



THE iLL.GATES GUIDE TO PRODUCING

## MUSICAL PERCEPTION IN HUMANS

In order to understand how to write music you have to first understand what it is to listen to music. The detachment between writing and listening to music is often daunting at first but it can be overcome if you pay careful attention to your own experience of listening.

### The Senses

Before there was music, we used our senses to engage the world around us and to figure out what objects and creatures were relevant to us at any given moment in time. Our senses are designed to appraise the significance of stimuli in our environment at a preconscious level. This means that your senses are not presenting a series of 'pixels' or images to your brain but rather *impressions* of real things around you, complete with emotional affect. Your brain does this by pre-consciously separating your environment into figures (things that one should pay attention to) and ground (things in the background that are less important). Everyone who ever listens to your music (barring serious psychedelic use or brain injury) will always be doing this to your sounds so you must think of music this way unless you really have a good reason not to.

### Attention

Animals only have so much attention to go around so unless they can make perceptual groupings without paying attention they will not be able to make quick decisions about their environment. You therefore always need to consider where you want the listener's attention at any given point in the song. Your song should lead the listener's attention through the sounds and emotions you choose in a pleasing fashion. The central question then is how you can direct the listener's attention.

### Novelty

Because we live in a realm of linear time it is *change* that guides our attention through the world around us. It is very important to think of music this way because change is what you must create first and foremost. As I see it change has two facets to its relationship with our attention as far as musical perception is concerned: novelty and expectation.

Novelty - or newness – is the primary cue that tells us which aspects, sounds and dynamics to pay attention to in a musical composition.

Things that attract attention are:

- Silence
- Compositional change (sounds coming in or out)
- Rhythmic change (busier, simpler, holes, triplets, edits, etc)
- Melodic change (changing notes, chords or register)
- Tonal change (mix placement, modulation, fx changes)
- Novel sounds
- Novel technique

The more interesting your bag of tricks for creating novelty is, the more relevant your music will be. The less novelty there is in the composition the more formulaic and boring a piece will seem.

### Expectation

Expectation is a powerful tool for making your music interesting. If you can create the feeling of something coming and then have it deliver in an engaging way your listeners will quickly learn to trust your music and want to hear more of it. I really cannot overstate the role of creating and then either artfully defying or satisfying your listeners' expectations, especially for dancing.

Things that create expectation are:

- Silence.
- Parts that are constant/repeating.
- Periods without beats or bass (fills and/or breakdowns).
- Sections that repeat.
- 'Risers' (sounds with a rising/falling modulation over a few bars).
- Flirting with various musical traditions or established genres

### **Gestalt (Perceptual Grouping)**

It has been found that humans can only consciously perceive 7 +/- 3 chunks of information at a time. This is called 'the magic number 7 +/-3' and it is essential to understand if you are to present your music with clarity and impact.

This is why many phone numbers are 7 digits + the area code.

If you think about the classic 'band' there are basically this many *groups* of sounds involved at a time. Even when there are more than 7 or 10 sounds in the composition you will often find them being delivered as groups, or chunks of sound. I like to think of these 'chunks' as 'attention slots'. It is useful to conceptualize your composition as consisting of a maximum of seven 'slots' with one dynamic or element occupying the 'figure slot' at all times. The sounds can take turns occupying the figure and ground slots, and they can group and un-group but there should always be a figure or some kind and then 6 +/-3 'ground' slots.

It is important to note that these 'slots' are not necessarily objects, instruments, or creatures but rather *dynamics*. Think about the mental process of witnessing a flock of birds flying through the air. You do not exclaim internally 'Oh my, there goes 37 birds! How splendid!' You instead think: 'Oh, a *flock* of birds.' A 'flock' is not an object or creature it is a group... a *dynamic*, and it is fully capable of occupying an 'attention slot'.

