PATHWAYS IN THE MUSIC OF SIR PETER MAXWELL DAVIES: FROM PRECURSOR WORKS TO THE FIRST TWO SYMPHONIES

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Thesis

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Paul Griffiths	‘ … the listener is almost bound to want to know what is happening.’
Peter Maxwell Davies	‘Yes, and he’s very welcome to find out!’[1]

For the moment—an eternity it must have seemed to the others standing by—I was struck dumb with amazement, and when Lord Carnarvon, unable to stand the suspense any longer, inquired anxiously, “Can you see anything?” it was all I could do to get out the words, “Yes, wonderful things.”[2]

… without more or less detailed analysis, a piece of music of this density cannot really be reached. And one wants to reach it.[3]

Nothing is more illuminating than a grasp of the processes at work … . These are *not* technicalities; they are the very substance of the music itself and all that is required is perceptive listening. The aim of laboriously spelling out such processes can only be realised in the listening which follows. (If you use a score, don’t let the eye become a substitute for the ear.)[4]

read it; absorb it, and forget it.[5]

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[1] p. 116 of **Part II**: Conversations with the Composer of Griffiths, Paul, *Peter Maxwell Davies*, (Robson Books, London, 1982).
[2] Carter, Howard and Mace, A. C., *The Tomb of Tut.ankh.Amen, Volume 1*, (Cassel & Company Ltd., London, 1923), p.96.
[3] Kerman, Joseph, *The Beethoven Quartets*, (Oxford University Press, London, 1967), p. 76: he is writing of Beethoven’s quartet Op. 18 No. 6, but what he says holds also for all the works in Parts III, IV and V of this thesis.
[4] Ottaway, Hugh, *Vaughan Williams: Symphonies*, (BBC Books, London, 1972), p. 39 (writing of the first movement of the Fifth Symphony).
[5] Halmos, Paul R., *Naïve Set Theory*, (Van Nostrand Reinhold Company, New York, 1960), p. vi.

DEDICATORIA

Esta tesis está dedicada a la memoria de mi padrino anglo-argentino Stanley Nolan, professor de instituto y músico, quien hace muchos años me tocó Invenciones en Dos Partes de Bach, y fugas del ″48″ (mientras me contó las palabras de Ebeneezer Prout a los sujetos de las fugas), y me explicó los elementos básicos de la forma musical.

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ABSTRACT

This thesis presents analyses of the first and second symphonies of Sir Peter Maxwell Davies. It starts with an introductory part consisting of two chapters outlining the overall structure of what follows and describing four features and a number of devices found repeatedly in Davies's music. This part is followed by three parts each consisting of an introductory chapter describing and explaining one of the three serial structures used by Davies, transposition squares, transformation processes and magic squares: in each part, the introductory chapter is followed by one or more chapters giving analyses of the orchestral works by Davies using the device. The third of these three parts deals with magic squares, and the orchestral work analysed is the Symphony No. 1: the following part also deals with magic squares, and presents an analysis of the Symphony No. 2. The thesis concludes with a fifth part consisting of a single chapter giving a retrospect, and prospects for future work.

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Preface

This study originated in my hearing Maxwell Davies's First Symphony on the radio at, or shortly after, its first performance over a quarter of a century ago, and repeated hearings of the LP of its performance by the Philharmonia Orchestra, conducted by Simon Rattle (recently reissued as a CD[5]). This gave rise to two conflicting impressions: it seemed wonderful music, but I could not make head or tail of it. I was able to hear only a part of the music which was there, and felt, very strongly, that a Tovey-type analysis was needed. Thus, when the opportunity at last, and quite unexpectedly, arose, I seized the chance to make an outline analysis of it, so as to be able to hear as much more of the music as possible; and, when the further opportunity came, to extend this study to include the Second Symphony. The research has been a labour of love. I have constantly kept in mind the models of both Tovey's analyses and Mosco Carner's wonderful analysis of the Berg Violin Concerto,[6] which opened up that work to me some sixty years ago.

[5] Reviewed by Andrew Clements, 'First among sequels', *The Guardian, Friday Review*, Friday July 4, 2003, p. 17.
[6] Carner, Mosco, 'Alban Berg (1885–1935)', Ch. 25, pp. 362–379 in: Hill (ed.) *The Concerto*.

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Mrs Judy Arnold, formerly Sir Peter Maxwell Davies's manager	for answering a number of questions and for making available for study purposes a pre-release copy of Sir Peter's recent recording of the two Taverner Fantasias;

Dr Stephen Arnold	for his pioneering account, in the context of the opera *Taverner*, of Davies's transformation processes;
Professor Michael Barnes, formerly Professor of Scandinavian Studies at University College London,	for considerable expert advice on the Maeshowe inscriptions;
British Library staff	for their constant helpfulness with Davies's manuscripts of the first two Symphonies, particularly in providing legible copies of some parts of the manuscripts which were too faint, or otherwise hard, to read in an ordinary Xerox copy;
Ms Caroline Chew	for making available Davies's programme note to the first performance of *Worldes blis* by the BBC Symphony Orchestra, conducted by the composer, in the Royal Albert Hall, 28th August, 1969;
Mr David Coltherd of Kirkwall	for providing me with a copy of the front page of *The Orcadian* for the 17th February, 2000, with photographs showing the Inverlane;

Dr Alan Deighton, of the Department of German, University of Hull	for his assistance in deciphering Davies's not always easy, and sometimes frankly impossible, to read Sutterlin-schrift; for verifying my list of mistranslations in Pruslin's translation of *Offenbarung und Untergang* and adding others to it; and for his assistance with Hans Keller's German;
Professor David Fallows	for considerable assistance, including making available to me an unpublished paper on Davies's source incomplete *L'Homme Armé* mass;
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and Technology Department, University of Hull	version of this thesis, and with the occasionally irrational behaviour of Word 2010.
Doug Houghton of Doug Houghton Photography, Galaha, Orkney KW17 2RB	for making available the photograph of Rackwick Bay in winter, shown in the section on the third movement of the *First Symphony*;
Mr Dave Lorentz of Image II	for enhancing, in my wife's photograph of Rackwick Bay taken from Bunnertoon, the contrast in the cliffs;
Mr Vincent McKernan of the Royal Liverpool Philharmonic Orchestra	for making available to me the programme notes for the first English performance of *Prolation*;
Mr Eric Meek of the Orkney Office, Stromness, of the RSPB Scotland	for advice on the identification of birds from their cries;
David Pennie, formerly of the Brynmor Jones Library, University of Hull	for translating the Dedication to this essay into the dedicatee's preferred language;
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Mr Graham Saunders,	for assistance with song-cycles accompanied by chamber ensemble;
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Dr David Turner, formerly of the Department of German, University of Hull	for his assistance in deciphering Davies's not always easy, and sometimes frankly impossible to read Sutterlin-schrift, and for his attempts to locate the passage from Rilke referred to by Davies in his remark on *Vesalii Icones* (*q.v.* just after his *comments* thereon).

To my wife, for her photograph of the sea at Rackwick Bay from Bunertoon, for her careful proofreading of this revision and for all her help and support over fifty years.

PART I: PRELIMINARIES

CHAPTER 1: INTRODUCTION

Overall Structure

This thesis presents analyses of the first and second symphonies of Sir Peter Maxwell Davies. In order that these two works may be appreciated as fully as possible, however, it is necessary to preface their analyses with a survey of the orchestral compositions which preceded them. This leads to consideration of a further topic.

Davies has, from his Opus 1 (the *Sonata for Trumpet and Piano*, 1955), used various types of serialism of his own devising, where 'serialism' will here be taken to mean any procedure which specifies a certain sequence or sequences of pitches.[1,2] (He moved towards total serialism in *Prolation* (1958), but then turned away and thereafter serialised only pitch and, sometimes, duration.) Up to the *Second Fantasia on an "In Nomine" of John Taverner*[3] (1964) these seem to have been free (although usually complex) *ad hoc* technical explorations, making much use of transposition

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[1] From here on, 'pitch' will often be used instead of the more correct, but cumbersome, 'pitch-class'.

[2] Roberts, David L., *Techniques of Composition in the Music of Peter Maxwell Davies* (Ph. D. thesis, University of Birmingham, 1985), Volume 1, Chapter 1, p. 3, uses Milton Babbitt's definition:

> … a serial relation is one which induces on a collection of objects a strict, simple ordering; that is, an order relation which is irreflexive, nonsymmetric, transitive, and connected over the collection. The term 'serial' designates nothing with regard to the number of elements, or the operations—if any—applicable to the elements or the relations among them. A musical work, then, can be described as serial with regard to, say pitch, if the pitch content is most completely and most simply characterized as fulfilling such an ordering with regard to temporal and/or spatial precedence.'
> Babbitt, Milton, 'Remarks on the recent Stravinsky', *Perspectives of New Music*, vol. 2, no. 2 (spring-summer 1964), pp. 35–55.

The one given above will be used here instead of Babbitt's because (i) it is shorter (ii) it avoids his precise mathematical definition, in terms which may not be familiar to all musicians and (iii) it allows for the possibility, often realized in Davies's music, particularly with progressive transformations, that the ordering may not be the same (subject to transposition of the prime, inversion, retrograde or retrograde inversion) from one occurrence to the next, a possibility for which Babbitt's definition does not appear (it is not entirely clear to me whether it does or does not) to allow. The sometimes 'hermetic' nature of Babbitt's explanations has been commented on in a different context by Krenek, Ernst, 'Some Current Terms', *Perspectives of New Music*, Vol. 4, No. 2 (Spring – Summer, 1966), pp. 81–84, particularly p. 83.

[3] From here on, this work will, for brevity, be referred to as the *Second Taverner Fantasia*, or even as the *Second Fantasia*.

squares (a device taken from Boulez[4]), *i.e.* tables of all possible transpositions of a pitch-series – not necessarily dodecaphonic – with the rows rearranged so that their initial pitches spell out those of the series, a process referred to by Roberts[5] as 'self-transposing'. With the *Second Fantasia* he introduced the large-scale use of the technique (which he had previously invented) of (systematic) melodic transformation, and used it in most of his compositions up to and including the *Symphony No. 2* (1980), and doubtless thereafter. Shortly before the First Symphony he invented a second technique, that of using, in various ways, what he called 'magic squares', *i.e.* square tables each of whose cells contains both a pitch and an integer (between 1 and the number of rows), the numbers (which can represent durations) in each row and in each column having the same total. He employed these in the first two symphonies and extensively thereafter. (With magic squares a possible serialisation of durations is automatically attached to the serialisation of pitches.) It is therefore necessary to devote three chapters to the explanations of respectively, the techniques of transposition squares, melodic transformations and magic squares.

Four points should, however, be noted here. First, neither of the first two techniques is superseded by the succeeding ones. Thus, transposition squares occur in works such as the *Second Taverner Fantasia*, which uses transformation processes, and the Second Symphony, which uses magic squares, and transformation processes occur in the First and Second Symphonies, which use magic squares. Secondly, the two techniques invented by Davies are not used unchanged from their introduction onwards, but are subject to further developments, of two kinds, major and minor. The minor kind consists of slight variations: thus, in the *Second Taverner Fantasia* (*q.v.*) transposition squares, first used and extended in *Prolation*, are subject to slight

[4] Boulez, Pierre, 'Eventuellement … ', *Revue Musicale*, No. 212 (April 1952), pp. 117–148.
[5] Roberts, *ibid.*, Vol. 1, Pt. 2, p.308.

development and a transformation process is in one instance extended by the idea of transposition squares. The major kind of development is more radical. Transposition squares were extended in works subject to *Prolation* (see below, Chapter 3, *Other developments of transposition squares*): transformation processes, introduced in the second of the *Seven In Nomine* and used in the *Second Taverner Fantasia* in a way which reflects its sonata form movement, are subsequently extended in *Worldes blis*, and magic squares, introduced in *Ave Maris stella* and used in the First Symphony, are subsequently extended into a double magic square, that is, two magic squares side-by-side in the second movement and a hyper-square that is, one containing a copy of itself in each row, in the first movement of the Second Symphony.[6] Thirdly, the techniques are occasionally combined. Thus, in the *Second Fantasia*, a set of transformations (of α into its inverse) is also self-transposing, and in the third movement of the First Symphony, in a combination of all three techniques, a path through the magic square is subject to transformation processes which are, in an extended sense, self-transposing. Fourthly, the series determined by the techniques are not always followed with complete rigour. As Davies[7] puts it:

> These transformations were sketched on charts, but, as would become clear … from the … *Second Fantasia*, there are deviations from the letter of these charts: I thought it necessary to learn … the content of the charts … and so earn the right to deviate, according to the harmonic field (be the gravitational pull ever so faint!) – so long as the deviation is audibly related and derived, and constitutes a finer musical choice. (There are also purely superstitious deviations … out of a conviction that it was presumptuous – possibly even dangerous! – to attempt any exact imitation of higher natural perfection.)

[6] These extensions have the consequence that, the serial processes are relatively easy to follow in pieces where the techniques are introduced, they become harder to follow in subsequent pieces where the techniques are extended.

[7] Davies, Peter Maxwell, 'Four Composition Questions Answered', http://www.maxopus.com/essays/question.htm, 28/11/02, p. 3: the quotation refers specifically to transformation processes, but is also applicable to transposition squares and magic squares

The works to be considered can thus be seen to fall into three fairly clearly distinguishable periods: pre-transformational, using transposition squares; Using transformation processes but pre-magic-square; and using magic squares, as shown in the following table.

Transposition square period

1958	*Prolation (J53*[8]*)*	
1962	*First Fantasia on an "In Nomine" of John Taverner* (J97)	
	Sinfonia (J98)	

Transformation process period

1964	*Second Fantasia on an "In Nomine" of John Taverner* (J103)	'Apprentice works'[9]
1966-1969	*St Thomas Wake* (J127)	
1966-1969	*Worldes blis* (J128)	
1973	*Stone Litany* (J168)	

Magic square period

1973-1976	*Symphony No. 1* (J198)
1980	*Symphony No. 2* (J231)

[8] The J numbers (the J is the initial of Davies's former manager, Mrs Judy Arnold) of Davies's works are the new ones, taken from Craggs, Stewart (Ed.), *Peter Maxwell Davies: A Source Book*, (Ashgate, London, 2002).

[9] ' … all those early works, up to about 1964, I think of as apprentice pieces. I knew what I was doing: I was building up a solid foundation of compositional technique, and the last two things I did like that were *Taverner* and the Second Taverner Fantasia', Griffiths, *Peter Maxwell Davies*, Part II, p. 109. In Part III of the same book, however, he writes (p. 158) concerning his Symphony No. 1 'So I have written very few orchestral scores, and have felt much less secure, much less experienced in this field than in chamber music, regarding my few works up to now which include large forces very much as apprentice scores'. The first quotation would exclude *St Thomas Wake*, *Worldes Blis* and *Stone Litany* from the category of apprentice works, whereas the second would include them.

Note: Pruslin[10] has suggested that the last three transformation process period works and the First Symphony constitute a 'hypersymphony':

First movement:	*Worldes Blis*
Scherzo:	*St. Thomas Wake*
Slow movement:	*Stone Litany*
Finale:	*First Symphony*

Other works will from time to time, as the necessity arises, be alluded to, but these are the main ones which will be considered: it remains to be outlined *how* they will be treated.

These considerations almost completely determine the five-part structure of this thesis. Just two additions are necessary. First, there is one structural principle, that of *übergreifende Form*, in which a particular idea occurs simultaneously in large and small scale, which pervades much of Davies's music; there is a texture, which will be called 'quodlibet polyphony'; and there is a tendency, in almost all his compositions, to base them, at least in part, on early music. Secondly, there is a number of devices which recur in piece after piece. It seems best to gather together descriptions of all of these in a second introductory chapter, which could be referred back to whenever necessary. And, thirdly, there is a final concluding part.

Type of Analyses to be given in this Thesis

As noted in the Acknowledgements above, hardly any of the analyses given here, and certainly not those of the first two symphonies, would have been possible without the brilliant path-breaking study of David Roberts.[11] His orientation, however, was to the compositional techniques themselves, as is shown by his title: *Techniques of Composition in the Music of Peter Maxwell Davies*. Even in the first

[10] Pruslin, Stephen, 'Maxwell Davies's Symphony – an introduction', *Tempo*, no. 124 (March, 1978), pp. 6–7.
[11] Roberts, *ibid.*

six chapters, each of which is devoted to a particular early work (in fact composed before 1960)[12], there is a section towards the end entitled 'Summary of technical features': each of the final three chapters is devoted to a particular compositional technique: Further Developments Of Transposition Squares, Transformation Processes and Magic Squares, and *illustrated* by *sections* of different pieces. The most striking example of this is his analysis of *Revelation and Fall*, which, after an account of its central Sinfonia, consists of six pages[13] of lists of transformations, with the bar numbers of the passages where they occur and the instruments they are played by there. The approach taken here, on the other hand, is to use Roberts's results (and those of a number of other scholars, to be cited[14]) to give a (Tovey-like) narrative and contextual account of the work being analysed. The purpose behind each of the present analyses is to equip the reader to *hear* more of the music. This leads on to the question of the extent to which serial processes *can* be heard.

The audibility of Davies's serial procedures[15]

There are three aspects to this question. The first, which requires only brief consideration, stems from the highly contrapuntal nature of much of his music. Here it is sufficient to quote Tovey:

> Much vexatious damage is done to the enjoyment of music, even for musicians themselves, by the mistaken notion that in order to understand polyphony you must be able to attend to all the parts at once. No such mistake was made by the sixteenth-century theorists to

[12] Specifically, the *Sonata for Trumpet and Piano* (J42), *Five Pieces for Piano* (J45) (1955–1956), *Prolation*, *Alma Redemptoris Mater* (J50) (1957), *St Michael* (J51) (1957) and *Ricercar and Doubles* (J56) (1959).

[13] Roberts, *ibid.*, volume 1, pp. 301–306.

[14] I have tried to be absolutely punctilious in acknowledging their contributions. Consequently, the absence of any such acknowledgement on a particular point should be taken to indicate that, to the best of my knowledge and belief, it is my own discovery.

[15] The terms 'poietic' and 'esthesic' have been introduced by Nattiez (Jean-Jacques, *Music and Discourse: Towards a Semiology of Music*, tr. Carolyn Abbate, Princeton University Press, Princeton, 1990), the first, due to Gilson, to designate the process of creation and the second, due to Valéry, for the process of reception. They will not be used here since, it turns out to be possible for me to say all I wish without the use of imported neologisms.

> whom Palestrina's polyphony was the final outcome of a tradition as ancient to them as Bach is to us now. They analysed their harmony as between two parts at a time; and this was adequate.[16]

The second aspect concerns the system or system of serialism he is using. At the beginning of the twentieth century, some composers[17] began to write music by methods radically different from the 'common practice' which had been used by all musicians for the preceding three centuries or so. These new methods were in general different from one another and (with the partial exception of the Viennese serialists and their followers), every such composer used a different method, so that audiences had to learn a new way of listening to each of them. A few composers explained their systems, for example. Schoenberg,[18] Hindemith,[19] and Messiaen,[20] whereas more, including more recent ones, did not, leaving it to others to do so, for example Bartók,[21] Stravinsky,[22] Carter,[23] Lutos✖ławski[24] and Pärt.[25] Maxwell Davies belongs

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[16] Tovey, Donald Francis, *A Companion to 'THE ART OF FUGUE' (DIE KUNST DER FUGE) J. S. BACH*, (Oxford University Press, London, 1931), pp. 15–16.

[17] But not all. The music of Sibelius, Nielsen, Shostakovich, Prokofiev and Vaughan Williams is still (extended) common practice.

[18] Schoenberg, Arnold, 'Composition with Twelve Tones', Schoenberg, Arnold, *Style and Idea*, (Williams and Northgate Ltd., London, 1951), Chapter V (pp. 102–143)

[19] Hindemith, Paul, *The Craft of Musical Composition: Book I, Theoretical Part*, tr. Arthur Mendel, Revised Edition, (Schott & Co., Ltd., London, 1945). It should be noted that Landau (Landau, Paul, 'Paul Hindemith, a Case Study in Theory and Practice', *Music Review*, 21 (1960), pp. 38–54) has shown that Hindemith did not always follow his own system, despite claiming to have revised his song-cycle *Das Marienleben* to accord with it.

[20] Messiaen, Olivier, *Technique de mon langage musical*, (Leduc, Paris, 1944).

[21] *E.g.*, Gillies, Malcolm, *Notation and Tonal Structure in Bartók's Later Works*, (Garland, New, York, 1989). Bartók's compositional principles (about which he was extremely reticent) have been the subject of considerable research: for an overview, see Waldbauer, Ivan F., 'Analytical responses to Bartók's music: pitch organization', Chapter 14 (pp. 215–230) in: Bayley, (ed.) *The Cambridge Companion to Bartók*..

[22] Berger, Arthur, 'Problems of Pitch Organization in Stravinsky', and Cone, Edward T., 'Stravinsky: the progress of a method', *Perspectives on Schoenberg and Stravinsky*, ed. Benjamin Boretz and Edward T. Cone, (W. W. Norton, New York, 1972), pp. 123–154 and 156–165: Cone, in a footnote at the end of his paper, cites a remark by Stravinsky confirming his own theory of the frequent apparent discontinuities in the composer's music. Van den Toorn, Pieter C., *The Music of Igor Stravinsky*, (Yale University Press, New Haven, 1983).

[23] Schiff, David, *The music of Eliott Carter*, (Eulenberg Books, London, 1983), *The Music of Elliott Carter: New Edition*, (Faber and Faber, London, 1998).

[24] Rae, Charles Bodman, *The Music of Lutosł✖awski*, (Omnibus Press, London, 1999).

[25] Hillier, Paul, *Arvo Pärt*, (Oxford University Press, Oxford, 1996). The books of Rae and Hillier are, however, derived in part from conversations with Lutosławski and Pärt respectively.

emphatically to the latter group. Although he has written general articles about his compositions,[26] they have little to say about specific compositional techniques, and what they do say tends to be enigmatic: too general for detailed comprehensibility, and usually true but far from being the whole truth. Indeed, it is from time to time hard to avoid the impression that he is deliberately teasinges readers of his programme notes: for example, the reference to magic squares in his note on the *First Symphony* could not conceivably have been understood until the work of Roberts became available. The latter's doctoral thesis [27] (following a journal article seven years earlier[28]) is the first, and still the standard study of certain aspects (mainly thematic and thematic transformational, but also, indispensably, magic squares), but those of Skoog,[29] Jacob,[30] Outwin[31] and Lister[32] are valuable supplements.

The third aspect of the audibility of Davies's serial procedures concerns the ways in which a serial or post-serial composer may present the series or serial processes in a composition. There is a range of these. At one extreme they may be made immediately plain to the listener: for example, Schoenberg begins his *Variations*, Op. 31 with a clear statement of its series by the cellos in prime, retrograde inversion, retrograde and, on the violins, inversion; similarly, Berg starts his *Violin Concerto* with a clear statement of its tone-row. At the other extreme, the opening of Webern's *Piano Variations*, Op. 27 by no means makes its series clear to

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[26] *E.g.* Davies, Peter Maxwell, 'Sets or series', *The Listener*, 79 (1968), p. 250, 'Four Composition Questions Answered', http://www.maxopus.com/essays/question.htm, 28/11/02.
[27] Roberts, *Techniques of Composition*.
[28] Roberts, David L., Review of scores by Peter Maxwell Davies, *Contact*, 19 (1978), pp. 26–29.
[29] Skoog, James Alfred, *Pitch Material in Peter Maxwell Davies's Eight Songs for a Mad King*, M.A. Thesis, Department of Theory, Eastman School of Music, University of Rochester, 1976.
[30] Jacob, Jeffrey, *Peter Maxwell Davies' Vesalii Icones: Origins and Analysis*, (D.M.A. Dissertation, Peabody Conservatory of Music, Johns Hopkins University, 1979).
[31] Outwin, Daphne M., *Transformation Processes and Other Compositional Techniques in Some larger Works of Peter Maxwell Davies*, (M.Phil. Thesis, Kingston Polytechnic, 1983).
[32] Lister, John Rodney, *Steps through the maze: 'Image, Reflection, Shadow' and aspects of magic squares in the works of Sir Peter Maxwell Davies (Michael Blumenthal, England)*, (diss. Ph.D., Brandeis University, 2001).

the listener: indeed, Stadlen,[33] who studied the piece with the composer for its first performance, reports 'Even when I asked him, he declined to go into it [the serial aspect of the piece] with me—because, he said, it was important that I should know how the work should be played, not how it was made'. (There is, however, evidence that familiarity with the dodecaphonic structure of a work may sometimes assist in the understanding of it. Stuckenschmidt reports that 'singers at the first performance [of Schoenberg's opera *Von heute auf morgen*] found their work considerably easier after they had got to know the construction of the work as based on the row.')[34] Writers on Davies have generally adopted a Webernian stance. Thus, Roberts ends his study with the words:

> I firmly believe that my discoveries are, as far as my experience of the music goes, profoundly trivial; whatever importance they have lies in the fields of intellectual history and the psychology of creation.[35]

Similarly, Seabrook, in an *obiter dictum* in his biography of Davies, asserts that

> Magic squares are well documented, and this is not an appropriate place to discuss them at any great length: like many other such devices, they are of central importance to the composer, but of little to the listener. The magic square may perhaps be said to stand in relation to the finished piece of music as builder's scaffolding stands to a finished building: the building could not have been created without it, but by the time the outside spectator – or listener – comes along to appreciate the result, the scaffolding has served its purpose, and both it and its influence on the complete work of creation are invisible. The piece of music is there to be heard and to speak for itself: the aids to its creation are things that the listeners do not need to know about and the composer does not want them to know about. This

[33] Stadlen, Peter, 'Serialism Reconsidered', *The Score*, No. 22 (1958), pp. 12–27, p. 16. See also his 'Das pointillistische Missverständnis', *Österreichisch Musikzeitschrift*, Vol. 27, No. 3 (1972), pp. 152–161 and his introduction to the 1979 edition of Webern's *Variationen für Klavier*, Op. 27.
[34] Stuckenschmidt, H. H., *Arnold Schoenberg*, tr. Edith Temple Roberts and Humphrey Searle, (John Calder, London, 1959), p.104.
[35] Roberts, *ibid.*, Volume 1, p. 369.

> really ought to go without saying, but it is something that many pundits and self-styled experts on modern music forget.[36]

Davies himself has in different places appeared to take different positions on this issue. Thus, in a conversation with Paul Griffiths he said

> And that the public isn't aware of compositional processes I don't think is at all a thing to worry about, because it really is something that's only of interest to the composer.[37]

which foreshadows what Seabrook was to write twelve years later. But in the same conversation he said:

> Previously I'd been using isorhythmic designs, based on mediaeval music, and transformation processes where a contour will assume other contours step by step. They relate to the magic square technique, obviously, but that just codifies them very neatly. It does make, too, a kind of thread which works right through the piece, and which I can hear.[38]

and, in response to Griffiths's '*And presumably any listener can too*': 'Yes, if it's pointed out, and perhaps even if it's not', which takes the opposite point of view. Elsewhere, Davies reconciles these two apparently opposing views: discussing mathematical aspects of some of the symphonies and of other works, he wrote:

> Such works are, in their arcane numerological details, of more concern to the professional than to the lay listener, but, as in art, architecture and poetry, any insights into the basic principles of structure as a creative, organizing, enabling – and indeed spontaneous generator can only help towards a deeper understanding. Music exists on many levels, and although even as a craftsman I can never quite grasp why something suddenly works in its context, even a limited understanding of proportion and of the inherent basic structures and energies in nature and in the arts would appear to help elucidate.[39]

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[36] Seabrook, Mike, *Max: The Life and Music of Peter Maxwell Davies* (Victor Gollancz, London, 1994), p. 151.
[37] Griffiths, *Peter Maxwell Davies*, Part II, p. 116.
[38] *Loc. cit.*, pp. 121–122.
[39] Davies, 'Four Composition Questions Answered', p. 5.

On one notable occasion Davies seems to have overestimated the ability of an audience to follow his serial processes. He wrote of *Worldes blis*:

> It moves slowly, in long, extremely carefully articulated time-spans, with no 'orchestration' as such, but a minimal presentation of the material in such a way as to make the structural bones of the music as clear as possible.[40]

but, as is notorious, many ill-mannered members of the audience at its Promenade Concert premiere walked out, and noisily. Indeed, Davies at that time seems to have tended to overestimate audiences' capacity to hear what was going on in his music, a tendency analogous to that attributed by G. K. Chesterton to Browning: 'But along with all this knowledge he carried one definite and important piece of ignorance, and ignorance of the degree to which such knowledge was exceptional.'[41] That is, Davies is such a brilliantly accomplished musician that it took him some years to appreciate that most of his listeners were less highly gifted and trained, and that they simply could not grasp the musical processes in operation.

The audibility of Davies's serial processes in fact varies from work to work, and even within a particular work. For example, the *Second Taverner Fantasia* begins with a statement, by string quartet, of the three themes to be used. One of these is then, in the next section, presented as the subject of a canonic ricercar, and in the next all three are given as the subjects of a sonata movement. Only after these repeated presentations to familiarise the listener with them do transformations appear, appropriately in the development section of the sonata movement. In the satellite work *Revelation and Fall*, however, (which uses the same sets of transformations), many of the serial processes are scarcely conceivably audible (and, unlike those in the *Second Fantasia*, with one exception irrelevant to the structure of the work).

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[40] Griffiths, *Peter Maxwell Davies*, Part III, 'Worldes blis', p. 150.
[41] Chesterton, G. K., *Browning*, (Macmillan and Co., Limited, London, 1936), p. 13.

The overall guiding principle adopted in this thesis is to aim to enable the listener to hear more in the music than would otherwise have been possible, both of the large-scale structure of the work being discussed, and of the serial processes within it. It is necessary to speak personally here: discovering, sometimes with the help of earlier writers, sometimes for myself, what is going on in pieces such as *Revelation and Fall, Missa super l'Homme armé, Vesalii Icones* and the third (slow) movement of the *Symphony No. 1* has enabled me to hear shape in what was before an amorphous sequence of (eloquent, and sometimes very beautiful) passages of music.

The position with the small-scale, *i.e.* serial, processes is different. In some instances to be illustrated, and with the 'oscillatory transposition' of *Worldes Blis*, there are passages whose serial structure can, with some difficulty, be seen on the page, but where it is inconceivable (to me) that any listener, however gifted, could actually hear what is going on. The explanation of such passages has, where it is cumbersome, been relegated to footnotes and appendices. In many others it seems (again, to me) that the serial processes could be heard, at least by a listener with hyper-sensitive hearing, total auditory recall and brilliant intelligence. It is, nevertheless, worthwhile to provide serial analyses of such passages in the main text because listeners who (like me) are less gifted can still learn to hear at least *something* of what is going on, and this is a positive gain.

Intertextuality

There is one feature of Davies's music, namely its intertextuality,[42] which does not seem to have been so much discussed by previous scholars, and which will, in one

[42] ''Intertextuality', like 'ideology', is a magic word whose scope can be altered dramatically to answer to the polemic needs of the moment' (Tallis, Raymond, *Not Saussure: A Critique of Post-Saussurean Literary Theory*, Second Edition, Palgrave, Basingstoke, 1995, p. 16: see also Ch. 2 'Literature as Textual Intercourse, pp. 27–48; the sentence is so good that Tallis repeats it almost verbatim in *Theorrhoea and After*, MacMillan Press Ltd, Basingstoke, 1999, Ch. 8, 'The Referents of Music, pp. 133–145, especially pp. 138–140.). Here the word is used simply to indicate that Davies's music is

respect, affect the presentation of the analyses given here. The music is full of cross-references. The most notable category of these is to other music. First, Davies very rarely invents the basic melodic material of a piece: it is almost always, as will be detailed in analyses of individual works, derived in some way or other from (usually considerably) earlier music. Secondly, in the large scale, the *Sinfonia*[43] refers to Monteverdi's *Vespro della Beata Vergine* (which Davies arranged for performance by the school orchestra and choir when he was music master at Cirencester Grammar School between 1959 and 1962); the *Missa Super l'Homme Armé* is based on an incomplete anonymous eponymous mass, *St Thomas Wake* on John Bull's eponymous *Pavana*, the early English carol *Worldes Blis* lies behind Davies's eponymous 'motet for orchestra', and the plainchants *Ave Maris Stella* and *Nativitas Tua, Dei Genetrix* underlie the *Symphonies No. 1* and *No. 2* respectively. Thirdly, in the smaller scale, shorter references are found in other works: Taverner's *In Nomine* is quoted in the two *Taverner Fantasias* and related works, Handel is quoted in *Eight Songs for a Mad King* and there are frequently parodies of modern foxtrots: in *Eight Songs for a Mad King* and *Vesalii Icones* and *St Thomas Wake*.

There are also liturgical quotations and allusions, to the Septuagint in the *Missa Super l'Homme Armé* and to the Stations of the Cross in *Vesalii Icones*. There are, further, many literary references: Davies was seized by, first, the poetry of Georg Trakl (*Revelation and Fall* is a setting of part of an eponymous poem by him) and later by the writings of the Orcadian poet George Mackay Brown (the opera *The Martyrdom of St Magnus* was suggested by his novel *Magnus* and the *Symphony No.*

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rich in references to other works of art. An introductory, but committed, account of Julia Kristeva's term is given by Allen, Graham, *Intertextuality*, (Routledge, London, 2000), particularly the first Chapter: a welcome and refreshingly caustic corrective is given by Chapter 3, Literature as Textual Intercourse, pp. 27–48 of *Not Saussure*.

[43] Usually, only works discussed in this thesis are referred to here.

1 emerged from a piece written in response to his novel *Greenvoe*[44]). One idea behind the *Missa super l'Homme Armé* is the 'Cyclops' chapter of James Joyce's *Ulysses*, and *Stone Litany* even sets Viking graffiti in the prehistoric tomb of Maeshowe in Orkney.

For all these allusions it is sufficient to mention the work referred to, but for a third class, namely visual allusions, this will not suffice. Thus, in his remarks on the slow (third) movement of his *Symphony No. 1*[45] he refers to 'the extraordinary, almost unearthly, treeless winter land-and-seascape of the Orkney island where I live', and this is here illustrated by a photograph of Rackwick Valley, Hoy. Further, in his comments on the *Symphony No. 2* he remarks on two different types of waves, which are here illustrated by photographs and also by drawings of Leonardo da Vinci to which he refers. Also, the pervasive structural principle of *übergreifende Form* stems from Sedlmayr's book on cathedrals, and must, in the first instance, be illustrated by figures from his book.

There is also another type of figure which will be included. In *St. Thomas Wake*, the piece is not only a musical, but also a visual work of art, and with these pieces also illustrations of the performers are included.

For these two reasons, this thesis has to be more pictorially illustrated than is usual in musical analysis.

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[44] Brown, George Mackay, *Greenvoe*, (Hogarth Press, London, 1972).
[45] Griffiths, *Peter Maxwell Davies*, Part III, 'Symphony No. 1', p. 157.

CHAPTER 2: SOME GENERAL FEATURES OF DAVIES'S MUSIC

Before anything else, four features, and a number of devices found repeatedly in Davies's music will here be described prospectively.

Two Structural Features

The first of these is the important and pervasive structural principle of *übergreifende Form*, which has to be explained at some length. The second, to which Davies has not given a name, but which will be named from his comment on it, can be dealt with more briefly.

Übergreifende Form[1]

Davies[2] reports being recommended by Alexander Goehr, when they were students together in Manchester in the 1950s, to read three books, of which the third was *Die Entstehung der Kathedrale* by Hans Sedlmayr.[3] Of this Davies wrote

> … the Sedlmayr alerted me … to recurring interlocking shapes and forms in the structure of Gothic cathedrals, with obvious musical potential …

A concept introduced by Sedlmayr is that of of *übergreifender Form*.[4] The adjective *übergreifender* is scarcely translatable.[5] (It is certainly not related to Schenker's *Übergreifen*, which refers to 'the juxtaposition of two or more descending lines (in rare instances leaps) in such a way that the resultant line appears to climb from an inner voice to a higher one', and has been variously translated as

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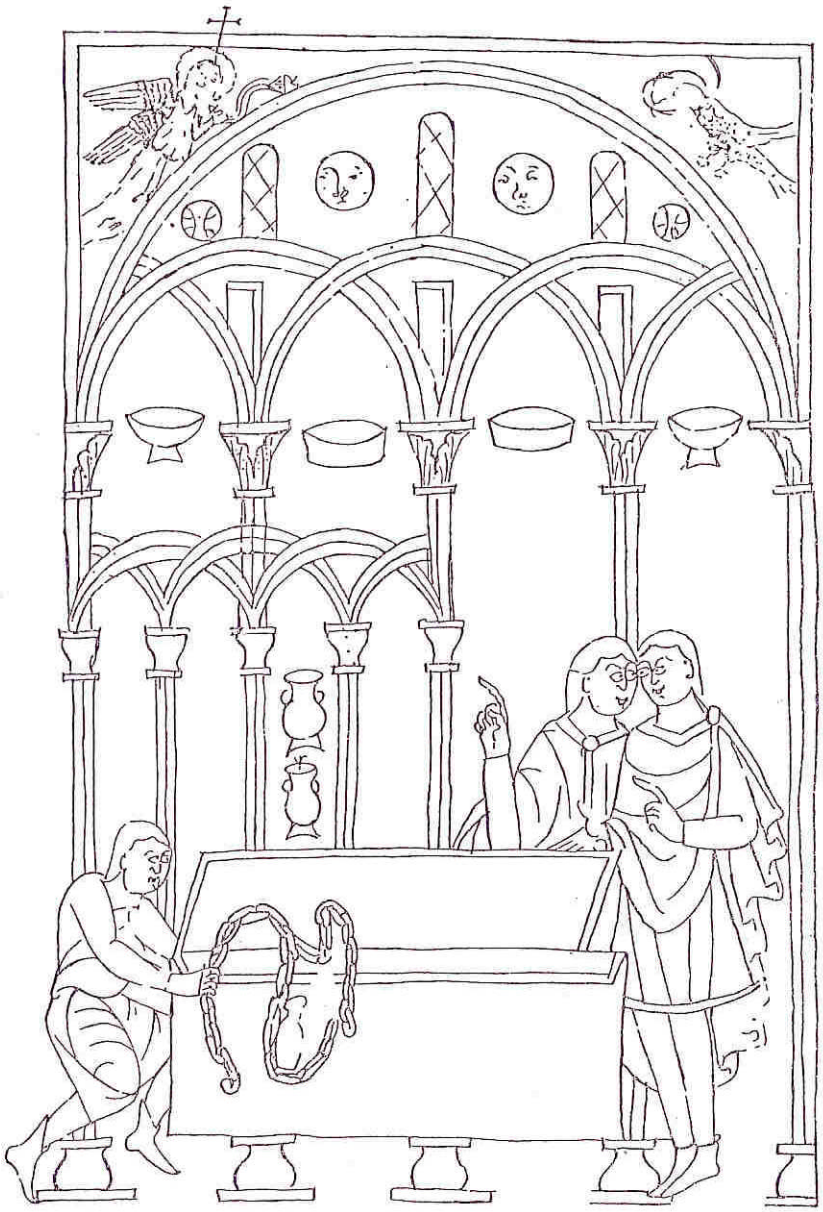
[1] This concept has been described by Nicholas Jones, *Analytical Perspectives on the Third Symphony of Peter Maxwell Davies, Volumes 1 and 2*, (Ph. D. Dissertation, University of Wales, Cardiff, 1999), Chapter 1, Section 1.4 (iii), pp. 119–123 and Chapter 3, Section 3.1 (ii) (a), '*Übergreifende Form*', pp.172–177), who discusses its importance in Davies's music, particularly in the *Symphony No. 3*.
[2] Davies, 'Four Composition Questions Answered', p. 2.
[3] Sedlmayr, Hans, *Die Entstehung der Kathedrale*, (Atlantis Verlag A. G. Zürich, 1950).
[4] Sedlmayr, *ibid.*, Ch 11, pp. 55–59, 'Übergreifende Form'.
[5] Jones, *Analytical Perspectives*, renders it as 'all-embracing form' (a term possibly due to Dr. James Garratt, whose translation of Sedlmayr's Chapter 11 he acknowledges in footnote 266 on p. 308), but this has the disadvantage of suggesting that the form always embraces the whole building or work of music: Sedlmayr, however, writes 'an vielen Bauten … bestimmt sie das gesamte Gefüge', implying that there are other buildings where it does not determine the whole construction, a point acknowledged by Jones, *ibid.*, p. 121.

'superposition', 'reaching over' and 'overlapping'.[6] It is more closely related to the concept of nested 'motivic parallelism'.[7]) The idea may, however, be rendered by a word which was not coined until twenty years after his book had been published, namely 'fractal'.[8] Sedlmayr illustrated this with a number of figures. One is given by Jones,[9] another[10] is of an early eleventh century pen drawing in which a central round arch contains three smaller similar arches which intersect to form four ogives, and the latter pattern of three and four is in its turn echoed below on a smaller scale.

[6] Drabkin, William, 'Übergreifen', p. 136 in: Bent, Ian with Drabkin, William, *Analysis*, (Macmillan, Houndsmill, Basingstoke, 1987).
[7] Burkhart, Charles, 'Schenker's "motivic parallelisms"', *Journal of Music Theory*, 22 (1978), pp.145–175.
[8] Mandelbrot, Benoit, *Les Objets Fractals; forme, hazard et dimension*, (Flammarion, Paris, 1975). Of course the term is not an exact fit (in a fractal curve *any* part, however small, when sufficiently enlarged, has the same characteristics as the whole), but it is close enough to be useful here.
[9] Jones, *Analytical Perspectives*, Figure 1.3.
[10] Sedlmayr, *Die Entstehung der Kathedrale*, p.295.

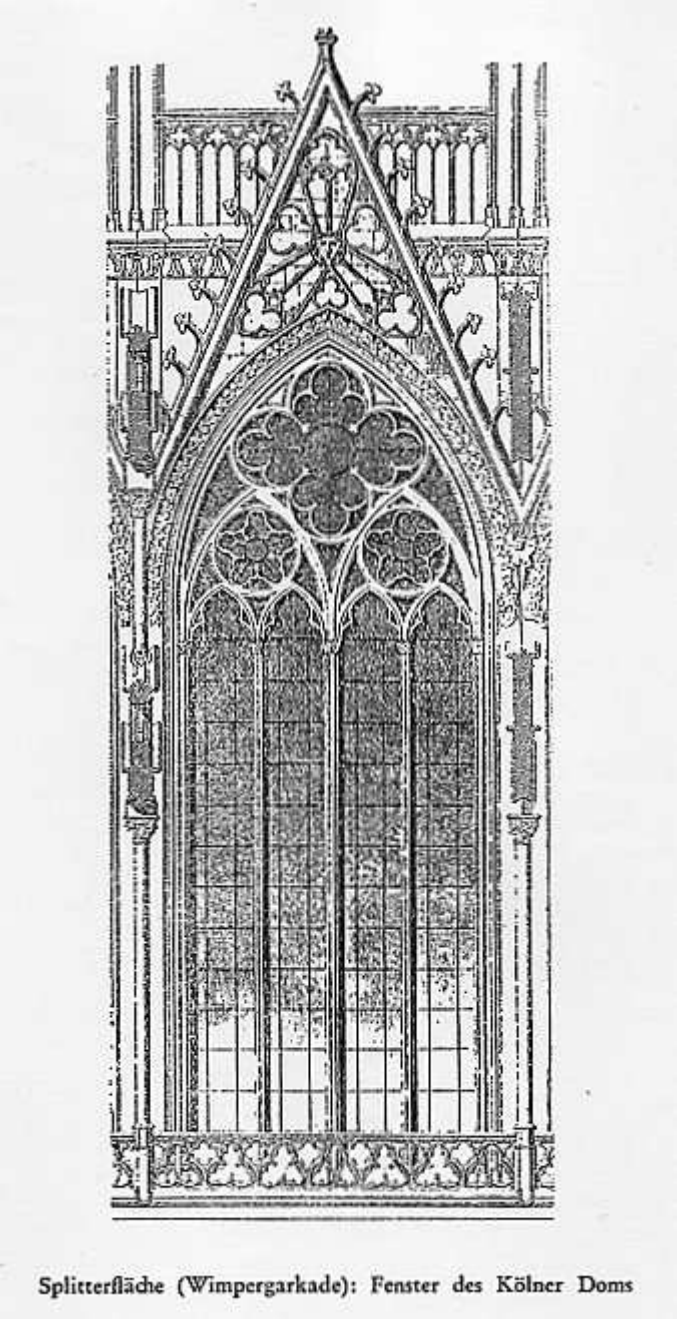


Übergreifende Form: Zeichnung des früheren XI. Jahrhunderts

Ill. 2.1 Pen drawing of übergreifende Form, from Sedlmayr, *Die Entstehung der Kathedrale*, p.295.

A third example[11] is an arcade in Cologne cathedral, where an ogive with a clover-leaf pattern at the top is made up of two similar smaller ogives with clover-leaf patterns, starting from the same impost height and with the same radius of curvature, each of which is in its turn made up of two ogives.

[11] Sedlmayr, *ibid.* p. 67. These are not the only illustrations of *übergreifende Form* given by him.



Ill. 2.2 Arcade in Cologne cathedral, from Sedlmayr, *Die Entstehung der Kathedrale*, p. 67.

An obvious musical instance of *übergreifende Form* is canon by augmentation (or by diminution). Davies, however, is interested in more elaborate applications of the concept:

> In 1956 I tried to put something of the insights gained from this knowledge into practice by making the fifth of my Five Piano Pieces not only reflect, in its five sections, the character of each of its four predecessors, but the exact proportions. The fifth 'variation' is a further breakdown, implying a box within a box … [12]

This suggests that the structure of the fifth piece is as follows

Vi	Vii	Viii	Viv	V, v
I	II	III	IV	Vi, Vii, Viii, Viv, Vv

but there are two problems here. First, the reflection of the character of each of the first four pieces is hard to hear in the first four sections of the fifth, which latter does not even unambiguously fall into five subsections, and it is also hard to hear any of the first four sections in the fifth. Secondly, Davies's remark about the five sections of the fifth piece reflecting the 'exact proportions' of the five pieces seems to be simply incorrect, since the pieces are of different lengths, but the five sections are all exactly 88 semiquavers long.[13]

> In an orchestral work of 1958, *Prolation*, I took this further: the proportions of the five-note 'set' govern all proportions, micro and macro, almost exactly, with 'übergreifende(n), verzerrte(n) überschittene(n) and gebogene(n) Formen' (Sedlmayr) operating very assiduously.[14]

this process is used throughout *Prolation*, as is evident in the table given below (Chapter 4: The Orchestral Works, Prolation), where a single five-pitch series, P_G, gives rise to a second-level structure of five of them, P^2_G, and similarly to third-, fourth-level structures, and a fifth-level structure which is the whole piece.

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[12] Davies, 'Four Composition Questions Answered', p. 2.

[13] There are three ways in which the lengths of the pieces might be measured. The number of bars is not satisfactory, since in some of the pieces there are constant changes of time signature. The time taken, derived from the sum of all note-lengths and the tempo markings, would be impossible to compute precisely, because of not infrequent *accelerandi* and *ritardandi*. The fact that the measure used here, the number of semiquavers, gives exactly the same length for all the sections of the fifth piece, suggests that this must be the measure which Davies used.

[14] Davies, 'Four Composition Questions Answered', p. 2. The passage in quotation marks, 'übergreifende, distorted, intersected, curved form(s)', does not appear in Sedlmayr's Chapter 11.

Davies has also referred to *übergreifende Form* in the First Symphony.

> … in the First Symphony … the relationships take what's happening in the small span—in the basic cell—and project that over a large span, so that you get transpositions upon transpositions upon transpositions, branching out from those main notes.[15]

Making a point and moving away

Of this, Davies has written:

> … musical gestures: the same kind of building to a point, making the point, and then moving away. I was very conscious of that in writing the first movement of the Second Symphony, where the most intense moment, towards the end, has got precedents in the first section of the Second Taverner Fantasia and in *Worldes Blis* in the recapitulation of the sonata ghost. And there are other parallels in the thing. At the end it floats off, dissolves, and I realized that I'd done that at the end of the Second Taverner Fantasia and at the end of the second movement of the First Symphony, and inside various other movements.[16]

In a chapter on the first movement of the First Symphony (*q.v.*), Gloag[17] describes something similar: 'a very simple but effective archetype which consists of climax followed by contrast, what I will refer to as the climax/contrast moment', a description quickly amplified as 'the accumulation of texture and dramatic dynamic *crescendo* followed by a sudden change of texture and shift from loud to quiet.'[18]

Two Other Features

A texture: quodlibet polyphony

By polyphony is traditionally meant the simultaneous performance of a number of distinct (but relatively similar) melodic lines, but there is another type which

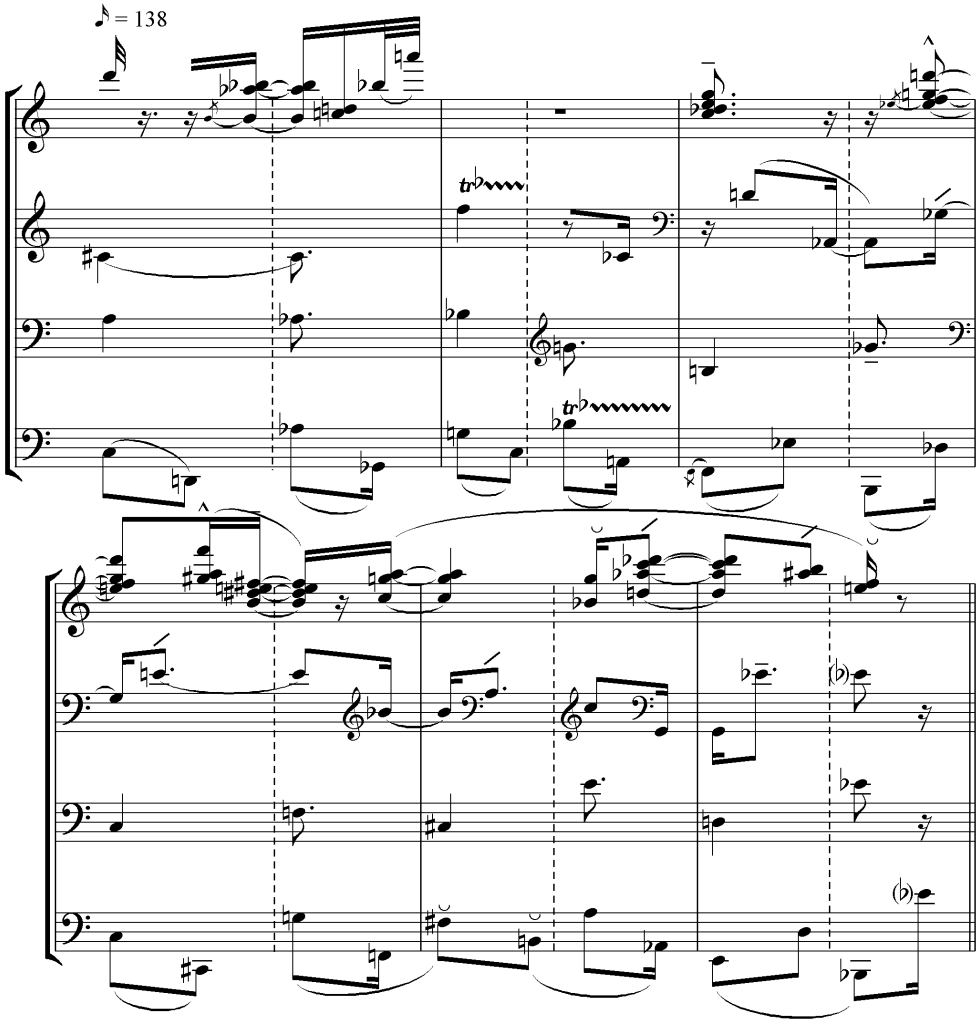
[15] Griffiths, *Maxwell Davies*, Part II, p. 125.
[16] *ibid.*, p. 129.
[17] Gloag, Kenneth, 'Questions of form and genre in Peter Maxwell Davies's First Symphony', in *Peter Maxwell Davies Studies*, Ch. 8, pp. 129–149, p. 134.
[18] *ibid.*, p. 135.

involves distinct but *markedly different* lines, and this texture is frequently found in Davies's music. Roberts has noted, in connection with the third of the *Five Pieces for Piano* (Op. 2, 1955–1956, J45) that

> This principle of constructing an extended portion of music through superposing layers of material that are internally coherent but relatively distinct from one another is fundamental to much of Davies's music.[19]

(On layers, see below, under *Quodlibet polyphony and stratification*.) This may be illustrated writing out a passage of the piece in its four separate contrapuntal strands:

[19] Roberts, *ibid.*, Vol. 1, p.48.

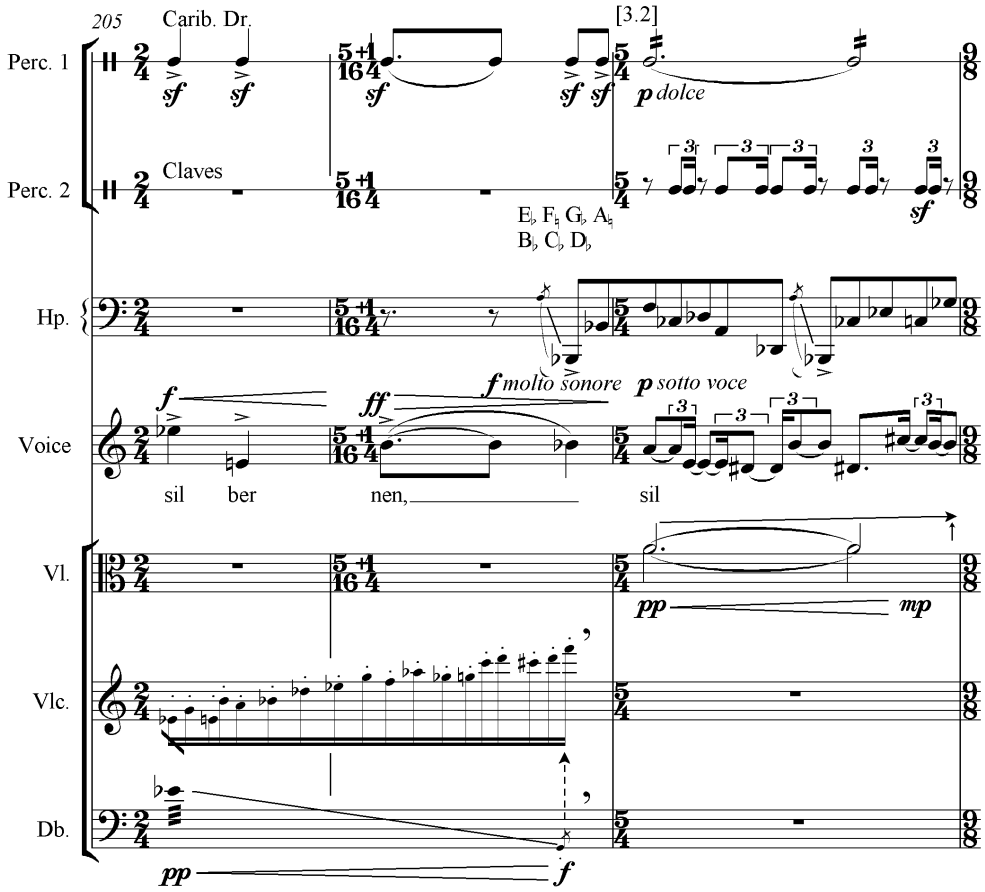


Ex. 2.1 *Five Pieces for Piano*, No. 3, bars 61-66

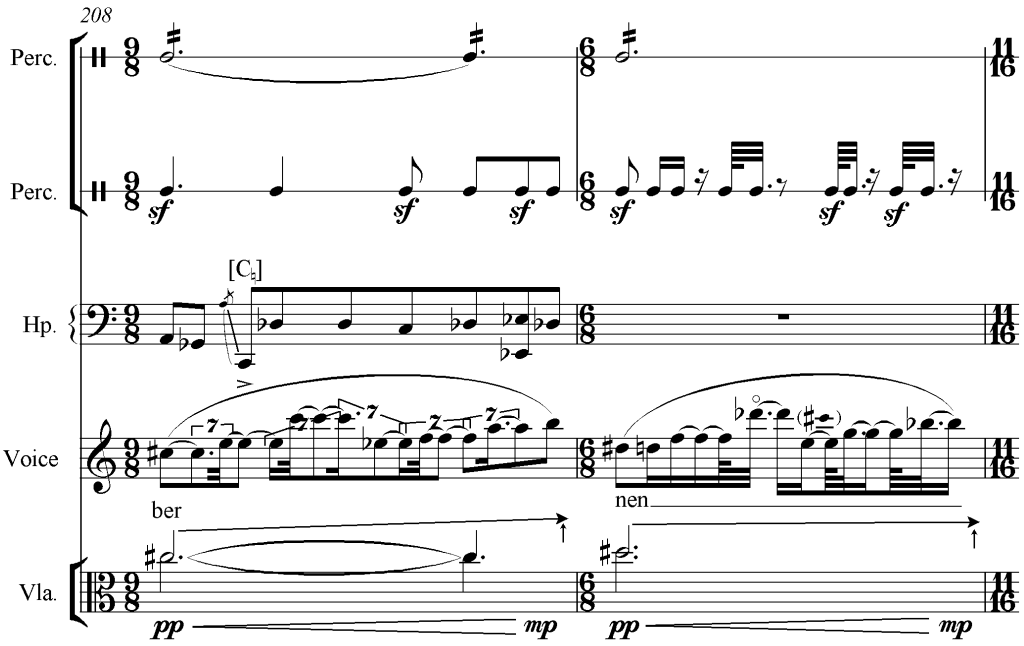
It will be noted that strand 1 here is not a single melodic line but chordal (it will be seen below that Mahler's concept of polyphony is similar, treating 'barrel-organs, a military band and a men's choral society' each as a single voice). Strands 1, 2 and 4 are derived from various processings of dodecaphonic rows in the piece, whereas strand 3 is a standard all-interval row consisting of an expanding wedge.

In this instance the quodlibet polyphony seems to be entirely a constructional technique: for many it will be virtually impossible to follow as such, because of the registral similarity, intricate interweaving and crossing of the parts, particularly of the

middle two. In the following extract from *Revelation and Fall*[20] the separate strands are more distinct and easier to follow.



[20] There is an error in the published score in bar 209 of the voice part, which has one semiquaver too many. The solution adopted above, to change the duration of the fourth note, a quaver F, to a semiquaver, is confirmed by bar 364, where the same passage is played on the trumpet.



Ex. 2.2 *Revelation and Fall*, bars 205-209.

*Origin*s

The origins of the quodlibet in the mediaeval *Disputatio de quolibet*, (in which a chosen magister had to give impromptu – de quolibet – answers to all questions put to him), above all in the theological faculty in the Sorbonne, flourishing until about 1320, and the transference of the name to the musical quodlibet in the time of decay of the disputations, are discussed by Gudewill,[21] who lists six types of musical quodlibet.[22] Only his fourth type, 'The polyphonic quodlibet made of several simultaneous melodies

[21] Gudewill, Kurt, 'Ursprünge und nationale Aspekte des Quodlibets', pp. 30–43 in: *International Musicological Society—Report of the Eighth Congress, New York 1961*, Ed. Jan Larue, Vol. 1, (Bärenreiter, Kassel, 1961).

[22] These were, at the request of the chairman, (Discussion: 'Origins and National Aspects of the Quodlibet', Chairman Dragan Plamenac, pp. 53–57 in: *International Musicological Society—Report of the Eighth Congress, New York 1961*, Ed. Jan Larue, Vol II, Bärenreiter, Kassel, 1962), diagrammatically represented by Gudewill on the blackboard, in English.

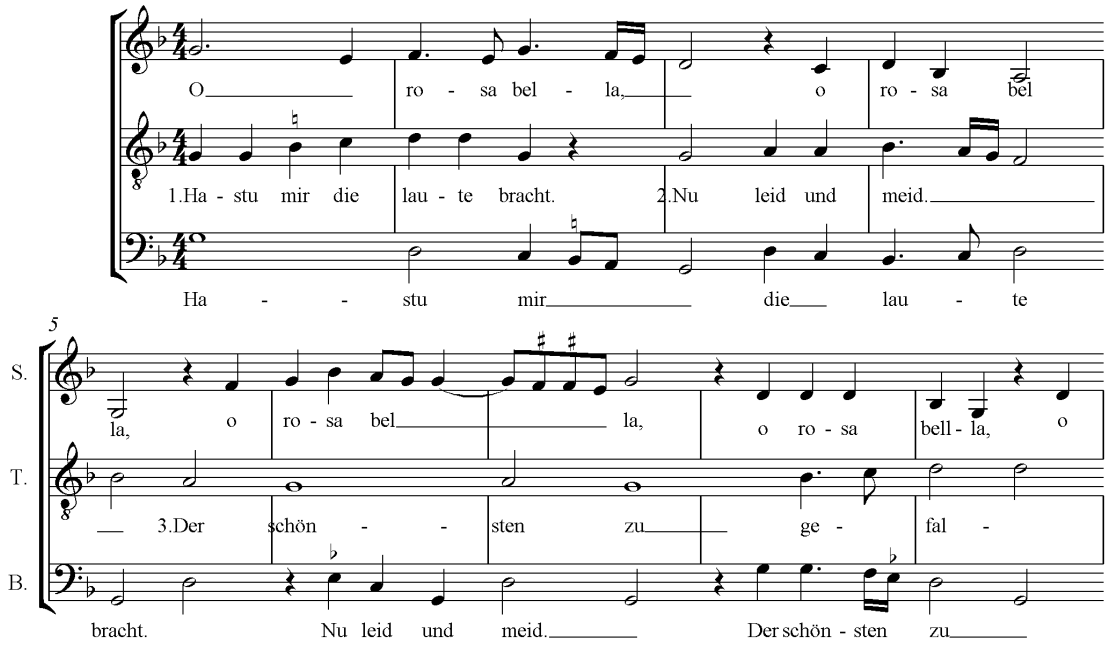
a———————

b———————

c———————’

is referred to here in the invented term ‘quodlibet polyphony’.

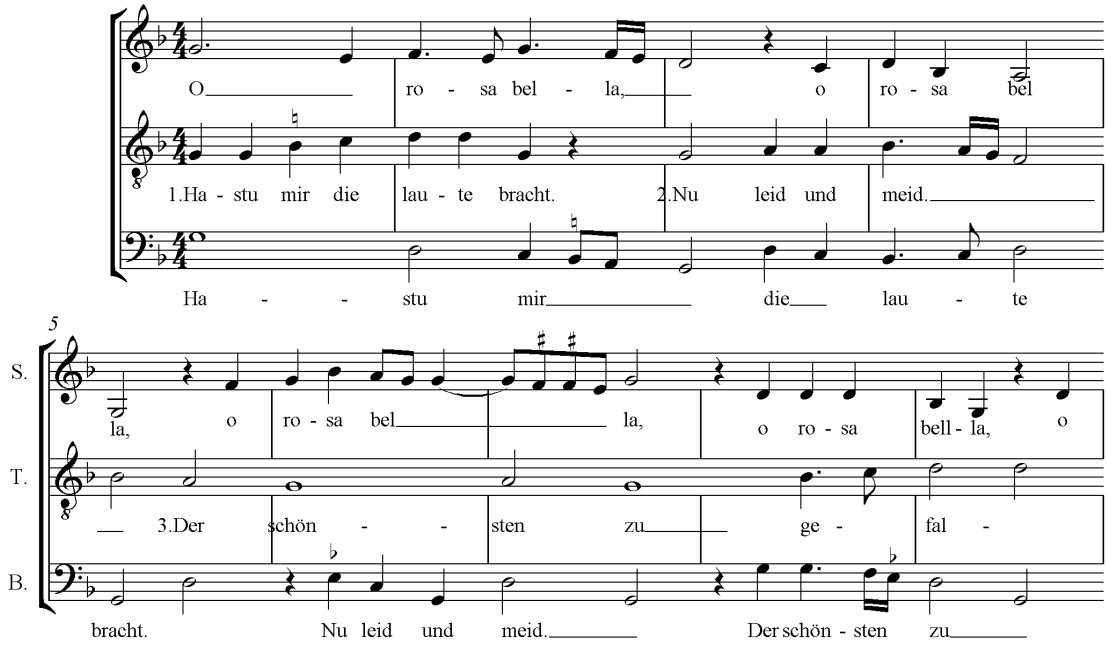
There are many early examples of quodlibet polyphony. In Chapter IV of Book III of his *Proportionale Musices* (*c.* 1475), Tinctoris includes an extract in which the cantus has *O rosa bella*, the tenor *L’homme armé* and the bassus *Et Robinet*.[23]



Ex 2.3 Quodlibet from Tinctoris, *Proportionale Musices*.

Just a few years later (1480), the Glogauer Liederbuch[24] contains three quodlibets on *O rosa bella*, of which the second starts:

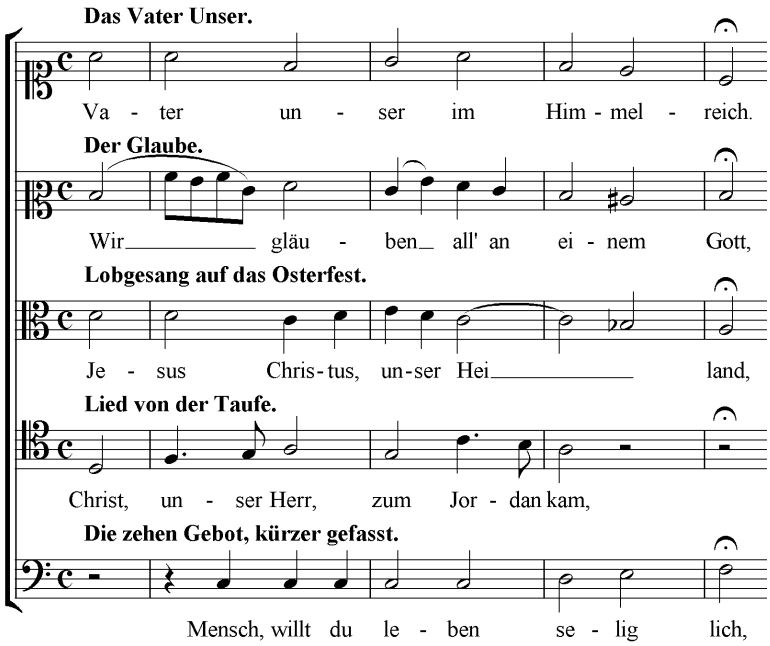
[23] Johannis Tinctoris Operatheoretica, Edidit Albertus Seay, IIa *Proportionale musices*, (American Institute of Musicology, Hänssler-Verlag, 1978), p. 51.
[24] Ringmann, H und Klapper, J., *Das Glogauer Liederbuch, – Erster Teil: Deutscher Lieder und Spielstücke*, (Das Erbe Deutscher Musik vol. 4, Bärenreiter, Kassel und Basel, 1954), p. 41.



Ex 2.4 *Quodlibet on O rosa bella* from the Glogauer Liederbuch (prefatory bar and indications of ligatures omitted).

Four other fifteenth-century examples, from the French chansonnier in the Biblioteca Columbina, Seville, are reproduced in full, both as photographs of the parts and transcribed into a score, by Plamenac.[25] As a final example, nearly two centuries later, Praetorius[26] reports a five-part Quodlibet by Göldelio: Hilgenfeld[27] gives the reconstruction by A. A. H. Redeker of a very similar one which begins:

[25] Plamenac, Dragan, 'The two-part quodlibets in the Seville Chansonnier', pp. 163–180 in: *The Commonwealth of Music*, Ed. Gustave Reese and Rose Brandel, (The Free Press, New York, 1965).
[26] Praetorius, Michael, *Syntagma musicum, Band III: Termini Musici*, (Wolfenbuttel, 1619), Faksimile-Nachdruck herausgegeben von Wilibald Gurlitt (Bärenreiter Kassel, Basel, 1958), p.18.
[27] Hilgenfeld, C.L., *Johann Sebastian Bachs Leben, Wirken und Werke*, (Fr. Hofmeister, Leipzig, 1850), the first of *Zwei Quotlibete* in the section *Noten-Beilagen* without page numbers at the end of the book, referred to in footnote 1 of p. 8. (The second reconstruction is actually of Preatorius's example, but is only on two staves, with no underlay.)



Ex. 2.5 Reconstruction by Redeker of a five part quodlibet.

Quodlibet polyphony is notable in the music of Bach, Mozart and Mahler.

Bach.

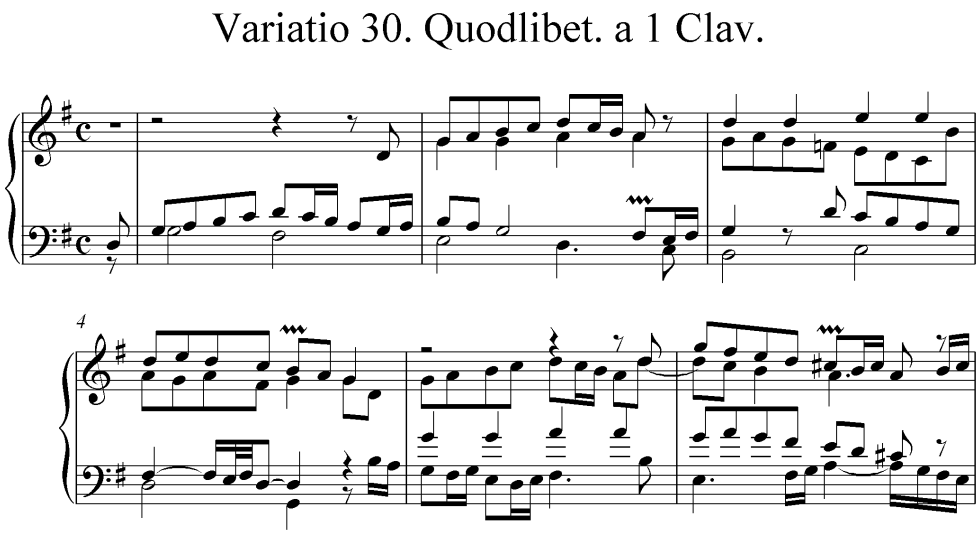
Forkel[28] reports of the family reunions in his childhood that after singing a chorale:

> … they sang popular songs, the contents of which were partly comic and partly naughty, all together and extempore, but in such a manner that the several parts thus extemporised made a kind of harmony to, the words, however, in every part being different. They called this kind of extemporary harmony a Quodlibet …

Alongside his homogeneous polyphony Bach again and again uses quodlibet polyphony. For example, in church cantatas, over a fully worked-out accompaniment in several parts, a melodically quite different chorale will enter; in the C# minor *Fugue* of Book I of the *Well-Tempered Clavier* (BWV 849/2) and the F# minor *Fugue*

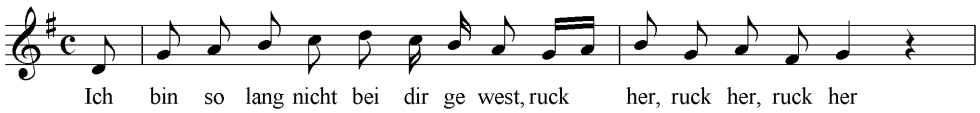
[28] Forkel, Johann Nikolaus, On Johan Sebastian Bach's Life, Genius and Works, in: *The New Bach Reader: A Life of Johann Sebastian Bach in Letters and Documents*, ed. Hans T. David and Arthur Mendel, revised and expanded by Christoph Wolff, (W. W. Norton & Company, New York, 1998), p. 424.

(BWV 883/2) of Part II, and also *Contrapunctus* VIII (BWV 1080/8), *Contrapunctus* XI (BWV 1080/11) of *The Art of Fugue*, three completely different fugue subjects are played in polyphony and in the unfinished final *Contrapunctus* (BWV 1080/19) there are three different subjects and a fourth was to have been included; a final example is the last variation, the *quodlibet*, from the Goldberg Variations.



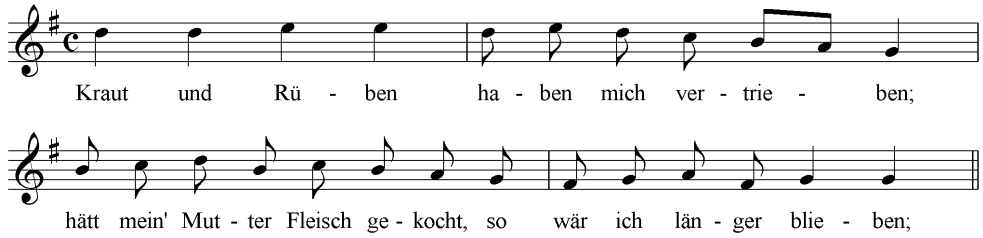
Ex 2.6a Final variation from the Goldberg Variations.

This is more striking if the listener is aware of the two popular songs which are being played in canon here,



Ex 2.6b Popular song used in the above variation.

and the indelicate



Ex 2.6c Second popular song used in the above variation.

with its allusion to the comparative digestive effects of vegetables in contrast to meat.[29]

Mozart

Glover[30] quotes him once saying that 'hearing much different music at the same time gave him 'plenty of ideas' … '.

This is to be found in a well-known but always breathtaking passage from the coda of the finale of the 'Jupiter' Symphony, where five quite distinct themes with which the listener has become familiar in the course of the movement are all simultaneously combined, and, in the passage in the Finale (No. 13) of Act I of *Don Giovanni*, Mozart has three separate bands simultaneously playing three distinct dances (which are just an accompaniment to the vocal parts of Donna Anna, Donna Elvira, Don Ottavio, Don Giovanni, Leporello, Zerlina and Masetto).

