

$$\frac{\log 3}{\log 2} = 1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{2 + \frac{1}{2 + \frac{1}{3 + \frac{1}{1 + \frac{1}{5 + \frac{1}{2 + \dots}}}}}}}}}} \quad (16)$$

$$= \frac{1}{1}, \frac{2}{1}, \frac{3}{2}, \frac{8}{5}, \frac{19}{12}, \frac{65}{41}, \frac{84}{53}, \frac{485}{306}, \frac{1054}{665}, \dots \quad (17)$$

(c) The next-smallest ratio of primes, 5 : 1

Selecting from among the  $n$  candidates obtained by condition (b) those that approximate this ratio relatively well,  $n = 12$  and  $n = 53$  remain.

(d) Larger ratios of primes

The ratios of 7:1 or higher are not very significant to the human ear.

This is all to say that the only practical musical scale is the 12-tone chromatic scale of music.<sup>5</sup>

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<sup>5</sup> The 12-tone scale was probably first developed at the end of the 16<sup>th</sup> century by Zhū Zài-yù of the Ming dynasty.<sup>(3)</sup> In the 19<sup>th</sup> century, two men, T. Perronet Thompson and R. H. M. Bosanquet, tried to make a keyboard for use with a 53-tone scale. <sup>(4)</sup> This attempt, however, cannot be said to have produced practical results.