You should always keep this in mind when you are deciding how many different sounds to use at a time, and also how you pace them. If, for example you are making an Electro or Techno beat you might introduce first the kick, then the snare, then a hihat, then a shaker, then a bongo... five sounds: five slots. Now let's imagine you are making a Hip Hop beat and you have a DJ go 'scritch scratchy scratchy scratchy – drop (the beat); five (or more) sounds: ONE slot. It is the pacing and grouping that determine this.

### **ARRANGEMENT AND WORK FLOW**

Arranging electronic music can often seem daunting or mysterious and is the most common problem for budding producers. The reason that this is such a problem is that the principles of arrangement (which follow from the principles of perception above) have *direct* consequences in terms of workflow that are not immediately obvious. Understanding the relationship between perception, arrangement and workflow is *essential* to finishing large amounts of music in a reasonable amount of time.

There is an infinite number of possible 'next moves' at any one time and considering them in an unstructured way makes songs take much *much* longer to produce and also makes them sound fragmented even when they are complete. In my experience it is very advantageous to take into account which problems are the most fundamental and then pick off the easiest solutions first as they may make seemingly harder problems irrelevant. Every producer must make a set of loose 'rules' in their mind that becomes a creative set of limitations yielding an individual sound and style. If you refer to your own rules of arrangement to generate a list of problems and then solve them with your own sounds and techniques you will develop a sound that is based on your personal workflow.

#### **Arrangement**

After the intro, there are at least three sections to nearly every electronic song and then an outro.

## **A. (4-16 Bars) - Capture + Engage the Listener's Attention – Make a Promise**

The groove: raw and simple with a sense of expectation.  
Must be engaging enough to command attention but still have room.  
Be maximally commanding with a minimal sound palette.  
Do not paint yourself into a corner.  
Do not lay all of your cards on the table.  
Create a sense of mystery, tension, expectation of things to come.  
Make a promise to your listener and they will stick around.

Things you can often get away without:

- Riders (hats, shakers + supplemental percussion)
- Leads + vocals
- Use small loops of patterns + riffs so you can expand them later
- Hold back on your fills
- Rely heavily on novelty in this section
- Let the sound design and groove drive this section

## **B. (8-32 Bars) – Peak Out! - Deliver on the Promise of the A. Section**

The song expands; new sounds and changes are introduced.  
Much more dynamic and musical, you feel 'there' when this section arrives.  
This is usually the fullest section of the song.  
This section usually has the largest number of sounds and changes.

Things that can make a good B. section:

- Leads + vocals.
- Chord changes.
- Call and answer.
- Riders (16th note hats, bongos, shakers, etc).
- Fills, builds.
- This section relies more on musicality than novelty of sound design.

## **C. (4-32 Bars) – Departure from Main Theme**

The song goes away from the main theme and then returns.  
These sections are usually very different from each other (and the song).  
C. Sections inject spontaneity into an arrangement, making the track stand alone and over time.  
C. sections can also be used to create a feeling of 'homesickness' coming back to the main theme.

Examples of C. sections

- Bridge (new chord progression or lead theme).
- Dubout (percussion + bass take over, leads pull back with long feed delays).
- Breakdown (beats + often bass stop entirely).
- Break (percussion only, often with lots of extra riders + fills).

## **The Three Main Changes**

Music is about change of sound over time and what those changes make the listener feel.

If you conceptualize music in terms of change and not in terms of what remains the same it will become much easier to grasp. The implications of this for workflow are that **the three changes between the three sections above are the most fundamental set of arrangement problems and should be solved as soon as a good groove has been created.**

Simply put, these changes can be conceptualized as:

1. A -> B (Promise to Satisfaction)
2. B -> C (Spontaneity?)
3. C -> HOME (Homecoming!)

As soon as you have enough sounds to be able to generate these changes, copy your sounds into the arrangement view and start arranging. Try to make these changes as strong and simple as you possibly can. Do not start adding tons of tricky fills and edits and effects at this point. If these changes are simple and solid then everything you add later will make them sound amazing. If you are relying on detail to make your arrangement changes sound good then you are fooling yourself. If the changes are satisfying in their simplest form you will find it very easy to generate variations and change ups later and you will feel comfortable leaving the detail until a later point. If you are the kind of person who loves detail (as I am) the joy of detail will bring much needed motivation during those crucial last stages of production. I like to think of it as saving myself dessert. If you have your dessert first then you have saved yourself nothing but problems.