[29] Spitta, Philipp, *Johann Sebastian Bach: his work and influence on the music of Germany, 1685-1750*, tr. C. Bell & J. A. Fuller Maitland, (Novello, London, 1958), pp. 174–176. The second of these is the subject of Buxtehude's 32 variations *Aria: La Capricciosa* (BuxWV 250).

[30] Glover, Jane, *Mozart's Women: HisFamily, His Friends, His Music*, (Pan Macmillan, London, 2006), p. 263. This quotation refers back to one on p. 42 (of which it is in fact a paraphrase), which is the postscript of Mozart's postscript to Nannerl to a letter of the 24th August 1771 from Leopold Mozart to his wife: 'oben unser ist ein violinist, unter unser auch einer, neben unser ein singmeister der lection gibt, in dem letztem Zimmer gegen unser is ein hautboist. daß ist lustig zum Componieren! giebt einen viell gedancken.' (Bauer, Wilhelm A. and Deutsch, Otto Erich (eds.), *Mozart, Briefe und Aufzeichnunge, Gesamtausgabe, Band I: 1755–1776*, (Bärenreiter, Kassel, 1962), p.432.

Mahler

Davies has reported as a young man being greatly impressed by Mahler,[31] and commentators have seen his influence in Davies's works. Natalie Bauer-Lechner, in her recollections of Mahler, quotes, from May 1898:

> … in true polyphony the themes run side by side, each from its own source to its own particular goal and as strongly contrasted to one another as possible, so that they are heard quite separately.[32]

and, two years later reports on a walk to Klagenfurt where he was delighted by the simultaneous sound of 'innumerable barrel-organs … a military band and a men's choral society' and exclaimed 'That's polyphony, and that's where I get it from … (everything else is merely many-voiced writing, homophony in disguise).'[33] a passage which is a very full elaboration of the remark of Mozart quoted above, and also of the three separate bands in the Finale of Act I of *Don Giovanni* referred to above.

Mahler's polyphony has been discussed by the sociologist Theodor Adorno,[34] who, after quoting the passage from Bauer-Lechner given above, gives as 'the first specifically Mahlerian counterpoint' the passage from the third movement of the First Symphony (just after **[3]**) where a 'spiky oboe melody' is played against the round Brüder Martin,[35] itself in three, then four parts. Floros[36] quotes an even more striking example from later on in the same movement, where a passage

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[31] I heard him, at a conference in Canterbury in December 2004, report having borrowed scores of Mahler's symphonies from the library and trying to play them on the piano, but I do not know of any written source for this.

[32] Bauer-Lechner, Natalie, *Recollections of Gustav Mahler*, trans. Dika Newlin, (Faber Music, London, 1980), p. 116.

[33] Bauer-Lechner, *loc. cit.*, pp. 155–156

[34] Adorno, Theodor W., *Mahler: A Musical Physiognomy*, trans. Edmund Jephcott, (University of Chicago Press, Chicago, 1996), pp. 110–115.

[35] Or Meister Jakob, or Brüder Jakob. The words are (with each phrase repeated): Brüder Jakob, Schläfst du noch? Hörst du nicht die Glocken? Ding! dang! dong!

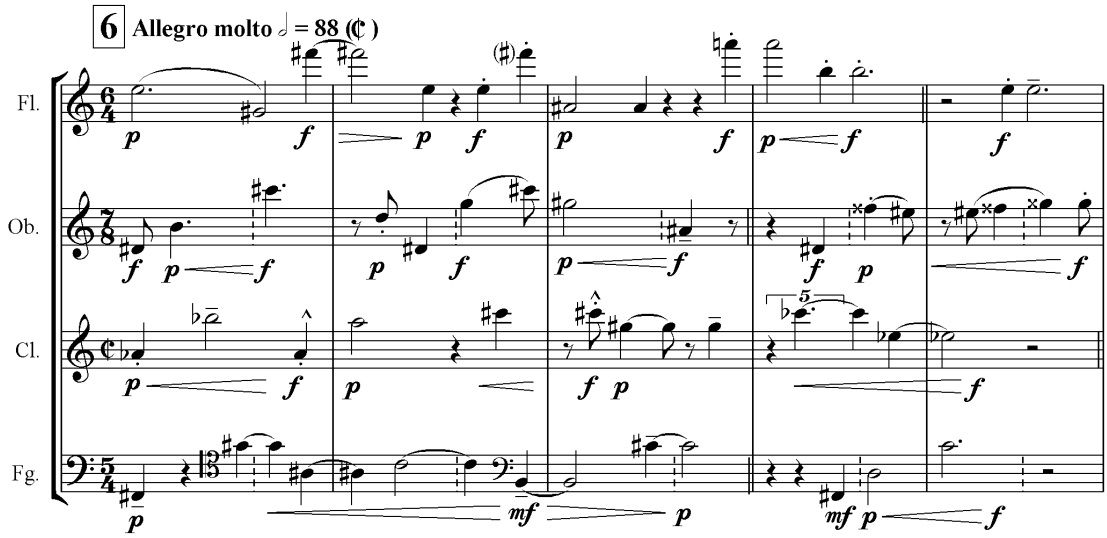
[36] Floros, Constantin, *Gustav Mahler: The Symphonies*, tr. Vernon Wicker, (Scolar Press, Aldershot, 1994), p. 42.

which he says ‘sounds like a Czardas’ is played against the Brüder Martin theme (this time in unison) and a two-part trumpet theme.

Note that, as mentioned above, in both the Mahler passages (and in the Bruckner passage referred to, which predated them) one or more of the strands of the polyphony consist or more than a single melodic line.

A subtype: polyrhythm

A special type of quodlibet polyphony sometimes used by Davies[37] is polyrhythm, in which, within each bar, completely different rhythms are played against one another, as in the first movement of the *Sinfonia*, where flute, oboe, clarinet and bassoon all have different time signatures:



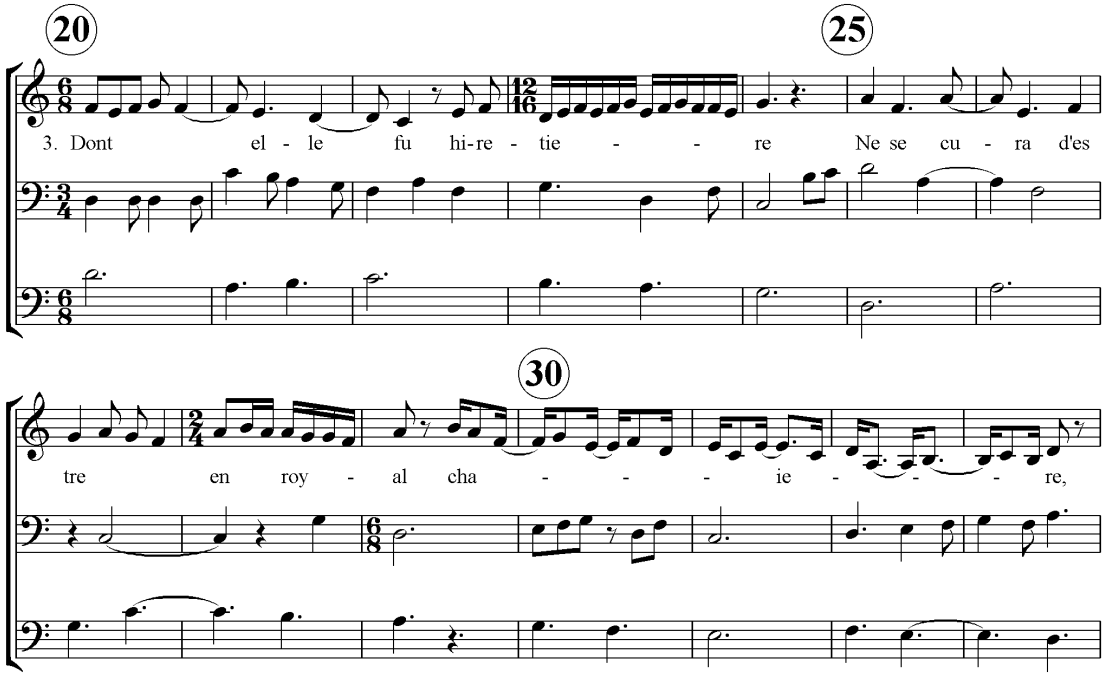
Ex 2.7 Davies, *Sinfonia*, first movement (string parts omitted).

Similarly, in the *Second Taverner Fantasy* (see below, Chapter 3, under *Other developments of transposition squares*) a canonic ricercar on the strings is played in counterpoint with woodwind passages having a different time signature, or the first

[37] Davies (‘Max Speaks: A Recorded Interview’, contained on the CD-ROM element of **CD 2** of the two-CD set: ‘Peter Maxwell Davies: A Portrait’, (Naxos 8.558191-92, 2006)) reports that his very first piano piece, *Early Morning Echoes* in E♭, correctly used $\frac{6}{8}$ against $\frac{3}{4}$.

part of the development section of the *Second Symphony* (*q.v.* Chapter 17 below), where the horn part is in a completely different rhythm from all the other parts.

Such polyrhythms were a feature of the French polyphonic chansons, which have been named mannerist or *ars subtilior*, of the group of now little known, mostly French, composers working in the papal court of Avignon in the transitional period between mediaeval and renaissance music, between the death of the mediaeval Machaut in 1377 and the emergence in about 1420 of the renaissance Du Fay and Binchois.[38] This may be illustrated by part of the anonymous ballade *Medee fu*.[39]

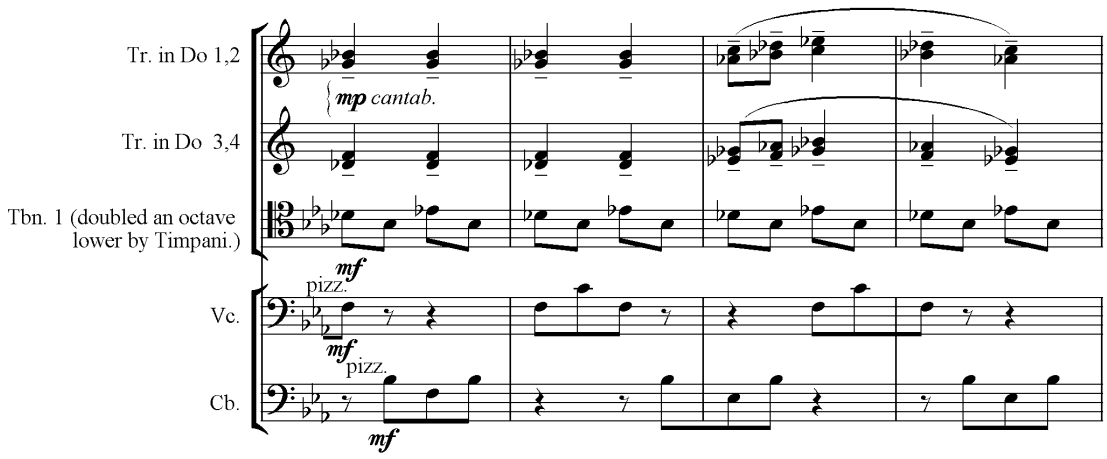


Ex 2.8 Anonymous ballade, *Medee fu*.

Similar passages may also be found im the music of 20th-century composers. For example, in *Le Sacre du Printemps*, *Danses des Adolsecentes*, **[28]**+5, Stravinsky

[38] Some examples of these chansons may be found in the two-CD set entitled *The Art of Courtly Love* by David Munrow and the Early Music Consort of London (Virgin, 7243 5 61284 2 2).
[39] Hoppin, Richard H., *Anthology of Medieval Music*, (W.W. Norton & Company, New York, 1978), pp. 165–168.

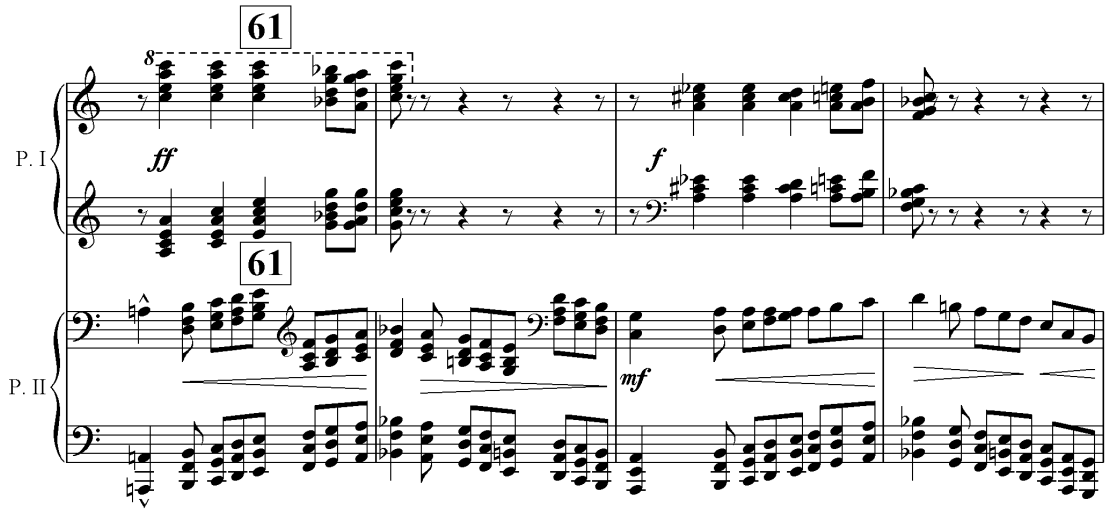
has a $\frac{4}{4}$ rhythm on trumpets, $\frac{2}{4}$ on trombones (doubled an octave lower by timpani), and $\frac{6}{8}$ on pizzicato celli and double basses:[40]



Example 2.9 Stravinsky, *Le sacre du Printemps*, **[28]**+6 to **[28]**+8 (all other parts omitted).

Again, in his *Sonata for Two Pianos and percussion*, Bartók, has piano II in $\frac{9}{8}$ accompanying the $\frac{4}{4}$ phrases (delayed by a quaver) of piano I:

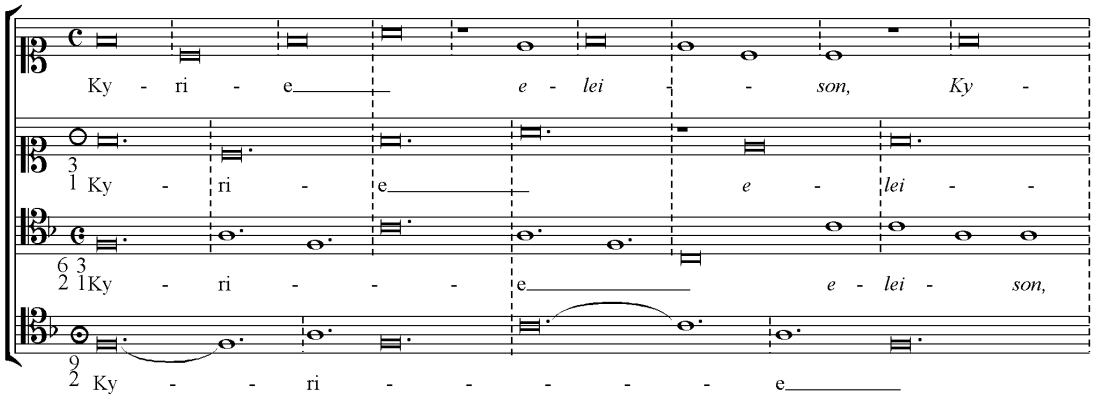
[40] Hill, Peter, *Stravinsky: The Rite of Spring*, (Cambridge University Press, 2000), p. 52 has this as $\frac{3}{4}$, but $\frac{6}{8}$ seems just as possible: indeed, the ambiguity implies a further polyrhythm.



Example 2.10 Bartók, *Sonata for Two Pianos and Percussion*, I, (percussion parts omitted).

Mensural canon There is a special case of the special case of polyrhythm, which is also sometimes used by Davies. Canon by augmentation or by diminution, in which the speed of one part is twice or half that of the other, is familiar, but the slightly later Ockeghem (c. 1410–1497), started many sections of his *Missa Prolationum* (*i.e.* mass of prolations), with double canons (where the interval between the voices increases in successive movements from unison to the octave and then decreases to the fourth and fifth), and some with double mensural canons where the parts are in fractional time ratios, specifically 2:3. For example, the first *Kyrie*[41] starts:

[41] *Johannes Ockeghem, Collected Works edited by Dragan Plamenac, Second Volume*, Second, Corrected Edition (Stainer & Bell, London, 1966), p. 21.



Example 2.11 Ockeghem, *Missa Prolationum*, opening of first *Kyrie* (editorial voice names, prefatory bar and indications of ligatures omitted).

Here each pair of voices is a canon, the first two in prolatio imperfecta, in which the semibreves consist of two minims, the second two in prolatio perfecta, in which they consist of three (hence the title of the mass).[42] In each canon, whose original notation (in the Chigi codex) contains only the *dux*[43] (something characteristic of music of the fourteenth to the sixteenth centuries,[44] and later: Davies himself published a puzzle-canon in 1971[45]), in tempus imperfectum, the breve consisting of two semibreves; the *comes*, which has to be supplied, as indicated by a second mensuration mark in the original notation, in tempus perfectum, the breve consisting of three semibreves, resulting in a mensural canon in the ratio 2:3. Both canons change to the ratio 1:1 after a few bars: it will be noted that the mensuration of the second one is not quite precise.

One example of mensural canon in Davies's music is *Revelation and Fall*, at bar 114 onwards of its Sinfonia (bars 96–117), where the cello enters with a

[42] For these terms and those in the next sentence, see Apel, *The Notation of Polyphonic Music*: it should be recalled that at this period both breves and semibreves could contain either two or three notes of the next shorter duration.
[43] For facsimiles, see *Johannes Ockeghem, Collected Works, Second Volume*, PLATE II.
[44] See Apel, *The Notation of Polyphonic Music*, pp. 179–188.
[45] *Tempo*, 97 (1971), with a solution in *Tempo*, 100 (1972).

retrograde canon in the ratio 2:3, which is virtually impossible to follow as such, since the subject being retrograded runs for the whole of the Sinfonia, *i.e.* 22 bars. A set of other examples, in the ratio 4:3, somewhat easier to follow, occurs in the first dance (Agony in the Garden) of *Vesalii Icones*: these three canons are, in fact, double, the second canon being the (transposed) retrograde of the first.

Quodlibet polyphony is an instance of what *e.g.* Piston[46] has called 'complex texture'. But in general, the individual components of a complex texture need not be separately audible: they may be lost in the general wash of sound, as in some passages of *The Firebird* or *The Rite of Spring* or the string glissandi in *Daphnis et Chloé* referred to in a footnote above. With quodlibet polyphony each voice should be separately audible.

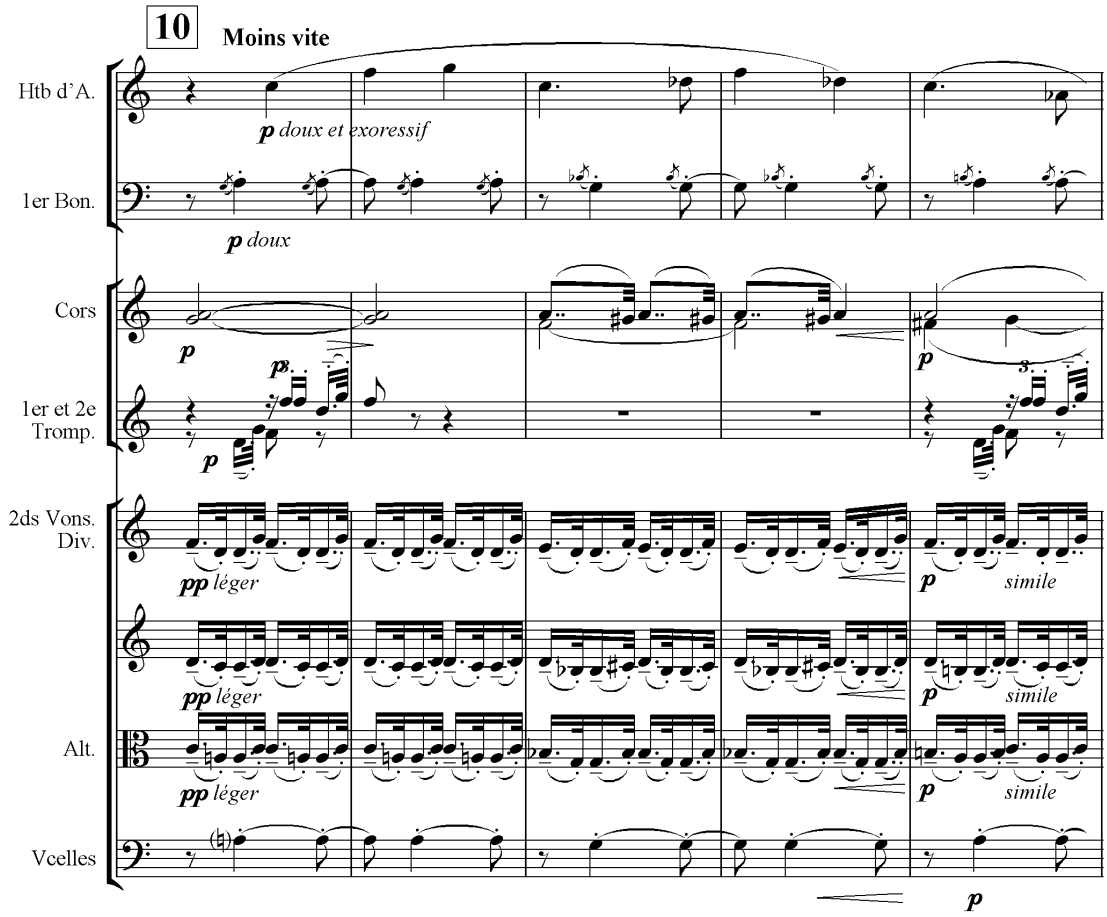
Quodlibet polyphony and stratification

The voices in quodlibet polyphony may overlap or overlay one another, or be for the same or similar instruments, as, for example in the third of the *Five pieces for Piano* (Ex. 2.1 above), the five-part Quodlibet by Göldelio, *Variatio 30.* from the Goldberg Variations (Ex. 2.6), or the simultaneous dances in the Finale of *Don Giovanni*, or they may be clearly separated vertically, in layers, and for different instruments, as in the extract from *Revelation and Fall* (Ex. 2.2), the Tinctoris extract (Ex. 2.3), the passage from the 'Jupiter' Symphony, or that from the third movement of Mahler's First Symphony.

Jarocinski, in the subsection entitled *Innovations in Sound* in Chapter 5 of his book on Debussy,[47] has described 'heterogeneous or 'polygeneous'' vertical structures where it is 'possible to distinguish two or three strata (purely sonorous, and

[46] Piston, Walter, *Orchestration*, (Victor Gollancz Ltd, London, 1976), Ch. 25, Types Of Texture—Type vii, Complex Texture.
[47] Jarocinski, Stefan, *Debussy: Impressionism and Symbolism*, Tr. Rollo Myers, (Eulenberg, London, 1976), pp. 137–149.

having nothing to do with melodic lines).' As examples, he cites the following passage from *Gigues,* where 'the strings form one stratum, the horns and oboes another, and the trumpets a third'; a similar passage from *Ibéria* (II. Les parfums de la nuit); and a number of passages in the *Préludes*.



Ex. 2.12 Debussy, *Gigues*.

Although Jarocinski, as mentioned, titles the subsection *Innovations in Sound*, such passages were not invented by Debussy. In the first section of the *Adagio* of Schubert's String Quintet in C, D. 956, the three central instruments play the theme, the second cello a (melodic) *pizzicato* bass, and above the first violin plays a melodically separate descant (in the return, the first violin part splits into two,

alternating the previous melodic descant with *pizzicato* chords in a different rhythm).[48]

Carter

Following Ives (in whom a love of playing disparate elements simultaneously had been enthusiastically inculcated by his father) the music of Elliott Carter, from the *Sonata for Cello and Piano* and the *First String Quartet*, is extensively characterised by quodlibet counterpoint, with extensive polyrhythms, which he too describes as 'stratified'.[49,50]

Early Music Foundations

Davies reports the advice of his University of Manchester Professor (who was to distinguish himself by excluding Davies from his composition classes) to 'his students to avoid all music before 1550 and after 1900 (except Delius)':[51] indeed Seabrook quotes him as saying 'Don't listen to any music written before 1550: it's dangerous'.[52] This not unnaturally had the result 'that these regions should be most avidly

[48] In at least two places in the literature, what is described as stratification turns out not to be. First, Cone, Edward T., 'Stravinsky: The Progress of a Method', pp. 156–164 in: *Perspectives on Schoenberg and Stravinsky*, ed. Benjamin Boretz and Edward T. Cone, (W. W. Norton, New York, 1972), p. 157, writes of 'stratification', which he defines as 'the separation in musical space of ideas—or better, of musical areas—juxtaposed in time', and this *temporal* separation is borne out by his fold-out (between pp. 158 and 159) with analyses of the *Symphonies of Wind Instruments*, the *Hymne* of the *Serenade in A* and the First movement of the *Symphony of Psalms*. Both here and in geology, however, strata are *co-present*.

Secondly Rae, *The Music of Lutosławski*, p. 52, writes of Lutosławski's twelve-note chords that 'he has developed a technique of subdividing complex (and some simple) constructions into clearly defined harmonic 'strands' (the composer's own term), each of which can be invested with a distinct harmonic character.' It is, however, clear from many of his own illustrations (see, for instance, Ex. 3:6, 3:7, 3:8, 3:12) that although the strands may be harmonically distinct, they often overlap, and the distinct strands cannot therefore be heard as such.

[49] Schiff, *The Music of Elliott Carter* (New Edition, p 46), has described 'stratification' as 'fundamental to Carter's music from the Second Quartet onward', but Carter himself (Carter, Elliott, *The Writings of Elliott Carter: An American Composer Looks at Modern Music*, Compiled, Edited and Annotated by Else Stone and Kurt Stone, Indiana University Press, Bloomington, 1977), has (pp. 245, 247) explicitly referred to this in the context of his *Cello Sonata* and *First String Quartet*.

[50] Here, as elsewhere, the music of other composers is alluded to simply in order to put Davies's music in context: usually no attempt will be made to answer the question (often unanswerable) of whether or not he was influenced by it. Of course, with composers, such as Mahler, Sibelius, Schoenberg and Stravinsky, whom he is known to have studied enthusiastically, it seems reasonable to presume influence, but with others, such as Ives and Carter, who each are only mentioned once in Seabrook's *Max*, and without any explicit comment on the matter by Davies, any answer is likely to be speculative.

[51] Davies, 'Four composition questions answered', p. 11.

[52] Seabrook, *Max*, p. 36.

explored'.[53] Many of his compositions use early music as part of their basic material, although, as will be seen, this material is often, (but not always) hard to recognise.[54] Thus the *First Fantasia on an 'In Nomine' of John Taverner* is explicitly based on that *In Nomine*, which is played at the start of the piece. The *Second Fantasia* uses the *In Nomine* less, but the plainsong *Gloria tibi Trinitas* from it is quoted in several places. The eponymous *St Thomas Wake* has as part of its material the pavana of that name by Bull; and *Worldes Blis* is concerned with the gradual working towards a statement of the mediaeval song of that name. Plainsong is a frequent basic element: *Ave maris stella* underlies the *First Symphony* and *Nativitas Tua, Dei Genetrix* the *Second Symphony*.

The audibility of the basic material

A question arises here analogous to that considered above (Chapter 1, under *The audibility of Davies's serial procedures*), namely the extent to which the early music foundation of a piece is actually perceptible to the listener. Seabrook quotes anonymously

> One commentator, musically very learned, a friend of Max's and very sympathetic towards him, says that he often finds nowadays that he is unable to hear the musical sources that Max claims underlie his recent works. Max, he says, will say that such-and-such a work is based on such-and-such a plainchant. But when he, the friend, comes to hear the work, he can hear nothing whatever of the plainchant.[55]

Works which were recent in 1994 (the date of publication of Seabrook's book) are not considered here. As far as the first two symphonies, and their precursor works, are concerned, the audibility of the source music varies from work to work. In the *First*

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[53] Davies, 'Four composition questions answered', p. 11.
[54] Davies, 'Composer's Note' (on the Mass), maxopus.com, 02/03/2010, writes that 'as a music student in Rome in 1957 and 8 … several times a week, I ascended the Aventine Hill to the Benedictine Monastery, armed with the 'Liber Usualis' … for the whole year and came to know plainsong in everyday use.' This presumably refers to the church of Sant'Anselmo, at the southwest corner of the Piazza dei Cavalieri di Malta.
[55] Seabrook, *Max*, p. 251.

Taverner Fantasia, the *In Nomine* on which it is based is, as just mentioned, played at the start of the piece, making it perfectly audible, and in the *Second Taverner Fantasy*, the plainsong *Gloria tibi Trinitas* is played slowly, but again perfectly audibly, several times in the piece. The first variation of the *Missa Super L'Homme Armé* is a clear rewriting of the first subsection of the *Agnus Dei* of the anonymous mass (although the subsequent variations range further and further, and are thus less and less clearly derived from the original), and the piece is also punctuated in three places by clear statements of the first three notes of the segment of the *Homme Armé* song on which the mass is based. Bull's pavana is quite audibly played at the beginning of *St Thomas Wake*, and similarly audibly transformed into a foxtrot at the end. In contrast, the eponymous mediaeval song is only played at the end of *Worldes Blis*, and then scarcely audibly, 'very quietly' by handbells, against woodwind, horns and full strings. With the *First Symphony*, things are a little more complicated. The first movement begins with the opening of the plainsong *Ave maris stella* being played in unison pizzicato by all strings except double basses, and the second with its first, second and fourth phrases, the latter two transposed upwards respectively by one and two major thirds, played by the alto flute. The magic square on which the first, third and fourth movements are based, however, is derived from a permutation of nine pitches selected from this alto flute version, and it is scarcely conceivable that the plainsong could be heard in this permutation. Similarly with the *Second Symphony*: the third movement begins with a clear statement of *Nativitas Tua, Dei Genetrix* by the cellos, but again, it is scarcely conceivable that the plainsong could be heard in the second pair of magic squares underlying the symphony, which are derived from it.

Finally, a number of devices will be listed which are used repeatedly by Davies.

Technical Devices

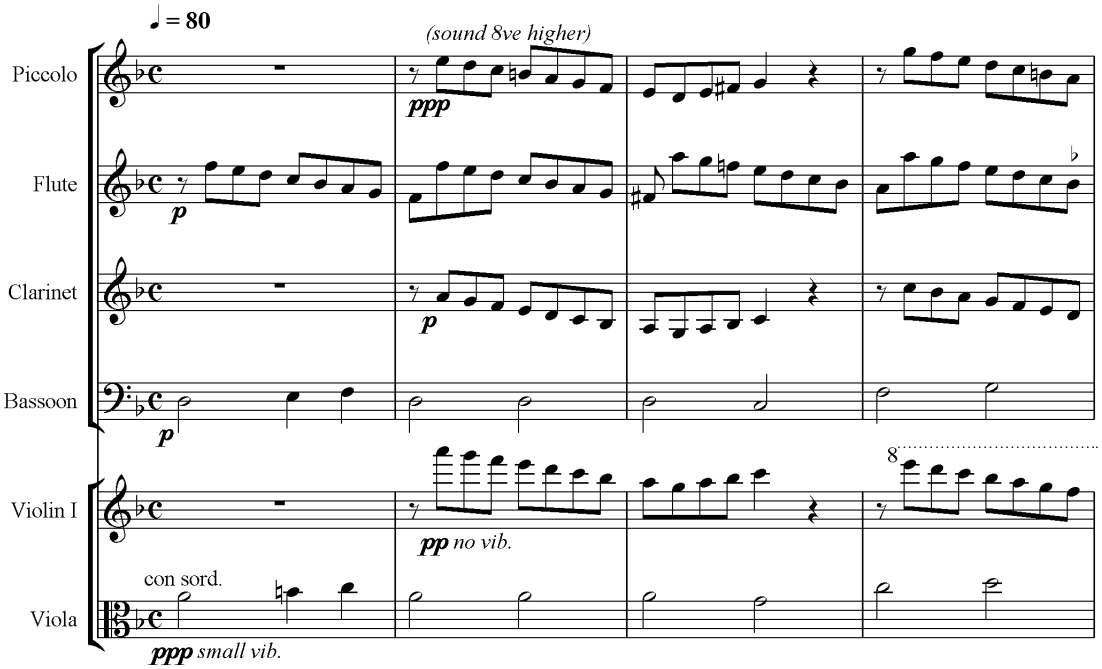
As well as the structural idea of *übergreifender Form*, and the techniques of melodic transformation and magic squares discussed below, there is a number of other, less encompassing, devices, some of them mentioned by Davies, which will be described here.

Doubling

> One example of a device upon which it is extremely difficult to hang a specific meaning or to explain in terms of any one image, is my doubling at the fifth and/or ninth, or sometimes another interval, of a melodic line. I think the first time I did this was in the mensural canon which forms No. 5 of *Seven in Nomine*, the immediately again in No. 6, the Blitheman realization.[56]

This will be illustrated, not by the first of these two examples, which is very close (although not identical to) the recurring 'chorale-canon' in *Revelation and Fall*, but by the second example, Davies's arrangement of an *In Nomine* by William Blitheman,[57] which begins

[56] Davies, 'Four Composition Questions Answered', p. 7.
[57] Stevens, Denis, Ed., *Musica Britannica I: The Mulliner Book,* (Stainer and Bell, Ltd., London, 1951), p. 67, No. 91, Gloria tibi Trinitas. The same author has also published *The Mulliner Book: A Commentary*, (Stainer & Bell, London, 1952): this book is unfortunately somewhat self-defeating, in that any reader who knows as much about the subject as Stevens appears to presume, and as would be necessary to understand his book fully, would scarcely need to read it. The present *In Nomine* is discussed on p. 33 and the names used here for the parts are those of Stevens.



Ex. 2.13 Beginning of Davies's arrangement of an *In Nomine* by William Blitheman.

Here Blitheman's bass, the cantus firmus *Gloria tibi Trinitas* (bassoon) is doubled a twelfth above by the viola, his treble (flute) is undoubled, and his alto (clarinet) is doubled a twelfth above by the piccolo and two octaves above by the first violin.

Davies attributes this device of doubling to

> … a hearing quirk which, after my ears are blasted by a sudden, very loud noise, distorts and/or muffles sound for a time afterwards - sometimes hours, sometimes days, and very occasionally for weeks, depending on the severity of the initial disturbance. One of the most unpleasant recent triggers was a military jet-plane passing fifty feet overhead on an Orkney beach – hearing and balance went for several days. Twice I have had to conduct recording sessions wearing earplugs, in an attempt to filter out 'unreal' overtones. During my childhood I remember our piano's sound sometimes 'tore', like an overloaded loudspeaker. Perhaps the original damage was caused by bomb blast, early in the Second World War.[58]

[58] Davies, 'Four Composition Questions Answered, p. 7.

(This appears to describe the recently described condition of acoustic shock syndrome.[59] It may show that the incident reported by Seabrook[60] of Davies's having his telephone disconnected because 'It might go off' was not an eccentricity but a sensible precaution against 'a sudden, very loud noise'.) Davies goes on to speculate that the doubling device might signify

> An aural hypotyposis ranging between the extreme polarities of Dante's 'ella avea del cul fatto trombetta' (*Inferno* XXI, 139) – perhaps an apt summing up of the transition from Prologue to main Act in Resurrection – and Theocritus;s 'white-skinned Daphnis, player of pastoral hymn on his pipe, offers these to Pan' (*Greek Anthology*, Longmans Green & Co., 1890, p. 136) – see *Symphony No. 1*, second movement, fig. 62, where the mood is calmly pastoral to an extreme degree.[61]

It should be noted that similar doubling is also a feature of the music of Davies's fellow-student at Manchester and co-founder of the *Pierrot Players*, Harrison Birtwistle.[62]

Expressive Doubling

Although Davies often serialises pitch, and sometimes duration as well, this is as far as he has gone in the direction of total serialism (except in the early *Prolation*).

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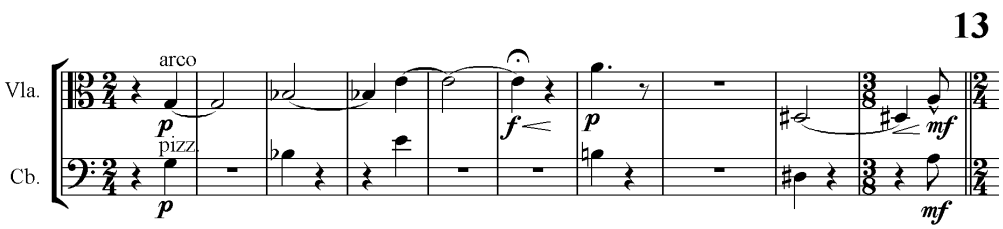
[59] McFerran, D.J. and Baguley, D.M., Acoustic shock', *Journal of Laryngology & Otology*, 2006, pp. 1–5. Westcott, Myriam, Acoustic shock', *Journal of Laryngology & Otology*, 2006, pp. 1–5.
[60] Seabrook, *Max*, p. 69.
[61] Davies, *loc. cit.*, p. 8. This is a somewhat recondite passage. An 'hypotyposis' is a 'Vivid description of a scene, event, or situation, bringing it, as it were, before the eyes of the hearer or reader' (OED). The Dante quotation may be translated as 'he made of his bottom a trumpet', but 'ella' should be 'elli' (Dante's spelling) or 'egli' (modern spelling), depending on the edition. Davies's opera *Resurrection* is, partly as a result of a disastrously incompetent first production in Germany (see Seabrook, *Max*, pp. 223–226), not well known. According to Stephen Pruslin's Précis (maxopus.com/works/resurrect.htm, 09/07/05), 'In the Prologue, his family and various authoritarian figures indoctrinate him [the hero, a larger than life Dummy] relentlessly with received values until his head literally explodes. … The Prologue is also punctuated by a series of satirical commercials, sung by an electronic vocal quartet … '. The 1890 edition of Longmans's *Greek Anthology* is not likely to be easy to obtain, but there is a more accessible revised later edition (Mackail, J. W., ed, *Greek Anthology*, Longmans, Green and co., London, 1930), in which the extract from Theocritus is on p. 144. Davies's quotation is, in fact, incomplete, thereby changing the sense. What 'white-skinned Daphnis' offers to Pan are not the 'pastoral hymns on his fair pipe', but, as given in the next two (concluding) lines as 'the pierced reeds, the stick for throwing at hares, a sharp javelin and a fawn-skin, and the scrip wherein he once carried apples'.
[62] See, *e.g.*, his *Secret Theatre*.

He has not, as far as I am aware, serialised dynamics, which are, instead, reserved for expressive purposes. Even melodies most rigorously serially derived, as far as pitch and duration are concerned, are required to be played with written-out expression: indeed, dynamic markings on almost every note, often including crescendi and decrescendi, are typical of his music. (See most of the preceding and following illustrations from Davies).

This feature of expressive playing is extended by a type of doubling different from that discussed in the previous subsection, in which pitches played by one instrument are doubled at the unison (or sometimes at the octave) by another instrument (usually, but not invariably, one from the same family) in a different way: this will be called expressive doubling.

There are two classes of expressive doubling: the first consists of doubling a note whilst it is actually being played, and the second consists of prolonging it beyond the instant in which it has stopped being played. Both classes are reminiscent of effects obtainable on stringed keyboard instruments such as the clavichord, harpsichord and piano.

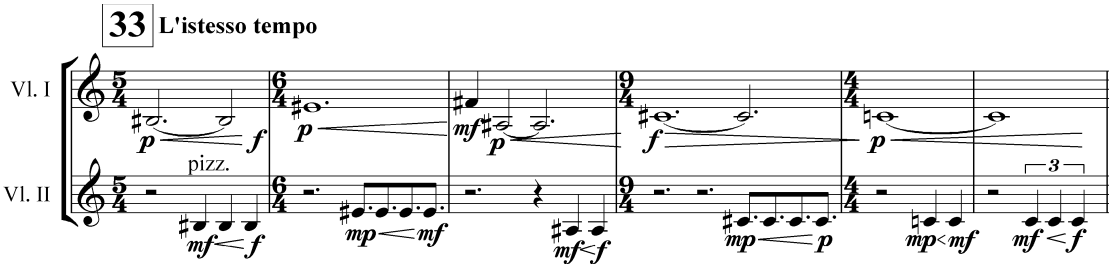
The first class may be subdivided into two subclasses: doubling the onset of a note and doubling it after it has been initiated but whilst it is still sounding. The first subclass may be illustrated by the viola and double bass parts of a section of the *First Fantasia on an In Nomine of John Taverner*:



Ex. 2.14 Davies, *First Fantasia on an In Nomine of John Taverner*.

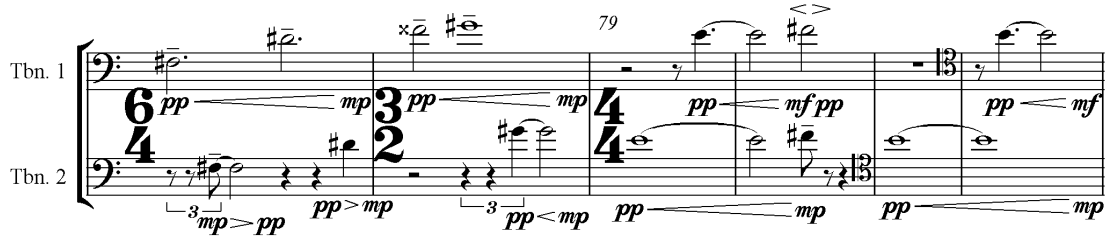
This subclass is reminiscent of the sounding of notes on all three of the keyboard instruments mentioned above, namely a sudden onset followed by a rapid decrescendo.

The second subclass, doubling a note after it has been initiated but whilst it is still sounding, may itself be subdivided into two sub-subclasses, doubling with a regular pulse, and doubling without one. The former may be illustrated by the first and second violin parts in the following passage from the first movement of the Symphony No. 1.



Ex. 2.15 Davies, Symphony No. 1, I.

and the latter by two trombone parts in a short passage from *Worldes blis*.

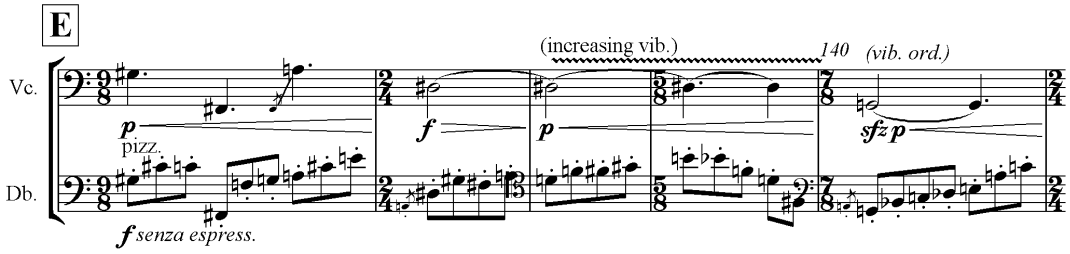


Ex. 2.16 Davies, *Worldes blis*, bars77-82.

(In this instance, the doubled and the doubling instrument alternate: in bars 77 and 78 the first trombone is doubled by the second, in 79, 80, 81 and 82 the second by the first, and the alternation continues beyond the passage shown.)

Both the latter two subclasses, particularly the former, are reminiscent of the *Bebung* effect obtainable on the clavichord, by which a struck note may be pulsed by vibrating the finger on the key.[63]

The other class of expressive doubling, prolonging a note beyond the instant in which it has stopped being played, may be illustrated by the cello and double bass parts of a short passage in *St Thomas Wake*:



Ex. 2.17 Davies, *St Thomas Wake*.

This subclass is reminiscent of the sustaining pedal on the piano, and like it has harmonic possibilities, since it can be used to build up a chord.

There are also instances, which will be illustrated in the analyses of the first two symphonies, of a melodic line being simultaneously expressively doubled in more than one way.

This device of expressive doubling is distinct from both heterophony, where a melody is doubled by sometimes slightly *different* pitches, and, although it does add colour to a melodic line, from Schoenberg's device of *Klangfarbenmelodie*, the essence of which is not that the melodic idea is doubled but that it passes from one instrument to another.

Expressive doubling has been described (although not named) by Cross, writing on Boulez's *Don*:

---

[63] As well as being, of course, a perfectly competent pianist, Davies has also owned a clavichord: see Seabrook, *Max*, p. 54.

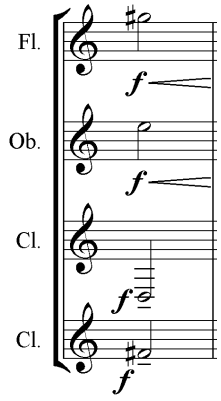
> The three strands of texture are duplicated in a highly refined, pointillistic instrumentation; notes and motives are picked out and sustained with diversity of colour—a characteristic method whereby a basic timbre is combined with constantly changing tone-colours exploiting varied means of sound production (harmonics, *sul tasto*, *etc.*); this multicoloured elaboration derives from the methods of Debussy and Webern.[64]

Death chord

This is the (occasionally transposed) chord D, F#, and, a seventh higher, E, G#, which frequently occurs in Davies's music. He describes it as

> the four-part chord of two major thirds at the major ninth, perhaps easily relatable to the doubling phenomenon; this occurs from *Alma Redemptoris Mater* of 1956 through Taverner, where it underlines the Jester unmasking, at the words 'Death, a thief', to *Symphony No. 6* of 1966;[65]

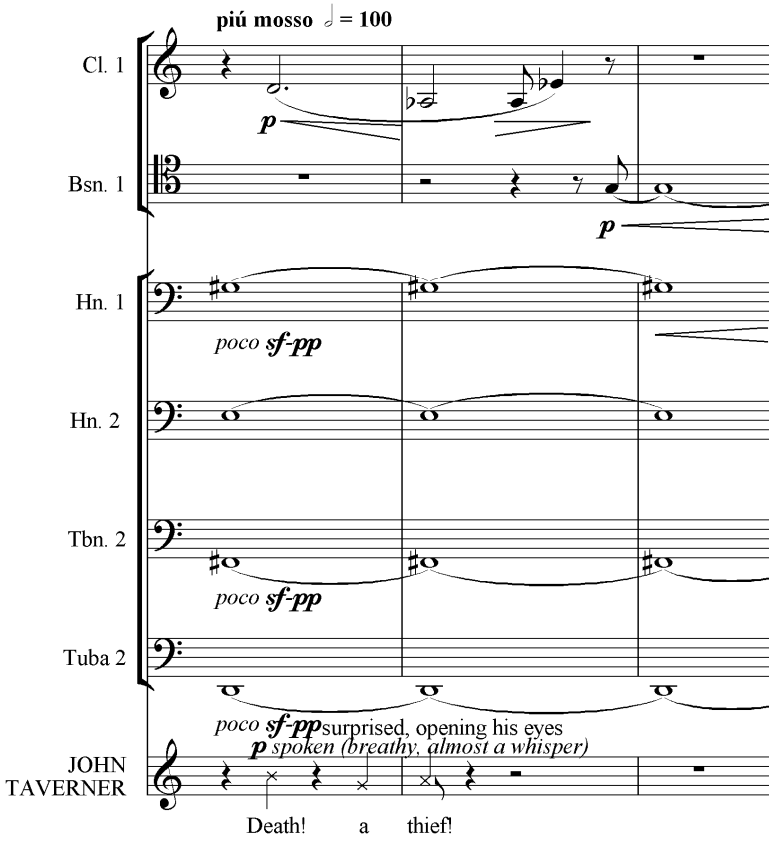
In the second movement of *Alma Redemptoris Mater* it is



Ex. 2.18 Davies, *Alma Redemptoris Mater*, third bar before the end of the second movement.

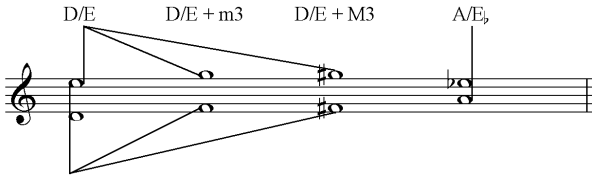
(where the root D is displaced down an octave) and in *Taverner*

[64] Cross, Anthony, 'Form and expression in Boulez's *Don*' *The Music Review*, 36 (1975), pp. 215–230, pp. 216–217.
[65] Davies, 'Four Composition Questions Answered', p. 8.



Ex. 2.19 Davies, the 'death chord' in *Taverner*.

It is called the 'death chord' by Arnold,[66] and is discussed by Owens, who sees it as part of a set of chords derived from the musical letters in Davies's surname. D and E



Ex. 2.20 Owens's analysis of the 'death chord'.

give a major ninth, to the two pitches of which may be added minor thirds, giving D/E + m3, a minor version of the death chord, or major thirds, giving the death chord itself. The other two musical letters, A and Eβ (S), give a diminished fifth, which is sometimes associated with the other two: for example, in bars 546 to 551 of the

[66] Arnold, Stephen, 'The music of *Taverner*', *Tempo*, 101 (1972), p. 26.

Second Taverner Fantasia are played, in succession, the chords D/E+M3, D/E+m3, D,F+A/Eβ and A/Eβ.[67]

A rhythmic device

This seems to lack a specific name, but is described by Davies as 'the unprepared use of 6/16 or 9/16 in a 2/4 (value of semiquaver constant)', thus a shortening of a $\frac{2}{4}$ bar by a quaver or lengthening by a semiquaver.

This description is puzzling. It seems to refer to isolated bars of $\frac{6}{16}$ or $\frac{9}{16}$ in a prevailing context of $\frac{2}{4}$ ('unprepared' presumably means 'not preceded by an accelerando or ritardando', and 'value of semiquaver constant' the same thing), *i.e.* a bar shorter by a quaver or longer by a semiquaver ('6/16' might be a typographical error for '7/16', in which the meaning would be more simply shorter or longer by a semiquaver) in an otherwise even metre. However, examination of the scores of the works discussed here does not reveal any such thing: rather, either the metre is entirely regular (not necessarily $\frac{2}{4}$), or there are changes of time signature (not necessarily from $\frac{2}{4}$, and not necessarily to $\frac{6}{16}$, $\frac{7}{16}$ or $\frac{9}{16}$) almost every bar.

Fanfare motifs

These seem to have been pointed out to Davies by Griffiths:

> *… one thing that goes right through is a sort of trumpet fanfare motif: six or seven notes going upwards, perhaps in an irregular curve, fast. That occurs in the Trumpet Sonata, and 'Prolation' and almost all your orchestral works.*

Davies replied, apparently not having previously been conscious of this,

---

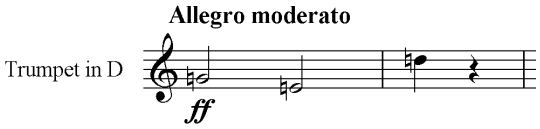
[67] Owens, Peter, 'Revelation and fallacy: observations on compositional techniques in the music of Peter Maxwell Davies', *Music Analysis*, 13 (1994), 2–3, pp. 185–186; '*Worldes Blis* and its satellites', Ch. 2 (pp. 23–50) in: *Perspectives on Peter Mawell Davies*, ed. Richard McGregor; 'Foregrounds and backgrounds: the Second Fantasia on John Taverner's 'In Nomine'', paper presented to a one-day conference 'Peter Maxwell Davies at 70' on the 16th October, 2004 in Canterbury Christ Church Univrsity College, p. 32. The figure above is (with altered text) from Ex. 21 a), p. 186 of 'Revelation and fallacy … ', and the quotation from the *Second Taverner Fantasia* is Ex. 10, p. 4 of 'Foregrounds and backgrounds … '.

> … thinking of the trumpet gesture which you've just described, yes, I do recognize that, and it does occur in the Second Symphony![68]

The fanfare motives in the Trumpet Sonata (J42) and Taverner have been pointed out by Seabrook.

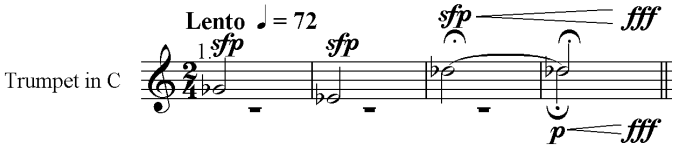
> …this earliest of his works that he still acknowledges contains the seed of something that was to blossom much later is the three-note fanfare, which later surfaced as the opening motif of the opera *Taverner*.[69]

The former is



Ex. 2.21 Davies, three-note fanfare in the Trumpet Sonata.

and the latter, which is simply transposed a semitone down



Ex. 2.22 Davies, opening motif of *Taverner*.

although this example has only three notes, not Griffiths's six or seven. Further, Griffiths's reference to *Prolation* may be a slip of memory: there seems to be no such passage.

Another instance, this time on the double bass, is shown above, in the illustration from *Revelation and Fall* (bars 205–209), of quodlibet polyphony. The fanfare(s), referred to above by Davies, which occurs in the second symphony are in the first movement, at the beginning of the antecedent of the first subject (*q.v.*).

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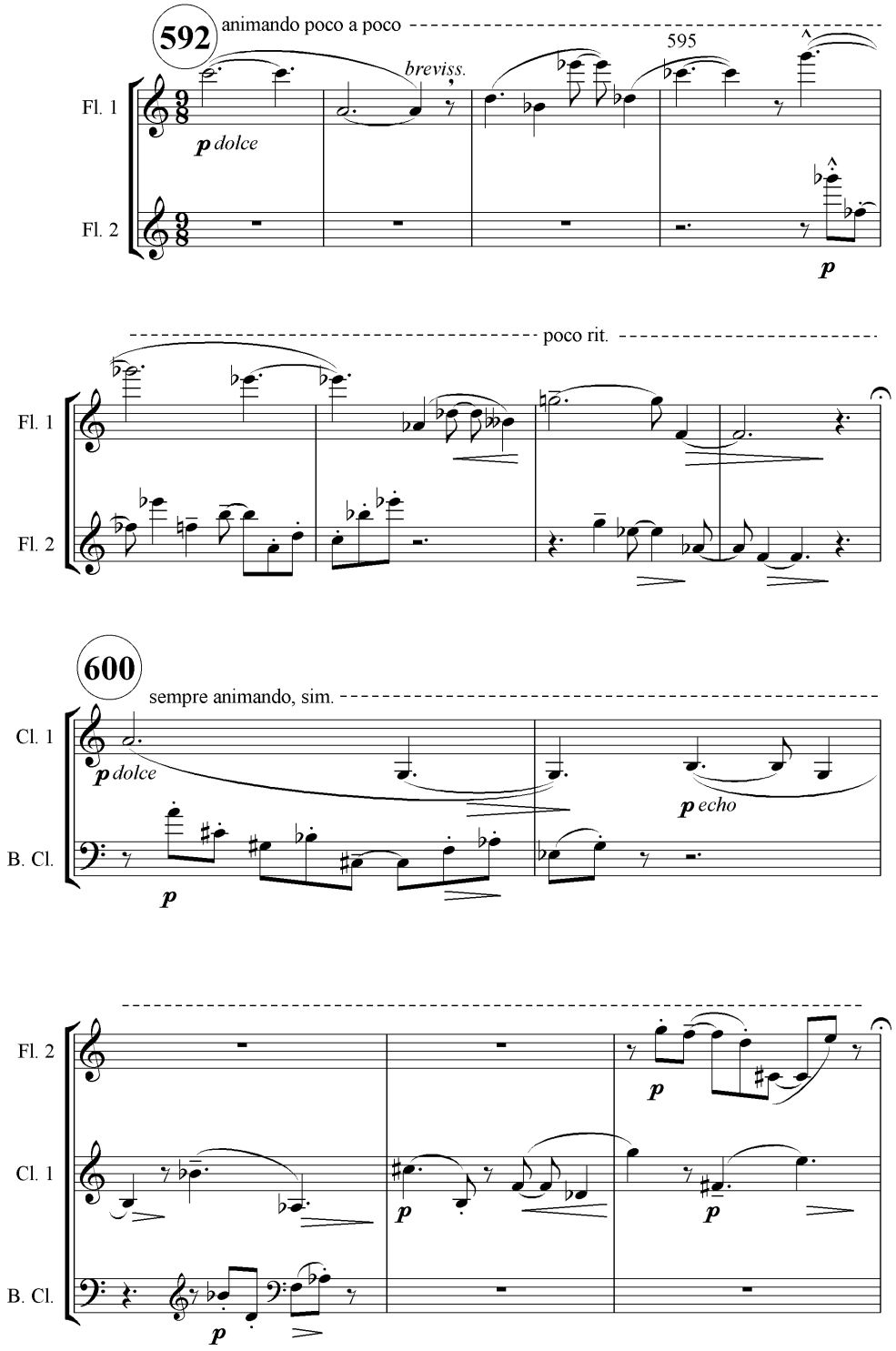
[68] Both quotations are from Grifiths, *Peter Maxwell Davies*, Part II**,** 'Conversations with the Composer'.
[69] Seabrook, *Max*, p. 41.

Melismas

Davies does not give this device in his list, but mentions it in the '*Composer's Comments*' on a number of works. He uses the term, in not quite the usual sense, to mean the decoration of a melodic line on one instrument by another which loops away from it, mainly by large intervals, and then rejoins it: the 'melisma' usually (but not always) starts and ends on the same pitch as the line which it decorates. Its use in the *First Fantasia* is not quite typical, so it will instead be illustrated by a passage from the *Second Fantasia*, at the beginning of the Scherzo, where the first flute line is



Ex. 2.23 Davies, illustration of melismas in the Second Fantasia.

decorated by melismas on the second flute, then the first clarinet line by melismas first on the bass clarinet, then on the second flute. The process continues throughout the statements of the ternary group (except for its central sections) of the Scherzo and

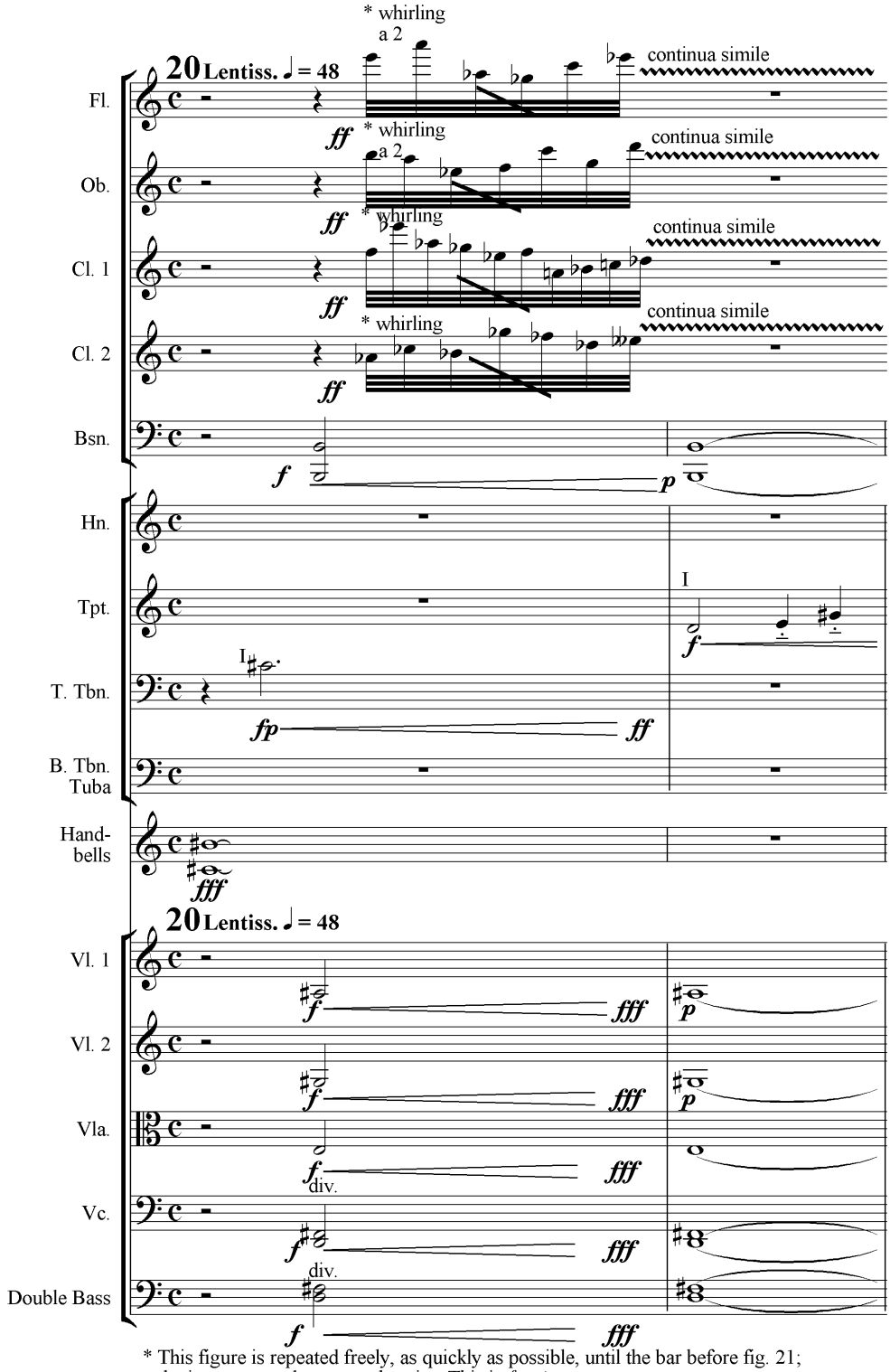
its repeat. Melismas are also to be seen in the extract from *Revelation and Fall* (in bar 207 the voice sings a melisma on the viola line) quoted above, and occur in **[Q]**+1 to **[S]**+11 of *Missa Super l'Homme Armé* and bars 382–481 of *Worldes blis* (see their *Summary Analysis* tables).

'Whirling' textures

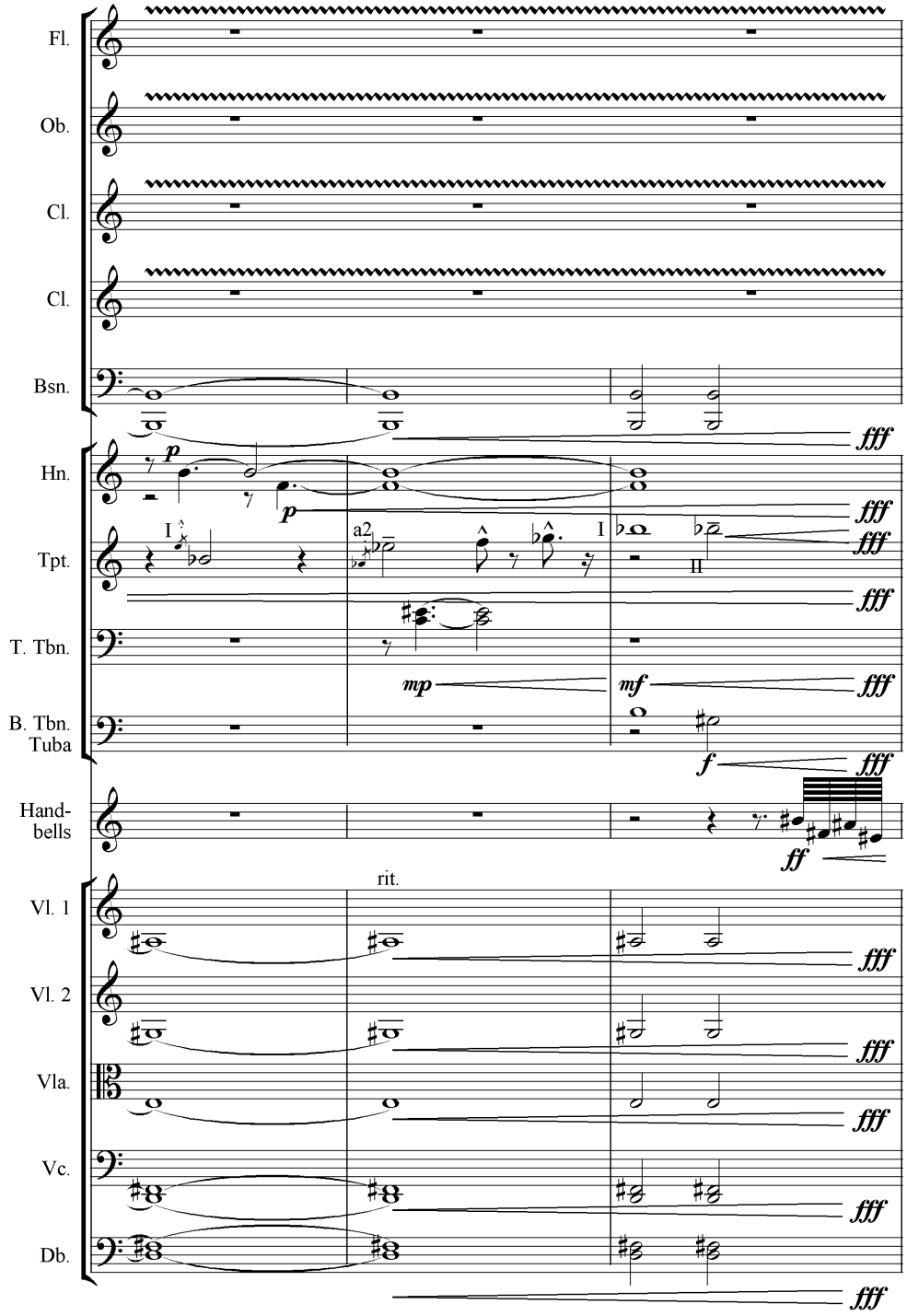
These do not seem to have been mentioned by either Davies or Griffiths, but have been identified by Outwin as 'This swirling woodwind texture with accompanying brass and string chords',[70] occurring in the *First Taverner Fantasia*, the opera *Taverner* (Act I, Scene 4, bar 751) and the *Second Taverner Fantasia* (bar 539). Here is the passage from the *First Fantasia*:

[70] Outwin, Daphne, *Transformation Processes and Other Compositional Techniques in some Larger Works of Peter Maxwell Davies* (diss., Kingston University, 1983), p. 88: although Outwin refers to the textures as 'swirling', Davies, as may be seen from the following example uses the word 'whirling', which will be preferred here.

RECIT. II



* This figure is repeated freely, as quickly as possible, until the bar before fig. 21; the instruments do not synchronise. This is *fuori tempo*.

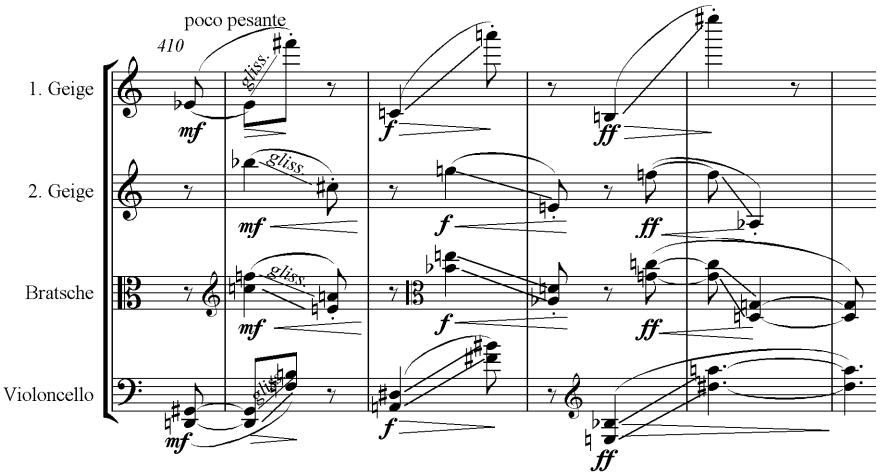


Ex. 2.24 Davies, Illustration of ‘whirling’ textures in the First Fantasia.

The passages from *Taverner* and the *Second Fantasia* are similar, but more elaborate.

Melodic glissandi

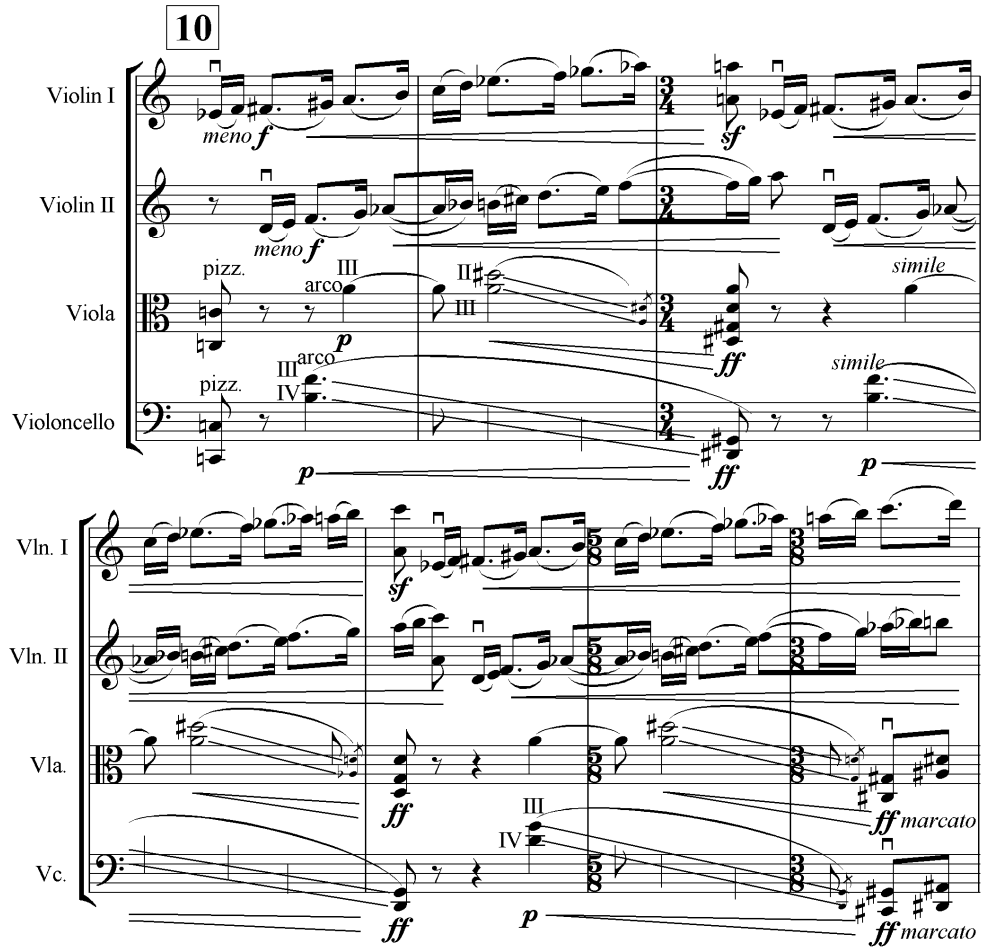
These may not travel very far, indeed, in the passage from *Revelation and Fall* quoted above (Ex. 2.2) they move only a quarter tone, but they are intrinsically melodic, not simply ornamental portamenti. They are to be found in the fifth movement, Presto delirando, of Berg's *Lyric Suite*,



Ex. 2.25 Berg, *Lyric Suite*, Presto Delirando.

and, even longer, in the coda of Bartók's Third String Quartet.[71]

[71] Long string glissandi had, to be sure, already been used by Ravel some twenty-five or more years earlier in the concluding *Danse générale* of *Daphnis et Chloé* (at [203]+3, [203]+5, [205]–2, [206]–2, [216]+1, [217]+7, [221]–3 and [221]–1), but these were *fast* long glissandi, mere splashes of colour, scarcely, if at all, audible by themselves in the general medley, whereas Bartók's long slow glissandi are clearly heard as melodic voices in four-part counterpoint.



Ex. 2.26 Bartók, Third String Quartet, Coda.

The long slow glissandi in the passage from *Revelation and Fall* referred to above are precisely similar.[72]

[72] The only (notational) difference is that Davies dispenses with Bartók's headless notes during the glissandi.

PART II: TRANSPOSITION SQUARE PERIOD WORKS

CHAPTER 3: TRANSPOSITION SQUARES

Transposition squares, which are the first serial structure used by Davies, came about as follows. In his 1952 paper 'Eventuellement … ', Boulez,[1] mentions, amongst other topics, previous dodecaphonic practice, in which a twelve-note series would be written down with its twelve transpositions, in ascending or descending chromatic order. In composition, the succession of series would be by similar (ordered or unordered) subsets of elements, or by pivot notes. He refers to this 'procédé quelque peu empirique' as a 'numérotation, mais non point un chiffrage',[2] and suggests that the simplest way of arriving at the latter is to arrange the transpositions so that their initial notes are those of the initial series. Thus, using (not Boulez's example but) one of the three series[3] of Davies's *Sonata for Trumpet and Piano*, Op. 1 (1955: J42)[4] (composed just three years after the publication of Boulez's paper), we have:

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[1] Boulez, 'Eventuellement … ', p. 122.

