

Intervals

Harmonic vs. Melodic Intervals

Harmonic intervals are sounded simultaneously, whereas melodic intervals are sounded one after the other

Harmonic intervals (Vertical)



Melodic intervals (Horizontal)



Simple Intervals

Intervals within the octave

Specific intervals indicate the quality and size of an interval, whereas generic intervals indicate size only.

A musical staff in treble clef showing eight pairs of notes. From left to right: P1 (unison), M2 (2nd), M3 (3rd), P4 (4th), P5 (5th), M6 (6th), M7 (7th), and P8 (octave).

Specific: P1 M2 M3 P4 P5 M6 M7 P8
Generic: Unison 2nd 3rd 4th 5th 6th 7th Octave

Interval Transformation*

diminished (d) <-> perfect (P) <-> augmented (A)
diminished (d) <-> minor (m) <-> major (M) <-> augmented (A)

A musical staff in treble clef showing pairs of notes with accidentals. From left to right: m2 (minor 2nd, Bb), A2 (augmented 2nd, B#), m3 (minor 3rd, Bb), A3 (augmented 3rd, B#), d4 (diminished 4th, Bb), A4 (augmented 4th, B#), d5 (diminished 5th, Bb), A5 (augmented 5th, B#), m6 (minor 6th, Bb), A6 (augmented 6th, B#), m7 (minor 7th, Bb), A7 (augmented 7th, B#), d8 (diminished 8th, Bb), and A8 (augmented 8th, B#).

m2 A2 m3 A3 d4 A4 d5 A5 m6 A6 m7 A7 d8 A8

Compound Intervals

Intervals greater than an octave in size

A musical staff in treble clef showing pairs of notes. From left to right: M9 (major 9th, B), M10 (major 10th, C), P11 (perfect 11th, C), P12 (perfect 12th, D), M13 (major 13th, E), M14 (major 14th, F), and P15 (perfect 15th, F). An arrow labeled "octave transfer" points from the first note (B) to the second note (C).

Specific: M9 M10 P11 P12 M13 M14 P15
Generic: 9th 10th 11th 12th 13th 14th 15th

Interval Ratios

Intervals expressed as just (5-limit) frequency ratios and their traditional classifications as a musically consonant or dissonant.

	Perfect consonance:				Imperfect consonance:				Dissonance:				
Ratio:	1:1	2:1	3:2	4:3	5:4	5:3	6:5	8:5	9:8	9:5	16:15	15:8	45:32
Specific:	P1	P8	P5	P4	M3	M6	m3	m6	M2	m7	m2	M7	A4

A musical staff in treble clef showing pairs of notes corresponding to the ratios in the table above. From left to right: P1 (unison), P8 (octave), P5 (perfect 5th), P4 (perfect 4th), M3 (major 3rd), M6 (major 6th), m3 (minor 3rd), m6 (minor 6th), M2 (major 2nd), m7 (minor 7th), m2 (minor 2nd), M7 (major 7th), and A4 (augmented 4th). A double asterisk (**) is placed above the P4 interval.

* - The symbol <-> means expansion (->) or contraction (<-) by a semitone, respectively. Expansion of an augmented interval by a semitone produces a doubly-augmented interval. Contraction of a diminished interval by a semitone produces a doubly-diminished interval.

** - The P4 is a special case. We will consider a P4 to be dissonant when it is formed with the bass and consonant otherwise.