chords move, or consistently change the chord movement intervals in a pattern of your liking.

MODULATION

Modulation is the movement from one key to another. It is often done temporarily, but can also be a permanent key change in a song.

For example, if you played the chorus to a song in A minor three times, and then on the fourth time you played the same melody/chord progression in D minor, you would be modulating up a fourth.

It can be as short as a single measure, or can last the vast majority of a song.

Often, modulation is done to build tension (for example, by modulating up a fourth, and eventually resolving back down).

The most common key modulations are up a 2^{nd}, up a fourth, up a 5^{th}, and down a 5^{th}. Though you will hear down a 2^{nd}, up a 3^{rd}, down a 3^{rd}, up a 6^{th}, and down a 6^{th} from time to time. Really, you can modulation any interval as long as it flows well.

So how do you pull off a modulation?

The main way to accomplish key modulation is by using applied chords. Applied V7s and vii° work particularly well.

TL;DR: Modulation is the movement from one key to another, and can be temporary or permanent. It is most often done by using applied chords of the new key.

HARMONIC CHROMATICISM

Harmonic chromaticism refers to the use of a chord which includes notes not in the diatonic scale. Or as Wikipedia puts it, “at least one note of the chord is chromatically altered.”

Harmonic chromaticism is often used to help transition from one chord to another. Let’s take a look at the progression I-IV-iv-V-I. This progression is known as “The Beatles progression” because The Beatles used it so damned much. Which they did, of course, because it sounds so damned good.

Let’s look at the notes in those chords:

I: 1, 3, 5

IV: 4, 6, 1

iv: 4, b6, 1

V: 5, 7, 1

Here, we have a b6, a non-diatonic tone (and thus, a chromatic note!). The chord progression uses it to pass from the notes 6 (the 3rd note of the IV) to 5 (the root of the V). Think about it: 6 to b6 is a half-step, and b6 to 5 is a half-step. It passes, via half-steps, down from 6 to 5. It can thus be described as a chromatic “passing” note in the chord progression.

***

IMPORTANT SIDE NOTE:

The critical thinkers are asking “but wait, couldn’t that be just called chord mixture, and be described as borrowing the “iv” chord from the parallel minor scale?!?!?!?!111?!!1?!111eleven?!”

Yeah, it totally can.

See, music theory doesn’t always give a right, certain, logical answer. It has many gray areas. And this is one. It’s all about how you, the composer, views the progression. Chords and melodies can be described in so many ways, and this progression is a great example. It’s all in the ears of the composer.

***

This is just one example of how harmonic chromaticism can be done. The options are endless. Harmonic chromaticism is used in altered chords, applied chords, and so many more. GO NUTS, KIDDOS.

TL;DR: Harmonic chromaticism is the usage of non-diatonic notes in harmonic progressions. It is usually used to transition from one chord to another, but can be used in altered chords, applied chords, and many other instances.

HOW TO ANALYZE A CHORD PROGRESSION

I've had a few requests to show how to analyze a chord progression, and I think the best way is for me to show you how to approach one with an example. Specifically, we'll be looking at the intro chords from Deadmau5's "Some Chords."

First, start by noodling around and figuring out what those chords are. If you have trouble and are new to music, try looking up the music or guitar tabs for the song for help.

So, after noodling around on the keyboard while listening to "Some Chords," I arrive at the progression:

Cm-Ab-Bb-C

Second order of business: What is the "home" chord?

I say "home chord" instead of "what key is it in?" because not all chords will fit into keys perfectly. Why? Mixture, modulation, chromaticism, etc.

So how do you figure out the "home" chord? I just use my ears. Where do they lead you? A good trick is to hum the note you feel is the base note for the whole progression. That note is going to be what your "home" chord is built on. For some chords, that "home" chord is C minor.

Third, what are the diatonic chords of that key?

Diatonic chords of C minor:

Cm-D°-Eb-Fm-Gm-Ab-Bb

Fourth, does the progression fit those diatonic chords?