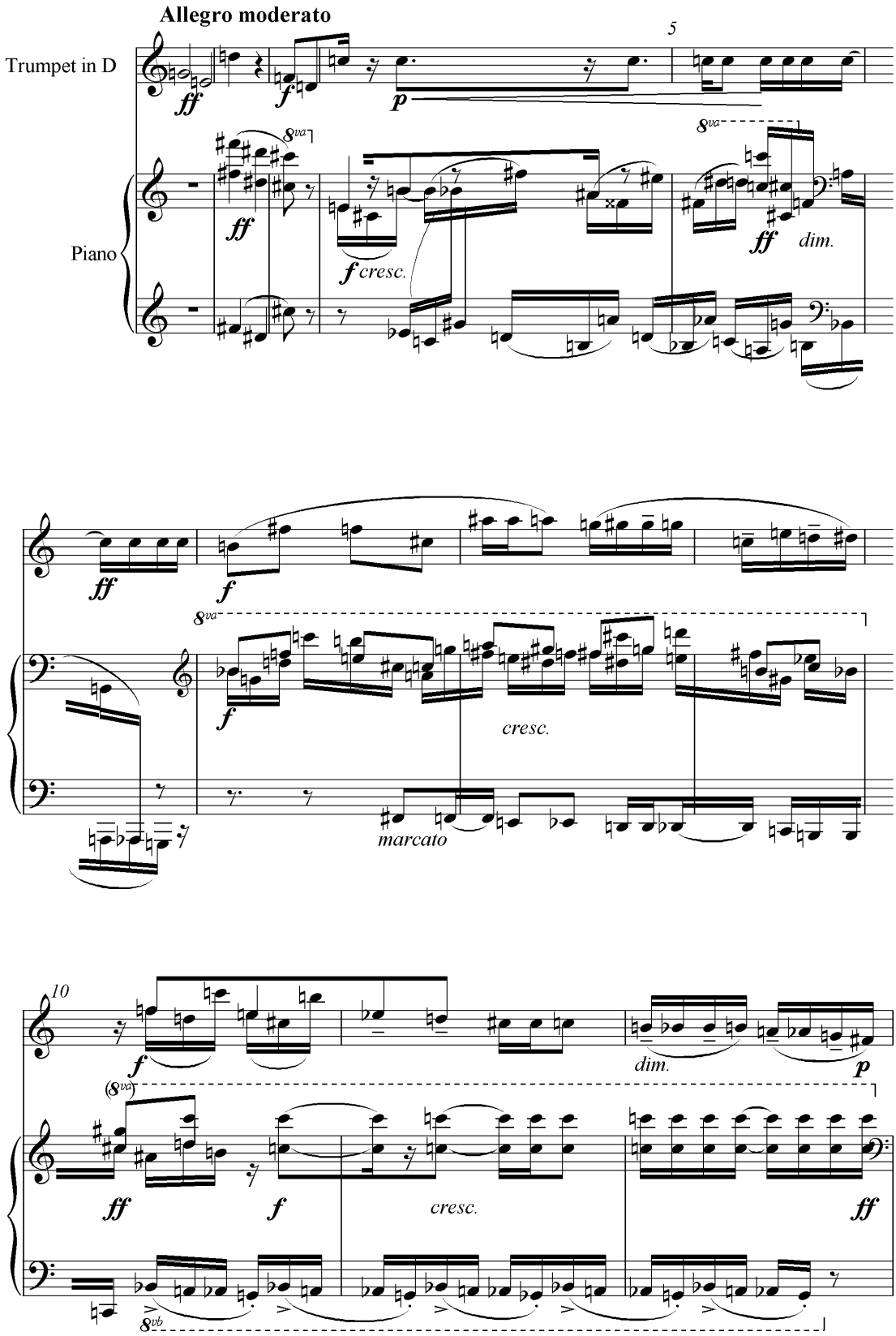
[2] There are two translations of Boulez's paper: by Herbert Weinstock as: 'Eventually … ' in *Notes of an Apprenticeship*, (Alfred A. Knopf, New York, 1968), pp. 148–181, and by Stephen Walsh as: 'Possibly … ' in *Stocktakings from an Apprenticeship*, (Clarendon Press, Oxford, 1991), pp. 111–140. The former does not inspire confidence by its mistranslation of the title: the latter translates the relevant sentence as 'This somewhat empirical procedure involved a system of numbering, but not one of encoding.'

[3] Unusually for Davies, this series is dodecaphonic, although the other two are not. Seven years later, he was to write: ' … But there seems to be no more reason for using all the twelve notes. If one's material is properly organised, no incongruous tonal hierarchy will suggest itself insidiously, … ' ('Problems of a British Composer Today' *The Listener*, October 8, 1959, p. 564). The other two series are briefly mentioned below.

[4] Roberts, *Techniques of Composition*, p. 1, volume 2, Example 1.1 (a): the table is completed from the series he gives.

E	B	A#	F#	D#	D	C	C#	F	A	G	A𝄫
B	F#	F	C#	A#	A	G	G#	C	E	D	D#
B𝄫	F	E	C	A	G#	F#	G	B	E𝄫	C#	D
F#	C#	B#	G#	F	E	D	D#	G	B	A	A#
E𝄫	B𝄫	A	F	D	C#	B	C	E	G#	F#	G
D	A	G#	E	C#	C	B𝄫	B	E𝄫	G	F	F#
C	G	F#	D	B	B𝄫	A𝄫	A	D𝄫	F	D#	E
C#	G#	G	D#	B#	B	A	A#	D	F#	E	F
F	C	B	G	E	D#	C#	D	G𝄫	B𝄫	A𝄫	A
A	E	D#	B	G#	G	F	F#	B𝄫	D	C	C#
G	D	C#	A	F#	F	D#	E	A𝄫	C	B𝄫	B
A𝄫	E𝄫	D	B𝄫	G	F#	E	F	A	C#	B	C

This may be seen at the very opening of the first movement of the *Sonata*:



Ex. 3.1 Davies, *Sonata*, I, opening

The first row of the transposition square is played by the piano right hand (bar 4: notes with upward stems; bar 5: right hand, extending to the G and Aβ in bar 6), the second by the trumpet (bars 7–9) and, the third, heterophonically, by the piano right hand (bars 7–10: notes, save the Eβ, possibly an error, with upward stems). It is clear that transposition squares are in essence a process of *übergreifende Form*, illustrating how Davies used the principle from the very beginning of his compositions.

These are not the only serial processes in the passage. A three-note series, starting G, E, D in minims on the trumpet, diminished in the following bars to crotchets, then quavers, then semiquavers, successively transposed so that its starting pitches are those of a third, eleven-note series. This consists of a downward chromatic scale from G to G, repeated in the piano left hand (bars 7–12) and then in the trumpet (bars 10 onward, each time transposed down a semitone, so that its starting pitches are those of the series itself – another example of *übergreifende Form*, and indeed another, elementary, example of a transposition square.[5]

Extensions of transposition squares

Davies extended and developed the concept of a transposition square in following works, the development continuing even after his devising the technique of systematic melodic transformation, and sometimes used in parallel with it.

The greatest extension was in his first large orchestral work, *Prolation*: here, as will be seen (below, *Chapter 4*, under *Prolation*) the principle of the transposition square, that the basic series (in this instance a five-note series) should govern a set of transpositions of itself, produces a second-order structure; this principle is then applied to these second-order structures in their turn, producing third-order structures;

[5] The serial structure of the whole *Sonata* is analysed in detail by Roberts, *Compositional Processes*, volume 1, Chapter 1, Sonata For Trumpet, pp. 15–37, and in particular the first in twelve bars in volume 2, p. 1, Examples 1.1 and 1.2, from which the above analysis is derived.

and similarly applied to them to produce a single fourth-order structure (see below, *Chapter 4: Prolation*, in particular the large table) thus constituting also four levels of *übergreifende Form*.

Other developments of transposition squares

These are less all-embracing. One variety uses modifications of the (second-level) series governing the transpositions. Here it is necessary to note the concept of a 'sieved' series. Davies's series are not in general dodecaphonic, so a particular pitch may recur later in the same series. Such a series may also occur in a 'sieved' version, *i.e.* one which omits certain pitches, in particular occurrences except the first of a pitch which is repeated. Thus all three movements of the chamber work *Ricercar and Doubles on "To Many a Well"* (1959: J 56) use a 22-pitch series, but at transpositions determined by its 9-pitch sieved version, *i.e.* using a transposition square of 22 columns but only 9 rows.[6] A similar, but slightly extended, development is used in Section 1(b) (bars 21–116) of the *Second Taverner Fantasia* (the first orchestral work in which transformation processes were used), which Davies designates a 'short development', (see below, *Chapter 6*, Serial elements and structure of the piece, Transposition structures).

Another variety of development of transposition squares modifies the first-level series. In the second of the *Five Motets* (1959: J57), the transposition square is applied in the usual way, but each series is split into two halves, each of which is treated not as a series but as just an unordered set of pitches.[7] Again, in the early one-movement *Quartet for Strings* (1960–1961: J86), the columns of the transformation

[6] Roberts, *ibid.*, Volume 1, Chapter 6: Ricercar And Doubles, pp. 240–289.
[7] *ibid*., volume 1, pp. 263–265, volume 2, p. 55, Examples 7.1, 7.2.

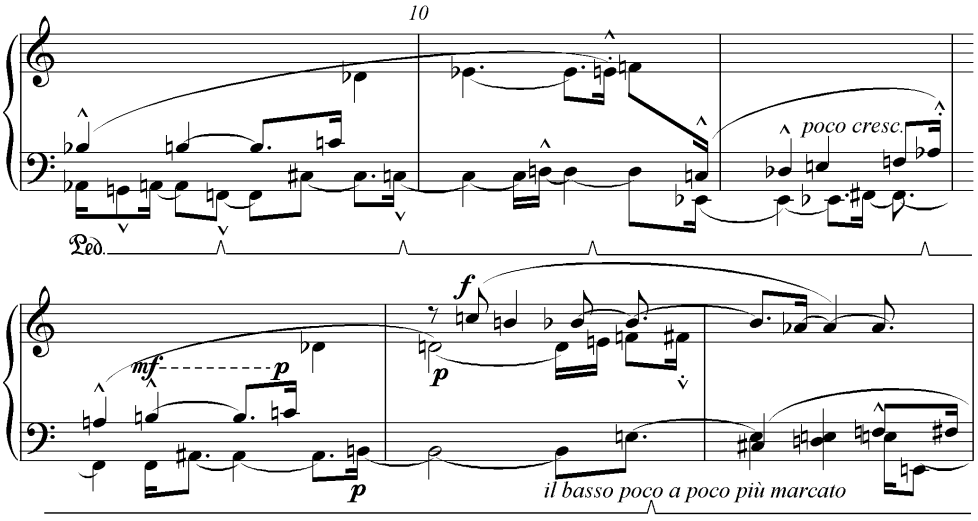
square divided into three subsets, and a 'plain hunt' transformation (see below, Chapter 5: Transformation Processes) is applied to each.[8]

Serialisation of duration

Also from the *Sonata for Trumpet and Piano* onwards, Davies has used serialisation not only of pitches, but (sometimes but not always associated with it), serialisation of durations. Until his invention of magic squares, where the durations are automatically serialised along with the pitches, this was an add-on feature. He has used four different methods.

1. *Duration series*

These are analogous to pitch-series, and consist of a series of durations which are applied to the pitches, and quite independently of them. Two such may be seen in the following extract from the piano part of the central section of the second (slow) movement of this sonata. The bass voice is the retrograde of the pitch series in the



Ex. 3.3: Davies, second movement of the *Sonata for Trumpet and Piano*.

[8] *ibid.*, volume 1, pp. 267–268, volume 2, pp.56–57, Examples 7.5, 7.6.

first row of the table above (and the piano right hand of bar 4 onward of the example following the table, as explained there) with the increasing duration-series 1, 2, 3, … , 12 (in semiquavers), and the tenor a new pitch series with the duration-series 4, 7, 1, 4, 9, 1, 2, 1, 4, 4, 2, 1 of durations (also in semiquavers). This series is derived from the prime of the bass series by mapping intervals into durations, as shown in the following table:[9]

(G#)	E	B	A#	F#	D#	D	C	C#	F	A	G	G#
4	7	1	4	9	1	2	1	4	4	2	1	

and the treble voice, when it enters, has the same increasing series of durations as the bass (but this time in quavers).

A similar example is found in *Prolation*, where the pitches of the fundamental series G, F, C#, A, G, (or of any of its transpositions or retrogrades) are always played with durations in the ratios 10:4:7:6:5.

A further example will be found in the canonic ricercar of the *Second Taverner Fantasia*, where quite a long pitch series has a constant duration-series associated with it.

Duration series will be seen below to have a natural extension to transformation processes.

The remaining three of Davies's methods of serialisation of duration associate durations with pitches, something which was adumbrated by Cowell:[10] Elliott Carter has remarked: 'Cowell's book New Musical Resources has a chapter dealing with the association of pitch-interval ratios with speed ratios after the manner "discovered" later by certain Europeans'.[11]

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[9] Roberts, *ibid.*, Volume 1, p. 28, Volume 2, p. 5, Example 1.10. There is, of course, a choice in which direction the interval may be taken: usually, but not always, Davies chooses the direction which makes the interval the smaller.

[10] Cowell, Henry, *New Musical Resources*, (Alfred A. Knopf, New York, 1930), Part II: Rhythm, especially Chapter 7, *Scales of Rhythm*, pp. 98–108.

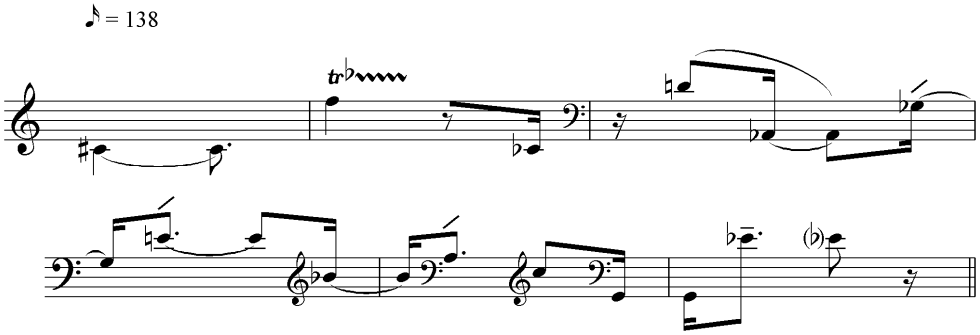
[11] Carter, Elliott, *Elliott Carter: Collected Essays and Lectures, 1937–1995*, ed. Jonathan W. Bernard, (University of Rochester Press, Rochester, 1997), p. 79. Schiff (*The Music of Elliott Carter, New Edition*, p. 10) adds 'indeed rediscovered by Carter himself in the Double Concerto'.

2. Pitch → duration mapping

This associates a particular duration with each pitch: thus, in the third of the *Five Piano Pieces*, the second voice uses (with some freedom) the mapping:[12]

pitch	duration (in semiquavers)
C	1
D, Gβ, Bβ	2
G, Aβ, A	3
F, B	4
E	5
Eβ	6
C#	7

as may be seen from strand 2 of bars 61–66 (from Ex. 2.1 above):



Ex. 3.4 Davies, Five Pieces for Piano, III.

3. Interval → duration mapping

This associates a particular duration with each interval (in semitones) between consecutive pitches, the second of the two pitches of the interval receiving the interval. There is a possible natural mapping here, which associates 1 duration unit with an interval of 1 semitone, 2 duration units with 2 semitones, etc., although instead an arbitrary mapping is often used. This has already been illustrated above

[12] Adapted from the table in Roberts, *loc. cit.*, volume 1, p. 54. The durations of the rests before and after the Cβ in the second bar of the extract have to be counted in its duration. The durations of the C and the G in the penultimate bar are deviations from the mapping.

(under *Duration series*, although with a series which is applied to a pitch series other than the one from which it was derived). Other mappings are also possible. In a paper published in 1958,[13] Krenek described a procedure (used in his piece Sestina), too complicated to be summarized here, for the derivation of durations and some other musical parameters ("density", "location of the tone within the gamut of six octaves, " "external speed", dynamics and, in part, instrumentation of the pitches) from intervals.

4. Interval → duration-ratio mapping

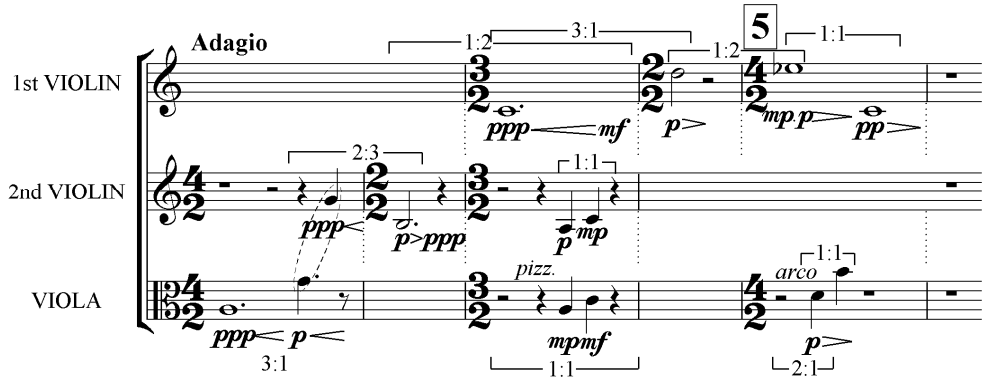
This associates a particular (unordered) ratio of consecutive durations with each interval between consecutive pitches. (Since it is ratios which are being associated, there can be no natural mapping here.) For example, in the first section of the *String Quartet* (J86, 1961), there is the mapping:

interval (in semitones)	duration-ratio (in semiquavers)
0	1:1
1	1:2
2	1:3
3	1:1
4	2:3
5	3:4
6	1:1

This gives rise to[14]

[13] Krenek, Ernst, 'Sestina', *Melos, Zeitschrift für die neue Musik*, (Juli/August 1958), pp. 235–238, 'Extensions and Limits of Serial Techniques', *Musical Quarterly*, Vol. 46, No. 2, (April 1960), pp. 210–232.

[14] This figure is adapted from the score of the String Quartet and from Roberts, *ibid.*, volume 2, p. 58, Example 7.7. Several remarks are necessary. The cello is silent throughout the extract. The notes should strictly speaking be printed in red (to indicate 'exact and constant rhythmic proportions', whereas black notation, which does not occur in the extract, would indicate rhythmically freer melismas), but this has not been possible here. Roberts (*ibid.*, Volume 1, p. 262) refers to his Example as 'a reasonable reconstruction', a description with which I would not wish to disagree.



Ex. 3.5 Davies, *String Quartet*, opening.

(the derivation of the sequence of pitches is explained below in *Chapter 5*: *Transformation processes*, The evolution of transformation processes in Davies's music, 3) Partitioned plain hunt permutation, which illustrates a point made by Roberts,[15] namely that this type of mapping does not specify durations unambiguously, since the ratios (all except 1:1) are unordered. For example, the minor second between the second violin's B and the first violin's C, and that between the first violin's D and Eβ are played in the duration-ratio 1:2, but that between the first violin's Eβ and the viola's D in the ratio 2:1.

Studies for a Symphony

From here until his first symphony, Davies composed a number of orchestral pieces which may, with hindsight, be seen as studies for it, or for movements of it, studies which differ a great deal both from one another and from the symphony itself.[16]

[15] Roberts, *ibid.* … , Volume 1, p. 268. He remarks earlier (p. 21) that 'for a succession of n notes, there are 2^n possible potential realisations' which is not quite precise. For a succession of *n* notes there are $2^{n'}$ possible realisations, where $n' = n - 1 - t$ and *t* is the number of pairs of adjacent notes assigned the ratio 1:1.

[16] This qualification about differing from the symphony will not be repeated, but should be understood whenever a work is described as a study for the symphony or for a movement of it.

CHAPTER 4: THE ORCHESTRAL WORKS

Prolation

This piece, the fruit of Davies's year's study in Rome with Goffredo Petrassi, was awarded the 1959 Olivetti prize (by a jury which included Petrassi and Dallapiccola), but does not appear to have ever had a commercial recording, or even to have been much played since its first performances in Rome in 1959 and Liverpool in 1960. It uses transposition squares and serialises both pitch and duration in a very rigorous way which was abandoned in subsequent compositions.

Roberts[1] divides the whole work into six continuous sections:

1	Vivace $\theta = 128$	1–219
2	$\theta = 112$	220–236
3	Lento $\varepsilon = 44$	237–329
4	$\eta = 88$ Vigoroso	330–376
5	$\theta = 64$; $\varepsilon = 160$; $\theta = 96$; $\theta = 112$; $\theta = 128$	377–641
6	Lento $\theta = 44$	642–655

all built up from the five-notes 'series' heard at the beginning,

G	F	C#	A	G#
10	4	7	6	5

where not only the pitches but the durations are part of the series. The construction is of great rigour and complexity. Roberts, who writes:

> Boulez, borrowing Barthes's famous phrase, has said that his *Structures* constitutes a version of 'le degree zero de l'écriture';[2] *Prolation* is Davies's own 'writing

[1] Roberts, *Techniques of Composition*, Volume 1, Chapter 3: Prolation, pp. 78–173.
[2] 'Pour reprendre l'expression de Barthes, j'ai fait là une experience de degree zero de l'écriture.' Boulez, Pierre, *Par volonté et par hazard: entretiens avec Célestin Deliège*, (Editions de Seuil, c.1975), p.69.

> degree zero'—a stripping away of individual expression, a favouring of system over intuition.[3]

has given a (lengthy) detailed analysis which is an outstanding poietic exercise.[4] As an indication (only) of the complexity, the following table, adapted from Roberts,[5] shows how the four-level serial structure of pitches underlying the work is constructed. The five-pitch sequence G, F, C#, A, G# given above is denoted by π_G, its transpositions starting on F, G#, *etc.*, by π_F, $\pi_{G\#}$, *etc.*, and the retrograde of its transpositions starting on C#, A, *etc.*, by $\rho_{C\#}$, ρ_A, *etc.*: each of these transpositions or retrograded transpositions constitutes a first-level structure. Each column of the table consists of a set of five such five-pitch sequences (first-level structures), constituting a transposition square, a second-level structure, denoted by π^2_G, π^2_F, *etc.*

Each of the five sets of five consecutive transposition squares (second-level structures), constitutes a third-level structure, denoted by π^3_G, π^3_F, *etc.*, and the set of all third-level structures constitutes the fourth-level structure.

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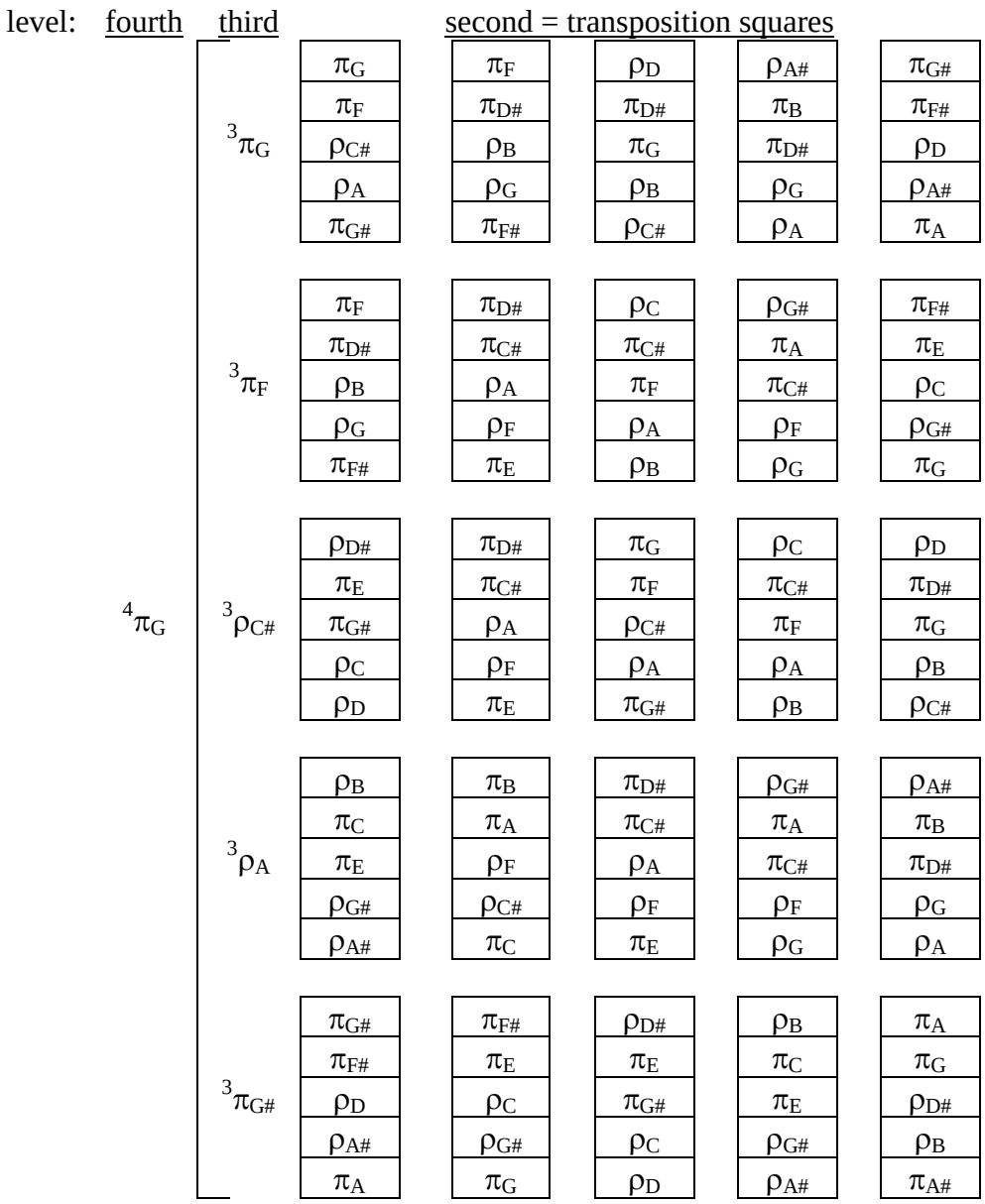
[3] Roberts, David, *Ibid.*, Chapter 3: Prolation, pp. 78–173.

4 A briefer but more listener-friendly analysis is given by Davies's programme note for the first British performance: see *Appendix A: Maxwell Davies's programme note for the first British performance of Prolation*.

[5] Roberts, *Ibid.*, Volume 1, p. 82, Figure 3.1. The figure has been adapted by changes in notation: in particular, Roberts's (and other scholars') capital Latin letters are, here and in subsequent examples, replaced by the corresponding small Greek ones. Also, Roberts's third-level tables have been rotated about their top left–bottom right axis, so that, consistent with previous notation here, each transposition square is represented by a bordered five-row table.



The first section of the work consists, in part, of playing through the whole of this latter structure. There are also serial structures concerned with duration, in which the proportions 10:4:7:6:5 are maintained throughout,[6] and also additional material. The composition thus takes the principle of *übergreifende Form* to an ultimate limit, where it governs, on four different levels, both the pitch- and the duration-structure, evoking Sedlmayr's concept, quoted by Davies, of

[6] Roberts, *Ibid.*, Volume 1, pp. 83–88.

> ' … a work of art where the philosophy, purpose, symbolism and structure are one, bound together on all levels, from its total form, the macrocosm, to the smallest detail, the microcosm.'[7]

After *Prolation* Davies abandoned a method of composition as rigorously (not to say aridly[8]) serial as this (reminiscent of Boulez's *Structures*, Books 1 and 2 (1951–2) and Stockhausen's *Kontrapunkte* (1952–3)). The next two works of this period, and the four of the following (see *Part III* below) can be considered as studies for the coming Symphony, not in the sense that a painter may produce studies for a work in mind, figures which may appear in it, but rather technical exercises or formal explorations for the work to come.

First Fantasia on an 'In Nomine' of John Taverner

As has been pointed out by Roberts (*passim*), Davies's works often come in groups. This fantasia is the first of three works, which might be referred to as the *In Nomine* group, derived from the four-part *In Nomine* (*Domini*) of the *Sanctus* of Taverner's six-part unaccompanied Mass *Gloria tibi Trinitas*.[9] (The quotation of its opening, given below, shows not only the *In Nomine* motive in the treble, counter-tenor 1 and bass parts, but also, in the mean, the *Gloria tibi Trinitas* plainchant.)

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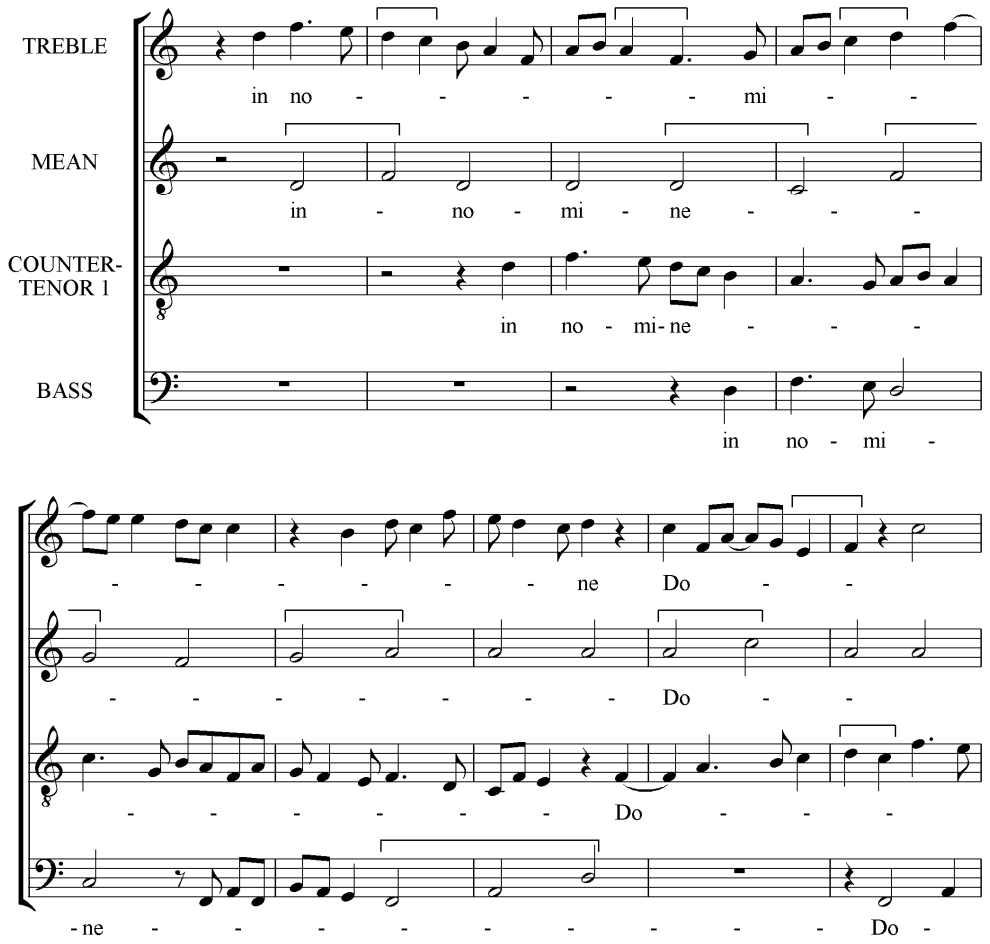
[7] Davies, 'Four Composition Questions Answered'.
[8] The possible aridity inheres in the method, not in the music Davies uses it to compose.
[9] Benham, Hugh, John Taverner: I Six-part Masses, (Stainer and Bell, London, 1978), pp. 56–58. On In Nomines in general, see Donnington, Robert and Dart, Thurston, 'The origin of the In Nomine', *Music and Letters*, 30 (1949), pp.101–106.



Ex. 4.1 Taverner's *In Nomine*.

(The second work in this group is *First Fantasia on an "In Nomine" of John Taverner,* in which both the *In Nomine* motive and the *Gloria tibi Trinitas* plainchant occur and the third is the *Seven In Nomine*.)

Taverner's *In Nomine* was played on the organ as a preface to the present fantasia at its first performance, and an arrangement of this for two oboes and two bassoons prefaces the score. (An arrangement for string quartet is also the first of the *Seven In Nomine*.)

The form of the work is an extended version of one of what Hepokoski has termed sonata deformations, namely 'the introduction-coda frame'.[10] The following is a *Summary analysis table*.[11]

Taverner's 'In Nomine': Andante η = 66			Before start	Two oboes, two bassoons
Opening phrase, slightly modified: θ = 72			Start to **1**–1	Two trumpets
Extended development: θ = 104			**1**+1 to **8**–1	Strings
Recitative I: Lento θ = 48			**8**+1 to **9**–1	Wind
Sonata section: Allegro θ = 116	Exposition	First subject	**9**+1 to **11**–1	Trumpets, clarinet
		Second subject	**11**+1 to **12**–1	Strings
	Repeat of exposition	First subject	**12**+1 to **13**–1	Trumpets, clarinet; horn counterpoint
		Second subject	**13**+1 to **14**–1	Strings; horn counterpoint
θ = 100	Development		**14**+1 to **19**–1	Strings; horn counterpoint; woodwind melismas
Allegro θ = 112	Recapitulation	First subject	**19**+1 to **20**–1	Strings
		Second subject	**19**+5 to **20**–1	Flute, woodwind
Recitative II: Lentiss. θ = 48			**20**+1 to **22**–1	Woodwind, brass, strings, handbells
Ending: Lentiss θ = 40			**22**+1 to end	Oboe, solo cello; high trumpet, handbells

(The openings of the second movement of the *Sinfonia* (**[12]**+1 – **[13]**–1) and of II of *Seven in Nomine* show some similarity to phrase (Start to **1**–1) of the present work.)

[10] Hepokoski, James, *Sibelius: Symphony No. 5*, (Cambridge University Press, Cambridge, 1993), pp. 5–9.

[11] For many works other than the first two symphonies, only a tabular summary analysis will be given here, since a fuller analysis would lengthen this thesis to unmanageable size. Here and with works discussed below, the tabular summary analyses are, unless otherwise specified, derived from Davies's own comments. These comments were to be found on Davies's website www.maxopus.com, and also, for works up to *Symphony No. 2* in Part III of Griffiths, *Peter Maxwell Davies*.

This work, for a small orchestra (strings, double woodwinds, two each of horns, trumpets, trombones, one tuba) is the first of four increasingly complex and elaborate investigations of sonata form (the other three being the sonata form movement section of the *Second Taverner Fantasia*, the third movement of the *Sinfonia* and *Worldes blis*), which can be thought of as studies for the first movement of the coming symphony. All three, and also the first movement of the symphony, are very different from one another. Further, unlike the other two and the first movement of the symphony, it does not seem to contain any serial elements,[12] their part being taken by the prefaced *In Nomine* motive and the *Gloria tibi Trinitas* plainchant.

Sinfonia

Davies gives this as 'the third large-scale work of which the starting point was the *Vespers* of 1610 by Claudio Monteverdi'[13] (the other two being the *String Quartet*, 1960: J95 and the *Leopardi Fragments*, 1962: J86; there is also a brief allusion to Monteverdi in *Missa super L'Homme Armé*), of which he made 'a special performing edition of large sections for the Choir and Orchestra of Cirencester Grammar School'[14] where he was music master between 1959 and 1962.[15] (They might perhaps be termed the Monteverdi *Vespers* group.) Each movement of the *Sinfonia* is based on a particular section of the *Vespers* (although they are all

[12] There could not be any magic square, since Davies first use of one was in *Ave maris stella* (1975), and even transformation processes were not fully evolved to his satisfaction until the second of his *Seven in Nomine* (1963: see *Davies's fully evolved transformation processes* in *Chapter 5* below), leaving only the possibility of transposition squares, and I have not been able to discern any.

[13] Davies, Peter Maxwell, 'Sinfonia', in: Griffiths, *Peter Maxwell Davies*., Part III, pp. 138–139. All subsequent quotations from Davies concerning the *Sinfonia* in this Chapter are from the same source.

[14] Davies, *loc.cit.*, p. 138.

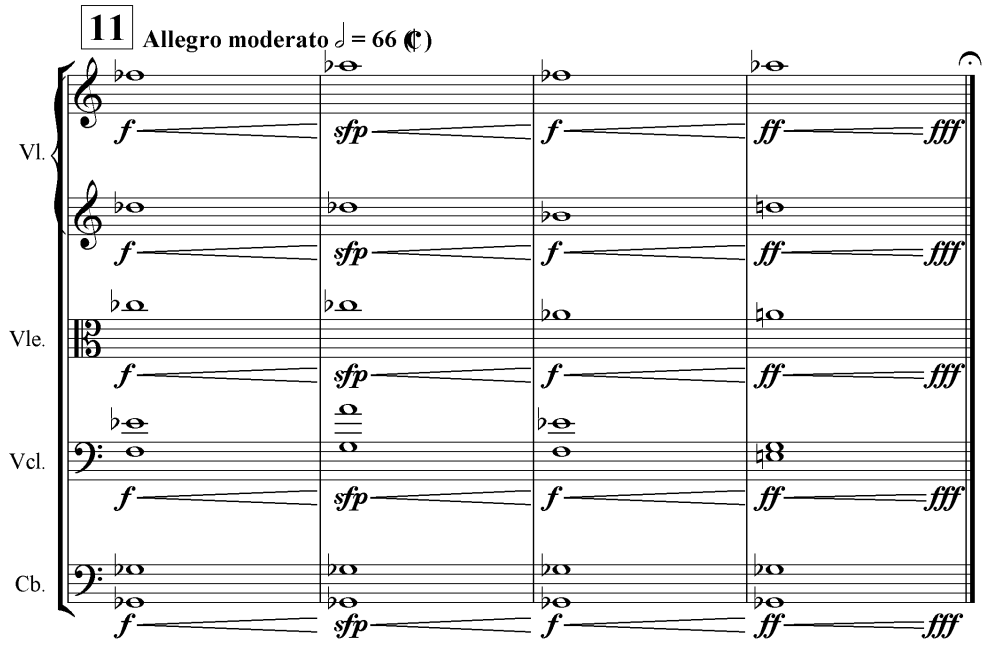
[15] The serial structure of the part-writing in the *Sinfonia* needs further elucidation. Unfortunately, examination of Davies's manuscripts in the British Library (Add. Mss. 71316, ff. 8–13) was of little help.

According to Professor Richard McGregor (personal communication) the main set of sketches for the *Sinfonia* were 'given to Swinton Library and when that closed transferred to Salford Local Studies Library'. He twice tried to consult them, but the first time 'library staff refused to try to find them because they said they had so much material in the basement that it would be like looking for a needle in a haystack, or some such phrase' and the second time 'the card index card was not there.' I have twice written to the Library, but received no reply.

considerably more elaborate in form). Tabular summary analyses of the four movements are as follows.

I: Lento recitando: Allegro molto. This stems from Monteverdi's response 'Domine ad Adjuvandum', which consists of three successive brilliant elaborations, by cornets, trombone and 'viuola da brazzo', of the chord of D major (taken from the *Toccata* at the beginning of *Orfeo*), separated from one another by 'a passage in triple metre for the instruments alone, the music of which is then slightly adapted for the final Alleluia'.[16] Davies begins his movement with a brief two-part clarinet solo ending with a pause, modelling (rather distantly) the intonation *Deus in adiutorum meum intende* with which Monteverdi precedes his movement. This is followed by four sections in which the strings play chords 'supporting ever longer and more elaborate melismas on the wind instruments'.[17] The four chords (which are always of seven notes, with the bass an octave Gβ) are shown below as they appear at the end of the movement. The first three are built up, note by note, starting ***p*** and growing to ***f*** or ***ff***,

[16] Whenham, John, *Monteverdi: Vespers (1610),* (Cambridge University Press, Cambridge, 1997), p. 61.
[17] Davies, *loc. cit.*



Ex. 4.2 Davies, *Sinfonia* I, final occurrence of the four chords.

but the fourth is immediately played as a whole, with repeated crescendi form ***p*** to ***f*** or ***ff***. The melismas, which start as a duet of oboe and clarinet, adding, in successive sections, bassoon, flute and horn, unlike Davies's usual practice, do not start from or return to a particular note of the part to which they are melismatic (notes of the string chord): they are, however, an instance of rhythmic quodlibet polyphony, in that every wind instrument has a different time signature, (this is illustrated above: see Ex 2.7) with the sole exception of the fourth chord, where the flute and the horn both have X. The intervening ritornelli have all instruments in X, but the music does not 'return' in any obvious way: there may be subtle similarities, but the music of each ritornello seems different and new.

Finally the strings play all four chords in successive semibreves whilst all five winds play slowly above them.

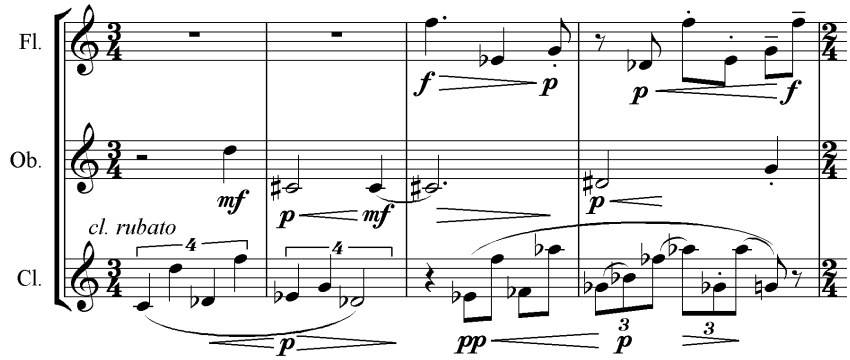
Three part intonation	Start to **[1]**–1	Clarinet
Chord 1 and melismas	**[1]**+1 to **[2]**–1	Strings; oboe, clarinet
Ritornello	**[2]**+1 to **[3]**–1	Oboe, clarinet
Chord 2 and melismas	**[3]**+1 to **[5]**–1	Strings; oboe, clarinet, bassoon
Ritornello	**[5]**+1 to **[6]**–1	Oboe, clarinet, bassoon
Chord 3 and melismas	**[6]**+1 to **[7]**–1	Strings; flute, oboe, clarinet, bassoon
Ritornello	**[7]**+1 to **[8]**–1	Flute, oboe, clarinet, bassoon
Chord 4 and melismas	**[8]**+1 to **[10]**–1	Strings; flute, oboe, clarinet, bassoon, horn
Ritornello	**[10]**+1 to **[11]**–1	Flute, oboe, clarinet, bassoon, horn
Coda: Chords 1, 2, 3, 4	**[11]**+1 to end of movement	Flute, oboe, clarinet, bassoon, horn; strings

II: Allegro molto moderato. According to Davies, this movement 'develops the decorative technique and form of the duo 'Pulchra es''. Any similarity between the decorative techniques of the two movements is hard to see. As for the form, it is as pointed out by Whenham,[18] that *Pulchra es* is in the form A, B, B', with A a duet for Cantus and Sextus, B (bars 23–43) a solo for Cantus and B' (bars 43 to the end) an almost note for note repeat of B but with an added part for Sextus. This is, however, as may be seen from the following table, an incomplete model for Davies's movement. The first three sections, A, B and B' (separated by sustained horn notes), show an exact formal correspondence with *Pulchra es*, but, as Davies puts it, the movement 'develops' the form: he does not, however, give any hint as to the structure of this development. Apart from the fact that the Coda is clearly a reference back to the first four bars of A, this structure is unclear. The division into sections given in the table below follows marked changes in instrumentation, separated by sustained solo horn notes. Since, however, there is a marked change in instrumentation but no

[18] Whenham, *loc. cit.*, pp. 53–54.

sustained horn solo note between **[25]**–1 and **[25]**+1, **[21]**+1 to **[25]**–1 and **[25]**+1 to **[26]**–1 have been treated as two subsections of section C.

Davies also remarks that 'The chords of the opening movement are used melodically, and the expressive quality of these melodies is exploited'.[19] Arranging the notes of the first of the four chords in ascending order of pitch-class gives Cβ, Dβ, D, Eβ, Fβ, F, Gβ: the inversion of this, transposed a tritone, is C, Dβ, D, Eβ, F, G, and these are elaborated, in the form and order C^4, D^5, $D\beta^4$, F^5, $E\beta^4$, G^4, first by the clarinet, in section **[13]**+1 ff.[20]:

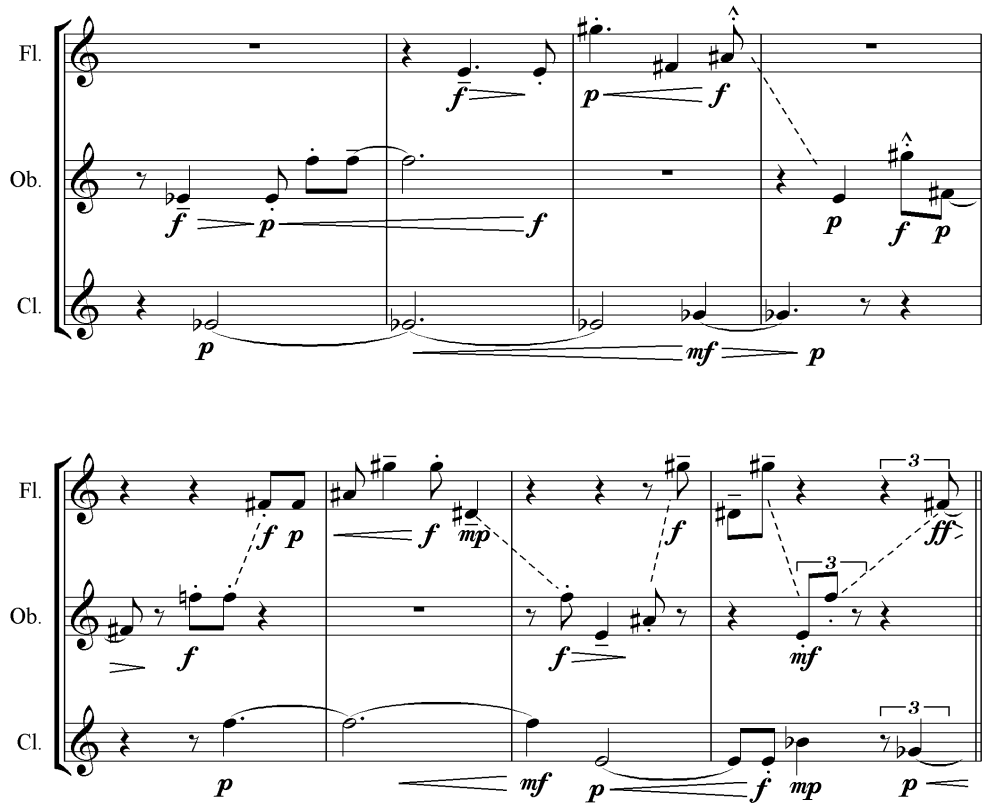


Ex. 4.3 Davies, *Sinfonia* II, bars **[13]**+1 to **[13]**+4.

C, Dβ, D, Eβ, F, G transposed up a minor third are Eβ, E, F, F#, G#, A#, and these are similarly elaborated, with the analogous order and set of pitch levels, as $E\beta^4$, F^5, E^4, $G\#^5$, $F\#^4$, $A\#^4$, in **[14]**+1 ff.:

[19] Davies, *loc. cit.*, p. 139.

[20] There is an error six bars after rehearsal mark **[17]** of the study score published by Schott: the second triplet in the clarinet part lacks a triplet sign. There is also almost certainly an error either in the second triplet quaver of the clarinet part in bar **[15]**+4, which is E natural, or the corresponding quaver in bar [19]+4, which is Eβ.



Ex. 4.4 Davies, *Sinfonia* II, bars **[14]**+1 to **[14]**+8.

A	**[12]**+1 to **[13]**–1	Flute, oboe
B	**[13]**+1 to **[17]**–1	Flute, oboe, clarinet; first and second violins
B' (B with added parts)	**[17]**+1 to **[21]**–1	Flute, oboe,clarinet; first and second violins; horn, and remaining strings *pizzicato*
C (i)	**[21]**+1 to **[25]**–1	Solo strings; clarinet, oboe, flute
(ii)	**[25]**+1 to **[26]**–1	Flute, oboe, clarinet hold part of chord 4; *pizzicato tutti* strings
D	**[26]**+1 to **[27]**–1	Strings
E	**[27]**+1 to **[29]**–1	Oboe, flute; strings
A': Coda	**[29]**+1 to end of movement	Flute; horn

III: Allegro. According to Davies, this movement is 'based on *Sonata sopra Sancta Maria* reshaped in the manner of a classical sonata movement'.[21] The sonata form is, following hints given by Davies, fairly easy to discern.[22]

Exposition	First subject	**[30]**+1 to **[34]**–1	Strings
	Second subject	**[34]**+1 to **[37]**+9	Horn
	Conclusion	**[37]**+8 to **[40]**–1	Strings
Development		**[40]**+1 to **[51]**–1	Woodwind and strings
Recapitulation	First subject	**[51]**+1 to **[54]**–1	Woodwind
	Second subject	**[54]**+1 to end of movement	Clarinet, bassoon, horn and strings

The relationship of this to the Monteverdi *Sonata*, however, is harder to make out. As pointed out by Whenham,[23] the latter is in ternary form, the central and final section containing eleven statements of the *cantus firmus Sancta Maria, ora pro nobis*, so there is no doubt that it has been 'reshaped' in the Davies movement. There is, however, no obvious relationship between Monteverdi's and Davies's thematic material. It is conceivable that the horn second subject corresponds to the *cantus firmus*, which, like it, consists mainly of sustained notes, but this possibility seems speculative.

IV: Lento. This 'uses the form of the hymn *Ave Maris Stella*'[24] (a plainchant which, as will be seen, underlies the First Symphony), which is a series of settings of the seven successive verses of the same melody, the settings often, but not always, separated by instrumental ritornelli. Davies's movement is in similar, but shorter, form.

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[21] Davies, *loc. cit*,, p. 139.
[22] There are three errors two bars after rehearsal mark **[47]** of the study score. Davies's manuscript full score on transparencies, dated 'Cirencester 18.iii.62' (Add. Mss., 71316) clearly shows three arrows to the melismata from the main part they decorate which are missing in the published score, although those on the following two pages are present.
[23] Whenham, *loc. cit.*, *Vespers*, pp. 56–59.
[24] Davies, *loc. cit.*,, p. 139.

First section, with 'echo' chords	**[59]**+1 to **[63]**–1	strings, solo strings
Ritornello	**[63]**+1 to **[65]**–1	clarinet and strings[25]
'Accellerated, varied version' of first section	**[65]**+1 to **[67]**–1	strings
Varied ritornello	**[67]**+1 to **[68]**–1	flute, oboe, celli
First section, without 'echo' chords, but with added counterpoints	**[68]**+1 to end of movement	strings, bassoon, horn

The movement has very much the sound of the finale of Bartók's second string quartet, and is similarly moving.[26]

This piece (for chamber orchestra, strings, single woodwind and one horn) is the only one of the orchestral works leading up to the first symphony which consists, like a conventional symphony, of four separate movements (although the next work, the *Second Taverner Fantasia*, is fundamentally a three-movement symphony in a single movement). As with the *First Taverner Fantasia*, and for similar reasons, it does not seem to contain any serial elements, their part being taken by allusions to the Monteverdi *Vespers*. With the exception of the third movement, which is in sonata form, none of them are in a conventional symphonic movement form (being, in the forms of respectively: chords interspersed with ritornelli; A, B, B', C, D, E A' and coda; sonata form; and finally varied sections alternating with varied ritornelli. It is, nevertheless, Davies's first full study for a symphony, although one he still considered preparatoty. 'Asked if there had been any special reason why he had titled the work *Sinfonia* instead of *Symphony*, he grinned and said simply, 'Yeah, it wasn't big enough.''[27]

[25] Davies refers to this as 'woodwind'.
[26] As a student Davies was influenced by Bartók, and his use of Bartók-like melodic glissandi has been noted above (the section Technical Devices in Chapter 2).
[27] Seabrook, *Max*, p. 66.

PART III: TRANSFORMATION PROCESS PERIOD WORKS

CHAPTER 5: TRANSFORMATION PROCESSES

These processes are the second serial structure, used by Davies, and the first devised by him. In 1968, he wrote:

> I have for a few years been working with series or 'sets' (not necessarily 12-tone) which are in a perpetual state of transition, so that given musical identities, such as 'straight' or 'inverted' set-forms, are only gradually established and disintegrated. Sets are chosen for much the same musical reasons as in normal post-Schoenberg American 'set-theory', except that they would be classified rather like Swammerdam's[1] categories of insects—for the metamorphoses they are capable of undergoing—rather than for their structural potentialities through direct transposition. Sets are thus, in the simplest instances, transformed by a given interval throughout, but more often by a series of intervals, sometimes in elaborate permutations, giving complex curves, and with the rhythmic cells subject to a parallel consistent modification, as well as the larger isorhythmic units.[2]

The evolution of transformation processes in Davies's music[3]

Davies's transformation processes did not arise fully-fledged. Indeed, adumbrations are found from his earliest published works. Roberts has noted a number of these.

Individual transformations

In the third movement of the *Trumpet Sonata*, there occur six different series obtained by six different systematic permutations of the elements of the pitch-series shown in the first row of the first table of Chapter 3. Three obvious ones are (for ease of understanding, they are given as permutations not of pitches but of ordinal numbers of pitches in the series):[4]

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[1] Jan Swammerdam (1637–1680) was a pioneering and inventive microsposcopist. In his *Algemeene Verhandeling van bloedloose diertjens*, (1669) he described the structure of insects, spiders, snails, scorpions, fishes and worms, all of which he considered to be insects with differing modes of development.

[2] Davies, 'Sets or Series', p. 250.

[3] Roberts, *Techniques of Composition … '*, vol. 1, pp. 332–333 has briefly reviewed some instances of this evolution.

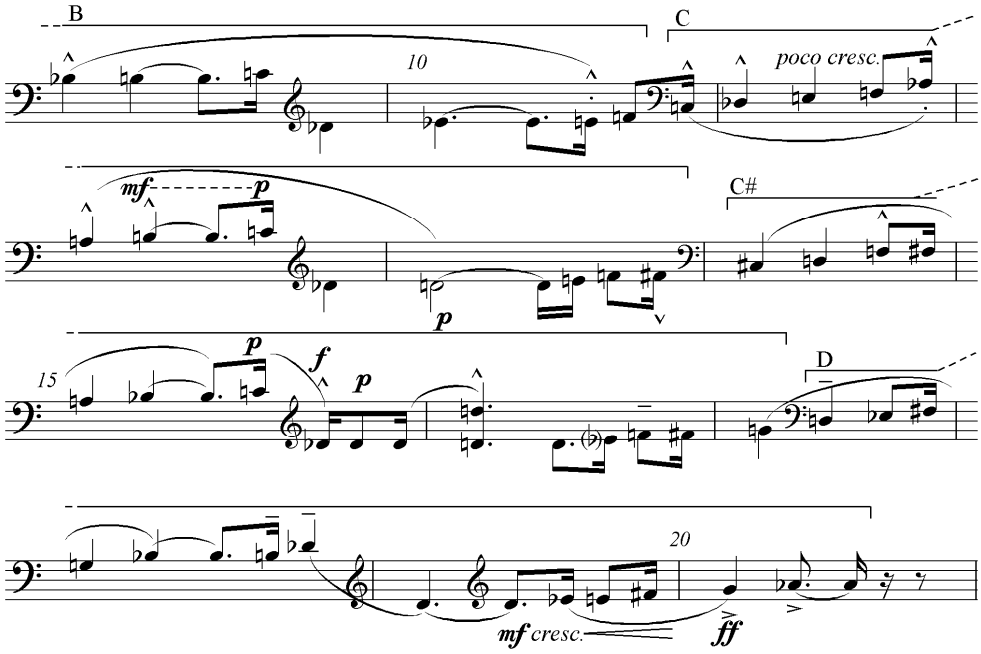
[4] Roberts, *ibid.*, vol. 1, p. 33. Here and in following tables, the first pitch in a series is numbered not, following, Roberts's convention, 0, but 1.

bar	direction	initial pitch	
10	prime	D	1, 3, 5, 7, 9, 11, 2, 4, 6, 8, 10, 12
10	retrograde	D#	1, 4, 7, 10, 2, 5, 8, 11, 3, 6, 9, 12
45	prime	F	1, 4, 2, 5, 3, 6, 7, 10, 8, 11, 9, 12

These transformations are very similar to those of the series used by Berg in *Lulu* (see below).

Transformation algorithms

1) In bars 9–20 of the second movement of the *Trumpet Sonata* the piano right hand plays the passage:[5]



Ex. 5.1 Davies, *Trumpet Sonata*, II, bars 9-20.

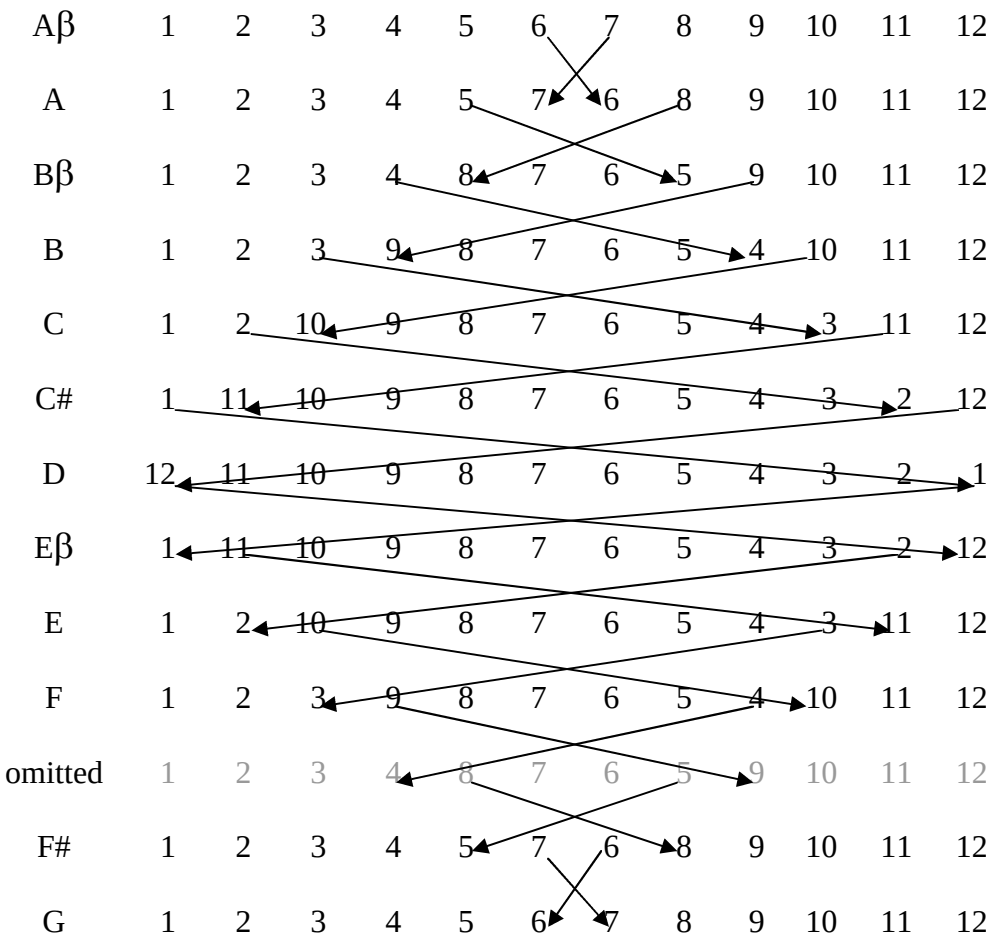
Each row consists of three bars ($\frac{4}{4}$, $\frac{13}{16}$ and $\frac{11}{16}$, respectively, although no time signatures are given) using the same 13-element duration series (4, 7, 1, 4 | 9, 1, 2, 1 | 4, 4, 2, 1 in semiquavers) as already referred to (see above, *Chapter 3: Transposition*

[5] Derived from Roberts, *ibid*., vol. 2, p. 4, Example 1.9, and from the score.

Squares, *Serialisation of duration*, 1. *Duration series*) and a 12-element rising pitch-series, whose occurrences (and starting pitches) are indicated by horizontal lines above the clefs. All three systems have a very similar melodic line, which Roberts [6] attributes to i) the asynchrony between the duration and pitch series, ii) the predominance of semitones in the rising pitch series and iii) the fact that the pitch series is transposed up a semitone on each occurrence; he describes as a 'transforming passage'.

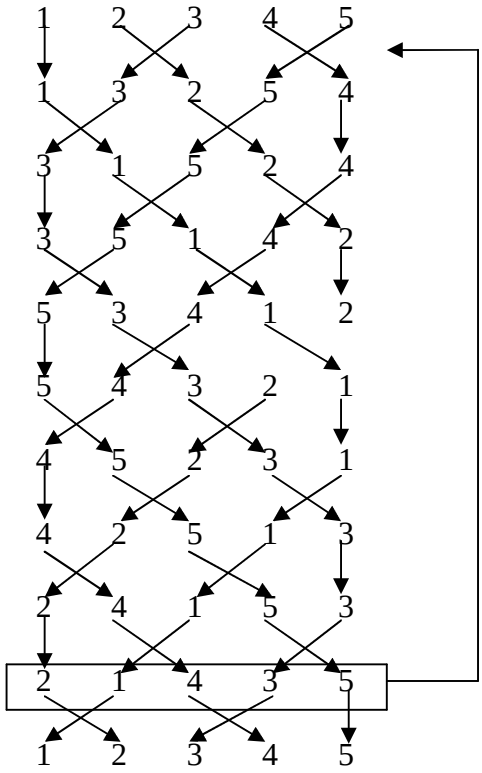
2) *Lozenge permutation* This more systematic transformation process is used in the third of the *Five Pieces for Piano*, as illustrated in the following table (again showing not pitches but their ordinal numbers in the series).

[6] Roberts, *ibid.*, vol. 1, pp. 28–29.



It will be noted that the eleventh row of the algorithm is not used in the music, and that this not quite complete algorithm is superimposed, not on a transposition square, but on a series of transpositions of the series, each a semitone higher than the previous one.

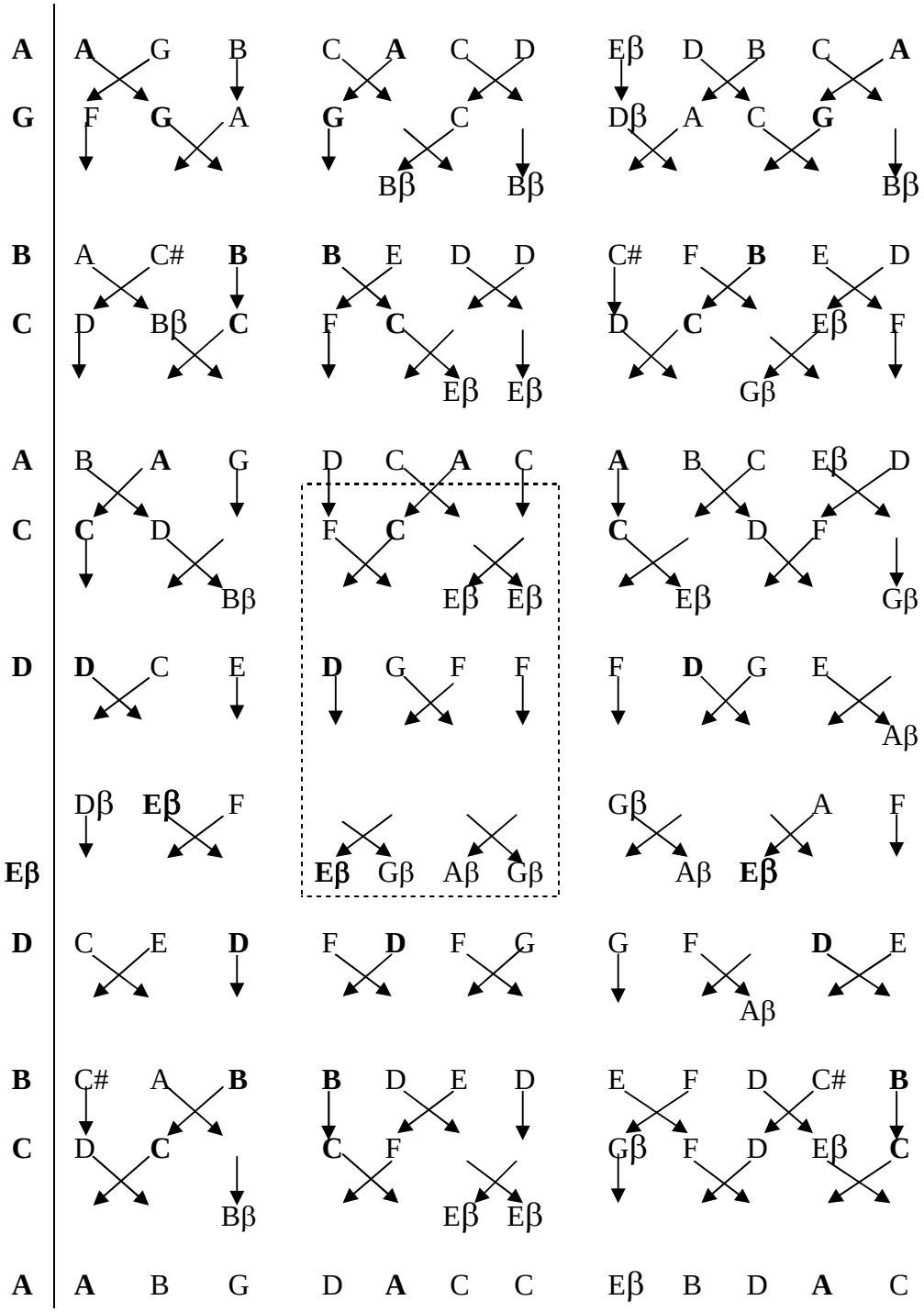
3) *Plain hunt permutation* This is used in the third movement of *Prolation*.[7]



As in the previous example, the algorithm is not used quite strictly: the penultimate row, 2, 1, 4, 3, 5, is played between the first and second rows.

4) *Partitioned plain hunt permutation* The first section of the *String Quartet* uses this permutation, but the details requires a little explanation.[8] The passage is based on the twelve-element series A, G, B, C, …, derived from the tenor part of Davies's carol *Ave Maria, Hail Blessed Flower* (J94, 1961) and shown in the first row of the following table.[9] This is made into a transposition square, the pitches to which the opening A is transposed are those of this series, and are also shown in bold in the

[7] Roberts, *ibid.*. Vol. 1, p.131.
[8] Roberts, *ibid.*, Vol. 1, pp. 267–268.
[9] Adapted from Roberts, *ibid.*, Vol 2, p. 57, Examples 7.6 (a) and (b).



left-hand column of the table, and within each row. The elements of the rows are divided into sub-rows of three, four and five elements respectively, and a plain hunt permutation, indicated in the table by arrows. There is an anomaly, indicated by a dotted rectangle, in the sixth to eighth sub-rows of the second set: the permutation restarts in the sixth, and again in the ninth, sub-rows. (The start of the realisation of

this table is shown above in *Chapter 3: Transposition Squares, Serialisation of duration, 4. Interval → duration-ratio mapping*.)

Common features of the algorithms

There are three features of the algorithms in both these last three examples: save for a single exception in each, they are exactly regular; they are circular, that is, they end (or would if continued end) not with a different permutation, but with the same permutation with which they started;[10] and there is in the execution of each a deviation from strict regularity. (The latter may be what Davies had in mind when he wrote

> There are also purely superstitious deviations – something done first in Prolation, where I broke absolutely perfect arithmetical symmetry, out of a conviction that it was presumptuous – possibly even dangerous! – to attempt any exact imitation of higher natural perfection.[11])

In all three of these ways, they differ from Davies's fully evolved transformation processes.

Davies's fully evolved transformation processes

> One of the first works I wrote where I felt comparatively satisfied that the creative evolution of material was more 'real' for me was <u>*Seven in Nomine*</u> [1963–1965; J110], the second of which, written in Princeton for Britten's fiftieth birthday, involved a transformation process which was to become a basic technique: a line of melodic material (though only potentially 'melody'!) here derived from a line of John Taverner's old *'In Nomine'* tune - in turn related to the plainsong melody Gloria Tibi Trinitas - was subjected throughout the movement to a gradual and systematic modification of its intervallic structure, so that a line, consisting of a simple sequence of pitches and rhythmic note-values could slowly and audibly transform into something else - e.g. its own inversion, or another piece of material altogether.[12]

---

[10] Roberts, i*bid.*, Vol. 1, p. 267, remarks of the last example that it would take $3 \times 4 \times 5 = 60$ permutations before the starting order was reached, but this is a slip. Since, as may be seen from the table, it takes not *n* but 2*n* permutations of *n* objects for a plain hunt permutation to return to its starting order, the number needed in this example would be $2(3 \times 4 \times 5) = 120$.

[11] Davies, Peter Maxwell, 'Four Composition Questions Answered', p. 3. This may be an echo of the deliberate error in Persian carpets, put there on the ground that it would be blasphemous to attempt perfection, which is the prerogative of Allah. Even more striking illustrations of this are to be found in Chapter 12 under *Magic Squares, The Hyper-Square*

[12] Davies, *Ibid*, p. 4.

Transformation tables

By the time of composition of the *Seven in Nomine*, Davies had moved on from somewhat mechanical transformation processes similar to those mentioned above, to *transformation tables*, such as the following table:[13]

	κ → Iκ						
1	D	F	E	D	C	Bβ	Aβ
2	D	E	Eβ	D	C	Bβ	Aβ
3	D	Eβ	D	D	C	Bβ	Aβ
4	D	C#	D	D	C	A	Aβ
5	D	C	C#	D	C	Aβ	G
6	D	B	C	D	C#	G	F#
7	D	Bβ	B	D	C#	F#	F
8	D	A	Bβ	D	C#	F	E
9	D	G#	A	D	C#	E	D#
10	D	G	Aβ	D	C#	Eβ	D
11	D	F#	G	D	C#	C#	D
12	D	F	Gβ	D	C#	C	D
13	D	E	F	D	C#	B	C
14	D	Dβ	E	D	C#	A#	B
15	D	D	Eβ	D	C#	A	Bβ
16	D	C	Eβ	D	C#	G#	A
17	D	C	C#	D	Eβ	G	Aβ
18	D	B	C	D	E	F#	G#

This can be seen to consist of an initial series D, F, E, D, C, Bβ, Aβ (the first seven pitches of the treble line of Taverner's *In Nomine*—see above, Chapter 4, *First Fantasia on an 'In Nomine' of John Taverner*—with the sixth and seventh pitches flattened), which will here be called κ,[14] leading by eighteen much freer transformations, to a final series, which in this case is the inversion of the initial series. The initial series, the transformations and the final series (the whole set of which are numbered from 1

[13] Adapted from Roberts's *ibid.*, Example 4.6(a), p .98.
[14] Roberts, *loc. cit.*, calls it K_0.

onwards, so that the initial series is taken as the first transformation) will hereinafter be referred to as the 'rows' of the transformation. Sometimes, although not here, two adjacent pitches in one row are merged to a single pitch in the next, so that the final series is shorter than the initial one. In one, exceptional, case in Act 1 Scene 4 of the opera *Taverner* (1962–1968, 1970; J138) this process (realised in reverse by the viola in bars 298–354) of merging is so extensive that the final series is a single pitch[15] and in another, even more exceptional, immediately following case in the same scene the process (realised amongst several instruments in bars 355–466) is carried out in reverse, so that an initial series of 16 pitches expands to a final one of 34.[16]

There are three differences between this transformation table and those of the transformation algorithms shown earlier. First, there seems to be no discernible regular rule or algorithm, save that each transformation makes only a small change—at most a few semitones—to any pitch. Secondly, the transformations are not circular, but in general lead to a final series which may be the inversion or the retrograde of the initial series or a quite different series. (Roberts insists that such transformations in Davies's music are always goal-oriented.[17]) Thirdly, since they are not exactly regular, the question of deviations from strict regularity does not arise.

