

What is the Difference between a Banjo and a Harley-Davidson Motorcycle? Answer: You Can Tune the Harley

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It is a mathematical fact that a fretted instrument cannot be played in tune. Fretted instruments are designed according to the well-temperament theory of tuning. Differences between natural tunings and well-tempered tuning exist because one is based on rational numbers and the other on irrational numbers.

Another topic which requires mathematics to explain is that of chords. A peculiar property of diminished chords can be explained by elementary group theory. If a cyclic group is used to model a twelve-tone scale, it turns out that a diminished chord is a subgroup of order four and from that certain properties follow.

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The above picture is found on the cover of *Sobre la muerte de la ciudad del valle germinará mi canto*, written by Jorge Carrera Bolaños. The picture is a mixture of two cultures. First, you have the image of the dragon eating itself, that is a symbol of the infinite both in Old China and in Old Ireland. Instead of a dragon, a feathered snake is used. This is a symbol of Quetzalcoatl, one of the most important gods in all cultures of Mexico (before Columbus).