Our progression: Cm-Ab-B-C

- Cm fits as our "i" chord.
- Ab fits as our "bVI" chord.
- Bb fits as our "bVII" chord.
- C major does not fit

Fifth, if a chord does not fit in the diatonic chord, how can it be explained?

Options for explanation:

- Mixture
- Applied chords

- Modulation
- Chromaticism
- ????????
- Profit

Let's look at mixture. Is C major a chord in the parallel scale? C major is the parallel scale of C minor…and, well, yeah. C major is the root chord of the parallel scale. So we can explain it as a parallel root chord.

Sixth, put it all together:

Cm-Ab-Bb-C

i-bVI-bVII-I

Side note: MIXTURE, MIXTURE, MIXTURE. This chord progression is so good partially because it uses mixture. Remember how I said mixture is the single most common difference between generic music and unique music? Well "Some Chords" is yet another example…

TL;DR: To analyze a chord progression, figure out (1) the chords, (2) the "home" chord, (3) the diatonic chords, (4) any non-diatonic chords, (5) those non-diatonic chords' functions/explanations, and (6) put it all together.

RHYTHM

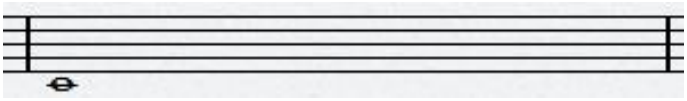
RHYTHMIC NOTATION

Note duration

“I don’t need to know how to notate the duration of a note, my MIDI score does that for me!”

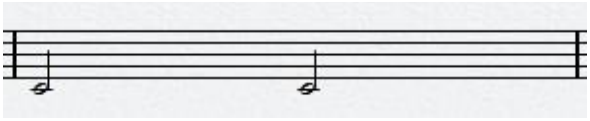
Yeah, except when you get a brilliant idea and aren’t near a laptop and forget the rhythm of the melody or drum line before you have a chance to figure it out in your DAW.

Whole note:



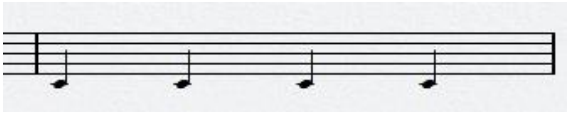
The whole note lasts for four beats.

Half note:



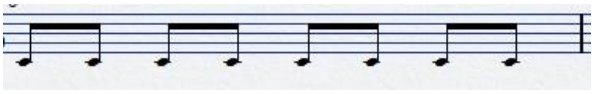
The half note lasts for two beats

Quarter note:



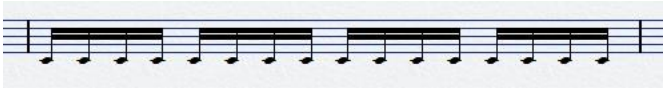
The quarter note lasts for one beat

Eight note:



The eight note lasts for half a beat.

Sixteenth note:



The sixteenth note lasts for a quarter of a beat.

A thirty-second note lasts for an eight of a beat.

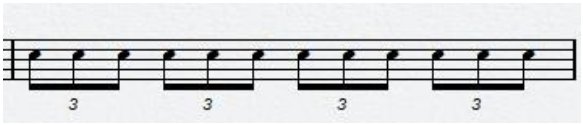
A sixty-fourth note lasts for a sixteenth of a beat.

Etc…

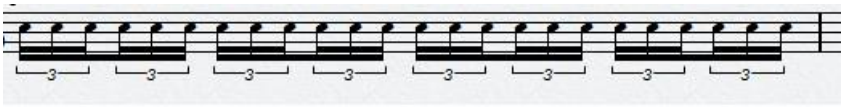
TRIPLETS

"Tuplet" or "triplet" notes refers to notes in groups of three. The most common are:

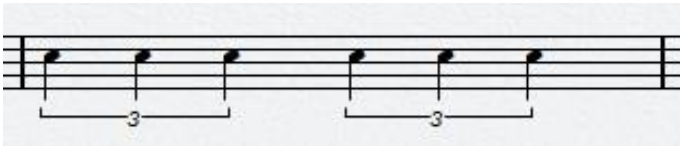
Eight note triplets:



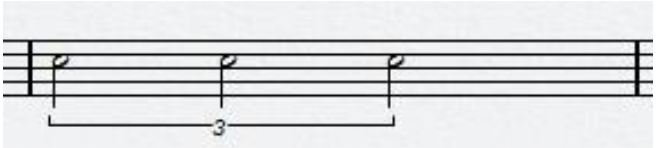
Sixteenth note triplets:



You can also have longer triplets, like quarter note triplets:



Or half note triplets:

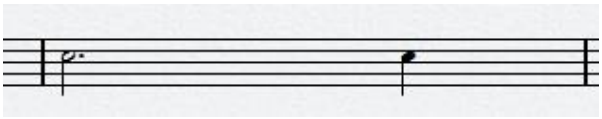


Those, however, start getting us into polyrhythms (see polyrhythm lesson).

DOTTED NOTES

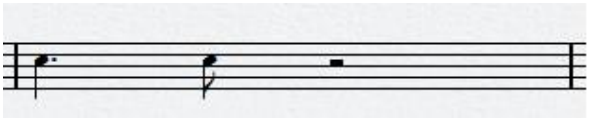
We also have dotted notes. When a note is dotted, it's duration is one and a half times the regular note's duration.

Dotted half note:



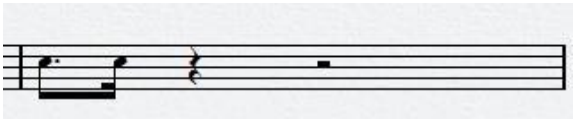
A dotted half note lasts for three beats. A normal half note lasts for two, but because it's dotted it gets an extra half-length of its value.

Dotted quarter:



A dotted quarter note lasts a beat and a half.

Dotted eight note:

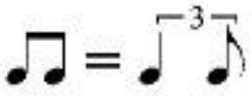


A dotted eight note gets ¾ of a beat. A normal eight note gets ½ a beat, so we had ½ of ½ to get ¾.

SWING FEEL

An important thing to talk about when discussing note value/duration is the "swing" feel. If you've ever put a swing quantizer on a MIDI track, this is what it refers to.

A piece of music that is "swung" often has this on it:

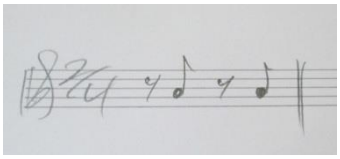


When you "swing" a song, you give more "weight" to the first note in a two note pair. Usually, this results in a triplet feel, where the first note of the pair lasts for two triplets, and the 2nd note of the pair lasts for the last triplet. This swing feel is used a ton by Daft Punk, Justice, Disclosure, and a ton of others. It's really good for giving a song a "funk" feel, or just making the groove some extra pull.

SYNCOPATION

Syncopation occurs when you play a note, snare, whatever, on the off-beat.

Like this:

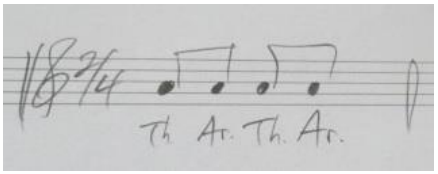


Two terms to know: Thesis and arsis.

(Don't worry, this "thesis" isn't the kind from your freshman literature course at uni.)

Thesis refers to the strong beat of a measure, and **arsis** refers to the weak part.

For example (Th: Thesis, Ar: Arsis)



How do you use syncopation?

Syncopation often gives a song tremendous "pull," "push," "drive," or whatever you wanna call it. It most often surfaces in EDM has a hi-hat on the arsis. Go listen to RJD2's "Ghostwriter" and you'll hear syncopated hi-hats throughout the entire song.

It often is used in a bassline, too. The chorus of Avicii's "Levels," for example, has a syncopated bassline, and that's part of what gives the chorus such a driving feel.