Davies often carries out further processing on such a transformation table. In the present instance, the whole table is played in retrograde by the clarinet, but transposed so that each row begins with the last pitch of the preceding one, and directly by the flute, transposed so that each row begins with the penultimate pitch of the preceding clarinet row, as may be seen in the following table.[18] (A special type of further processing, rare

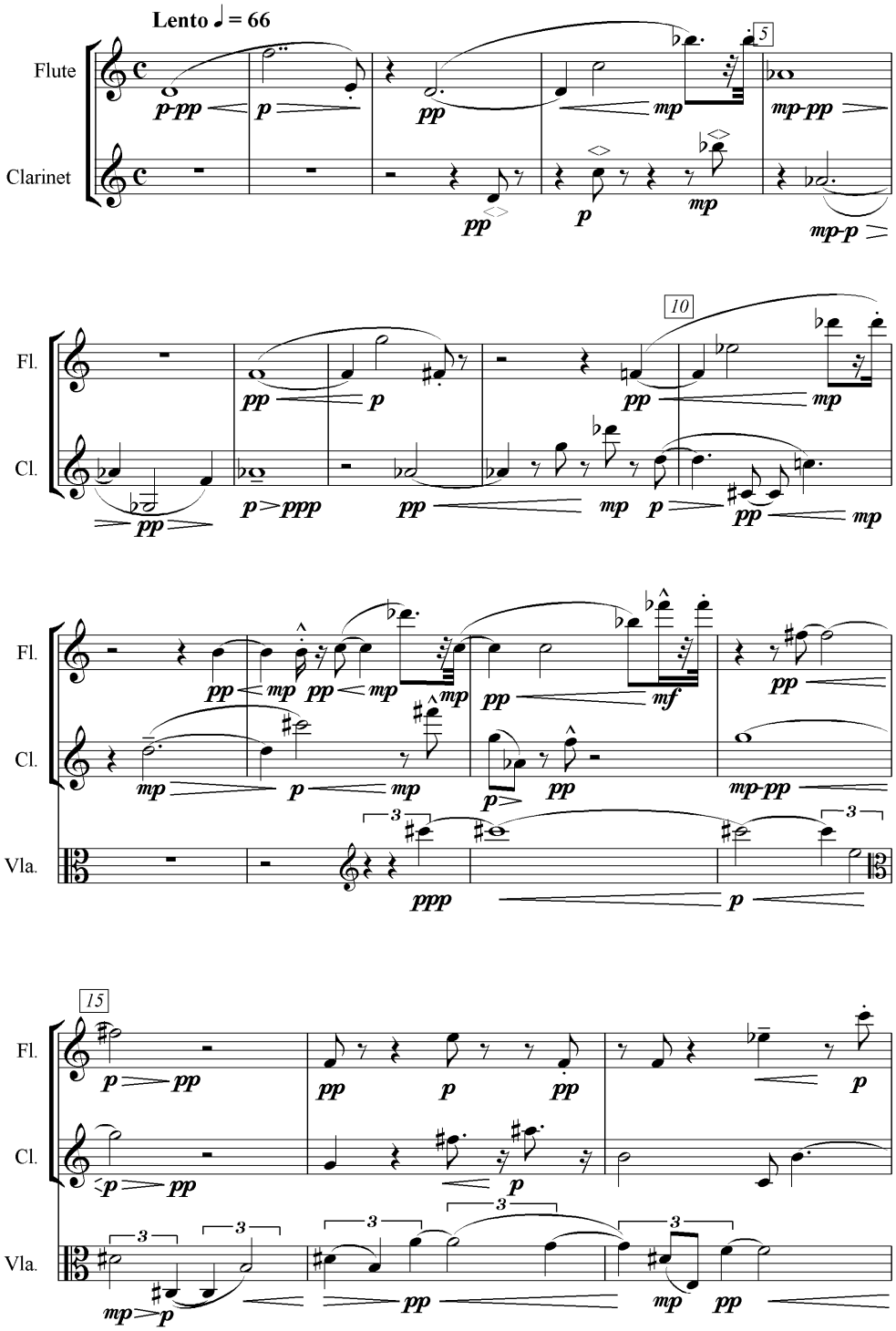
[15] Roberts, *ibid.*, p. 316 and Example 8.22(b).
[16] *ibid.*, p. 316 and Example 8.23.
[17] Roberts, *ibid.*, Chapter 8: Transformation Processes, pp. 305–306 and note {7}.
[18] Adapted from Roberts, *ibid.*, p. 98, Example 8.47.

amongst the works considered here, ‘oscillatory transposition’, occurs in *Worldes blis* and *Vesalii Icones*, *q.v.*)

	Flute κ → Iκ (transposed)						
1	D	F	E	D	C	Bβ	Aβ
2	F	G	F#	F	Eβ	Dβ	B
3	C	Dβ	C	C	Bβ	Aβ	Gβ
4	F	E	F	F	Eβ	C	B
5	B	A	A#	B	A	F	E
6	Eβ	C	Dβ	Eβ	D	Aβ	G
7	F#	D	D#	F#	F	Bβ	A
8	G	D	Eβ	G	Gβ	Bβ	A
9	G#	D	D#	G#	G	Bβ	A
10	A	D	D#	A	Aβ	Bβ	A
11	A	C#	D	A	G#	G#	A
12	G#	B	C	G#	G	F#	Aβ
13	Gβ	Aβ	A	Gβ	F	Eβ	E
14	Eβ	E	F	Eβ	D	B	C
15	B	B	C	B	Bβ	Gβ	G
16	F#	E	G	F#	F	C	C#
17	D	C	C#	D	Eβ	G	Aβ
18	A	F#	G	A	B	C#	D#

	Clarinet R(κ → Iκ) (transposed)						
R18	D	C	Bβ	Aβ	Gβ	F	Aβ
R17	Aβ	G	Eβ	D	C#	C	D
R16	D	C#	F#	G	Aβ	F	G
R15	G	F#	A#	B	C	B	B
R14	B	A#	C#	D	E	Eβ	D
R13	D	Dβ	Eβ	E	G	F#	E
R12	E	D	Eβ	E	G#	G	E
R11	E	Eβ	Eβ	E	A	G#	E
R10	E	F	Eβ	E	Bβ	A	E
R9	E	F	D	Eβ	Bβ	A	Eβ
R8	Eβ	E	C	C#	A	G#	C#
R7	C#	D	A	Bβ	G	Gβ	Bβ
R6	Bβ	Cβ	F	Gβ	Fβ	Eβ	Gβ
R5	Gβ	G	B	C#	C	B	C#
R4	C#	D	F	G	G	Gβ	G
R3	G	A	B	C#	D	D	C#
R2	C#	Eβ	F	G	Aβ	A	G
R1	G	A	B	C#	D#	E	C#

The first few bars are:



Ex. 5.2 Davies, *Seven In Nomine*, II, opening.

(Although the first few flute phrases are in a quite similar rhythm, there does not seem to be any serialisation of duration in the piece.) It will be noted that although the pitch-classes of the transformations are given with complete rigour, Davies takes

advantage of the flute's fourth, fifth and sixth pitch-classes being same as the clarinet's first four to make the latter pointillistic additions to the former. This is an instance of what Roberts has called 'interfusion', which he characterises as 'one of his most characteristic compositional processes'.[19]

The transformations are not the whole of the piece. The flute and clarinet parts are coordinated, both positively and negatively: positively in that their note-lengths gradually diminish, so that the music speeds up, until the final transformation of each (bars 44 and 45), which reverts to the long note-values of the start; and negatively, by a systematic avoidance of homophony, in that each part tends to start a note whilst the other is sustaining one or resting. The texture gradually becomes more complex as other instruments add new strands, first the viola, in triplet crotchets (again avoiding homophony) with R1, then repetitions of its pitches, the viola and bassoon in triplet crotchets with a retrograde canon, the bassoon, also in triplet crotchets with a self-retrograde part, and finally the horn in quintuplet crotchets (a final avoidance of homophony).

Transformation of durations

Davies wrote (in the passage quoted at the head of this chapter) of 'rhythmic cells subject to a parallel consistent modification'. This, as remarked, does not occur consistently throughout the example above, but may be illustrated by the opening of the central Sinfonia (bars 96–177) of *Revelation and Fall*. The following table[20] shows the transformations of pitches from one series to another, longer, one and the associated transformations of duration (in semiquaver units).

---

[19] Roberts, *ibid.*, Vol. 2, p. 178. 'Interfusion consists of co-ordinating two or more serial lines—often realised as contrapuntal voices—so that they coincide at the same pitch or collection of pitches at the same moment or at slightly staggered time-intervals. In this way the distinctness of the separate lines is compromised: their identities are momentarily confused.'

[20] Adapted from Roberts, *ibid.*, Vol. 2, p. 73, Example 8.5.

C 16		A 20		D 38		Bβ 22		Eβ 22				Dβ 10		Cβ 20	
C 16		A 20		E 20	D# 12	B 20		Eβ 22				Dβ 10		Cβ 20	
B 14		A 20		F 18	Eβ 12	C 16		E 20				C# 10		D 18	
Bβ 12		Bβ 18		G 16	E 10	C# 14		F 18				D 8		Eβ 16	
A 10		Bβ 18		A 14	F 8	D 12		F 18				Eβ 6		F 14	
Aβ 20		Bβ 14	A 6	B 12	F# 6	Eβ 10		Gβ 16				D 8		G 12	
G 10	F# 8	B 8	A 6	C 10	F# 6	E 8		G 14				Eβ 6		A 10	
F# 8	E 6	B 8	G# 4	D 8	G 4	F 6		Aβ 12				Eβ 6		Cβ 8	
F 6	Eβ 4	C 6	Aβ 4	E 6	Aβ 3	Gβ 4		A 10				Eβ 6		Dβ 6	
E 4	C# 2	C 6	G 3	F 5	Aβ 3	G 3		Bβ 4	B 5			E 4		D# 4	
Eβ 2⅔	C 1⅓	Dβ 4	G 3	F# 4	A 2	G# 2		B 3	C# 4			E 4		F 2	
Eβ 2⅔	C 1⅓	Dβ 4	Gβ 2	A 3	Bβ 1	G# 2		B 3	D 3			E 4		F 2	

The melodic line determined by the table is played row by row downwards through it, but is more easily explained (and may have been constructed) upwards. The transformations of the durations, like those of the pitches, are not completely regular, but, as pointed out by Roberts, are nevertheless subject to certain regularities:

- the same pitch in two successive units has the same duration, but
- different pitches in two successive units have durations which increase moving up the table, and
- when two pitches merge (moving up the table) the duration of the merged pitch is the sum, or more that the sum, of their individual durations.[21]

[21] Roberts, *ibid.*, Vol. 1, pp. 296–297. In fact he writes: 'the corresponding elements of the duration system are added together (*including the increment owing to transposition of one element or both*)' (my italics), but I can attach no meaning to the phrase in parentheses.

The closeness of the association of durations with pitches in this example comes closer to, but does not yet reach, the automatic association which will be found with magic squares (see below, Chapter 15, under The magic square).

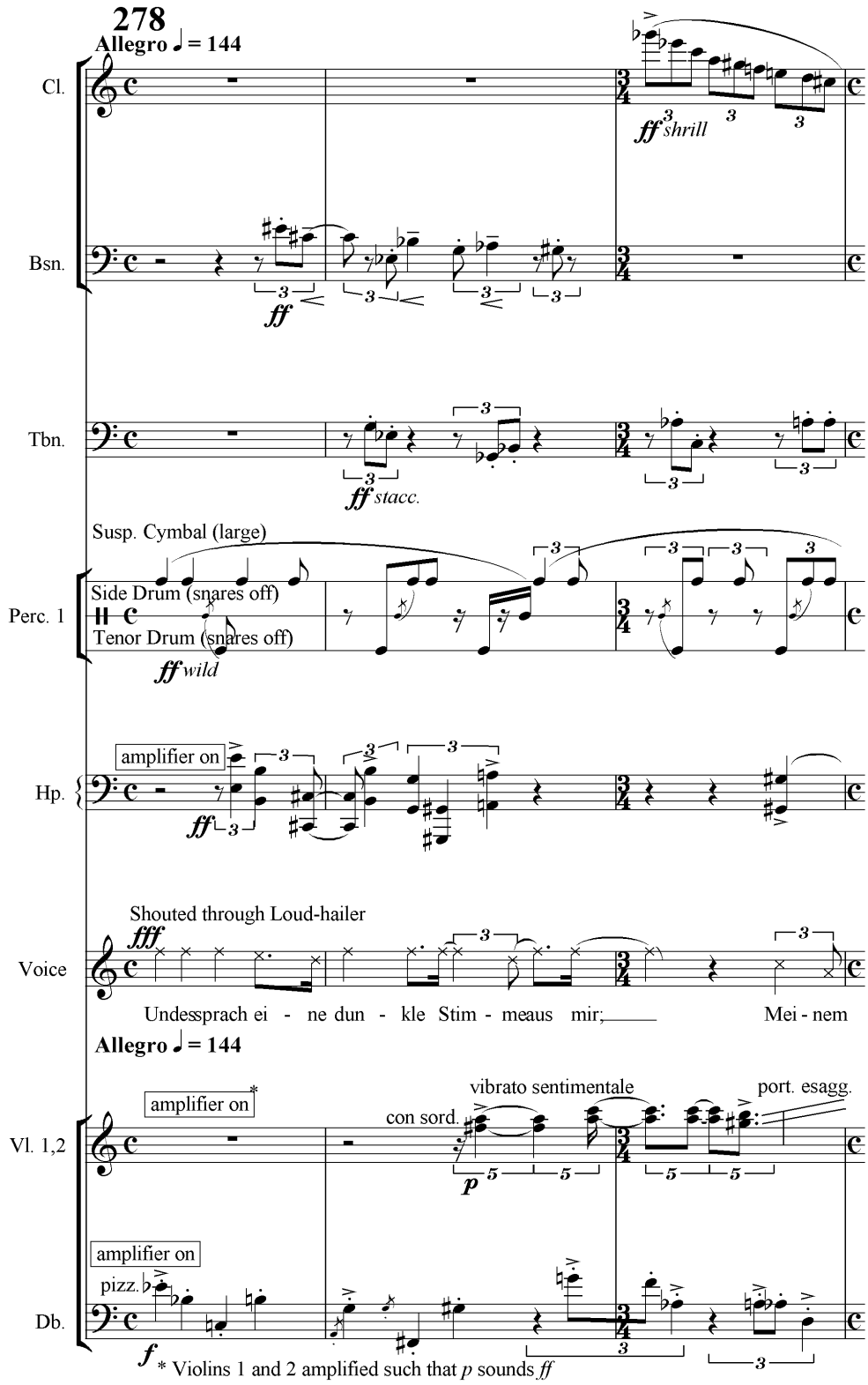
Two new forms

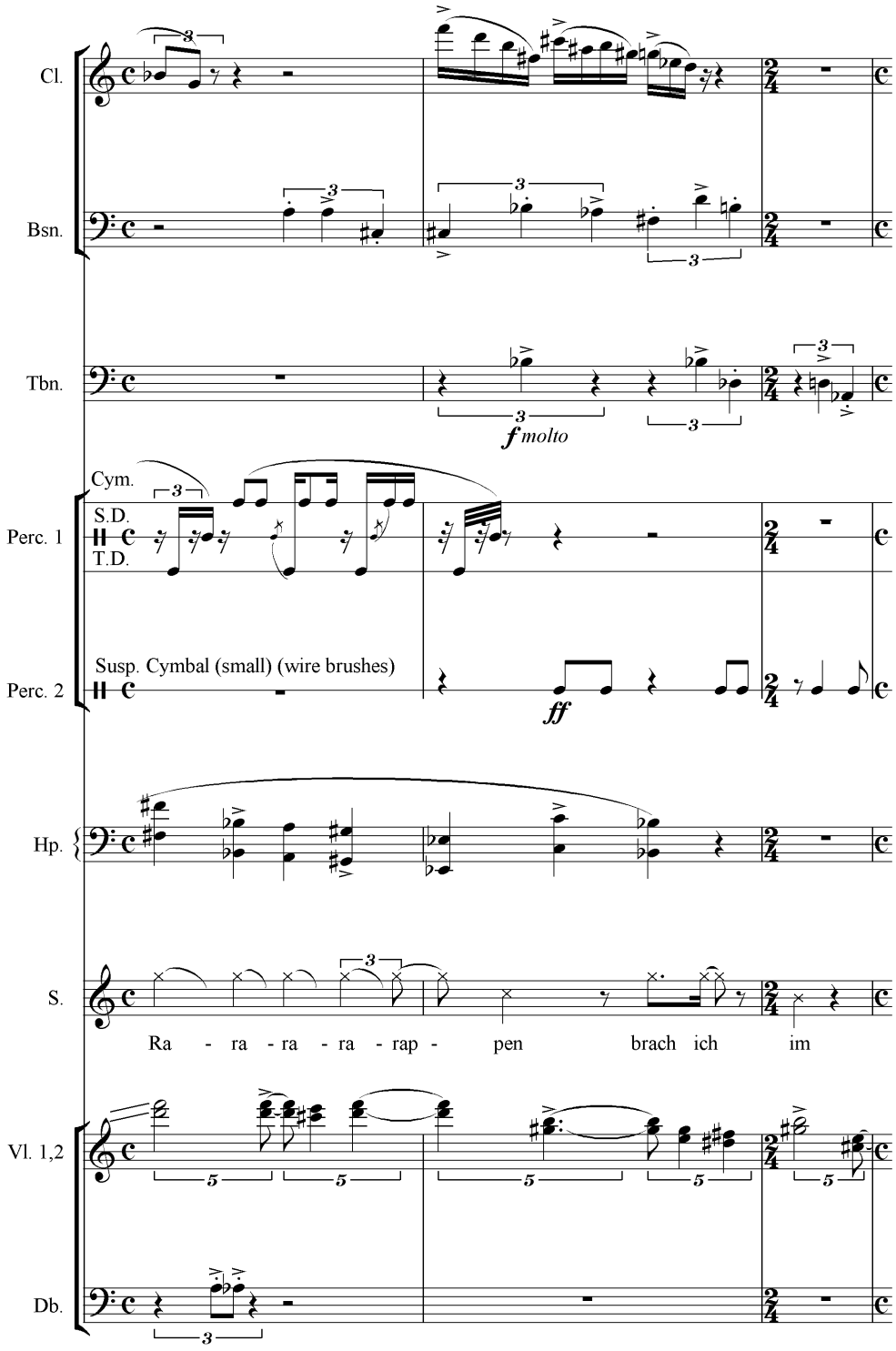
The technique of transformations gives rise to two modifications of traditional forms. The first these is the *transformation canon*, a canon in which successive entries are successive transformations of the theme. This may be illustrated by part of a section of *Revelation and Fall*, in which successive rows of the transformation of $\gamma_{E\beta}$ into Iα', shown in the following segment of the transformation table[22]

[22] These are the bottom eight rows (in the order: rows 13, 12, 11, *etc.*) of Roberts, *ibid.*, Vol, 2, p. 78, Example 8.15.

Db.	Eβ	Bβ	C		B	G	F#	G#		
Hp.	E	B	C#		B	G	G#	A		
Bsn.	F	Dβ	Eβ		Bβ	G	A	G#		
Tbn.	Gβ	Eβ	Gβ		Bβ	Aβ	C	A		
Db.	G	F	Aβ		A	Aβ	D	B	Bβ	
Hp.	Aβ	Gβ	Bβ		A	Aβ	Eβ	C	Bβ	
Bsn.	A	A	C#		Bβ	A	F#	D	B	
Tbn.	Bβ	Bβ	C#	D	G#	A	G	E	C#	

are played in succession by amplified pizzicato double bass, amplified harp, bassoon and trombone, in that order, twice:


278
Allegro ♩ = 144
Cl.
ff shrill
Bsn.
ff
Tbn.
ff stacc.
Susp. Cymbal (large)
Side Drum (snares off)
Perc. 1
Tenor Drum (snares off)
ff wild
amplifier on
Hp.
ff
Shouted through Loud-hailer
fff
Voice
Undessprach ei - ne dun - kle Stim - meaus mir; Mei - nem
Allegro ♩ = 144
amplifier on*
vibrato sentimentale
con sord.
port. esagg.
Vl. 1,2
p
amplifier on
pizz.
Db.
f
* Violins 1 and 2 amplified such that p sounds ff



Ex. 5.3 Davies, *Revelation and Fall*.

The second modification of a traditional form is *transformation variations*, a theme and variations in which successive variations are on successive transformations of the theme.[23] This will be illustrated in the analysis of the third, slow, movement of the First Symphony, (in which the 81-note theme is a spiral path through a 9 × 9 magic square: see Chapter 15, under The magic square, below), and in which each variation is on a new transformation of it (the sixth variation on transformations 7 and 8 simultaneously), the final variation on the final transformation, the retrograde of the original theme.

Precursors of Davies's transformation processes

Partial precursors of Davies's technique of transformations, none reaching its full form, date back centuries. A full history of these would require separate lengthy research, and will not be attempted here: instead, a few salient examples, with which Davies would certainly or probably have been familiar, will be picked out.

As pointed out by Holman,[24]

> the technique of creating one dance out of another was fundamental to Renaissance dance music: galliards were routinely modelled on pavans, *tordions* on *basses danses* and so on, and soon after 1600 German composers began to publish suite-like sequences of dances with some related movements.

Holman's prime instance is Dowland's *SEAVEN PASSIONATE PAVANS* in his *LACHRIMÆ*: an example Bull's *Pavana: St Thomas Wake* (used in Davies's eponymous Foxtrot for Orchestra (J127, 1969) begins:

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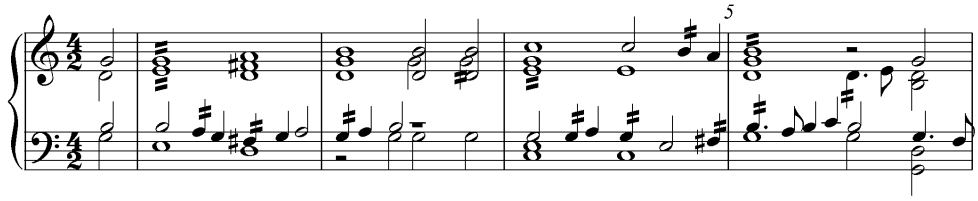
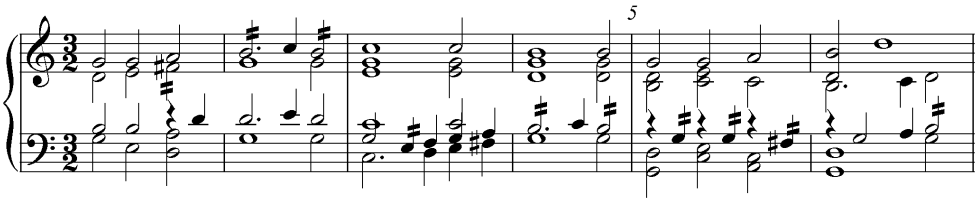
[23] In the terminology of Sisman, Elaine, 'Variations', *New Grove Dictionary*, ed. Sadie, 6, pp. 288–289, such variations might be termed 'formal outline variations' or 'fantasy variations'.
[24] *Dowland: Lachrimae (1604)*, (Cambridge University Press, Cambridge, 1999), p.47.



Ex. 5.4a Bull, *Pavana: St Thomas Wake.*

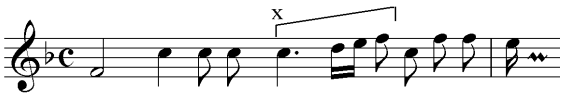
and the associated *Galliardo*[25] begins with an almost identical melody and harmony (but necessarily different rhythm):



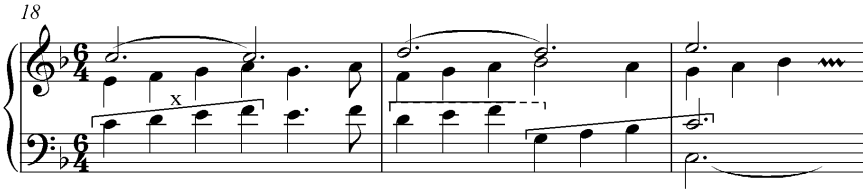
Ex. 5.4b Bull, *Galliardo: St Thomas Wake.*

Similarly, Judd[26] notes analogous phenomena, which he terms 'progressive thematic variation' the keyboard music of a number of Venetian composers: Girolamo Cavazzoni, Andrea Gabrieli, Luzzaschi, Pasquini, the Neapolitan Trabaci and the Ferrarese Frescobaldi. For example, he points out, in the latter's *Canzona Quarta*, that the opening figure, which he labels 'x' (Ex. 5.5a below),[27] recurs rhythmically modified in a number of following sections (5.5b and c) and is transformed to an anacrusis-motive 'y' (and 'y'': 5.5d) which is also rhythmically modified, and that a new motive. 'z' (5.5e) is the material for a final section (5.5f) 'which bears little indication of the point of departure'.

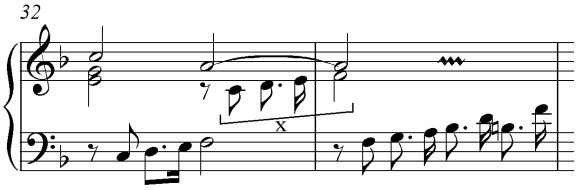
[25] Bull, John, in: *Parthenia*, Ed. Thurston Dart, (Stainer & Bell, Ltd., London).
[26] Judd, Robert, 'Italy', Ch. 5 (pp. 235–311) in: Alexander Silbiger, ed., *Keyboard Music before 1700*, (Routledge, New York, 2004).
[27] The passages given here are those quoted by Judd in his Example 5.25 on his p. 291, but have been copied more fully from Frescobaldi, Girolamo, *Opere Complete, III Il secondo Libro di Toccate d'intavolature di cembalo e organo*, ed. Etienne Darbelay, (Edizioni Suvini Zerboni, Milan, 1979), pp. 69–71.



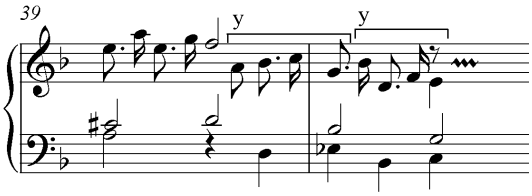
a. opening;



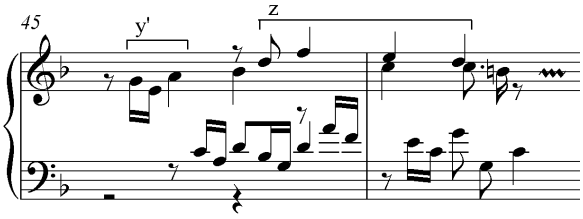
b. continuation;



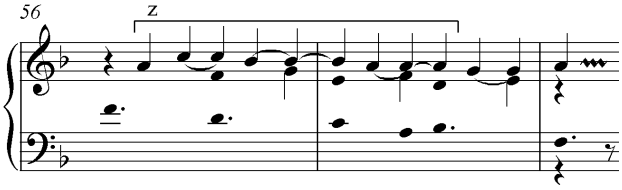
c. further continuation;



d. transformation of previous motive;



e. new motive;



f. final section.

Ex. 5.5 Frescobaldi, *Canzona Quarta*.

It is not certain, but very likely, that Davies would have been familiar with similar examples: from his student days he has had an interest in early music; he studied in Italy for a year; he is an able keyboard player,[28] and possesses, or possessed, a clavichord.[29]

Thematic transformation of this kind seems then to have temporarily faded into the background for a century or so. According to Macdonald,

> In the later Baroque period, thematic treatment of this kind was channelled into either fugue, by means of such techniques as augmentation and diminution, or variations, rather than into the balancing of varied couples on the basis of a single thematic idea. [30]

Schoenberg's concept of 'Developing variation'

This concept must be considered for its potential relevance to Davies's melodic transformations: its meaning is examined by Dahlhaus,[31] and in some detail in the first chapter, 'Prologue: Brahms and the Schoenberg Critical Tradition' of Frisch's *Brahms and the Principle of Developing Variation*.[32] Schoenberg, as Frisch points out, 'discussed developing variation …only sporadically, and aphoristically'.[33] Frisch's own summary of the concept is: 'by "developing variation," Schoenberg means the construction of a theme (usually of eight bars) by the continuous modification of the intervallic and/or rhythmic components of an initial idea'.[34] He illustrates this with Schoenberg's analyses of

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[28] In the oral examination for his music A-level, he astonished his examiner by demonstrating that he knew by heart the piano reductions of Beethoven's *Violin Concerto* and all the symphonies (Seabrook, *Max*, 1994, p.33).
[29] *Ibid.*, p. 54.
[30] Macdonald, High, 'Transformation, thematic', *New Grove Dictionary*, ed. Sadie, 25, pp. 694–695.
[31] Dahlhaus, Carl, 'What is 'developing variation'?', pp. 128–133 in: *Schoenberg and the New Music*.
[32] Frisch, Walter, *Brahms and the Principle of Developing Variation*, (University of California Press, Berkeley, 1984).
[33] *Ibid.*, p. 1.
[34] *Ibid.*, p. 9.

- The violin theme of the opening of the Andante of Brahms A minor *String Quartet*, Op. 51, No. 2[35]
- The opening of Brahms's F major Cello Sonata, Op. 99[36]
- The first twelve bars of the Song 'O Tod', the third of Brahms's Four serious Songs[37]

Frisch asserts that: 'Schoenberg confined his analytical remarks almost exclusively to the level of the individual theme', and at this level the concept of developing variation does not seem to have anything to do with Davies's melodic transformations. However, Frisch's claim, although true as far as most of Schoenberg's actual analyses are concerned, overlooks the wider (not to say grandiose) scope of Schoenberg's concept, which extends beyond the construction of individual themes to the construction of a whole piece:

> … there is nothing in a piece of music but what comes from the theme, springs from it and can be traced back to it; to put it still more severely, nothing but the theme itself.[38]

One of Schoenberg's examples,[39] from the first movement of Beethoven's Fifth Symphony, shows the transformation of the motto theme first into a transition motive, and that into the second subject:

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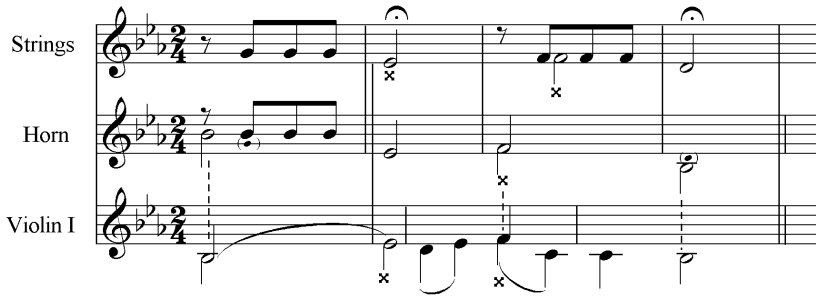
[35] Schoenberg, Arnold, 'Brahms the Progressive', in *Style and Idea*, Section XV, pp. 398–441
[36] Schoenberg, Arnold, 'The Orchestral Variations, Op. 31: A Radio Talk', *The Score*, 27 (1960), pp. 27–40.
[37] Schoenberg, 'Brahms the Progressive'.
[38] Schoenberg, Arnold, *Style and Idea*, 'Linear Counterpoint', p. 290.
[39] Schoenberg, Arnold, 'Folkloristic Symphonies', *Style and Idea*, p. 164. The figure here is a very slight adaptation of Schoenberg's. His analysis is faulted by Frisch, p. 3 and fn. 5 on the grounds that 'the two main notes' are not Eβ and F, as Schoenberg would have it, but, as Frisch claims Schenker 'demonstrated', Eβ and D. This objection seems a little doctrinaire.



Ex. 5.6 Part of Schoenberg's analysis of the first movement of Beethoven's Fifth Symphony.

this example comes much closer to, although still differing from, Davies's melodic transformations. (Davies explicitly refers to the scherzo of Beethoven's Fifth Symphony in his comments of No. 8, 'St Veronica Wipes his Face' of *Vesalii Icones*.)

One type of developing variation *may* be exemplified by the fifth piece, *Das obligate Rezitativ*, of Schoenberg's *Five Orchestral Pieces*, Op. 16, which, according to Neighbour,[40] consists of 'a continuously evolving melodic line'. If so, the experiment does not seem to have been repeated, probably because such a melody is incompatible with serialism, in which exactly the same sequence of pitches (or its inversion, or retrograde, or retrograde inversion, or any transposition of any of these four) is prescribed.

Romantic thematic transformations

Romantic music often features thematic transformations which have been called 'thematic metamorphoses', but which are quite different processes from those of Davies. Because of the similarity of names, it is necessary to distinguish between Davies's transformations (which consist of successive small changes in a series of pitches, and are here referred to as *melodic* transformations) and thematic metamorphoses (which consist

[40] Neighbour, Oliver, 'Arnold Schoenberg', pp. 1–85 in Neighbour, Oliver, Griffiths, Paul and Perle, George, *The New Grove Second Viennese School*, (Macmillan Publishers Limited, London, 1983, 1997), p. 41.

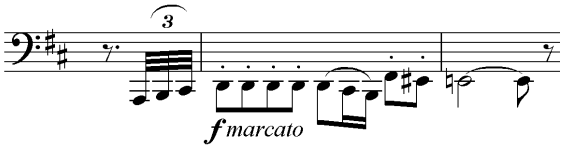
largely of changes in key, register or mode, tempo, rhythm or orchestration), in order to rule out the latter.

Thematic metamorphoses

Reti[41] argues that 'thematic metamorphoses' are to be found throughout classical, romantic and subsequent music, citing, amongst other examples, the themes of Beethoven's *Ninth Symphony* and Schumann's *Kinderscenen*.

Other well-known instances[42] of these are:

- the opening repeated note motif, in the rhythm θ εε θ εεε of opening of the first movement Schubert's 'Wanderer' *Fantasie* (D760), which reappears as θ εε ε.ξ θ in the opening of the slow movement, as θ.εθ θ.εθ ε in the opening of the scherzo and as θ εθ εε θ θ in opening of the finale;
- the *idée fixe* of Berlioz's *Symphonie Fantastique*, which occurs in each movement in different rhythms, tempi, keys, registers and instrumentation;
- the thematic metamorphoses of Liszt, *e.g.* the motif

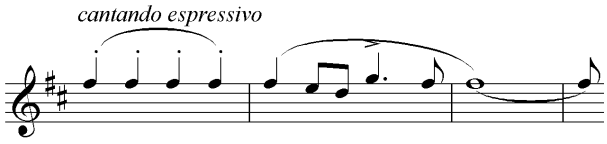


Ex. 5.7a Liszt, motif from the Piano Sonata.

from the opening Allegro energico of the Piano Sonata, which later reappears as

[41] Reti, Rudolph, *The Thematic Process in Music* (Faber & Faber, London, 1961). Reti was a pupil of Schoenberg's, and the fundamental idea of his book is to be found in a dictum of Schoenberg's quoted below.

[42] Most, but not all of the above examples of thematic metamorphoses are taken from Macdonald, *Schoenberg*. A couple have been rejected: the recall of the introduction to the first movement of Haydn's Symphony No. 103 ('Drum Roll') at the end of the movement is only a very slightly rescored repeat, and scarcely qualifies as a metamorphosis; and the changes to the theme of the opening theme of Brahms's Intermezzo in E minor Op. 119 No. 2 seem more sonata-style development and variation than metamorphoses.



Ex. 5.7b Liszt, transformed motif.

- the *Leitmotifs* of Wagner, *e.g.* the transformation of Siegfried's cheerful horn call from *Siegfried* into the massively orchestrated solemn version which appears in the *Trauermusik beim Tode Siegfrieds* in Act III of *Götterdämmerung*.
- the transformation, in Tchaikovsky's *Symphony No. 5*, of the gloomy opening motto theme in the minor, which reappears in each movement, into the triumphant major version at the very end.
- the multitude of thematic metamorphoses occurring in the tone-poems of Richard Strauss.

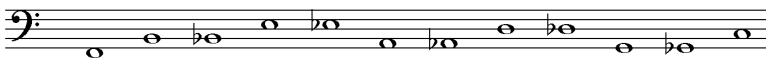
Unlike Davies's melodic transformations, in all of these metamorphoses, the melodic sequence of pitches remains virtually unchanged, enabling their instant recognition when they appear in different dress. Schoenberg has noted this in the case of Wagner:

> Wagner, in order to make his themes suitable for memorability, had to use sequences and semi-sequences, that is, unvaried or slightly varied repetitions differing in nothing essential from first appearances, except that they are exactly transposed to other degrees.[43]

[43] Schoenberg, *Style and Idea*, p. 129, 'Criteria for the evaluation of music'.

'Metamorphoses' in Richard Strauss, Hindemith and Lutosławski

There are three twentieth-century works explicitly titled 'metamorphoses', Richard Strauss's *Metamorphosen*, Hindemith's *Symphonic Metamorphosis on Themes by C. M. von Weber*, and the *Metamorfozy* section of Lutosławski's *Muzyka Żałobna*.
The first two have been analysed by Brennecke,[44] who finds that with Strauss's piece 'metamorphoses' designates 'thematic relationships and melodic-contrapuntal development' and with Hindemith's it designates 'arrangement and orchestration of Weber's compositions'.[45] The third has also been analysed by Brennecke and, followin him, by Rae.[46] It consists of series of variations on the dodecaphonic series underlying



Ex. 5.8 The fundamental series of Lutosławski's *Muzyka Żałobna*.

the whole work. (The variations are on transpositions of the theme, a similarity with the third –slow– movement of Davies's *First Symphony*; here the transposition is up a perfect fourth with each variation.) In each variation, each pitch of the series is followed, or surrounded by, successive notes of the Locrian scale on that pitch: 1 note for the theme (as Metamorphosis I), 2 notes for Metamorphosis II, 3 for Metamorphoses III and IV, 4 for V, 5 for VI and 6 for VII to XII.[47] The *Metamorfozy* are thus a modern version of a

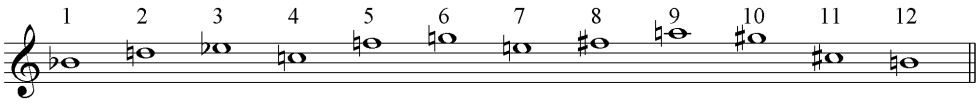
[44] Brennecke, Wilfried, 'Die Metamorphosen-Werke von Richard Strauss und Paul Hindemith', pp. 268–284 in: *Hans Albrecht in Memoriam: Gedankschrift mit Beiträge von Freunden und Schülern*, ed. Wildfried Brennecke and Hans Haase, (Bärenreiter, Kassel, 1962).
[45] *loc. cit.*, 'bei Strauss die Themenverwandschaften und die melodisch-kontrapuntische Durchführung, bei Hindemith die Bearbeitung und Orchestrierung der Kompositionen Webers', Brennecke, 'Die Metamorphosen-Werke … ', p. 284.
[46] Brennecke, Wilfried, 'Die „Trauermusik" von Witold Lutosławski', pp. 60–73 in *Festschrift Friedrich Blume zum 70. Geburtstag*, eds. Anne Amelie Abert and Wilhelm Pfannkuch, (Bärenreiter, Kassel, 1963), pp. 66–71; Rae, John Bodman, *The Music of Lutosł✖awski* (Omnibus Press, London, 1999), pp. 67–68 and p. 69, EX. 3:11.
[47] See Brennecke, illustration on his pp. 68

set of divisions (in the renaissance sense) on the series (although neither Brennecke nor Rae uses this word).

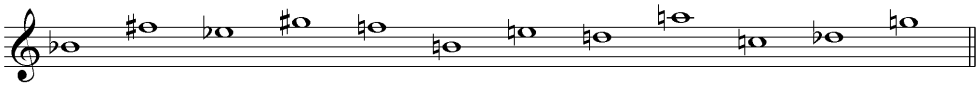
It is thus clear that none of these three works is concerned with thematic transformations as used by Davies.

Melodic transformation of a series

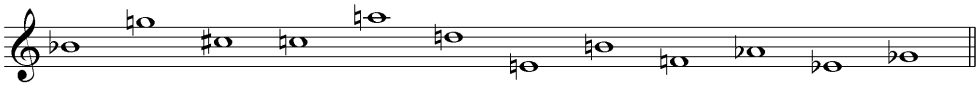
It has been pointed out by Leibowitz[48] that in *Lulu*, Berg obtained from the basic row (Ex. 5.9a), by taking every seventh note, Alwa's row, by taking every fifth note, Gräfin Geschwitz's row, and other rows (of Lulu herself and of Dr Schön) by slightly less simple procedures.[49]



a. fundamental row;



b. Alwa's row;



c. Gräfin Geschwitz's row;

Ex. 5.9 Tone-rows from Berg's *Lulu*.

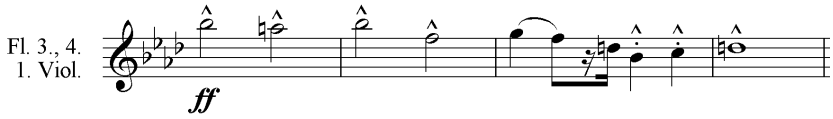
[48] Leibowitz, Renè, *Schoenberg et son école*, (Èd. Janin, Paris, 1947).
[49] Walsh, Stephen, *The Music of Stravinsky*, (Routledge, London, 1988), p. 242, points out that Stravinsky used a similar procedure in *Threni*.

This is, as pointed out above (*Individual transformations*), paralleled by those used by Davies in the third movement of the *Trumpet Sonata*. (In his university days 'Max was often to be found with scores of works by Berg, … '.[50])

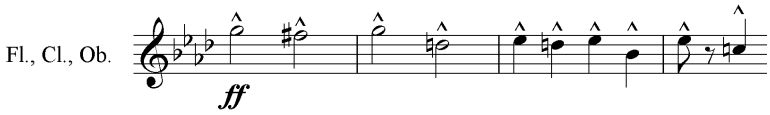
The return of melodic transformations: (i) Mahler

Floros,[51] in his analysis of the Finale of' the Second Symphony of Mahler (whose influence on Davies's music has frequently been remarked[52]) quotes a number of transformations of the *Dies irae* motif: enlarging the final interval to a fourth, with a tailpiece (Ex. 5.10a); enlarging the final interval to a fourth and adding a rhythmically diminished sequence (5.10b); rhythmically diminishing and adding a tailpiece, transforming the idea into a march (5.10c); turning the final interval into an augmented fourth(10d).

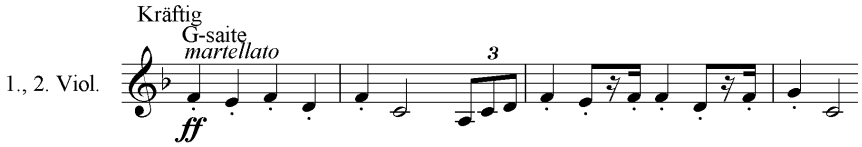
[50] Seabrook, *Max*, p. 38.
[51] Floros, *Gustav Mahler: The Symphonies*, pp. 73–74.
[52] *E.g.* Seabrook, *Max*, pp. 114–115, 139, 155–156, 196. At a one-day conference 'Peter Maxwell Davies at 70' on the 16th October, 2004,in Canterbury Davies reported that in his youth he borrowed scores of Mahler symphonies from a public library and tried to play them on the piano.



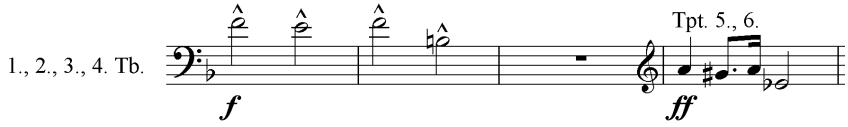
a. Transformation of *Dies Irae* motif;



b. enlarging the final interval to a fourth and adding a rhythmically diminished sequence;



c. rhythmically diminishing and adding a tailpiece, transforming the idea into a march;



d. turning the final interval into an augmented fourth.

(From previous page) Ex. 5.10 Mahler, Second Symphony, Finale.

All of these, however, except for the augmentation of the final interval, are simply extensions of the basic idea by the addition of a distinct and separate tailpiece.

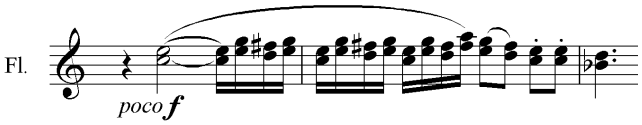
The return of melodic transformations: (ii) Sibelius (and Vaughan Williams)

The partial precursor technique which seems to come closest to Davies's transformation technique is to be found in the first movement of the *Symphony No. 6* of Sibelius (who has been referred to as 'Max's other great acknowledged orchestral influence'[53]). Gray[54] describes the technique as follows:

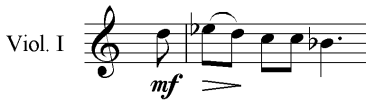
[53] Seabrook, *Max,* p. 196.

> Suppose a theme to consist of several separate little phrases or recognizable features, *a*, *b*, *c* and *d*. After introducing it Sibelius will, on repetition, omit *a*, let us say, and substitute for it a new phrase *e*; and soon, gradually, unobtrusively, almost imperceptibly, until eventually one has a theme *e*, *f*, *g*, *h* which, when one refers it back, is found to be entirely different from what one started with.

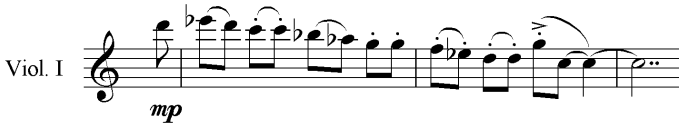
He illustrates this with the transformation of the idea (Ex. 5.10a) successively into 5.10b, c, d and finally e, which is, as he writes, 'entirely different' from a.



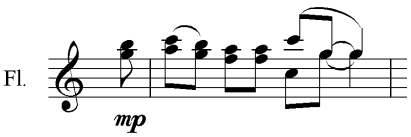
a (B+2);



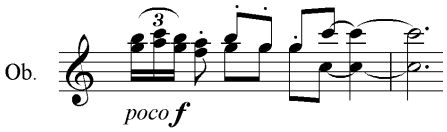
b (B+5);



c (B+7);



d (B+9)



e (C+2)

Ex. 5.10 Sibelius, second symphony, I.

[54] Gray, Cecil, *Sibelius: The Symphonies*, (Oxfrod University Press, London, 1935), p. 59.

Davies has himself commented on transformations in Sibelius:

> ' … his way of transforming material. In the Seventh Symphony, I think it's very strong; in *Tapiola* I think it's very strong … the way he will slowly transform one bit of material into another'.[55]

Something very similar is to be found in Sibelius's contemporary Vaughan Williams. Kennedy has remarked that:

> The tunes of the *Pastoral Symphony* are not 'developed' as the classical symphonist understands the term. There are few examples of sequences or diminutions; instead there is a free evolution of one tune to another, a process of regeneration, like streams flowing into one another, coalescing and going on their way.[56]

There is another way in which these two examples resemble Davies's transformation processes more than the romantic thematic metamorphoses. In the latter (as also in the example from Beethoven's *Symphony No. 5* quoted above), there is usually some distance in the music between a theme and its metamorphosis, which in some cases can be quite considerable: Schubert's 'Wanderer' metamorphoses appear in different movements, as do Berlioz's in the *Symphonie Fantastique*, and Siegfried's horn call and its metamorphosis appear in different operas of the *Ring* cycle. With Davies, on the other hand, the transformations typically follow immediately upon one another, as part of the unrolling of a process in which one theme is changed into another. Those in Mahler and Sibelius cited above resemble Davies more closely, occurring within relatively few bars of one another.

However, although this type of process in Mahler and Sibelius appears to be the closest precursor of Davies's technique of melodic transformation, it is still only a precursor. Davies's technique is, as Roberts has put it, 'goal-directed': it consists of

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[55] Duffalo, Richard, *Trackings: Composers Speak with Richard Duffalo*, (Oxford University Press, New York, 1989), p. 153.
[56] Kennedy, Michael, *The Works of Ralph Vaughan Williams: Second Edition*, (Clarendon Press, Oxford, 1980), p. 170.

changing one melodic series in a specific number of small steps into another, which may be its inversion, its retrograde, or a distinct melodic series which is also a significant element of the piece.

The Following Four Chapters

The remainder of this Part is concerned with Davies's four orchestral works from the transformation process period, which are, in their different ways, studies for his Symphony, namely the *Second Fantasia on John Taverner's 'In Nomine'*, *St Thomas Wake*, *Worldes Blis* and *Stone Litany*, works written after he had invented transformation processes but before his invention of magic squares.

The *Second Fantasia* differs from the other three in two ways. First, it is a single-movement symphony, whereas *St Thomas Wake, Worldes blis* and *Stone Litany* are individual symphonic movements: indeed, as mentioned above (Chapter 1), Pruslin has suggested that they are respectively the scherzo, first movement and slow movement of a 'hypersymphony'. Secondly, the *Second Fantasia*, a brilliantly executed technical study, is in the group designated by Davies[57] as 'apprentice works', whereas with the subsequent three works the music suddenly starts to glow with intense feeling. It is as if, after lengthy self-preparation, Davies has suddenly found his voice. (The same is true of the first four music theatre works – excluded from consideration here – whose dates of composition overlap those of the three orchestral works.)

These four works explore the use of transformation processes in ways which are different for each of them, as will be discussed in the chapters devoted to them.

[57] See the footnote to the list of works in Chapter 1.

CHAPTER 6: *SECOND FANTASIA ON JOHN TAVERNER'S 'IN NOMINE'*

The Composer's Comments

> The work grew out of the completed first act of *Taverner*, during the writing of which I had felt that many ideas were capable of a more symphonic development than was possible within the confines of the dramatic context. Some parts of the *Fantasia* occur in an identical, or almost identical form – for instance, Section 1 forms the orchestral lead into the first confrontation between the King and the Cardinal, who enter on the fanfare; the climactic sixth section accompanies a tableau in Act 2 where the Jester, as Death, is seen at the centre of a huge Wheel of Fortune, which he revolves, controlling all men's destinies; and sections 12 and 13 form the orchestral material for the final burning of the Abbot at the stake by Taverner, for his religious convictions.[1]

This work is, except in name, a one-movement symphony in three parts: a sonata form movement (with introduction and coda), a scherzo and trio and a concluding slow movement, with transitions between the parts[2]. It is the first of the three works which make up what Roberts has termed the *Taverner* group of compositions[3] (the other two being *Revelation and Fall* and the opera *Taverner*, 1962–1968, 1970, J138). Although entitled a fantasia on Taverner's *In Nomine*, the latter figures very little in it: the first few notes of the *In Nomine* (with B and A flattened) are played by a trombone at bars 386 *ff*., the *Gloria tibi Trinitas* by two oboes in octaves at bar 415 *ff*., and at bars 633 *ff*. a muted solo violin with vibrato growing from nothing to exaggerated plays the pitches D, F, at bars 677 *ff*., F, C, G, at bars 712 *ff*., D, F, C, G, A, and muted solo strings at bars 760 *ff*. play A, G, B, C#, D#, E, F#, C: each of these interventions is very slow, with the

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[1] Griffiths, *Peter Maxwell Davies*, Part III, Second Fantasia On John Taverner's In Nomine, p. 141.
[2] Griffiths, Paul, 'Short Note' [on the *Second Fantasia on John Taverner's In Nomine*], http://www.maxopus.com/works/2nd_fant.htm, 07/12/04, p. 3.
[3] Roberts, *Techniques of composition*, Chapter 8: Transformation Processes, p. 290.

individual pitches lasting several bars. The piece stemmed from Davies's work on the opera *Taverner*. The relationship, mentioned by Davies, is discussed by Outwin,[4] and is shown graphically in the following table (slightly expanded from her Example 4.2, p. 87 and Davies's comments), where black printing and arrows denote common material.

[4] Outwin, *Transformation Processes…*, pp. 86–88.

Taverner Act 1		**Second Taverner Fantasia**		**Taverner Act 2**
SCENE 1: A COURT ROOM The Abbott tries Taverner for heresy TRANSITION SCENE 2: THE CHAPEL Taverner, writing music, states his doubts TRANSITION		1(a): Introduction		
	→	1(b): Short development		
SCENE 3: THE THRONE ROOM Fanfare	→	Fanfare 2: Exposition		
The King and Cardinal discuss coming Reformations		3: Development		
		4: Recapitulation		
Fanfare	→	5 Fanfare Development[5]		
SCENE 4: THE SAME Taverner's temptation and conversion				SCENE 1:THE COURT ROOM Taverner tries the Abbott for heresy
		6: Amplification of 1(a)[6]	→	last nine bars of SCENE 1
				SCENE 2: THE THRONE ROOM Renaissance airs and dances
		7: Transition		TRANSITION
				SCENE 3: THE CHAPEL Mass; proclamation of the dispossession of the monasteries
		8, 9, 10: Scherzo and Trio		TRANSITION
				SCENE 4: THE MARKET PLACE IN BOSTON, LINCOLNSHIRE Symbolic ritual execution of the Abbott
		11: Transition	→	bar 95 ff.
		12: Slow movement	→	bar 101 ff.
		13: Coda	→	bar 281 ff.

[5] Outwin, *loc. cit.*, has the Second Fantasia as deriving from Act I of the opera here, but in fact the passage in the Fantasia is considerably developed from that in the opera.

[6] Outwin, *ibid.*, p. 88, remarks that 'This swirling woodwind texture with accompanying brass and string chords had been employed briefly in the First Fantasia (at Figure 20) and hinted at in the closing bars of Taverner, I/4 (bar 751).'

Section 1 comes directly and 5 indirectly from the previously composed Act 1 of the opera, and the remainder of the *Fantasia* grew from these sections. After the *Fantasia* was completed (in 1964), composition of the second act of the opera resumed, and sections 6 and 11–13 became part of it.

The *Second Fantasia* and *Prolation*

Prolation, the first orchestral piece of the transposition square period works, is largely concerned with serial processes, specifically with higher dimensional transposition squares (the other two orchestral pieces of that period, the *First Fantasia on an 'In Nomine' of John Taverner* and the *Sinfonia*, are much more conventional in form). Similarly, the first orchestral piece of the transformation process period works, the *Second Fantasia*, is largely concerned with serial processes, here transformation processes (and also transposition squares). An account of these will therefore be given first.

Serial elements of the Second Fantasia[7]

There are three kinds of serial elements making up the work: first, three (or four) series in the sonata form movement (and more in the scherzo and trio and more again in the extended slow movement); and, secondly, two kinds of structures derived from them, transposition squares of two and higher dimensions, and transformation tables.[8] All series and structures shown here are from Roberts, although the analysis here follows a quite different path. His pioneering account was concerned to discover, present

[7] This subsection is concerned solely with the serial elements. Their relationship with the Form is discussed below in the subsection Serial elements and structure of the piece.

[8] Specific references to these series, transposition squares and transformation processes would be fussy and burdensome, and are not usually given here. Suffice it to say that all are from Roberts, *ibid.*, Vol. 1, Part 2, Ch. 7, pp. 274-281, 307-315 and the Examples in Vol. 2 referred to in Vol. 1..

and explain them, whereas here the elements, which can be taken almost for granted, are presented as concisely as possible, so as subsequently to elucidate their role in the structure of the music.

The three series of the sonata form movement

The first of these (which will be referred to as α) is of 19 pitches,

Eβ, C, Dβ, Eβ, Gβ, C, A, Bβ, C, Dβ,

C, Bβ, Aβ, B, C, D, E, F, D

together with an 11-element variant, derived by what Roberts[9] terms a 'first-only sieve', *i.e.* omitting pitches on what would have been their second and subsequent occurrences, here denoted α':

Eβ, C, Dβ, Gβ, A, Bβ, Aβ, B, D, E, F

and the other two are of seven each, (β):

C, Eβ, Bβ, D, A, B, C#

and (γ):

Gβ, Dβ, Eβ, D, Bβ, A, B.

In what follows, α (α'), β, γ will refer to the series as just given, whereβas a Greek letter subscripted by a pitch, for example $\alpha_{E}\beta$, will refer to the same series transposed so as to start on the subscripted pitch.

These series do not appear by themselves, but as components of one or other of two types of serial structure.

[9] Roberts, *ibid.*, p. 60 (Ch. 2) and frequently thereafter.

Transposition square structures

Series α: From this is derived a modified transposition square (that is, a second-level structure) of α, which will be denoted by $^{2}\alpha$:

$$\alpha_E\beta,\ \alpha_C,\ \alpha_D\beta,\ \alpha'_E\beta,\ \alpha_G\beta,\ \alpha'_C,\ \alpha_A,\ \alpha_B\beta,\ \alpha'_C,\ \alpha'_D\beta,$$

$$\alpha'_C,\ \alpha'_B\beta,\ \alpha_A\beta,\ \alpha_B,\ \alpha'_C,\ \alpha_D,\ \alpha_E,\ \alpha_F,\ \alpha'_D$$

It may be seen that this is a straightforward transposition square save for the modification that should a transposition occur for the second or subsequent time (for example, the second occurrence of $\alpha'_E\beta$), then it is not the full 19-element series α which is stated but, with some logic, the 11-element 'first-only sieved' series α', which omits repetitions.[10]

Series β:

The third-level structure, which will be denoted by $^{3}\beta$, is obtained by interleaving $^{2}\beta$ with its transposition by a tritone:

$$\begin{array}{ccccccccccc} & & \beta_{F\#} & & & & \beta_A & & & & \beta_E & & & & \beta_{G\#} & & \\ & \nearrow & & \searrow & & \nearrow & & \searrow & & \nearrow & & \searrow & & \nearrow & & \textit{etc.} \\ \beta_C & & & & \beta_{E\beta} & & & & \beta_{B\beta} & & & & \beta_D & & & & \end{array}$$

Series γ:

The second-level structure $^{2}\gamma$ is obtained perfectly regularly:

$$\gamma_{G\beta}\ \ \gamma_{D\beta},\ \ \gamma_{E\beta},\ \ \gamma_D,\ \ \gamma_{B\beta},\ \ \gamma_A,\ \ \gamma_B$$

The transformations

Davies has noted that in this work his 'main compositional concern was to explore the possibilities of continuous thematic transformations, so

[10] Roberts, *ibid*., also describes a serialisation of durations, which will not be given here.

that the material is in a constant state of flux …'[11] Indeed, it may be seen from the *Summary analysis table* below that transformations play prominent parts in the development and the end of the recapitulation section of the sonata form movement, in the transformations from β into the series ζ, υ and ξ in the scherzo, and in the scherzo itself.

There is a number of these: between α, β, $\beta_{F\#}$, γ and their respective inversions; and between each of them and other series which are not their inversions. There are too many conveniently to enumerate: instead, they will be illustrated by two examples.

A typical example: α' →Iβ. The first two rows and part of the third row of this transformation, which takes twelve steps (and was shown in reverse order of rows, and with associated durations, which are not used here, in Chapter 5: Transformation Processes: *Transformation of durations*) may be illustrated. (See the following table and Ex. 6.3 below.) Since (even) α' has more

1(α')	Eβ	C	Dβ	Gβ	A	Bβ	Aβ	B	D	E	F
2	Eβ	C	Dβ	G	F#	A	G#	B	C#	E	F
3	E	C#	C	G	F	Aβ	G	Bβ	B	E	D#

[11] Davies, *op. cit.*

4	F	Eβ	C	Aβ	E	Aβ	Gβ	A	Eβ	Dβ
5	F#	E	B	G#	D	G	F	Aβ	Eβ	Cβ
6	G	F#	B	A	C	F#	E	G	Eβ	A
7	Aβ		Bβ	A	B	F#	Eβ	Gβ	D	G
8	A		Bβ		A	F	D	F	Eβ	F
9	Bβ		Bβ		G	E	C#	F	D	Eβ
10	B		A		F	Eβ	C	E	C#	C#
11	C		A		E	D#	B	Eβ	Dβ	Cβ
12(Iβ)	C		A		D		Bβ	Eβ	Dβ	Cβ

pitches than β, to transform the former into the latter some pitches in the former have to be eliminated: this is achieved by the amalgamation of side-by-side pitches when the process gives them the same value.

A special case: α'→Iα': The transformation of α' into its inversion appears in a special version in which successive transformations are transposed so as to begin successively with the pitches of α', as shown in the following table, where the transformations are in the left-hand half and their transpositions in the right-hand. The eleventh row starts with initial pitch F (the last pitch if α'), the next two with G (which does not occur in α') and Eβ respectively.[12] This process is referred to by Roberts as 'self-transposing'.

E	C	D	G	A	B	A	B	D	E	F	E	C	D	G	A	B	A	B	D	E	F
E	C	D	G	A	B	A	B	D	D	F	C	G#	A	D	F	F#	E	G	B	B	D
F	D	C#	G	A	B	A	B	D	C	E	D	B	A	E	F	F#	E	F#	A	G#	B
F#	E	C	G	A	B	A	B	D	B	B	F#	E	C	G	A	A#	A	A#	C#	A#	B
G	F#	B	G#	A	A	A	B	C	G#	A	A	A	D	B	C	C	C	C	D	B	C
C#	E	F#	B	A	A	B	G	E	G	E	F	A	B	E	D	C	D	C	A	B	G
D	G	F	B	A		B	G	E	E	C#	G	B	B	E	D	C#	E	C	A	A	F#
E	G	F	C	A	A	B	G	E	D	C#	E	G	F	C	A	A	B	G	E	D	C#

Although the transformations in the score (wind, bar 379ff. and clarinet, bar 479ff.) are of Iα'→α', the table is of α'→Iα', i.*e.* the other way round, which, consisting of a clear process of eleven lines followed by two extra lines, is easier to follow.

transposition square structures and the transformation structures of the sonata form movement are succeeded by new series which are not subjected to further serial processes. In the scherzo and trio (sections 8–10) a new set of series, derived by successive transformations of the series consisting of Iβ followed by its transposition by a tritone, a series symbolised by $I\beta^2$, (an adaptation of Roberts's notation[13]), is used.

^{2}Iβ	C	A	D	Bβ	Eβ	Dβ	Cβ	Gβ	Eβ	Aβ	E	A	G	F
ζ	B	G#	C#	B	Eβ	D	C#	Gβ	Eβ	Bβ	G	A – A		F
υ	B	G#	C#	C#	E	E	F	G	E	B	A – A – A			Bβ
ξ	A	G	B	C#	D#	E	F#–	F#	D#	C	B	G	A – A	

and ξ (or, more precisely ξ_A) is used in the final Lento molto (section 12).

A G B C# D# E F# D# C B G A

Three other ideas which occur briefly in the work are:

The theme of Taverner's *In Nomine*, which will be designated by N;

The plainchant *Gloria tibi Trinitas* underlying Taverner's *In NomineI*: Γ;

The 'death chord', (see above, Chapter 2: Some General Features of Davies's Music, Technical devices, *Death chord*): Δ.

Summary analysis

In contrast to the *Sinfonia* and the *First Fantasia*, a number of studies of the *Second Fantasia* have been published. A very brief formal analysis is given by Griffiths,[14] and fuller ones by Pruslin,[15] Nice[16] and Davies

[13] Roberts, *ibid.*, vol. 1, pt. 2, p. 295.
[14] Griffiths, Paul, 'Short Note'.
[15] Pruslin, Stephen, 'Extended Note I', *loc. cit.*, pp. 4–6.
[16] Nice, David, 'Extended Note II', *loc.cit.*, pp. 6–7.

himself.[17] Harmonic aspects are considered by Pruslin,[18] the transformation processes introduced by Davies in *Taverner* and in the *Second Fantasia* were described for the first time in two papers by Arnold,[19] an extended analytic survey is given by Outwin,[20] a more detailed serial analysis of the whole of sections 1 to 6 by Roberts[21] and of sections 8, 9 and 10 by Owens[22]. The S*ummary analysis table* below, which adopts a uniform format and differs in a few details from Roberts's account of sections 2, 3 and 4, is expanded from those by Pruslin, Davies, Outwin and Roberts, but mainly from the fullest, that of Davies.

As already stated, and as is clear from the first three columns of the Summary analysis table the work is a one-movement symphony, consisting of a sonata-form movement, comprising Introduction (section 1), Exposition (2), Development (3), Recapitulation (4), Development of fanfare from the Introduction (5), Crystallisation of harmonies (6), a Transition (7), a Scherzo and Trio (8–10), another Transition (11), a Slow movement (12) and a Coda (13). A full analysis of the work, which would take too much space, and in any case largely duplicate those of Roberts and Owens cited in the preceding paragraph, will not be given here. Instead, how the serial

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[17] Davies, 'Second Fantasia … ', pp. 141–144.
[18] Pruslin, Stephen, 'Second Taverner Fantasia', *Tempo*, No. 73, 1965. Reprinted in *Peter Maxwell Davies: Studies from two decades*, (ed. Stephen Pruslin).
[19] Arnold, Stephen, 'The music of *Taverner*' and 'Peter Maxwell Davies', pp. 71–85 in: *British Music Now*, ed. Lewis Foreman (Paul Elek, London, 1975).
[20] Outwin, *Transformation Processes … ,* Chapter IV, Second Fantasia on an In Nomine of John Taverner, pp. 84–118.
[21] Roberts, *ibid*., Section 2, bars 21–116, in pp. 274–281 of Chapter 7: Further Developments Of Transposition Squares and Sections 1–6, bars 1 to 548 in pp. 307–315 of Chapter 8: Transformation Processes. The present analysis differs from that of Roberts in but a few details, which will be pointed out only in these footnotes.
[22] Owens, Peter, 'Foregrounds and backgrounds: the Second Fantasia on John Taverner's 'In Nomine''.

processes are related to the form of the movement, particularly in the sonata-form movement, will be highlighted.

Summary analysis table

Sonata form movement, with introduction and coda	1	Introduction	(a) Three main melodic figures	1–20	α, β, γ: string quartet
			(b) Short development	21–68 57–116	^{2}α: strings (canonic ricercare[23]), ^{3}β: bassoons, clarinets; ^{2}α: strings (canonic ricercare), ^{3}β: bassoons, clarinets, ^{2}γ: cor anglais, oboe
			fanfare	117–127	^{3}β, ^{2} γ, α: brass side drum
	2	Exposition	First subject	128–142	^{2}γ: timpani, brass ^{3}β: violins I, II

[23] This canonic ricercare is strongly reminiscent of the opening movement of Bartók's *Music for Strings, Percussion and Celesta*, and, even more strongly, of the isorhythmic canons of the first section, *Prolog*, of Lutosławski's *Muzyka Żałobna* (*Musique Funèbre*), which was dedicated to Bartòk, and clearly refers to his movement. See also Rae, *The Music of Lutosławski*, pp. 66–72.

			Secondary group First idea Second idea Third idea	143–203 143–162 163–193 194–203	 $^{2}\gamma$: clarinet, bass clarinet β: bassoons α: strings Δ: Flutes, oboes α: clarinets γ, β: trumpets
			Recall of first subject	204–219	γ: timpani β: violins I and II γ: violas α': cellos, basses
	3	Development	Introduction (i)	219–258	β→Iβ: double bassoon, bassoon $\beta_{F\#}$→I$\beta_{F\#}$: cellos, basses $\beta_{F\#}$→I$\beta_{F\#}$: oboe $\beta_{F\#}$→I$\beta_{F\#}$: flute
			Introduction (ii) Reference to fanfare	259–266	γ: flutes α (very free): harp side drum β: viola

			Development proper First subsection Second subsection Third subsection Fourth subsection Fifth subsection	267–446 267–307 308–331 332–378 379–405 406–446	 Δ: horns, $\beta_{F\#} \rightarrow I\beta_{F\#}$: brass $I\gamma \rightarrow \gamma$: woodwind $\gamma_E\beta \rightarrow I\alpha$:violins I, II $I\alpha' \rightarrow \alpha'$, $R(\alpha' \rightarrow I\alpha')$: wind $\alpha' \rightarrow I\beta$: horns, trumpets Γ: oboes
	4	'Varied recapitulation by inversion'	First subject	447-458	Δ: woodwind, Δ_A: horns $I\gamma_{G\beta}$: timpani, brass β: violins I, II
			Secondary group First subsection Second subsection	 459–472 473–504	 $I\beta$: oboes, bassoons $I\gamma$: clarinet $I\alpha'$: lower strings $I\beta \rightarrow \beta$: bassoons, oboes $I\gamma \rightarrow \gamma$: horn, flute $I\alpha' \rightarrow \alpha'$: clarinet
	5	Development of fanfare from section 1(b)		505–521 522–538	high woodwind, horns trumpets, tubas side drums

	6	Amplification of 1(a) Crystallization of harmonies		539–545 546–548	high woodwind β: bassoons, tubas, cellos, double basses Iα', α': violins N_F: horns, violas 'three essential chords':[24] brass
Slow transition	7			549–591	solo timpani, solo strings (pizzicato) and harp, then two flutes alone
Scherzo and trio	8	First statement of ternary group		591[25]–626	Iβ→β: solo woodwind
		First interlude		627–639	low strings, harp, double bassoon
		Second statement		640–672	ζ→Iζ: solo woodwind
		Second interlude		673–685	low strings, harp, double bassoon, handbells
		Third statement		686–710	υ→Iυ: solo woodwind
		Third interlude		711–717	low strings, harp, double bassoon

[24] On these three chords, see pp. 186–186 of Owens, 'Revelation and fallacy … '.
[25] Davies, Second Fantasia On John Taverner's In Nomine, p.143, has this section beginning at bar 580: the quick tempo and the first statement of the ternary group, however, begin at bar 592.

		Fourth statement		718–759	ξ→Iξ: solo woodwind, strings, xylophone, glockenspiel
	9	Trio		760–865	A,G,B,C#,D#,E,F#,C: strings
	10	Recapitulation of scherzo: First statement		866–900	R(Iβ→β): strings
		First interlude		901–904	harp, pizz viola, cello, double bass
		Second statement		905–937	R(ζ→Iζ): strings
		Second interlude		938–941	harp, pizzicato strings
		Third statement		942–966	R(υ→Iυ): strings
		Third interlude		967–970	harp, pizzicato strings
		Fourth statement		971–1008	R(ξ→Iξ): pizzicato strings
Transition	11			1009–1021	clarinet and trombone chords, handbells
Extended slow movement	12	First statement		1022–1058	ξ_A: cellos
		First interlude		1059–1079	strings
		Second statement		1080–1101	ξ_A: violins I
		Second interlude		1102–1124	strings
		Third statement		1125–1138	I$\xi_A\beta$: cellos
		Third interlude		1139–1155	harp, strings
		Fourth statement		1156–1201	ξ_A: violins

Close	13			1202–1215	flute, clarinet, bassoon, double bassoon

Serial elements and structure of the piece

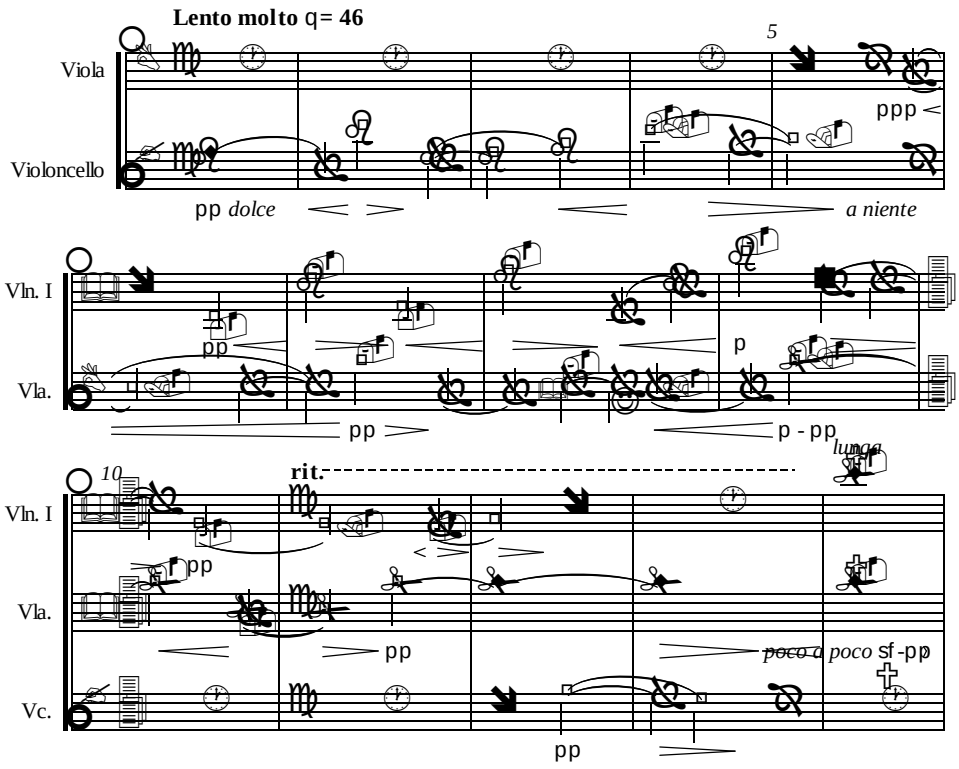
The type of serial element, series, transposition square structure and transformation processes occurring is linked to its position in the form of the piece.

In the Short development of the Introduction, $^{2}\alpha$ and $^{3}\beta$ are played in counterpoint, and this is then repeated in counterpoint with $^{2}\gamma$, so that the transpositions constitute a canonic ricercare, that is, a Baroque structure. With the sonata form section itself, the move from transposition squares to transformations brings with it a change from a Baroque to a classical structure.

The three series of the sonata form movement

Similarly to the *First Fantasia*, which begins with a statement of Taverner's original four-part *In Nomine* by a quartet of two oboes and two bassoons (originally, and in some performances still, by an organ), here the three main series are fairly plainly stated at the outset, in the first twenty bars, by a solo string quartet.[26]

[26]Roberts (*ibid.* vol. 1, pt. 2, p. 281).



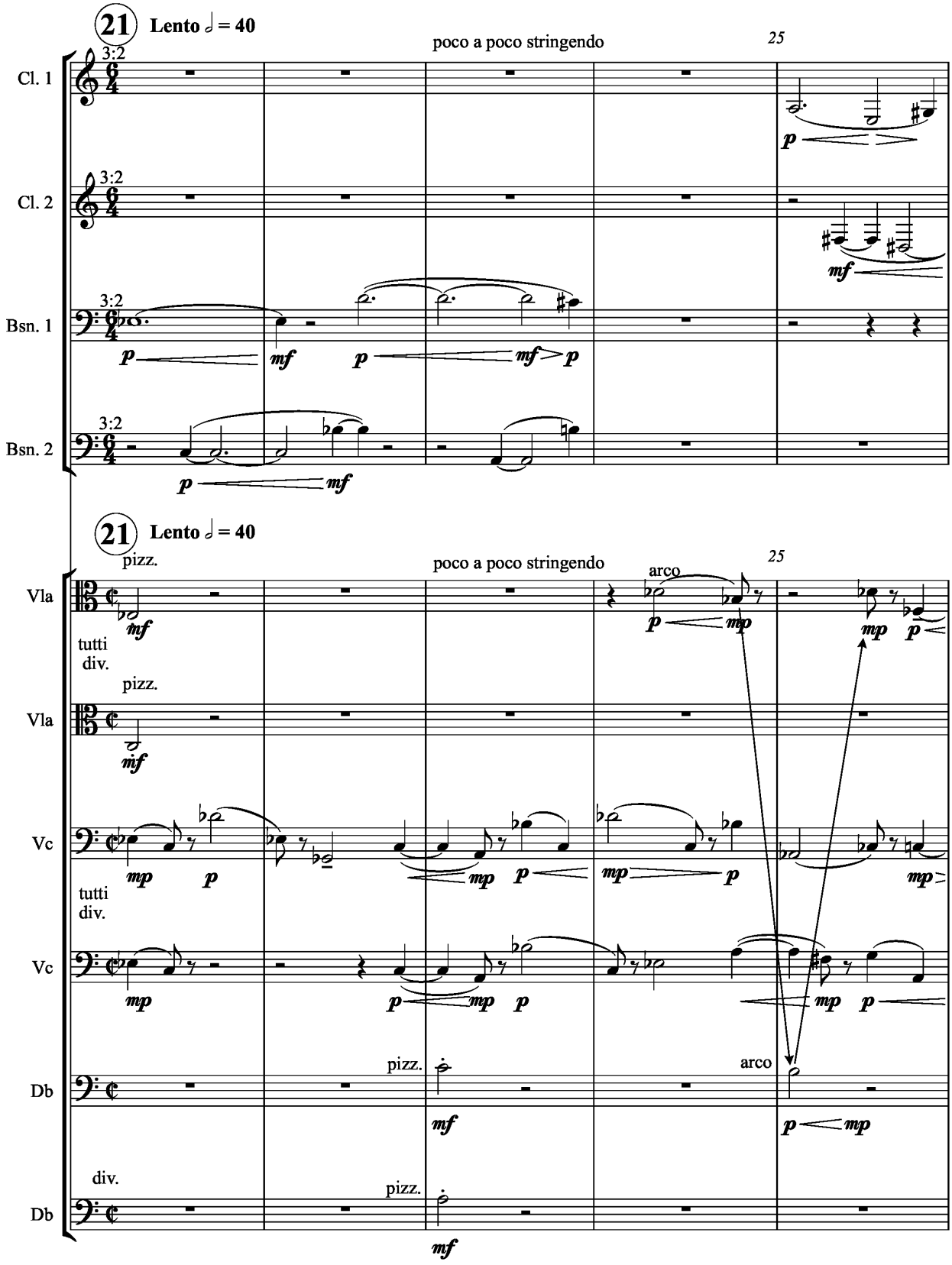
Ex. 6.1 Second Fantasia, opening section (bars 1-14).

