# 10 | Luigi Nono and the Development of Serial Technique

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Among the Italian composers engaged with the redefinition of musical language through (multiple) serialism, Luigi Nono was the first to articulate a theoretical reflection about this technique. As it is demonstrated through Nono's correspondence with Bruno Maderna and Karlheinz Stockhausen, his earliest conversations about serialism, of an entirely private nature, date back to 1951 to 1952. However, it was only in later years, between 1956 and 1957, that Nono decided to take up a public discussion of serial technique from the perspective of its *historical* foundation. Considering that multiple serialism – that is, an approach that treats multiple musical parameters in a serial manner – was conceived around 1950 to 1951, and that composers had been positioning themselves around the new technique since then, Nono's initiative may appear tardy. At that time, however, the theme of history as a dialectical process was at the centre of Nono's thought, which was influenced by both Marx and Gramsci.

In the summer 1956, Nono took part in a seminar organised by Hermann Scherchen and centred on the analysis of Schoenberg's *Variations* op. 31 and Webern's *Variations* op. 30 (Nono 1956; cf. Schoenberg 2011). It was in this context that Nono developed his earliest (public) reflections on serialism, which he illustrated in a short article published in the same year examining the development in the way in which the series had been employed beginning from Schoenberg's *Serenade* op. 24 and the main theme of his *Variations* op. 31 up to the work of Boulez, Stockhausen, and in Nono's own latest composition, *Il canto sospeso* (1955–6) (cf. Nono 2018b). Also in 1956, Luciano Berio had invited Nono to contribute an analytical article to the first issue of his journal, *Incontri Musicali* (Nono to Berio, 10 January 1956, Paul Sacher Foundation, Basel). In response, Nono wrote a detailed analysis of the 'Thema' of Schoenberg's op. 31, which he further developed for a lecture

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that he gave in Darmstadt in 1957 and later published under the title 'The Development of Serial Technique' (De Benedictis and Rizzardi 2018b).

The main purpose of both the 1956 article and the 1957 paper was to demonstrate a direct continuity in compositional strategies between Schoenberg and the music of the so-called Darmstadt School (a term first more widely popularised by Nono in his 1957 essay, though coined at least a year earlier (cf. Wehagen 1956)). In these writings, Nono implicitly opposed the theories that Boulez had been promoting since 1951, especially Boulez's argument regarding Schoenberg's presumed 'confusion between theme and series' in his 'serial works', an opinion that was well entrenched among many composers in the Darmstadt music circles (Boulez 1991f: 212).

Nono's analysis of the op. 31 theme aims, in particular, at overturning Boulez's theories. From Nono's perspective, the foundation of serial composition lies precisely in the combinatory possibilities implicitly underpinning the *thematic* process which generates the variations devised by Schoenberg. Nono's argument also rested on his interpretation of the BACH motif in Schoenberg's *Variations* as 'a thematic-formal element independent of and pre-existing the row itself!' (Nono 2018b: 129). In Nono's view, this motif acts as a secondary combinatory texture, traversing the entire composition. In spite of its implicitly polemical stance, however, Nono's approach only found limited resonance among his peers. The text of his 1957 Darmstadt lecture was published in German only, and the portion on the *Variation*'s theme did not appear in *Incontri Musicali*, simply because of a disagreement with Berio over the style of the essay. Ironically, Nono's article was replaced by another one by Henri Pousseur that advanced the argument that Nono had attempted to reject – namely, the discontinuity between the thematicism of Schoenberg's twelve-tone technique and the foundation of the New Music (cf. Pousseur 1956; De Benedictis and Rizzardi 2018b: 148–9).

It should be observed that, by 1957, Nono's serial technique had already been developing from the simultaneous definition of multiple sonic parameters towards the construction of sonic fields. For Nono, however, going back to examine the conceptual continuity between series and theme was, at that time, a way to demonstrate a consistency in the evolution of his own technical choices since the beginnings of his career. It is thus necessary to clarify how this continuity can be verified in time going back to Nono's earliest experiences with the twelve-tone technique and, so, to his earliest attempts as a composer *tout court*. While describing this earlier portion of his musical output, it would be reductive and historically inaccurate,

however, to discuss Nono's first experiences with serial or proto-serial technique without a parallel consideration of Bruno Maderna's procedures, because the didactic workshop in which the latter had invited him to take part in Venice in 1946 would soon become a *creative* workshop, where the analysis of early and contemporary music was inextricably connected with compositional experimentation on the grounds of shared aesthetic and technical premises.

As is well known, the catalyst that encouraged Maderna and his pupil Nono's transition to serialism was their encounter with Hermann Scherchen during the conducting course that Scherchen directed at the Venice Biennale in August and September 1948. Scherchen engaged as his assistant for this course his former pupil Hans-Joachim Koellreutter, who had emigrated to Brazil in 1937. During his several-month-long stay in Italy, Koellreutter strengthened his relationship with Maderna and Nono, who in November 1948 attended a course on twelve-tone music that he taught in Milan. Nono's personal notes from that course show that Koellreutter based his teaching on Paul Hindemith's theories, in particular the idea of tonal relationships founded on acoustic 'natural' laws and the consequent classification of intervals according to their own 'melodic' and 'harmonic strength', directly derived from Hindemith's *Unterweisung im Tonsatz*. At that time, Nono and Maderna were both already familiar with Hindemith's treatise, and they had been adopting its main principles since their earliest attempts at coordinating advanced twelve-tone techniques with a serialisation of durations and/or rhythms (Guerrero 2009; cf. Nono 2018a: 27). Many of the rules that Koellreutter proposed in his class, however, revolved around his taxonomy of 'melodic' rows (where 'tense' intervals prevail), 'harmonic' rows (with a majority of 'calm' intervals), and 'compensated' rows, balanced between the two. These appear in just these terms in both Nono's and Maderna's notes and musical sketches at least until the end of 1951. Beginning from this moment, such a classification of musical material would be permanently inscribed within the compositional technique of both Nono and Maderna, and its influence would extend throughout their use of twelve-tone technique and beyond it in their respective properly serial and post-serial phases.

