Polarity minus

Description

The composer and musicologist Ernst Levy (1895-1981) touched on architecture in an essay on the proportions of the southern tower of Chartres Cathedral. Unoriginally, he appealed to the proportions of the Golden Mean as the cathedralâ??s guiding principle. His theories hold greater significance in music however. In his book *Theory of Harmony*, first published in French in the 1940s he asserted

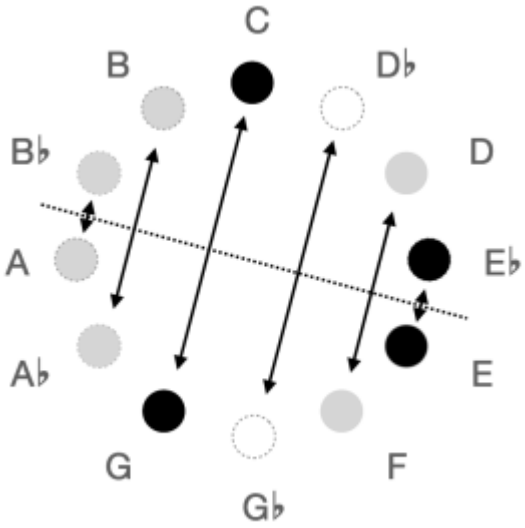
> â??Major and minor are manifestations of the general principle of polarityâ?• (93).

He followed a tradition of thinking that equated the major keys with positive and the minor keys with the negative. From that proposition followed his theory about the relationships between keys that has since been taken up as a theory of â??negative harmony.â?• He also wrote

> â??music is subject not only to the law of polarity but equally so to the law of gravity and of organic lifeâ?• (98).

In my previous post I showed the principle by which notes in a melody can be transposed to produce a new (negative) variant that retains the tensional relationships within the melody, but flips in and out of the major and minor versions of the key.

Here is the chromatic scale for the key of C major combined with those of C minor. The arrows show how notes can be exchanged according to the theory.



The application of the theory is simple in the case of a melody, but requires a few more steps in the case of chords. The negative version of the C major triad (C, E, G) is the C minor chord (C, Eb, G).

Jazz chords

However, some music is based on chords consisting of 4 notes indicated by the numeral 7 after the chord name. CMaj7 is the C major triad with the addition of the 7th note in the scale (B). These 4 note chords incorporate a dissonance, a tension that draws them (gravitationally) to a more stable structure, and that contributes to their adoption in jazz and other contemporary forms. Applying the negative harmony rule to CMaj7 (C, E, G, B) produces the chord AbMaj7 (Ab, C, Eb, G)

The authors of the Opus Science Collective compiled a helpful PDF that charts the triads and 7 chords of every major scale along with their respective negative harmony substitutes. Iâ??ve derived the chart below from theirs, but only for C major chords, and Iâ??ve added some other chords that are sometimes included in C major compositions.

The yellow columns show the original 7 chords in the C major scale, their names and their constituent notes, and the blue columns show the negative versions, with the name of the negative chord in bold at the bottom. The author of such a chart has to work out the root note of the negative chord and the character of the chord via its intervals: major, minor, flattened 5th, diminished, sustained 4th, 6th note, etc. The notes are in various orders. Notes in the chords on a stringed instrument such as a guitar often have to be positioned in various orders (inversions) and spread over several octaves anyway.

CMaj7		Dm7		Em7		E7		FMaj7
B	A♭	C	G	D	F	D	F	E
G	C	A	B♭	B	A♭	B	A♭	C
E	E♭	F	D	G	C	A♭	B	A
C	G	D	F	E	E♭	E	E♭	F
	A♭Maj7		Gm7		A♭6/Fm7		A♭13sus4	

Fm7		G7		Am7		A7		Bm7♭5
E♭	E	F	D	G	C	G	C	B
C	G	D	F	E	E♭	E	E♭	D
A♭	B	B	A♭	C	G	D♭	G♭	F
F	D	G	C	A	B♭	A	B♭	A
	Em7		Fm6/Dm7♭5		E♭6/Cm7		Cm7♭5	

Undertones

Thereâ??s an interesting spatiality to the concept of negative harmony. Chords are based on the additional vibrations that accompany a generative note played on a musical instrument. These higher frequency components of the vibration of a string or a column of air are multiples of the frequency of the generative note. These are the *overtones* of the generative note. A player can isolate and identify the most prominent overtones on the string of a guitar or violin by placing a finger a third or a fifth of the way along a string. These will be the notes of a major triad built on the main (generator) frequency of the string.

Levy adopted the view that a generative note also has *undertones*. Instead of multiplying divisions along a string, it involves treating the string delivering the generative note as if it is one of the divisions along a series of successively longer strings. This isnâ??t physically possible to demonstrate with a single string, but can be illustrated on what Levy called a Pythagorean Table. Itâ??s a 9Ã?9 square grid with a musical ratio written into each cell. One half of the grid shows the â??positive series,â?• the other half is the â??negative series.â?•

The minor scales are derived from the â??negative seriesâ?• of ratios. The fact that Levy presents this negative series as impractical to demonstrate other than mathematically contributes to some of the fascination with the theory. Minor scales are not only sombre but of hidden or invisible origin.

> â??Theoretically the generator contains also the undertones. Their not being physically realizable is irrelevant for the theoryâ?• (98).

A helpful Masters thesis by Deborah Haller provides an explanation of Levyâ??s theories and warrants further study.

References

- Haller, Deborah. 2020. *Negative Harmony: The Shadow Of Harmonic Polarity On Contemporary Composition Techniques (Production Paper: Master of Music in Commercial Music, Composition and Arranging)*. Nashville, TN: School of Music Of the College of Music and Performing Arts, Belmont University. https://repository.belmont.edu/music_comp/1
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Note

- Any errors are my own. Not all negative harmonies sound right and Levy and the followers of his theory assert the vital role of interpretation in music generally.

  â??Like all norms (in contradistinction to laws), the scale allows for approximations, for interpretations. Were it not so, no music making would be possible, for exact intonation exists only theoretically. Tones, intervals, chords we hear are mere suggestions of what is meant we should hear. As in geometry, we perceive the norms through imperfect figures. We mentally correct the impressions received through the sense of hearing. That correction is always carried out in the direction of some norm, some measureâ?• (59).

Category

1. Music

Tags

1. negative harmony

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