

## Intervals: Points of contact with psychoacoustic reality

*Perfect consonances* correspond to the simplest ratios of frequencies; they are thus clearly defined, and our brains tolerate very little deviation from the true ratio.

perfect unison	1/1
perfect octave	2/1
perfect fifth	3/2
perfect fourth	4/3

NB Although the perfect fourth is a perfect consonance in psychoacoustic reality, *within the context of European classical music* it's considered a *dissonance* in relation to the bass (i.e., it's considered harmonically consonant *only* when it occurs between two of the *upper* voices: SA, AT, or ST).

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*Imperfect consonances* correspond to ratios that are more complex than those of the perfect consonances, but still comparatively simple. Our brains tolerate somewhat greater deviation from the true ratio (e.g., the 14-cent error of an equal-tempered major third).

major third	5/4
minor sixth	8/5
minor third	6/5
major sixth	5/3

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*Dissonances* correspond to more complex ratios, involving higher powers of small primes, or larger primes. In some cases, there is no clearly defined “ideal” ratio, and our grains accept anything within a certain range of values (as in the case of the tritone).

major second	9/8 (or 10/9, or ...)
minor seventh	16/9 (or 9/5, or ...)
minor second	16/15 (or 256/243, or ...)
major seventh	15/8 (or 243/128, or ...)
augmented fourth, diminished fifth	anything between 7/5 and 10/7