**Have you ever tried to redesign your living room? Let’s say you wanted to get rid of that dowdy old couch and get a new one. You would measure the space your current couch sits in and get the dimensions of the new one. Now, this would not work very well if you got the couch dimensions in, let’s say, feet but measure your space in meters. Or worse, you got them all in inches but have no idea how long an inch is! Yeah, that would not work very well. It turns out that intervals in music are exactly the same. The distances between notes are described by a specific measurement system and being familiar with that system is key to understanding anything else. Let’s take a quick dive into each one and talk about their expressive nature.**

**A, B, C vs Do, Re, Mi**

There are many advantages for using letter names A, B, C in referring to intervals instead of the traditional Do, Re, Mi. If you have never heard of these names you would just have to memorize that Re comes after Do, Mi comes after Re and so on. However, using letter names we already know that B comes after A! So a 2rd (or the second note) above D, for example is obviously E. All you need to remember is that A is La and you’re good to go. For that reason, in this post we’ll use letter names.

**The smallest unit: semi-tone**

Semi-tone is to an interval what centimeters are to a meter. As long as you know how long a centimeter is, just multiply that by 100 and you got your answer. One semi-tone can most easily be seen on a keyboard: it is the smallest distance between two notes there. Take the note C, the distance between C and C# is one semi-tone. That’s all there is to it.

**Intervals 101**

The distance between two notes is described like this: 1) you check how many steps or notes you moved and 2) how many semi-tones you used. Let’s use a major 3rd as an example (don’t worry; we’ll soon look into thirds in more detail).

The number 3 describes how many notes you moved. So if you start on, let’s say, the note G, a 3rd above will be 3 notes after that G – A – **B**. Now that we are in B, the word *major* tells you if we want the B natural or B flat. As we’ll learn, thirds can be minor or major. Minor thirds have 3 semi-tones and Major thirds have 4 semi-tones. So in this case, the major 3rd brings us to the B natural. If we had a minor 3rd, we would have arrived at the B flat.

A musical scale has 7 different notes in it, so we consider 7 intervals: 2nd, 3rd, 4th, 5th, 6th and 7th. Why do we stop there? Well, the 8th is the same note we started with but now an *octave* higher, so the intervals will repeat from this point on. The intervals of a 4th and a 5th are special and different from the others and you’ll see why. If you don’t already know that, just trust me for now, they are. All other intervals have two kinds: minor and major. The 4th and 5th can be diminished, perfect or augmented.

CHART

**Dissonance vs Consonance**

In a nutshell, dissonances are intervals that generate some tension by sounding harsh; while consonances don’t create any (or hardly any) tension and sound “nice”. It’s really as simple as that. Since sounds are waves in the air, we can think of throwing two little rocks on a pond. If you throw the first rock fast and the second slowly, the ripples will collide and go crazy over each other. That is how your ears perceive a dissonance. Now imagine if you throw both rocks at the same time with the same intensity. The ripples will interfere with each other but they will soon find a stable and regular balance, which is exactly how your ears perceive a consonance. You’ll see this idea of stable/unstable intervals a lot in this post, this is that they mean.

**Unisson**

The unison is the most boring interval of all: it happens when two notes are exactly the same, such as C on top of C. For this reason there isn’t much we can do with it. No melody, no harmony. No major, no minor, nothing indeed. A unison interval just *is*.

The unison is a consonance (the most perfect there is!) and, obviously, a perfectly stable interval.

**The 2nd**

The first interval we have is called the 2nd. Start from any note, the 2nd will be the first note after that. A to B, E to F, A to G, and do so on. Because seconds are the shortest interval between two notes, they are the most common intervals used in melodies and often referred to as passing notes (or passing tones). If you go from C to E without skipping any notes, you’ll pass by D on the way.

Because a 2nd sounds quite harsh, it is not stable and we consider it to be a dissonance.

[audio here]

That means that whenever you hear a 2nd you should expect it to be “resolved” down. After that interval you expect to hear the C alone, so C and D together would resolve with the D “falling” onto the C.

Minor 2nd = 1 semi-tone

Major 2nd = 2 semi-tones

A minor 2nd will create the strongest tension (therefore strongest attraction to the unison) because it sounds even more dissonant that the major 2nd.

**The 3rd**

Thirds are some of the most common intervals we see in western music! Many country songs are “harmonized” by a second singer. Harmonizing a melody simply means copying it a 3rd above and singing both lines together. Chords (more on chords [here]) are 2 thirds stacked on top of each other, such as in the C major chord (C – E – G): C to E is a 3rd and E to G is another 3rd.

The 3rd doesn’t create any tension, so it is considered a stable and consonant interval.

Minor 3nd = 3 semi-tone

Major 3nd = 4 semi-tones

**The 4th and 5th**

Remember from the beginning of this post how the 4th and 5th are special intervals? Well, here we go. Both the 4th and 5th chords in a key, together with the first one, form the foundation for music harmony (more on this [here]). In short, all chords in a key “gravitate” around their tonal center (the first chord, known as the tonic). That attraction depends on the immutable presence of the 4th and the 5th. Change one of them, and the music will stop making any sense because it will lose its main structure.

Needless to say, that both 4th and 5th are stable and consonant intervals. They are points of resolution and central to our notion of tonality. They may be, however, altered for the sake of dissonant. In that case, those dissonances must be immediately resolved. We can lower or raise them on step down or up, creating the following intervals:

Diminished 4th = 4 semi-tones

Perfect 4th = 5 semi-tones

Augmented 4th = 6 semi-tones

Diminished 5th = 6 semi-tones

Perfect 5th = 7 semi-tones

Augmented 5th = 8 semi-tones

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An augmented 4th is the most dissonant interval of all. It is so harsh and bizarre that it has its own nickname: the **tritone**. A tritone creates an incredible tension when played together, listen to it below

[audio here]

This harsh sound is what ultimately makes our ears feel that gravitational attraction from the chords in a key to its center. Tritones can be resolved outwards or inwards. The interval between F and B can resolve into E and C, or it can be resolved into F# and A# (in this case F would have been called E#, but that is another story and not really relevant here). If we chose the first, our ears will understand the key as C major. If we chose the latter, our ears will define the key as F# major.

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**The 6th**

Much like the 3rd, the 6th is a consonant interval. Bring a 6th one octave below and you’ll have a 3rd: C to A is an interval of a 6th, while A to C is an interval of a 3rd. For that reason much of the characteristics of the 3rd are shared by the 6th. It is also a stable and consonant interval, often used to resolve dissonances created by the next interval, the 7th.

Minor 6th = 8 semi-tone

Major 6th = 9 semi-tones

**The 7th**

The final interval in our list has one special name: the leading tone. We say that because the 7th is right before the 8th, which is the first note up the octave. Being so close to the tonic, it feels the greatest attraction to the tonic and our ears almost beg to hear the tonic after a 7th. Try playing a B followed by a C on the piano a couple of times, and after play the B and stop. By then you ear has already understood C major as the “home” key and you will feel the need to hear the note C. If you don’t have an instrument nearby, just play the audio below and hear this effect in action. Kinda spooky how that happens!

[audio here]

Minor 7th = 10 semi-tone

Major 7th = 11 semi-tones

**Final thoughts**

As we explored in this short post, intervals form the basis for the understanding of music. Not only do they tell you the exact distance between two notes, but also carry a specific expressive character and behavior. Music is a complex art, with many moving parts and each one made up of various layers. They are all interconnected and delicately balanced by a few fixed rules and conventions. Understanding how intervals work will give you a solid ground to walk on as you continue learning more about the inner workings of this fascinating art form.