Works such as *Liriche greche* (1949), Maderna's first serial composition, and Nono's *opus primum*, the *Variazioni canoniche sulla serie dell'op. 41 di Arnold Schönberg* (1950), are the result of the assimilation of Hindemith's ideas via Koellreutter and already demonstrate how both composers distanced themselves from the Viennese School models that their Italian colleagues Luigi Dallapiccola, Riccardo Malipiero, Riccardo Nielsen, and

Camillo Togni were more or less slavishly following in the same years. Leaving aside other formal elements that referred to pre-classical if not to Renaissance models, in Nono and Maderna's works the tone row is not only presented in its retrograde, inverted, and transposed forms but is also subject to permutation, sieving, and proliferation. Most importantly, the tone row is not the only musical material to receive systematic treatment: note durations, while organised independently at first, are later coordinated with the tone row itself. The most significant aspect of Maderna and Nono's compositional strategy is their creation of tone rows based on the expressivity implied in their intervallic content and their reliance on intervallic quality for the determination of the row's transformations. This is a recurring aspect in Nono's serial works of the following years.

On many levels, the aforementioned *Variazioni canoniche sulla serie dell'op. 41 di Arnold Schönberg* is an exceptional debut composition. Already in its title, Nono announces his intention of applying a process of transformation of the original pitch material, intended as a 'theme' but only in an abstract sense, with no regard to (or for) the historical form of the variation. By taking to extremes a typical compositional practice of the Viennese School – that is, the deduction of formal consequences from the intrinsic characteristics of the basic pitch material – Nono begins from the distinctive structure of Schoenberg's row, whose symmetrical configuration is repeated as such also within its hexachords; indeed, each individual movement of the *Variazioni canoniche* is built on the 'mirror image' (*Spiegelbild*) principle. Furthermore, in accordance with the principle of intervallic 'calmness' and 'tension', Nono generates a first variation on Schoenberg's row by deriving from it three permuted rows completely different from the original – one of them with a prevalence of fourths and major thirds, another one based on tritones, semitones, and minor thirds, and a third one which is more differentiated. The preliminary sketches show that Nono meant to start from each of the three rows that he had generated, plus the original one, to build four distinct episodes differentiated from each other according to their degree of 'tension'. This project would never be realised, perhaps because Nono preferred to exercise more direct control over the intervals. Yet such a project exemplifies the consistency of Nono's proto-serial thought, which at that time already tended towards a simultaneous coordination of multiple sound parameters. Indeed, the *Variazioni canoniche* adopt a systematic device for the assignment of durations, a *serie base* (a 'basic row', as Nono called it in his sketches) consisting of six different units: five individual duration values respectively equalling 8, 7, 6, 5, and 4 semiquavers plus another value

corresponding to 3+2+1 semiquavers that works as the only germ of the motivic material used in the entire work (cf. Rizzardi 2004: 13). It should be noted that such a treatment of durations is unique in Nono's work. Its relatively abstract character did not appear again in his later compositions, which are mostly based on pre-existing rhythmic models. Indeed, a first association between the pitch and the duration series underpins the complex double mirror canon of the first movement, 'Largo vagamente', but it is only in the following movements ('Andante moderato' and 'Allegro violento') that a systematic coordination between pitches (permutations of rows divided in six dyads) and durations (permutations of six values) can be clearly observed.

The coexistence of increasingly sophisticated techniques of proliferation and pre-compositional organisation of pitch material on the one hand, and of systematically organised rhythmic structures on the other, is a feature of the compositional procedures of both Maderna and Nono beginning in 1951. In that year, Maderna devised a technique that Nono would also soon adopt, and which would be remarkably successful: namely, a system for the transformation of the basic pitch material in the direction of a rhythmic and harmonic pre-organisation based on the graphic representation of pitches. Maderna sometimes refers to this technique using the term *mutazione* ('mutation') or describes it, along with Nono, as a '(magic) square' treatment. The originality of this technique consists in the use of a basic pitch series for the *automatic* generation of chains of derived series not just of individual pitches, but also of different elements that may be either note aggregates or 'empty' positions (Figure 10.1a). Using this method, it is possible to create a reserve of material that is already intimately related to the rhythmic and harmonic components and can thus foreshadow the musical form. Maderna first adopts the magic-square technique in a composition entitled *Improvvisazione per orchestra* (1951) and will use it, in increasingly complex ways, until his *Concerto per pianoforte e orchestra* (1959). Luciano Berio acknowledged his use of it in his *Nones* (1954) (personal communication, 2000) and *Serenata* (1957) (Berio 1985: 65). The title *Improvvisazione* emphasises the self-organisation of the musical material, and the resulting organisation presents itself as having an intentional reference to fifteenth-century isorhythmic motets: the concatenation of the sequences of pitches/chords/rests corresponds to the *color* inserted atop the *taleae*, represented by repeated and systematically ordered (dance) rhythmic patterns (Rizzardi 2011).

Nono adopted the same 'mutations' technique in his *Composizione* for orchestra (1951), a work that was premiered in the same concert in which
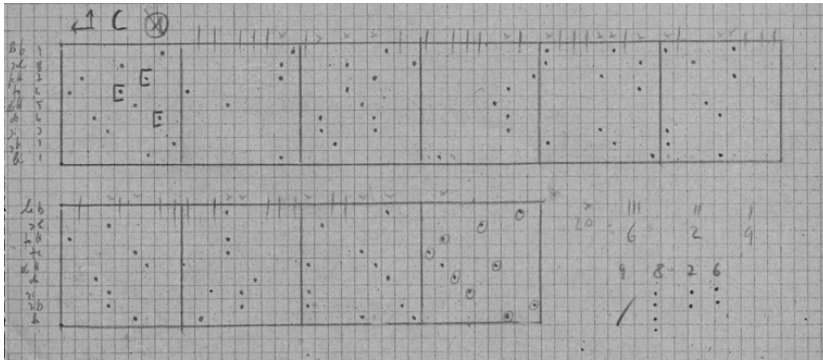
**Figure 10.1a** *Composizione per orchestra [No. 1]* (1951).
Sketch of the precompositional material for bb. 17–25, Archivio Luigi
Nono (facsimile)

Maderna's *Improvvisazione* was first performed. In *Composizione*, Nono's
implementation of this technique was both more consistent and at the
same time less reliant upon the automatic elements of the 'mutational'
compositional process than Maderna had been in his work. Only in one out
of the five 'episodes' of *Composizione* are all the elements – pitch organisa-
tion, chordal aggregates, distribution of durations and rests – rigorously
based on 'mutations' of the original row (Figure 10.1b). Whereas in the first
movement the duration of neighbouring notes is determined by the 'calm/
tension' factor intrinsic to each given interval, the prevailing structural
feature of the four remaining movements consists of a contrapuntal
arrangement of rhythmic modules predetermined from the transform-
ations of a basic tone row. Nono actually in all of the 'episodes' of his
*Composizione [No. 1]* for orchestra uses a series of nine sounds, assigning
the remaining three to the timpani in the percussive movement that ends
the work (Rizzardi 2004, 47–59).