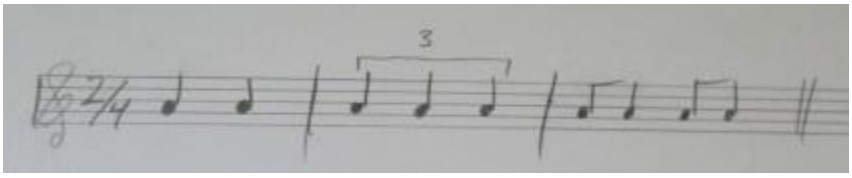
TL;DR: Syncopation is the playing of a note on the off-beat (arsis).

POLYRHYTHMS I: WHAT ARE THEY and 2 V. 3

A polyrhythm is the simultaneous use of two rhythms with different feels in the same time signature.

What I mean by "different feels" is not different midi drum patterns. What I mean (in everyday, non-academic words) is how many notes are in a complete phrase. For example, you could have a beat divided into two, three, or four notes. Those are all different "feels," as I call them:

Two, three, and four "feels:"

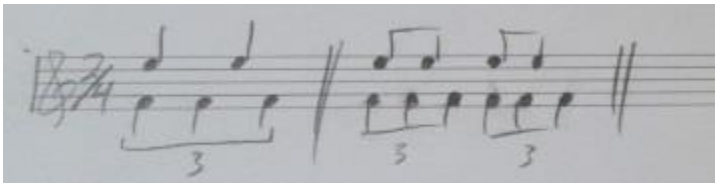


A polyrhythm is what we have when we align those "feels" up over one another.

We describe a polyrhythm as being "# against #," where the numbers are the different "feels." They are also described as "# verse #," # v #," and "#:#," among others. Examples: 3 against 2, 3 v 2, 3:2.

3-against-2

The most common and basic polyrhythm is 3-against-2. This happens when you have a 3-feel rhythm over a 2-feel rhythm. Here are two examples:

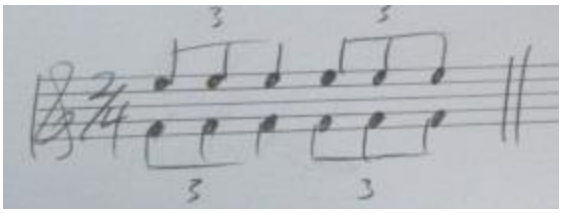


So how do you break that down?

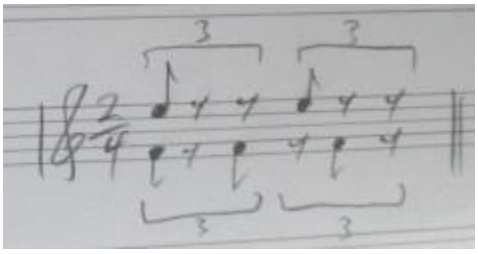
Break the measure down as far as you need to until the rhythms have a lowest common denominator (Oh shit, math! Time to separate the boys from the men).

What's the lowest common denominator of 3 and 2? (Easy trick: multiply the two numbers to find it). For 3-against-2, our LCD is 6.

So we break the rhythm into 6 parts (for our example, we'll use eight notes):



Then we divide the top rhythm into groups of 3's, and the bottom into groups of 2's:



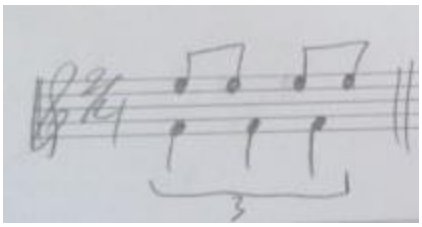
And voila, we have 3-against-2. A REALLY good exercise to make polyrhythms feel natural is to pat them out. Use your right hand for 3 and left for 2. When you first do it, you'll most likely have to count the subdivided beats in your head. For example, with 3-against-2, you count to 6 (the lowest common denominator subdivision). The 3-feel notes fall on beats 1 and 4, and the 2-feel notes fall on 1, 3, and 5. So, with your right hand, pat on the 1st and 4th note, and with your left hand pat on the 1st, 3rd, and 5th note. Start slow, and gradually speed up as you feel comfortable. Then listen for the overall feel of the polyrhythm, and keep trying to pat it out without counting subdivisions in your head. It takes time and many attempts at first, but it's a skill absolutely worth having.