Before we get too much more into workflow, I will address the basics.

## THE LIST OF INGREDIENTS

The first ingredients are an idea or inspiration of some kind and the time to make it happen. Without these two things you should not bother starting a new song and either make some racks, study, make some sounds, some beats or whatever other non-specific resources you might require. There are a million and one things that electronic music involves that are not writing music and in my experience it is better to focus on them when you are not writing. If you are learning how to use a new soft synth when you're trying to write it will slow you down and become frustrating. Most of your skill honing and exploration should be done when you are not working on a specific song. Once you have finished a large number of tunes you will have a better idea of when you are being productive or not but it is important to stick to writing when you are writing and doing esoteric sound design in your free time.

Once you have an idea or feeling that you feel excited enough to put the time in to you need to generate a minimal number of sounds to start arranging. There are four different groups of sounds that you will need to focus on and these four will come into play later when I begin to talk about mixing as well.

These four groups are: beats, bass, melodies/leads and one shots

## BEATS

The beat will be the rhythmic backbone of your song and therefore needs to be as simple and straightforward as possible. Unless you are a real master of creating and satisfying expectations your beat will not be engaging unless it has an element of repetitiveness to it, especially in music that is intended for dancing. You should therefore make a simple drum kit and then supplement it with a few other elements in order to keep it interesting.

The ingredients required to make a good, simple beat are:

### 1. A Drum Kit

- 2 main kicks (forwards + backwards, hard and soft, high and low, etc.)
- 2 main snares or claps (forwards and backwards, hard and soft, high and low, etc.)
- 2 main hi hats (closed and open, hat and shaker, 'chi' and '-ckal', etc.)

### 2. Riders

- A 16th note hat or shaker riff.
- Ride cymbals.

- Congas or bongos.
- Adogo bells, etc.
- Field recordings.
- Arpeggiated glitch riffs.

### **3. Fills (prioritized re: work flow)**

- A sample of someone playing a drum kit, tom roll or other fill.
- One shot samples like reverse crash, guiro, etc.
- Sequenced tom or roll riffs.
- Sequenced whole kit fills.

## **General Principles for Making Beats**

### **Stacks**

You are going to want to stack up several sounds to take the same midi from your drum patterns. Usually you would get a super solid sample based kick, snare and hat kit and then set up a second layer of texturized drum bits to fill out the frequencies a bit more. I nearly always add a third/fourth/fifth layer of field recordings on top of that to create a really exaggerated + novel texture. Often this third layer is made from non-drum sounds I record with a condenser mic around the house.

### **Polyphony**

You should make all of your drums monophonic or else when you accidentally leave a double midi note it might make your drums mysteriously double in volume and cause problems when you are mixing.

### **High End Crispness and Texture**

You would really be surprised how much high end detail it takes to get drums to sound nice in current terms. You will often have to add things like EQ, bussed distortion, compression, stereo offset, field recordings, bit reduction, etc to get a full, clean, high quality drum kit.

### **Velocity**

Your number one modulation tool is velocity. It is the easiest to get at from the piano roll and will save you a lot of automation time. Try gently routing velocity to drum cell parameters such as volume, filter frequency, pitch, pan, time stretch and whatever else you can.

## **BASS**

The bass line provides a great deal of the groove of your song and in traditional bands it is considered to be a part of the rhythm section. This means that your bass lines should have a pleasing interaction with your beat and should be as simple as possible in order to facilitate dancing and allow room for the attention to go to other melodic elements without stressing your listener out.

Your bass section, like the beat, will actually consist of several different sounds that are going to be perceptually grouped together in the mind of the listener. This might mean that there are separate sub and top basses and it also might mean that there are a number of different kinds of bass tone or modulation that are working together via call and answer. In general I find it useful to create the following sounds before arranging my song.