   In Nono's immediately preceding work, *Polifonica–Monodia–Ritmica*
(1951), movements are similarly organised by means of compositional
devices, each producing a different kind of development of the original
material. In *Polifonica*, the first, extensive movement of this work, Nono's
tendency to make serial techniques instrumental in the achievement of
specific poetic goals can be observed for the first time. In this case, the
building of a progressive development from silence into noise and finally
into the individual pitch (that is, to melody) that can be in turn used for
contrapuntal construction is realised through an automatic process of
reduction and progressive 'indifferentiation' – until annihilation – of the

**Figure 10.1b** *Composizione per orchestra [No.1]* (1951). Score realisation of bb. 17–25 (Ars Viva Verlag).

basic tone row (see Figures 10.2a, 10.2b, 10.3) that allows him simultaneously to obtain both the pitch material and the distribution of durations, up to the point where a predetermined rhythmic model intervenes. This model is based on a motive that, according to Nono, alludes to a traditional Afro-Brazilian *candomblé* rhythm ('Jemanjá'), which is in turn deconstructed and permutated through serial procedures (Figure 10.4). *Polifonica*'s successor, *Monodia*, sees the first appearance of a form that would regularly appear in Nono's later music. This monodic form is the outcome of an entirely linear process resulting from the concatenation of

**Figure 10.1b** (cont.)

derived, regular twelve-tone rows that are symmetrically organised: 'harmonic' rows prevail at the far ends of the chain and 'melodic' ones predominate towards the centre. Nono derived this form from a number of transformations (for which he had employed the 'mutation' technique for the first time) but eventually omitted any vertical implications from the outcome of such transformations. The harmonic component of

**Figure 10.2a** *Polifonica–Monodia–Ritmica* (1951). Generation of 'degrading' intervallic material of the opening four-part canon of *Polifonica* (bb. 1–40)

*Monodia*, which is implicit to the 'calm/tension' division, already prefigures the linearisation of harmonic groups that Nono, although in a different technical context, would use in his *Canti di vita e di amore* of 1962.

**Figure 10.2a** (cont.)

The following cycle of compositions on lyrics by Federico García Lorca (1952–3), and the *Due Espressioni* for orchestra (1953) further expand the development of complex rhythms deriving from folk models (Borio 2004).

**Figure 10.2b** *Polifonica-Monodia-Ritmica* (1951). Precomposition of the opening four-part canon of *Polifonica*, derived tone rows from the O form and rhythmic organization (bb. 1–40)

In these works, however, the organisation of pitches temporarily departs from twelve-tone materials. As Nono himself would recall in 1987:

At that time, I was still under the influence of those studies that Scherchen had made me do using three or four notes. If you take the pieces of *Epitaffio*, you will see that they are based on four or five notes and have nothing to do with a twelve-tone series. These four or five notes might come from the *Bandiera rossa* . . . or, in the final song of the *Guardia civil*, simply from the notes of the six strings of the guitar. (Nono 2018a: 55)

However, even when these pre-existing musical materials are chosen because of their allusive or symbolic value – in *La Victoire de Guernica*
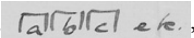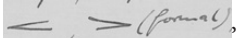
**Figure 10.3** *Polifonica–Monodia–Ritmica* (1951). Four-part canon (bb. 1–40) built by reading each of the four derivations right to left, bottom up, beginning with sparse sounds and gradually filling the space (score, Ars Viva, excerpts: bb. 1–28)

**Figure 10.4** *Polifonica–Monodia–Ritmica* (1951). Serial permutations of the Afro-Brazilian rhythm ('Jemanjá') employed in the movement *Polifonica* (sketch, Archivio Luigi Nono; facsimile)

(1954), for instance, Nono borrows the melody of the *Internationale* – they are always transformed through serial procedures: rhythmic motives are systematically decomposed and permutated, and pitches are subject to 'square' treatment until all the notes of the total chromatic are obtained.

Such compositional choices depart from the more abstract experimentations of Nono's contemporaries, and because of this they earned him quite a few criticisms. While Maderna himself reproached Nono, albeit in general terms, for the literary drifting of his recent works, Stockhausen made much more detailed criticisms in his private correspondence to Nono, accusing the Italian composer of inconsistency in his use of serial techniques. In a letter dated 9 May 1953, in particular, Stockhausen comments on Nono's *Epitaffi* in the following terms:

> The impression of your music (in the last works) is the grand gesture, complex series form, ⌐a⌐b⌐c⌐ *etc.*, ＜　＞ *(formal)*, ⌢ , (melody + accompaniment), periodic, torn apart by block-like contrasting groups. I think Schönberg and Berg might be brilliant end points here. The structure of timbre and individualisation of tones, however, points toward a penetration into microscopic musical structural contexts. One expects the idea of a global, immanently homogeneous sonic world, a consequence of this differentiated relationship to the individual tone and to fine-grained relationships between tones. But then you don't include differentiation between the two sound characteristics of volume and rhythm. Dynamically, one hears surfaces – dead surfaces, just the same with respect to rhythm (this results from the imbalance of short and long durations, between group rhythms and individual rhythms). The timbre and tone sequence structure, however, say something else. And the importance of registral proportions, so important for the clarity of listening, is hardly considered. (9 May 1953, Archivio Luigi Nono)

In his response, which he only wrote two months later, Nono rejected Stockhausen's argument, but without further elaborating. Yet it is striking that, from the end of 1953, Nono began to steer towards that 'homogeneous sonic world' typical of total serialism, which in 1955 would lead to *Canti per tredici* and, more importantly, *Incontri*. In *Canti per tredici*, Nono began to employ the most neutral pitch material possible, the all-interval series, which he would regularly use in all of his works between *Il canto sospeso* (1955–6) and *Cori di Didone* for choir and percussion (1958). This series also appears in *Composizione per orchestra n. 2: Diario polacco '58* (1959) and – together with other kinds of series – in the *azione scenica* ('scenic action') *Intolleranza 1960* (1960–1).

In *Incontri*, a tone row mostly based on major and minor seconds does not transform or generate anything and always presents itself in its original form, while all the other sound parameters (duration, timbre, and dynamics) change. The work is made of two mirroring macrosections, parts of a perfectly symmetrical compositional process. These two blocks are internally differentiated by extension and polyphonic density, dimensions that are simultaneously regulated according to the numerical principle of the Fibonacci series. The title *Incontri* (Encounters) refers to the interpenetration of two symmetrical structures, each characterised by the merging of two complementary expressive characters. But even leaving aside its symbolic implications and private allusions, this is a manifesto score. The clarity of its structure prompted an early wave of scholarly musical analysis that contributed to propagating the image of Nono as a rigorous serialist composer, and which would lead later generations of researchers to overlook the originality, complexity, and incessant development of his technique (cf. Wennerstrom 1967: 217–33; Stenzl 1972; Piencikowski 1988). However, what appears to be an exercise of serialist rigour and coherence is nothing but Nono's earliest codification of a musical constructivism focused on the complexity of sound phenomena, an integral part of a long-term development.