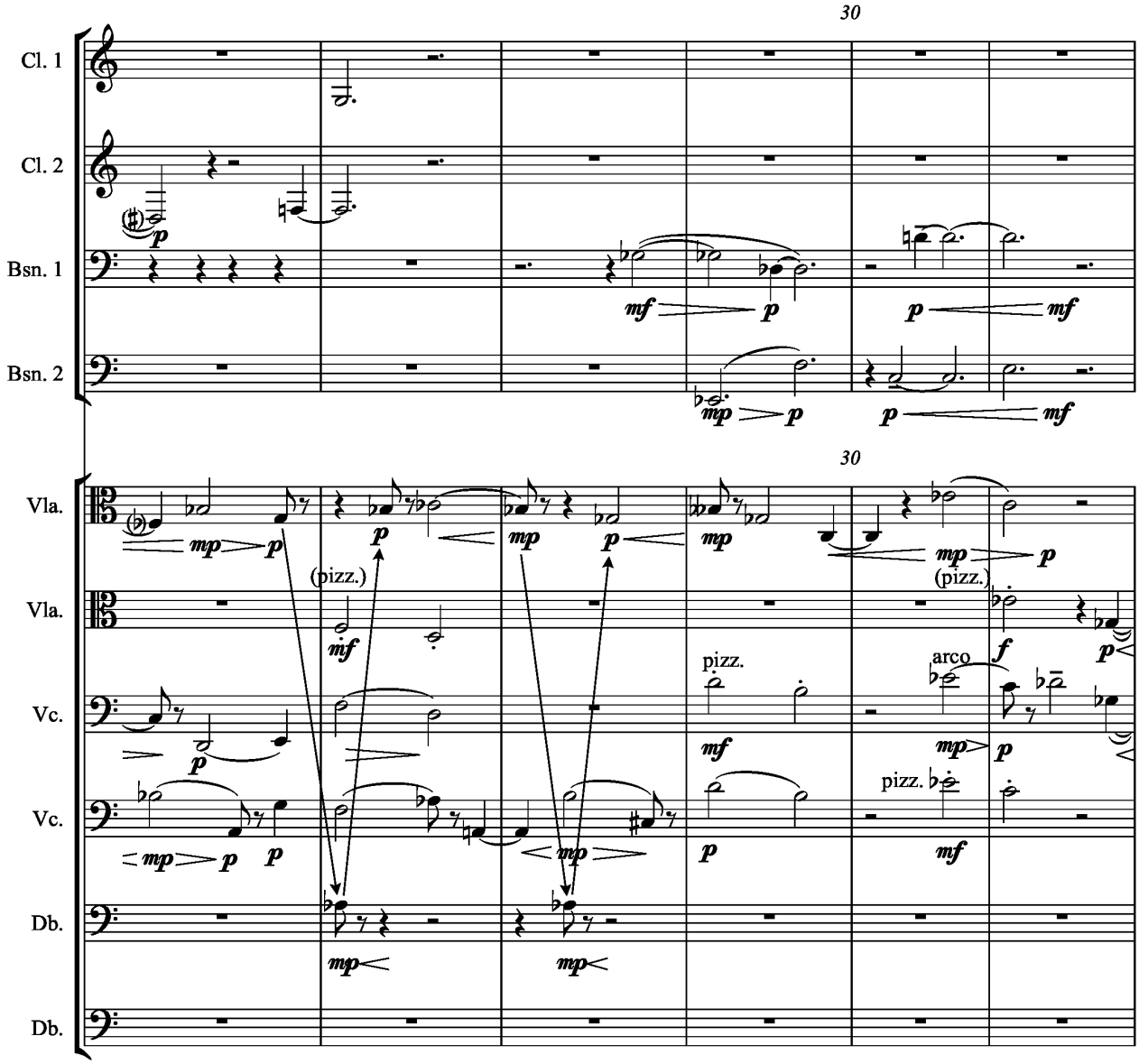
The first seven notes of α are played by the cello[27], the final A being taken over by the first violin (during which β_A enters on the viola), which plays the remainder except for the final F and D, which return to the cello. After a fermata, γ enters on the second violin (against an approximate retrograde of β_A on the first violin), with its last two notes on the cello.

Transposition square structures

These occur exclusively in the Short development of the Introduction of the Sonata form movement, of which, save for a bass part on the double basses, they constitute the whole, $^{2}\alpha$ in the strings, $^{3}\beta$ on clarinets and bassoons and, on the repetition, $^{2}\gamma$ on the cor anglais.

[27] Davies's Note suggests that the whole of α is played by the cello.


21
Lento ♩ = 40
poco a poco stringendo
25
Cl. 1
Cl. 2
Bsn. 1
Bsn. 2
3:2
21
Lento ♩ = 40
pizz.
poco a poco stringendo
25
arco
Vla
Vla
Vc
Vc
Db
Db
tutti
div.
pizz.
arco
div.



Ex. 6.2 Second Fantasia, bars 21- 31

$^{2}\alpha$: Played melodically, $^{2}\alpha$ consists of a sequence of transpositions of α (or α'). The entries are, in fact, staggered, so that the series appears, in the score at least, as a canonic ricercar. Even on paper, however, this is quite hard to follow (as may be seen from Example 6.2 above, there are frequent arrows from one part to another to show the series[28]), and audibly it seems quite impossible. As Roberts puts it, " … whereas the essence of fugue and canon is the differentiation and definition of individual lines,

[28] There are many subsequent passages where consistency would also require such arrows.

what Davies does here is to blur and merge the lines to form an inextricably tangled web of sound. This is achieved through a sustained use of interfusion"[29]

$^{3}\beta$: The elements of $^{3}\beta$ are, unlike those of $^{2}\alpha$, not played melodically, but as 7-pitch two-voice contrapuntal cadences, polyrhythmically (their time signature is $\frac{6}{4}$), with $^{2}\alpha$ (in X), and with rests between them, as opposed to the continuous $^{2}\alpha$, and thus in quodlibet counterpoint. It has been seen above (Transformation square structures, Series β) that $^{3}\beta$ interleaves $^{2}\beta$ with $^{2}\beta_{F\#}$: the cadences bring out the shape of $^{3}\beta$, $^{2}\beta$ being played by two bassoons interleaved with $^{2}\beta_{F\#}$ on two clarinets.
$^{2}\gamma$: $^{2}\alpha$, with the cadences $^{3}\beta$, is played through once, and then the whole is repeated with $^{2}\gamma$ played melodically by the cor anglais in further quodlibet counterpoint.

Throughout the 'Short development' there is a gradual *stringendo* from Lento $\eta = 40$ to Presto $\eta = 120$ coming to a conclusion with a ***fff*** held chord: then, after a short fanfare, the sonata form proper begins.[30]

Transformation processes

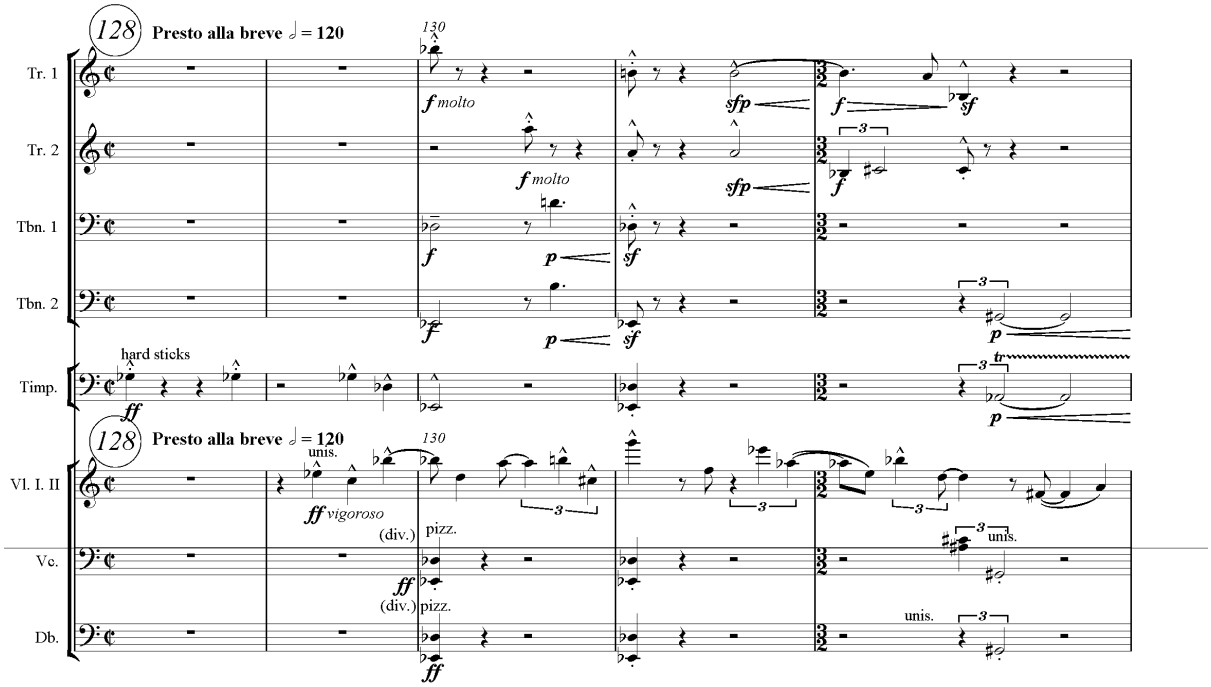
These play an important part, not just in the development section (thus anticipating the role of transformations in the developments of the first movement of the first symphony[31]) but in the structure of the whole sonata form movement. Thus, as may be seen from the Summary analysis table above,

1. in the exposition just the basic series are stated, without transformations, whereas

[29] Roberts, *ibid.*, Vol. 1, Part 2, p. 278, where he also lists six instances of interfusion (defined on his p. 103:see Chapter 5 above) in the first twelve bars of this subsection. Definition of 'interfusion': p. 103.
[30] Note that the transition from the 'Short development' to the sonata form proper is double, from the baroque form of a canonic ricercare to the classical one of a sonata from, and from transposition square structures to transformation processes.
[31] 'any 'development' consists of transformation processes': Chapter 11, First Movement, Composer's Comments

2. in the development there are first transformations of β, $\beta_{F\#}$, γ and α' into their inversions, and then a chain (broken only by a transposition from γ up to $\gamma_E\beta$ and a first-order sieve of Iα to Iα') of linked transformations, β→ Iγ→γ; $\gamma_E\beta$→Iα; Iα'→α' (and its retrograde) and α'→Iβ, which change the basic series into their inversions and into other series, a chain whose overall effect is to transform β into its inversion;
3. finally, in the recapitulation, the inversions of the series β, γ and α' are stated and then transformed back to their original forms.

These statements will not be traced in detail, but may be illustrated by the first five bars of the exposition, where $\gamma_{G\beta}$ starts on the timpani, is passed after two bars to the trombones, and then to the trumpets (the whole not very east to follow), whilst β, followed immediately by the retrograde of $\beta_{F\#}$ (and then other prime and retrograde transpositions) is very clearly played by first and second violins in unison.



Ex. 6.3 Second Fantasia, bars 128-132.

In the 'Varied recapitulation by inversion', the series are indeed recapitulated in inverted forms, and in the Second subsection of the Secondary group α' and β are transformed back to their rectus forms.

The Scherzo consists of four statements of a 'ternary group', interspersed with three 'interludes'. The statements are respectively of Iβ → β, ζ → Iζ, υ → Iυ and ξ → Iξ: each statement is thus of a seven-row transformation of a series into its inverse, the first three rows of which constitute the A section of the 'ternary group', the fourth row the B section and the last three rows the A' section. In the A sections, the rows are played by solo woodwind, with accompanying melismas, and in the B sections the row is played by a lightly-accompanied solo horn. The interludes are less straightforward: analyses, necessarily complex, are provided by Owens,[32] but considerations of space prevent being their being given here: in the interludes, a muted solo violin 'each long note starting '***pp***' with no vibrato, increasing the vibrato with the crescendo until it is exaggerated at the end of the note (***f*** molto)'plays D,F; F,C,G; D,F,C,G,A, *i.e.* parts of, and then a sieved version of *Gloria tibi Trinitas*.[33] In the trio there is a very slow statement by muted solo strings, first a violin, then a double bass, then a cello, *etc.*, of the sequence of pitches A, G, B, C#, D#, E, F#, C, each pitch lasting a number of bars. The statements in the recapitulation of the scherzo are the retrogrades of those in the scherzo itself, *i.e.* the rows of the transformation are played both in reverse order and in retrograde: the B sections are played by the double bassoon: the interludes are shorter than in the scherzo, and *Gloria tibi Trinitas* is now omitted.

[32] Owens, Peter, 'Foregrounds and Backgrounds … ', p. 11, Examples 22 – 27.
[33] Direction in the score, bar 633.

The extended slow movement consists of four statements by string sections of ξ_A (the third of its inversion), punctuated by three interludes.

Instead of the reduced orchestras of the *First Taverner Fantasia* and the *Sinfonia*, we have now a full orchestra. After his 'short development' based on a transposition square, Davies makes an extended exploration of his recently invented technique of transformation processes, both in discovering how they may be used to form the essence of a sonata form movement and also how they may lead, by transforming its themes, from such a movement to an orchestral scherzo and slow movement. These early transformation processes are fairly rigorous: they will later be freer (see the second point after the discussion of Davies's serial structures in *Chapter 1*).

According to one remark of Davies's, the *Second Fantasia* marks a clear stage before the symphony: ' … all those early works, up to about 1964, I think of as apprentice pieces. I knew what I was doing: I was building up a solid foundation of compositional technique, and the last two things I did like that were *Taverner* and the Second Taverner Fantasia'.[34] Consistent with this is the view of Pruslin that the remaining three works before the *Symphony* are, together with it, a 'hypersymphony.'[35] Davies is, however, not completely unambiguous on this point: later in the same book, in the context of the *First Symphony*, he wrote 'So I have written very few orchestral scores, and have felt much less secure, much less experienced in this field than in chamber music, regarding my few works up to now which include large forces very much as apprentice scores'.[36]

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[34] Griffiths, *Peter Maxwell Davies*, Part II, p. 109.
[35] See above, *Chapter 1*, just before *Structure of the thesis*.
[36] Griffiths, *op. cit.*, p. 158. The first quotation, suggesing that the Second Fantasia marked a definite stage in his progress as a composer, would exclude *St Thomas Wake*, *Worldes Blis* and *Stone Litany* from the category of apprentice works, whereas the second would include them. It does not seem crucial for the understanding of his music to resolve the ambiguity.

CHAPTER 7: *ST. THOMAS WAKE*

Composer's Note and comments

This work is based on the *St. Thomas Wake*, a pavan of John Bull, the sixteenth/seventeenth century English composer. This pre-existing material is 'projected' through a progressive series of mathematical curves, which affect it much as, in visual terms, would distorting mirrors of systematically varying degrees of convexity and concavity. At the outset, however, the pavan is not given in its original form, but appears already in the process of transformation into a slow foxtrot, played by a small band, seated apart from the orchestra. The orchestra immediately takes this up, and, in 'commenting' upon it, transforms it into a complex isorhythmic structure, in which stylistic elements of the band are exaggerated. This 'comment' leads to a slow dissolution, from which the band takes up fragments of ideas in the process of disintegration, and refashions these into a series of five foxtrots, each in a distinct style. Over the last of these dances, the orchestra starts a slow declamatory reworking of material from it, leading to a further fast 'commentary' upon all five foxtrots. A final foxtrot from the band cuts across this, having the exact harmonic skeleton of the John Bull pavan, which is now heard simultaneously from the harp in the orchestra, in its original form.[1]

There is no attempt to integrate the styles of the band and the symphony orchestra – each goes its own way in its own terms. The use of the separate band is not meant to imply, in any sense, a kind of sinfonia concertante, nor even a parodic element. The foxtrot band music exists as an object, and the orchestra music implies – if such a thing is possible – an attitude, in purely musical terms, towards this object. The use of a Renaissance pavan as the binding factor throughout is not fortuitous, even if the historical reality of the original is destroyed in the process, refurbishing one dead dance form in terms of a more recent dance-form, also, however, in that sense, just as dead. Moreover, not only was 1930s dance music the first music I myself heard, therefore having personal, rather sentimental associations, but heard now, retrospectively, from this distance, it can perhaps become not only its own comment on the political and moral irresponsibility of its time (bearing in mind what we know of the period's history, and the way, unlike today's pop-music, this music reflects no awareness whatsoever of such implications) – but, by extension, on these things in themselves, as such.[2]

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[1] Bull's time signature, in Thurston Dart's transcription (*Parthenia*, Transcribed and edited by Thurston Dart, Stainer & Bell, Ltd., London, 1956), is $\frac{4}{2}$, whereas Davies's is $\frac{2}{2}$, so that two of Davies's bars correspond to one of Bull's. In fact, only Bull's bars 10 to the end of the pavan are played, and the second halves of bars 10 and 11 are omitted.

[2] Composer's Note' [on *St Thomas Wake*], http://www.maxopus.com/works/stthomas.htm, p. 7, 19/2/05.

> In *St. Thomas Wake—Foxtrot for Orchestra* I had worked with three levels of musical experience—that of the original sixteenth-century 'St. Thomas Wake' pavan, played on the harp, the level of foxtrots derived from this, played by a foxtrot band, and the level of my 'real' music, also derived from the pavan, played by the symphony orchestra. These three levels interacted on each other—a visual image of the effect would be three glass sheets placed parallel a small distance apart, with the three musical 'styles' represented on them, so that when the eye focuses from the front on to one sheet, its perception is modified by the marks on the other glass sheets, to which one's focus will be distracted, and therefore constantly changing.[3]

Its overall form is clear from Davies's description, is shown in the *Summary analysis table* below and further briefly discussed after the table. The *St. Thomas Wake* pavan (presumably a wake for St. Thomas à Becket) is the one by John Bull, from the 1611 collection of music for virginals *Parthenia* (quoted above, Chapter 5, under *Precursors of Davies's transformation processes*), and the 'small band seated apart from the orchestra', which plays the foxtrots,[4] wears blazers and straw boaters.[5]

Ill. 7.1 The small foxtrot band in *St. Thomas Wake*.

[3] Griffiths, *Peter Maxwell Davies*, Part III, 'Vesalii Icones', pp. 152–155.
[4] Davies, 'Composer's Note', [on *St Thomas Wake*], p. 7.
[5] That is, according to Pruslin, Stephen, 'Extended Note II' [on *St. Thomas Wake*], http://www.maxopus.com/works/stthomas.htm, 08/01/05, p. 5. The photograph in Davies's web-site maxopus.com, however, shows the band wearing, not blazers but red or blue waistcoats (and matching bow-ties).

Summary analysis table

Start – **[A]**	Pavan	Band
[A] – **[H]**–1	'comment' on the pavan which 'transforms it into a complex isorhythmic structure'[6]	Orchestra
[**H**] – **[I]**–1	Foxtrot 1	Band
[251] – **[J]–1**	Foxtrot 2	Band
[275] – **[K]**–1	Foxtrot 3	Band
[K]+1 – [315]	Brief interlude, reminiscent of the Blitz in Manchester	Orchestra
[315] – [346]	Foxtrot 4	Band
[347] – [349]	Similar brief interlude	Orchestra
[M] – [364]	Foxtrot 5	Band
[364] – [401]	'slow declamatory reworking of the material from' Foxtrot 5'	Orchestra
[403] – [467]	'further fast 'commentary' upon all five foxtrots'	Orchestra
[467] – end	'final foxtrot … having the exact harmonic skeleton of the John Bull pavan'	Band
[R] – end	Pavan	Band and orchestra

There is one further point which requires mention: in distinction to other of his works discussed in this essay, Davies here gives a direct aural representation of his experience, namely of the Blitz in Salford. He has described[7] how, during air raids, he would be 'in the pantry, which was considered the safest room in the house, playing foxtrots and charlestons on a wind-up gramophone'. As well as the foxtrots, the explosions of bombs[8] (in the ***ff*** timpani strokes at **[K]**+1 and elsewhere) when 'the next door house got a direct hit', are clearly depicted.

This work may be thought of as a kind of preliminary study for a symphonic scherzo. It is clear from Davies's comments that transformation processes are at work, and indeed, transformation processes which are an extension of those used in the *Second Fantasia*. First, Davies's mentions 'a complex isorhythmic structure'

[6] Davies, *ibid*.; similarly all further quotations in this table.
[7] Davies, 'Max Speaks: A Recorded Interview'.
[8] ' … One stick of bombs fell close to his home during the air raids on Manchester. One bomb demolished the house next door, blowing out a couple of windows in the Davies' house, and another made a huge crater in a garden about 30 yards away.' Seabrook, *Max,* p. 18.

(*Composer's Note and comments* at the head of this chapter). Now 'isorhythmic' is a term from early music which Davies uses (like 'prolation' and 'melisma') in a freely extended sense, so that it is not entirely clear what precisely is meant by it here. Secondly, Davies refers to the St.Thomas Wake pavan being

> 'projected' through a progressive series of mathematical curves, which affect it much as, in visual terms, would distorting mirrors of systematically varying degrees of convexity and concavity.

Examination of his manuscript sketches for the work,[9] however, have not yet made clear what this series of curves is, or how they are used to generate the transformations. He goes on

> At the outset, the pavan … appears already in the process of transformation into a slow foxtrot … The orchestra immediately takes this up and … transforms it into a complex isorhythmic structure … the band takes up fragments of ideas in the process of disintegration , and refashions these into a series of five foxtrots …

Unfortunately, it has not been possible to discover the actual details of these transformations: the analysis of the piece, has therefore necessarily been very brief.

[9] British Library, London. Add. Mss. 71318–71319.

CHAPTER 8: *WORLDES BLIS*

The Composer's Comments

> Composition of *Worldes Blis* was slow throughout this period [1966–1969]—it concerned related musical problems [to those posed by *Eight Songs for a Mad King*, *Revelation and Fall* and *Missa Super l'Homme Armé*], but on a much larger scale and at a deeper level, and was a conscious attempt to reintegrate the shattered and scattered fragments of my creative persona. I felt this to have been threatened with total extinction by the experience of living through a sequence of works which I could only pen by an act of faith in my own unreasonableness. However, these experiences could not be reasoned out of existence, and *Worldes Blis* seeks to assimilate and build upon them, while maintaining the basic architectural principles employed in my earlier large-scale orchestral music, but exploring unashamedly in length and in depth (to use terms which mediaeval composers of the original song might well have understood) the acceptance and integration into my continuing creation of the Antichrist which had confronted me within my own self.'[1]

Worldes blis is the centre of a group of compositions which Roberts has called the *Worldes blis* group[2] (considered also by Owens[3]) consisting of *Hymnos* (1967, J121), *Stedman Caters* (1958, completely recomposed 1968, J54), *Vesalii Icones* (1969, J135), and *Hymn to St Magnus* (1972, J157). It is a work of great importance in Davies's oeuvre, for a number of reasons.

First, Davies seems to have had a very early intimation of some of its music. He has reported that,[4] as a child, holidaying with his parents in the Lake District, and climbing (possibly Helvellyn) he briefly lost sight of them in fog and heard, in his mind's ear, music which he recognised, years later, in *Worldes blis*.

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[1] Davies, 'Worldes Blis', Part III of Griffiths, *Peter Maxwell Davies*, pp. 149–150.
[2] Roberts, *Techniques of Composition*, Chapter 8: Transformation Processes, p. 290.
[3] Owens, Peter, '*Worldes Blis* and its satellites'.
[4] In a talk before performances of other works in The Sage, Gateshead, on Saturday the 21st October, 2006.

Secondly, Davies has reported[5] referring, in his programme note to the first performance of *Worldes blis*, to an imagined, as yet unfound, landscape in the music, which he subsequently found in Hoy.[6] This is alluded to in his comments on the piece:

> Bearing in mind that one's music and ones life are inseparably interrelated, I had in its form defined, in a way that made immediate and instinctive sense, the future environment in which I was to compose, when the music, as it were, materialized into a physical landscape. It could well help the listener unfamiliar with its style to relate its architecture to the slowly rolling treeless landscape in which I was to continue the path outlined in the work, with its minimal change as one walks (always totally alone!) among many square miles of hills, but with a constantly modulated meaning according to light, cloud and reflection from the sea. Orkney's wildest island seems to be a natural extension and a living-out of the territory explored and cartographed in *Worldes blis*.[7]

Worldes blis therefore had a deep personal significance for Davies.

Thirdly, the piece seems to have posed compositional problems. Davies has already been cited as writing: 'Composition of *Worldes Blis* was slow throughout this period [1966–1969],' and this is a long time for Davies, usually a quick composer, to have spent writing the piece (although the composition of *St Thomas Wake*, also unusually, took from 1966 to 1969). This may have been, in part, because it was for him, as quoted above, 'a conscious attempt to reintegrate the shattered and scattered fragments of my creative persona' and explored 'unashamedly in length and depth … the acceptance and integration into my continuing creation of the Antichrist which had confronted me within my own self' and, as he wrote in

[5] In the same talk in The Sage.
[6] Davies's programme note (also titled 'Worldes Blis') to the first performance by the BBC Symphony Orchestra (conducted by the composer, in the Royal Albert Hall, 28th August, 1969), however, makes no mention of this.
[7] Davies, 'Worldes Blis', p. 150.

the programme note for the first performance, 'a possible escape, or at least a possible *working away* from the psychological climate of the extant music.'[8]

Fourthly, Davies himself was initially uncertain about the completeness of the piece. In the original programme note he wrote:

> … the generating potentiality of the transformation processes employed leaves a good two-thirds of the possibilities suggested unexplored, which I may, or may not, eventually work out in more movements. A further movement was sketched last year, but left incomplete.[9]

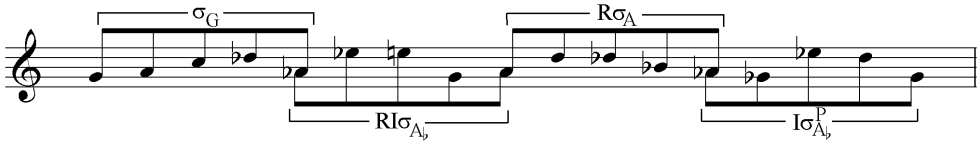
Later, he wrote:

> After this first performance I withdrew the work, feeling that it was too short, having explored only a fraction of its form-building potentialities. Later, I realized that it was not so much incomplete as germinal, in that its methods lead directly into later large works such as *Hymn to St. Magnus* and *Stone Litany*.[10]

The piece has been analysed in part by Roberts, and more comprehensively by Owens.[11] Like *Prolation*, it is based on a five-note set, here G, A, C, Dβ, Aβ, but treated in a different way: in *Prolation* transpositions of the primary five-note set were juxtaposed to form twenty-five-note second level sets, (and these to form third level sets, *etc.*) whereas here the primary set, which will be designated σ, is followed successively by its retrograde inversion, its retrograde and its inversion, each form

[8] Davies, *loc.cit.*
[9] Davies, *loc.cit.*
[10] Davies, 'Worldes Blis', p. 150.
[11] Roberts, *ibid.*, Vol. 1, pp. 319–325, Owens, *loc.cit.*: Owens's analysis is so compressed as to be, in places, hard to follow.

transposed so it begins on the last note of the previous one, and interlocked to form a 17-note set, which will be designated ω.[12] (This treatment of the



Ex. 8.1 Structure of the set ω.

five-note set in the figure is reminiscent of the treatment of the segment of *L'homme armé* in the mass which is the source for *Missa super L'homme armé*.) There is another similarity to *Prolation* in the formation of the second-level set ω_G: there the third and fourth primary sets $\rho_{C\#}$ and ρ_A were retrograded: here it is the last four pitches of the inversion, $I\sigma^{P}_{A\beta}$, which are retrograded (this is signified by the superscript 'P').

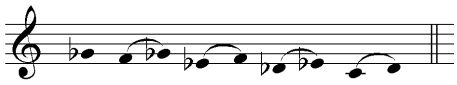
Like the *Second Fantasia* and *St Thomas Wake* (and unlike *Prolation*) *Worldes blis* is concerned largely with transformations. This is made explicit by Davies:

> Throughout the work the material is in a state of constant but very gradual transformation—the melodic, rhythmic and harmonic contours change slightly at each new statement.

ω and its transformations constitute the thematic material of most of the piece, and the only thematic material of the first five sections of the piece. Only with the sixth (*Development 2*: see the *Summary Analysis Table*

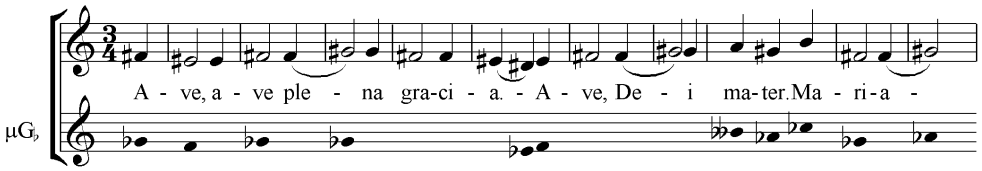
[12] This figure is an adaptation of Roberts's Example 8.31 (*Techniques of Composition*, Vol. 2, p. 88) and Owens's Example 2.5 ('*Worldes Blis* and its satellites', p. 30). Following the procedure adopted with the *Second Taverner Fantasia*, Roberts's and Owens's Latin letters are replaced by their Greek equivalents.

below) is new material introduced: this is the first of the four other other elements in the piece, namely the 'Death' chord. The other new material is at first presented vary fragmentarily, and only later more fully. In *Development 3*, there is the second element, a brief retrograde extract from an extension of the *Dies Irae* plainchant:[13]



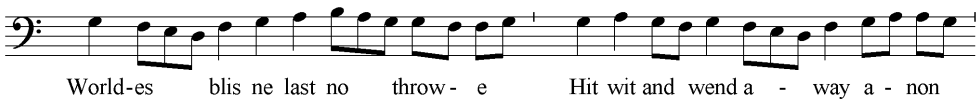
Ex. 8.2 Retrograde extract from an extension of *Dies Irae*.

In *Development 4* there is the third element, a transformation of ω into the ten-element set derived by sieving (but not a one-time sieving: it contains repeated notes) of Davies's carol *Ave plena gracia*, (J107, 1964):[14]



Ex. 8.3 Davies's carol *Ave pleni gracia* and set derived therefrom.

Finally, in the *Coda*, the fourth element is played, the original anonymous thirteenth-century song *Worldes Blis*,[15] which begins:



Ex. 8.4 The thirteenth-century song *Worldes Blis*.

[13] Owens, 'Revelation and Fallacy', Ex. 7, p.168.
[14] Owens, 'Worldes Blis and its satellites', Ex. 2.8, pp. 35–36.
[15] The full song, with a translation of the words into modern English (by Tony Healey), is given at the beginning of the pocket score (Boosey & Hawkes, HPS 1198).

After *Revelation and Fall*, in which the serial processes often seem unrelated to (indeed sometimes almost against) the musical events, and *Missa super L'Homme Armé* and *Eight Songs for a Mad King*, in which serial processes do not appear to occur, in *Worldes Blis* they are a fundamental part of the formal structure. (This is but to put in musical analytical terms what Davies describes in psychological terms as 'a conscious attempt to reintegrate the shattered and scattered fragments of my creative persona'.[16]) As may be seen from the *Summary Analysis Table* below, the work is largely concerned with transformations, $\omega_G \rightarrow I\omega_A$, of ω_G into its inverse (transposed up a tone) $I\omega_A$ (or the reverse transformation $I\omega_A \rightarrow \omega_G$, or similar processes on the first-time sieved themes ω'_G and $I\omega'_A$) or the self-transposed versions $z[I\omega_A \rightarrow \omega_G]$ (in these cases not only are the the rows transposed so that they begin successively with successive pitches of ω_A, but also even-numbered rows are retrograded) *etc*.

[16] See *The Composer's Comments* above.

Summary Analysis Table[17]

'Extended upbeat'	*'Introduction'*	lento recitando ε = c.48	1	Harps	ω_G, $I\omega_A$, $\omega_{G\beta}$, $I\omega_{A\beta}$
	First 'Cantus' or 'Tenor'	Lentissimo θ = c.60	2–200	Timpani→trombones→ trumpets	$z[\omega_G \rightarrow I\omega_A]$
	Interruption	L'istesso tempo (θ = c.60)	201–211	Trumpets Strings, Solo cello	${}^3\omega'_G$ ${}^3\omega_G$ (synoptic)
	Second 'Cantus' or 'Tenor'	l'istesso tempo θ = c.60	212–285	Strings	$z[\omega'_G \rightarrow I\omega'_A]$
	Antecedent/ Consequent Material	allegro θ = 126+	286–322 323–346 347–381	Strings→horns, bassoons→piccolo	$R(z[I\omega_A \rightarrow \omega_G]^3)$ $z[\omega_G \rightarrow I\omega_A]^{(0)}$ $z[\omega_G \rightarrow I\omega_A]^9$

[17] Adapted from Owens, Peter, '*Worldes Blis* and its satellites', Ex. 2.4, p.29.

	Development 1[18] *('Pre-development')*	Poco più mosso $\theta = 132$	382–481	Harps accompaniment	$z[\omega_G \rightarrow I\omega_A]^{3,0,9}$ $\omega'_G \rightarrow I\omega'_A$
	Development 2	Allegro molto $\varepsilon = 152$	482–514	Four horns Sustained organ chord Trombones, bassoons	Death chord ω_E:1,2,4,5^3,6 $z[\omega'_G \rightarrow I\omega'_A]$
	Development 3	Più mosso $\varepsilon = 208$	515–584	Sustained organ chord Trumpets, oboes, clarinets Violins	ω_G:1–4,5^3,6 $z[I\omega'_A \rightarrow \omega'_G]$ *Dies Irae*
	Development 4	Allegro $\varepsilon. \varepsilon \varepsilon = 96$	585–622	Repeated violin semiquavers Brass, woodwind Organ left hand	$\omega_{B\beta}$:1–4,5^9,6 $\omega_G \rightarrow I\omega_A$ (permuted rows) $I\omega_A \rightarrow \mu_{G\beta}$

[18] The idea of several development sections may have been suggested by the first movement of Mahler's Second Symphony, where Specht (Richard, *Gustav Mahler*, Berlin/Leipzig, 1913, cited by Floros, *Gustav Mahler: The Symphonies*, p.58, fn. 22) wrote of two developments.

	Antecedent/Consequent *Reprise*	Allegro θ = 126	623–637	Violins Violins Trombone 1, horns Trombone 2 Oboes and flutes, Woodwind, Strings, Brass	$RI\omega_C$ ω'_G $\mu_{G\beta}$ ω'_G Death Chord

Coda		lento $\theta = 60$	638–729	Multiple Trombones + trumpets Violins Handbells	$^{2}R\omega_{G}$ $z[\omega_{G} \rightarrow I\omega_{A}]$ $\mu_{G\beta}$ (*Ave*)→ $KG\beta$(*Dies Irae*) *Worldes blis* (modally adjusted)

Cadence		Lento $\theta = 60$	730–738	Whirling: Glockenspiel Handbells Tubular bells Brass and strings Low instruments, flutes and clarinets	 $\mu_{G\beta}$: *Ave* $\kappa_{D\beta}$: *Dies irae* ω'_C $I\omega'_A$ verticalized Death chord

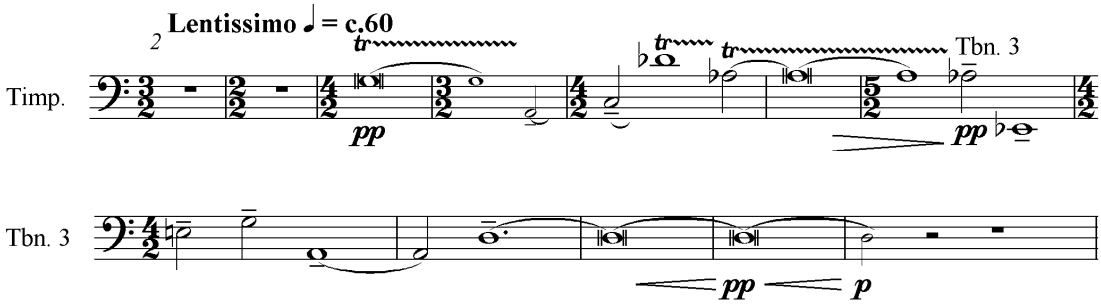
As may be seen from this table, *Worldes Blis* is a sonata form movement, preceded by four sections (*Introduction, First 'Cantus' or 'Tenor', Interruption* and *Second 'Cantus' or 'Tenor'*[19]) which Davies has designated an 'extended upbeat',[20] and followed by a *Coda* and *Cadence*.

Just as the *Second Fantasia* begins with a statement of the three melodic ideas which underly it, so *Worldes Blis* starts with a statement of ω_G, $I\omega_A$, $\omega_{G\beta}$ and $I\omega_{A\beta}$ by the two harps.[21] Then comes the *First 'Cantus' or 'Tenor'* which makes a slow presentation of $z[\omega_G \rightarrow I\omega_A]$ starting on timpani, passing rapidly (bar 8) to trombones and eventually (in bar 115, with row 12 of the transformation, *i.e.* about two thirds of the way through) to trumpets and 'decorated or 'coloured' by the rest of the orchestra'.[22] (The symbols z[…] here indicate that the rows of the transformation are transposed so that their first notes are successively the pitches of ω_G (an instance of *übergreifend Form*), but only after even-numbered rows have been retrograded.[23]) The statement uses another method of serialisation of duration, namely an interval→duration-ratio mapping,[24] namely:

[19] The terms are Davies's own: 'Worldes Blis', p. 151.
[20] Davies, *loc. cit.*, p. 151.
[21] It is hard to recognise ω and Iω by ear in the four short passages separated by fermatas which constitute this Introduction. Indeed, the third passage is hard to make out even on paper, and with Owens's Ex. 2.5.
[22] Davies, 'Worldes Blis', p. 151.
[23] See Roberts, *Compositional Techniques* … , Example 8.35, p. 90.
[24] Roberts, *ibid.*, p. 322. Roberts, from whom the table of the mapping is taken, refers, both here and in two previous instances (pp. 265, 268) to it, by a slight ellipsis, as an interval-class-into-*duration* (my italics) mapping.

interval	duration-ratio
1	1:2
2	1:3
3	1:1
4	2:3
5	1:4
6	1:1

It should be noted that all the ratios except 1:1 are ambiguous. For example, it may be seen from the beginning of the statement (shown here without any



Ex. 8.5 Opening of *Worldes blis*.

of the accompanying voices), that although the interval between the Dβ and the Aβ (bar 6) is the same as that between the Aβ and the Eβ (bar 8), namely 5 semitones, in the first case it appears as 1:4 (namely 2 minims to 8), in the second it appears reversed, as 4:1 (8 minims to 2). One further point is that the mapping is not always carried out entirely precisely: thus, the opening G should have just 3 minims duration, not 5.

$z[\omega_G \rightarrow I\omega_A]$ here functions as the 'tenor', in the mediaeval sense alluded to by Davies in his comments on the *First Symphony*: '… the voice or part which unifies the harmony is not necessarily a bass line, but often a 'tenor' which usually has long

notes, and the harmony is understood as upwards or downwards from this'.[25] The 'decoration' or 'colouring', which functions as the 'cantus', consists largely of string counterpoints (including frequent long slow glissandi, a recurrent feature of the work, which will not usually be specifically singled out below). The *First Cantus* is followed by an *Interruption*: 'a high cello solo accompanied by stabbing muted trumpets and *divisi* high strings'[26] and then by the *Second Cantus*, a shortened recomposition of the first, a similarly slow (**l'istesso tempo**) presentation by the strings of $z[\omega'_G \rightarrow I\omega'_A]$, the transformation of the first-time sieving of ω_G into that of $I\omega_A$ (the transformations are, however, not first-time sievings of those of $z[\omega_G \rightarrow I\omega_A]$, but new), which this time functions as the 'tenor', whilst the brass serve as the 'cantus'. In the concluding bars, there are fanfares on the first trumpet.

After the 'extended upbeat', the sonata movement starts with the *Antecedent/Consequent Material*, its exposition. This has two co-existing forms, its serial structure and its antecedent/consequent structure. The former consists of three presentations, one of $R(z[\omega_G \rightarrow I\omega_A]^3) = R(z[\omega_{B\beta} \rightarrow I\omega_C])$, one of $z[I\omega_A \rightarrow \omega_G]$, and one of $z[I\omega_A \rightarrow \omega_G]^9 = z[\omega_{F\#} \rightarrow \omega_E]$. the first and third transposed respectively up and down a minor third and the second at pitch.[27] (This process of transposition of up a minor third, at pitch and down a minor third has been termed 'oscillatory transposition' by Roberts[28].) In these presentations some rows of the transformation may be retrograded, although no pattern to this has been discerned.

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[25] Griffiths, *Peter Maxwell Davies, Part III*, 'Symphony No. 1', p. 160.
[26] Davies, 'Worldes Blis, p.151. Again, in his own recording, the solo cello is largely drowned by the accompaniment.
[27] In these presentations some rows of the transformation may be retrograded, although no pattern to this has been discerned.
[28] Roberts, *Compositional Techniques …* , p. 323. It is reminiscent of Bartók's treatment of minor thirds up or dawn as part of the same axis, and a *major* third up from the tonic as a dominant, a major third down as a subdominant: see Lendvai, *Bartók's Style* and *Béla Bartók: An Analysis of his Music* .

The first presentation starts in the first and second violins in unison (bar 286), moves into the lower strings (298) and ends in the horns and woodwind (310–314).[29] The second starts with three presentations of ω_G, on the piccolo (315), then on the first and second violins in unison (324), then an incomplete presentation on the second trumpet (325): the transformation continues on the horns (331) and ends in the lower strings and woodwind (344–346).[30] The third presentation starts with a slow statement of $R\omega_E$ (347) in the upper woodwinds, with the transformation simultaneously starting passed between the trumpets, then between the horns,[31] and ends with a slow statement of $RI\omega_G$ by first and second violins in unison.

Superimposed on the serial structure, and not entirely coinciding with it, is the structure of what Davies has called 'Antecedent/Consequent material',[32] a phrase which alludes to, but is distinct from, the idea of first and second subject groups. In fact, the material here is closer to the distinct musical ideas usually referred to as first and second subject than to the single idea repeated (perhaps with some variation) and with a different conclusion which Schoenberg refers to as the 'antecedent' and 'consequent' of a period.[33] Davies describes the 'antecedent material' as 'characterized by a widely-spaced rhythmic melody on first and second violins in unison, with high unpitched percussion accompaniment (woodblocks, claves)' and the 'consequent material' as characterized by 'heavy brass and deep violent percussion', but the form is not quite so simple. It does indeed start (bar 286, with $z[I\omega_C \rightarrow \omega_{B\beta}]$) in the first and second violins in unison, accompanied by wood blocks and claves, but

[29] I have not been able to trace transformations 7, 6 or 5 in the score.
[30] I have not been able to trace transformations 2 and 3, or 8–17 in the score.
[31] Roberts, *loc. cit.*, justly describes this as 'A very distorted statement': I have not been able to trace transformations 5–17 in the score.
[32] Davies, 'Worldes Blis, p.151.
[33] Schoenberg, Arnold, *Fundamentals of Musical Composition*, Ed. Gerald Strang and Leonard Stein, (Faber and Faber, London, 1967), Ch. VI. (2); 2. Antecedent Of The Period and Ch. VII. Construction Of Simple Themes (3); 3. Consequent Of The Period, pp. 25–57.`

at 298 this is taken over by the violas (sometimes doubled by the cellos), at 302 returns to the first and second violins, but this time in counterpoint (the claves dropping out at 306) and at 315 the strings are silent for nine bars, finally returning at 324 (where the woodblocks drop out) for a slow statement of ω_G, *i.e.* the beginning of the next presentation, of $z[\omega_G \rightarrow I\omega_A]$. Overlapping with this, the brass, starting with trumpets at 325, then trombones in 326 and tuba (which I take to be the 'heavy brass') in 329, present $z[\omega_G \rightarrow I\omega_A]$ and then $z[\omega_E \rightarrow I\omega_{F\#}]$ continuing intermittently (with horns), accompanied by deep percussion, until the end of the section.

The exposition is followed by four development sections. The long *Development 1*, which Davies says is 'strictly a 'pre-development', in which the material is prepared for subsequent development processes',[34] can also be heard as a development of the *Introduction*, in which the two harps present $z[\omega_G \rightarrow I\omega_A]$, but subject to a much faster 'oscillatory transposition' than in the preceding section, in which not whole transformations, but, in another instance of *übergreifende Form*, every other pitch in each transformation, is transposed up or down by a minor third. This may be seen in the following table,[35] where each block of rows

[34] Davies, 'Worldes Blis'., p. 151.

[35] Adapted from Roberts, *Compositional Techniques … '*, p.94, Example 8.40 and Owens, '*Worldes blis* and its satellites', p. 34, Ex. 2.7. Owens's end of the Harp 1 passage corresponding to block 3 (Roberts's Example stops short of this bar) is not quite correct, and has been corrected here. (The problem stems from the fact that the oscillatory transformation process leads to three consecutive B♮s, whereas the music has only two.)

1:	Bβ			E				Bβ				Dβ					A
ω_G	G	A	C	Dβ	Aβ	Eβ	E	G	A	D	Dβ	Bβ	Aβ	G	D	Eβ	Gβ
Hp.1		Gβ				C				B				E			Eβ
	3	9	0	3	0	9	0	3	0	9	0	3	0	9	0	0	3/9

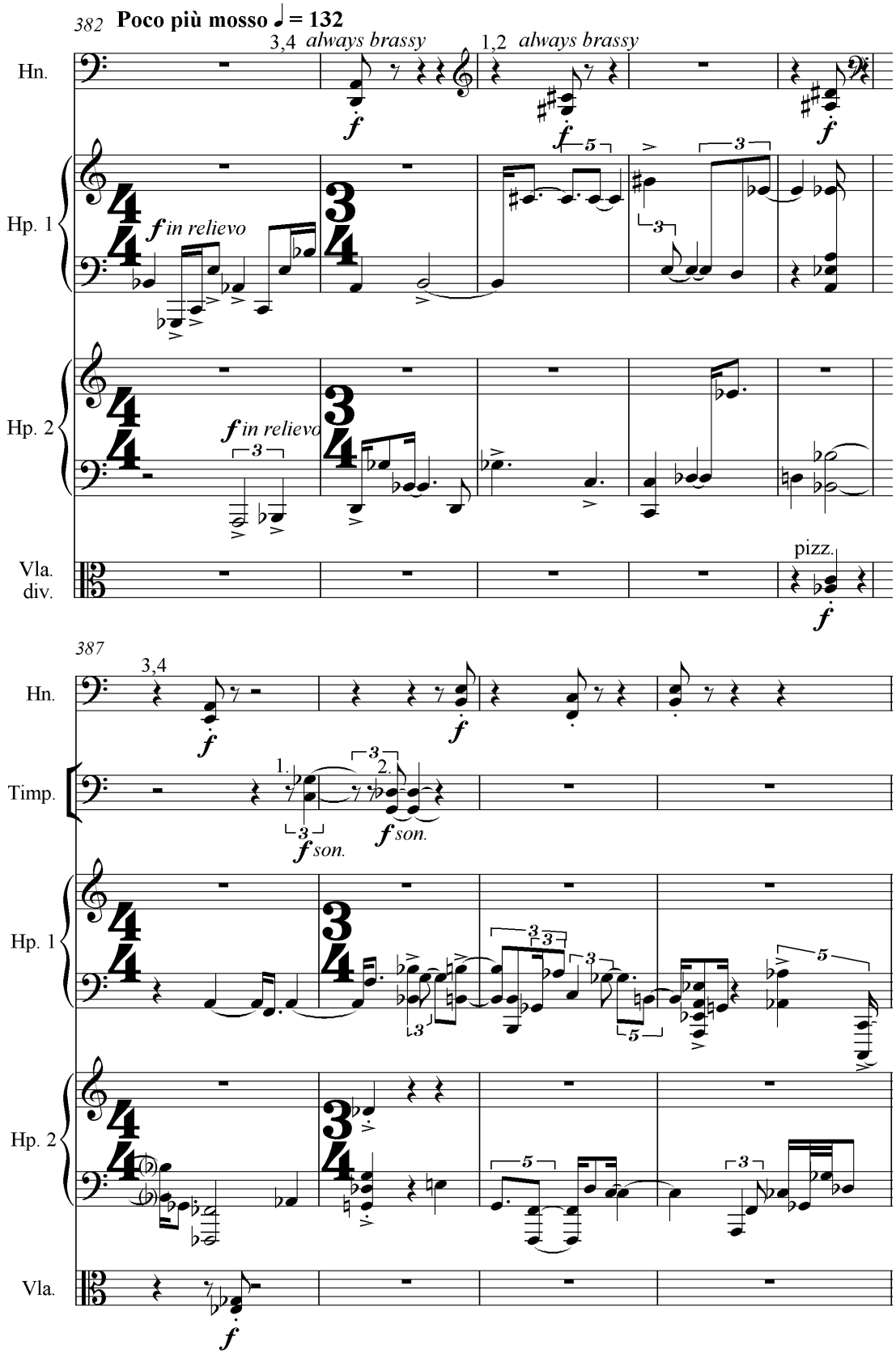
R2				Gβ				C				D				Aβ	
	A	C#	D	Eβ	Bβ	F	F#	A	C	E	D#	B	Bβ	A	E	F	G
Hp.2		Bβ				D				Dβ				Gβ			
	0	9	0	3	0	9	0	3	0	9	0	3	0	9	0	3	0

3			A				B				Bβ				A		
	C	F	Gβ	F	Dβ	G	G#	B	D	F#	F	C	A	B	F#	G	
Hp.1	A				Bβ				B				Gβ		Eβ		
	9	0	3	0	9	0	3	0	9	0	3	0	9	0	3/9	0	

R4	E				E				Gβ			
	Dβ	G	Aβ	F	C#	A	G#	B	D#	F#	B	*etc.*
Hp.2			F				F				Aβ	
	3	0	9	0	3	0	9	0	3	0	9	

5			
	Aβ	Eβ	*etc.*
Hp.1		C	
	0	9	

corresponds to a row of the transformation process. Within each block, the second row is the row of the transformation process, and the fourth indicates the oscillatory transposition, '3' signifying that the pitch is raised by a minor third, '0' that it is played as written, and '9' that it is raised by a major sixth, *i.e.* lowered by a minor third (another instance of *übergreifende*, or rather in this case *untergreifende Form*). Thus, in the first block, the pitches actually played, the ones not printed in grey in the table, are Bβ, Gβ, C, E, Aβ, *etc.*, as may be verified from the first harp part.



Ex. 8.6 Bars 382-390 of *Worldes Blis*.

Selected intervals in the harp parts are doubled by other instrumental pairs, perfect fourths and fifths by horns, tritones by timpani and xylophone (although the xylophone does not enter until bar 424 nearly half way through the section), and major and minor thirds and sixths by pizzicato strings, as is shown in the extract above[36]. (The intervals doubled may be successive rather than simultaneous, as with the second harp's Dν, Bβ in bar 386. The other intervals within the octave, major and minor seconds and sevenths, are not doubled. Further, not all doublings are simultaneous: the minor third Eβ,Gβ on pizzicato divided violas in bar 387 seems, if anything, to double the second harp Gβ in that bar and the first harp Eβ in the preceding bar.) In a rather pointillistic presentation, $\omega_G \rightarrow I\omega_A$ is played as an accompaniment,[37] passing from one to another of the instruments not occupied in the doubling: starting also in bar 382 on bowed strings, and passing in succession to trombones, double reeds and tuba. (This requires a certain amount of puzzling out to follow, even in the score, and is not illustrated in the example above.)

The remaining three developments all introduce new material, and, as pointed out be Owens,[38] each is accompanied throughout by a held chord (in the second and third developments on the organ, in the fourth on tremolando violins) consisting of the first six pitches of ω_E, ω_G and $\omega_{B\beta}$ respectively (another instance of *übergreifende Form*, here from the three levels *within* the *Antecedent/Consequent Material* section to between the three developments) save that the third pitch is omitted from ω_E and in each chord the fifth pitch is altered by a minor third, raised for ω_E and ω_G and lowered for $\omega_{B\beta}$.

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[36] Owens, '*Worldes Blis* and its satellites', p. 34.
[37] *Ibid.*, p. 29, Ex.2,4.
[38] *Ibid.*, p.33.

In *Development 2*, the new material is the Death chord, briefly played at the outset by four horns, and the held chord is F#, C, E, Aβ (instead of F) and Bβ (*i.e.* omitting A) on the organ,[39] accompanying a presentation of $z[\omega'_G \rightarrow I\omega'_A]$ on trombones and bassoons.

In *Development 3*, the new material are the retrograde first four notes of the original *Dies Irae* (see above: now transposed up a semitone to start on A), F#, A, G#, A, played by the first violins in bars 551–552, and the held chord is A, C, Eβ, G, B (instead of Aβ) and Dβ on the organ,[40] accompanying $I\omega_A \rightarrow \omega_G$, rows of which are played in counterpoint by trumpets, oboes and clarinets.[41]

In *Development 4*, the new material is a new transformation, $I\omega'_A \rightarrow \mu_{G\beta}$, of ω into the sieving of *Ave plena gracia*, in nine steps,[42] played by the left hand of the organ, and the held chord is C, Eβ, Fβ, Gβ, Aβ (instead of B) and Bβ, played in the first bar by the piccolo, flutes, oboes and clarinets, and thereafter by tremolando first and second violins (the actual pitches are interchanged every crotchet, but the same chord is maintained throughout). At the same time there is a presentation of $\omega_G \rightarrow I\omega_A$ on brass and wind.[43] The rows of the transformation are permuted,[44] and, in another instance of *übergreifende Form*, the pitches within transformations are also permuted; they are also fragmented, so that the transformation is hard to follow.

The *Reprise* of the Antecedent/Consequent material is abbreviated: the three transformations are replaced by their initial sets (with the second and third sieved), this time coinciding more closely with the Antecedent/Consequent structure. Thus

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[39] Owens, *loc. cit.*, p. 33.
[40] Owens, *ibid*.
[41] Owens, '*Wordles blis* and its satellites', p. 29, Ex. 2.4 has 'trumpets and reeds', but in fact the bassoons and double bassoon are silent throughout this section.
[42] Owens, *loc. cit.*, p. 35 has twelve, but this is a mistake.
[43] Owens, *ibid*.
[44] Owens, *loc.cit.*, p. 29, Ex. 2.4, gives the order '1, 3, 2, 4,5,7,6,8 etc.'

$I\omega_{D\beta}$ and ω'_G are played by the violins (but without claves or wood blocks) and ω'_G by the second trombone, with timpani. At the very end the first trombone, partially doubled by the first, second and third horns (marked '*whoop*') plays $\mu_{G\beta}$, the sieved *Ave plena gracia*. The 'Death' chord is played throughout, first built up on oboes and flutes, then in minor thirds by woodwind (except piccolo), then, in major thirds again, on strings (except double basses) and, finally, overlapping with the strings, at its original pitches D, F#, E, G#, on all the brass, ***fffff***, bells raised.

The *Coda* consists of four contrapuntal layers. In order of entry, the first is a massively instrumented statement of ${}^3\omega_G$, revisited for the first time since the *Introduction*, starting with $I\sigma^P_{G\beta}$ (retrograded: D, F, C#, F#, G) on (unison and octaves) bass clarinet, bassoons, double bassoon, timpani, tuba, organ, cellos and double basses: with the final G the statement becomes contrapuntal (largely homophonically),[45] some lower instruments drop out and some higher one are added, and finally there is a unison statement of $R\sigma_G$ on clarinets, and cellos. The second contrapuntal layer is a final statement of $z[\omega_G \rightarrow I\omega_A]$, shared between the trombones, later joined by the trumpets. The third is a transformation of the *Ave plena gracia* set $\mu_{G\beta}$ into the extended *Dies irae* set $\kappa_{G\beta}$ (both illustrated above) on violins.[46] The fourth, after some time, is repeated statements of the *Worldes blis* melody on handbells, starting 'slowly and very quietly and gradual ***cresc. ed accel.***', '*freely, across the main tempo*'.

---

[45] Owens, '*Worldes blis* and its satellites', p. 29, Ex. 2.4 and p. 31 writes that this is a 'complete retrograde presentation' of ${}^3\omega_G$, but I have not been able to follow its elements in this counterpoint.

[46] Owens, *loc.cit.*, p. 35, writes of 'the transformation (in seven subunits) of $M_{G\beta}$ [$\mu_{G\beta}$] to the *Dies Irae* incipit', but although there is a clear retrograde statement of $\mu_{G\beta}$ in bars 641–648 and a similar one of $\kappa_{G\beta}$ in bars 725–729 (ending on the second violins only), I have not been able to trace the intervening subunits of the transformation. They may become clear on consultation of Davies's sketches in the British Library.

The *Cadence* is a compressed and verticalised summary of the generating material of the work. The piccolo, flutes and oboe, and the organ right hand play chords similar to those in *Development 3*. There is a whirling from the tuned percussion: the glockenspiel plays again and again the sieved version of *Ave plena gracia*, $\mu_{G\beta}$, fuori tempo, prestissimo, the handbells similarly the extended *Dies irae* version, $\kappa_{D\beta}$, and the tubular bells ω'_{C}. At the same time, the brass[47] and strings gradually build up (rather freely) $I\omega'_{A}$, which grows to a ***fff*** climax. Then, with a change of tempo from **Lento** to **Lentissimo**, the 'Death' chord is played in a minor-major version (D, F, E, G#: see above, *Chapter 2*, *Technical Devices*, *Death chord*) by low instruments, bass clarinet, bassoons and double bassoon, trombone and tuba, then horns, timpani, organ, with pedal, cellos and double basses. This in turn rises to a ***fffff*** climax, then stops, leaving the flutes and clarinets holding the original major version of the 'Death' chord (with F# instead of F), ***f***, fading to nothing.

The overall form of the whole piece is of great clarity, and Davies refers to 'a minimal presentation of the material in such a way as to make the structural bones of the music as clear as possible',[48] although it may be doubted whether this aim of maximum clarity is achieved.[49] Indeed, some time after the unsatisfactory reception of the work at its first performance, in a conversation with Paul Griffiths, Davies remarked '… that the public isn't aware of compositional processes I don't think is at all a thing to worry about, because it really is something that's only of interest to the

[47] Owens, *ibid.*, p.29, Ex. 2.4, has 'bass', but this must be a misprint.
[48] Davies, *loc. cit.*, p. 150.
[49] As far as the *First* and *Second Cantus* are concerned, perception of the transformations is made harder by the facts that even-numbered transformations are retrograded and that, as Roberts (*Compositional Techniques …* , p.321) writes, ' the compression of pitch-class 'span' of the middlemost portion makes the reconstruction of the composer's chart from actual set statements a tricky business. The exact shape of subunit 10 is especially open to debate', and by the decoration or 'colouring' of which Davies writes, mainly on the strings, in many other parts, some of which are faster-moving melodic lines, and all of which together sometimes tend to drown the transformations.

composer'.[50] Something which may be more easily perceptible in the work is suggested by Davies's advice to the listener, quoted above, 'to relate its architecture' to the landscape of Hoy. (Davies was later to give a similar allusion to the island of Hoy in his remarks on the slow, third, movement of his *First Symphony*, *q.v.*.)

Worldes blis shows further developments of the serial processes used in the *Second Fantasia*, both in the construction, from the five-note set σ, of the 17-note set ω, and in the more free use of transformation processes based on the latter, the interval→duration mapping used in conjunction with it and the oscillatory transposition of it in the *Development 1*.

Reception

There is one final important feature of *Worldes blis*, this time an external one, namely the history of its reception. The first performance was, as already mentioned,[51] something of a scandal (although not so much as that of *Le Sacre de Printemps*). Seabrook reported in 1994 that 'Whenever Max conducts a performance of *Worldes Blis*, he always prefaces it with a brief address to the audience, in which he remarks that at its Prom premiere, 'most of the audience walked out, and most who stayed booed'',[52] although this has something of the air of a story that has improved in the telling. The subsequent history of its reception, however, shows a turnaround. Pruslin, after remarking that 'The audience left in droves during its première at the 1969 Promenade Concerts', continues:

> after which it 'imploded' and became a cult secret. Those who knew it spoke in hushed tones of the dark, volcanic work that was surely one of its composer's most important statements. Gradually, that assessment has established itself and though, even now, the work demands enormous concentration, it is

[50] Davies, in 'Conversations with the Composer', *Part II* of Griffiths, *Peter Maxwell*, p. 116.
[51] Chapter 1, under *The audibility of Davies's serial procedures*. Davies has recently (*The Guardian, G2*, 16.06.09) described conducting the first performance at the Proms in 1969 as a 'low point': 'The orchestra hated it, the audience hated it, and the critics hated it.'
[52] Seabrook, *Max*, p. 113.

recognised as a landmark in Davies's output and in twentieth-century orchestral music overall.[53]

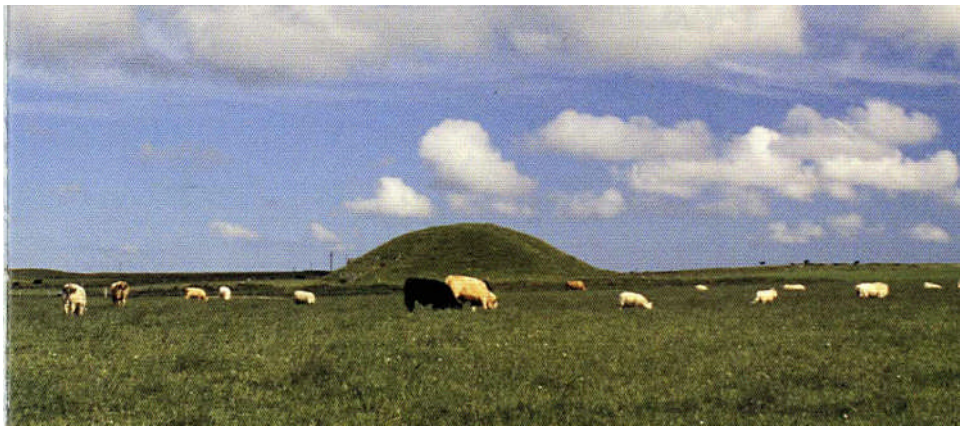
[53] Pruslin, Stephen, Extended Note II [on *Worldes Blis*], p.7.

CHAPTER 9: *STONE LITANY: RUNES FROM A HOUSE OF THE DEAD*

Context[1]

Since this is one of (many of) Davies's works inspired by Orkney,[2] it is appropriate to give some information about the texts it sets.

Maeshowe, in mainland Orkney, is a prehistoric cairn, dating from about 3000 B.C. It is not particularly remarkable from the outside, but is extremely impressive



Ill. 9.1 Maeshowe from the outside.

inside, with an entrance tunnel leading into the south-west wall of a central chamber, and side chambers in each of the other three walls.

[1] Information about the runic inscriptions of Maeshowe is from Barnes, Michael P., *The Runic Inscriptions of Maeshowe, Orkney*, (Institutionen för nordiska språk, Uppsala universitetet, 1994). The pictures of the outside and inside of the mound (Ill. 9.1 and 9.2) are from Ashmore, Patrick, *Maes Howe*, (HMSO, 2000), cover and p. 7. The picture of an inscription (Ill. 9.3) is from Davies's web-site maxopus.com, and shows the first two words of Barnes's inscription No. 23 (see Barnes Plates 57 and 58), which he transliterates **sia·hǫuhr** and transcribes *Sjá haugr*. The whole text, which is not set in *Stone Litany*, he translates as 'This mound was built before Loðbrók's. Her sons, they were bold; such were men, as they were of themselves' (Barnes, pp. 179, 183).

[2] For a list, see his web-site, maxopus.com.

Ill. 9.2 The central chamber of Maeshowe.

Sometime, virtually certainly in the period *c.* 1125-75, Viking crusaders, quite possibly going to or returning from the crusade of 1151-3, broke in and desecrated it with runic graffiti in Orkney Norn (a dialect of Old Norse). The site was excavated in

Ill. 9.3 A runic inscription in Maeshowe.

1861 by James Farrer, M.P., an amateur archaeologist, who, in 1862, published the first of very many (until recently) unsatisfactory editions of the runes. Stone Litany is a setting, for mezzo-soprano and orchestra, of about five of these runes.[3]

Although it is clear from Davies's comment (quoted in the preceding chapter) on *Worldes Blis* that the latter's '… methods lead directly into later larger works such as Hymn to *St. Magnus* and *Stone Litany*', it has not been possible, as it was not with *St. Thomas Wake*, to discover precisely how this takes place, the analysis of the piece, which is a kind of preliminary study for a symphonic slow movement (although the slow movement of the first symphony is very different), will therefore necessarily be very brief.

[3] The texts used by Davies deviate in places from the originals. First, a fully scholarly edition of the inscriptions, namely Barnes's *The Runic Inscriptions of Maeshowe, Orkney*, did not appear until 1994, some twenty years after *Stone Litany* was composed. Secondly, Davies himself has stated (Griffiths, *Peter Maxwell Davies*, p. 157) 'I have taken liberties with the settings, assuming that as the texts are in an extinct language … they will not readily be understood anyway.' One particular deviation is worth noting: the original of the text used in the last section reads '*Arnfiðr matr reist rúnar þessssar*, Arnfiðr food [sic] carved these runes', but Davies has replaced '*Arnfiðr matr*' by 'Makus Mattr' to make the text read 'Max the mighty carved these runes'.

Summary analysis table

Start – **[I]**–1	First orchestral section	Orchestra alone
[I]+1 – **[K]**–1	Setting of runic alphabet	Voice and orchestra
[K]+1 – **[P]**–1	Second orchestral section	Orchestra
[P]+1 – **[T]**–1	Setting of 'Ingkiborg hin fahra ahia … ' (Ingibjorg the fair widow …)	Voice and orchestra
[T]+1 –	Third orchestral section	Orchestra
[D1]+1 – **[O1]**–1		Voice and orchestra
[D1]+1 – **[F1]**–3	Setting of 'LOThBROKAR SYNER … ' (Lothbrokar's sons …)	
[F1]–3 – **[I1]**–1	Setting of 'IORSALAFARAR … ' (Jerusalem-travellers …)	
[I1]+1 – **[J1]**+4	Setting of 'UTNORThR … ' (In the north-west …)	
[J1]+5 – **[L1]**–2	Setting of 'SÆL ER SA ER … ' (Happy is he who …)	
[L1]–1 – **[O1]**–2	Setting of 'OKON ÆIN BAR … ' (Hǫkon alone carried …)	
[O1]+1 – **[T1]**–1	Fourth orchestral section	Orchestra
[T1]+1 – end	Setting of 'MAKUS MATTR RÆIST RUNAR ThÆSAR' (Max the Mighty carved these runes)	Voice and orchestra

The briefest of descriptions (and no serial analysis at all) will have to suffice here. After a very slow-moving, eerie, scenic introduction, the work is in arch-form, with a second orchestral section (followed by a setting of 'Ingibjorg the fair widow … ') and a fourth orchestral section flanking a longer central section of settings, the two outer (second and fourth orchestral) sections in their turn flanked by an initial setting of the runic alphabet and a final 'signature' setting of 'Max the Mighty carved these runes', all adjacent text-settings separated by orchestral sections. The longer central section (**[D1]**+1 – **[O1]**–1) consists of setting of five separate texts run together: the voice part is very elaborate, on two staves, the upper giving the Norn words, the lower virtuoso vocalic interjections. The whole is a moving evocation of Maeshowe, its prehistoric builders and the Vikings who broke into it.

PART IV: SYMPHONY NO. 1

CHAPTER 10: BASIC MATERIAL

Genesis

Davies did not set out to write a symphony: rather, the work grew on him. To do other than quote his exact words on this, to attempt a summary, would inevitably result in omission of essentials.

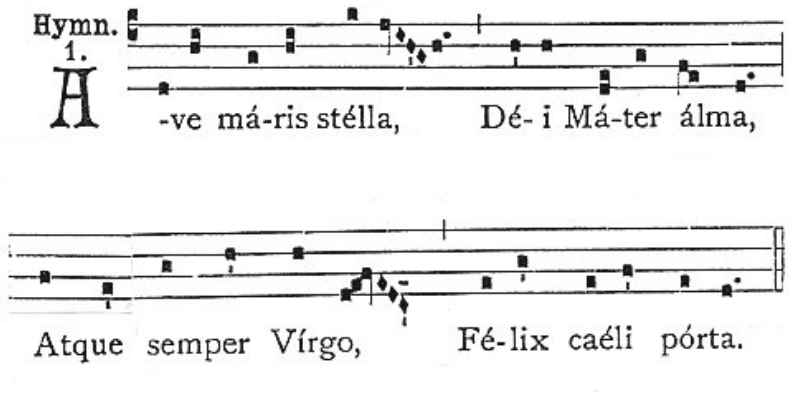
> When I started my symphony in 1973, I had no idea that that was what it would grow into. The Philharmonia Orchestra had commissioned an orchestral work for 1974, and I wrote a moderately long single movement, provisionally called *Black Pentecost*. The title was taken from the end of a George Mackay Brown poem (which I had set for soprano and guitar, a short time before[1]) concerning the ruined and deserted crofts in an Orkney valley:
>
> > *The poor and the good fires are all quenched.*
> > *Now, cold angel, keep the valley*
> > *From the bedlam and cinders of a Black Pentecost.*
>
> However, I felt very keenly that this single movement was incomplete, and withdrew it before performance. It was, as it were, budding and putting out shoots, and although I had firmly drawn a double barline, the music was reaching out across it, suggesting transformations beyond the confines of a single movement.
>
> Its next step was to become two movements in one—the existing movement compressed to become a short slow movement that changes into a kind of 'scherzo' (without the original tripartite formal connotations of the name, except as a 'ghost' in the form's far hinterland). This 'lento that becomes a scherzo' is now the second movement.
>
> Next, looking backward from it, the second movement's first chord sprouted a large new span of music, which eventually became the present first movement. The point of connexion is still aurally present, in that what is now the last chord of the first movement makes, retrospectively, the first chord of the second. The ending of the second movement was no conclusion, so a few months later a slow movement proper followed—and finally, in 1976, the concluding presto.[2]

[1] This is *Dark Angels* (1974, J. 174). Davies subsequently (1979) composed a different work which he called *Black Pentecost,* a cantata for mezzo-soprano, baritone and orchestra (J218), with texts taken from George Mackay Brown's novel *Greenvoe*.
[2] Davies, 'Symphony'.

Something which Davies does not mention should be added, namely that the technique of magic squares (see below), which does not seem to be used in the second movement, and was apparently invented after it was written, is used in all the other movements, although it is doubtful if this difference would be audible to a listener who had not been informed of it: the musical language seems very much the same over the four movements. Magic squares are thus absent from the second, but appear in the first, third and fourth movements: in rough parallel, but in the opposite direction, the plainchant is clearly audible in the second movement and similarly its opening phrase in the first movement, but thereafter becomes inaudible in the magic square underlying the rest of the first, and the third and fourth movements.

The plainsong

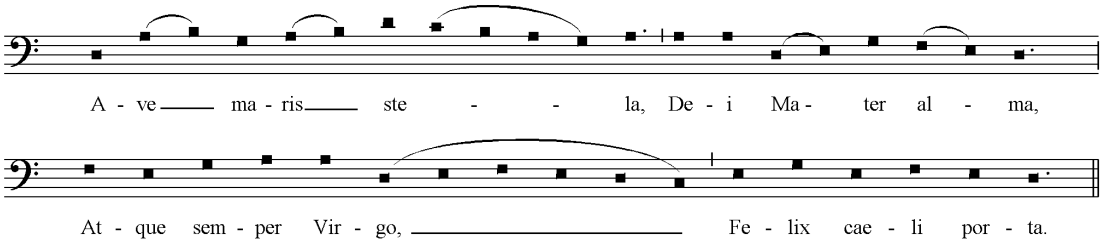
The plainsong underlying the first symphony is *Ave maris stella*:



Ex. 10.1 The plainsong *Ave maris stella (*Roman Catholic Church Liturgy and Ritual. Liber Usualis, *Liber Usualis Missae et Officii pro Domenicis et Festis, cum cantu Gregoriano*, Desclée, Paris, 1964, pp. 1259–1260).