TL;DR: Polyrhythms are the simultaneous playing of two rhythms with different feels. They are described as "#-against-#." 3-against-2 is the most common and is rhythm of a group of 3 against a group of 2.

POLYRHYTHMS II: 3 V. 4

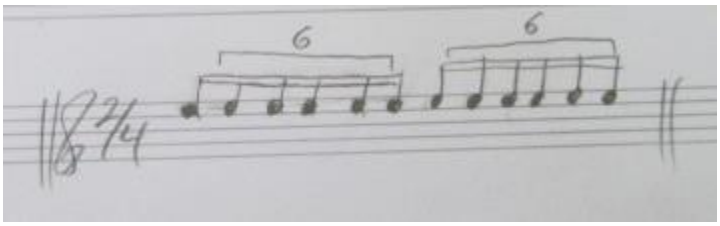
The other common polyrhythm is 3:4.

It looks like this:



How do we approach it? Find the lowest common denominator: 12.

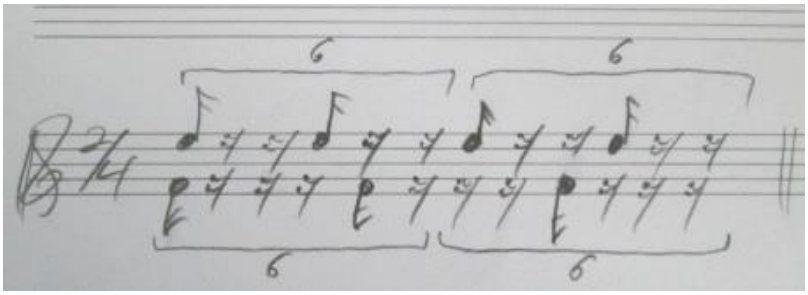
So let's break the rhythm into 12:



Then divide the top (the 4 feel) into 4 equal parts (12 beats divided into 4 equal parts = 3 beats per part). The top notes thus fall on 1, 4, 7, and 10.

And divide the bottom (the 3 feel) into 3 equal parts (12 beats divided into 3 equal parts = 4 notes per beat. SORRY FOR THE MATHS, GUYS). The bottom notes thus fall on 1, 5, and 9.

We get:



Again, the best way to internalize this polyrhythm is to try to pat it out. Start by counting to 12 in your head, patting your right hand (4 feel) on the 1st, 4th, 7th, and 10th notes, and patting your left (3 feel) on the 1st, 5th, and 9th notes. This one's trickier and takes longer to get than 3 v. 2, but it's an invaluable tool in your compositional arsenal.

TL;DR:4-against-3 can be understood by dividing the rhythm into 12, with the 4-feel on 1, 4, 7 and 10, and the 3-feel on 1, 5, and 9.

POLYRHYTHMS III: OTHER POLYRHYTHMS and HOW TO USE THEM

Polyrhythms III: Other polyrhythms and how to use them all.

Other polyrhythms for you to explore with their common denominators:

- 5:4 (lowest common denominator: 20)
- 6:4 (LCD: 24)
- 7:4 (LCD: 28)
- 2:5 (LCD: 10)
- 3:5 (LCD: 15)
- 9:4 (LCD: 36)
- 9:6 (LCD: 18)

"So how do I use these damned things?'

Most often, polyrhythms are used in percussion, especially during transitions. Pretty Lights uses them in transitions on pretty much every album he's made. Deadmau5 uses polyrhythmic hats in nearly every track. They're incredibly useful ways to spice up your drums. Why are they so effective? Because they give the listeners' ears not just one rhythm to follow, but two.

Once you learn them, especially 3:2 and 3:4, you'll start hearing them everywhere.

They can also be used in your melody patterns. Maybe you have a bassline and supersaw that follow each other rhythmically in a 4-feel for the first three bars, and then you change the supersaw to a 3-feel in the last. The options are endless.

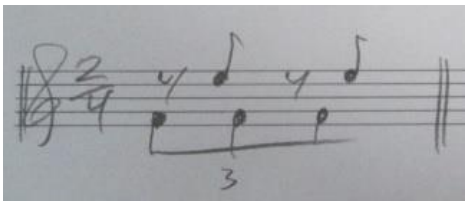
TL;DR: Use polyrhythms. They work extremely well in diversifying drum lines and can be used in melody and harmonic elements, as well.