Nono himself expressed criticisms about serialist hyper-determination, especially after 1960, even distancing himself from his own most rigorous applications of this technique, as, similarly, did Boulez (cf. Boulez 1986a). In the autumn of that year, Nono, who had just emerged from a public debate with Stockhausen (discussed below, p. 171) about the serial treatment of *Il canto sospeso*, privately wrote that the 'theocratic' principle of total determination had always been extraneous to him: 'in *Varianti* (1957) I came as close to that principle as possible, as far as study, self-discipline and result analysis are concerned. But it has mostly been distant from me' (Mila and Nono 2010: 48). And in 1969, during an interview, he added (perhaps more lucidly):

I can only agree with the 'serialist' label with some reservations. Even back then I did not write what critics would call 'integrally organised music' [*durchorganisierte Musik*]. I used to work, so to speak, in three stages. First of all, I would choose the material – intervallic, timbral, rhythmic. Then I would experiment with this material, perhaps I would subject it to different predetermining processes, but only so that I could see the direction towards which it could develop. And then I would compose, that is I would deduce an appropriate form from the material and the possibilities inscribed in it. For me, composing was never about the

concretisation of predetermined structures. Improvisational elements were always at play; I would leave decisions open until up to the last moment. (Nono [1969] 1975: 200)

While from the standpoint of Nono's poetics it is possible to position his highest degree of involvement with generalised serialism in the years between 1955 and 1959, the composer's later distancing from this technique seems to circumscribe and minimise its value as a technical principle and to prioritise instead the functional value of systematic compositional processes. This interpretation may be reductive, but it is certainly true that Nono invests serialism with different functions and meanings over time.

Speaking about Nono's output based on the use of compositional systems and procedures connected with serialism, some scholars have interpreted this timeframe, 1955 to 1957, as a 'second serial phase', followed by a 'third phase' represented by the works that he composed between 1957 and 1959 (cf. Schaller 1997). Rather than depending on a rigid timeline, we would like to suggest a kind of bipartition, which is instead articulated around specific developments in Nono's work regarding the application of serial principles to musical structures derived from a text. This subdivision hinges on *Il canto sospeso* (1955–6), a work fraught with innovations and changes from the perspective of Nono's compositional technique that inaugurate his research of a 'new expressiveness in the song' (Nono 2001: 432).

Originally chosen because of their poetic contents or their ethical and political message, these texts provided the starting ground for the selection of all the musical materials (see Figure 10.5). Indeed, it is the structure intrinsic to the verbal material (from the 'quantitative' perspective of formal subdivisions, of verses, of single words, and so on down to the number of syllables and vowels) that determine the choice of the basic 'fields' (following Nono's own description) that regulate durations, speed, intervals, density, and every other parameter.

It was the peculiar intonation of the text in *Il canto sospeso* that sparked the well-known debate that divided Nono and Stockhausen after 1957. Again, five years after a letter in which Stockhausen had expressed his annoyance regarding the 'resorting to subjectivity', the reliance on 'predetermined expressive content', and finally 'pathos of the intonation of Neruda['s poem]' (4 September 1952, Archivio Luigi Nono), the controversy was framed on the level of compositional technique, whereby such technique is put at the service of a text intentionally loaded, both ethically and politically. After his initial disapproval of the programmatic approach adopted in *Epitaffi per Federico García Lorca*, Stockhausen seemed

**Figure 10.5** Typescript of Luigi Nono with text selection and sketches for *Cori di Didone* (Archivio Luigi Nono)

unwilling to understand the treatment of text in Nono's compositions following *La Victoire de Guernica* (1954), a work in which his serial compositional practice had clearly evolved, visible, too, in the involvement of choral ensembles. Stockhausen's accusations of poor 'observance' of serial precepts on Nono's part eventually moved from a personal to a public level with his anathema incorporated into 'Sprache und Musik', a

lecture that he delivered at Darmstadt during the New Music Courses of 1957 (cf. Stockhausen 1964d; English translation: Stockhausen 1964e). The specific target of Stockhausen's analysis was the second movement of *Il canto sospeso*, which the German composer interpreted according to serial or statistical criteria that were very distant from Nono's compositional horizon. Take, for instance, Stockhausen's *Gesang der Jünglinge* (1955–6), where the voice is elaborated along with the electroacoustic material according to specific 'scales of intelligibility' and through permutational structures conceived for the purpose of preserving the intelligibility of the text and to separate its use as sonic material from its semantic value (cf. Decroupet and Ungeheuer 1998).

Nono's vocal writing technique had precise motivations, strictly related to the content of the text chosen, whose intelligibility, however, ended up being almost precluded; his conception diverged from Stockhausen's, who was puzzled by this apparent contradiction and attacked Nono precisely on this issue: 'Why, then, texts at all, and why these texts?' (Stockhausen 1964d: 158). What is the point of 'serialising' such weighty and meaningful texts – he asked – if musical structures end up completely preventing the listener from understanding even a syllable? As Stockhausen put it:

[Nono] does not interpret, he does not comment. He rather reduces speech to its sounds and makes music with them. Permutations of vowel-sounds, *a, ä, e, i, o, u*; serial structure. Should he not have chosen sounds in the first place, rather than texts so rich in meaning? At least for the sections where only the phonetic properties of speech are deal with? (Stockhausen 1964e: 48–9. Translation modified)

Nono's reply to Stockhausen came in the form of 'Text–Music–Song' (1960), a public lecture that he also gave in Darmstadt (Nono 2018c). However, Nono's reticence to discuss the technical aspects of his own music led him not to reply with analytical demonstrations, ultimately leaving the actual 'serial structure' of *Il canto sospeso* unrevealed. Instead, Nono adopted a defensive strategy, motivating his choices from a historical perspective, taking, among others, Schubert and his Lieder as an example. Although he employed a different technique from Schubert's, Nono argued, 'the two structural elements, namely sound and word, interpenetrating one another, and the one not being subordinate to the other, form a new and autonomous whole'. And he concluded: 'Composition with the phonetic elements of a text serves today, as in earlier times, to transpose its semantic meaning into the musical language of the composer' (Nono 2018c: 154 and 178).

