

PART I

Contexts I

1 | Theorising Serialism

CATHERINE NOLAN

Serialism is a virtually ubiquitous phenomenon in studies of twentieth-century music. Readers and writers alike will almost certainly understand the context in which the term is used in individual instances, but those contexts differ widely. The linguistic contrast between the nouns ‘series’ and ‘serialism’ may partially account for the vast array of contexts in which serialism is used: ‘series’ refers concretely to a succession of objects in a fixed order, while the suffix ‘-ism’ in ‘serialism’ refers more abstractly to a belief in a particular practice, system, or philosophy. Within its various contexts, three broad understandings of serialism can be discerned, distinctions which, too, exhibit significant linguistic contrasts. First, serialism may refer to ordered successions of objects, including twelve-tone rows, in which case the context may be described as twelve-tone serialism or, sometimes, simply dodecaphony. Second, serialism may refer to the expansion and diversity of compositional approaches and aesthetics based on a series, which may or may not contain twelve elements. On occasion, this version of serialism might be viewed not as a continuation of twelve-tone serialism, but as a sort of opposition to dodecaphony. Third, serialism may refer to a way of thinking, ‘state of mind’ (Dallapiccola, quoted in Alegant 2010: 9), philosophy, or even ideology that reveres rigour, order, and unity as compositional principles while disconnecting them from musical style or method.

Such wide-ranging, verging on contradictory, understandings of serialism shape this exploration of theorising serialism, incorporating the notion of a row or series and fixed ordering of elements, expansion of musical parameters for fixed ordering, and the extension of the serial concept into the realm of sound generation and timbre. In my view, the absence of a singular definition should be regarded positively, adding nuance to any theorisation of serialism.

Part I: Before 1945

The Serial Concept

The serial concept in musical composition originated as an organisational framework based on the principle of fixed ordering of elements. Arnold Schoenberg articulated a ‘method for composing with twelve tones which are related only with one another’ in a 1941 lecture given at the University of California at Los Angeles (Schoenberg 1975a), which in turn was based on notes prepared in 1934 for a lecture at Princeton University known as the ‘Vortrag über Komposition mit 12 Tönen’. The published essay came to be regarded as the definitive authorial statement on Schoenberg’s twelve-tone technique, but as noted by Claudio Spies and others, the 1934 version of the material is more theoretically focused and precise, addressing compositional technique directly and dispensing with spiritual and other extra-musical elements included in the 1941 version (Spies 1974; cf. Covach 2017; Hyde 1982).

Fixed ordering of pitch classes acquired a privileged position in Schoenberg’s compositional practice beginning in 1921. David Lewin described Schoenberg’s twelve-tone practice as integrating the serial concept with permutations of the aggregate (Lewin 1968: 1), which is to say, related ways of ordering a particular twelve-tone series (its prime form), stereotypically by inverting the pitch relationships (inversion), or reversing their order (retrograde), or both (retrograde inversion), and by beginning any such permutation on a different opening pitch class. Uncoupling the serial concept from permutations of the aggregate is pivotal to any understanding of the concept itself.

Schoenberg described the Suite for Piano op. 25 (composed between 1921 and 1923) as his first composition to adopt serial ordering of the twelve pitch classes, but he employed serial pitch-class ordering prior to op. 25 using series of different lengths in the Five Pieces for Piano op. 23 and in the Serenade op. 24. Fixed ordering of elements in Schoenberg’s early serial practice reflected compositional choices about the identity, number, and realisation of elements within an underlying theoretical framework. The series forms that appear in Schoenberg’s Suite op. 25 are shown in Table 1.1, with each form analogous to its manifestation in Schoenberg’s row tables from 1921, in which the row forms are displayed rather differently (Figure 1.1). Note in Table 1.1 that the inverted form begins a tritone from the first pitch class of the prime form. The four basic transformations are followed by their tritone transpositions, completing the eight row forms