POLYRHYTHMS IV: POLYRHYTHM VARIATIONS

So far we've talked about polyrhythms where notes are played only on the first note of a division of a rhythm. So, for example, in 3:2, we've only seen polyrhythms where the notes fall on the first division of the 2-feel.

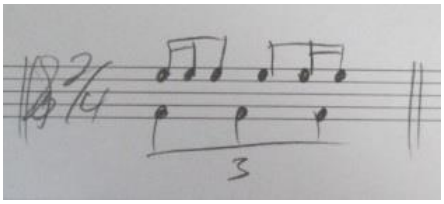
What if we syncopated them, though?

We'd get this:



In order to figure out how that would sound, break the beats down as we did in earlier lessons and pat out where the notes lie.

Another example:



TL;DR: Try changing up the rhythms so the notes don't hit on the initial note of a rhythm's division.

MISCELLANEOUS

TIME SIGNATURES

"All EDM is in 4/4, I don't need anything else!"

Yeah, well:

A. IDM uses other time signatures from time to time
B. The most influential and successful musicians throughout history typically are those that break the mold and "make it new." So using time signatures in EDM other than 4/4 should be a "CHALLENGE ACCEPTED" not a "LOL GTFO."
    a. Side note: I admit that it is difficult to use a meter other than 4/4. I've tried, sometimes with success and sometimes not. It's hard to get a natural feel out of different meters…but that doesn't mean it can't be done. The song "Money" by Pink Floyd alternates 7/4 and 4/4 every measure, and it feels natural.

Time signatures, or meters, appear at the beginning of a piece of music. They also appear if the music changes time signature.

What do the numbers mean?

The top number refers to how many "beats" are in the measure. For example, "4" tells you there are four beats in the measure.

The bottom number tells you what note value represents one beat. A "4" tells you a quarter note represents a beat. An "8" tells you an eight note represents a beat. A "2" tells you a half note represents a beat, etc.

Our two basic kinds of time signatures are "simple" and "compound"

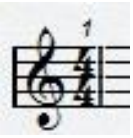
In **simple time signatures**, every beat can be broken down into a "two" feel.

In **compound time signatures**, every beat can be broken down into a "three" feel, but they cannot (normally) be broken down by two.

These are better understood with examples.

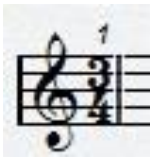
BASIC SIMPLE METERS:

4/4 is the most common (sometimes represented as just "C" instead of 4/4):



In 4/4, we have 4 beats per measure (the top number), and a quarter note represents a beat (bottom number).

¾ is also a simple time signature:



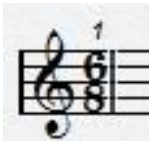
It means there are 3 beats per measure (top number) and a quarter note represents a beat (bottom note). Note that this is not a compound time signature, even though it has a 3 as the top number. This is because each of the three beats can be divided into two.

Other examples of simple time signatures: 2/4, 4/8, 3/8

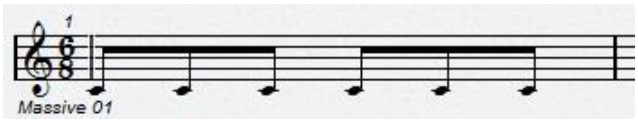
COMPOUND TIME SIGNATURES

As mentioned, in compound time signatures, beats can be divided into three, but (normally) not into two.

6/8 is the best example:



In 6/8, there are 6 beats in a measure, and an eight note gets a beat. A whole measure is usually divided into two, with each division getting three parts (eight notes). So it runs like:



“ONE-two-three-ONE-two-three.”

HOW TO APPLY THEORY NUMBERS TO NOTES

So I've had a few people ask "why not just use letters instead of numbers for describing scales and whatnot?"