And yet, a response based on the analysis on the second movement of *Il canto sospeso* would have sufficed to effectively reply to Stockhausen's criticisms and explain the peculiarities of his serial compositional technique in 1955–6. In hindsight, such an analytical response would have also shed light on the preconditions that led to the eventual overcoming of this same technique and, perhaps, would have helped to avoid further misunderstandings in the relationship between text and music in Nono's works.

When discussing serialism in Nono's works based on a text (that is, in most of his compositions from the 1950s), it is important to consider that the choice of parametric materials starts directly from the text (see Figure 10.5 and cf. De Benedictis 2006). Through various transcriptions and gradual text modifications, syllable counts, selection of key words, and the subsequent (re)coding of such words into numbers then associated with the coordination of musical parameters, Nono managed to create a structural grid of the various musical elements that was predetermined by and from the verbal material. In the specific case of the second movement of *Il canto sospeso* (the sole section for voices only, from the nine movements of which this work consists) it should be immediately pointed out that the compositional technique adopted by Nono presents numerous similarities with movements no. 6b and, especially, no. 9. Not by chance, these three sections are also connected by the content of their respective texts (drawn from Malvezzi and Pirelli 1954), whose main theme invites a conscious acceptance of death in the name of a better future. The textual similarities between the three movements find a counterpart in the use of a shared compositional technique that could be called 'uninterrupted sound [*suono continuo*]' and that entails a multidimensional scanning of the text (and its consequent dissolution and perceptual unrecognisability). If one considers that, in *Il canto sospeso*, the same basic musical material is coordinated with perpetually changing permutational systems that are often chosen depending on the local context – and, in the vocal sections, always according to the semantic of the text – perhaps the most productive question that one must ask in order to understand how Nono chose his coordination principles in his text-based works should be (paraphrasing Stockhausen): 'why a structure at all, and why this one?'

In the case of movement no. 2 of *Il canto sospeso*, the analysis reveals how Nono, by means of a rigorous serial procedure, adapted the (musical) form to the (text) content and built a structure that is flexible enough to distribute the chosen text across voices according to specific expressive intentions. The entire movement consists of fifty bars (bb. 108–57 in the score) in a fixed $\frac{2}{4}$ metre. The basic duration is the crotchet (the tempo is steady: *c.* 60–66): the result is a total of 100 abstract 'tiles' on which sound

agglomerations can be placed. On a formal level (and as a direct consequence of the implementation of serial materials), the movement is divided in two parts: the first is more extended and corresponds to bb. 108–42; the second (bb. 142–57) is a coda of sorts, consisting of a proportional canon. More specifically, the movement is based on the following materials and principles of parametric coordination:-

- **Durations**: In the movement, four duration values are used: the quaver, ♪; the triplet quaver ♪; the semiquaver, ♪; and the quintuplet semiquaver, ♪, which reflect the different possibilities in the division of the crotchet into two, three, four, or five parts respectively. Such values, which regulate the speed, are coordinated with a 'neutral' duration series, a Fibonacci sequence made up of twelve factors (six ascending factors followed in symmetrical fashion by an equal number of descending factors), 1–2–3–5–8–13–13–8–5–3–2–1. This series is repeated fifteen times (bb. 108–42) by means of a method of continuous rotation that shifts the first number of the series to the end during each cycle (Table 10.1), though Nono inverts the last two factors in the twelfth iteration. Nono does not employ this method in the second part of the movement (bb. 142–57), in which the duration factors in the series 13–8–5–3–2–1–1–2–3–5–8–13 are linearly associated with each single duration value. In the movement as a whole, the rotation and the coordination of the factors of the Fibonacci series with the four duration values thus determine formal proportions and speed of the sound events.
- **Pitches**: The only tone series used in the entirety of *Il canto sospeso* is the all-interval series beginning with the pitch A. In the second movement, this series is repeated nineteen times with no permutations or transpositions, rigidly following the distribution of durations in both the sections of the movement (cf. Table 10.1).
- **Dynamics**: In the same movement, dynamics are regulated by a series of twelve different intensity values:

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *ppp* | *p* | *mp* | *mf* | *f* | *ppp* | *ppp<f* | *f>ppp* | *ppp<mf* | *mf>ppp* | *p<f* | *f>p* |

This series adopts the same criteria for the selection and the rotation applied for the duration series, although in this case the implementation and statistical distribution of the dynamic series operate vertically (and not horizontally as in the case of durations) and a higher degree of freedom can be observed. The series is repeated fifteen times in constant rotation (Table 10.2). In the second portion of the movement, dynamics are freely associated with pitches in

**Table 10.1** *Il canto sospeso*, no. 2: table coordinating the all-interval series with the duration Fibonacci series (I–XV: bb. 108–42; XVI–XIX (proportional canon): bb. 142–57)

| | A | B♭ | A♭ | B | G | C | F♯ | C♯ | F | D | E | E♭ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| I | 1 | 2 | 3 | 5 | 8 | 13 | 13 | 8 | 5 | 3 | 2 | 1 |
| II | 2 | 3 | 5 | 8 | 13 | 13 | 8 | 5 | 3 | 2 | 1 | 1 |
| III | 3 | 5 | 8 | 13 | 13 | 8 | 5 | 3 | 2 | 1 | 1 | 2 |
| IV | 5 | 8 | 13 | 13 | 8 | 5 | 3 | 2 | 1 | 1 | 2 | 3 |
| V | 8 | 13 | 13 | 8 | 5 | 3 | 2 | 1 | 1 | 2 | 3 | 5 |
| VI | 13 | 13 | 8 | 5 | 3 | 2 | 1 | 1 | 2 | 3 | 5 | 8 |
| VII | 13 | 8 | 5 | 3 | 2 | 1 | 1 | 2 | 3 | 5 | 8 | 13 |
| VIII | 8 | 5 | 3 | 2 | 1 | 1 | 2 | 3 | 5 | 8 | 13 | 13 |
| IX | 5 | 3 | 2 | 1 | 1 | 2 | 3 | 5 | 8 | 13 | 13 | 8 |
| X | 3 | 2 | 1 | 1 | 2 | 3 | 5 | 8 | 13 | 13 | 8 | 5 |
| XI | 2 | 1 | 1 | 2 | 3 | 5 | 8 | 13 | 13 | 8 | 5 | 3 |
| XII | 1 | 1 | 2 | 3 | 5 | 8 | 13 | 13 | 8 | 5 | [3]2 | [2]3 |
| XIII | 2 | 3 | 5 | 8 | 13 | 13 | 8 | 5 | 3 | 2 | 1 | 1 |
| XIV | 3 | 5 | 8 | 13 | 13 | 8 | 5 | 3 | 2 | 1 | 1 | 2 |
| XV | 5 | 8 | 13 | 13 | 8 | 5 | 3 | 2 | 1 | 1 | 2 | 3 |
| XVI–XIX | 13–8–5–3–2–1–1–2–3–5–8–13 (once for each duration value) | | | | | | | | | | | |