### **1. Sub Bass**

- It should basically be a low sine wave or low passed version of the main sound.
- It should either be maximally loud or off. It's gotta shake the room after all!

-Try turning to envelopes and eq before you compress sub bass too hard. I will explain why later.  
-It should be fed by the same midi input as your top bass, you don't need another channel.

## **2. Tops**

-You will usually need 2 or 3 different layers of top bass.  
-Make them tonally different (saw vs. square, wobble vs. womp, digital vs. analog, etc).

## **3. Modulations**

-Instead of doing all of your automation on one synth it is often easier to have several copies of your bass  
-I split bass into 3 categories...

1. Womp (the 'straight' bass, often with env. attack controlled by velocity).
2. Wobble (LFO/portamento modulated bass, either to filter or pitch generally).
3. Drop (accomplished either with pitch envelope or portamento).

## **General Principles For Making Bass**

### **Monophonic Subs**

You ALWAYS want your sub bass to be monophonic. There isn't a whole lot of room for detail in those frequency ranges and if you want your bass to be really loud and thick you really don't want any sudden volume doubling or anything like that when you are mixing.

### **Spread the Tops**

Modern bass (at least in 2008) involves big thick sounds that take up a lot more than just the sub bass frequencies. It's only your sub bass that really needs to be monophonic so you should take advantage of stereo production techniques when you create the top end layers. You can add a lot of texture, emotion, thickness and tone by making variations in the stereo spread of the top end. Sometimes it is really nice to have two different oscillators for the left and right speaker, it makes the bass sound extremely wide and leaves room for other sounds in the center of the stereo field.

### **Portamento is Your Friend**

Seriously... it's totally badass. If you use portamento or glide on a monophonic bass you can accomplish all of your pitch changes with the piano roll instead of automating a ton of different pitch envelopes and LFOs.

### **Use Velocity for Non-Volume Modulation**

Velocity is REALLY important for making simple modulations easy and fast to write. I find that seeing as you usually want your bass to be pretty consistent in volume it is really sweet to route the velocity to control things like filter frequency, envelope time, glide/portamento time, wavetable, LFO time and any other parameters you think you will be modulating a lot. I often use the velocity to change between bass patches with the chain selector in my bass rack. Very Handy.

### **Macros**

If you are writing a style that is as bass fixated as breakbeat, drum and bass, dubstep and some forms of hip hop you are probably going to want to have a few sweet macros to tweak on your bass sounds. It is often good to set up one or two at the beginning but try to avoid too much detailed macroing until you are really getting into the arrangement. Things like LFO speed, envelope time, filter frequency and wavetable can be really good things to macro early on.

## **Use Few Pitches, Long Notes and Lots of Modulation**

There is something very, very pleasing about having bass shake your body to the core but it takes a moment for the notes to establish a resonance in the body. If you have lots of short notes that change a lot, this resonance is never going to become as established as it could be. If you use a very limited number of pitches in your bassline, have long notes every now and then and really work the filters and LFOs your bass is going to be very physically satisfying. It is also a good idea to save some new low pitches for halfway through the song and then hit them with some real whopping long notes. It makes the bass fresh if you have been working it the whole song.

## **MELODIES / LEADS**

### **1. Leads and Vocals**

Usually you are going to want to have at least two main, sustained melodies that are the centre of attention when they are present in the composition. They may overlap, they may go call and answer or they may have totally different sections. They also might be two variations within a given sound (such as verse and chorus with a vocal) but you are usually going to need at least two of them. These are the sounds that are going to require the most work. They need to be really interesting if they are going to be the centre of attention. You should also take a lot of care to make sure that your leads are never fighting with each other. It is very, very difficult to have two centers of attention at the same time.

### **2. Accompaniment**

You might also want to have a melody or two that are more in the background and provide accompaniment to your leads and vocals. Things like rhythm guitar licks, piano chords, pads, background vocals, etc. can fill this role but you would be surprised what else can provide rhythmic melody. Don't be afraid to get experimental but always keep these things simple and rhythmic. They are not really supposed to demand too much attention from your listeners if they are accompaniment parts.