Using numbers instead of musical notes is much more efficient. Let's look at one example. Say I wanted to use A major, but I only knew the C major scale pattern. I'd have to sit down and say "okay, the half-steps are between E and F, and B and C. So now I need to know where those fall, relatively, in the scale, and apply them to A major." You would have to figure out that they fall between the 3^{rd} and 4^{th}, and 7^{th} and 1^{st}.

But by starting from the numbers, you can just skip straight to knowing where those half-steps fall without having to extract it from a different set of notes.

Put another way, using "numbers" allows us more efficient flexibility.

Here's an example of how to go about applying those numbers to letters:

The naturally occurring half-steps are between E and F, and B and C. So take your scale formula, and start on your root note, and alter the notes as you go along. So, let's try B minor. Minor has the formula: 1 2^b3 4 5^b6 b7 1.

So if we treat B as our root, we go up to the next note, which is naturally C. But that's a half-step away, and we want the distance between 1 (B) and 2 to be a whole step, so we sharp C. Then we look at the distance between C# and D, which is a half-step, and that's what we want it to be (in minor, there's a half-step between 2 and b3, remember?). We do that all the way through the scale, until we find out we need a C# and F#.

(But, of course, it's much more efficient to know the circle of fifths and be able to immediately know the sharps and flats in every key.)

Imagine if you understood how multiplication worked by always having to refer to "2x3 is 6," rather than the theoretical understanding. It would slow you don't and limit your understanding so much. That would be the same as only understanding theory through letters, rather than numbers.

HOW KEYS WORK

In Western music, C major is the natural major scale. This means that the half-steps naturally occur between E and F, and B and C.

For example: C D E^F G A B^C.

Note that E and F are the 3rd and 4th, and B and C are the 7th and root. This follows our major scale formula, where half-steps are between the 3rd and 4th and 7th and root. If you look on a piano, the naturally occurring half-steps (where there is no black key) are between E and F, and B and C.

But what if, for example, we want to play in the key of F? Without changing any notes, if we start and end on F, we get this pattern:

F G A B^C D E^F

Without changing any notes, our half-steps fall between 4 and 5 and 7 and 1. But we want them between 3 and 4, and 7 and 1. So, we flat the 4th note (the B) to get:

F G A^Bb C D E^F

Now our half-steps fall between 3 and 4, and 7 and 1. So we can say that, in the key of F major, we have one flat, Bb. The same happens with keys involving sharps. Let's look at the key of D major:

D E^F G A B^C D

Without changing any notes, the half-steps fall between 2 and 3 and 6 and 7. But again, we want them between 3 and 4, and 7 and 1. So we raise the 3rd and 7th notes:

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

Now our half-steps fall between 3 and 4, and 7 and 1, which is what we want. We had to sharp both F and C and so we can say the key of D major has two sharps, F# and C#.

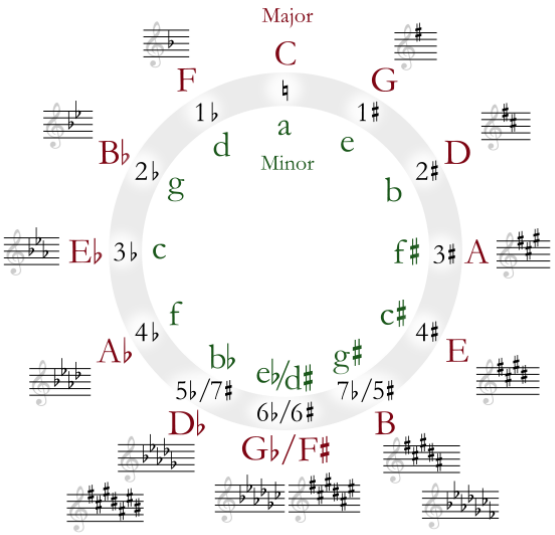
This is the idea behind "keys." We have to change the quality of some notes by lowering them a half-step (flatting them) or raising them a half-step (sharping them) in order to make them fit the major scale formula.

TL;DR: The naturally occurring half-steps in Western music are between E and F, and B and C. To make keys other than C major fit the major scale formula, we have to alter certain notes by either flatting or sharping them.

