

Intervals, Their Inversions, and Consonance

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Color Circles?

In painting and drawing one of the basic analyses we get to see are the chromatic color circles that show us what colors work together well and which ones contrast one another. Red for instance contrasts green. Not everything in life is pretty, so we can make use of that and within context turn it into something that people do love to see.

You do have the circle of fifths, a mystical structure within music theory that gets really weird explanations. The main reason I like the circle of fifths, is that if you pick any key you play in, the position after it is the quint (fifth) and the position before it the quart (fourth), which is an easy way of remembering the relative offsets for a blues progression.

Only recently did I notice that next to a circle of fifths, theoreticians also drew up a circle of fourths. It's the inversion of the circle of fifths. Theoreticians argue that for every position on the circle of fifths, you add one sharp. For the circle of fourths, the inversion, you add one flat. They also argue that if you add one sharp to C#, it doesn't become D, but C##, otherwise their theory doesn't hold up.

Their theory being horse shit, the circles and inversions nonetheless interested me, and I figured I'd look into it. The quarts and quints, next to the prime and octave, are known consonants, and since they are inversions of each other, I was curious whether every interval inversion would lead to the same thing: does the inversion introduce the same kind of consonance or dissonance as its original?

I'll give you the answer straight away: it does! I find this highly interesting, because you could base entire musical pieces on this kind of experiential theory. In the table 1, I draw up all the intervals with their names and inversions, and the kind of consonance and dissonance they introduce.

If you want to study these intervals, studying means playing them and listening, get yourself a piano or other instrument that allows you to play them arpeggiated or harmonically. In case of tone I can't really put this in a circle easily, other than by repeating each interval twice or rearranging them, which is weird, so I have to let the table suffice.

Literature

Nelleke, Bernard (1981) "Eenvoudige Algemene Muziekleer" : Heuwerkemeijer, Hilversum.
(My apologies for the instance of racism in this book.)

Interval	Name	Sonance	Antonym	Sonance	Inversion
0	Prime	Perfect consonant	Octave	Perfect consonant	6
$\frac{1}{2}$	Minor second	Dissonant	Major septime	Dissonant	$5\frac{1}{2}$
1	Major second	Dissonant	Minor septime	Dissonant	5
$1\frac{1}{2}$	Minor third	Imperfect consonant	Major sext	Imperfect consonant	$4\frac{1}{2}$
2	Major third	Imperfect consonant	Minor sext	Imperfect consonant	4
$2\frac{1}{2}$	Perfect quart	Perfect consonant	Perfect quint	Perfect consonant	$3\frac{1}{2}$
3	Augmented quart / Diminished quint	Dissonant	Diminished quint / Augmented quart	Dissonant	3
$3\frac{1}{2}$	Perfect quint	Perfect consonant	Perfect quart	Perfect consonant	$2\frac{1}{2}$
4	Minor sext	Imperfect consonant	Major third	Imperfect consonant	2
$4\frac{1}{2}$	Major sext	Imperfect consonant	Minor third	Imperfect consonant	$1\frac{1}{2}$
5	Minor septime	Dissonant	Major second	Dissonant	1
$5\frac{1}{2}$	Major septime	Dissonant	Minor second	Dissonant	$\frac{1}{2}$
6	Octave	Perfect consonant	Prime	Perfect consonant	0

Table 1 - Intervals, their inversions, and perception