### **3. Melodies with Holes**

I usually have a few different melodies with holes in them in my songs. Sometimes all of my melodies have holes in them... It makes a lot more room in the song and gives a splashy, dubbed out feel that allows the beats and bass to come to the forefront. Things like arpeggiator splashes, vocal edits, gated risers, etc. can fit the bill nicely here. You can get really experimental here if you like, just be aware of when you are wasting time as these are not the most important elements in the song.

## **General Principles for Making Melodies**

### **Keep Your Melodies Strong and Simple!**

I really can't stress this enough... When there are a million different notes in your melodies it starts to sound all noodley and wanked out. It is a lot easier for your listeners to be emotionally affected by a strong simple melody that repeats and varies in intelligent ways rather than a song that sounds like one long wanky solo. It is very tempting to try to impress people with the complexity and trickiness of your melodies but it quickly degenerates into flashy boy music that is hard to groove out to. This is especially true of dance music. If you want to have anything but a total sausage fest, strong simple melodies are best.

### **Start with Chords or Root Notes**

It is much easier to write a chord progression and then write a lead as the chord progression involves less notes and will kind of dictate the rhythm and rhyme of your lead patterns. Usually I don't even stress about the detailing of the lead riffs until I am well into arrangement.

### **Don't Go Too Crazy on the Modulation**



Melodies can sound really lame if there is too much LFO, pan or other automations. If your listeners are going to really engage with them emotionally they should present a clear and attractive face. They should have lots of personality but not sound like they are trying too hard. Try to avoid adding too much detail until your song is getting close to halfway done or you will make it take forever...

## ONE SHOTS

This goes back to what I was saying about melodies with holes in them, it is really nice to have some intermittent sound that indicate or emphasize your transitions. Before I start arranging I usually load the following sounds into the session:

### 1. Risers (1-3 should do)

- These are sounds with a building energy that tell your listener that they can expect a change or a progression
- Sweep things like pitch, LFO speed, wavetable, fx, etc.
- This time it is okay to write envelope automation early on
- Generally these are single sustained notes or just audio clips
- Long, reversed samples are really useful here
- Leave a little bit of silence at the end so that the downbeats the risers lead into sound clean and crisp

### 2. Splashes (2-8 will be fine)

- Try to avoid just pasting crash symbols all over the place. it sounds cheap
- These can be melody splashes, one shot samples of vocals, zaps, pitch sweeps, LFO scribbles... get creative!
- Sometimes these splashes can be a small piece of a melody that gets used in another spot
- Contrast and texture are very important here... if you have a synth song, use samples or vice versa

### 3. Movie Samples and Field Recordings (1-3 is usually good)

- As I mentioned above it is really good to have something very different sounding when you make one shots
- Talking should generally be kept in breakdowns or other c-sections
- Try using background noise to fill out your song, like kids in a playground, distant sounds or sounds from your life
- You can get away with a lot here provided that you are subtle. don't try anything weird too loud unless you mean it.

## General Principles for Making One Shots

### Predictability

Using one shots has a very 'classic' sort of effect on your arrangement. It is one way to tell your listeners that they can expect a drop or a change up or an increase in energy or whatever. There are pretty strict expectations attached to the way producers use one shots and you will need to really listen to the music that you like to figure out what kind of role you want them to play in your own music.

### Unpredictability

One shots can sound like cut and paste bullshit unless you really develop your own sound. Try to avoid doing anything too predictable here unless you want to sound retro. The examples I just gave are really predictable. Please try to do better. This is somewhere you are really going to have to work

to be tasteful about. If you're just trying to bang out a bunch of DJ tunes quickly it's not a big deal but if you really want to write something artistic you are going to have to get innovative with your one shots.