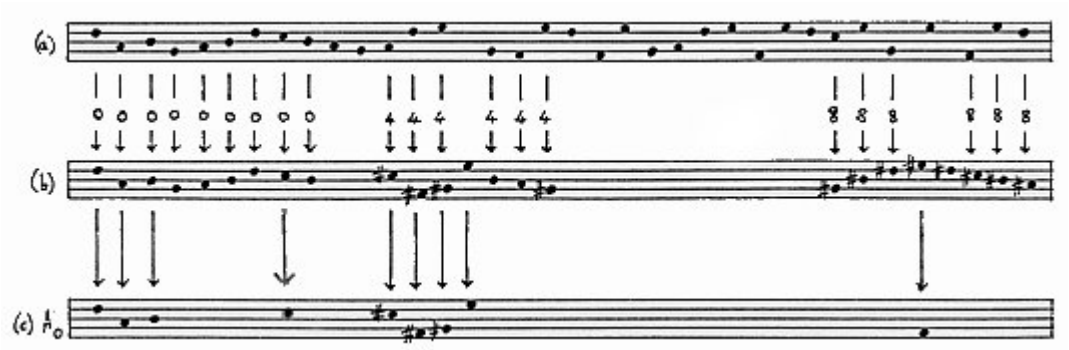
or, transcribed:[3]

[3] The transcription is from Roberts, *Techniques of Composition, Volume 2*, p. 101, Example 9.1: the ambiguity of the underlay at the word 'stella' is from this transcription.



Ex. 10.2 Transcription of Ex. 10.1

This plainsong is used to generate two melodic sequences, as shown in the following example:[4]



Ex. 10.3 Derivation of two melodic sequences from Ex. 10.2

Row (a) shows the chant as a succession of pitches (with some octave displacements, and omitting immediate repetitions of pitches).

Row (b) divides the chant into three sections: the pitches of the first, corresponding to the words ‘Ave maris stella’, is transcribed verbatim (omitting the final A and G); the pitches of the second, corresponding to ‘Dei mater alma’, are raised a major third (and an E is inserted between the resulting G# and B); the pitches corresponding to ‘Atque semper Virgo’ (save for the final C) are omitted, and the

[4] Modified from Roberts, *ibid., Volume 2,* p. 101, Example 9.4. (The omission by Roberts of the C in row (c) has been corrected.)

pitches of third section, corresponding to 'Felix caeli porta', are raised by two major thirds, *i.e.* an augmented fifth. (Note another instance of *übergreifende Form*: just as the chant is trisected, so the intervals of a major third and an augmented fifth trisect an octave.) The resulting sequence of pitches, in which *Ave maris stella* can still be heard:

D, A, B, G, A, B, D, C, B [Y]

C#, F#, G#, E, B, A, G#;

G#, B#, D#, E#, D#, C#, B#, A#,

generate the alto flute theme which opens the second movement.

Row (c) is obtained from row (b) by means of what Roberts terms a 'first-only sieve',[5] *i.e.* pitches are only given on their first occurrence. (Some other pitches are omitted as well: the G in the first section, and the D# and A# in the third.) The resulting sequence of nine pitches, D, A, B, C, C#, F#, G#, E, F, is used to generate the 'magic square' (see below) which dominates the symphony.

The magic square

Between the composition of the second movement (the first to be composed) of the first symphony and the remaining movements, Davies invented a second type of serial structure, which he called 'magic squares': he used the same magic square first in *Ave maris stella*, an intense nine-movement piece for chamber ensemble (1975: J187), then in the *Three Studies for Percussion*, for young performers (also 1975: J193), the final movement of *Anakreontika*, for soprano and small ensemble (1976: J197), the *First Symphony* (1976: J198) itself, the chamber opera *The Martyrdom of St*

[5] Roberts, *ibid.*, p. 60 (Ch. 2) and frequently thereafter.

Magnus (also 1976: J199),[6] and as well *The Door of the Sun*, for viola solo (1975: J189), *The Kestrel Paced Round the Sun*, for flute solo (1975: J190) and *The Seven Brightnesses*, for clarinet solo (1975: J191)[7].

What a magic square is for Davies may be illustrated by the one used in the symphony.[8] This can be seen to consist of a 9 × 9 square, each of whose cells

[6] Roberts, *ibid.*, Vol. 1, Pt. 2, p. 356. This square is given in Davies's *Ex Libris* sticker, reproduced at the beginning of the score of *Ave maris stella*, although there are errors in its magic square: from the beginning of the sixth row to the first two cells in the ninth row, pitches are a tone or a semitone too high. (There is also a text, apparently by Davies, describing his situation in Bunnertoon, in his classical Greek.)

[7] Owens, Peter, '*Worldes Blis* and its Satellites', p.27.

[8] Roberts, *ibid.*, Vol. 1, Pt. 2, Chapter 9: Magic Squares, pp. 336–369.

C# 1	F 6	C 2	E 7	B 3	G# 8	A 4	F# 9	D 5
A 6	G# 2	C 7	G 3	B 8	F# 4	D# 9	E 5	C# 1
D# 2	B 7	A# 3	D 8	A 4	C# 9	G# 5	F 1	F# 6
G 7	E 3	C 8	B 4	D# 9	A# 5	D 1	A 6	F# 2
G 3	G# 8	F 4	C# 9	C 5	E 1	B 6	D# 2	A# 7
D# 8	C 4	C# 9	A# 5	F# 1	F 6	A 2	E 7	G# 3
A# 4	F 9	D 5	D# 1	C 6	G# 2	G 7	B 3	F# 8
D 9	F# 5	C# 1	A# 6	B 2	G# 7	E 3	D# 8	G 4
G# 5	D# 1	G 6	D 2	B 7	C 3	A 8	F 4	E 9

contains a pitch and a whole number between 1 and 9. The numbers may be, but are not always, used to determine the lengths of pitches (more precisely, the intervals between the attacks of successive pitches), in terms of some convenient unit, and are arranged in such a way that each row, and each column, contains each of these numbers.

Davies is eloquent on the importance of magic squares in his music:

> The matrix becomes workable, meaningful and luminous, demonstrating naturally generative symmetrical patterns, inverted figures and so on, in whichever dimension you choose to project the square – rhythmic note-value or pitch. A magic square in a musical composition is not a block of numbers – it is a generating principle, to be learned and known intimately, perceived inwardly as a multi-dimensional projection into that vast (chaotic!) area of the internal ear – the space/time crucible – where music is conceived. Heard from one angle, magic square patterns can be meaningless: shift the point of listening, and out of the chaos emerges sense; shift it again, and it blurs; shift it once more, and the patterns are again meaningful, but differently. Projected onto the page, a magic square is a dead, black conglomeration of digits;

> tune in, and one hears a powerful, orbiting dynamo of musical images, glowing with numen and lumen.[9]

This justifies a more detailed description of the square. First, the sequence of pitches in the top row – C#, F, C, E, B, G#, A, F#, D – which is a permutation of the sequence D, A, B, C, C#, F#, G#, E, F of some of the pitches from the version of the plainsong *Ave maris stella* stated by the alto flute at the opening of the second movement (see row (c) of the last figure of the preceding section),[10] is an easily grasped melodic pattern: two rising major thirds, each followed by a falling perfect fourth, with the second fourth followed by a falling minor third, so that these three pitches become a first inversion of a major triad, which is followed by a root position major triad[11]. Those in each subsequent row are those in the row above moved one cell to the right (with what was the pitch in the last cell becoming that in the first), but transposed. (No such regularity in the sequences of pitches in the columns has, however, been detected.)

Secondly, the duration numbers in every row and every column consist of each of the integers from 1 to 9 in an easily grasped pattern,[12] and those in each row are those in the row above moved one cell to the left (with what was the integer in the first cell becoming that in the last), so that the durations in each top-right to bottom left diagonal are the same. Thirdly, because the pitches are moved to the right and the durations to the left, there is no regular relationship between the durations and the pitch-classes in the square.

---

[9] Davies, Peter Maxwell, 'Four Composition Questions Answered', p. 4.
[10] The derivation of this magic square from the plainsong is fully explained by Roberts, *ibid.*, Chapter 9, Magic Squares, in particular pp. 342–346, and will not be repeated here. (Although the derivation of this sequence of pitches from the plainchant is perfectly clear on paper, it is so remote, involving selection, transpositions and then a permutation, that it seems inconceivable that the relationship could be heard.)
[11] See Lester, Joel, 'Structure and effect in *Ave Maris Stella*', in *Perspectives on Peter Maxwell Davies*, Ed. Richard McGregor (Ashgate, Aldershot, 2000), p. 69.
[12] 1, 1+5, 2, 2+5, 3, 3+5, *etc*.

This magic square has pitch-sequential, rhythmic and harmonic potential. Although melody is usually thought of as comprising both a sequence of pitches and an associated rhythm, with this magic square the pitch sequences and rhythm function separately and, as just remarked, there is no regular relationship between the two, so that they will be discussed separately.

Pitch-sequences

With transposition squares and transformation processes there is little freedom in the path which can be taken through the square or rectangle: only trivial deviations are possible. The sequence of rows must be taken in direct or reverse order, otherwise the former will no longer be a transposition square and in the latter the transformation process will be disturbed: further, each row must normally be taken either prime or retrograde, although a boustrophedon order is possible. As mentioned above (*Chapter 1*), magic squares, however, offer a much greater diversity in unity.

Pitch-sequences are generated by taking paths through the square. Indeed, the potential of the square will be seen to be much greater than that of the classical dodecaphonic serial note-row, which can (essentially, *i.e.* considering transpositions as the same series) only generate four distinct series: prime, inversion, retrograde and retrograde inversion, and even these may not all be different; if the prime is a transposition of the retrograde,[13] or of the retrograde inverse,[14] then there will be only two distinct series.

There are two broad classes of magic square paths, straight-line paths and spiral paths.

[13] As, for example, in Webern's *Symphony*, Op. 2.
[14] As in Webern's *String Quartet*, Op. 28, his *Cantata I*, Op. 29 and his *Variations for Orchestra*, Op. 30: for this and the previous footnote, see Bailey, *The twelve-note music of Anton Webern: old forms in a new language* (Cambridge University Press, Cambridge, 1991), p. 336.

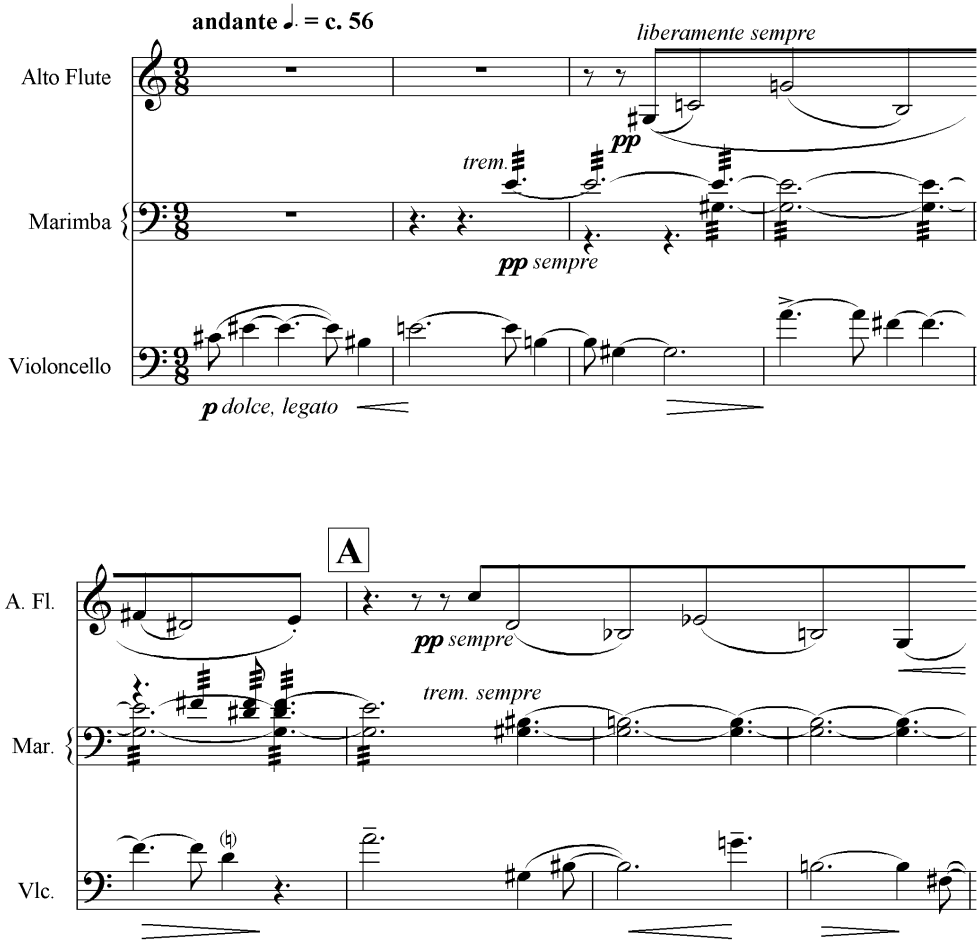
Straight-line paths

These may be horizontal, vertical, or diagonal. In the symphony, there is also a variety of paths derived from three-element horizontal line segments.

Horizontal line paths

The simplest of these is the path through the rows from left to right, each row in turn from top to bottom (as in reading a page of text). This was used at the beginning of Davies's very first composition based on magic squares: in the first movement of *Ave maris stella* (1975: J187), the cello plays this path through the square just illustrated (with the unit of time a quaver). (As already mentioned, both here, and in all that follows, the numbers in the cells, when used to indicate duration, signify inter-onset intervals, *i.e.* a rest immediately following a note in a path through the magic square counts towards the duration of that note.) Thus the first note comes from the top left-hand cell and is a single-quaver C#, the second from the second cell in the first row and is a six-quaver F (spelt E#), *etc*. (The marimba picks out certain notes of the melody to make sustained chords, and the first seven notes of the alto flute part are a melisma on the cello G# derived from the middle seven pitches of the second row of the square.)[15] In such a path the melodic pattern in the rows of this square (described above) is clearly evident, particularly if, as here, the path is broken up into row-long segments separated by rests.

[15] Roberts, *ibid.*, Vol. 1, Pt. 2, Chapter 9: Magic Squares, pp. 347–348: McGregor, Richard, 'Star Square and Circle: aspects of compositional process in Peter Maxwell Davies's *Ave Maris Stella*', paper presented at a conference on Sir Peter Maxwell Davies in Manchester, 2004.



Ex. 10.4 The opening of *Ave maris stella*.

Another horizontal line path through the square is what might be called a 'boustrophedon' path, *i.e.* one through the rows in turn from top to bottom, the first row from left to right, the second from right to left, and so on alternately. This does not seem to occur in the *Symphony*, but in section V of *Ave maris stella* a boustrophedon path through the square is twice given by flute and clarinet, playing alternate lines in counterpoint (with some irregularities in the first, second, third and last lines).[16]

[16] Roberts, *ibid.* Vol. 1, Pt. 2, p. 353, Figure 9.8.

Vertical line paths

These do not seem to occur in the *Symphony* (but one does in the second movement of the *Second Symphony*). Since all columns of this square contain quite different intervals, with such a path through this square, there would be no evident melodic pattern analogous to that through the rows.

A vertical version of the 'boustrophedon' path, reading up the last column, down the next to last, and so on alternately occurs in section III of *Ave maris stella*.[17]

Diagonal line paths

These may start from any one of the four corners of the square: they then take successive diagonal segments, which may be upward or downward, across it to the opposite corner. For example, starting in the top left corner and taking the diagonal segments upwards gives the path starting:

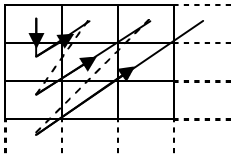


Fig. 10.1 A diagonal path

The terminology which will be used to refer to these paths assigns Greek letters to the corners of the square where the path starts, as shown in the following diagram:

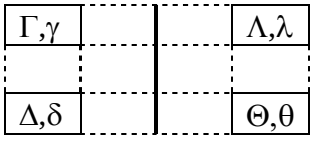


Fig. 13.2 Nomenclature of diagonal paths

[17] Roberts, *ibid.* Vol. 1, Pt. 2, p. 350, Figure 9.6.

A capital letter indicates a path with downwards diagonal segments and a lower case letter to one with upwards diagonal segments, and one which alternates between upward and downward segments by a lower case letter and a capital letter separated by a forward slash. Thus, the path illustrated above will be referred to as γ and the one beginning the same way but then alternating segments as γ/Γ. With this particular magic square, both of γ and Γ have a special rhythmic feature which will be discussed below (see under *Rhythm*, *Diagonal paths*). The path γ is played by the solo first and second violins in the Transition of the first movement (from **[16]** to **[21]**–1), and the path g/Γ by the double bases in the Development of the same movement (in fact, from **[22]**+5 to **[27]**–3).

Λ also has a special feature. Joining together the first and tenth segments, and similarly the second and eleventh, *etc.*, up to the eighth and seventeenth, and the ninth (by itself), gives the pattern:

D 5	A 6	B 7	C 8	C# 9	F# 1	G# 2	E 3	F 4
F# 9	C# 1	D# 2	E 3	F 4	A# 5	C 6	G# 7	A 8
A 4	E 5	F# 6	G 7	G# 8	C# 9	D# 1	B 2	C 3
G# 8	D# 9	F 1	F# 2	G 3	C 4	D 5	A# 6	B 7
B 3	F# 4	G# 5	A 6	A# 7	D# 8	F 9	C# 1	D 2
E 7	B 8	C# 9	D 1	D# 2	G# 3	A# 4	F# 5	G 6
C 2	G 3	A 4	A# 5	B 6	E 7	F# 8	D 9	D# 1
F 6	C 7	D 8	D# 9	E 1	A 2	B 3	G 4	G# 5
C# 1	G# 2	A# 3	B 4	C 5	F 6	G 7	D# 8	E 9

(The duration numbers have been included for reference below under *Rhythm*.)

The first row is the sequence of pitches derived by a 'first-only sieve' of the plainsong *Ave maris stella* played by the alto flute at the opening of the second movement (from which the magic square was constructed, and of which the first row of the magic square is a permutation), and the remaining rows are transpositions of it.[18] For some reason, this path, in which this sequence (underlying the whole symphony) is immanent, does not appear to occur in it.

Paths derived from three-element row segments

Since $9 = 3 \times 3$, the square may be subdivided into three blocks, each block consisting of three rows of three columns each , thus

Q	S	T
U	V	W
X	Y	Z

or, more fully, with the three-element rows numbered from 1 to 27,

[18] Roberts, *ibid.*, Vol. 1, Pt. 2, pp. 346–347 and Vol. 2, p. 101, Example 9.4. In fact, Davies omits a G in the first section of the series and B# (= C), D# and A# in the third. (Roberts's omission of the A in the fourth place of the series has been made good.)

Q	S	T
1 C#1, F6, C2	4 E7, B3,G#8	7 A4, F#9, D5
2 A6, G#2, C7	5 G3, B8, F#4	8 D#9, E5, C#1
3 D#2, B7, A#3	6 D8, A4, C#9	9 G#5, F1, F#6
U	V	W
10 G7, E3, C8	13 B4, D#9, A#5	16 D1, A6, F#2
11 G3, G#8, F4	14 C#9, C5, E1	17 B6, D#2, A#7
12 D#8, C4, C#9	15 A#5, F#1, F6	18 A2, E7, G#3
X	Y	Z
19 A#4, F9, D5	22 D#1, C6, G#2	25 G7, B3, F#8
20 D9, F#5, C#1	23 A#6, B2, G#7	26 E3, D#8, G4
21 G#5, D#1, G6	24 D2, B7, C3	27 A8, F4, E9

Paths through the square may then be constructed from the three-element segments in each cell, which are labelled by numbers from 0 to 27 in the table (as well as given explicitly). For paths taken forwards, the number will be preceded by P, and for those taken backwards by R.

Such paths occur throughout the exposition, bridge and transition of the first movement of the symphony. From **[1]**+10 to **[8]**–1 the marimba plays through each block in reading order (*e.g.* in block Z, P25, P26, P27, which will be denoted PZ) taking the blocks in reverse order: PZ, PY, PX, PW, PV, PU, PT, PS, PQ. From **[8]**+1 to **[16]**–1 the cellos, then later the piccolo and flutes, play the retrograde (with one variation) of this path (ornamented by flourishes at the ends of phrases): PQ, RS (*i.e.* R6, R5, R4), PT, PU, PV, PW, PX, PY, PZ. Then, from **[16]**+1 to **[21]**–1, three different paths are played simultaneously. The first, for piccolo and first flute

alternately, in the new order P1, P25, P13, P17, *etc.*, which will by more fully discussed in the analysis of the movement. The second, for glockenspiel, crotales and harp, plays, PQ, PS, PT, P16, PU, PV, P17, P18, PX, PY and PZ, in various different ways which use only the sequence of pitches prescribed by the square and disregards the durations. The third, for violas and cellos, plays the three-element segments in another new order, roughly the retrograde of that used for the first path, but this time not melodically at all but, again disregarding the durations, harmonically, to build up triads.

Spiral-related paths

There is a number of these, ranging from pure spirals to less and less regular patterns.

Pure spirals

There are eight possible prime and retrograde (inward and outward) pairs of pure spiral paths through the square,[19] since the spiral may be clockwise or anticlockwise, and any of the four corners of the square may be used as one terminus of the spiral (the other being the centre cell of the square), but only one of these is used, as shown in the following square, where the spiral path is indicated by thick lines.

[19] More precisely, approximations to spiral paths by sets of paths through borders of centred sub-squares of the square.

C# 1	F 6	C 2	E 7	B 3	G# 8	A 4	F# 9	D 5
A 6	G# 2	C 7	G 3	B 8	F# 4	D# 9	E 5	C# 1
D# 2	B 7	A# 3	D 8	A 4	C# 9	G# 5	F 1	F# 6
G 7	E 3	C 8	B 4	D# 9	A# 5	D 1	A 6	F# 2
G 3	G# 8	F 4	C# 9	C 5	E 1	B 6	D# 2	A# 7
D# 8	C 4	C# 9	A# 5	F# 1	F 6	A 2	E 7	G# 3
A# 4	F 9	D 5	D# 1	C 6	G# 2	G 7	B 3	F# 8
D 9	F# 5	C# 1	A# 6	B 2	G# 7	E 3	D# 8	G 4
G# 5	D# 1	G 6	D 2	B 7	C 3	A 8	F 4	E 9

This path will be designated P-0, and occurs in the first part of the development section of the first movement, starting at [20]+1, where the bassoon and double bassoon play an outward anti-clockwise spiral path through the square, starting with the central C5 (the unit of duration is a crotchet), then moving outwards through C#9, A#5, F#1, F6, E1 to the C#1 (*i.e.* the top left corner of the square) on the last beat of **[27]**–2.

This spiral really comes into its own, however, in the third and fourth movements, which are both, in different ways, largely based on it.

Spiral segments

In the first, third and fourth movements, the spiral also appears as segments, both of it and of its retrograde, R-0, which occur respectively at **[**30**]**+1, and **[**33**]**+1, where the strings play in counterpoint such segments.

Two irregularly expanding patterns

From **[27]**+1 to **[30]**–1 (*q.v.*) the first trombone plays an irregularly expanding path through the square which has spiral elements and from **[46]**+1 to **[49]**-1 (*q.v.*) the middle strand of layered quodlibet counterpoint, consists of another irregularly expanding pattern.

Rhythm

There are several instances of the rhythmic potential of this magic square (although not necessarily of other magic squares), but it should first be remarked that the kinds of rhythm to be found in Davies's music are not like those described by Cooper and Meyer.[20] Indeed, as long ago as Davies's stay in Princeton (1962–4), Sessions is reported to have remarked that 'he would have said that the answer [to the question of whether it was possible to eliminate the sense of pulse and still have musical discourse] was that it was impossible until he had heard Max's *Sinfonia*, which he had found, to his surprise, pulseless but convincing'.[21]

Row and column paths

Unlike the pitch-sequence generated by these paths, which is essentially the same for all rows of the square but different for each column, both rows and columns generate circular permutations of the duration-sequence

1, 6, 2, 7, 3, 8, 4, 9, 5

which is clear enough visually when thus represented, but will be harder to hear.[22]

Diagonal line paths

The following rhythmic patterns are found. (The nomenclature given above, under *Pitch-sequences*, will be used.)

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[20] Cooper, Grosvenor and Meyer, Leonard B., *The Rhythmic Structure of Music*, (University of Chicago Press, Chicago, 1960).
[21] Seabrook, *Max*, p. 70.
[22] Unless the listener counts. Although performers often need to count, it seems a trifle excessive to expect this of listeners.

γ and Γ: The durations in both these paths (the former of which, as mentioned above under *Pitch-sequences*, is played by the solo first and second violins from **[16]** to **[21]**–1 in the first movement) have the pattern:

1;
6,6;
2,2,2;
7,7,7,7;
etc.

so that these two paths generate a rhythm in which, after the first pitch, of duration 1, there are sequences of pitches, of first increasing then decreasing length, with the same duration, first two of duration 6, then three of duration 2, *etc*., up to nine of duration 5, then step by step down to two of duration 8, and finally a single pitch of duration 9.[23]

λ and Λ: These give rise to segments, of first increasing and then decreasing length, in which the durations decrease to 1 and then from 9 (λ) or increase to 9 and then from 1 (Λ):

λ	Λ
5	5
1,9	9,1
6,5,4	4,5,6
2,1,9,8	8,9,1,2
etc.	*etc.*

Indeed, if the first and tenth segments are joined, then the second and eleventh, *etc.*, as when Λ was examined under *Pitch-sequences*, then the duration numbers given in the table there are obtained: each row contains a circular permutation of the natural order of the integers from 1 to 9, but a different permutation for each row, so that there is, again, no regular relationship between pitches and durations.

[23] In fact, in bar **[16]**+1, the second and third durations, although still adding up to12, are not 6 and 6 but 7 and 5. (I am grateful to Dr Peter Elsdon for pointing this out.) On such deviations by Davies from strict adherence to his series, see the fourth point on such series in *Chapter 1* above.

Three-element row segments

Since the sequences of duration numbers in the rows are cyclic permutations of one another, the three-element row segments generate only nine distinct rhythmic patterns: one of these (cells 8, 14 and 20 in the table given above under *Paths derived from three-element row segments*) is the decreasing sequence of durations 9, 5, 1; four are amphibrachs, in the rhythm "˘ — ˘;[24] and four are in the opposite amphimacer rhythm, — ˘ —:

amphibrachs		amphiacers	
(1, 16, 22)	1,6,2	(9, 15, 21)	5,1,6
(3, 18, 24)	2,7,3	(2, 17, 23)	6,2,7
(5, 11, 26)	3,8,4	(4, 10, 25)	7,3,8
(7, 13, 19)	4,9,5	(6, 12, 27)	8,4,9

There are four sets of each type, adjacent sets in the table differing by one duration unit in each component. (Each of these rhythms is decelerated, *i.e.* the last duration is one unit longer than the first: if retrograded, they are accelerated.)

Spiral-related paths

As already seen (footnote under *Pitch sequences*, *Spiral-related paths*) pure spirals are approximated by sets of paths through borders of centred subsquares of the square. It has already been seen that each horizontal and vertical segment of such a path has some internal rhythmic structure (the easily grasped pattern 1, 1+5, 2, 2+5, 3, 3+5, *etc.*). Further, every such path as a whole involves a sequence of durations and its retrograde (overlapping in the middle cell of the path): for example a clockwise

[24] Strictly speaking, this represents a pattern of unstressed and stressed syllables, but here, following Cooper and Meyer, *ibid.*, p. 6, it is used to denote a pattern of short and long notes.

path, starting in the top left corner, through the border of the centred 3 × 3 square has the sequence of durations 4,9,5,1,**6**,1,5,9, 4 (the middle cell is printed in bold) and the similar path through the border of the centred 5 × 5 square has the sequence 3,8,4,9,5,1,6,2,**7**,2,6,1,5,9,4,8,3. The borders of the two larger squares start to show also some repetitions: that of the 7 × 7 centred square has the sequence 2,7,3,8,4,9,5,1,6,*2,7,3*,***8***,3,7,2,6,1,5,9,4,*8,3,7,2* (where repeated subsegments are italicised), and that of the centred 9 × 9 square has the sequence 1,6,2,7,3,8,4,9,5,*1,6,2,7,3,8,4*,**9**,4,8,3,7,2,6,5,*9,8,3,7,2,6,1*. Thus pure spirals contain several levels of structured rhythmic sequences. With spiral segments, long or short, such structures will be less perceptible, and with an irregularly expanding pattern they will not be evident.

The overall audibility of structure in magic square paths

Different pitch-sequence and rhythmic magic square patterns are audible to different degrees. Horizontal paths have a pattern of pitch-sequences, vertical ones do not, diagonal paths may have none, or may have a different one. Spiral paths, in particular, have one in their horizontal segments but not in their vertical segments, making comprehensible Davies's remark:

> Heard from one angle, magic square patterns can be meaningless: shift the point of listening, and out of the chaos emerges sense; shift it again, and it blurs; shift it once more, and the patterns are again meaningful, but differently.[25]

but the less regular the spiral path, the less evident will any pattern be. Similar remarks, *mutatis mutandis*, are true of rhythmic patterns. Of course, audibility will be affected by other factors as well: whether or not a path is prominently orchestrated, the amount of other simultaneous musical activity, and speed (the pattern in paths played very slowly or very fast, both of which occur, will tend to be less audible).

[25] See the quotation above.

Harmony

The mere performance of any complete path whatsoever through the square will, since (unlike in dodecaphonic serialism) different pitches occur with different frequency, impart a general harmonic colouring to the music, as may be seen from the following table:

Pitches	No. of onsets	Total duration of all onsets
C#, D, F, G, A, A#	6	30
C, E, F#	7	35
D#, G#, B	8	40

(The total duration is, for all pitches 5 times the number of onsets.) There is a slight but clear regularity here: attacks and durations are very evenly distributed, with a slight over-representation of D#, G# and B (none of which are the tonal centres or 'dominants' given by Davies[26] for any of the first three movements: in the last movement, the magic square is transposed by a tritone, so that the tonic F becomes one of the three most frequent pitches but the 'dominant' Dβ is one of the six least frequent), and there is a slight under-representation of C#, D, F, G, A and A# (all but G and A of which are such tonal centres or 'dominants').

Triads

It has already been mentioned that from **[16]**+1 to **[21]**–1, three-element segments of the square are used harmonically (disregarding the durations), to build up triads (see above, *Paths derived from three-element horizontal row segments*). These simultaneities or chords, prefixed by the letter 'H' (to indicate their purely harmonic function), are shown in the following table. They are given in Forte's notation, as an

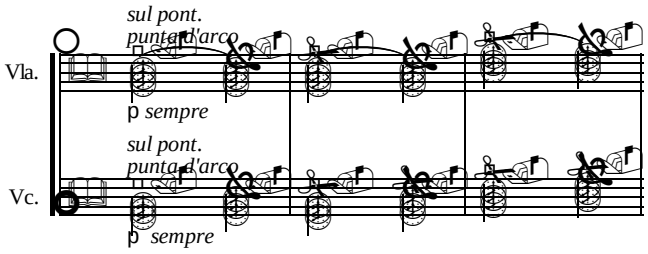
[26] Davies, 'Symphony'.

initial pitch, denoted by '0' and the numbers of semitones of the other two pitches above it.[27]

H1 0,1,5	H4 0,4,7	H7 0,4,7
H2 0,1,4	H5 0,1,5	H8 0,2,3
H3 0,1,5	H6 0,4,5	H9 0,1,3
H10 0, 4, 7	H13 0, 1, 5	H16 0, 4, 7
H11 0,2,3	H14 0,1,4	H17 0,1,5
H12 0,1,3	H15 0,1,5	H18 0,4,5
H19 0,4,7	H22 0,4,7	H25 0,1,5
H20 0,1,5	H23 0,2,3	H26 0,1,4
H21 0,4,5	H24 0,1,3	H27 0,1,5

Since there are nine cells in each row of the square at most nine distinct triads can be formed by taking the pitches of three consecutive cells: in fact there are only six, of which four, (3-2) and (I 3-2), and (3-4) and (I 3-4) are pairs of inversions. It will be seen that with the exception of 0,4,7, (I 3-11), which is a major triad, all the triads contain a semitone. This gives rise to a characteristic two-part harmonic figure in which one pitch is held whilst the other moves by a semitone, *e.g.* in bars **[16]**+2 to **[16]**+4:

[27] Forte, Allen, *The Structure of Atonal Music*, (Yale University Press, New Haven, 1973), Appendix 1, pp. 179–181. They are not given as their Forte 'prime forms', since this would not contribute to any harmonic analysis: in particular, Forte treats a chord and its inversion, *e.g.* a major and a minor triad, as the same. The tables in Rahn's admirable book (Rahn, John, *Basic Atonal Theory*, Longman, New York, 1980), are not, in this respect, superior.



Ex. 10.5 Characteristic two-part harmonic figure,

(These are the H24, H12, H9, … , part of the third path mentioned, but not specified, mentioned above under *Paths derived from three-element row segments*.[28] This figure is frequently found in the symphony, *e.g.* in the piccolo and flute parts in the opening of the third movement.)

Larger chords

Occasionally, 3 × 3 subsquares of the square are used harmonically to build up larger chords, which will be similarly prefixed by the letter 'H'. There are nine of these, all distinct. Because of duplications of pitches within the subsquare, six (HQ, HS, HT, HV, HW and HX) are of eight notes eight notes, two (HU and HZ) are of seven notes and one (HY) is of six notes.

Precursors and evolution of the magic square

There are two aspects of this magic square which must be considered, the arrangement of pitches in the cells, and the superimposed arrangement of durations. The former clearly has its precursors firstly in the tables of transpositions used by Schoenberg, Webern and Berg, particularly in the form given to them by Boulez and the transposition squares used by Davies in *Prolation*, the *First Fantasia* and the *Sinfonia* (see above, Chapters 3 and 4). The new element is the successive cyclic

[28] The path then becomes a little harder to follow: see below the section on this passage in the analysis of the first movement.

rotation of halves (hexachords') of rows, a device used by Stravinsky in his all his music from *Movements* for piano and orchestra onwards,[29] in which each half of the twelve-tone series (hexachord) is rotated in a similar way. For example, that used in *A Sermon, a Narrative, and a Prayer* is shown in the first row of the following table: the second pitch in each row becomes the first in the following row, and then all rows are transposed to start on Eβ.

Eβ	D	Gβ	E	F	Aβ
Eβ	G	F	Gβ	A	E
Eβ	Dβ	D	F	C	B
Eβ	E	G	D	Dβ	F
Eβ	Gβ	Dβ	C	E	D
Eβ	Bβ	A	Dβ	B	C

This precursor has in its turn a precursor in Křenek's *Lamentatio Jeremiae Prophetae* (1941, but only published in 1957), as mentioned by the composer himself,[30] and pointed out by Hogan.[31]

The other aspect of Davies's square, the superimposed arrangement of durations, also shows a clear evolution. It has been seen that he has from the start been concerned with the serialisation of not just pitches but also of duration (see

[29] Straus, Joseph N., 'Stravinsky the serialist', Ch. 8, pp. 149–174 in: Cross, Jonathan (ed.), *The Cambridge Companion to Stravinsky*, (Cambridge University Press, Cambridge, 2003), pp. 163, 165-168.
[30] Křenek, Ernst, 'New Developments of the Twelve-Tone Technique', *Music Review*, (1943), pp. 81–97, Krenek, Ernst, 'Is the Twelve-Tone Technique on the Decline?, *Musical Quarterly*, Vol. XXXIX, No. 4 (October, 1953), pp. 513–527, 'Extensions and Limits of Serial Techniques', *Musical Quarterly*, Vol. 46, No. 2, (April 1960), pp. 210–232.
[31] Hogan, Clare, ''Threni': Stravinsky's 'Debt' to Krenek', *Tempo*, 141 (1982), pp. 22–29.

above, *Chapter 3* under *Serialisation of duration* and *Chapter 5* under *Transformation of durations*). Here he started with the magic square of the moon:

37	78	29	70	21	62	13	54	5
6	38	79	30	71	22	63	14	46
47	7	39	80	31	72	23	55	15
16	48	8	40	81	32	64	24	56
57	17	49	9	41	73	33	65	25
26	58	18	50	1	42	74	34	66
67	27	59	10	51	2	43	75	35
36	68	19	60	11	52	3	44	76
77	28	69	20	61	12	53	4	45

which was processed by replacing each number by its remainder on division by 9 (except that numbers divisible by 9 without remainder are replaced by 9):

1	6	2	7	3	8	4	9	5
6	2	7	3	8	4	9	5	1
2	7	3	8	4	9	5	1	6
7	3	8	4	9	5	1	6	2
3	8	4	9	5	1	6	2	7
8	4	9	5	1	6	2	7	3
4	9	5	1	6	2	7	3	8
9	5	1	6	2	7	3	8	4
5	1	6	2	7	3	8	4	9

so that the square is no longer a magic square (containing all the integers between 1 and $9^2 = 81$, whose row sums, column sums and the sums on the two main diagonals are all the same) but a Latin square, each row and column of which contains the numbers from 1 to 9 in some order. (Davies's name for it will, however, be retained.) This Latin square is then superimposed on the processed transposition square to obtain the magic square used in the *First Symphony* and related works. This device of superimposing a square of durations on a square of pitches has a predecessor in the certain works of Messiaen, who in a subsection of his *Cantéyodjayâ*, in the second of his *Etudes de rhythme*, namely *Mode de valeurs et d'intensités* (dated 'Darmstadt –

1949’), associated, in a modal, not a serial way, durations (and other parameters which are not used by Davies), with pitches (here *not* pitch-classes).

CHAPTER 11: THE SYMPHONY

First Movement

The Composer's Comments

> The first movement, an allegro, opens with brass chords and pizzicato strings outlining the basic harmonies from which the whole structure stems. The argument proper starts with the timpani strokes—F, Aβ, G, G, Gβ.[3] Although it has the ghost of a sonata form somewhere behind it, there is no first or second subject material as such, and any 'development' consists of transformation processes. These processes are various, and precisely definable according to their position and function in the overall scheme—but as yet there is no common vocabulary to describe such processes, nor to describe the harmonic processes unifying the transformations. However, the transformation processes themselves should ideally make immediate musical sense and be aurally satisfactory†… .
>
> Suffice it to say that there are magic squares involving pitches, note-values and large time-spans—which not only serve to bring about the gradual transformation of certain plainsongs into others,[4] but also to form large-scale interlocking isorhythmic cycles. Immediately hearable, I hope, will be the pivotal tonal centre of F, with a 'dominant' D flat—remembering that the musical structure is related to mediaeval techniques, where a modal 'dominant' is not necessarily a fourth or a fifth away from the 'tonic'. Moreover the voice or part which unifies the harmony is not necessarily a bass line, but often a 'tenor' which usually has long notes, and the harmony is understood upwards or downwards from this. Consequently a

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[3] In fact, in the score, **[1]**+10 to **[1]**+13, F, Aβ, F, g, B, gβ.

[4] This phrasing is ambiguous. It might be an idiomatic way of saying 'one plainsong into another'. It might, on the other hand, refer to a chain of transformations: p_1 into p_2 into p_3, *etc*. It might, again refer to parallel transformations: p_1 into p_2 and p_3 into p_4, *etc*. It might, finally, refer to some combination of the preceding two possibilities.
It has not been possible to trace the transformations completely. Craggs, *Peter Maxwell Davies: A Source Book*, p. 149, reports that 'The work is based on two plainsongs: *Veni Sancte Spiritus* and *Sederunt Principes*' (The *Liber Usualis* actually gives three different plainsongs *Veni Sancte Spiritus*), but does not mention *Ave Maris Stella*. In reply to a question as to his sources, Professor Craggs wrote that the hard drive on his computer had crashed, and that he had lost all his files (which he had presumably not backed up). In fact, as pointed out by McGregor (Richard, 'Source material used in the works of Peter Maxwell Davies, 1957–2006': *Peter Maxwell Davies Studies*, ed. Gloag and Jones, Appendix II, pp. 242–254) the plainsongs *Veni Creator Spiritus* (*Liber Usualis*, p. 880: unlike Craggs, McGregor gives page references to the *Liber Usualis*, which is useful when it contains more than one plainsong with the same title) and *Repleti sunt* occur in Davies's manuscript sketches for the first symphony (Davies, Add. Mss. 71327, sheets 7 and 81 respectively: no versions of *Veni Sancte Spiritus* or *Sederunt Principes* have been found in the sketches, but they may nevertheless feature in this first movement. An appearance of a version of the opening of *Sederunt Principes* will be found in the First group of the Exposition, and possibly one of *Veni Sancte Spiritus* in the reprise of the first group.

> (main) chord and its harmonic functions are not those familiar in classical music, though I trust they make sense.
>
> Also very evident is a recurrent figure, whose characteristics are one very long note-value, with a crescendo, followed by two very short, loud note-values above and below the pitch of the long one. The exact note-lengths and pitches depend on the music's processes at that point, and are not constant. This figure is first heard on first violins immediately after the timpani strokes mentioned above, and forms a main feature of the movement's arguments until the final crossing multi-voiced statements of it on the woodwind and brass.[5]

The sections of this movement are made clear by some of Davies's annotations to his manuscripts of the symphony,[6] which make possible the following table.[7] Most of the main divisions are determined by paths through the magic square (the Introduction coming before the first path and the Ending after the last clear one), the subsections by Davies's double bars (although, in this and the following movements, a few of these have not been taken into account, either where they do not appear to be of great structural significance, or where their purpose is not clear).

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[5] Davies, 'Symphony'.
[6] Most of Davies's compositional manuscripts – compositional charts, tables, sketches and drafts in condensed and in full score – are in the British Library. Those of the *First Symphony* are held under Add. Mss. 71327–71330.
[7] See *Appendix B: Davies's Structural Annotations to the ms. of the First Movement of the First Symphony.*

Summary analysis table

Introduction		Start to **[1]**+9			Two ‘cadences’ on brass, opening of *Ave maris stella* on *pizz.* strings.
Exposition	First group	**[1]**+10 to **[4]**–1	PZ, PY, PX		Recurrent figure with two quavers, transposed sections of *Ave maris stella*, transforming into *Sederunt Principes*, on violins.
	Middle section	**[4]**+1 to **[6]**–1	PW, PV, PU	Marimba	
	Reprise of first group	**[6]**+1 to **[8]**–1	PT, PS, PQ		Recurrent figure with two quavers, possibly *Veni Sancte Spiritus* on cellos.
Bridge	First section	**[8]**+1 to **[10]**–1	PQ, RS, PT	Cellos Double basses	‘Alto’ combined with recurrent figure with two triplet quavers: possibly another *Veni Sancte Spiritus*. Short fanfare motifs.
	Second section	**[10]**+1 to **[12]**–1	PU	Piccolo and flutes	Final glock. and crot.‘whirling’.
	Third section	**[12]**+1 to **[14]**–1	↓	Flute	
	Fourth section	**[14]**+1 to **[16]**–1	PZ	Piccolo and flutes	Final glock. ‘swirling’.

Transition		**[16]**+1 to **[21]**–2	Four paths in counterpoint: (1) Three-element row segments (2) PQ,PW,…, PZ/ HS,…HV (3) γ (4) Approximate retrograde of (1) as chords	Piccolo, flute 1 Glockenspiel/ Glock., crotales/ Glock., crot., harp Violin 1/2 Violas, cellos	Recurrent figure with two semiquaver grace notes
Development		**[21]**+1 to **[27]**–2	P-0	bassoons, double bassoons; bassoons	Recurrent figure with two quavers (the first a repeat of the long note): horns and trumpets antiphonally in triads, glockenspiel. Long fanfare motives: double basses
Development Second Part	First section	**[27]**+1 to **[30]**–1	'Expanding pattern'	trombone	
	Second section	**[30]**+1 to **[33]**–1	Twice: segments of P-0	Strings in eight-part counterpoint	Short fanfare motives: double basses.

Introduction to Recapitulation		**[33]**+1 to **[40]**–1	Segments (in reverse order) of R-0	First violins Pulses: second violins	
A Kind of Recapitulation		**[40]**+1 to **[42]**–1			Recapitulation of opening cadences and transformation of initial string *pizz*. Recurrent figure, with two quavers, antiphonally on three trumpets and two horns. Descending long fanfare motifs: double basses
Ending	Bridge	**[42]**+1 to **[45]**–1	'cantus firmus'	timpani and double basses	Polyphony.
	Coda	**[45]**+1 to **[49]**–1	Pitches from square V, then bordering strips Θ	Horns, Trumpets Flute 2, doubled by flute 1 and piccolo in fifths and twelfths	'Whirling' on glockenspiel, celesta (and then crotales). Recurrent figure, with two semiquavers, antiphonally on horns 2, 3 and 4.
	Close	**[49]**+1 to end			'Whirling' on tuned percussion, five octave sweeps on harp,held notes on strings, antiphonal triadic recurrent figures, with two quavers, between oboes and cor anglais and clarinets and bass clarinet. Final Dβ, then chord with F at top.

This shows something more definite than what Davies (above) calls ‘the ghost of a sonata form’, namely one with an introduction, a ternary exposition (but ‘no first or second subject material as such’), development, recapitulation and coda; the form is, however, more spacious than sonata form, with both a Bridge and a Transition between the Exposition and Development, and an Introduction to the Recapitulation. Further, the ‘voice or part which unifies the harmony’ (shown in the fourth and fifth columns) is always a path through the magic square.

It should be noted also that the construction of the movement is clearly sectional, and shows the feature which Davies has termed ‘Making a point and moving away’ (cf. *Chapter 2*: *Two Structural Features*), in the shape of abrupt changes in texture from one section to the next

Davies’s ‘isorhythmic’ here seems to mean only that each path through the magic square takes, when followed precisely, 9 × (1+2+† … +9) = 405 time units.

The ‘recurrent figure’

Davies’s ‘recurrent figure’ consists of two parts. The first is ‘one very long note-value, with a crescendo’, so that (although he does not mention this) it tends to *emerge* from the ongoing musical activity. The second is ‘two very short, loud note-values’, usually, but not always ‘above and below the pitch of the long one’. (See, for a first exception, bar **[3]**–7, but most particularly the Transition section, **[16]**+1 to **[21]**–1, where the first of the two repeats the pitch of the long note.)

The recurrent figure undergoes two kinds of alterations. First, its outer shape changes: as may be seen from the *Summary analysis table* above, the length of the two very short notes may vary from two quavers to two semi-quaver grace notes, and the figure may occur antiphonally, in a kind of stretto, or in triads, or both. The second type of alteration is of its melodic content. Although thematic transformations

as discussed in *Chapter 5* and subsequently are hard to trace, the figure nevertheless changes as a sequence of pitches. On its first occurrence, in the First group of the Exposition, it spells out sections of *Ave maris stella*, in various transpositions, then a version of the opening of *Sederunt Principes*; when it returns in the Reprise of the first group, it may contain a transformation of the opening of one of the three plainsongs *Veni Sancte Spiritus*, and in the first section of the Bridge it may be an allusion to another version of *Veni Sancte Spiritus*. On its next occurrence (in the Transition), it is now part of presentations of paths through the magic square rather than part of a plainsong; on its remaining four occurrences (in the Development, Recapitulation and the Coda and Close of the Ending) it is so fragmented into separate three-note segments that traces of any plainsong are hard to discern.

Sections and types of paths

The different sections use different types of spiral path through the magic square, as may be seen from the above *Summary analysis table*. The Exposition uses only three-element row segments, with fanfare motives derived from sub-squares of the magic square and just one diagonal path entering in the Transition. As soon as the Development is reached, however, these two types of path disappear, and there emerge first a straightforward spiral path, then a more complex pattern of spiral path segments, first as a cantus firmus, then in counterpoint with one another. (This increased complexity of the paths through the square in the Development section is reminiscent of the increasing complexity of the serial processes in the Development of the Sonata-form movement of the *Second Fantasia on John Taverner's 'In Nomine'* (see above, *Chapter 6*).

General character of the movement

It should be remarked that although the general structure of the movement is clear, and clearly audible, the music is often very hard to follow. Davies writes that 'the symphony … is uncompromising in its demands on … listeners':[8] others might put it more strongly.

First, the 'pivotal tonal centre of F, with a 'dominant' D flat' seem far from 'immediately hearable': F is briefly touched on at the end of the first subsection of the introduction, and in the penultimate chord there is a massive Dβ in the bass followed by a final very full chord with an F at the top, but between the opening and the close the claimed pivotal tonal centre and 'dominant' are hard to discern.

Secondly, Davies has written that ' … there is no 'orchestration' as such—the instrumentation functions simply to make the musical argument clear',[9] but it is open to question whether this aim is always fulfilled. There are two reasons for this. The lesser is that sometimes certain parts are actually drowned out: for example in the coda the woodwinds play the recurrent figure antiphonally, in triads, each time swelling from ***p*** to ***fff***, but against four tuned percussion instruments and harp (all ***ff*** or ***fff***) and a tremolo chord on all strings the recurrent figure simply cannot be heard.[10] The more important reason has already been alluded to (see *Chapter 1, The audibility of Davies's serial procedures*): it is that there is often so much going on (usually in quodlibet counterpoint, and often fast and in irregular rhythms) it is hard to make out individual voices. Even in calmer sections, such as the Transition to the Development, there may be four distinct ones, and in the Second section of the

[8] Davies, 'Symphony'.
[9] Davies, 'Symphony'.
[10] This is so both in Sir Simon Rattle's recording and in Davies's subsequent one. It is conceivable that with superior reproduction equipment, or in a live performance, the recurrent figures might be audible.

Second Part of the Development there is eight-part polyphony accompanied by woodwinds and brass and also rapid fanfare figures on the double basses. In the more agitated sections there may be so much going on that it is scarcely possible to gain more than a general impression. The word is chosen advisedly, since there is one impressionistic symphonic work which springs to mind in this context, namely Debussy's *La Mer*. Indeed Seabrook has noted how evocative of the sea the whole symphony is: 'the Symphony No. I is full of the sounds of the sea, and its colouring is distinctive: it is all flashing iridescence, all silvers and quicksilvers, flashes of brass and gold and pewtery glints, with just an occasional hint, as if reflected in water, of the subdued pastels and greys of the place that inspired it'[11]. But whereas Debussy's symphonic sketches were composed away from the sea, from memories of it,[12] Davies's symphony was composed in his renovated croft Bunnertoon, where the window above his desk looked out over the Pentland Firth.[13] Further, unlike Debussy's relatively calm sea (or that described by Seabrook), this first movement, as well as being a tightly (indeed often intricately) constructed symphonic movement, seems unmistakeably to describe a storm at sea.[14]

Introduction

This consists of three subsections, separated by two general pauses, and presents three basic elements of the symphony, harmonic, melodic and textural. (A similar presentation of basic elements occurs in the introduction to the first movement of the Second Symphony.)

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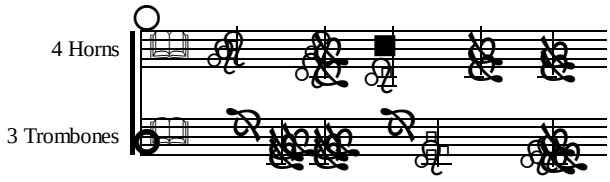
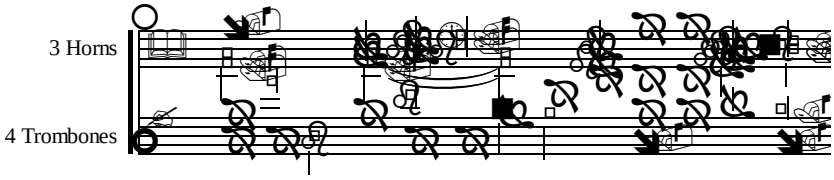
[11] Seabrook, *Max*, p. 156.
[12] For an account of Debussy's fondness for the sea, and the genesis of *La mer*, see Trezise, Simon, *Debussy: La mer*, (Cambridge University Press, Cambridge, 1994), Chapter 2, Genesis.
[13] See Seabrook, *Max*, lower illustration facing p. 159.
[14] Of course, the tradition of pieces which combine formal structure with description of a sea-storm is much older: an instance is Vivaldi's *La tempesta di mare*, Op. 8, No. 5, RV 253.

Harmonic: Davies's 'basic harmonies' seem to consist of two 'cadences' for horns and trombones, at the very beginning, before the first double barline:



Ex. 11.1 Brass 'cadences' at the opening of the first movement.

and

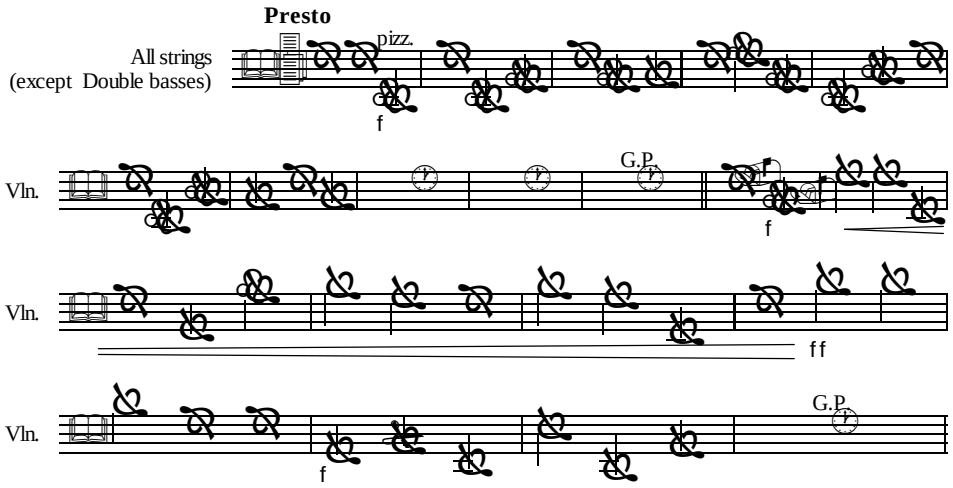


Ex. 11.2 Continuation of the 'cadences'.

each followed by a general pause. (In both examples above the rhythm has been simplified from that of the score, to show just onsets and simultaneities.) The upper note of the final chord of the first subsection is an F played by both horn and trombone.

Melodic: There are three subsections, each followed by a general pause. In the first, all violins, violas and cellos, in unison pizzicato, play, as mentioned above (*The Plainsong*) the opening of the *Ave maris stella* plainsong:[15]

[15] As pointed out by Whittall, Arnold, Review article of *Miss Donnithorne's Maggot* and the *Symphony*, *Music and Letters*, 59 (1978), p. 518.



Ex. 11.3 Passage immediately after the 'cadences' of Ex. 11.1, 2 and 3.

Davies writes that here the plainsong is ' … foreshadowed, but not stated plainly … '.[16] (The plainsong itself features fully explicitly only in the second movement, as already stated above, *Chapter 15*). The pizzicato string statement begins ins a clear Aβ major, but the first subsection ends on an F, Davies's 'pivotal tonal centre' (see above).

Textural: These two ideas, melodic and harmonic, are presented in layered quodlibet counterpoint, clearly distinguishable by timbre (legato chordal brass against unison pizzicato strings). This is, of course, not the only texture used in the symphony, or even in this movement, but it is a very frequent one.

The introduction concludes with what Gloag has termed a 'climax/contrast moment' (see above, *Chapter 2, Two Structural Features, Making a point and moving away*), in which there is a crescendo to ***ff***, followed by a quiet different texture.

[16] *Ibid.*

Exposition

In both the Exposition and the Bridge, the 'tenor' part referred to by Davies (above) is a path through the square consisting of three-element row segments (although not quite the same path in the Exposition and the Bridge). In the Exposition, this path consists (using the notation given in the previous chapter under *Pitch-sequences*: *Paths derived from three-element row segments*) of the blocks of the square read from left to right and up through the square, thus:

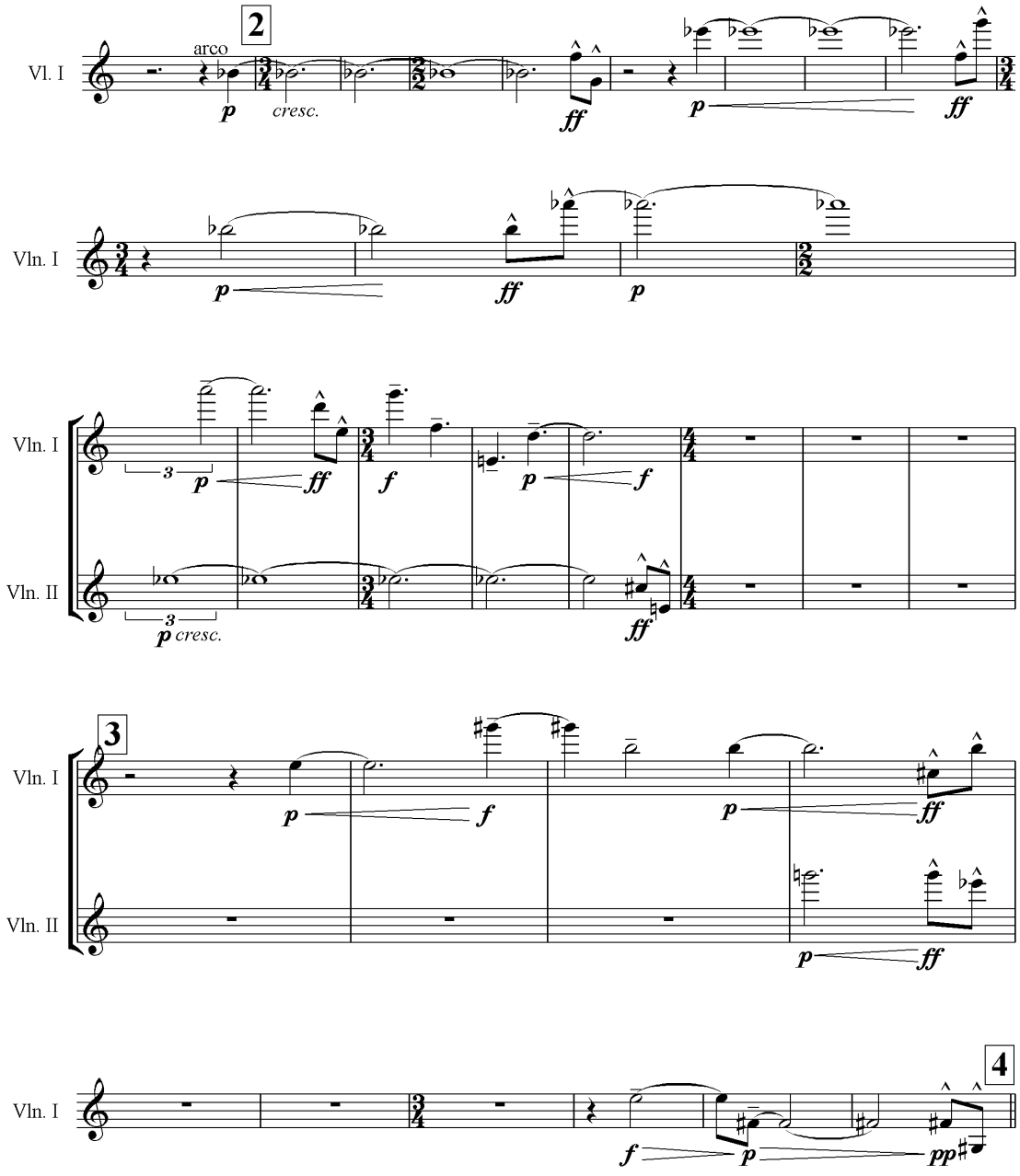
First group	PZ, PY, PX
Middle section	PW, PV, PU
Reprise of first group	PT, PS, PQ

and is played (in crotchet units) by the marimba (with some *Ausfälle*, *e.g.* at **[2]**–2 the required E3, D#8 are omitted from the marimba part and played by the timpani).[17] The path is scarcely audible in the two outer sections

First group: **[1]**+10 to **[4]**–1

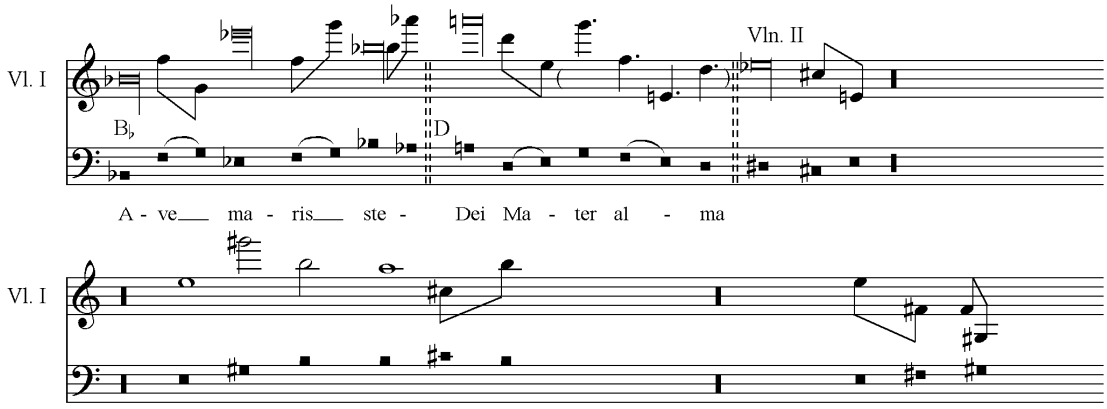
The brass continue the 'cadences' of the Introduction, accompanying the strings, initially cellos and basses continuing the pizzicato from the Introduction. At **[2]**–1 the first violins start (in another of Gloag's climax/contrast moments) to play, and then immediately to develop Davies's 'recurrent figure':[18]

[17] Outwin, *Transformation Processes*, p. 152.
[18] *Ibid.*, p. 130, fn. 1. Outwin gives this as a solo violin: in fact it is all first violins.



Ex. 11.4 First appearance of Davies's 'recurrent figure'.

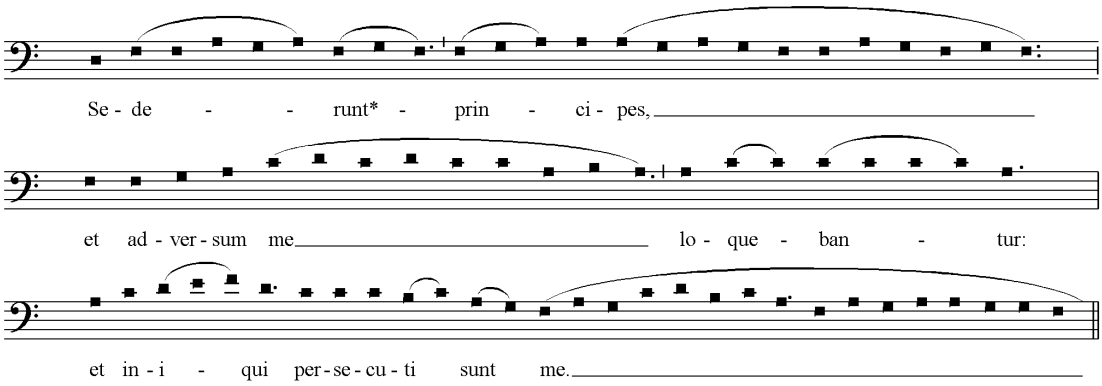
etc. This is shown schematically in the next example.



Ex. 11.5 The recurrent figure outlining the first two phrases of *Ave maris Stella*.

The upper stave shows the violin line, each long note of the recurrent figure represented by a longa (and a rest between recurrent figures by a longa rest), other notes by their length in the score (four notes which are not part of the recurrent figure are in parentheses): the lower stave shows the same notes without the octave displacements of the upper stave, and with each note as square and stemless. The violin line in the first system is thus a version of the openings of the first two phrases of the *Ave maris Stella* plainsong, the first phrase transposed down to a tonic Bβ, the second phrase up to a tonic F: the final three notes may be a transposition down to a tonic B of the first three notes of the third phrase, but with the first note, the third of the mode, sharpened. The violin line in the second system appears to be a transformed version of the opening of the plainsong *Sederunt principes*,[19] transposed up to a tonic F.

[19] Liber Usualis, p. 416.

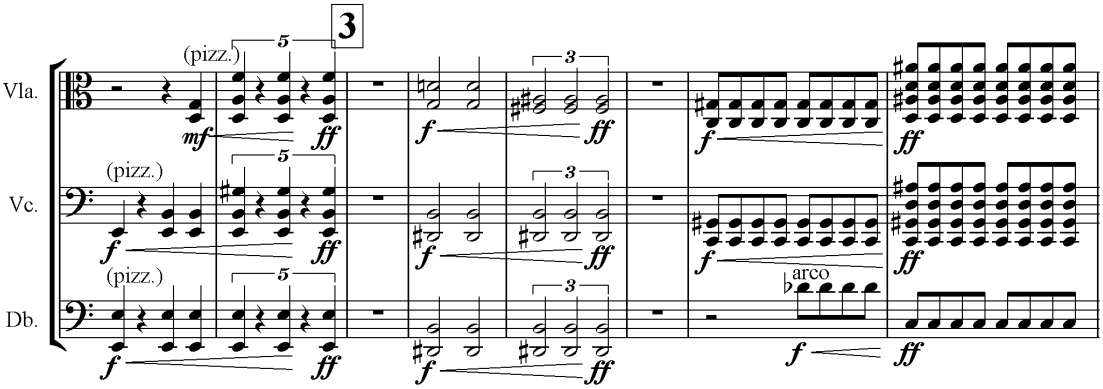


Ex. 11.6 The plainsong *Sederunt principes*.

The transformation, like the conjectural one of the first three notes of the third phrase of *Ave maris stella*, has the third sharpened. and combines features of both plainsongs, but the pattern of the similarities and differences is too complicated for it to be profitable to give a full description of all of them.

Meanwhile, the marimba 'tenor' is scarcely audible against the seven brass instruments and massed strings.

The subsection ends with a texture which features throughout the movement, namely chords (or sometimes single notes) repeated in a regular rhythm, an idea



Ex. 11.7 A texture of repeated chords.

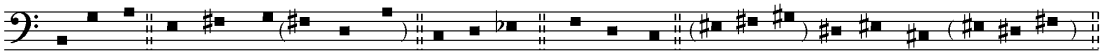
which will recur in different forms throughout the movement. This is immediately followed by concluding downward melodic glissandi in the three lower strings.

Middle section: **[4]**+1 to **[6]**–1

The recurrent figure, brass and timpani drop out, giving way to a sudden calm, and the music is slower (although the time signature does not change). The marimba 'tenor' is accompanied by quiet glockenspiel, crotales and strings, and thus for the first time clearly audible.

Reprise of first group: **[6]**+1 to **[8]**–1

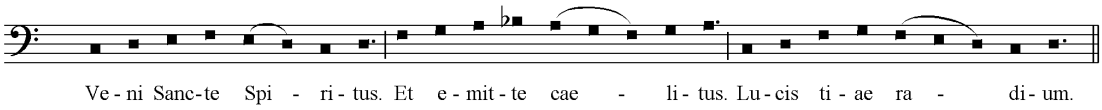
This is in no way a literal reprise. The volume, speed and brass return, as do the frequent repeated string chords and the recurrent figure on the cellos, spelling out the sequence of notes:



Ex. 11.8 Sequence of notes spelt out by the recurrent figure in **[6]**+1 *ff*.

(The sets of three notes of the recurrent figure are separated by dotted double barlines: sets of notes which are not part of the figure, *e.g.* the F#, D, A in bar **[7]**+6, are given in parentheses.) Each three-note segment could well belong to one of any number of plainsongs, so that any interpretation must necessarily be speculative, but the initial rising sixth may be a transformation of the initial rising fifth of *Ave maris Stella*, and the third and fourth sets of three notes (C, D, Eβ, F, D, C) of the opening of the second of the three plainsongs *Veni Sancte Spiritus* in the *Liber Usualis*:[20]

[20] *Liber Usualis*, p. 880, antepenultimate and penultimate systems.



Ex. 11.9 The plainsong *Veni Sancte Spiritus*.

The section, and thus the whole exposition ends with a crescendo leading to a ***ff–fff*** final chord, an instance of Davies's 'making a point and moving away' (*cf. Chapter 2*, this heading, under *Two Structural Features*). The result of such clean breaks in the structure is to emphasise its sectionality.

Bridge: **[8]**+1 to **[16]**–1

This is in four sections, (the first three starting with Gloag's climax/contrast moments) distinguished by their instrumentation, throughout the whole of which another path through the square is played (again in crotchet units):[21]

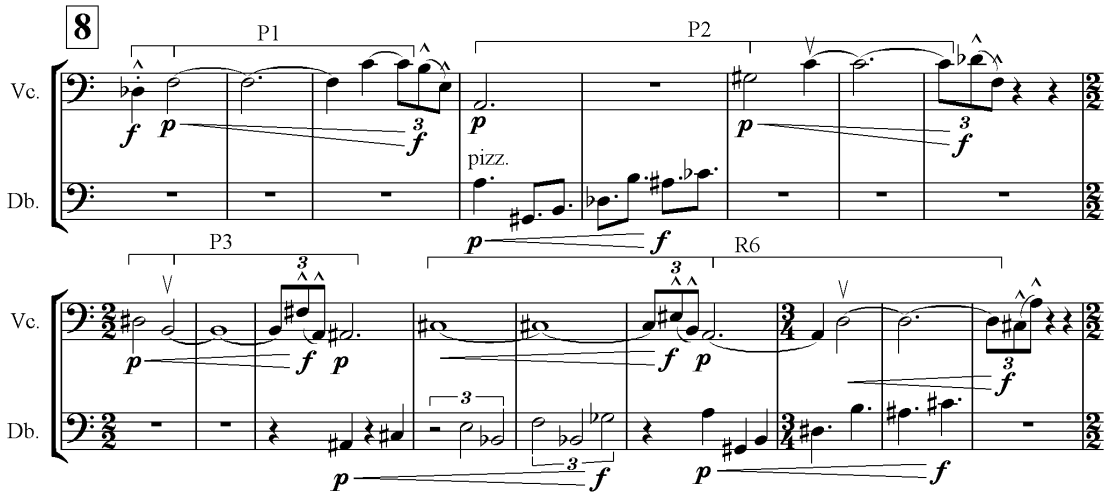
First section	PQ, RS, PT	Cellos
Second section	PU, P13, C#9	Piccolo, flutes
Third section	C5, E1, P15, PW, PX	Flute
Fourth section	PY, PZ	Piccolo, flutes

This path goes through the blocks in the reverse order from that in the Exposition (and block S is played in retrograde). The path through the second and third sections looks more complicated than it is: block V is split between the second and third section: its first row (13), and the first note of the second row, C#9, belong to the second section, then the second and third notes of the second row, C5 and E1, and the whole of the third row (15) of Block V belong to the third section.

[21] Outwin, *Transformation Processes*, pp. 152–153. On the exposition and bridge passage taken together, see pp. 153–155.

First section: **[8]**+1 to **[10]**–1[22]

The cellos, lightly accompanied by the other strings and glockenspiel, play a path through the upper third of the square, but not just that path. Thus, the first three notes, Dβ, F, C, *i.e.* P1, are followed by two triplet quavers, B, E, which are not part of the path, but, with the final C of P1 constitute a recurrent figure. The same thing occurs with P2, but thereafter the construction of the recurrent figures is more free, as may be seen from the following example.



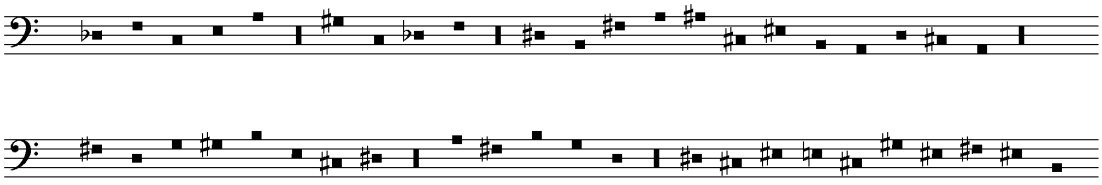
Ex. 11.10 Path through the upper third of the square, with recurrent figure.

etc. (other strings and glockenspiel omitted).[23]

The combination of the path with extra notes gives the following sequence of pitches.

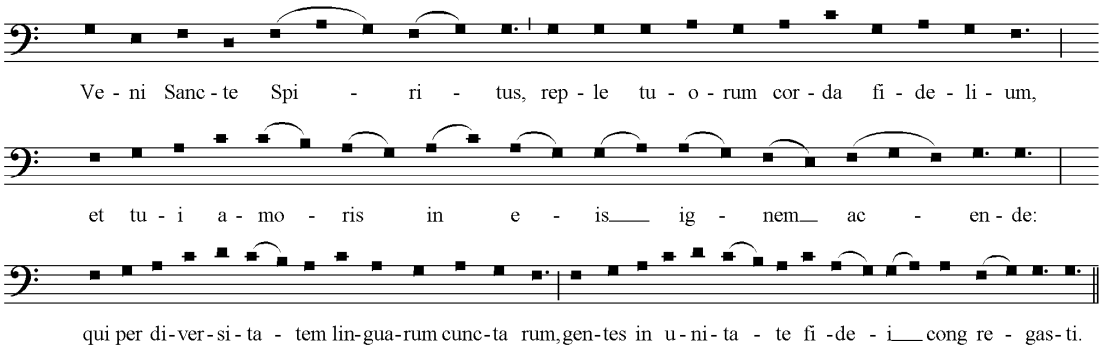
[22] Lister, Rodney, 'The ghost in the machine: sonata form in the music of Peter Maxwell Davies, in Gloag and Jones (eds.) *Peter Maxwell Davies Studies*, pp. 106–128 writes (p. 112) that this 'would seem to be the 'second theme'', which, since it is the first section of what Davies, in his manuscript sketches, refers to as the Bridge, is surely an error.

