

Harmony and Dissonance

ALL MY LIFE I HAVE ENJOYED different types of music. I have found that music tends to move me on a different level. Often in our Western way of thinking and learning, we value head knowledge. We understand things with our minds by having them explained to us in a logical fashion.

One of the things I love about music is that it affects us more at the heart level. Music tends to make us feel. There's fascinating science behind what makes music work and what allows us to enjoy music.

Sound is measured in hertz. A hertz (Hz) is one event per second. In the case of music, it is one sound wave per second.

The fascinating thing about making different tones blend together using harmonies or orchestration is that the frequencies need to fit with each other mathematically. A note with a frequency of 110 Hz is an A2. Double the frequency and you have 220 Hz, which is A3—the same note, but in a higher register. Double it again and you have 440 Hz, which is A4. These are all the same note, just in different octaves.

To create harmonies, musicians need to apply different mathematical formulas. Multiply that A2 frequency—110 Hz—by three to create a 330-Hz note, which is an E4. Multiply 110 Hz by five to make 550-Hz note, a C#5. If you play the A2, E4, and C#5 together, along with the 220-Hz note and the 440-Hz note, you'll hear a wonderfully harmonious chord. But throwing in a 500-Hz note will clash. It does not fit the math of the existing frequencies, so it causes dissonance; it doesn't sound right. It's math, and it's music!

So you see, if the numbers "fit" with each other mathematically you can


form a harmony. If they don't, we have dissonance.

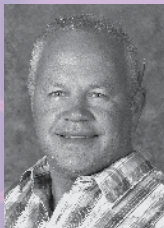
Sound is created by vibrations. I play guitar and bass. Those instruments create vibrations when the strings are strummed or plucked. Players affect the length of the sound waves by pressing on the strings to change their length. When those vibrations are in a mathematical ratio, we hear a beautiful chord. When those vibrations are off, like when my guitar is out of tune, they form a dissonance, which we generally don't find enjoyable musically.

This is how Beethoven could write music even when he was deaf. He could hold his hand on the piano or touch an instrument and feel the harmony in those vibrations. He could then write beautiful music even when he could not hear it.

This reminds me of our roles in our churches and communities. When we work together toward a single goal, even with our different talents and gifts, we create beautiful harmony. We are all different, but together we create a beautiful chord and lovely music.

When we each seek our own way and don't work toward harmony, we create unpleasant dissonance.

Be harmonious! 



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