## WRITING RIFFS

### Drum Patterns

As I said before, you are going to want to keep your drum patterns simple unless the drums are driving the interest in your track. You should keep your drum patterns to simple rhyme schemes like A A A B, A A A C or A B A C, A B A D. Try not to make huge variations between patterns A and B but add more variation in patterns C and D. If you are working with four to eight bar patterns it is going to be much easier to write your beats than if you just have one pattern looping forever. Try to only involve 3 sounds in your main drum kit riff and see what you can get away with leaving out. Some drum patterns can sound just fine with only kick and snare, leaving you free to add hi hats later for variation! Using shorter patterns early in the arrangement and then longer patterns later is a good idea. It is also a good idea to save your fills for last.

### Bass Lines

Try to keep your bass riffs nice and simple unless you are writing a style that is totally obsessed with bass. Even then you should really try to keep it simple in terms of the number of different pitches you use and focus more on modulating the tone of the bass. Your bass should drive the song, not make it confusing.

### Melodies

Try to work in longer groups of patterns for your melodies, especially for your leads. A A A B, A A A C works great, as does A B A C, A B A D but you can even write leads that never repeat once if you play your cards right. If you want to do this with your leads, try writing a four to eight bar chord progression before you get to detailing your leads as you can easily paint yourself into a corner by making an overly complex lead early in the song writing process. If you are going to have wandering leads you should think about making sections where they are more repetitive. This can be very simple though, you might loop a short pattern and then expand it later in the song. Often your main riff will be simple and loopy in the drop, expanded in the plateau and then have a new chord progression in the bridge or c-section.

## WRITING VARIATIONS

People can often become stuck when they have created a groove that they like and then listened to it a million times in a row. This is understandable but also easy to avoid. As I mentioned before, music is all about change over time so if you think about adding just enough change to achieve the emotional effects you want you will find writing music a lot easier.

Try using several different forms of change on each part prioritized by ease and processor use:

1. Silence. It is very, very easy to either deactivate clips and/or toggle the channel mute to create change. (fast!)
2. Make simple changes in the notes either by editing the clips or toggling midi effects (uses less processor).
3. Make simple changes to the effects/sends or the mix but avoid complex envelopes (uses more processor).
4. Go back and forth between two copies of your channel (often midi vs audio, for example).
5. Detail the parts with complex automation and editing (very slow and generally to be avoided until the end).

## **Silence**

The easiest and most effective way to add variation is by adding silence. Go in and deactivate notes or clips right away and do not hesitate to toggle your channel or bus mutes. Often adding a bit of silence in strategic spots will make it so that you do not have to worry about doing more time consuming things to make your arrangement work. It is also a LOT easier to mix a song where there are not a whole ton of parts on top of each other all the time.

## **Toggles**

I really like to have all types of midi and audio effect racks that I can just toggle on and off without having to write complex automations. I call these toggles or punch ins and often set them to be controlled by drum pads so that I can write them in with my hands. It is especially nice to have them punch in when the pad is depressed and then go away when the pad is released. You can do this by setting the pads to send aftertouch/midi CC only (and not note data) and then midi learning the pad press to toggle the on/off switch of your rack.

## **Sweeps**

After toggles, simple automation sweeps are a great way to add variation. Things like filter sweep, gradual volume fades and reverb time changes can really add a lot of variation without having to waste too much time fussing with multiple parameters. It is also a really good idea to make a lot of racks with really sweet macros that you can re-use from tune to tune. There are a bunch in the rack pack I shared with you.

## **Multiple Copies**

It is often a lot easier to duplicate a track and then mess with the duplicate rather than try to automate a lot of complex changes. I most frequently use the duplicate, freeze, flatten trick (all right clicks) to generate an audio copy of a midi track and then mangle the audio while it side chains the midi track out of the way. It is a very easy way to get precise backwards effects and other tricky edits.

## **Fills**

The very last thing I turn to when adding variation is fills. Adding the fills too early can be really time consuming and can often prove to be a complete waste of time as early fills are often discarded to make way for other types of progression. The last thing you want to do is make some really nice detailed fill that doesn't fit your song once it has been fleshed out more. Making fills is also really fun so if you save it for last you will get more excited to finish your songs when you would otherwise be bored and frustrated.