[23] The pitches of the first motive are (in a free order) most of those in subsquare Q of the magic square (see *Chapter 10* under *Paths derived from three-element row segments*): those in the second from subsquare V, those in the third are those of the first in a slightly different rhythm; those of the next two motives are from subsquares W and W respectively, the penultimate motive does not derive from any single subsquare and the final motive derives from subsquare W.



Ex. 11.11 Sequence of pitches spelt out by the path of Ex. 11.11.

The opening of this sequence may (this is not demonstrated, and no more than speculation) be a transformation (with rising major thirds replaced by falling minor thirds) of the opening of the third of the three plainsongs *Veni Sancte Spiritus* in the *Liber Usualis*:[24]



Ex. 11.12 Another plainsong *Veni Sancte Spiritus*

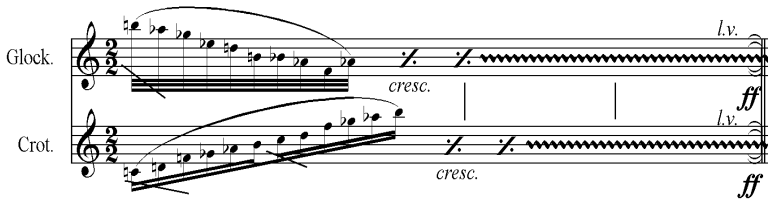
A new idea also occurs: there are short rising fanfare motives in the double basses (*pizzicato*)

Second section: **[10]**+1 to **[12]**–1

OU, O13 and C#9 of the 'tenor' are played high up and ***f***, by the piccolo and both flutes, lightly accompanied by oboes, brass, and rapidly moving glockenspiel and crotales, the latter two climaxing on repeated ***ff*** rapid whirling figures (of the type which were described in *Chapter 2*, under *Technical Devices*, and which have been

[24] *Liber Usualis*, pp. 1837-1838.

repeatedly found in precursor works) which will reappear at the end of the Bridge and in the Coda and Close of the movement.



Ex. 11.13 Whirling figures.

This section is also characterised by a large scale isorhythm: throughout, the time signatures of $\frac{2}{2}$, $\frac{3}{4}$ and $\frac{5}{4}$ rotate with three bars of each[25] (except that the first occurrence of $\frac{3}{4}$ has only two bars).

Third section: **[12]**+1 to **[14]**–1

C5, E1, O15, OW, OX of the 'tenor' are played by a single flute, ***p***, in counterpoint with a single trombone, also ***p***, lightly accompanied by marimba, harp and celesta. The accompanying celesta ends the section with a cadenza, leading to double trills which swell to ***f***.

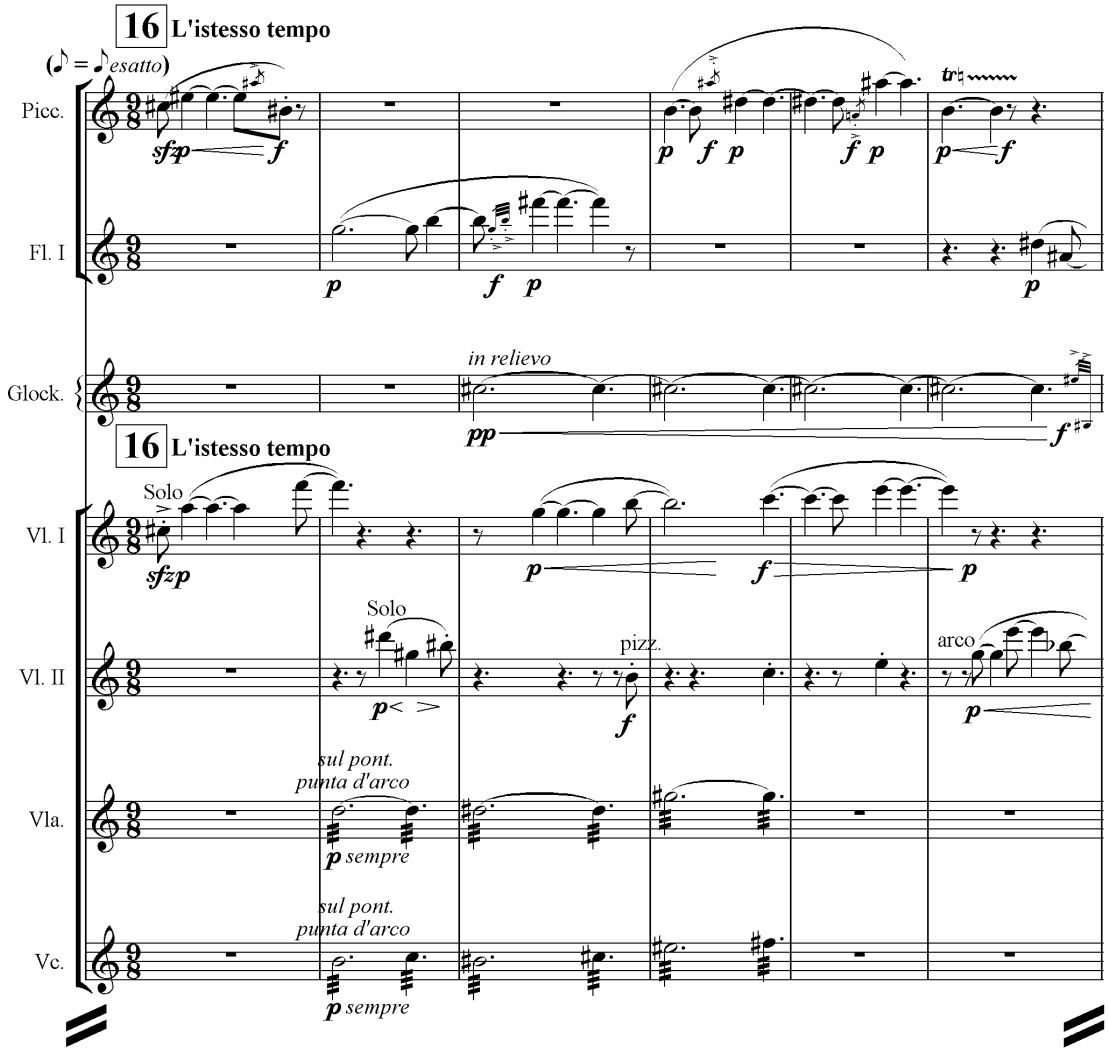
Fourth section: **[14]**+1 to **[16]**–1

The piccolo and flutes, in octaves, play the final section of the path, OY, OZ, ***f*** *sempre*, accompanied by the rest of the orchestra in their sections. The last three bars swell to ***ff*** with the glockenspiel (but not the crotales) recalling the whirling figure from the Second section.

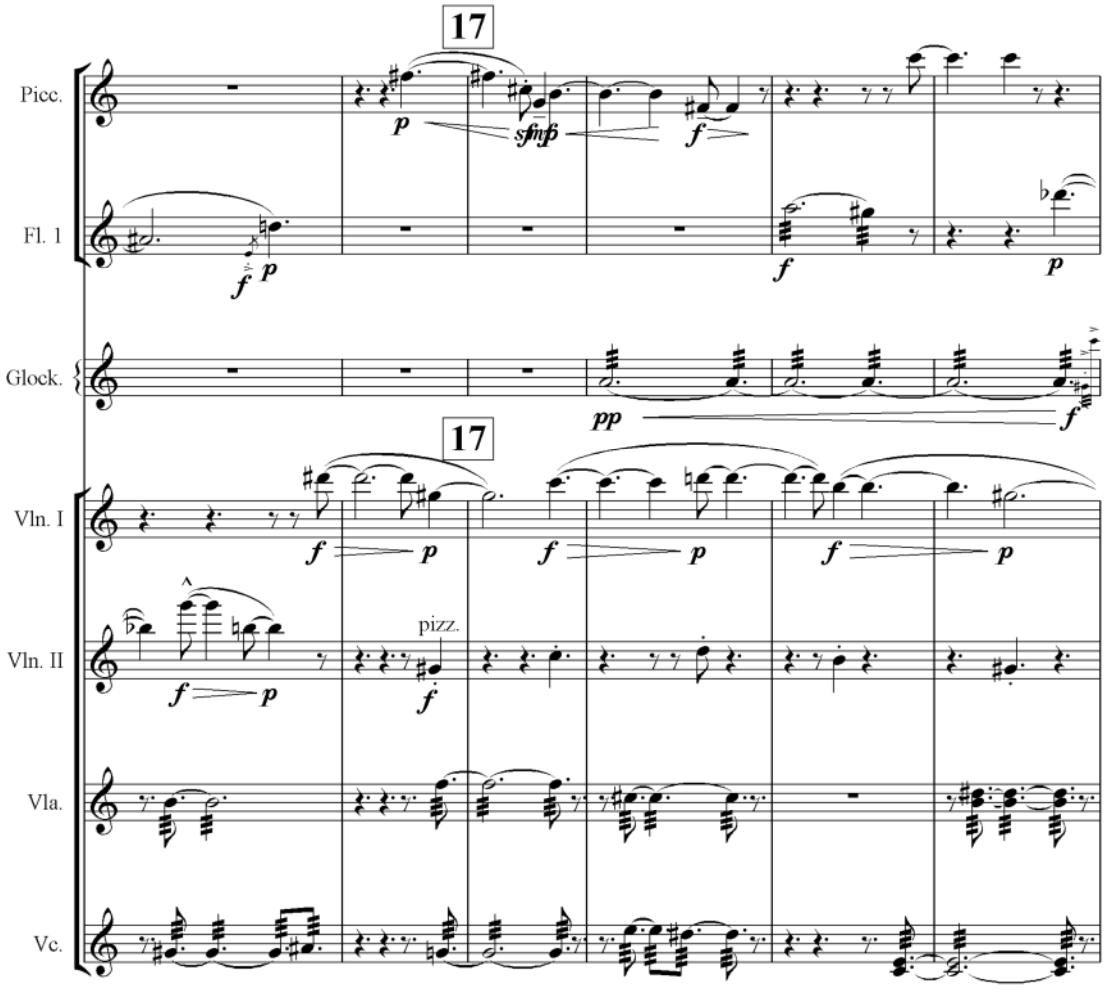
Transition:[26] **[16]**+1 to **[21]**–2

This section, whose opening (introduced by another of Gloag's climax/contrast moments) is shown below, consists of four separate paths through the square, in counterpoint.[27]

[25] I am grateful to Dr Peter Elsdon for pointing this out.
[26] Gloag, 'Form and genre in Davies's First Symphony' has this as the start of the development, and indeed, there is little save Davies's own structural annotations in his manuscript sketches to distinguish the Transition as not part of the Development.



[27] Roberts, *ibid.*, pp. 357–358, who points out that exactly the same overall structure is used in the third movement of Davies's *Three Studies for Percussion*.



Ex. 11.14 Opening of transition section.

First and fourth paths

The relationship between these, respectively at the top and bottom of the score, can be seen by showing them side-by-side. The first, for piccolo and first flute alternately, is a path (in quaver units) through the square consisting of three-element row segments (with added recurrent figure grace notes which are not part of the path), and is given in the left-hand table below (using the notation for segments given in *Chapter 15* under *Pitch-sequences*: *Paths derived from three-element row segments*). There is some pattern in the path: in particular, the segments come in sets of three, and in each set there is one segment from the first three columns, one from the second three and

one from the third, not always in that order, as shown in the following table. In each set the segments come from the same

Picc. and Fl. 1

O1		
		O25
	O13	
		O17
O20		
	O5	
O2		
	O14	
		O26
O3		
	O15	
		O27
	O4	
		O16
O19		
	O6	
		O18
O21		
		O7
O10		
	O22	
		O8
O11		
	O23	
		O9
O12		
	O24	

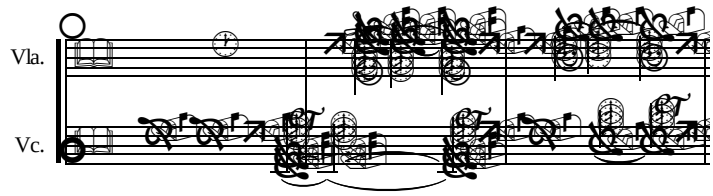
Vla. and Vc.

	H24	
H12		
		H9
	H23	
H11		
		H8
H10 4 H7		
	H22	
	H6	
		H18
H21		
H4 4 H16		
H19		
H3		
	H15	
		H27
H2		
	H14	
		H26
	H5	
H20		
		H17
	H13	
		H25
H1		

rows of their respective block in the table in *Paths derived from three-element row segments*. However, the two instruments do not in general each alternately play three-element segments.

The fourth path, for violas and cellos, is the one whose description was begun above (*Harmonic implications*), which uses, harmonically, only the pitches (not the durations) of the segments. The order of the segments is roughly the retrograde of

that in the first path: that is, the three-segment blocks are in exact retrograde, but within each block the segments are either in retrograde or in the same order as in the piccolo and flute path. In two passages, two segments are used together to give a four-note chord followed by a two-note one. The first, in bars



Ex. 11.15 Pairs of segments used to give a tetrad followed by a dyad.

.

[17]+3 to **[17]**+5, comes from H10 4 H7, the union of H10 and H7, the pitches G, E, C, A, F#, D, and gives first the four-note chord consisting of the major third C, E, and, a major ninth above, the major third D, F#, which is a transposition of the 'Death chord',[28] followed by the interval G, A. The second, in bar **[18]**+7, comes from H4 4 H16, and gives rise to the four-note chord D, F#, E, G#, the 'Death chord' itself.

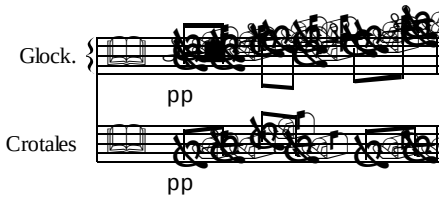
Second path

This, too, uses only the pitches of the square, not the durations. There are four different ideas.

First, starting at **[16]**+2, the glockenspiel plays OQ in the form of three versions of the initial 'recurrent figure'.

Next the glockenspiel and crotales play OS and OT as six three-note chords in regular rhythms (the simultaneity of whose component notes precludes the use of the durations specified by the square):

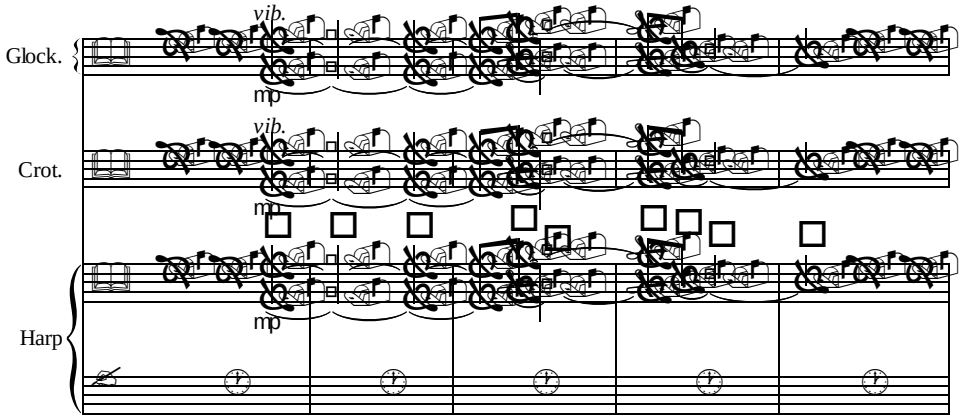
[28] See *Chapter 2*, under *Technical Devices*.



Ex. 11.16 Six triads

which may anticipate the four-note chords starting at **[120]**+2 of the last movement (*q.v.*).

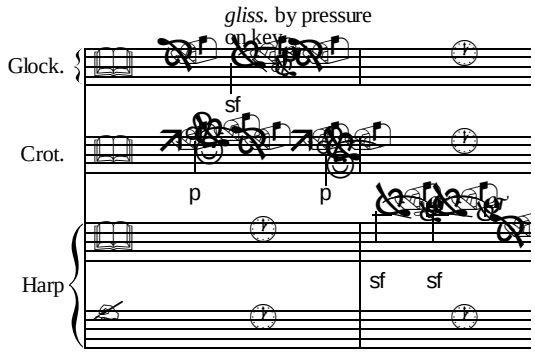
Next glockenspiel, crotales and harp play O16 as three slow pitches in octaves.



Ex. 11.17 Slow pitches in octaves

Then the last two presentations are repeated, at **[19]**–2 the glockenspiel and crotales playing OU and (approximately) OV as six three-note chords and at **[19]**+1 glockenspiel, and crotales and harp O17 and O18 as six dotted crotchets in octaves.

Finally, starting at **[19]**+5, all three instruments independently play OX, OY and OZ as pitches followed by *Nachschläge*,[29] (the harp marked '*gliss.* with tuning key on string'), for example



Ex. 11.18 Pitches followed by *Nachschläge*.

possibly anticipating the 'bird-cries' starting **[117]**+3 in the last movement (*q.v.*).

Third path[30]

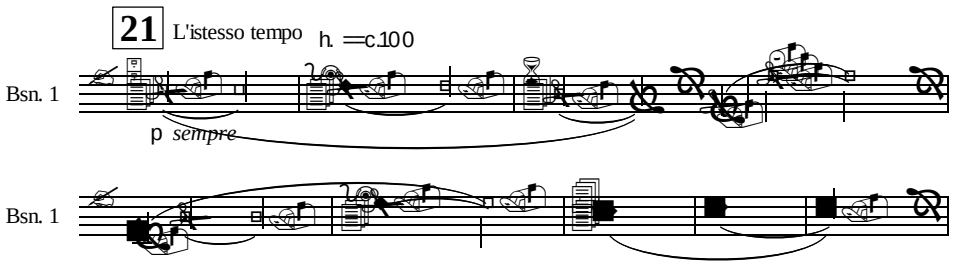
This is the diagonal path γ, played alternately by solo first and second violin, already illustrated above (*Chapter 15*, *Pitch-sequences*, *Diagonal line paths*): as already mentioned (*Chapter 15*, *Rhythm*, *Diagonal line paths*) it has a rhythm in which, after the first pitch, of duration 1, there are sequences of pitches, of first increasing then decreasing length, with the same duration.

Development: **[21]**+1 to **[27]**-2

The first bassoon and the double bassoon an octave lower (from **[25]**-7 just the two bassoons in octaves) play the expanding anti-clockwise spiral from the central C5

[29] See Neumann, Frederick, *Ornamentation in Baroque and Post-Baroque Music: With Special Emphasis on J. S. Bach*, (Princeton University Press, Princeton, 1978), p. 47.
[30] This presentation is also noted by Outwin, *Transformation Processes*, p. 146.

(unit a crotchet)[31] in the bass voice described above. (*Pitch-sequences, Spiral-related paths (a) Pure spirals.*)



Ex. 11.19 Expanding anti-clockwise spiral.

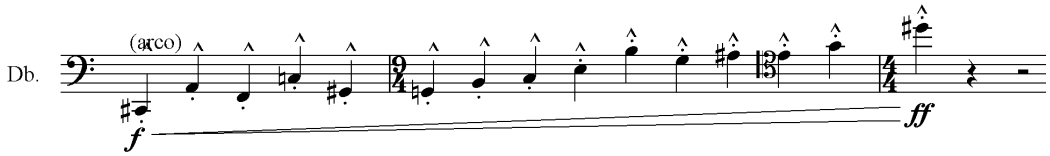
etc.

C# 1	F 6	C 2	E 7	B 3	G# 8	A 4	F# 9	D 5
A 6	G# 2	C 7	G 3	B 8	F# 4	D# 9	E 5	C# 1
D# 2	B 7	A# 3	D 8	A 4	C# 9	G# 5	F 1	F# 6
G 7	E 3	C 8	B 4	D# 9	A# 5	D 1	A 6	F# 2
G 3	G# 8	F 4	C# 9	C 5	E 1	B 6	D# 2	A# 7
D# 8	C 4	C# 9	A# 5	F# 1	F 6	A 2	E 7	G# 3
A# 4	F 9	D 5	D# 1	C 6	G# 2	G 7	B 3	F# 8
D 9	F# 5	C# 1	A# 6	B 2	G# 7	E 3	D# 8	G 4
G# 5	D# 1	G 6	D 2	B 7	C 3	A 8	F 4	E 9

A modified version of the recurrent figure, in which the first of the two very short notes is the same pitch as the very long one, occurs antiphonally in triads on horns and trombones.

Here the double basses' short fanfare motives of the first section of the bridge reappear developed as long fanfare motifs:[32]

[31] *Ibid.s*, p. 146.

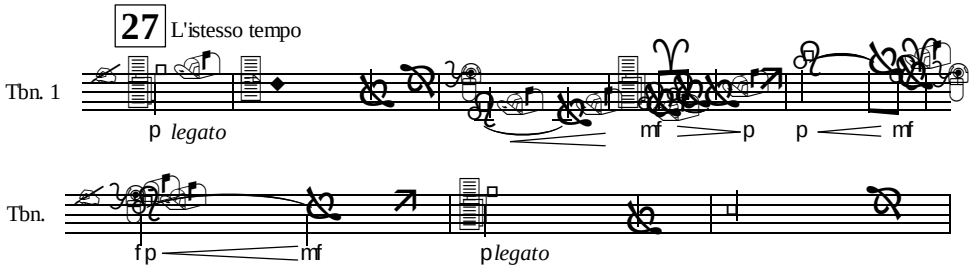


Ex. 11.20 Long fanfare motifs.

Development Second Part

First section: **[27]**+1 to **[30]**+1

This is an 'expanding pattern' for the solo first trombone, and in the bottom



Ex. 11.21 'Expanding pattern'.

etc.

voice (with unit a quaver),[33]although the pattern is not immediately evident. Suffice it to say here that the pattern (which omits the central C5) is divided into four segments,[34] which are indicated in the square below by heavy borders, and moves outward

[32] They occur intermittently, and at different speeds (crotchets, triplet crotchets, quavers) throughout the section, but come from the continuous path γ/Γ described above (*Chapter 10, Diagonal line paths*), with a few exceptions (a D# is omitted twice, a D is inserted once and the downward segment F#, D#, A in bars **[26]**–6, **[26]**–5 is repeated in reverse order in bar **[27]**–3, which then ends with the pitches G, F, C, *i.e.* the final motive constitutes the end pf the path Γ/γ. The fact that the serial derivation of the motives is quite different from that of those in the First section of the Bridge suggests that the general contour of the motives is more important than their serial structure. Indeed, the actual pitches of the motives are hard to hear being played fast and in general starting below the double basses' bass clef.

[33] *Ibid.* , p. 146.

[34] The division (and 'IIII' for the Roman numeral IV) is Davies's own: Add. Mss. 71327, sheets 13 and 14.

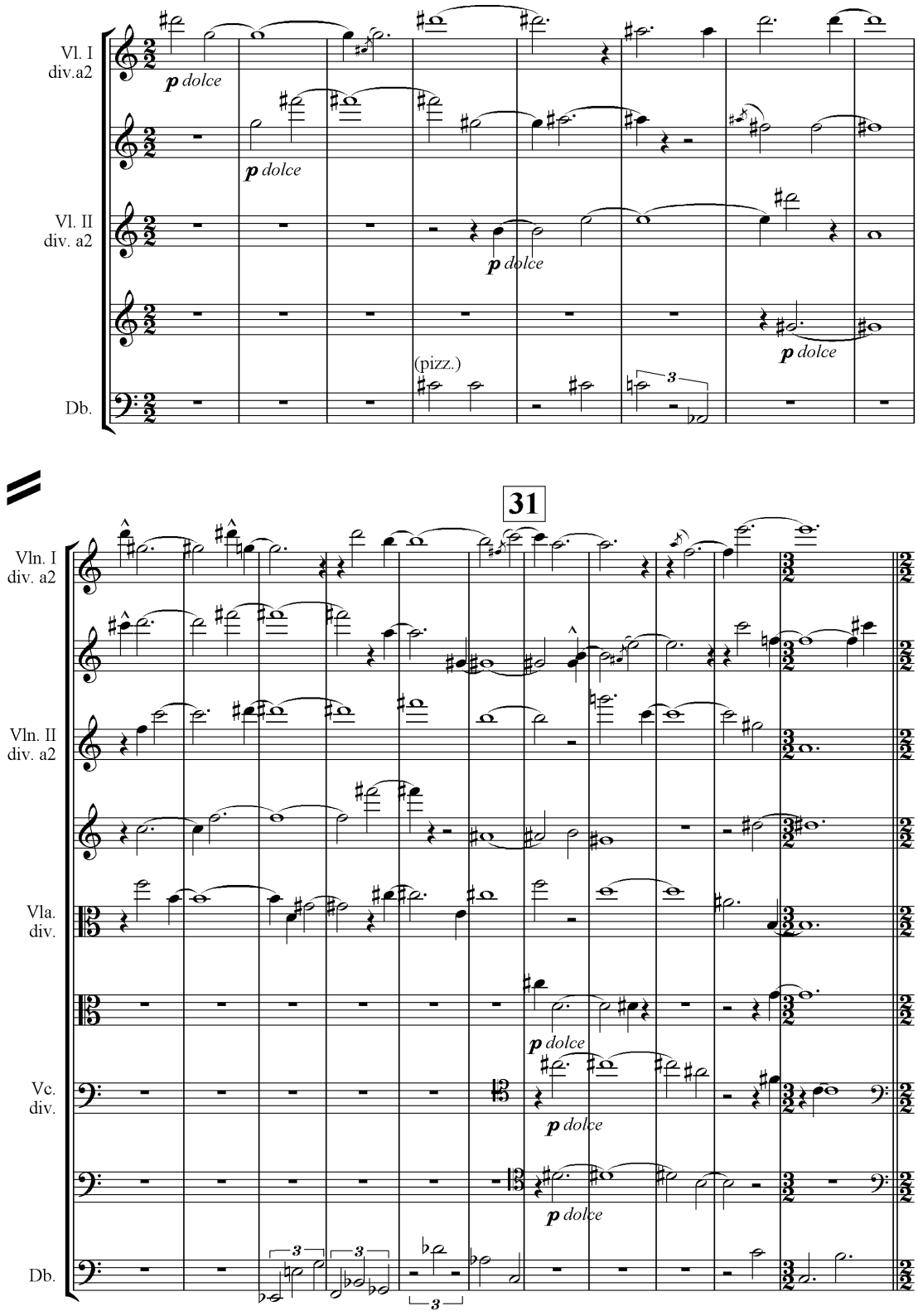
C# 1	F 6	C 2	E 7	B 3	G# 8	A 4	F# 9	D 5
A 6	G# 2	C 7	G 3	B 8	F# 4	D# 9	E 5	C# 1
D# 2	B 7	A# 3	D 8	A 4	C# 9	G# 5	F 1	F# 6
G 7	E 3	C 8	B 4	D# 9	A# 5	D 1	A 6	F# 2
G 3	G# 8	F 4	C# 9	C 5	E 1	B 6	D# 2	A# 7
D# 8	C 4	C# 9	A# 5	F# 1	F 6	A 2	E 7	G# 3
A# 4	F 9	D 5	D# 1	C 6	G# 2	G 7	B 3	F# 8
D 9	F# 5	C# 1	A# 6	B 2	G# 7	E 3	D# 8	G 4
G# 5	D# 1	G 6	D 2	B 7	C 3	A 8	F 4	E 9

through the segments in turn: within each segment the path comprises single cells, or sets of two or three (never more) adjacent cells, often taken alternately from two halves of the segment.

Second section: **[30]**+1 to **[33]**–1

The horns play the Eβ–Gβ minor third with which they began the *Symphony*. Then they and bassoon and double bassoon subside to held chords accompanying all strings, in all voices, playing two balanced eight-part presentations (separated by three bars rest) of anti-clockwise spiral segments (numbered from 1 to 8 in small at the bottom left of their first cell) through (almost all of) the magic square (unit a crotchet).[35] (Cells not used are shown in grey.)

[35] Outwin, *Transformation Processes*, pp. 149–151.



Ex. 11.22 The first of two eight-part presentations of anti-clockwise spiral segments through the magic square (bassoon and horn parts omitted).

C# 1	F 6	C 2	E 7	B 3	G# 8	A 4	F# 9	D 5
A 6	G# 2	C 7	G 3	B 8	F# 4	D# 9	E 5	C# 1
D# 1 2	B 7	A# 3	D 8	A 4	C# 9	G# 5	F 1	F# 6
G 7	E 3	C 8	B 4	D# 8 9	A# 5	D 1	A 6	F# 2
G 3	G# 4 8	F 4	C# 7 9	C 5	E 1	B 6	D# 2	A# 7
D# 8	C 4	C# 6 9	A# 5	F# 1	F 6	A 5 2	E 7	G# 3
A# 4	F 9	D 5	D# 1	C 6	G# 2	G 7	B 3 3	F# 8
D 9	F# 5	C# 1	A# 6	B 2	G# 7	E 3	D# 8	G 2 4
G# 5	D# 1	G 6	D 2	B 7	C 3	A 8	F 4	E 9

In the first pass (**[30]**+4 to **[31]**+5), the two longest segments (1 and 2) are taken by the first violins, *divisi*, the next three, in descending order of length (3, 4 and 5), by the second violins, *divisi*, and half of the violas, and the three shortest (6, 7 and 8) by the other half of the violas and the cellos, *divisi* (there are some *Ausfälle*, omissions and deviations): all paths are arranged so as to end together at the end of bar **[31]**+5.

In the second pass (**[31]**+9 to **[33]**–1), the parts are precisely interchanged, as shown in the following table (with, of course, octave displacements to allow for the

	First pass	Second pass
1	Violin I (i)	Cello (i)
2	Violin I (ii)	Cello (ii)
3	Violin II (i)	Viola (i)
4	Violin II (ii)	Viola (ii)
5	Viola (i)	Violin II (i)
6	Viola (ii)	Violin II (ii)
7	Cello (i)	Violin I (i)
8	Cello (ii)	Violin I (ii)

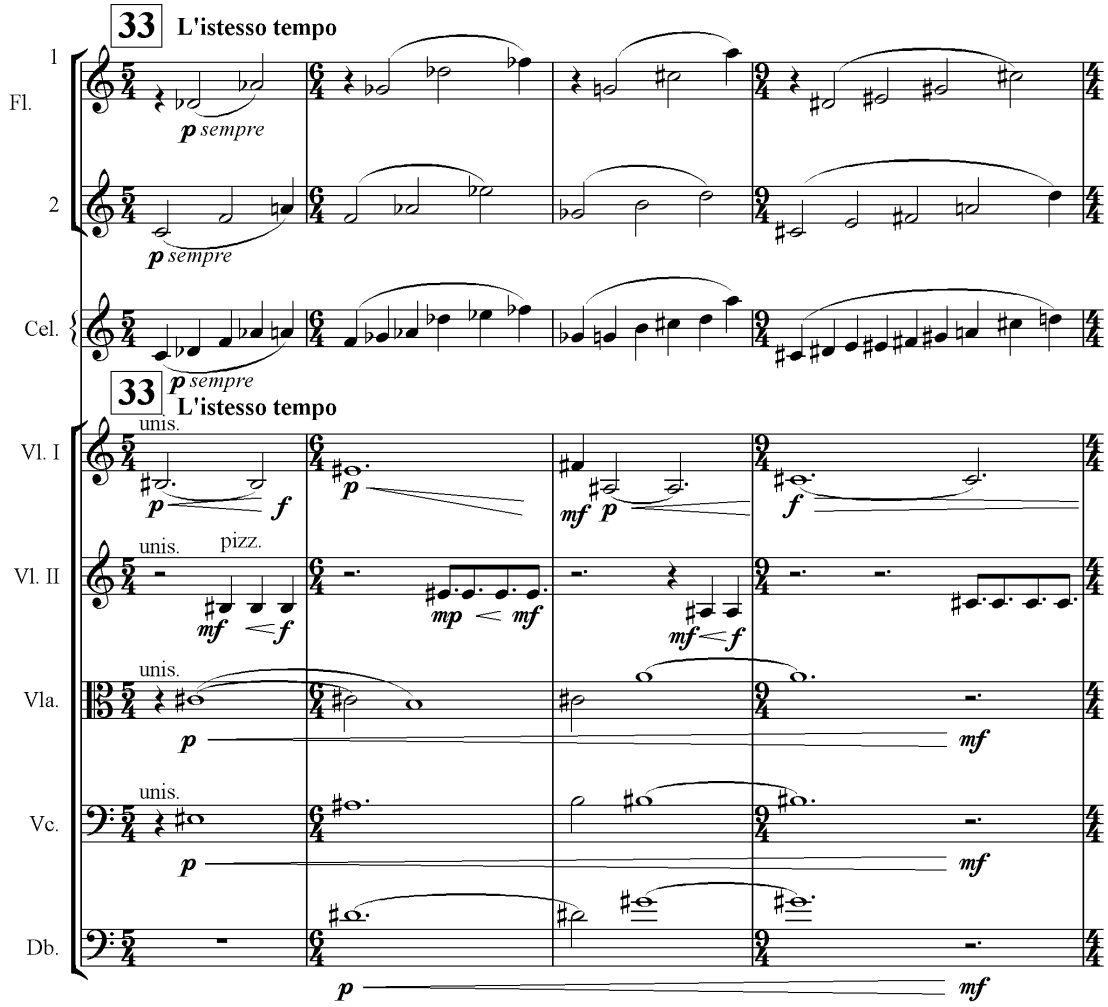
compasses of the instruments.

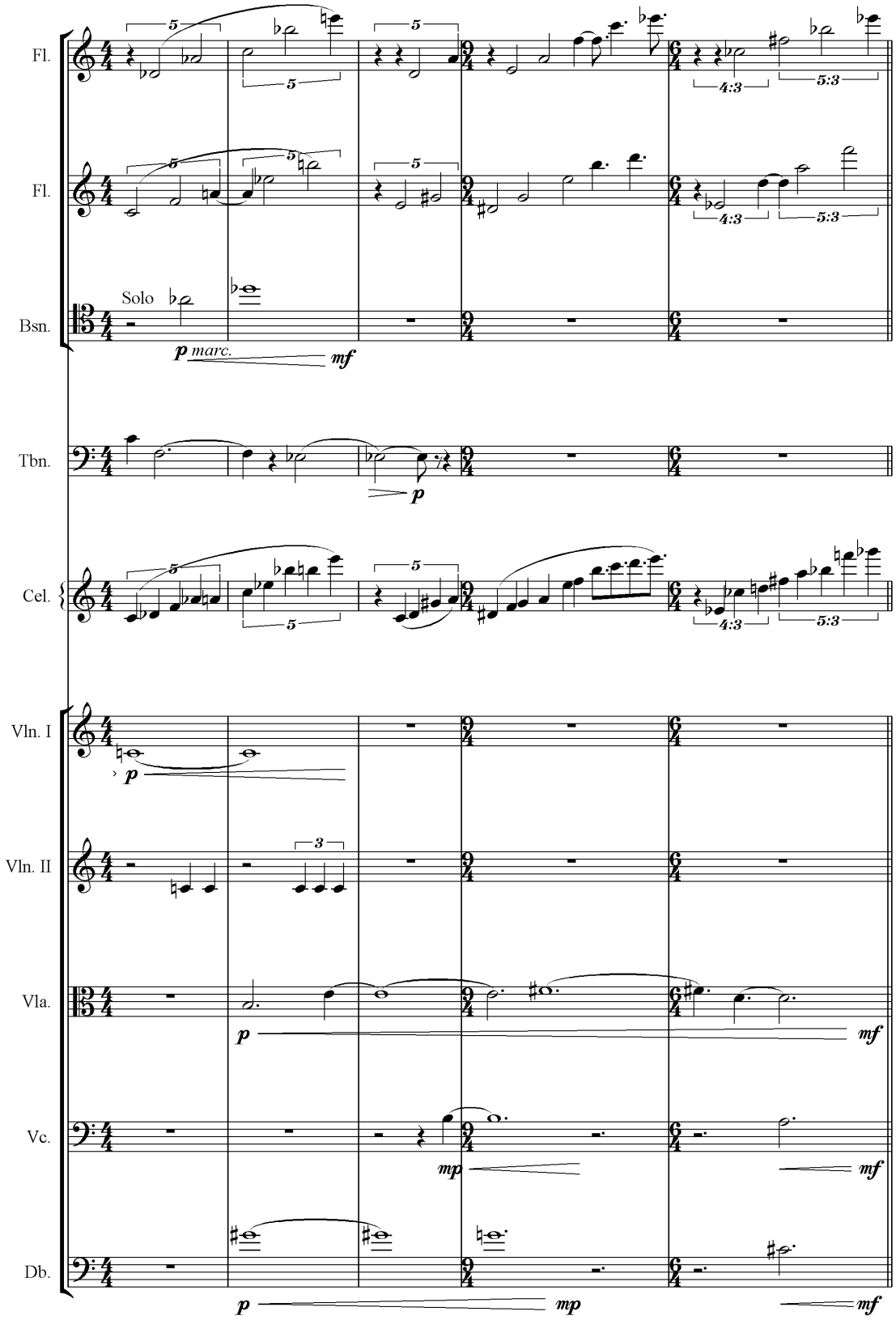
Throughout there are intermittent short fanfare motives on the double basses.[36]

Introduction to Recapitulation: **[33]**+1 to **[40]**–1

The main line here is played by the first violins, expressively doubled by pizzicato rhythmic pulses on the seconds (as illustrated in *Chapter 2*: see under *Technical Devices*). The broken outward path (with unit a crotchet) starts with the central square, continues with horizontal and vertical strips, then with right-angled segments and concludes with a single cell (numbered in small at the bottom left of their first cell) all except segments 6 and 10 part of the spiral R-0 (but the segments are played in reverse order of their numbers).

[36] It is again possible to relate these to subsquares of the magic square, but rather more speculatively than before.


33
L'istesso tempo
1
Fl.
2
p sempre
p sempre
Cel.
p sempre
33
L'istesso tempo
unis.
Vl. I
p
f
p
mf
p
f
unis.
pizz.
Vl. II
mf
f
mp
mf
mf
f
unis.
Vla.
p
mf
unis.
Vc.
p
mf
Db.
p
mf



Ex. 11.23 Broken outward path on the first violins.

C# 1 1	F 6	C 2	E 7	B 3	G# 8	A 4	F# 9	D 5
A 3 6	G# 2	C 7	G 3	B 8	F# 4	D# 9	E 5	C# 1
D# 2	B 5 7	A# 3	D 8	A 4	C# 9	G# 5	F 1	F# 6
G 7	E 3	C 9 8	B 4	D# 9	A# 5	D 1	A 6	F# 2
G 3	G# 8	F 4	C# 6 9	C 11 5	E 8 1	B 6	D# 2	A# 7
D# 8	C 4	C# 9	A# 5	F# 1	F 10 6	A 2	E 7	G# 3
A# 4	F 9	D 5	D# 1	C 6	G# 2	G 7 7	B 3	F# 8
D 9	F# 5	C# 1	A# 6	B 2	G# 7	E 3	D# 4 8	G 4
G# 5	D# 1	G 6	D 2	B 7	C 3	A 8	F 4	E 2 9

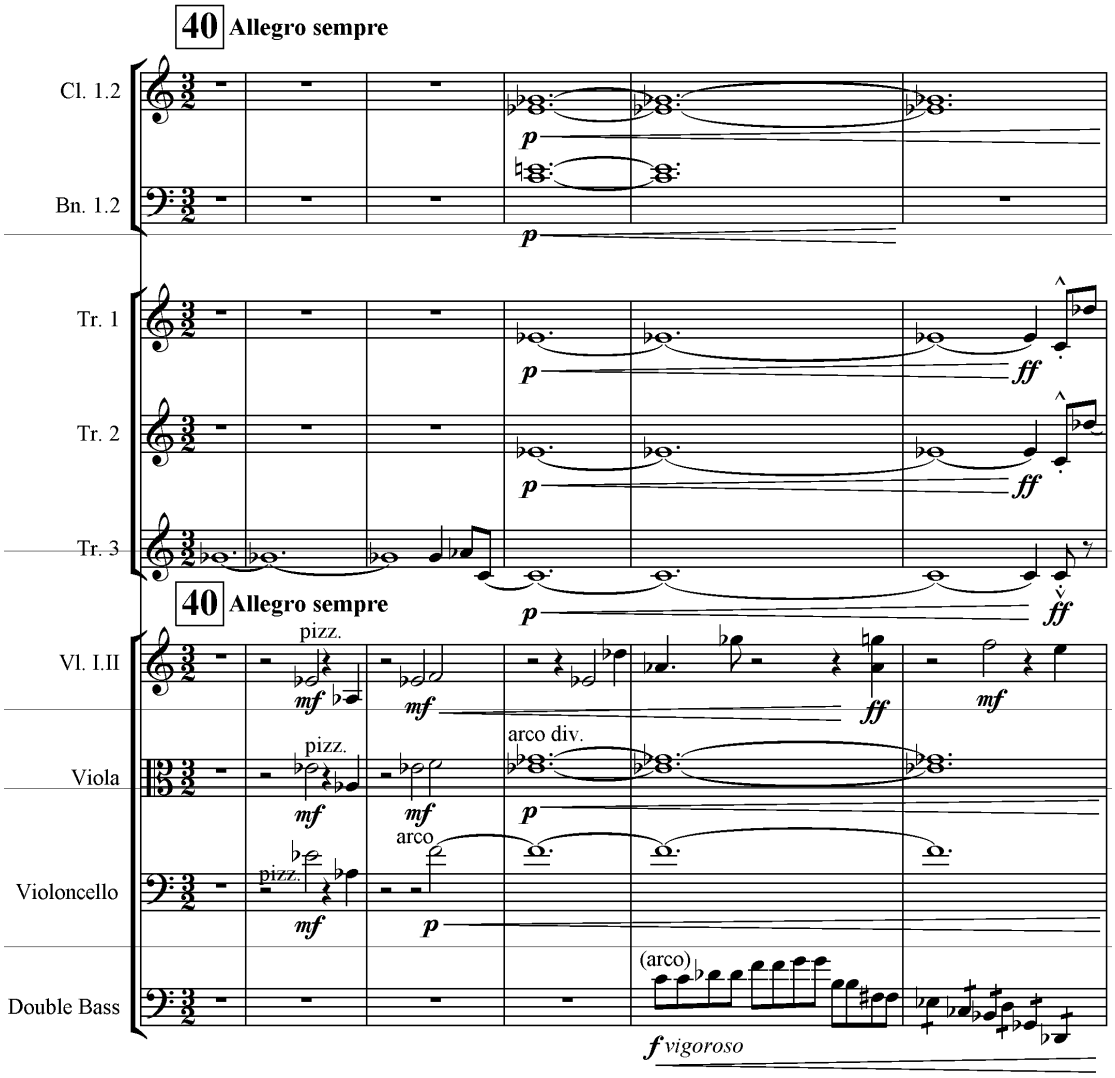
The second violins add expressive doubling pulsations to the main line with repetitions of its notes, an effect which will also be found in a number of passages where one line is played by three trombones, or three trumpets) and the celesta plays melismas starting on its pitches, doubled in overlapping minims by the two flutes.[37]

A Kind of Recapitulation: **[40]** to **[42]**–1

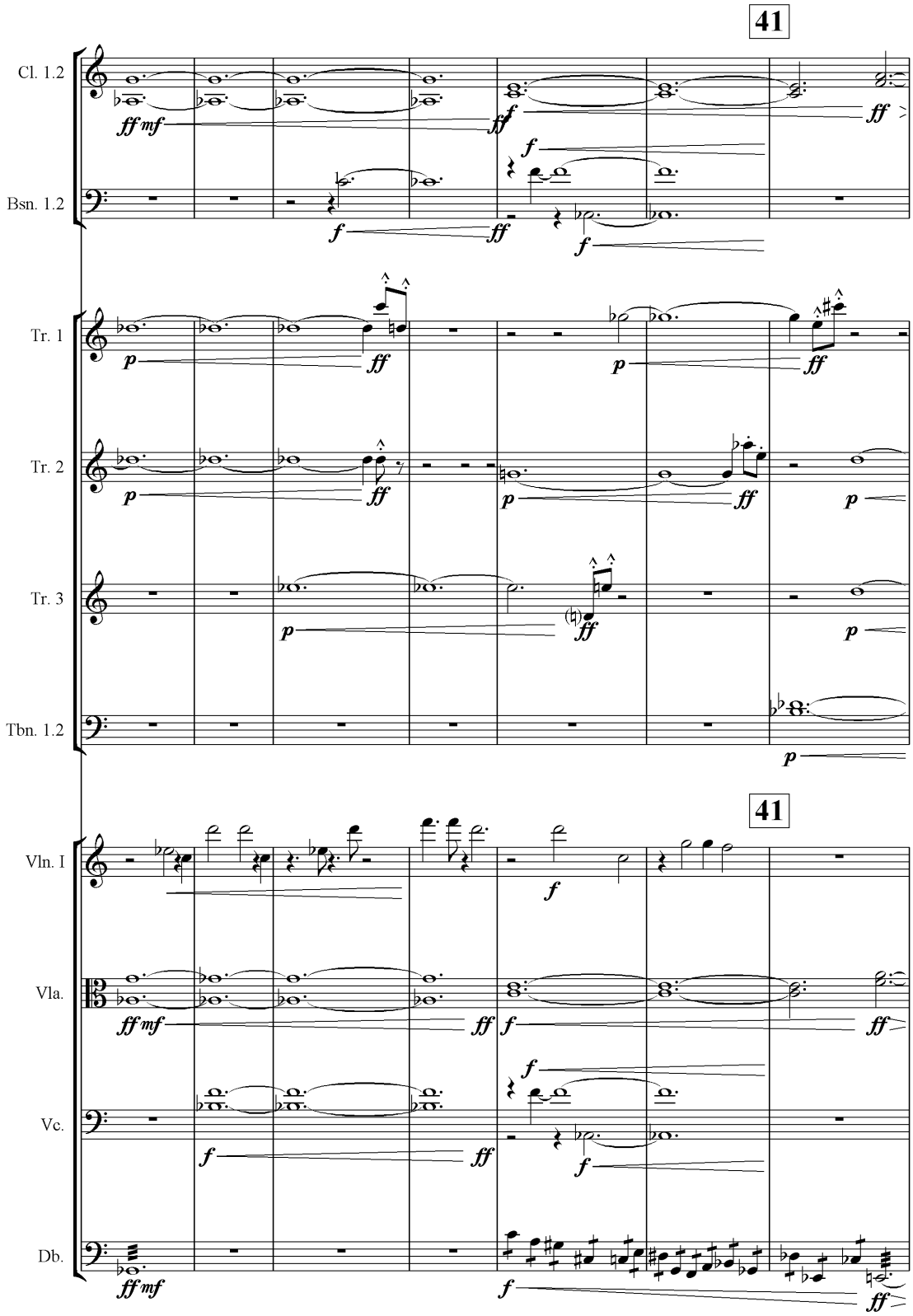
Appropriately for Davies's designation, the section (which begins with a Gloag climax/contrast moment) recapitulates the two elements of the Introduction, the recurrent figure from the exposition and the fanfare motifs from the Development, all four recomposed, although no path through the magic square is evident. Most of the instruments which have just been playing drop out. The clarinets and bassoons, soon doubled by violas and cellos, play new versions of the cadences from the beginning of

[37] Outwin, *Transformation Processes*, pp. 146–148.

the movement, the string pizzicati from the Introduction return transformed, the fanfare motives[38] are now played in repeated quavers and downward.



[38] Like those in the Bridge, these are mostly drawn from subsquares of the magic square: in the first motive (bars **[40]**+5 to 7) sets of four pitches are drawn successively from U, V and X; in the second (**[41]**–2 to +1) from Q, U ? and V (where '?' indicates that the four successive pitches F, A, A#, F# do not come from any one subsquare; and in the third and final motive (**[42]**–6 to –2) from U, ? and T (where '?' has a similar meaning).



Ex. 11.24 Beginning of ‘A Kind of Recapitulation (crotales part omitted).

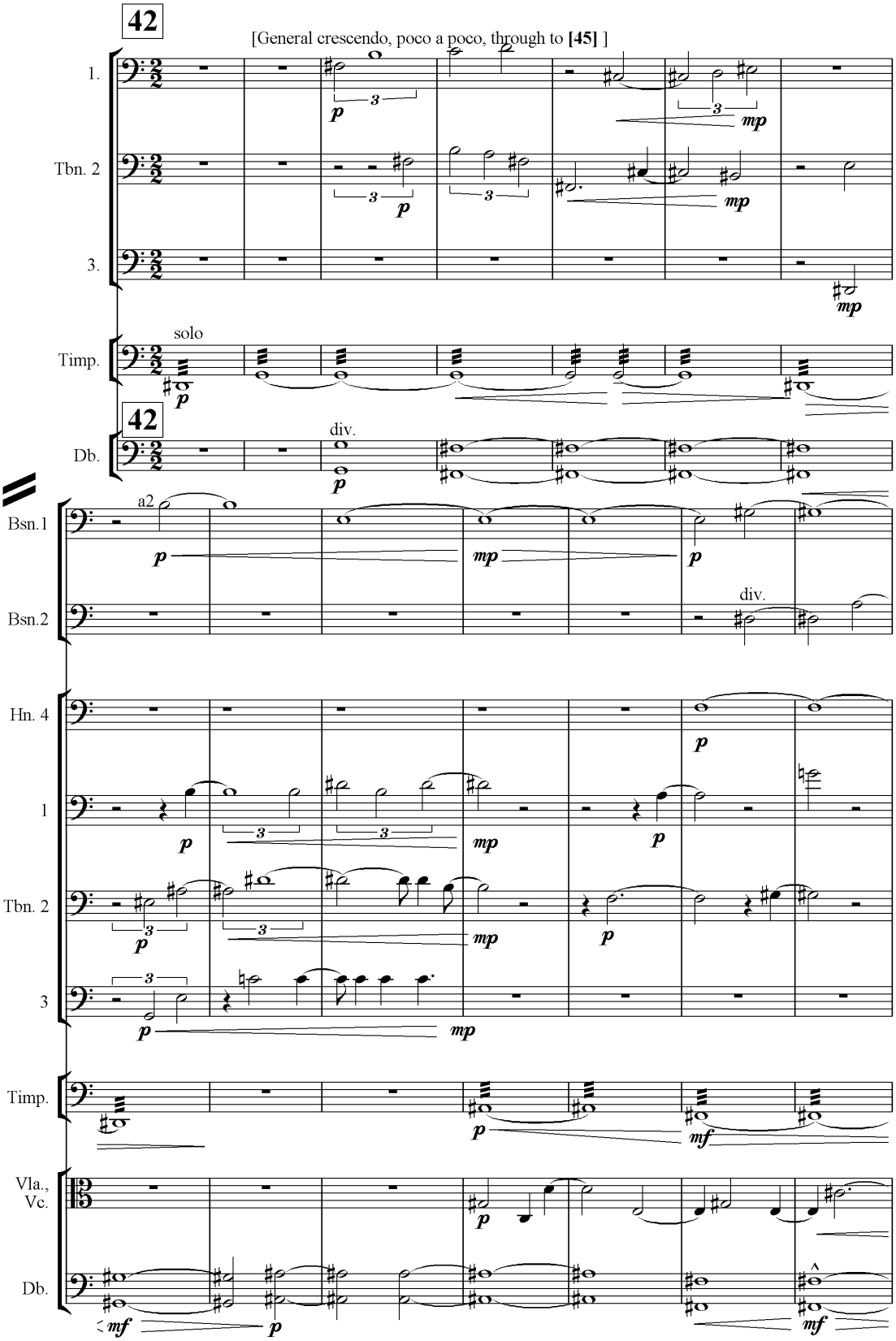
The recurrent figure comes back in a kind of antiphonal stretto, starting on the first trumpet, then building up to all three trumpets and the first two horns. It is hard to trace any plainsong-related transformations in this stretto, since it seems fragmented into three-note segments, and some of these (*e.g.* the first trumpet's Dβ, C, Eν in bar **[41]**–4 or the third trumpet's Eβ, D, Eν two bars later, *i.e.*, disregarding octave displacements, two consecutive semitones) are sequences which could not belong to any plainsong whatsoever, so that at least one of their notes is the result of a transformation, and the others could belong to any one of very many plainsongs: this sequence of possibly or certainly transformed three-note segments seems too fragmented for its structure to be discovered.

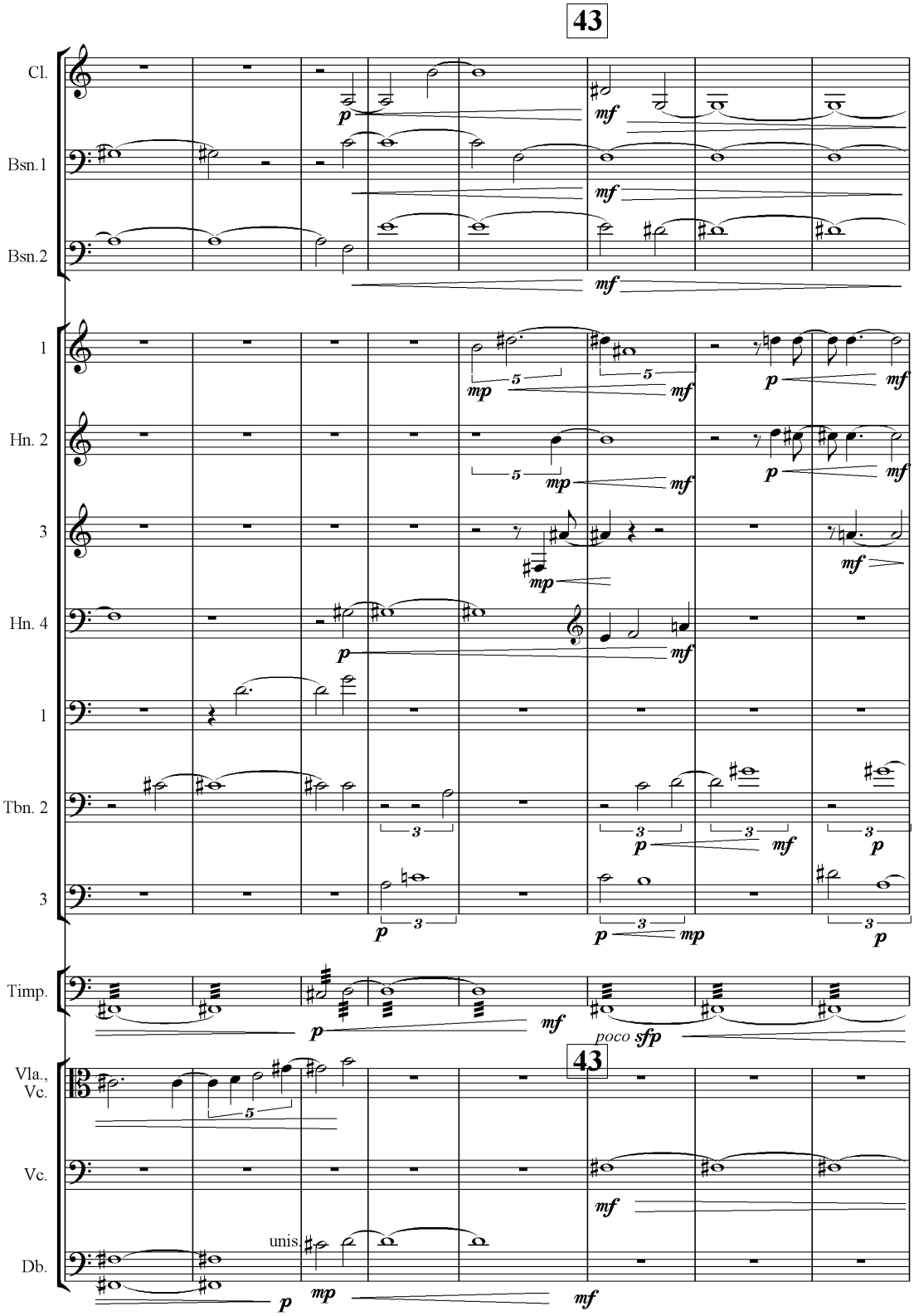
The section rapidly reaches a ***fff*** climax with a five-part homophonic recurrent motive on the first two trumpets and three horns.

Ending

Bridge: **[42]**+1 to **[45]**–1

Starting again ***p***, polyphony in various instrumental groups is built up to another ***fff*** climax


42
[General crescendo, poco a poco, through to [45]]
1.
Tbn. 2
3.
Timp.
solo
42
Db.
div.
Bsn.1
a2
Bsn.2
div.
Hn. 4
1
Tbn. 2
3
Timp.
Vla., Vc.
Db.



Ex. 11.25 Bridge passage.

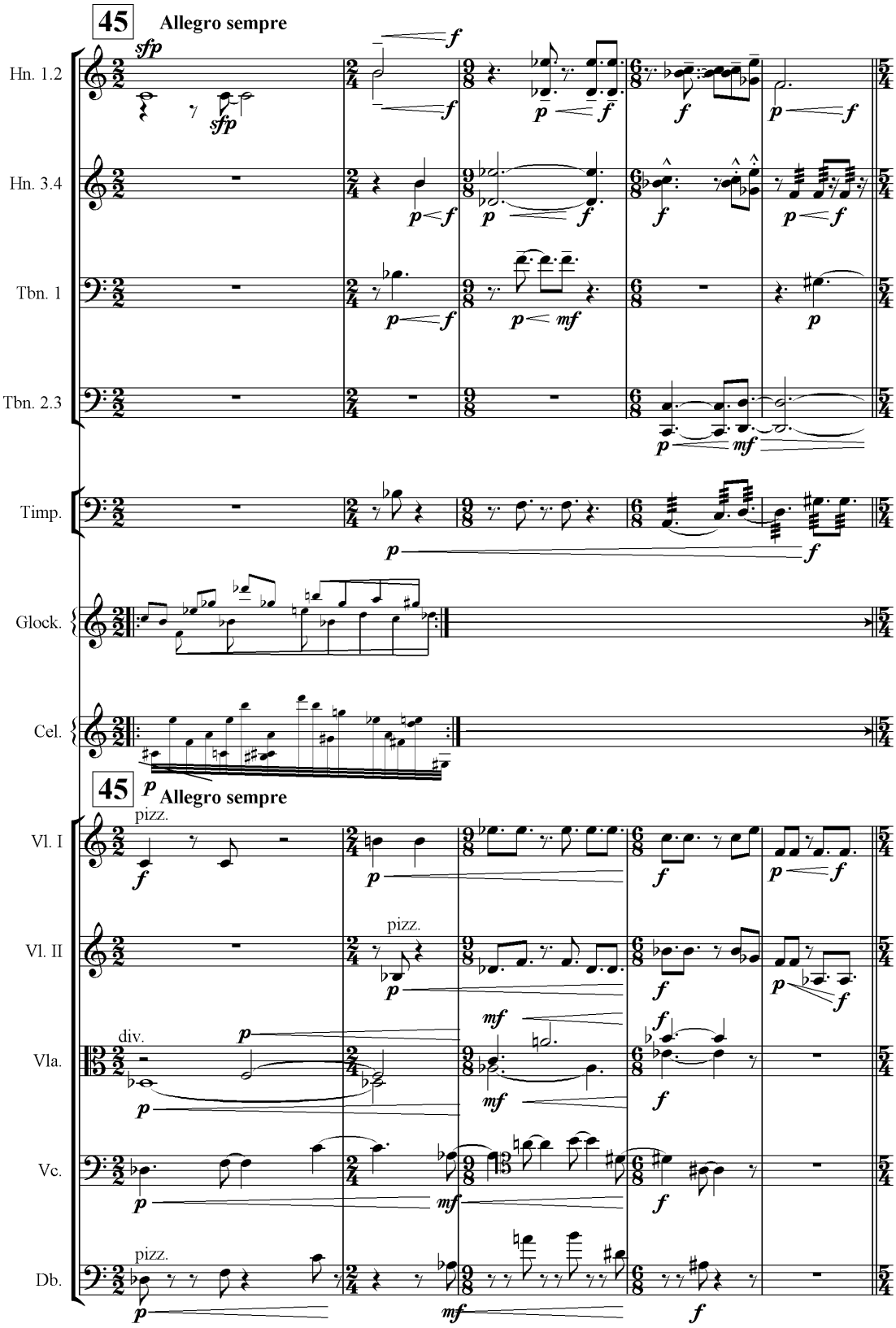
over a ‘cantus firmus’ on the double basses (doubled, approximately, by the timpani until **[43]**–1) of a series of pitches (but not durations) up the last column and back along the first row of the square: G, F#, G#, A#, F#, F#, C#, D, (where the cellos take over) F#, A, G#, B, E, C, F, C#, overlapping with C#, C from the centre of the square on the timpani.

Coda: **[45]**+1 to **[49]**–1

The coda has a quite intricate form, consisting of three (later five) layers of quodlibet counterpoint, accompanied throughout by whirling on crotales and celesta (later joined by the glockenspiel), and is divided into a number of subsections, separated by changes in the whirling (and, with two exceptions, by double barlines), which play continuously.

<table>
<tr><th></th><th colspan="3">Middle strand (pulsed)</th><th colspan="2">Lower strand</th><th colspan="2">Bottom strand</th><th colspan="2">Whirling</th><th colspan="2">Soprano strand</th><th colspan="2">Tenor strand</th></tr>
<tr><td>[45]</td><td rowspan="2">Horns, trombones</td><td rowspan="6">Violins I, II</td><td>V</td><td rowspan="6">Cellos, double basses, violas</td><td>V</td><td colspan="2" rowspan="2"></td><td rowspan="6">Crotales, celesta</td><td rowspan="2"></td><td colspan="2" rowspan="2"></td><td colspan="2" rowspan="2"></td></tr>
<tr><td>[45]+6</td><td>bV</td><td>S 4 T</td></tr>
<tr><td>[46]</td><td>Horns</td><td>bbV</td><td>U</td><td>Bassoons, timpani</td><td>Bass idea</td><td rowspan="4">Flutes, piccolo</td><td rowspan="4">Θ</td></tr>
<tr><td>[46]+8</td><td rowspan="3">Trumpets</td><td rowspan="3">bbV
4
bbbV</td><td>V</td><td colspan="2" rowspan="2"></td><td rowspan="3">Glockenspiel</td></tr>
<tr><td>[47]+2 3/9</td><td>W</td><td rowspan="2">Horns</td><td rowspan="2">Recurrent figure</td></tr>
<tr><td>[48]-3</td><td>X</td><td>Bassoons, trombones, timpani</td><td>Bass idea</td></tr>
</table>

The first subsection is as follows.



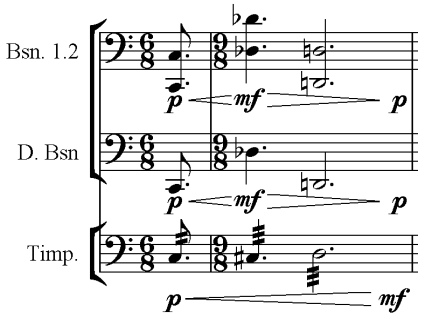
Ex. 11.26 First subsection of Coda.

The middle strand is played in counterpoint by brass, doubled by pizzicato first and second violins. The first pitches of the first subsection are drawn, in an order which it has not been possible to specify, from the central subsquare, V; those of the second from the strip, one cell wide, of 16 cells bordering V, which may be denoted V'; those of the third from the strip, one cell wide, of 24 cells bordering V', which may be denoted V"; and those of the last three subsections from the two outer strips, V" and V'". In this strand all lines have pulsations, duple or triple, so that the whole coda is suffused with them.

C# 1	F 6	C 2	E 7	B 3	G# 8	A 4	F# 9	D 5
A 6	G# 2	C 7	G 3	B 8	F# 4	D# 9	E 5	C# 1
D# 2	B 7	A# 3	D 8	A 4	C# 9	G# 5	F 1	F# 6
G 7	E 3	C 8	B 4	D# 9	A# 5	D 1	A 6	F# 2
G 3	G# 8	F 4	C# 9	C 5	E 1	B 6	D# 2	A# 7
D# 8	C 4	C# 9	A# 5	F# 1	F 6	A 2	E 7	G# 3
A# 4	F 9	D 5	D# 1	C 6	G# 2	G 7	B 3	F# 8
D 9	F# 5	C# 1	A# 6	B 2	G# 7	E 3	D# 8	G 4
G# 5	D# 1	G 6	D 2	B 7	C 3	A 8	F 4	E 9

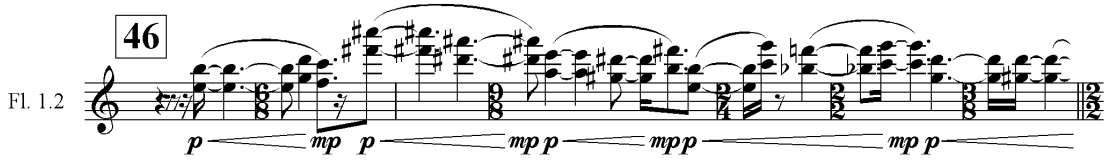
The lower strand is played by the cellos, expressively doubled by pizzicato double basses at each onset, and divided violas sustaining most pitches: the pitches in each subsection are derived, in an order which it has not been possible to specify, from one or two successive subsquares of the magic square.

In the third, fourth and sixth subsections the bass strand develops an idea on the bassoons consisting of a C which leaps an octave (or a minor or major ninth) and then falls back (in its first occurrence, shown below, only to a D), doubled on its first three occurrences by the tympani (which, however, subtract an octave from both the leap and the fall).



Ex. 11.27 Idea developed in the third, fourth and sixth subsections.

The soprano strand, which starts in the third subsection, consists of the diagonal path Θ with duration unit a semiquaver[39] played by the second flute and doubled at the fifth by the first flute and at the twelfth (not shown here) by the piccolo: as already mentioned (see *Chapter 15*: *Pitch-sequences*, *Diagonal line paths*), this path is the retrograde of the path γ played by the solo first and second violins in the Transition.



Ex. 11.28 Soprano strand of Coda.

Finally, starting in the fifth subsection, three horns play Davies's recurrent figure antiphonally, the two short notes at first triplet quavers, then semiquavers.

[39] There are deviations from the specified duration values with the C and Aβ in bar **[49]**–2

Close: **[49]**+1 to end

The pulsing stops, and is replaced by a constant whirling on glockenspiel, crotales, and celesta (now both hands), a held trill on the marimba and, most clearly audible five-octave sweeps down and up by the harp. The antiphonal statements of the recurrent figure continue, now in triads on the woodwind. Tremolo strings build up a nine-pitch-class chord (omitting only the pitches B, G and D), from violins downward to double basses (some of the lower strings playing harmonics, so that the lowest pitch-class is C# = Dβ), each starting ***p*** and swelling to ***fff***. The movement ends with a massive ***sffz*** Dβ (Davies's 'dominant': see *The Composer's Comments* quoted above), played by thirteen instruments, swelling to a ***fff*** ten-pitch-class chord (omitting only Dβ and E) followed by an eight-pitch class chord (omitting only C, B, E and D: the most favoured pitch-class, F, Davies's tonic, is played by six instruments).

Second Movement

The Composer's Comments

> …a short slow movement, that changes into a kind of 'scherzo' (without the tripartite formal connotations of the name, except as a 'ghost' in the form's far hinterland). This 'lento that becomes a scherzo' is now the second movement.[37]
>
> …what is now the last chord of the first movement makes, retrospectively, the first chord of the second.[38]
>
> The second movement—on D, dominant F sharp—starts with a statement of the 'Ave Maris Stella' plainsong on alto flute (foreshadowed, but not stated plainly, at the very opening of the first movement). This is next split between the three trumpets, and is slowly transformed into the material of a fleeting 'scherzo' whose tempo insinuates itself (in flute, piccolo and clarinet and with solo timpani) across the next flute solo, and takes over completely in the following woodwind chords. The movement accelerates towards its eventual evaporation.[39]
>
> The transformation from lento to scherzo in the second movement stems from the first movement of Sibelius's Fifth Symphony, where a *moderato* sonata-style movement becomes a scherzo.[40]

Discussion

It is fairly straightforward to make out the general outline of the form of the movement from these comments.

---

[37] Davies, 'Symphony'.
[38] *Ibid*.
[39] *Ibid*.
[40] *Ibid*. The tempo indications in the following S*ummary analysis table* show the gradual speeding-up throughout the whole movement, as opposed to the more clearly bipartite structure of Sibelius's movement, which remains at *Tempo molto moderato* (until rehearsal mark **L**, where there is a brief *un pochetto allarg. al largamente*), and only at three bars before rehearsal mark **N**, after 28 pages of the score, begins a continuing acceleration to the end. (Unfortunately, Hansen of Copenhagen, who publish the score, do not provide it with bar numbers, so that even if they were to be given here they would be useless to any reader who has not counted and entered them into the score.)

Summary analysis table

Lento	Statement	Start to **[52]**–1	Lento θ = 60	Repeat of closing chord of first movement. *Ave maris stella* on alto flute.
	First transformation	**[52]**+1 to **[54]**+3	Andante con moto θ = 80 accel. poco a poco	'Split between three trumpets';[41] doubled by marimba.
	Second transformation	**[54]**+4 to **[56]**+3	θ = 100 allando[42]	Cellos; marimba heterophony
Transition	Interlude	**[56]**+4 to **[58]**–1		Solo violin
	Third transformation	**[58]**+1 to **[60]**–1		Cellos in octaves with double basses. Scherzo material on violins.
	Codetta and Introduction	**[60]**+1 to **[62]**–1	(θ κ = 112)	Alto flute, woodwinds, timpani.
Scherzo	Exposition	**[62]**+1 to **[65]**–1	Allegro moderato (θ κ = 112)	Whole orchestra
	Development	**[65]**+1 to **[68]**–1		String up and down glissandi, chords on other instruments.
	Recapitulation	**[68]**+1 to **[74]**–1	θ κ = θ Allegro (θ = 112)	Whole orchestra
	Coda	**[74]**+1 to end	Allegro vivo θ = 144 accel. sempre Presto θ κ = 176 accel. sempre Poco meno presto θ κ = 112 senza rit.	

The 'Statement' and 'First transformation' are as explicitly described by Davies (above), although not in those terms. The second transformation is also very clear. Thereafter a certain amount of guesswork is sometimes necessary. The 'Interlude' seems definitely not to be a transformation, and the 'Third transformation' may in fact

[41] See '*The Composer's Comments*' above.
[42] Subsequent repeats of identical tempo indications, and repeated directions 'L'istesso tempo' have been omitted

not be a transformation but another interlude. The 'Codetta and introduction' is the subsection where, as Davies puts it, 'the material of a fleeting 'scherzo' insinuates itself (in flute, piccolo and clarinet with solo timpani) across the next flute solo'. The 'Development' is the subsection Davies[43] refers to as '*Anfang Entwicklungsgruppe*', so the subsections preceding and following it are presumably 'Exposition' and 'Recapitulation'.

Despite Davies's comment (quoted above) that the 'scherzo' lacks ' … the tripartite formal connotations of the name, except as a 'ghost' in the form's far hinterland', it appears, as may be seen from the above *Summary analysis table*, to have a definite tripartite structure.

The movement begins with virtually the same ***fff*** staccato quaver chord as the first movement ended Bβ, F, Gβ, A (but without the sole Aβ): as Davies puts it ' … the last chord of the first movement makes, retrospectively, the first chord of the second.'[44]

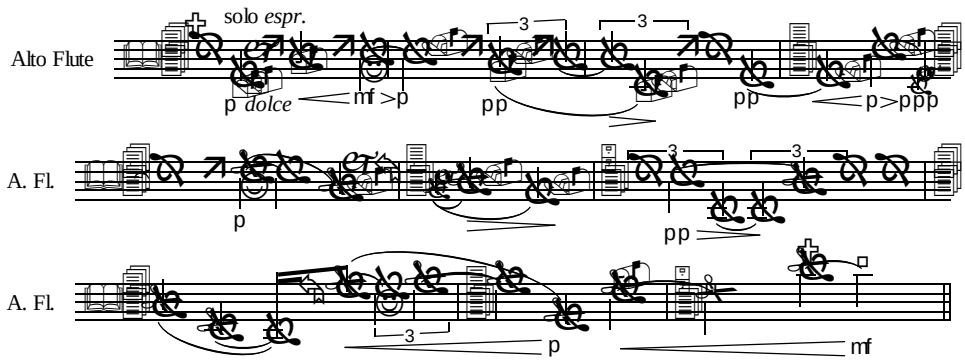
Lento

This consists of a statement of the *Ave maris stella* theme, transformed as shown above (*Basic material*, row (b) of the third figure), on the alto flute. This is followed by a number of transformations. This section is therefore a kind of transformation variations (see *Chapter 5*, under *Two new forms*).

[43] Add. Mss., 71327, Sheet 29.
[44] Davies, 'Symphony'.

Statement of theme: Start to **[52]**–1

After the ***fff*** staccato quaver chord, the theme starts in the second bar of the movement.