**Table 10.2** *Il canto sospeso*, no. 2: table coordinating the dynamics series with the all-interval series

| | A | B♭ | A♭ | B | G | C | F♯ | C♯ | F | D | E | E♭ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| I | 1 | 3 | 2 | 6 | [-] | 9 | 4 | 12 | 5 | 3 | 6 | 6 |
| II | 2 | 4 | 3 | 7 | 4 | 10 | 5 | 1 | 6 | 4 | [6] | [–] |
| III | [9] | 5 | 4 | 8 | 5 | 11 | 6 | 2 | 7 | 5 | [5] | 8 |
| IV | 4 | 6 | 5 | 9 | 6 | 12 | 7 | 3 | [5] | 6 | 9 | 9 |
| V | 5 | 7 | 6 | 10 | 7 | 1 | 8 | 4 | [6] | 7 | 10 | 10 |
| VI | 6 | 8 | [6/1] | 11 | 8 | 2 | 9 | 5 | 10 | 8 | 11 | 11 |
| VII | 7 | 9 | 8 | 12 | 9 | 3 | 10 | 6 | 11 | 9 | 12 | 12 |
| VIII | 8 | 10 | 9 | 1 | 10 | 4 | 11 | 7 | 12 | 10 | 1 | 1 |
| IX | 9 | 11 | 10 | 2 | 11 | 5 | 12 | 8 | 1 | 11 | 2 | 2 |
| X | 10 | 12 | 11 | [2] | 12 | 6 | 1 | 9 | 2 | 12 | 3 | 3 |
| XI | 11 | 1 | 12 | 4 | 1 | 7 | 2 | 10 | 3 | 1 | 4 | 4 |
| XII | 12 | 2 | 1 | 5 | 2 | 8 | 3 | 11 | 4 | 2 | 5 | 5 |
| XIII | 2 | 4 | 3 | 7 | 4 | 10 | 5 | 1 | 6 | 4 | 7 | 7 |
| XIV | 3 | 5 | 4 | 8 | 5 | 11 | 6 | 2 | 7 | 5 | 8 | 8 |
| XV | 4 | 6 | 5 | 9 | 6 | 12 | 7 | 3 | 8 | 6 | 9 | [7] |

relation to the expressive meaning of the text. Moreover, it is important to observe the exception of the two last pitches E and E♭, which are assigned the same dynamic factor.

The compositional device is set in motion by the preparation of four uninterrupted temporal levels (or 'time lines'), each associated with one of the four duration values (from the quaver to the quintuplet semiquaver). Pitches are then systematically distributed in the time lines in coordination with the duration factors of the Fibonacci series (see Figure 10.6, showing what may be understood as the first stage of this process, and Figure 10.7, the final draft as seen in the printed score).

The first step consists in the pairing, from top to bottom, of the first four pitches of the series (A–B♭–A♭–B) with the first four duration factors (1–2–3–5). Once the first pitches of each time line are set, an automatic method (the 'uninterrupted sound' technique) is executed, whereby the pitch-duration pairs are organised in sequence in the available time line without leaving any pauses or gaps. Besides determining instances of rarefaction and thickening in the temporal flow of sound events, the rotation of the Fibonacci series avoids situations in which a given pitch 'prevails' upon the others and is thus instrumental in creating an equal distribution of



**Figure 10.6** *Il canto sospeso*, no. 2: schematic rendering of the first three rotations of the parametric series

**Figure 10.7** *Il canto sospeso*, no. 2: the final outcome of Nono's compositional device as represented in the score (Ars Viva AV 50)

durations and pitches. The final result is a sort of 'virtual temporal space' filled with sound agglomerations that incessantly vary in pitch, duration, and intensity.

As mentioned above, this compositional process is interrupted from b. 142 onwards. Starting from the sixteenth iteration of the tone series, Nono abandons the 'uninterrupted sound' technique to build a proportional canon in which the Fibonacci series (read from the longest duration, 13, to the shortest one, 1, and backwards in a mirror-like trajectory) is associated with each time level in a linear fashion. Thus, the density of sound events is modulated along a horizontal trajectory, a compositional choice that, as will soon be made clear, is a product of the treatment of the text. The automatism of this procedure apparently makes the interval the only element that allows the author some degree of choice; indeed, it should be reiterated that the arrangement of pitches across different registers is at the composer's complete discretion. The analysis of the movement's text structures, however, reveals that this seemingly neutral compositional grid is intentionally designed around specific expressive goals.

The bipartition of the movement itself and the corresponding diversification in the implementation of the serial material depend on the intention to isolate the last two verses of the text (excerpted from a letter by Anton Popov, a teacher and journalist sentenced to death in Bulgaria):

**Muoio** per un mondo che splenderà con luce tanto forte con tale bellezza,
che il mio stesso sacrificio non è nulla.
(Per) esso sono morti milioni di uomini sulle barricate e in guerra.
**Muoio** per la giustizia.
Le nostre idee vinceranno.

**I am dying** for a world that will shine with light of such strength and beauty
that my own sacrifice is nothing.
[For] this world millions have died, on the barricades and in war.
**I am dying** for justice.
Our ideas will triumph.

The whole process of scanning and distribution of the text across voices and registers is not constrained by any compositional device and exclusively depends on the author's choices. Two separate treatments of the phonetic material, exactly corresponding to the bipartition of the movement, can be identified: from b. 108 to b. 142 the text 'floats' between registers (it expands or contracts depending on the time-flow system shown on Table 10.1), and its distribution is linear, despite the syllabic deconstruction across the various voices. From b. 142 to the end, instead, the text is condensed, creating a sort of 'semantic block'. This contrast is motivated by the only word that is repeated twice in the whole text: 'muoio' ('I am dying', bold in the text quoted above). Strikingly, Nono develops his proportional canon at the point at which this crucial word is repeated (bb. 142–57). Precisely in that moment, the Fibonacci series reaches its highest duration factor (13) and is placed in the central register ($C_2$) starting from the longest duration value (quaver). This way the word 'muoio' is clearly uttered (and made perceivable), expanded on a single line by a single voice (the second alto, bb. 142–47).

