

NICOLAS SLONIMSKY'S «THESAURUS OF SCALES AND MELODIC PATTERNS»: A PRACTICAL APPLICATION OF THE SYMMETRY PRINCIPLE IN MUSIC EDUCATION

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This paper is devoted to the symmetrical music scales and their resources for music ear improving. The “Thesaurus of scales and melodic patterns” by N. Slonimsky has been chosen for this exploration. The proposed approach is the first attempt to analyze this “Thesaurus” in that light. The main structural principles of symmetrical scales formatting will be exploring. Parallels with Escher's graphic models will be drawn. Practical application in music education will be shown with many illustrative multimedia materials.

Keywords: symmetrical scales, solfege, music thesaurus.

1 N. SLONIMSKY'S AND HIS THESAURUS: AIMS, ROOTS, TRADITIONS, AND MAIN FEATURES

Nicolas Slonimsky (1894 –1995) was a Russian-born American multifaceted musician: composer, pianist, conductor, music theorist. In 1947 N. Slonimsky published his “Thesaurus of scales and melodic patterns” (named further as Thesaurus in this text) as theoretical and practical educational work which was supposed to become one of most influential sourcebook for composers and performers in the 20th century. The author identified his work as a music reference book which is been likened to a phrase book or dictionary of idiomatic expressions. Thesaurus includes 479,001,600 possible combinations of the twelve tones of the chromatic (semitone) scale.

Thesaurus as “an encyclopedia of symmetric scales” can be perceived regarding with three aspects: 1) according to its main aim: to serve as a keyboard training sheets for music players (first of all for pianists but then also, in adaptable mode, for guitarists); 2) according to its secondary aim: to serve as harmonized scale navigation for music composers; 3) according to an approach presented in this paper: to serve as a “symmetry trainer” for course of modern solfege based on the 20th century music language. This aspect supposes not to be thought out by Slonimsky himself, meanwhile this way of exploration will be the one of an innovative core of this conference presentation.

The principal idea of symmetry in the Thesaurus consists in formation of new scales based on the division of the octave into several equal parts in ascending and descending direction. All the Slonimsky’s calculations are done in the tone system in formula: 1 tone = 2 semitones. For these needs Slonimsky has also invented new terms, for instance, “sesqui” (one and a half). One must say that such approaches have, of course, their antecedent authors with their models of scales. Among them one can mention C.-L. Hanon (Hanon, 1873), or H. Schradieck (Schradieck, 1899). In the 20th century such antecedents were also A. Haba (Haba, 1927), as well as J. Schillinger (Schillinger, 1946). In the connection the symmetry scales classification one must especially mention “modes of limited transposition” by O. Messiaen (Messiaen, 1944).

2 N. SLONIMSKY’S AND HIS THESAURUS: AIMS, ROOTS, TRADITIONS, AND MAIN FEATURES

We can suppose that the main aesthetic principles of N. Slonimsky were: orderliness in scale variants finding and feeling of symmetry beauty. It might say that such an approach is compatible to M. C. Escher’s approach in his graphics (visual examples will be shown).

This hypothesis becomes more evident if we consider the two types of progressions in Thesaurus. The first type is based on equal division of a whole octave. As Slonimsky wrote, these basic intervals are regarded as fractions of one or more octaves. The whole-tone scale represents the equal division of the octave into six parts. Semitone progression is equivalent to the chromatic scale. By the process of permutation the chromatic scale is productive of characteristic patterns of the twelve-tone technique. It can be mentioned that there is an essential difference between Slonimsky and Messiaen approach to the scale formation process.

The second type of progressions according to Slonimsky is based on unequal division of a whole octave. These progressions and patterns are exemplified by heptatonic scales and pentatonic scales. Among heptatonic scales, or seven-tone scales, are major and minor scales as well as the church modes. One can also see this type of model in the Escher's graphics: namely, the regular and irregular tiling in his mosaics (comparative examples will be shown).

Slonimsky also described the basic methods of tone combinations within a model. Scales and melodic patterns are formed by the processes of interpolation, infrapolation, and ultrapolation. Table of all types of combinations and their meanings will be demonstrated as well as Slonimsky's palindromic canons will be shown.

Slonimsky indicates two main principles of chord harmonization for his scales and melodic patterns. The first method is harmonization by common triads, and the second - by seventh-chords. To harmonize in major triads, it is necessary to alternate the root, third, and fifth positions given in the table. The second type of harmonization comprise so called Master Chords. Harmonization models in detail will be shown at the presentation.

3 HOW CAN SYMMETRY SCALES BE OF USE FOR EAR TRAINING

For intonation improving. The transposition-symmetry may be used for the imprinting the interval configuration as a melodic cell in memory. The mirror-symmetry pattern it serves to form ability for transformation of already learned melodic patterns into their variants by music ear. Moreover, while singing the symmetrical cells student can practice in interval recognition given in direct, zigzag, and spiral line-movement, as well as in line-movement with different intervals. All scales and patterns in the Thesaurus are centered on C as the initial and concluding tone. So these progressions

can be used for the purposes of transposing them to any other tonal center in order to train note-reading abilities.

For harmonic ear improving. The main accent will be done on training in chromatic tonality, namely in its harmonic functions with major-third- and minor-third-root tones correlation (based on both the types of Slonimsky's harmonization).

For modal hearing. In order to obtain good ear for music the solfege teacher can use wide spectrum of modes proposed in Thesaurus: from diatonic modes up to symmetry modes, and also to polymodal structures.

For rhythmic sense. There is a great variety of accents in melodic patterns which may have three, four, and more tones within the cell. Polyhythmic patterns like 3:2, 4:3, 5:3, 5:4 are used in Thesaurus too. All these examples can be used as helpful exercises for rhythmic ear training in the higher stage of music education.

4 CONCLUSION

Though Slonimsky's Thesaurus is a rather difficult thing to understand, it has been a popular book among musicians including such players as John Coltrane, Frank Zappa and other musicians and jazz improvisators. Nowadays Masaya Yamaguchi may be called as the Slonimsky's follower (Yamaguchi, 2012).

At the end of presentation some multimedia examples as short movies from the presenter's ear training lesson on the Thesaurus material will be shown among the other audio-visual compositions.

REFERENCES

- Haba A. (1927) Neue Harmonielehre des diatonischen, chromatischen, viertel-, drittel-, sechstel-, und zwölftel-tonsystems Leipzig: F. Kistner & C.F.W. Siegel, 1927, 251 p.
- Hanon C.-L (1873) The Virtuoso Pianist in 60 Exercises. Milwaukee, WI: Hal Leonard Corporation, 1986, 124 pp.
- Messiaen O. (1944) Technique de mon langage musical. 2 v. Paris: A. Leduc.
- Schillinger, J. (1946) Schillinger System of Musical Composition. NY: C. Fischer, Inc. 1356 pp.
- Schradeck (1899) H. Studies and Technique. Violin solo book. 3v. NY: G. Schirmer.
- Slonimsky N. (1947) Thesaurus of scales and melodic patterns. NY: Music Sale Corporation, 1986, 244 pp.
- Yamaguchi M. (2012) Lexicon of geometric patterns for jazz improvisation. NY: Masaya Music, 192 pp.