THE CIRCLE OF FIFTHS

The circle of fifths is your friend. Then again, you could ignore it and just write everything in the key of C, like some producers. But that'd be like only using the preset EQ's that your DAW comes with, without actually understanding any of them. It might not come to you the first time through this post, so re-read and play with the ideas, read other posts on the net, practice writing it out, and come back and re-read until you get it. It's an incredibly important tool in music theory. It's like setting up templates for tracks to improve your work flow.

The circle of fifths is the systematic representation of all major keys. It looks like this:



Courtesy of Wikipedia

Last article we talked about how "keys" work. The circle of fifths is a systematic representation of those keys. It makes your life a lot easier, trust me.

It's called the circle of fifths because it moves in fifths (or inverted 5ths, aka 4ths, depending which direction you're going). For example, C is a fifth below G. G is a fifth below D, and D is a fifth below A, etc.

You should memorize the order of keys, in both directions. Here's how I think of it: you always start with the key of C (no sharps or flats). If you want to figure out a key with flats in it, you go left, and start with F (because the word "flat" starts with "F").

After "F" the keys are all flat (their root note is flat, like Bb) and they spell out "BEAD." After BEAD, the last two keys in that direction are Gb and Cb. So for keys with flats, we get the pattern: C-F-Bb-Eb-Ab-Db-Gb-Cb.

And note that each of those keys goes up by one flat. C has no flats, F has one flat, Bb has two flats, Eb has three flats, all the way until Cb, which has 7 flats.

To go the opposite way, just flip that "F-BEAD-GC" pattern around, and sharp the last two keys. We get: C-G-D-A-E-B-F#-C#. Again, C major has no sharps, G has one sharp, D has two sharps, all the way until C# which has 7 sharps.

But how do we know which notes are sharp or flat? By two patterns called the order of sharps and flats.

Order of sharps: FCGDAEB

Order of flats: BEADGCF

Hey wait, isn't that the same pattern as the order of keys themselves? Yep, it just starts at a different point. The circle of fifths has "C major" as its base, while the order of sharps starts on F, and the order of flats starts on B.

So, for example, say we've want to find out how many sharps E major has. We go to the circle of fifths and say, okay, E major is the 5^{th} major key in the sharp pattern (C-G-D-A-E). Since C major has no sharps, the sharp pattern begins on the 2^{nd} key (G). So G has one sharp. And each following key has one additional sharp. So, since E is the 5^{th} key in the pattern of keys with sharps, it has 4 sharps. Then we look at the order of sharps and take the first four sharps to find out which notes are sharp in E major: F, C, G, and D.

Here's another example: how many flats does the key of Eb have? Well, if we look at the circle of fifths, the flat pattern is: CFBEADGC. The key of Eb would thus be the 4^{th} key in the flat key pattern. Thus, Eb has three flats. We can then look at the pattern of flats, and say, okay, this key has three flats, so the flatted notes will be the first three from the order of flats: Bb, Eb, and Ab.

The circle of fifths is hard to grasp at first, so don't worry if you struggle the first time through. Re-read, check out other resources on the net, come back to it in a few days, or do whatever you need until you understand it. It's an incredibly important foundation of music theory.

As always, if you have any questions or if anything was unclear, please comment and I'll clarify. If you didn't fully understand something, chances are someone else didn't too!

TL;DR: The circle of fifths is incredibly important and can't be "TL;DR"ed. Learn it. The order of "sharp" keys is: C, G, D, A, E, B, F#, C#. The order of "flat" keys is: C, F, Bb, Eb, Ab, Db, Gb, Cb. The order of sharps is: FCGDAEB, and the order of flats is: BEADGCF.

FUTHER SUGGESTED MATERIALS

Harmony and Theory: A Comprehensive Source for All Musicians by Carl Schroeder and Keith Wyatt.

Harmony and Voice Leading by Edward Aldwell, Carl Schachter, and Allen Cadwallader.

Pop Music Theory by Michael Johnson.

Alfred's Essentials of Music Theory: A Complete Self-Study Course for All Musicians by Andrew Surmani, Karen Surmani, and Morton Manus