Table 1.1 Row forms from Schoenberg's Suite op. 25

Prime E \sharp F \sharp G \sharp D \flat G \flat E \flat A \flat D \sharp B \sharp C \sharp A \sharp B \flat	Retrograde B \flat A \sharp C \sharp B \sharp D \sharp A \flat E \flat G \flat D \flat G \sharp F \sharp E \sharp
Inversion B \flat A \sharp G \sharp D \flat A \flat B \sharp G \flat C \sharp E \flat D \sharp F \sharp E \sharp	Retrograde Inversion E \sharp F \sharp D \sharp E \flat C \sharp G \flat B \sharp A \flat D \flat G \sharp A \sharp B \flat
T6: Prime B \flat B \sharp D \flat G \sharp C \sharp A \sharp D \sharp A \flat F \sharp G \flat E \flat E \sharp	T6: Retrograde E \sharp E \flat G \flat F \sharp A \flat D \sharp A \sharp C \sharp G \sharp D \flat B \sharp B \flat
T6: Inversion E \sharp E \flat D \flat G \sharp D \sharp F \sharp C \sharp G \flat A \sharp A \flat B \sharp B \flat	T6: Retrograde Inversion B \flat B \sharp A \flat A \sharp G \flat C \sharp F \sharp D \sharp G \sharp D \flat E \flat E \sharp

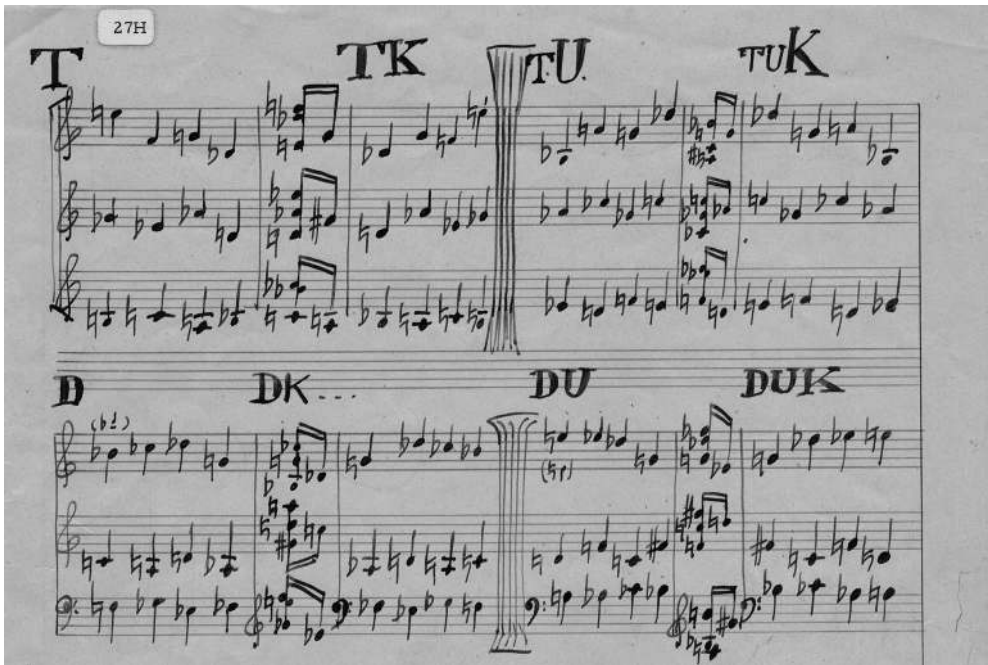


Figure 1.1 Schoenberg's row tables for the Suite, op. 25

that appear throughout the Suite, with the result that all eight forms begin and end on pitch classes E \sharp and B \flat .

The eight row forms shown in Table 1.1 belong to a complex of relations within what were to become known as the classical serial transformations, which are shown idiosyncratically in Schoenberg's row

tables in Figure 1.1, completed in 1921. The layout and labelling of the row tables in Figure 1.1 will appear unconventional a century after their creation in light of more familiar representations of dodecaphonic series and matrices in the scholarly literature, but they are of great value in revealing enduring aspects of Schoenberg's serial thinking. In addition to the row forms that appear in the Suite, the sketch also includes four brief compositional drafts, explicitly blending theoretical and practical concerns within the single sketch.

