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Microtonality and Transformation: Analyzing Easley Blackwood's '19 Notes' with a Modified Tonal GIS

ABSTRACT

Background

In a 1929 article in *Pro-Musica*, Russian-American musicologist Joseph Yasser predicted a radical future for the tonal system and for musical composition in general. His research was built on the idea that the current status of tonality is only a single milestone in a continuing evolutionary progression. Yasser's basic premise was that the standardized seven notes of our diatonic scale and the five additional notes which together generate our chromatic scale would increase their membership to include additional tones within the octave. He proposed that the twelve-tone system would eventually be supplanted by a nineteen-tone entity that he called the 'supra-diatonic scale', incorporating twelve regular scale degrees per octave (a version of the chromatic scale) and seven auxiliary degrees spaced in a maximally even fashion between the twelve regular degrees. Yasser believed that, just as the diatonic scale gave way to twelve-tone chromaticism, so must chromaticism progress toward nineteen-tone microtonality. Joel Mandelbaum supports the claim of an evolving tonality, writing that advocates of new tunings, though they may still find favor in twelve-tone music, are likely 'to regard 12-tone temperament as a step in a long chain of progress; a chain whose next link must soon be found' (Mandelbaum 1961, 116). This paper examines the structure of nineteen-tone equal temperament through the lens of Yasser's evolving tonality. The paper provides an analysis of Easley Blackwood's etude '19 Notes' using Yasser's theories of the supra-diatonic scale as a basis.

Yasser posited that the same modal characteristics that help to differentiate the diatonic modes could be applied to a twelve-tone scale if those twelve notes were distributed across a space with more than twelve pitch classes. Precise calculations from Blackwood provide a basis for the construction of a recognizable diatonic scale in nineteen-tone equal temperament (Blackwood 1985, 293); a major scale in this temperament is constructed with whole steps equal to three unit intervals and half steps equal to two unit intervals to most accurately approximate tuned major thirds and perfect fifths. This diatonic arrangement is well defined for the nineteen-tone space, and the overall modal physiognomy — a term from Yasser, this implies the spacing of notes in a given mode, bestowing a particular modal characteristic — of the diatonic is the same as it is in the twelve-tone space. To produce a viable twelve-tone scale in nineteen-tone equal temperament, we may distribute the additional five notes across the seven-note diatonic scale in a maximally even fashion; six modes of the maximally even twelve-tone scale contain approximations of the major diatonic scale discussed above. Though multiple twelve-tone outcomes are viable for analysis depending on the musical usage of the added chromatic tones, Blackwood's usage in '19 Notes' implies a specific ordering of the twelve-tone scale.

Aims and Repertoire Studied

Blackwood's '19 Notes' is the final etude of his *Twelve Microtonal Etudes*. The work juxtaposes diatonicism with moments of extreme chromaticism, emphasizing the clash between the well-approximated diatonic scale and the jarring sound of the chromatic scale in nineteen-tone equal temperament. His application of the twelve-tone scale in nineteen-tone equal temperament requires an analytical system that can handle both the implications of tonality and the expansions provided by the increased number of pitch classes. This paper analyzes Blackwood's etude with a modified version of Steven Rings's tonal GIS to examine the tonal implications of nineteen-tone equal temperament.

Methods

Rings's representation of the tonal GIS is a space with 84 scale-degree/pitch-class (sd, pc) ordered pairs constructed from the twelve pitch classes and the seven scale degrees which may be contextually applied to them (Rings 2011, 45). This paper constructs a supra-tonal GIS that increases the number of pitch classes to nineteen and the number of perceivable scale degrees in the system to twelve to account for the twelve regular scale degrees of Yasser's supra-diatonic system. This new space has 228 distinct scale-degree/pitch-class ordered pairs and can map transformations in a similar fashion to Rings's original tonal GIS. Analyzing Blackwood's etude with this system uncovers some significant differences between twelve-tone and nineteen-tone equal temperaments concerning the concept of enharmonic modulation.

Implications

Blackwood makes note of the differences between twelve-tone equal temperament and nineteen-tone equal temperament in his theoretical study of different tuning systems, recognizing that enharmonically equivalent intervals in twelve-tone equal temperament do not necessarily provide the same enharmonicism in nineteen-tone equal temperament (Blackwood 1985, 306–14). Additionally, Blackwood's own music may be shown to express these ideas compositionally. For instance, Blackwood uses a common enharmonic reinterpretation of the augmented sixth interval in his etude, but he modifies the reinterpretation for nineteen-tone equal temperament. The augmented sixth is most commonly reinterpreted as a minor seventh in twelve-tone equal temperament, but the augmented sixth interval in nineteen-tone equal temperament is enharmonically equivalent to the diminished seventh rather than the minor seventh. Blackwood's etude

acknowledges this fact by recasting the augmented sixth as a diminished seventh during enharmonic modulations. Using a version of Rings's tonal GIS — modified for nineteen-tone equal temperament by incorporating Yasser's ideas concerning the supra-diatonic scale — the analysis in this paper displays that Blackwood uses these reinterpretations to clarify the function of notes that were previously ambiguous in the dense pitch-class space of nineteen-tone equal temperament. Further, this analysis provides support for Yasser's concept of an evolving tonality, demonstrating the possibility of a progression toward expanded background scales.

Keywords

Microtonality, Microtonal, Temperament, Tuning, Nineteen-tone Equal Temperament, Transformation, GIS, Tonal GIS, Diatonic, Supra-Diatonic, Scale.

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