Beyond the Superlocrian: a New Theory on the Circle of Modes.

ABSTRACT

The classical modes, as traditionally described, represent a list of reiterations of the diatonic tones (Kostka 2018: 464). This paper presents them as a logical system of distinct but related scales, and then extrapolates their pattern of sharps and flats to establish their place in a full chromatic system. *keywords* modes, scales, composition

In this paper, we have used the term "mode" using the third definition as described in Grove (2002: 776): "Scale or melody type," and herein it should not be construed to apply to the other two definitions ("Mensural Notation" or "Interval").

Persichetti arranged the classical modes by "brightness," (1961: 34–35) and placed them in this order:

1. lydian (brightest)
2. ionian
3. mixolydian
4. dorian
5. aeolian
6. phrygian
7. locrian (darkest)

Each of these is based on the 7-note diatonic pattern, which, in the Western tradition, places the "major" tonality in the ionian position (that is, typically illustrated as starting with C and including all natural tones) and its natural minor tonality in the 6th, or aeolian, position (that is, similarly illustrated as starting with A and including all the same natural tones). (Kostka 2018, 465). All of the modes are useable in the chromatic system as well, but all contain the same relative intervals of seven diatonic tones. Students of music theory will recognize that Persichetti's arrangement of the modes now falls neatly onto the circle of fifths, and, therefore, might be represented as the ionian scale with a particular pattern of altered tones (Figure 1):

1. lydian	1, 2, 3, #4, 5, 6, 7, 1 (naturals, starting on F)
2. ionian	1, 2, 3, 4, 5, 6, 7, 1 (naturals, starting on C)
3. mixolydian	1, 2, 3, 4, 5, 6, ♭7, 1 (naturals, starting on G)
4. dorian	1, 2, ♭3, 4, 5, 6, ♭7, 1 (naturals, starting on D)
5. aeolian	1, 2, ♭3, 4, 5, ♭6, ♭7, 1 (naturals, starting on A)
6. phrygian	1, ♭2, ♭3, 4, 5, ♭6, ♭7, 1 (naturals, starting on E)
7. locrian	1, ♭2, ♭3, 4, ♭5, ♭6, ♭7, 1 (naturals, starting on B)

Figure 1: Persichetti's arrangement of the classical modes (Persichettii 1961: 35-6) as altered ionian mode (Kostka 2018, 466).

Upon examination of this order of altered tones, we see that its pattern necessarily also follows the circle-of-fifths-like scheme in that we have a similar additive arrangement of accidentals. (Figure 2):

MODE NAME	SCALE (MODE)		ALTERED TONES
1. lydian	1, 2, 3, #4, 5, 6, 7, 1	(1#)	($\hat{4}$)
2. ionian	1, 2, 3, 4, 5, 6, 7, 1	(0#/0♭)	
3. mixolydian	1, 2, 3, 4, 5, 6, ♭7, 1	(1♭)	($\hat{7}$)
4. dorian	1, 2, ♭3, 4, 5, 6, ♭7, 1	(2♭)	($\hat{7}$,$\hat{3}$)
5. aeolian	1, 2, ♭3, 4, 5, ♭6, ♭7, 1	(3♭)	($\hat{7}$,$\hat{3}$,$\hat{6}$)
6. phrygian	1, ♭2, ♭3, 4, 5, ♭6, ♭7, 1	(4♭)	($\hat{7}$,$\hat{3}$,$\hat{6}$,$\hat{2}$)
7. locrian	1, ♭2, ♭3, 4, ♭5, ♭6, ♭7, 1	(5♭)	($\hat{7}$,$\hat{3}$,$\hat{6}$,$\hat{2}$,$\hat{5}$)

Figure 2: An analysis of the additive aspect of accidentals defining the classical modes

If, in fact, we extrapolate the "missing" alterations (the ♭$\hat{4}$ to "complete" the flats, and the corresponding sharps in their reciprocal order, (Figure 3, Figure 4), a cycle emerges. Individual mode names are either those that are generally accepted (Grove 2002: 809, Kostka 2018: 465), or, in the case of those set in parentheses, coined by the author:

MODE NAME	SCALE (MODE)		ALTERED TONES
(paxian)	1, #2, #3, #4, #5, #6, #7, 1	(6#)	($\hat{4}$,$\hat{5}$,$\hat{2}$,$\hat{6}$,$\hat{3}$,$\hat{7}$)
(ithakian)	1, #2, #3, #4, #5, #6, 7, 1	(5#)	($\hat{4}$,$\hat{5}$,$\hat{2}$,$\hat{6}$,$\hat{3}$)
(tesserian)	1, #2, 3, #4, #5, #6, 7, 1	(4#)	($\hat{4}$,$\hat{5}$,$\hat{2}$,$\hat{6}$)
(othonian)	1, #2, 3, #4, #5, 6, 7, 1	(3#)	($\hat{4}$,$\hat{5}$,$\hat{2}$)
lydian augmented	1, 2, 3, #4, #5, 6, 7, 1	(2#)	($\hat{4}$,$\hat{5}$)
lydian	1, 2, 3, #4, 5, 6, 7, 1	(1#)	($\hat{4}$)
ionian	1, 2, 3, 4, 5, 6, 7, 1	(0#/0♭)	
mixolydian	1, 2, 3, 4, 5, 6, ♭7, 1	(1♭)	($\hat{7}$)
dorian	1, 2, ♭3, 4, 5, 6, ♭7, 1	(2♭)	($\hat{7}$,$\hat{3}$)
aeolian	1, 2, ♭3, 4, 5, ♭6, ♭7, 1	(3♭)	($\hat{7}$,$\hat{3}$,$\hat{6}$)
phrygian	1, ♭2, ♭3, 4, 5, ♭6, ♭7, 1	(4♭)	($\hat{7}$,$\hat{3}$,$\hat{6}$,$\hat{2}$)
locrian	1, ♭2, ♭3, 4, ♭5, ♭6, ♭7, 1	(5♭)	($\hat{7}$,$\hat{3}$,$\hat{6}$,$\hat{2}$,$\hat{5}$)
superlocrian	1, ♭2, ♭3, ♭4, ♭5, ♭6, ♭7, 1	(6♭)	($\hat{7}$,$\hat{3}$,$\hat{6}$,$\hat{2}$,$\hat{5}$,$\hat{4}$)

Fig. 3: A realization of the place of the classical modes in the chromatic system

The Circle of Modes

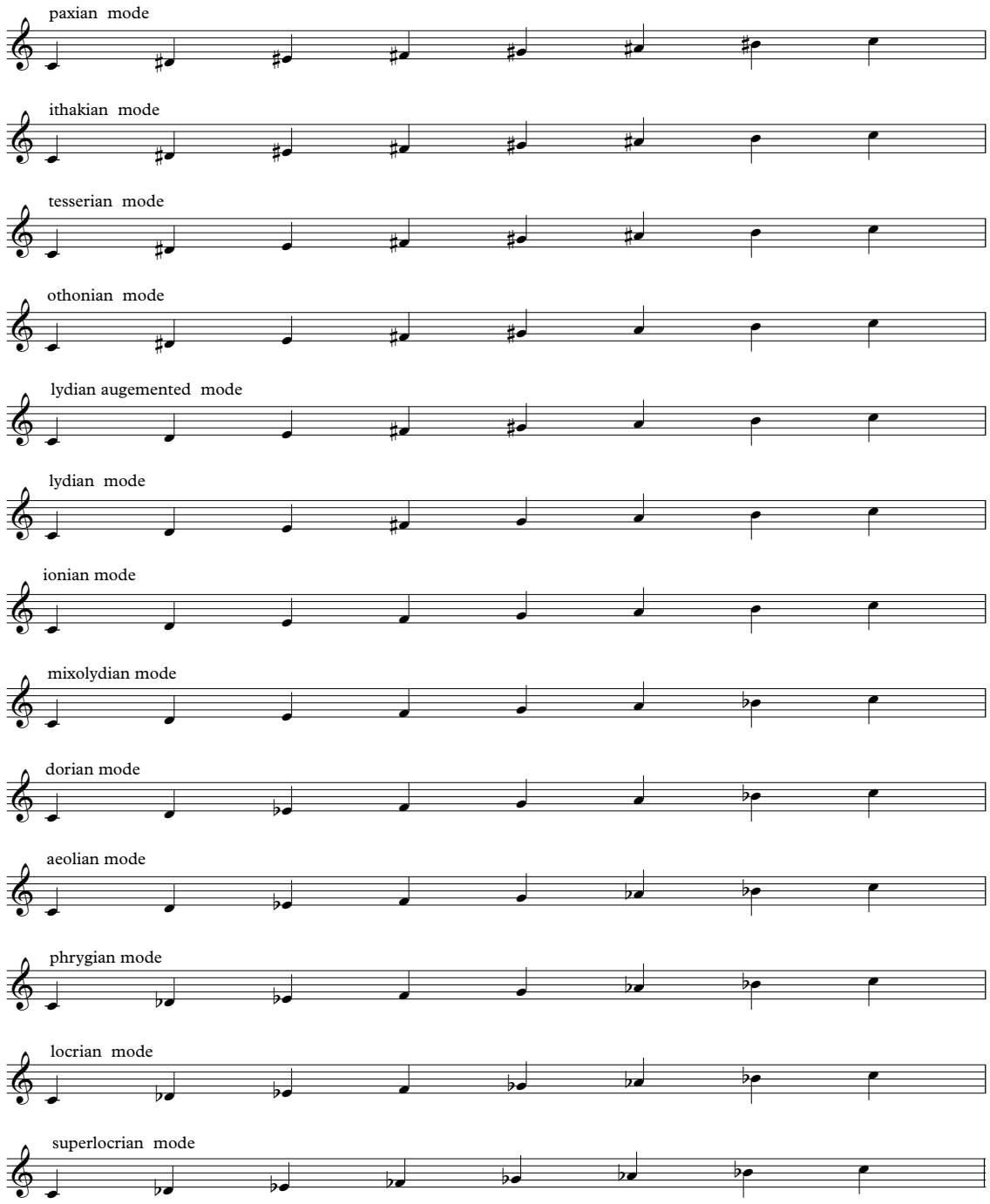

Figure 4, the Circle of Modes

Inasmuch as the number of iterations/combinations of intervals comprising a 7-note scale in an octave is finite, we find that these modes fit neatly and completely into a system of organization that follows the standard scheme such as is laid out in the traditional circle of fifths diagram. We propose the following diagram to include the whole Circle of Modes (Figure 5).