Figure 1.1 consists of four quadrants. The upper left quadrant shows the prime (or basic) form and its retrograde, each partitioned into its discrete tetrachords over three staves with a brief compositional draft based on the prime form inserted between the prime and retrograde forms. The prime form is labelled T for *Tonika*, and the retrograde is labelled TK, where K refers to *Krebs*. Note that the three tetrachords of T appear, in order, in the top, middle, and bottom staves, while the three tetrachords of TK appear, in order, in the bottom, middle, and top staves. While the division of the complete twelve-element series into its discrete tetrachords on separate staves serves to display simultaneously the whole and significant parts, this arrangement conceals the linear retrograde relations. Such a multidimensional understanding of serialism from the outset became a critical component of Schoenberg's serial thought. The tetrachordal partitioning also explicitly reveals the homage to Bach, and by extension the genre of the Baroque dance suite, with the BACH motive that appears in its original form in the first tetrachord of the retrograde (TK) form (seen in the bottom staff, upper left quadrant in Figure 1.1).

The other three quadrants are organised in the same fashion. The upper right quadrant shows the inversion of the row (beginning a tritone from the starting pitch of the prime form), labelled TU, where U refers to *Umkehrung*. The retrograde of the inversion, that is, the retrograde inversion, appears to the right of the inversion, and is labelled TUK. The bottom left and bottom right quadrants in Figure 1.1 show the prime, retrograde, inversion, and retrograde inversion forms all transposed by six semitones, with D for *Dominante* replacing T in the labels. The characterisation of the prime form as *Tonika* preserves the familiar principle of a central, referential entity to which others are related, while Schoenberg's identification of the tritone transposition as *Dominante* divulges his understanding of the interval of the tritone as a type of equivalency with the most essential tonal relationship, the dominant, perhaps a strategy for mediating the radical nature of the new compositional approach with an explicit appeal to familiar, traditional relationships (cf. Phipps 1986). In addition to the

fundamental role of the tritone in the complex of row forms, the interval of the tritone as the boundary interval between the first and last pitch classes of the row (E \sharp and B \flat) ensures that each row form begins and ends on these pitch classes.

The striking brief compositional drafts that are interspersed between the prime and retrograde forms and between the inversion and retrograde inversion forms in the row tables (and their tritone transpositions) are noteworthy for their treatment of the discrete tetrachords. Within each compositional draft, the discrete tetrachords are set as a three-note sonority followed by a single pitch in beamed sixteenth notes. The setting of the first tetrachord of the prime form, consisting of the sonority E \sharp -D \flat -F \sharp followed by the single pitch G \sharp , appears to be a draft of the music that occurs in the opening bar of the *Intermezzo*. The settings of the second and third tetrachords from T in the draft replicate the same rhythmic and textural patterns, as do the settings in the remaining three compositional drafts. The three-note sonorities obfuscate the linear order within each tetrachord; they do not systematically set the first three elements, and the single note following the three-note sonority is never the fourth element. They are consistent in articulating the tetrachordal contents, but inconsistent in articulating their internal distribution. The conspicuous treatment of the row tetrachords – in the tables and in the composition – has led to some debate about whether the *Suite* should be understood as a hybrid work in which some movements are based on arrangements of tetrachords comparable to the row tables (the *Prelude*, *Gavotte*, *Musette*, *Intermezzo*, and *Menuett*), while other movements reflect the linear, fixed twelve-tone ordering (the *Trio for the Menuett* and the *Gigue*) (Haimo 1990: 84–5; Hyde 1983: 470–9; Boss 2014: 38; Whittall 2008: 32–5). I would argue that the tetrachordal partitions in the row tables, being derived from a pre-existing construct, support Schoenberg's early and full understanding of the series as a multidimensional entity. Jack Boss describes Schoenberg's flexible approach to serial ordering in the *Suite* and later works as 'a spectrum of ways of presenting the row that ranged from an unordered aggregate on one end of the spectrum to complete, perfect ordering on the other end' (Boss 2014: 37). By separating compositional practice from abstract, conceptual speculation, this spectrum of possibilities succinctly epitomises the theorisation of the serial principle and foreshadows the greater expansion of the serial concept to come.

