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Charting the Extensions in Pitch and Pitch-Class Space in Luciano Berio's Nones *and the First Movement of* Sinfonia

ABSTRACT

Background

Berio's registral/chromatic extension in harmony often emerges as a structuring device within some of the composer's important works, such as *Sincronie* (1964), *Nones* (1954), *Epifanie* (1961, revised in 1965), and *Sinfonia*. A few studies have examined or mentioned this harmonic extension. In *Playing on Words* (1985), David Osmond-Smith discussed the chromatic saturations occurring in the first movement of *Sinfonia*. In *Dissoziation als Prozeß* (2000), Charlotte Seither pointed out that chromatic saturation through combinations of two hexachords was one of the main harmonic techniques in *Sincronie*. Catherine Losada, in *Between Modernism and Post-Modernism* (2009), demonstrated the structural importance of chromatic saturation in the third movement of *Sinfonia*. Finally, Christoph Neidhöfer, in *Berio at Work* (2012), suggested chromatic saturation as one of the consistent stylistic hallmarks of the composer's working process. Drawing upon all these observations and insights, I propose an original analytical tool as a hypothetical harmonic space (i.e., a 'hardware') to examine the composer's *modus operandi* (i.e., a 'software') for his harmonic extensions.

Methods

The ic-cycle table, a graphical tool for illustrating Berio's harmonic extension in an organized and convenient way, was partially inspired by Pascal Decroupet's article in 2012. In his study, Decroupet shows how Berio himself analysed the pitch series of mm. 197–244 in his *Formazioni* in either linear and vertical ways. In a similar way by which Berio himself analysed the passage, my ic-cycle table graphically indicates successions of intervals in both linear and vertical manners: four different interval cycles among adjacent notes are expressed in four different directions: up/down=ic1/11 cycle, diagonally northeast/southwest ↗↙=ic2/10 cycles, right/left=ic3/9 cycles, and diagonally northwest/southeast ↖↘=ic4/8 cycles. In other words, the four directions represent the four types of interval cycles. Also, in the table, everything goes cyclically.

Aims and repertoire studied

I employ my ic-cycle table as the main analytical tool to illustrate the registral/chromatic extensions observed in two excerpts from *Nones* and *Sinfonia*. By displaying different interval cycles embedded within each chord of these harmonic extensions, this tool helps us to explore Berio's *modus operandi* behind them ('how did Berio achieve a gradual chromatic saturation within his harmonic space?'). I propose two established concepts as the composer's manners to create his characteristic harmonic extensions in *Nones* and *Sinfonia*: (1) desire for inversional symmetry, and (2) combinations of interval cycles. The former was explored in depth by David Lewin (1968) and Joseph Straus (2006): if an inversional symmetry was implied but not completed yet, this unbalance would arouse a listener's desire for the missing pitches. Per Straus, this desire could be rooted in our innate desire for bodily balance. The latter was discussed by Osmond-Smith (1985), Decroupet (2012), and Neidhöfer (2012): per these researchers, Berio created chromatically dense but balanced harmonies by combining two or more than two different interval cycles (e.g., a combination of a ic 2/10 cycle and a ic 3/9 cycle).

The desire for inversional symmetry is demonstrated in the example from *Nones*, namely mm. 243–269. This passage shows a clear extension in both pitch space and pitch-class space from a B diminished triad (or pcs 11, 2, and 5) to a twelve-tone aggregate. Osmond-Smith (1991) and Angela Carone (2012) suggested that the order of added pitches derives exactly from the fundamental twelve-tone row form Berio built for the piece. Per both authors, the registral/chromatic extension in *Nones* can be considered as an accumulative demonstration of the basic row form. However, my ic-cycle table allows one to uncover the *modus operandi* of the same harmonic extension without the aid of a precomposed row form. The table reveals the pattern of added voices, in which two types of dyads (ic 4 and ic 2) are added in turn to form a pair of inversional symmetrical tetrachords, [679T] and [0134](0134). Then, the chromatic saturation is accomplished by adding pc 8, which is a part of another symmetrical tetrachord, [258E](0369). Thus, we can observe multiple levels of desires for inversional symmetry: for instance, a ic 4 dyad can arouse listener's desire for a ic 2 dyad to complete a symmetrical tetrachord. Then, this tetrachord again does so for another symmetrical tetrachord that mirrors it.

The combinations of interval cycles are observed in the first two measures of *Sinfonia*, i. In this example, a doubled SATB choir proceeds from an octachord ("reference chord 1" per Osmond-Smith, 1985, and Matthew Heap, 2013) to a heptachord, a hexachord, and then finally a C minor-major seventh chord ("reference chord 2" per the same authors). Decroupet (2012) and Osmond-Smith (1985) suggested that each chord of this progression originates from combinations of different interval cycles. A reproduction of mm. 1–2 through my ic-cycle table supports their arguments by showing the multiple interval cycles implied in each chord of the progression. The table also demonstrates how interval cycles are involved with a chromatic saturation occurring in m. 11. As Osmond-Smith (1985) and Matthew Heap (2013) previously mentioned, when

the reference chord 2 (the tetrachord) in m. 2 gives way back to the reference chord 1 (the initial octachord) in m. 11, the orchestra fills in the chromatic gap and completes what Osmond-Smith referred to as chain of thirds. This term refers to alternations of minor thirds and major thirds to stack all twelve tones in a balanced way. As mentioned earlier, the ic-cycle table can simultaneously display both ic 3/9 cycles (i.e., minor-third cycles) and ic 4/8 cycles (i.e., major-third cycles) in two different directions, exemplifying the concept clearly.

Implications

Consequently, this paper presents my approach to analyze Berio's registral/chromatic extension. My ic-cycle table provides a hypothetical space or field to chart the composer's harmonic extensions to a chromatic saturation. Based on this tool, we can assume his *modus operandi* for those harmonic phenomena. The two examples discussed here, the passages from *Nones* and the first movement of *Sinfonia*, show two of the composer's characteristic manners for such harmonic extensions: desire for inversional symmetry and combinations of interval cycles. These discoveries not only support the previous studies of Berio's harmony, but also call for further examination of harmonic techniques in the composer's signature works ranging from the 1950s to the 1990s. By doing so, we will be able to understand better how he charted the equal-tempered twelve-tone space and developed his own harmonic language throughout his career.

Keywords

Berio, Luciano (1925–2003), *Nones* (1954), *Sinfonia* (1968), Inversional symmetry, Interval cycles, Post-tonal harmony

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