## **MIXING**

I am going to leave this area much less developed than the other areas of this handout as it is something that one can spend an entire lifetime on and it can also be very overwhelming for budding producers. You should focus on song writing much more intensively than mixing. I know a million and one button monkeys that can mix a tune for you but only a handful of people who can write a great tune. Many of the best producers send out their songs to be mixed by someone else. I am going to talk a bit about mixing in terms of work flow and songwriting but if you want to learn more about the nuts and bolts of how to mix a tune you should check out some of the recommended reading when you have some free time. Professional mixing is something that no good release should be without but if it is stopping you from writing songs you should really leave it more or less alone.

## **Bussing**

I do what is called Four Bus Mixing by many people and that basically means that I separate my four main groups of sounds into four main mix busses. It is important to note that these are not like the FX send/return busses. These are normal audio tracks in the track mixer that I name 'beats', 'bass',

'leads/vocals', 'accompaniment' and sometimes 'one shots' accordingly. The bus for one shots is not always necessary.

When you have these four groups of audio channels summed down to four single channel strips it makes it very easy to modulate many sounds at once. If, for example, you wanted to run a filter on all of your drums at once it would be extremely difficult to do this if your drums were in 6 separate channels. It is far easier to automate the effects that you are using for variation on a bus than it is to do it on many individual channels. Muting your busses is really handy too.

It is also really easy to get a balanced mix when you are using four busses as you can pull them all down and then raise them one by one until you hear a result you feel is balanced. Bus compression on things like bass and drums really helps to even out your volume levels as well. Four bus mixing is definitely the way to go.

### **Panning and Stereo Spread**

Don't limit yourself to just left/right panning, spreading things is really key. Your sound can be upfront but still spread. Spreading things often resolves frequency masking. You will get a much louder, cleaner and more separated mixdown if you spread EVERYTHING.

Some spread suggestions are:

- Make an offset panner, it delays one channel by a few ms, creating the effect that the sound is wide, coming out of both speakers individually, instead of all flat and mono.
- Create copies of your main synths/samplers and then pan em hard left and hard right. then go in and make subtle changes to things like filter, phaser, eq, reverb, etc. this creates the spread without the potential phase conflicts that can result from offset panning.
- Make a stereo reverb, the 'enhancer' on most reverbs sucks ass. it's better to make two reverbs, panned hrd l/r and then subtly alter their characteristics. also: sounds on the left have more verb on the right and vice versa. this makes things feel a lot more 'real' and '3-d'.
- Get a phase scope on the job and be sure to check everything in mono. you can really fuck yourself over when you get into spreading.

### **Equalization Tips**

- Make sure that you roll the highs off of most of your synths and riffs. it sounds a lot cleaner to have only hihats, cymbals, glitch and maybe a select few ear candy noises up in the 10k+ range. you just have to make sure that sounds are present in this range throughout the song or some sections will sound flat and empty.
- Roll off the low end on everything. <20Hz is no good to anybody.
- Roll off everything below about 100-200Hz on all sounds except for your kick and bass. trust me
- Make a notch at 250 on just about every sound that has this frequency. it sounds like muddy garbage on mostly everything. do this before you compress. i put a 30Hz rolloff and a 250 notch first on nearly every channel.
- Met all of your eqs to oversampling mode early on. the highs come out a lot cleaner.
- Be gentle with your eqs! A delicate tasteful balance is much better than harshly applying a bunch of 'rules' you just read on the internet!

### **Compression Tips:**

- Easy on the limiters. sure it sounds 'louder' most of the time but you're flattening the shit out of your

highs and you're also totally screwing your mastering engineer over. it's better to get things loud with careful eq and volume than compression. to shape a sound use the envelopes first!

-Sidechain sidechain sidechain! sometimes i even have an 'everything but the kick' bus with a massive sidechain on it. you can not only make things louder but get a lot of cool musical effects. go listen to sebastiAn or justice to hear what I mean.

-Safecracking method: set a ratio of about 4:1, turn the attack up, no release. Then set your threshold until you see about 3db of gain reduction. SLOWLY roll the attack back and then use the release to make the effect transparent (or not).

