



THE PYTHAGOREAN COMMA

The Pythagorean comma results from the “circle of fifths,” when those intervals are tuned as the ratio $3/2$. Compounding 5^{th} s (C-G-D-A-E-B-F#-C#-G#-D#-A#-F(E#)-C) will never result in an in-tune octave ($2/1$). This is the simplest example of the “historical tuning problem.” In the illustration above the difference between the compounded $3/2$ 5^{th} s are solid dots, connected by arrows showing the direction of the tuning. Open circles are the corresponding equal-tempered 5^{th} s. Each $3/2$ 5^{th} adds 2c to the difference between these intervals, culminating in the 24c comma shown by the red dot when the tuning comes full circle.