All the musical structures in this work are dependent on the textual architecture. First of all, Nono selects specific words and decides to repeat them in succession, overlapping iterations or placing them apart from each other, almost as if creating a 'hypertext': 'muoio' (×4); 'mondo' (×2); 'splenderà' (×4); 'luce' (×2); 'non [è]' (×6); 'nulla' (×4); 'sono' (×2); 'morti' (×3); 'milioni' (×4); 'uomini' (×2). The sum of these repetitions, not present in the original text, gives as a result: 'I'm dying / word / will shine / light / is nothing / millions have died.' A crucial role in such a

process of semantic reinforcement is assigned to the enhancement of particular vowels, which intensifies the sound density. For their organisation (*contra* Stockhausen 1964d: 158), Nono does not make use of tables or serial procedures. Every vowel is in fact always related to the word (or the syllable) uttered in that moment. It is an authentic 'vowel spectrograph' that accompanies the scansion of the text and reinforces its content (Nono employed this technique in almost all of his serial works for solo voice or choir). It should also be observed that Nono operates this scansion and distribution of the text across voices, registers, and duration values, adopting expressive devices that recall Renaissance madrigalisms. The four iterations of 'splenderà', for example, are associated with the shortest duration values (the quintuplet semiquaver and the semiquaver) according to an ascending succession of registers from the lower to the higher voices (bb. 111–5: second tenor, second alto, first alto, first soprano) that emphasise the word's meaning. Among the many other examples, it is also possible to consider the treatment of the word 'milioni', which is repeated four times (bb. 129–39) in a vortex-like process of time expansions and contractions. This word is also the only one in the text to be broken up by rests, as a possible tragic reference to the many lives that the war had taken away (first soprano and second tenor, bb. 129–32). In the last sixteen bars (the proportional canon of bb. 142–57), the individual voices intone a word each. The only exception to this is the first soprano, the highest and most discernible voice, to which Nono assigns the only intelligible sentence of the whole work ('le idee vinceranno [(our) ideas will triumph]', bb. 146–50) choosing the most rhythmically incisive duration value (the semiquaver).

In the context of such a strict union between serial musical structure and verbal signification, even the punctuation of the text finds its own specific function. We have already mentioned the contrast created by the transition to the proportional canon built concurrently with the repetition of the word 'muoio' (that is to say, in close proximity to the period that separates the last two verses). Even more, the rotation method employed for pitches, durations, and intensities is also adapted to the structure of the text: rotations I–VIII correspond to the first sentence (rotations I–V to the first verse, and VI–VIII to the second); rotations IX–XV correspond to the second sentence; and four rotations of the tone series (XVI–XIX) correspond to the concluding proportional canon.

In the works that Nono composed after *Il canto sospeso*, it is on the terrain of vocality – and thus in conjunction with the presence of a verbal structure – that he continues to mould and experiment with new writing techniques involving systems of serial derivation. In particular, Nono's

development in the control of material, which can be glimpsed in his *Cori di Didone* (1958), would gradually lead him towards the new techniques that he adopted in his vocal works at the beginning of the following decade, such as *Sarà dolce tacere*, for eight solo voices on texts by Cesare Pavese (1960), and *'Ha venido'. Canciones para Silvia*, for soprano and chorus of six sopranos on texts by Antonio Machado (1960). Indeed, these two works open a new and more strictly post-serial phase in Nono's production.

These are the last works in which Nono employed a numerical device (a square), though he also partially adopts a version of this device in *Intolleranza 1960*, the very last appearance of this technique in Nono's work (see De Benedictis 2012). As had already happened in *Varianti* and in *La terra e la compagna* (both composed in 1957), the twelve figures included in the numeric scheme do not refer to any specific sound parameter in particular but rather work as abstract factors determining the distribution of musical material. As such, the square becomes a permutation matrix that acquires a precise function in the compositional process only if it is linked to (a) a tone series and (b) supplementary coordination devices (or 'multi-parametric modules', see Figure 10.8) regulating the single parameters.
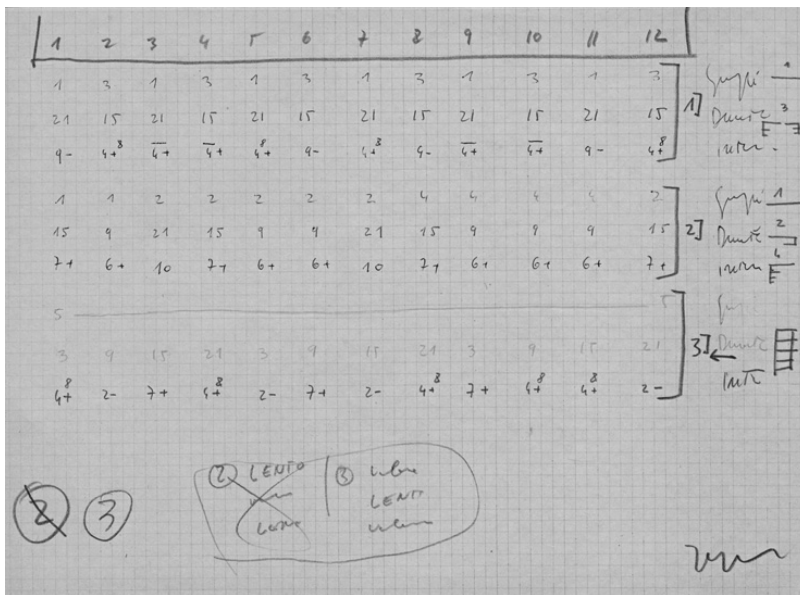


**Figure 10.8** Multi-parametric module prepared for *Sarà dolce tacere* (used in the second section, bb. 26–67).

This complex compositional procedure (discussed in detail in De Benedictis 2004) allowed Nono simultaneously to generate and coordinate sound complexes with varying density (*gruppi*, groups, as in the Figure 10.8) and rhythmic-harmonic stratification (*durate* and *intervalli*, durations and intervals). The simultaneity in the coordination of these three elements (groups, durations, and intervals) reveals how Nono's research on sound became increasingly oriented towards a musical writing based on sound aggregates. In fact, a compositional technique based on 'groups' would entirely replace the previous 'continuous sound' method – the layering of multiple time lines that Nono had adopted in his *Canti per 13* and later perfected in the second and ninth movements of *Il canto sospeso* (see Figure 10.7).