-You generally don't want more than 6db of compression on anything. it starts to make weird distortions that if you can't hear now, you will learn to hear and despise. overcompression is like adolescence for a producer. we all go through it, so don't feel like an idiot when you hear it in your old mixes but you should really make efforts to grow out of it sooner than later. some people get stuck here forever and it's sad.

### **Leveling Tips:**

-Mix at -6db or so. Leave the mastering engineer LOADS of headroom and then render at the highest bit-rate you can muster.

-If you set your drums around -10 db and your bass around -8 or so, you'll end up at -6 db. don't worry about peaking too much. lots of people set brick-wall limiters to avoid crossing -6db ever but that's a bit silly imho. cleaning up all that shit is the mastering engineer's job. if you've left lots of headroom a little 3 ms peak here or there isn't going to fuck up your mix.

-Don't make the bass too loud! It's easy for a mastering engineer to beef up your bass but they can't roll it back. If your bass is too loud it'll set the limiter off during mastering and then flatten the life out of all of your drum sounds.

-Don't make the hihats too loud either. They become piercing during mastering.

### **General Mixing Tips:**

-Try to solve things with your arrangement first. Most issues can be resolved by moving some midi notes around. Just take care not to fuck anything up. If you haven't worked on the tune in a while it's easy to accidentally wreck something. This is best done in later 'tweaking' sessions while you're writing.

-Don't be afraid to ask questions. Don't be too insecure to listen to the answers.

-Establish a talking relationship with whoever is mastering your tunes and ask them for advice. Don't be insulted by what they tell you, they know a LOT more than you do about this sort of thing and should be trusted. If you don't trust their advice, get another mastering engineer.

-Watch lots of videos and read up. Sure there is no 'right' or 'wrong' creatively but there are DEFINITELY wrong things you can do when mixing. Learn what they are and learn to avoid them.

-Experiment! If you don't get your hands dirty here and there you'll never make anything interesting. Look at the Ed Banger guys, they broke all kinds of 'rules' and created a fresh new sound that is making them rich. Mixing in an unusual or creative way can really set you apart from the millions of other hungry kids going after the same genre.

## RECOMMENDED RESOURCES

The Little List of Tips and Tricks

<http://www.ableton.com/forum/viewtopic.php?t=27120>

Stuff in Live You Wish You Figured Out a Long Time Ago

<http://www.ableton.com/forum/viewtopic.php?t=56637>

My Mixing Thread

<http://www.ableton.com/forum/viewtopic.php?t=86956>

My Percussion Routing (of the Nefilim)

<http://www.ableton.com/forum/viewtopic.php?t=33685>

My Track and Clip Pack Organization Thread (for DJs)

<http://forum.ableton.com/viewtopic.php?t=101410>

My Exciter Thread

<http://www.ableton.com/forum/viewtopic.php?t=40500>

Tarekith's Guides to Arrangement, Mixing, Leveling, etc.

<http://tarekith.com/misc.htm>

AndiVax Mixing Secrets Video (search it, link changes often)

Computer Music Master Class Series (videos from real names)

-SubFocus, Rusko, Chase and Status, Ctrl-Z, many more

Tom Cosm (one of the best teachers around)

DJ Vespers (more excellent and FREE tutorials)

Freesound – Searchable Online Sample Database... Amazing!

<http://www.freesound.org>

Don't Crack (freeware VSTS galore)

KVR-Vst – excellent resource for all things VST and AU

Abletonlivedj.com – EXCELLENT site for learning about DJing. Check the FAQ

Your FRIENDS! Become part of a community of musicians asap. Even if it is just you and one friend, I simply cannot stress enough how important it is to have a social element to your learning and progress. Do it NOW.

Much love! Thanks for your continues support. It's people like you who pay for my knowledge that enable me to continue teaching and spreading the music I love through the world. My students and my fans are the closest thing I have to a 'boss' in life and I will always remember that. YOU are the reason I do this.

Make me proud.

*-Ill.Gates*