The principle of serial ordering of pitch classes represented a radical approach to the treatment of musical materials and a venture into the avant-garde, notwithstanding Schoenberg's efforts to retain important connections

with his musical heritage. The enrichment of the serial concept in the decades following its inception continued to be characterised by radical departure from compositional norms. Schoenberg's Five Pieces for Piano op. 23 and the Serenade op. 24 are commonly regarded as precursors to Schoenberg's twelve-tone method because they employ series of fewer than twelve elements in the first four movements of op. 23 (Hyde 1985) and greater than twelve elements in the variations movement of op. 24 (Lester 1968). Recalling the linguistic shifts and nuances of 'serialism', these works are sometimes described as 'serial' so as to reserve the descriptor 'twelve-tone' specifically for the consistent serial ordering of the twelve pitch classes and the classical permutations of the aggregate (prime, inversion, retrograde, and retrograde inversion). Given the pervasive impact of Schoenberg's twelve-tone method, this is understandable, but for the purposes of this chapter, the twelve-tone method is regarded as a particular, and particularly significant, manifestation of the serial concept.

The serial concept expressed itself in the expansion of Schoenberg's treatment of pitch classes into serial treatment of other musical parameters by fixed ordinal schemes and later into more complex, derived, logical processes, reflecting new ways of thinking about musical materials. The radical nature of Schoenberg's 1921 discovery is inseparable from its iconic position in the history of musical modernism (cf. Moore 1995: 77–8), and similarly, the radical quality of later manifestations of the serial concept is inseparable from the cultural context in which they appeared. Theorising serialism must take cultural, historical, and aesthetic considerations into account.

Messiaen

Like Schoenberg, Olivier Messiaen is strongly identified with musical modernism in the first half of the twentieth century, and, though from a different aesthetic tradition, his teachings and compositions also inspired the development of the serial concept, independent of the permutation of aggregates. Messiaen is known for his idiosyncratic treatment of rhythm, characterised by eschewal of traditional metric and tonal patterns. His interest in non-Western rhythmic patterns (such as the *deçi-tâlas* collected in the thirteenth century by Śārṅgadeva), including non-retrogradable rhythms, as musical objects and his creation of independent series of pitches and durations unfolding simultaneously further underscore the multidimensional nature of the serial concept.

The first movement of the *Quatuor pour la fin du temps* (1941), 'Liturgie du crystal', scored for piano, cello, clarinet, and violin, offers a clear example

of Messiaen's early serial conception. The cello and piano parts unfold two simultaneous series in each instrument. The cello part, entirely in harmonics, superimposes a repeating short five-element series of pitches (not pitch classes) with a repeating fifteen-element series of durations. Similarly, the piano part superimposes a repeating twenty-nine-element series of chords with a repeating seventeen-element series of durations (cf. Taruskin 2005a: 237–8). The two series in the cello part come into synchronisation after every three statements of the pitch series, since five is a divisor of fifteen, while the two series in the piano part never come into synchronisation during the movement. Vincent Benitez, in discussing Messiaen's preoccupation throughout his career with time and eternity, observes the composer's division of musical time through discrete segments treated in a cyclical manner as a central interest in his serial thought (Benitez 2009). The recurring synchronised closures of the pitch and duration series in the cello part contrast with the complete absence of closure in the piano part, which would seem to go on forever or at least well beyond the span of the movement, expressing the sense of temporal spatialisation and eternity. Similarly conceived pitch and rhythmic series recur in the remaining movements of the *Quatuor*, reflecting the composer's 'spatial understanding of musical time through its quantification' (Benitez 2009: 294).

Messiaen's treatise, *Technique de mon langage musical* (1944), detaches general compositional parameters – rhythm, melody, harmony – from one another, a separation which will come to be central to later ideas of what the serial might be, while adding idiosyncratic features of the composer's own compositional practice, including bird song and his modes of limited transposition (Messiaen 1994). Beyond the technical, the organisation and tone of this unique text anticipate some of the foundational principles of post-1945 serialism. For instance, temporality is prioritised in the *Technique* by its position as the first parameter to be considered (following a brief single-page chapter on the interrelations of the three parameters). The treatise and the rational processes for treatment of pitch and rhythm in the *Quatuor* show that Messiaen's predisposition towards serial thinking was already established prior to the end of the Second World War. His creative autonomy, aesthetic independence from tradition, and objective attention to rhythm, equal to the attention given to pitch, isolate these primary musical parameters for individual treatment. Messiaen's novel conceptions of pitch, rhythm, and form became pivotal for younger composers of new music and earned for him a leadership position in what would come to seem a serial movement (Whittall 2007: 234). Yet through the later twentieth century, Messiaen

pursued his distinctive individual compositional concerns about continuity independent of the composers he had so deeply influenced in the post-war years. As Arnold Whittall explains, ‘the remarkable heterogeneity of later twentieth-century developments indicate that avant-garde convictions evolved and persisted even as more “classical” concerns with continuity re-emerged alongside them’ (Whittall 2007: 251).