The basic features of the multi-parametric modules remain essentially unchanged from their first appearance at an early stage in *La terra e la compagna* up to their definitive version in *Sarà dolce tacere* and, later, in *Intolleranza 1960*. Conceived for vocal or choral works, these modules are once more developed in strict connection with the verbal material, and, with rare exceptions, they simultaneously coordinate always the same sound parameters. Their ideation and adoption reflect a change of paradigm in the use of serial techniques that is already emergent in *Il canto sospeso*. With these modules, the preselection of musical materials and their coordination shift from the macro- to the micro-formal level: these compositional procedures are not applied to the entire musical form of the work, but rather to the different parts that compose it, each organised in its specific context. First sketched out in *Composizione per orchestra n. 2: Diario polacco '58* (1959), this particular compositional procedure, based on the juxtaposition of sound events, attains its full form in *Canti di vita e d'amore* (1962), where constant variation and mobility of sound events become systematic in all its three sections.

The coordination of a tone series with the multi-parametric modules replaces the all-interval series and marks the gradual shift to a more explicitly generative compositional technique. In *Sarà dolce tacere* and *'Ha venido'*, Nono resumes organising his pitch series according to intervallic principles and opting (as he had done in the early 1950s) for a selection process based on expressive criteria. The use of the pitch series in these works also confirms Nono's departure from a macro-formal compositional logic. In both these vocal compositions, no longer is a single pitch series used throughout the whole work; rather, the number of series corresponds to the number of portions of text being intoned. Nono also employs multiple series in the initial part of *Intolleranza 1960* (as 'character

rows' identifying every character in the opera), but he gradually abandons them as the work progresses. What makes these series different from the past is that each of the twelve pitches that compose them becomes potentially generative thanks to the coordination with the factors of the multi-parametric modules. As an example, if a pitch of the row is associated with a factor of the 'groups' line which equals '5', then it should generate four more pitches according to an intervallic derivation determined by the same module in the 'interval' field; the corresponding factor in the 'duration' field will regulate the temporal flow. The understanding of the series as a motivic-thematic device is thus definitively abandoned: instead, the series becomes a generative device (a 'matrix series') based on the selection of specific intervals and adopted for the creation of harmonic fields (groups) of varying density.

The idea of the 'group' intended as a structural unit summing up and organising different parameters summarises the basic principles of Nono's previous serial procedures, including the articulation techniques of sound complexes based on alternation and articulation of sound/non-sound partition. Since it is generated starting from a pitch of the 'basic' tone row and is defined in its internal components on the basis of the values prearranged in the multi-parametric modules, the group recapitulates all of the possibilities that Nono had previously envisioned for the series. The group (O in the example) can be retrograded (R), inverted (I, RI), stretched, or rendered 'out of phase' through the double 'positive (note)/negative (rest)' scansion of some sounds, and even 'linearised' (Figure 10.9, and see De Benedictis 2004, 216–8). Furthermore, after it has been generated, the group is usually subject to several transformations in the subsequent editorial stages before reaching the final form in which it appears in the score, where it often appears to be completely concealed and impossible to analyse without the aid of the earlier sketches.

The linearisation of the group (L) refers to the development of a line that should no longer be thought of as 'melodic', but rather as 'harmonic'. This switch represents one of the most interesting aspects of Nono's final serial phase. Nono adopted this serial procedure in the fourth and last section of *Sarà dolce tacere* (bb. 89ff.), and he later further developed it in *'Ha venido'. Canciones para Silvia* – where the presence of the solo soprano necessarily implies a horizontal dimension of pitches – and finally in *Intolleranza 1960*. Beginning from *Canti di vita e d'amore* – where the most refined application of the 'harmonic line', which is to say the linearisation of the group, is achieved in the central monody 'Djamila Boupachá' – this technique is gradually replaced by new systems for the selection of pitches.
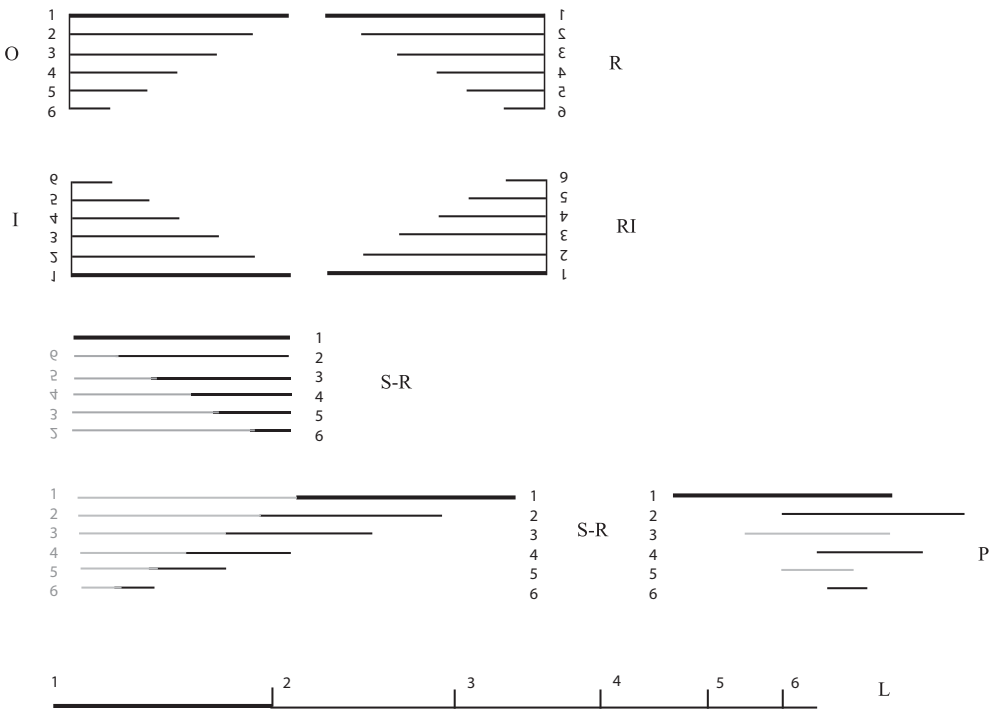
**Figure 10.9** Representation of the various group types obtained from the transformation of an original group

In these two latter works, the very concept of 'series' begins to dissolve. In one of his notebooks from 1962, Nono wrote: 'no more complete series' ('Q.10', f. 3, Archivio Luigi Nono). Indeed, the interval is gradually made independent of the twelve-factor series and becomes the generative element underpinning the formation of all the pitch classes for each sound aggregate. The interval completely replaces the pitch parameter in the organisation of musical material and becomes one of the most important structural elements of this piece. It also works as a catalyst for Nono's eventual departure from predetermination. In *Canciones a Guiomar* (1963), the compositional writing is oriented towards a stratification of sound events caused by the reading of more local systems that coordinate harmonic levels often of great initial complexity that are set up beginning from a nucleus of generative pitches. But by then, serialism had become less than a trace in a compositional process free from grids and systems and driven instead by acquired automatisms that would influence Nono until his last works in the 1980s.