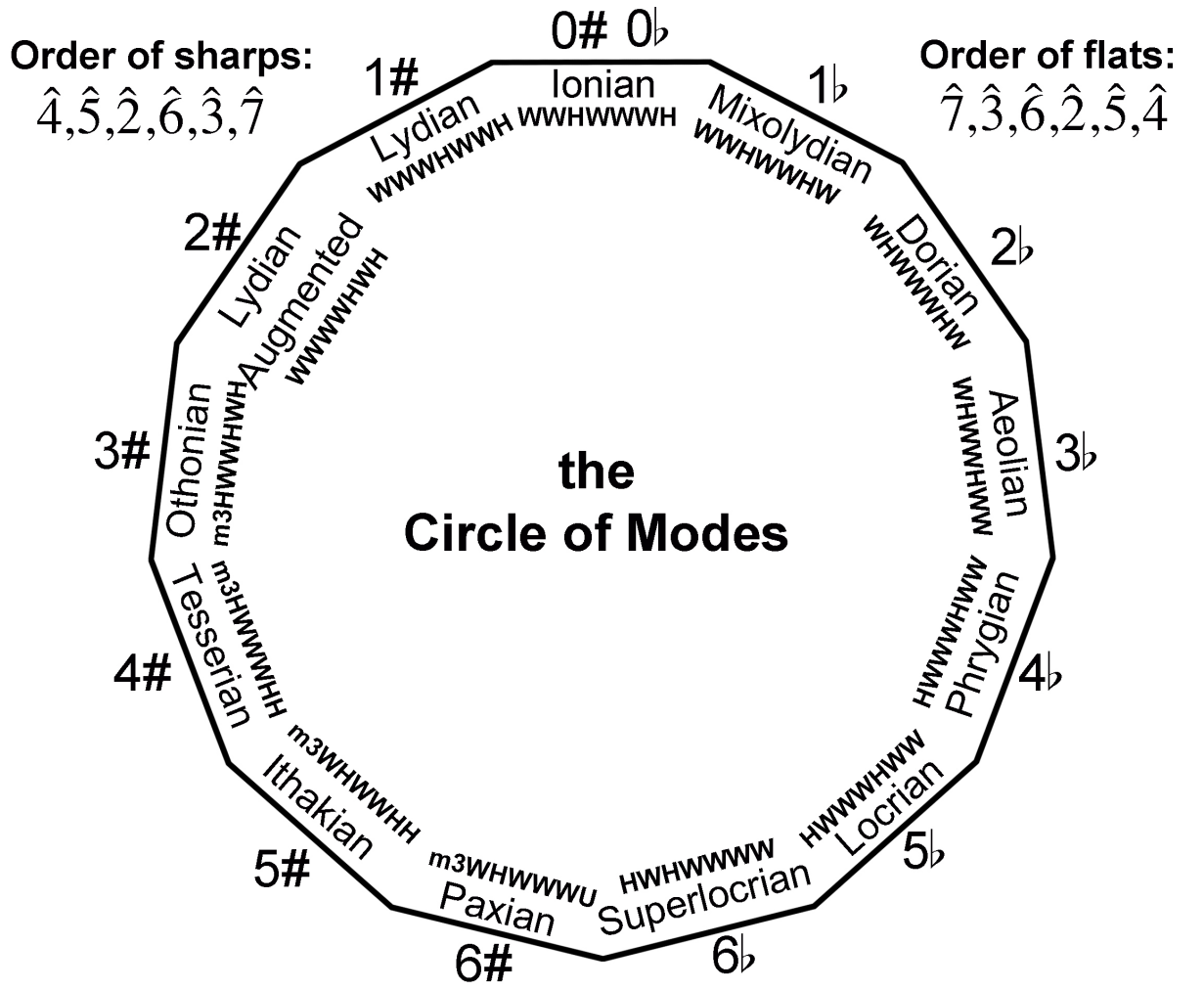

Figure 5: The Circle of Modes, illustrated

Although here we have spelled each of the modes incorporating its relationship to the ionian, by expanding the overall tonal language to include all twelve tones, we free the seven traditional modes from their reliance on a solely diatonic arrangement. Instead, we have expanded their organization so that they are distinctly related to each other across the whole tonal spectrum. It is, perhaps, notable that several of these modes contain a raised dominant

tone. This notable lack of the traditional root of the dominant chord (as well as, in the case of the paxian mode, the inclusion of a “leading” tone that is enharmonic with the tonic) presents makes traditional V-I movement impossible. These modes, therefore, represent a natural stepping-off point for composers working in 20th and 21st century compositional idioms or harmonic systems.

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Sources:

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