Part II: After 1945

The Serial Movement

It is inviting, or even seductive, to reflect on the post-1945 period as a new beginning or *Stunde Null* (Zero Hour) in musical composition because of the impact of the enormous social and political upheaval at the end of the Second World War in Europe. A young generation of composers from different European countries, who had been deprived of the opportunity to hear and study new music during the years of political repression and war, aspired to build an utterly new and radical approach to composition that repudiated their European musical heritage in favour of isolating individual elements of parameters of compositional materials (pitch, duration, dynamics, articulation, timbre). This allowed for a focus on individual sounds as discrete objects, and the novel attitude to composition, harnessed in unique ways by individual composers, became known as serialism, implying an affiliation with Schoenberg’s twelve-tone method introduced about a quarter of a century earlier. Yet, at the same time, the most vocal of the young serialist composers rejected the classical techniques of Schoenberg’s method; their fascination lay, in many cases, with Messiaen, then later with Anton Webern, in whose music they discovered great abstraction, purity, and examples of proportional and permutational treatment of musical elements.

Nevertheless, one of those younger composers, Bruno Maderna, would later underscore continuity over rupture in post-1945 musical composition, arguing that ‘there has never been any zero-year in music . . . just as there never can be any zero-year of culture’. Maderna would stress that the idea of a zero-year (or Zero Hour) was an illusion for the young that assisted them in ‘re-ordering [their] ideas before going forward’ (Maderna, quoted in Fearn 1990: 316). Maderna’s serial practice itself was ‘as deeply rooted in the contrapuntal tradition of the past, as it was committed to the exploration of new ideas in musical expression’

(Neidhöfer 2007: 1). M. J. Grant, among others, has rejected the idea of a *Stunde Null* because, despite the prevalent belief in the creation of a new society among the younger generation, the growing polarisation created by the Cold War among other factors resulted in something closer to cultural pluralism (Grant 2001: 17–20; cf. Beal 2000: 107–10).

The infamous essay by another young composer, Pierre Boulez's 'Schoenberg Is Dead' (1952), described as the 'ultimate statement of the *Stunde Null* position' by Richard Taruskin (Taruskin 2005b: 18–19), observes Schoenberg's recent death only months after it occurred, though notably some seven years after the end of the war, but then castigates Schoenberg for taking serialism in the wrong direction by confusing series and theme, for devising a method intended for rigorous control of chromatic writing, for maintaining the outmoded texture of melody and accompaniment, and for not exploring new corresponding modes of structural organisation. The essay concludes by elevating Webern above Schoenberg for his innovations in rhythm and his avoidance of large, extended forms. Though Boulez was exposed to Webern's music through his teacher, René Leibowitz, author of *Schoenberg et son école* (1947), it is perhaps worth noting that Boulez later distanced himself from Leibowitz (Boulez 1952; cf. Erwin 2020).

The intricate narrative of discourse about new music in the years following the Second World War and into the early 1950s embraces the advancement of and later distancing from serialism by some of its proponents; it must balance the opposition of radical innovation, as in the *Stunde Null* perspective, and historical continuity, including varying stances on serial and contrapuntal practices of Schoenberg and Webern. The serial movement in Europe in the early 1950s, which was characterised by what appeared to be a core of shared compositional interests, was ultimately short-lived, as the representative composers sometimes became engaged in aesthetic disputes and pursued separate compositional trajectories (cf. Toop 2004: 453–5).

Die Reihe and Darmstadt

The journal *Die Reihe: Information über serielle Musik*, published in German from 1955 to 1962 (followed by an English edition from 1958 to 1968), launched its run, with editors Herbert Eimert and Karlheinz Stockhausen, with a volume devoted to electronic music. The foreword to that first volume pronounces the journal to be a 'mouthpiece for the younger generation' (Grant 2001: 19) and effectively exposes the far-reaching connotations of the