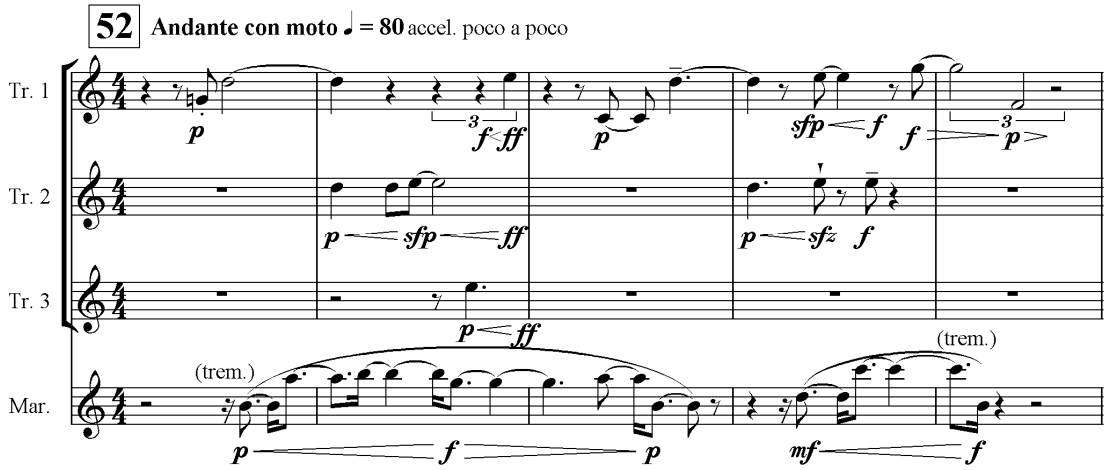


Ex. 11.29 *Opening statement of Ave maris stella*.

This is clearly recognisable, in its following transformations (which have been discussed above, *Compositional Techniques*, *Transformations*), by the opening rising fifth, followed by a turn on the upper note. It also clearly, as Davies says, has tonic D.

First transformation: **[52]**+1 to **[54]**+3

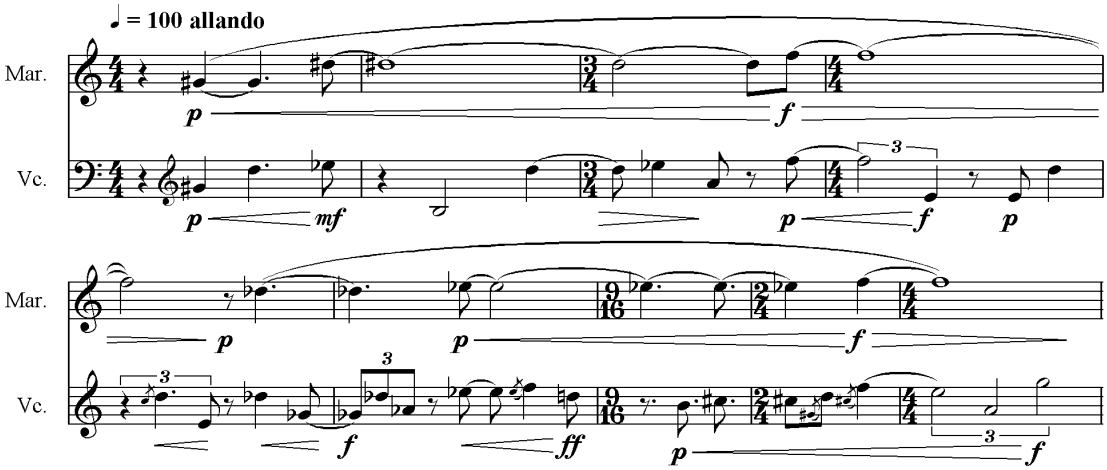
This is a fourth higher than the statement (thus with tonic G) and, as Davies says, shared between three trumpets, with some expressive doubling: the turn on the upper note of the fifth is slightly elaborated by an octave displacement . It is doubled by the marimba (at the original pitch), whose part looks rhythmically complicated, but only because its notes start a semiquaver later than might be expected. When the marimba has finished its statement, it starts another transformation.



Ex. 11.30 First transformation of *Ave maris stella*.

Second transformation: **[54]**+4 to **[56]**+3

The second transformation, transposed up a semitone and now somewhat faster, is played by the cellos , expressively doubled (up to bar **[56]**–4) by the marimba sustaining certain pitches.



Ex. 11.31 Second transformation of *Ave maris stella*.

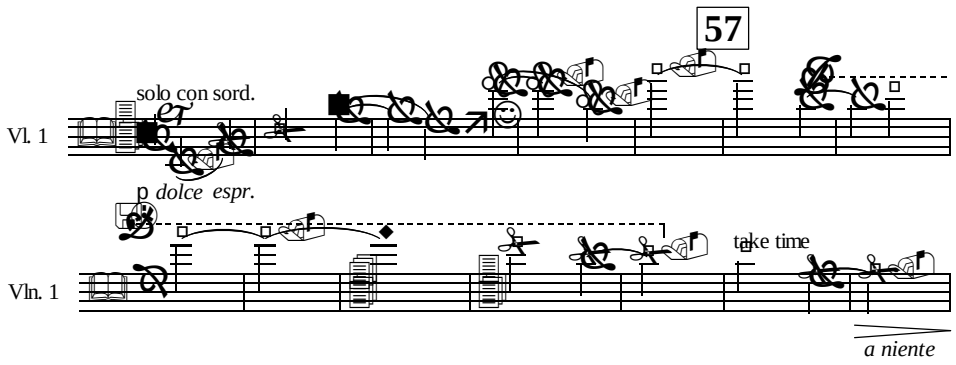
At the end, everything dies away to ***pp***.

Transition: **[56]**+4 to **[62]**–1

The transition now involves a further transformation (or possibly two: see below) of the *Ave maris stella* theme and also elements of the coming scherzo.

Interlude: **[56]**+4 to **[58]**–1

The interlude is played by a solo first violin, and is almost dodecaphonic.

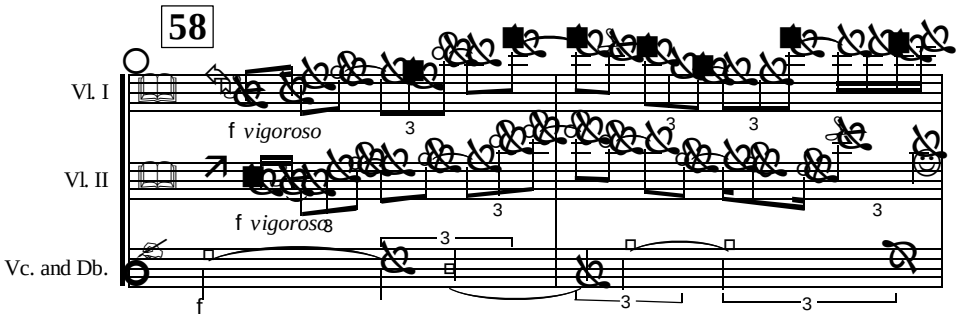


Ex. 11.23 Interlude.

Lacking the opening rising fifth and turn of the *Ave maris stella* theme, it seems too remote from it to be a transformation, and is hard to account for. This section ends with two staccato ***sffz*** chords (the same as at the opening, save for a B♈ on the glockenspiel).

Third transformation: **[58]**+1 to **[60]**–1

The transformation, now lacking the turn on the A is played by the cellos and double basses in octaves, whilst at the same time, the first and second violins introduce material from the coming scherzo.



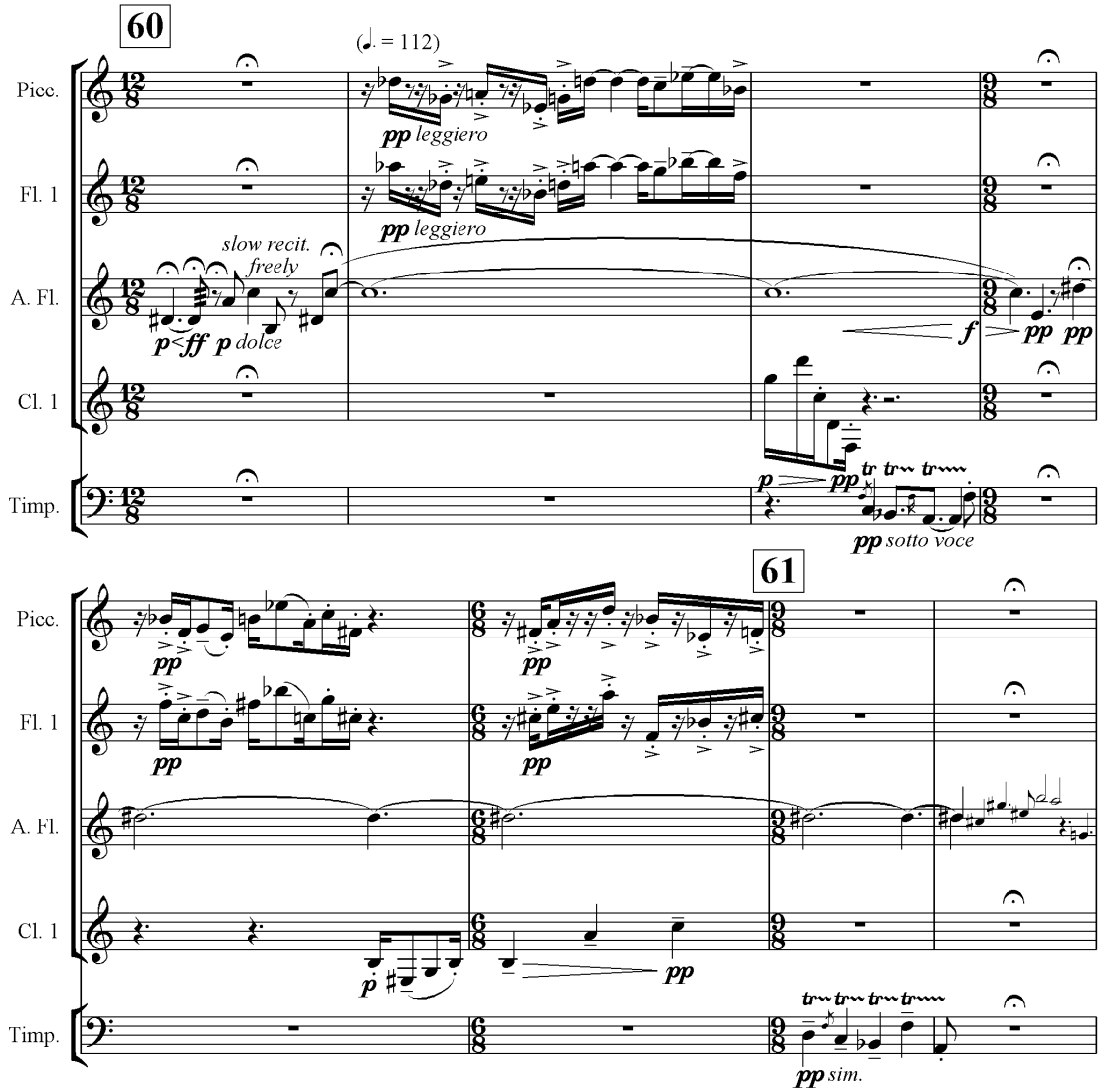
Ex. 11.33 Third transformation of *Ave maris stella*.

The section ends with a **fff**.

Codetta and Introduction: **[60]**+1 to **[62]**–1

That is, a codetta to the *Lento* and an Introduction to the coming Scherzo. The alto flute alludes to its solo at the opening of the movement, with held notes whilst, as Davies puts it,[45] the tempo of the coming scherzo 'insinuates itself' on other woodwind and timpani.

[45] Davies, 'Symphony'.



Ex. 11.34 Codetta and Introduction (string parts and pitched percussion, save for timpani, omitted).

Scherzo[46]

Exposition: **[62]**+1 to **[65]**–1[47]

This is the passage referred to by Davies involving doubling 'where the mood is calmly pastoral to an extreme degree'.[48] (The doubling is, in fact, not rigorous, the

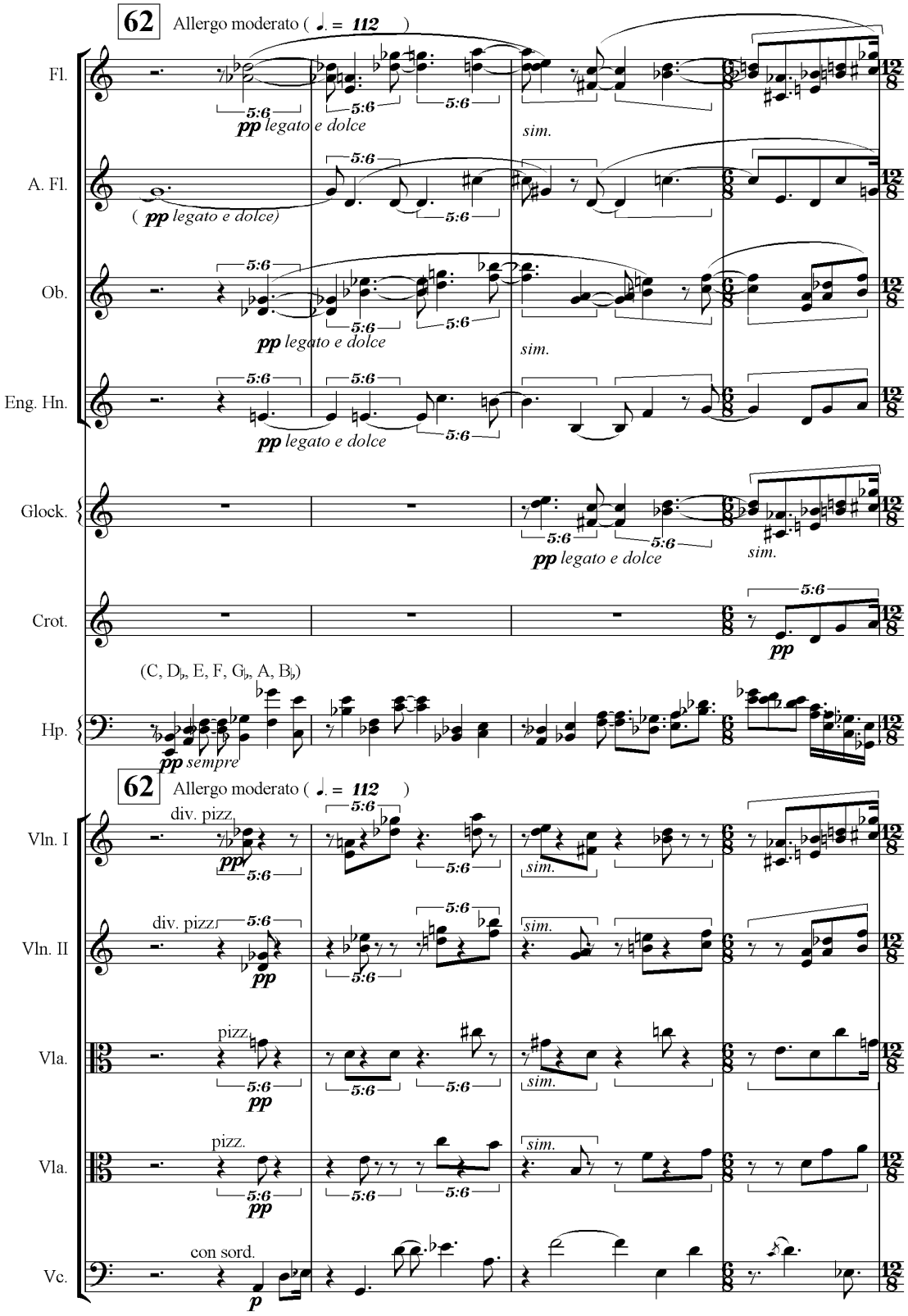
[46] In the pre-composition charts (Add. Mss., 71327, sheets 34, 29, 51, 34 verso, 49, 50, 33) Davies consistently refers to all this part, from **[62]**+1 to **[75]**+2, as 'Giga', and indeed, from its beginning (indeed from **[60]**+1) to **[66]**+5 it is in compound time.

[47] See the footnote on Davies's speculation on the significance of his doubling in *Chapter 2, Technical Devices, Doubling*.

[48] Davies, 'Four Composition Questions Answered', pp. 7–8.

two upper lines in each strand starting in fourths, but then using other intervals quite freely.)

The opening of the scherzo is easier to follow on paper than by ear (see the comparison of Davies with Browning in *Chapter 1* under *The audibility of Davies's serial procedures*). Two flutes and the alto flute play one syncopated strand of triads (in the rhythmic ratio 5:6), with pizzicato first violins and first violas (and later glockenspiel and crotales) expressively doubling onsets: two oboes and the cor anglais play a second, differently syncopated, strand of triads (again in the rhythmic ratio 5:6), with pizzicato second violins and second violas similarly expressively doubling onsets. Against these two strands the harp plays differently syncopated dyads and, underneath, muted cellos play yet another transformation of the initial theme, this time with tonic A, which soon drops out, leaving the scherzo to proceed on its own.



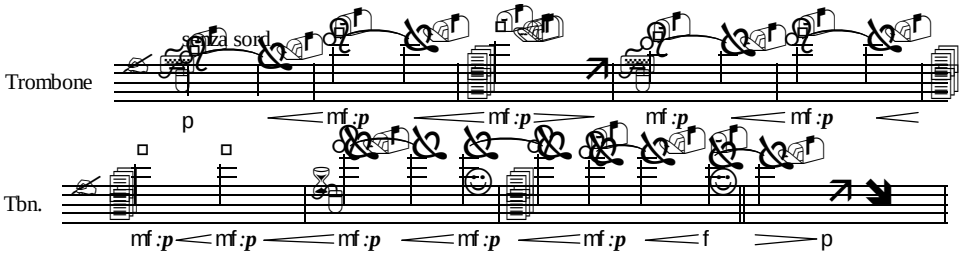
Ex. 11.35 Opening of exposition of scherzo.

Development**:**[49] **[65]**+1 to **[68]**–1

This section is characterised by chords, short on the woodwind, held on the strings. Soon solo strings, starting with the topmost and gradually moving downwards to the double basses, begin slow up and down melodic glissandi.

Recapitulation: **[68]**+1 to **[74]**–1

The recapitulation is very free. At **[69]**+4 there is a brief interlude. The scherzo material dies away, and the first trombone plays a final transformation of the *Ave maris stella* theme, this time with tonic Aβ.



Ex. 11.36 Final transformation of *Ave maris stella*.

The scherzo then comes rushing back. At **[72]** there is the direction *poco a poco accel. al fine*.

Coda: **[74]**+1 to end

The coda consists of three short passages. The first, relatively slow but accelerating (**Allegro vivo** θ**.** = **144 accel. sempre**), consists of eight bars of rolls on the timpani with accompaniment on the bass clarinet, harp and two solo double basses, all marked ***pp***. In the second, faster (**Presto** θ**.** = **176 accel. sempre**), starting ***pp*** but becoming a little louder, four bars of scherzo-like material come rushing back.

[49] This is referred to in Davies's pre-composition charts (Add. Mss., 71327, sheet 29) as 'Anfang Entwicklungsgruppe': it is not clear why he uses the ordinary word 'Entwicklung' for 'developmental process' whereas 'Durchführung' would be more usual for 'development section'.

The third (Poco meno presto θ**.** = **112 senza rit.**) consists simply of three bars of repeated triplet chords on the glockenspiel, starting ***f*** and diminishing to ***ppp***, supported by timpani.

Third Movement

The Composer's Comments

The third movement—the slow movement proper (on F sharp, dominant A sharp/B flat)—starts with a long tripartite melody on cellos and becomes another invocation of the extraordinary, almost unearthly, treeless winter land-and-seascape of the Orkney island where I live [Hoy].[50] But it is not merely descriptive or atmospheric, and the transformation processes to which the melody is subjected are of a different order (paced by a new magic square) more suited to a relaxed motion but, I trust, no less rigorous and musically logical. After a section for strings alone, in which the registration gradually moves upward, the movement closes with a restructured version of the opening melody on alto flute, then flute, then piccolo, which refers back to the alto flute's solo lines in the second movement and prepares the tonality of the last movement.[51]

The cross-phrasing and time-perspective devices in my third movement were developed from the opening of Schumann's Second Symphony[52]

[50] It is not clear from these comments just when the movement becomes this invocation (which might be any time after the opening long melody on cellos), and whether the becoming is gradual or abrupt.
[51] Davies, 'Symphony'.
[52] *Ibid*. On this, see the comments under *Cross-phasing and time perspective* below.

Ill. 11.1 '…the extraordinary, almost unearthly, treeless winter land-and-seascape of the Orkney island where I live': looking across Rackwick Bay in Hoy towards Davies's renovated croft Bunertoon (in the snowfields, although it is hard to make out exactly where). (Photograph courtesy of Doug Houghton: see above, *Acknowledgements*.)

Overall Structure

The third movement is highly structured and unified. There is, first of all, a very clear nine-fold overall form (shown in the *Summary analysis table* below), using the three technical procedures (one devised by Boulez and two by Davies), which have underlain the three major periods of his work.

The third of these is magic squares. The basic thematic material of the movement derives from the outward, anticlockwise spiral path P-0 through the 9 × 9 magic square already used in the first movement. This time the path is divided into nine segments of increasing length, which are indicated in the table of the square by small integers in the bottom left-hand corner of each cell: the segments begin on the

pitches C, C#, E, F, A, E, B, D, D# and G respectively, and are treated as independent units.

C# 1	F 6	C 2	E 7	B 3	G# 8	A 4	F# 9	D 5
A 6	G# 2	C 7	G 3	B 8	F# 4	D# 9	E 5	C# 1
D# 8 **2**	B 7	A# 3	D 8	A 4	C# 9	G# 5	F 1	F# 6
G 7	**E** 6 **3**	C 8	B 4	D# 9	A# 5	D 1	A 6	F# 2
G 3	G# 8	**F** 4 **4**	**C#** 2 **9**	**C** 1 **5**	**E** 3 **1**	B 6	D# 2	A# 7
D# 8	C 4	C# 9	A# 5	F# 1	F 6	**A** 5 **2**	E 7	G# 3
A# 4	F 9	D 5	D# 1	C 6	G# 2	G 7	**B** 7 **3**	F# 8
D 9	F# 5	C# 1	A# 6	B 2	G# 7	E 3	D# 8	**G** 9 **4**
G# 5	D# 1	G 6	D 2	B 7	C 3	A 8	F 4	E 9

The second technical procedure is that of transformation squares: the movement is a set of transformation variations (see above, *Chapter 5*, under *Two new forms*) on the segmented spiral path. The transformations (shown in *Appendix D*) which exactly preserve the segmentation of the path, change the path in nine steps into its retrograde.[53]

[53] The 'new magic square' by which the transformations are 'paced' (see *The Composer's Comments* above) is almost certainly the table given in *Appendix C:First Symphony Third Movement Transformations of the Segmented Anti-clockwise Outwards Spiral Path of Magic Square*, which is not a square but a rectangle, and does not appear to be 'magic' since the row sums are not all the same (the sums of the first and last row are both $9 \times (1+2+3+ \ldots + 9) = 405$, as they must be, but the sums of the rows between these two are all less than 405), nor are the column sums. Further, none of the transformations is played in a completely straightforward manner. Minor differences (of which there are not a few) from the transformations given in Davies's manuscripts, of which the Table in *Appendix D* is a transcription will in general not be mentioned: indeed, since the transformations (except for the first and last, which are prescribed by the magic square) simply change the first into the last apparently fairly freely, subject only to the requirement that each change be, in general, fairly slight, so they have no privileged status. Differences from them, which may well be Davies's second thoughts, can be though of as equally valid alternative transformations, and will in general not be mentioned.
There is a slight difference between the numbers of the transformations, which Davies gives from 1 to 9, and those of the variations, which it is natural to give as Theme, Variation 1, *etc.*; also, since Variation 6 is on transformations 7 and 8 in counterpoint, there are only seven variations. (See the *Summary analysis table* below.)

It may be noted that whereas in the first movement paths through the magic square and transformations (of the recurrent figure) occur separately or, in the Bridge section, are loosely combined, here they are tightly unified as a set of transformations of a single (diagonal) path.

The third technical procedure is an extension of that of transposition squares (see *Chapter 3: Transposition Squares*). The successive transformations are transposed so that they start on the successive initial pitches of the segments of the original path, an instance of *übergreifende Form* (of which it has already been noted in *Chapter 3* that transposition squares are instances).

The synthesis of these three procedures makes the whole movement a higher-order serial structure. As has been seen in Chapter 1 above, magic squares, transformation processes and transposition squares are two dimensional structures, and their synthesis here is a three-dimensional serial structure.[54]

A second feature of the form of this movement is that, as is made clear by Davies's structural annotations in his manuscript, it is overlaid by sonata form, with a tripartite exposition (Theme, Variations 1 and 2), Development (Variations 3–6) and Recapitulation and Coda (Variation 7). (This analogous to the last movement of Brahms's Fourth Symphony, where, according to Pascall, there is a 'synthesis of passacaglia and sonata forms'.[55])

[54] Although this process applied to a series produces a transposition square, which is a two-dimensional structure, the transposition process here does not add any pitches, and thus does not add a further dimension.

[55] Pascall, Robert, 'Genre and the Finale of Brahms's Fourth Symphony', *Music Analysis*, 8(1989), pp. 233–245.

Summary analysis table

	Transf.		Section		Instr.	Segmental structure									
Theme.	1: C	Beginning to **[80]**–1	Exposition	First Group	Vl. I								8		
					Vc.	1	2	3	4	5	6	7	9		
Var. 1	2: C#	**[80]**+1 to **[83]**+6		Middle Section	Bsn. 1						7	8			
					Hn. 1	1	2	3	4	5	6	9			
Var. 2	3: E	**[83]**+7 to **[86]**–1		Reprise of First Group	Vl. I						9				
					Vl. II						8				
					Vla.	1	2	3			7				
					Vc.				4	5	6				
Var. 3	4: F	**[86]**+1 to **[91]**–1	Development		Many						7				Slight overlapping
						1	2	3	4	5	6	8	9		
Var. 4	5: A	**[91]**+1 to **[94]**–1			Hn.						6				Greater overlapping
					Hn.							7			
					Hn.							8			
					Tb.		2		4						
					Tb.	1		3		5			9		
Var. 5	6: E	**[94]**+1 to **[97]**–1			Strs.	9	8	7	6	5	4	3	2	1	Chords
Var. 6	7: B, 8: D#	**[97]**+1 to **[103]**–1	End of Development		Vl. I	1	2	3	4	5	6	7	8	9	Counterpoint
					Vl. II	1	2	3	4	5	6	7	8	9	
Var. 7	9: G	**[103]**+1 to end	Recapitulation/Coda		Picc.										
					Fl.							9			
					A. Fl.					5					
					Bsn.							8			
					Hn.						6				
					Tbn.	1	2		4						
					Mar.						7				half speed
					Vc.			3							

Cross-phrasing and time-perspective in the movement

These two terms, used by Davies at the end of *The Composer's Comments* above, are neither conventional nor entirely clear. 'Cross-phrasing', by analogy with 'cross-rhythm', presumably refers to the fact that, as may be seen from the *Summary analysis table* above, segments of the theme are played against one another. 'Time-perspective', by analogy with visual perspective, in which distant objects appear smaller, presumably means that earlier passages appear shorter or faster, and therefore (although this interpretation is more speculative than that of 'cross-phrasing') that, to compensate, later passages should be shorter than corresponding earlier ones: this will happen if there is cross-phrasing towards the end of sections. Indeed, as may again be seen from the *Summary analysis table*, there is increasing cross-phrasing, both within most sections (Theme and all Variations except 5 and 6) and between sections up to Variations 5 and 6) as the movement proceeds. (Something similar does indeed occur in the opening of Schumann's Second Symphony.)

Complementary ideas

A third feature of the structure is the occurrence, in most sections, of two complementary ideas, tremolo string chords and triads derived from three-element row segments of the original square. The ideas are complementary because the tremolo string chords do not seem to be associated with any particular serial structure – indeed they have different contents in different subsections, expressively doubling the cello line in the theme, being free in variations 2 and 3, being segments of the transformed path in variation 5 and being a triad at the beginning of variation 7 – whereas the triads all have related serial structure – being, as mentioned, derived from three-element row segments of the original square – but have different instrumentation on almost every appearance.

	Transf.	Tremolo string chords		Triads	
Theme.	1	Viola	Heterophonic doubling of cello line	Piccolo, flutes; Clarinets	H27 … H1
Var. 1	2			Trombones; Horns	Irregular
Var. 2	3	Cellos, violas	Free chords	Flutes	Irregular
Var. 3	4	Violas, violins II	Intermittent free chords		
Var. 4	5				
Var. 5	6	All strings except basses	Segments of transformed path, in reverse order	Horns, trombones	HQ, HS, HT, HU, HV, HW, HX, HY, HZ
Var. 6	7,8				
Var. 7	9	Basses, cellos; violas	H27	Basses, cellos; Violas, marimba; Horns, woodwind	H27 H26, H25 Irregular H24 … H13
				Harp; pizzicato strings	H12 … H1

Although, with one exception in variation 5, the triads remain essentially the same, there is a progression in the tremolo string chords throughout the movement, from simple dyads in the opening, through larger chords in variations 2 and 3, to variation 5, which may be considered formally the apex of the movement, where the string tremolo idea unites with that of the segments of the transformation, *i.e.* the chords *are* these segments, in reverse order, so that in this variation the chords start very large(16-note) and step by step diminish to end the progression with a single E. In this variation, too, the three-element row segments of the triads coalesce to become 3 × 3 subsquares of the original square. There is a final brief recurrence at the very beginning of the final (7th) variation, when the two ideas unite and tremolo cellos and basses play H27, followed by tremolo violas and marimba playing H26 and H25.

Exposition

First Group: Theme (First Transformation): Beginning to **[80]**–1

The melody[56] is played by muted cellos, expressively doubled both with pulsations from muted pizzicato first violins and also with certain pitches sustained by tremolo marimba and (almost identically) muted tremolo (*sul pont.*) violas. (The texture of gradually built up tremolo string chords recurs in variations 2, 3 and 5.) Segment (8) of the melody is played by the first violins in counterpoint with (9) by the cellos (the first note of the latter, G, is an *Ausfall*, being the second note of (8) on the first violins). The statement of the theme is thus reminiscent of that of Schoenberg's *Variations*, Op. 31, in which the first three quarters of the theme are played by the cellos, the last quarter by the first violins, with a counterpoint – containing a fragment of the theme – on the cellos.[57]

There are two other (quodlibet) contrapuntal strands in the statement of the theme. One consists of three-note row segments from the original square in the order H27, H26, … ,† H2, (although sometimes with some freedom and *Ausfälle*), played by piccolo and flutes (in the third part, by clarinets and bass clarinet). The other strand consists of one-, two-, or three-note phrases on the timpani (played with wooden xylophone sticks) which it is hard to derive from the square or construe as heterophony. There is, however, a structure involved: their initial sequence of pitches, Bβ, F, C, D, Aβ, Gβ, Gν, Dβ, is played rapidly by the harp at the beginning of the third part, and returns on the timpani in the fourth part.

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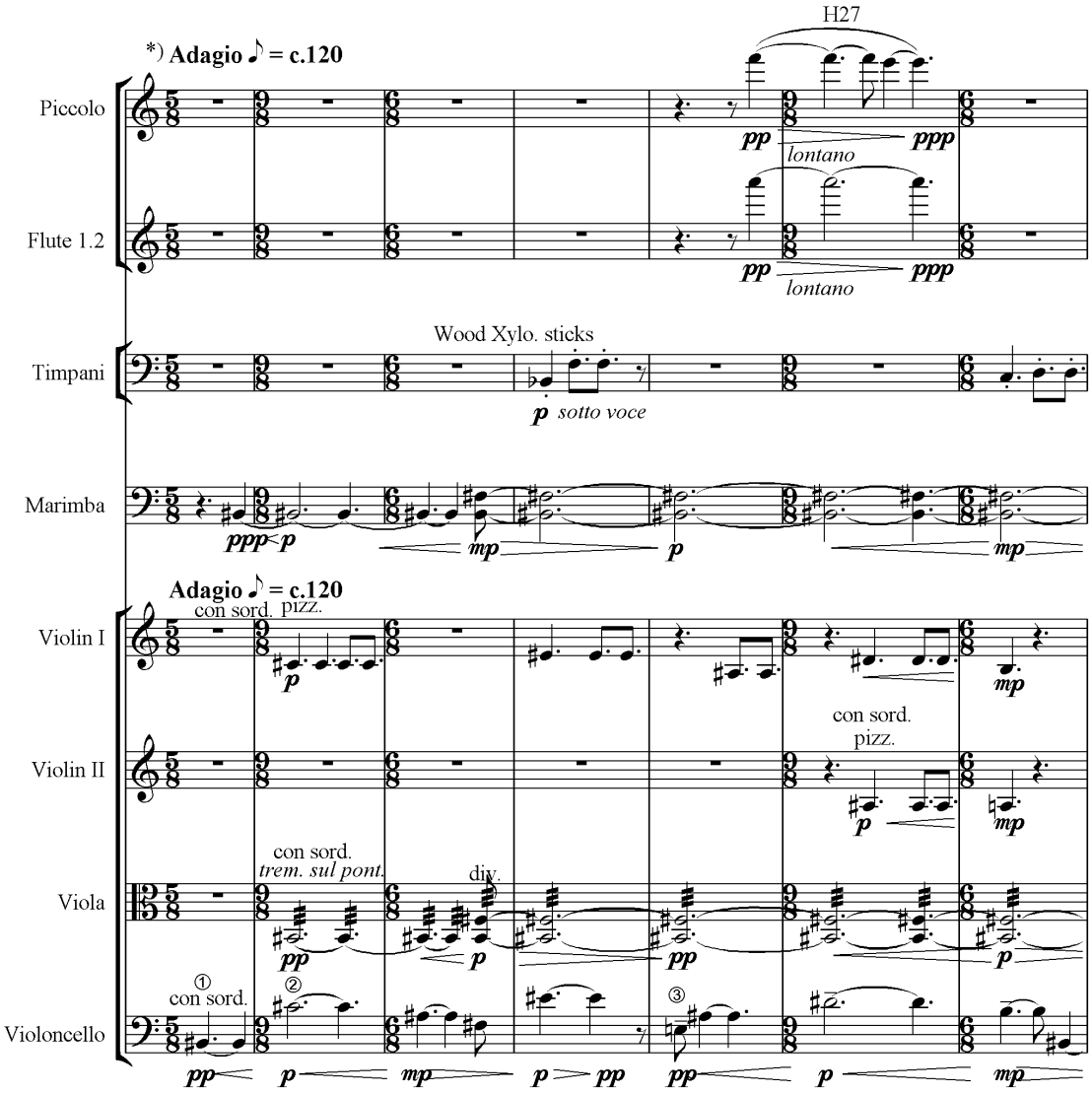
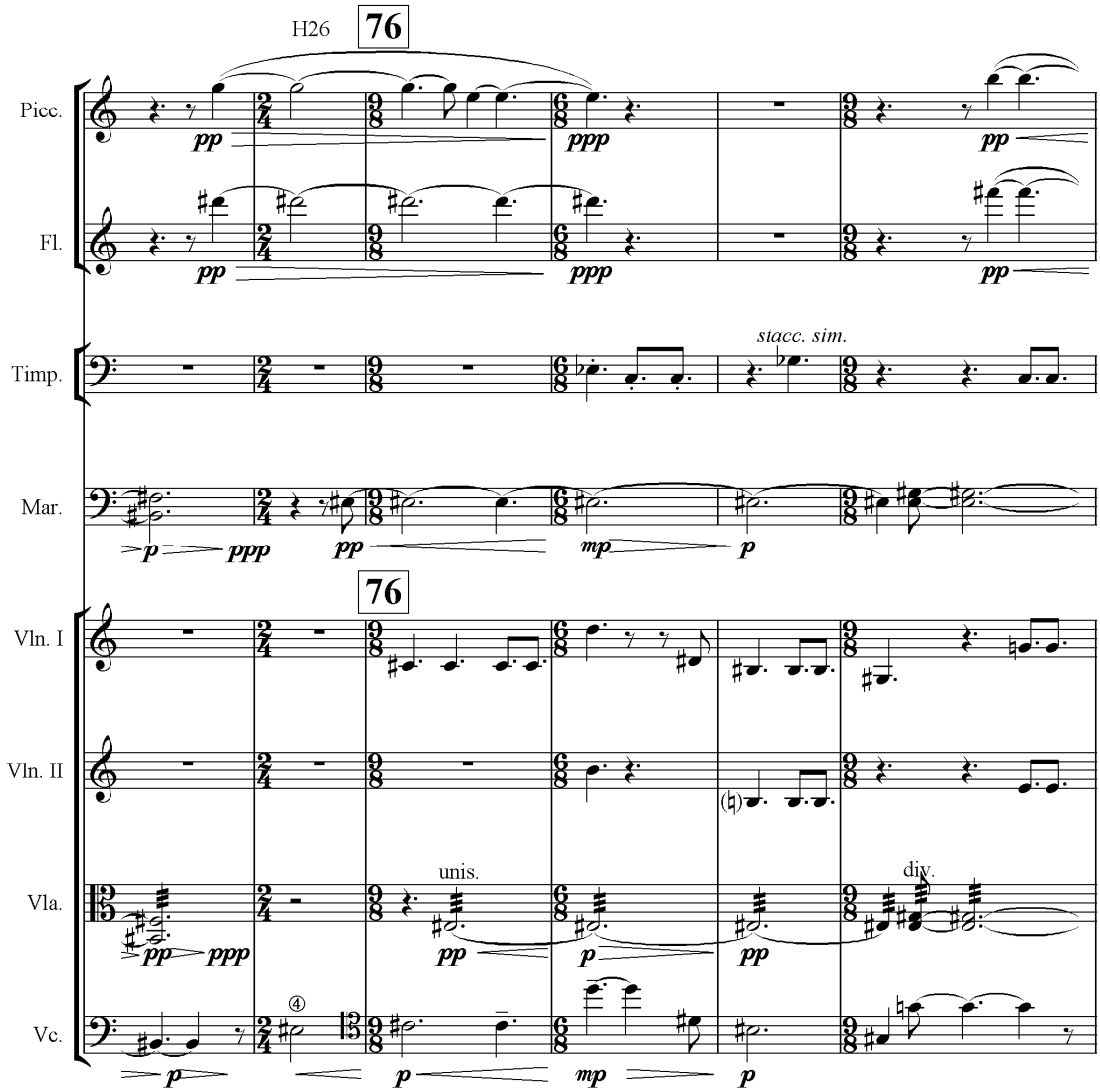
[56] It is not clear why Davies describes the theme as 'tripartite, since it is divided into nine segments of increasing length, and the present section is divided by double bars into four subsections, consisting of segments 1–5, 6, 7 and 8–9 respectively. (He may have had in mind the alto flute theme of the second movement, *q.v.*, which certainly is tripartite.)

[57] Jones, *Analytical Perspectives on the Third Symphony of Peter Maxwell Davies*, pp. 46–47, has pointed out Davies's intense study of Schoenberg in his early years as a composer.



** flexible tempo, somewhat more animated towards the centre of the movement, slower towards the end.*



Ex. 11.38 Opening of the theme.

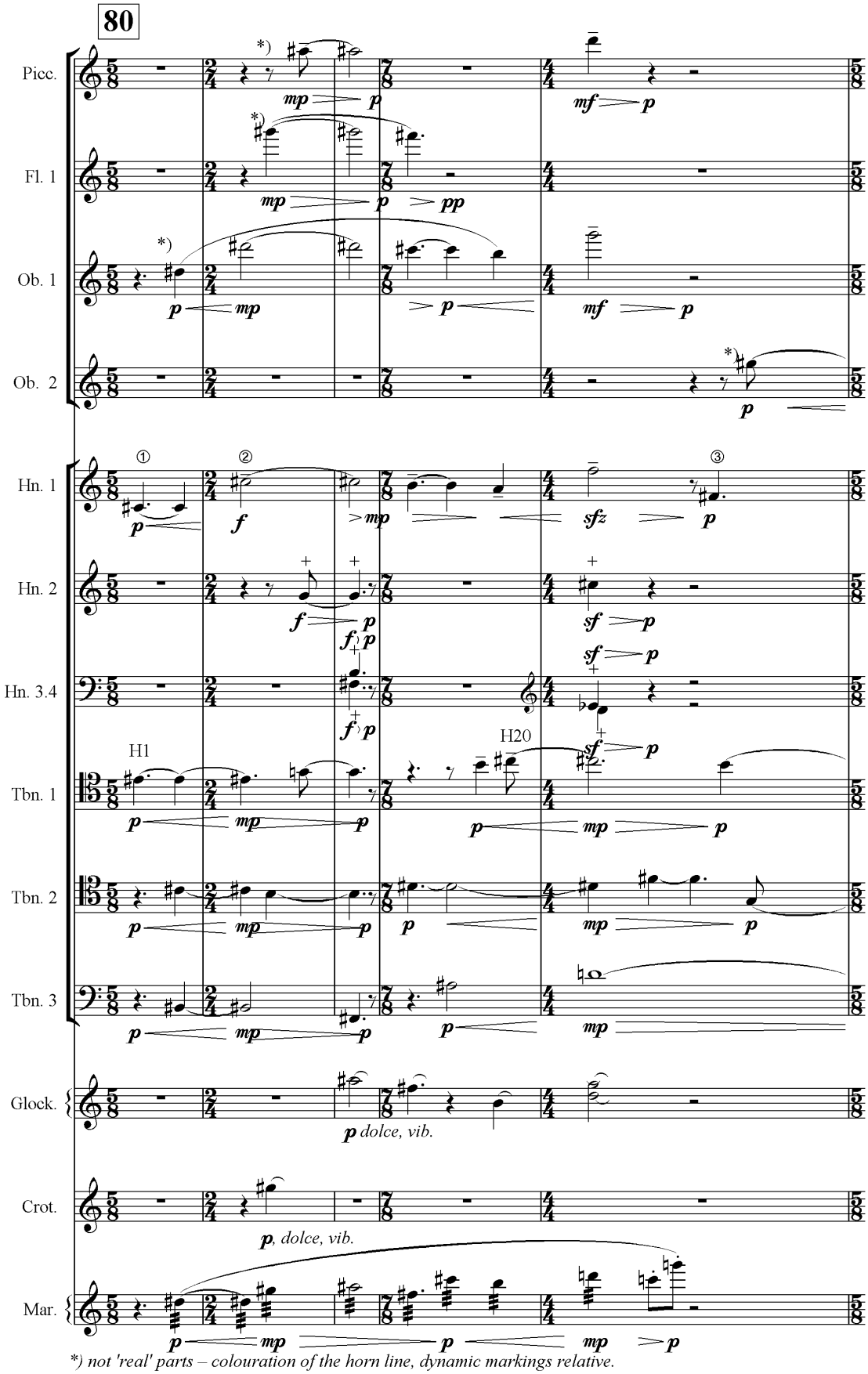
(The circled integers indicate the beginnings of successive segments of the theme.)

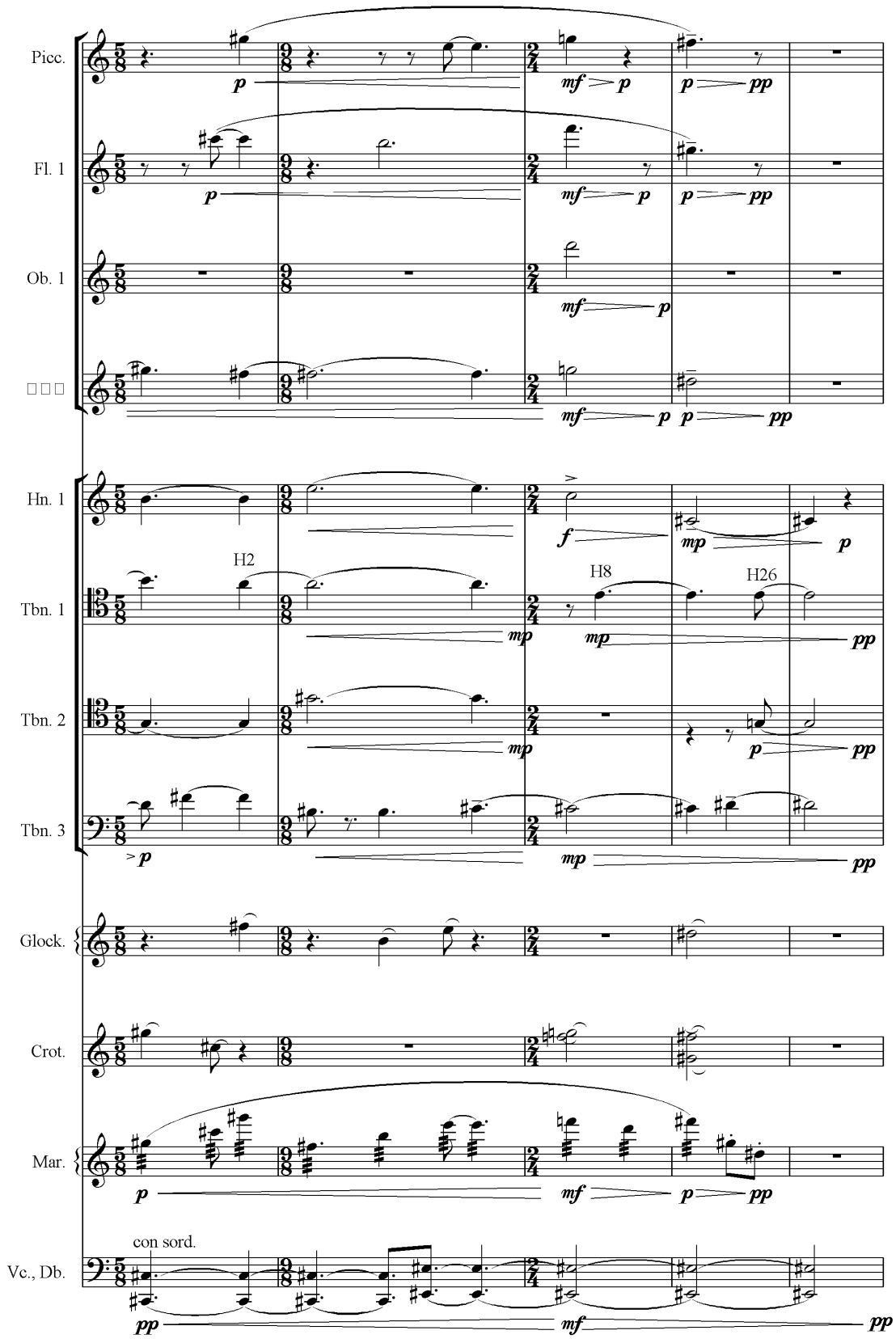
Middle Section: (Second transformation): **[80]**+1 to **[83]**+6

The segments (1) to (6) and (9) of the transformation are played by the first horn, (6) and (9) in counterpoint with (7) and (8) on the bassoons. The horn line is doubled by piccolo, flute and oboe in a way similar to expressive doubling, but at the ninth rather than in unison: these parts are marked in the score as ‘not ‘real’ parts —

colourations of the horn line'.[58] These doublings are themselves doubled (not very rhythmically precisely) by the marimba.

[58] This is a slight misuse of terminology. 'Coloration' can mean either, in early music, coloured notes or the writing out of florid decorations. (Donnington, Robert and Wright, Peter, Coloration, *New Grove Dictionary of Music and Musicians, Second Edition*, 6, pp 155–156. 'Colouring' is clearly what is meant.


80
Picc.
Fl. 1
Ob. 1
Ob. 2
Hn. 1
Hn. 2
Hn. 3.4
Tbn. 1
Tbn. 2
Tbn. 3
Glock.
Crot.
Mar.
H1
H20
p dolce, vib.
p, dolce, vib.
*) not 'real' parts – colouration of the horn line, dynamic markings relative.



Ex. 11.39 Opening of Variation 1.

There are again two other (quodlibet) contrapuntal strands. One again, consists of three-note row segments from the original square, in the irregular order H1, H20, H2, H8, H26, … *etc*., played by the other three horns and the three trombones. The other strand consists of very slow statements of the three-note row segments O1, O2 and O3 from the original square played in octaves by muted cellos and double basses.[59]

The end of this middle section, a two-bar crescendo, is marked HOEPUNKT (*i.e. Höhepunkt*, highest point, climax) in Davies's manuscript.[60]

Reprise of First Group

Third transformation: **[83]**+7 to **[86]**–1

This reprise is recomposed. The transformation is played tremolo throughout, segments (1), (2) and (3) by the violas, expressively doubled by pulsations from the muted, pizzicato second violins, segments (4) and (5) by the cellos, and then, in counterpoint, (in order of entry) (6) by cellos, (7) by violas, (9) by first violins and (8) by seconds. This time there are four other (quodlibet) contrapuntal strands. The first consists of the piccolo and flutes repeating, with some freedom, their parts in the first transposition; the second of the timpani doing similarly; the third of muted tremolo strings, *sul ponticello*, building up chords.[61] The fourth, and most prominent, strand,

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[59] This line is marked 'neighbour note addition' in Add. Mss., Vol. LXXVI, sheet 26.

[60] *Ibid.* The Bradley Hand ITC font denotes transcription from Davies's personal script: see the footnotes to *Appendix E*. This comment is somewhat puzzling. The dynamic marking < ***ff*** for horns 2, 3 and 4 at the end of this bar is indeed the loudest in this transformation, but it comes quite suddenly, not as the climax of any build-up, and the end of the middle section of the exposition does not seem to hold any particularly central position in the movement. Indeed, it was mentioned above that Variation 5 (Transformation 6) may be considered formally the apex of the movement.

[61] It is hard to know whether or not these chords are derived from 3× 3 subsquares (see above, *Chapter 10*, under *Harmony*, *Larger chords*). The first (**[84]**–7, **[84]**–6) is a four-element subset of HZ, and the third (**[84]**+7 to **[84]**+10) of HT, but the second (**[84]**–2 to **[84]**+3) and the fourth (**[85]**–4, **[85]**–3) are not subsets of any such subsquares. Further, since the subsquares contain between six and eight pitches, *i.e.* half the chromatic scale, even the first and third chords might be subsets of at least one of

however, is a new part by triplet quaver first violins, at the end taken over by double basses, and then cellos: this starts clearly enough as the retrogrades of O3, O2, O1, O6 4 O5, O4 from the original square, but thereafter becomes progressively harder to relate to it. It is expressively doubled by the clarinets[62] (and bass clarinet) sustaining some pitches to build up triads.

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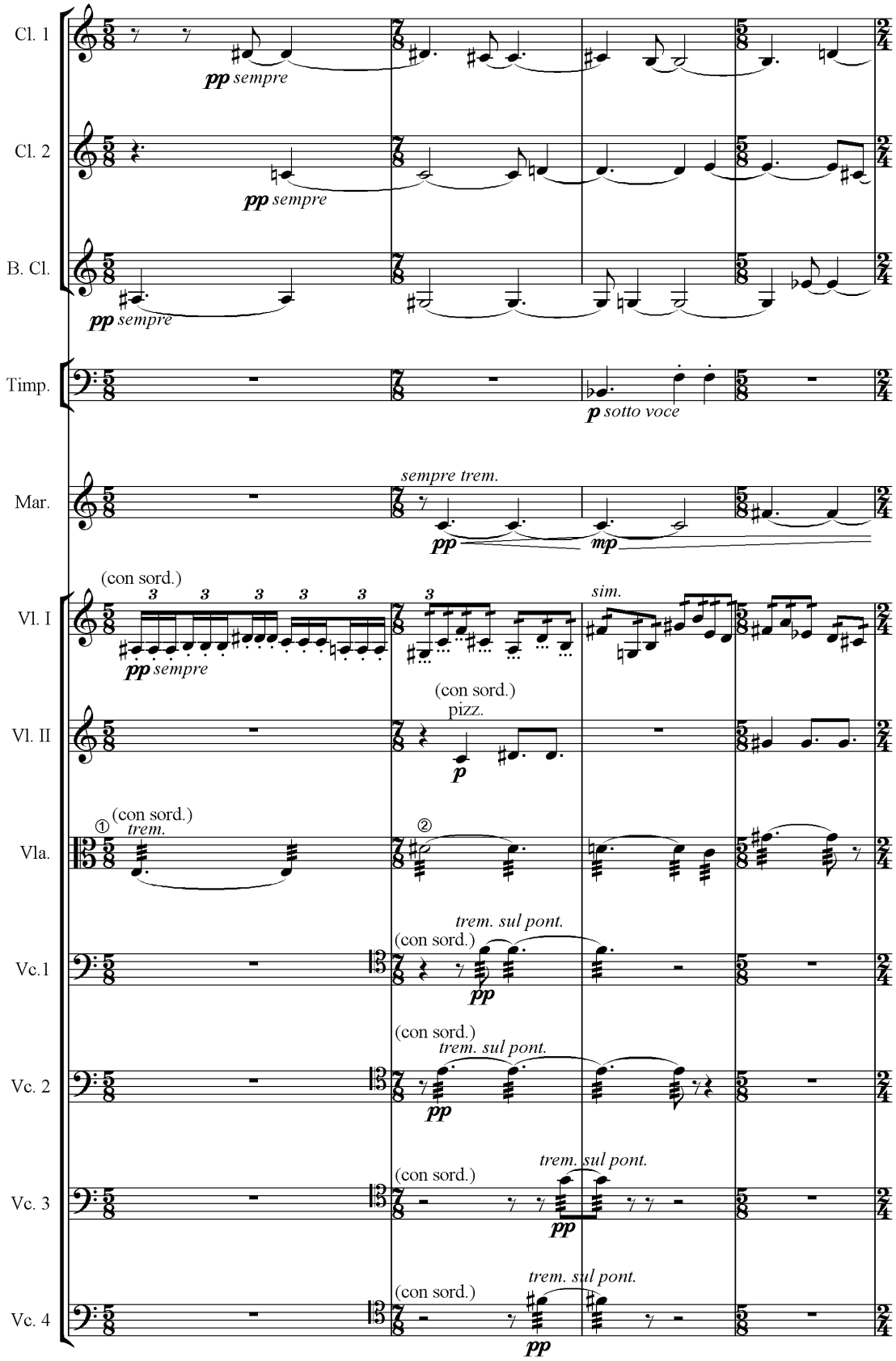
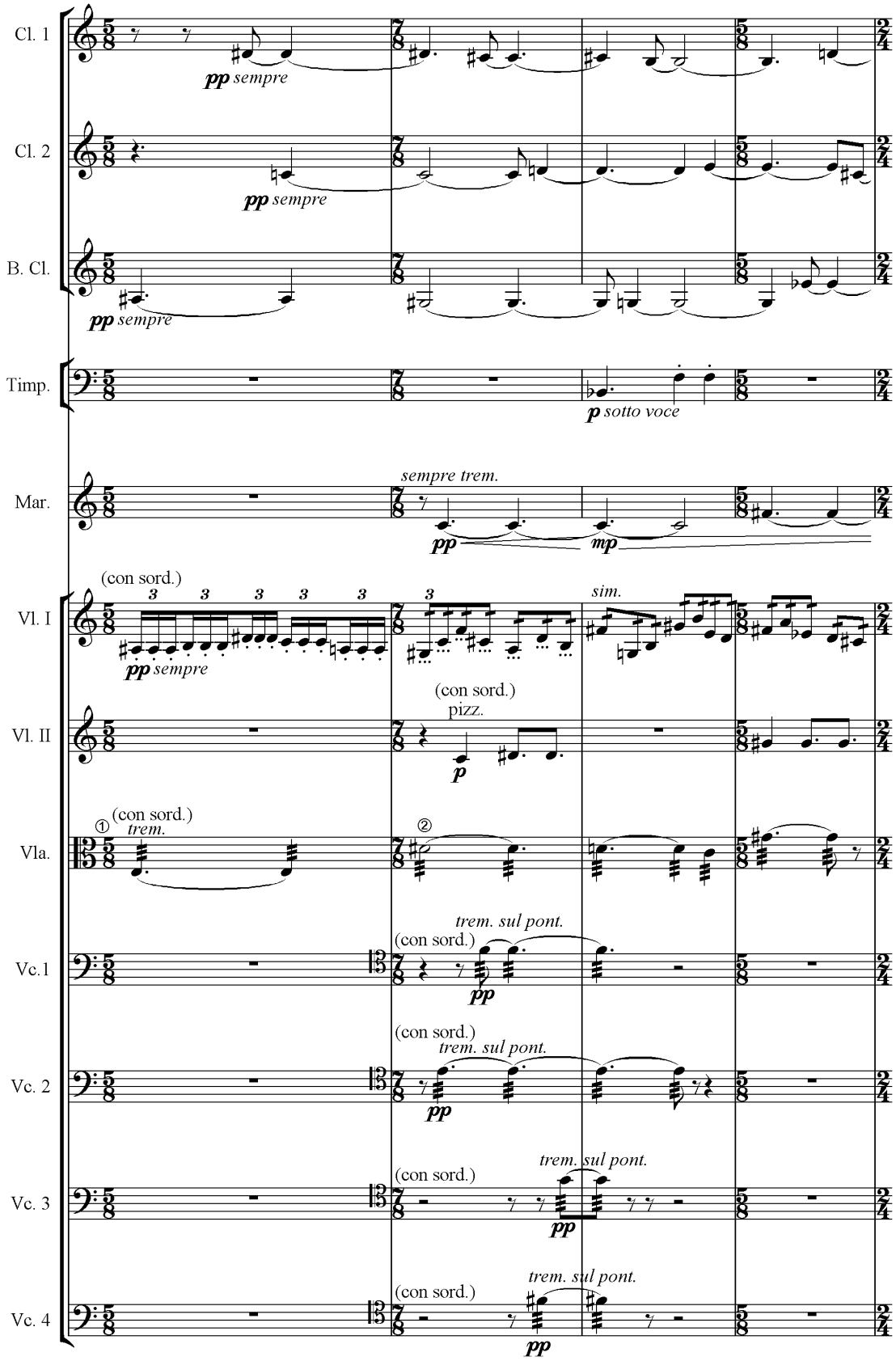
them purely by chance. On the other hand, it could be that the second and fourth chords are derived from subsquares but have had, for musical reasons, one pitch each changed.

[62] The total length of the notes in bar **[84]**–7 of the first clarinet part in the published score (four crotchets) exceeds the length ($\frac{7}{8}$) of the bar. It seems clear that the final minim should be a dotted crotchet. This correction has been made in the illustration below.


Cl. 1
pp sempre
Cl. 2
pp sempre
B. Cl.
pp sempre
Timp.
p sotto voce
Mar.
sempre trem.
pp
mp
(con sord.)
Vl. I
pp sempre
sim.
(con sord.)
pizz.
Vl. II
p
(con sord.)
trem.
Vla.
trem. sul pont.
(con sord.)
Vc.1
pp
(con sord.)
trem. sul pont.
Vc. 2
pp
trem. sul pont.
(con sord.)
Vc. 3
pp
trem. sul pont.
(con sord.)
Vc. 4
pp



Ex. 11.40 Opening of Variation 2

Development

These four sections treat the theme in a rather more elaborate way than does the exposition. In particular, there is gradually more and more cross-phrasing, usually by overlapping, of the segments of the transformations.

Fourth transformation: **[86]**+1 to **[91]**–1

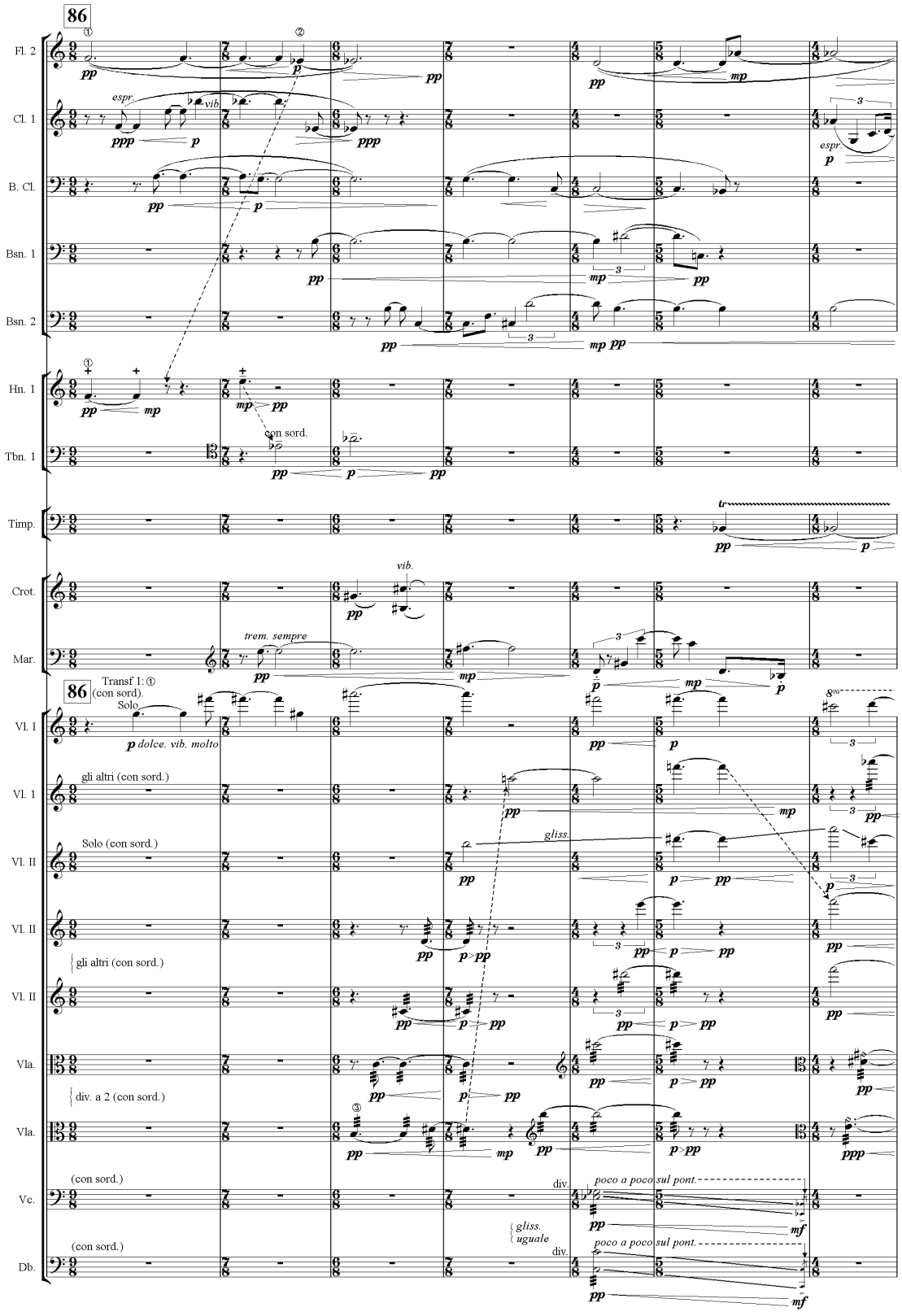
The transformation becomes much harder to follow, aurally, and even visually, being repeatedly passed from one instrument or group of instruments to another (as indicated by arrow-headed dotted lines inserted into the excerpt below), its pitches contained in what appear to be quite independent passages of counterpoint, in a way which is hard to follow even in the score. Thus, the initial F5 (the whole first segment) is played by the first horn, expressively doubled by the second flute, but the initial E♭6 of the second segment, which starts on the first horn, is played late by the second flute,[63] expressively doubled by the first clarinet. This segment passes to the muted first trombone, but before it finishes the third segment starts on half of the divided, muted, violas, tremolo (as part of a built-up of the first tremolo string chord of a series, an idea recurring from the first group and its reprise), before being passed to half the muted first violins, and thence to all the muted seconds. (There is another analogy here with the finale of Brahms's *Fourth Symphony*, where in bars 97–104 the passacaglia theme is hidden in the notes of the flute melody: the present passage is, however, much more complex.) At the same time, segment 9 of the original path is played by a muted solo first violin, to be followed later by segment 9. It can be seen

[63] The total length of the notes in bar **[86]**+2 of the clarinet part in the published score (four crotchets) exceeds the length ($\frac{7}{8}$) of the bar. It seems clear that the initial minim should be a dotted crotchet. This correction has been made in the illustration below.

that even to describe what happens to the transformation requires a large number of words.

A second strand consists, as in the preceding transformation, of muted tremolo string chords.[64] Throughout the transformation, there are slow, long melodic glissandi (mostly downwards) of four-note chords on divided celli and double basses .

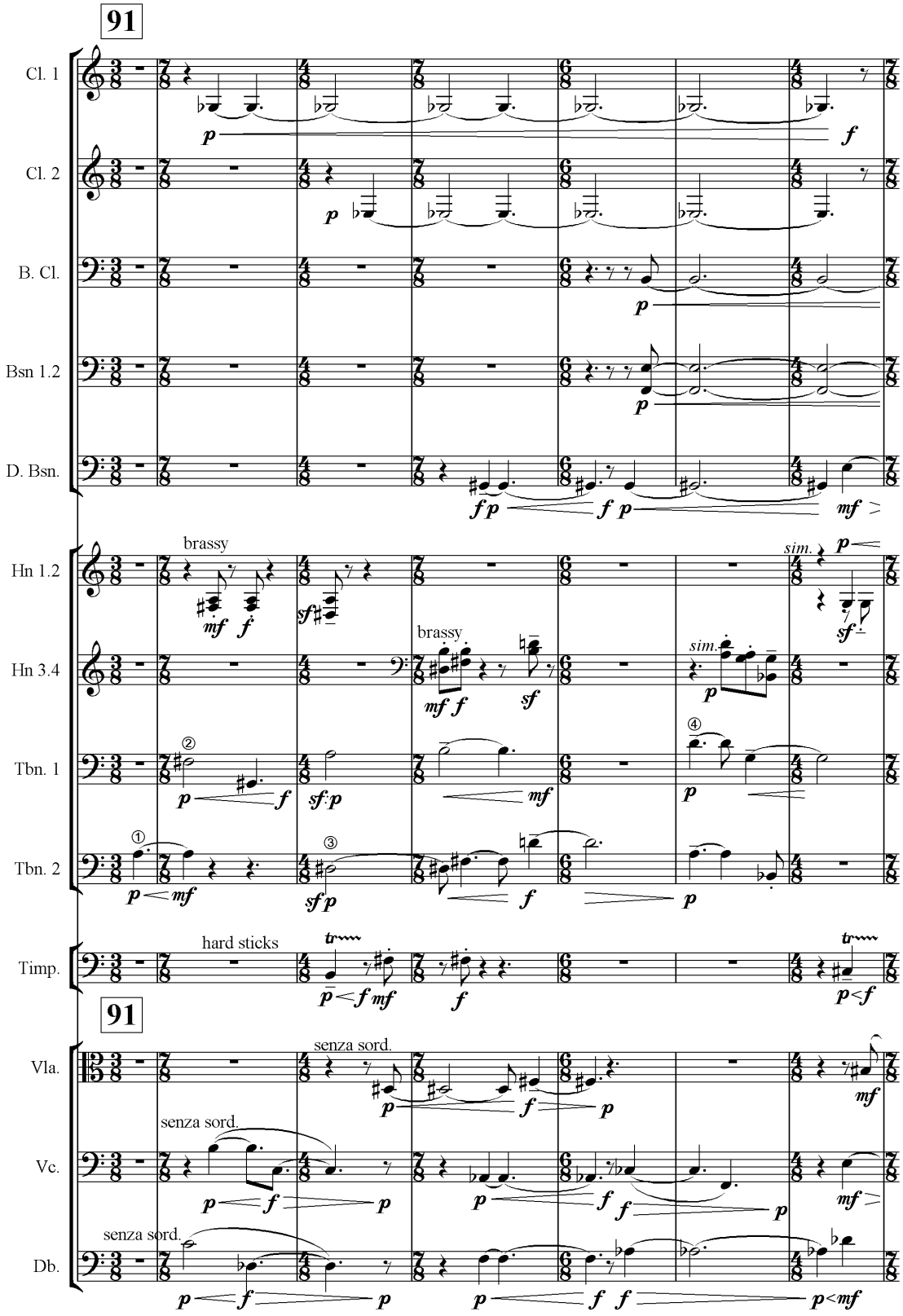
[64] The first two, (**[86]**+3, **[86]**+4 and **[86]**+4 to **[86]**+6) are subsets of HV, the next (**[86]**+7, **[86]**+8) is a subset of both HT and HW, the fourth (**[87]**+ 4) is a subset of HU and the fifth (**[88]**+4, **[88]**+5) is not a subset of any of the nine 3 × 3 subsquares. Similar considerations apply as for the chords in the preceding transformation.



Ex. 11.41 Opening of Variation 3.

Fifth transformation: **[91]**+1 to **[94]**–1

This transformation is more straightforward, but with more cross-phrasing by overlappings. Thus, segment (1) is played by the second trombone, but before it has finished segment (2) is given by the first trombone, and whilst that is still playing segment (3) by the second trombone, then (4) by the first trombone, (5) by the second then (6) to (8) similarly on the first two and second two horns, and finally (9) similarly on the trombones.



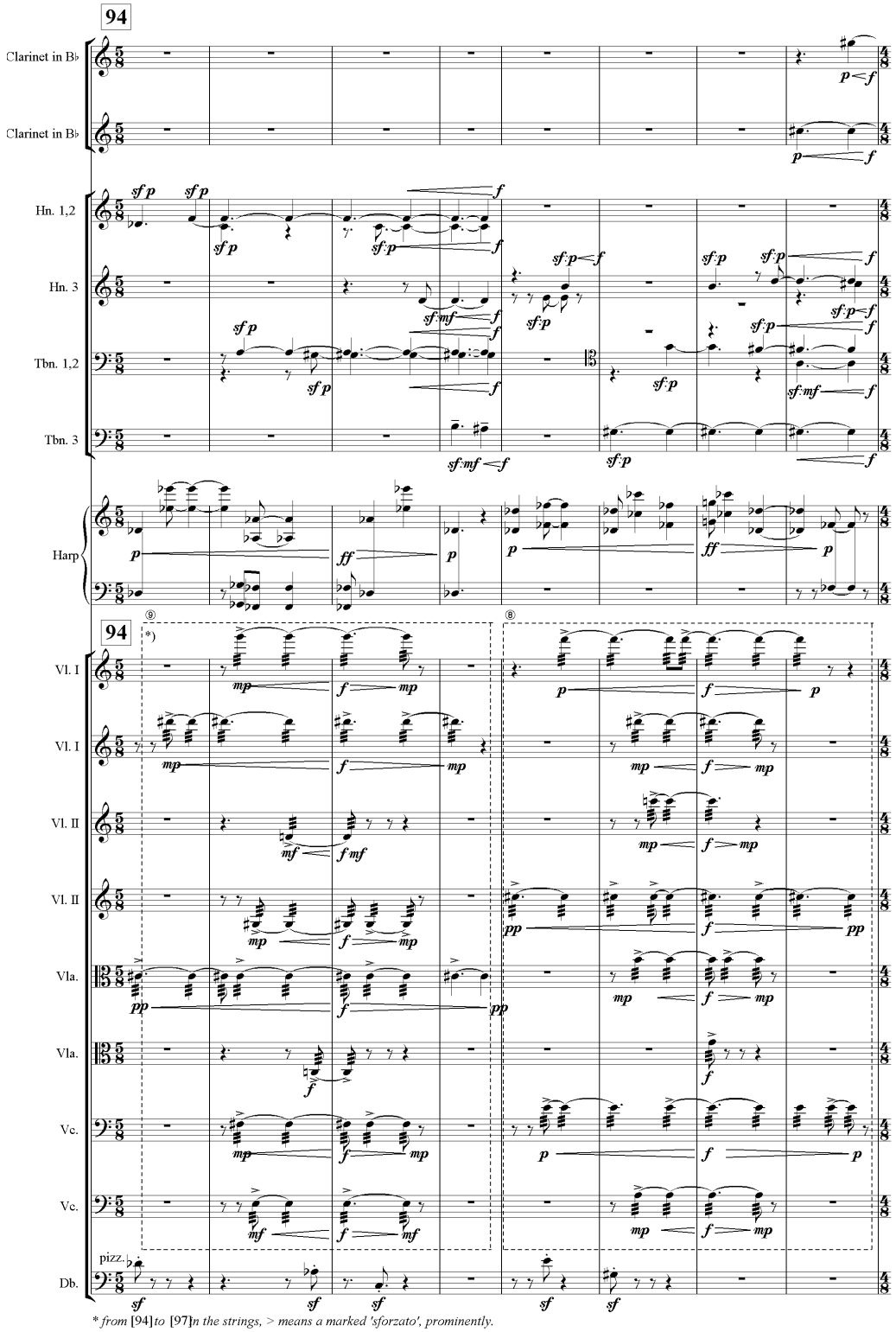
Ex. 11.42 Opening of Variation 4.

Sixth transformation: **[94]**+1 to **[97]**–1

Here the cross-phrasing is replaced by the segments being played, as tremolando string chords,[65] with all attacks designated a 'marked 'sforzato' prominently'. The segments are given in reverse order (the chords for segments (9) and (8) have been outlined in rectangles in the example below), so that the texture of gradually built-up tremolo string chords, introduced in the theme and appearing also in variations 2 and 3, here starts with a larger chord than any before (16 notes) and continues with chords of fewer and fewer notes, finally vanishing with one of a single E (segment 1), marking the disappearance of the idea (save for a very brief recurrence at the beginning of the recapitulation). The harp picks out pitches from these chords to make a thematic strand (mostly in octaves, sometimes in two parts, each part in octaves) to which the chords are an accompaniment. (This is a reverse of what has hitherto happened in the symphony, where a melody may be expressively doubled by sustaining certain pitches, thereby generating harmony.) At the same time the horns and trombones play HQ, HS, HT, HU, HV, HW, HX, HY HZ from the original square.[66]

[65] Although it will scarcely be perceptible to the listener, in fact each note has the length specified by the transformed magic square: when a pitch occurs more than once in a segment, the occurrences are played at the same register as repeated notes.

[66] These 3 × 3 subsquares cannot all easily be dissected into sets of three three-element row segments. Thus, in HS, H4, *i.e.* E, B, G#, is split between horns 3 and 4 and trombone 3 (the latter continuing into the next two chords), H5, *i.e.* G, B, F#, is split between trombones 1 and 2 and horn 3, and, overlapping with the latter, H6, *i.e.* D, A, C#, is split between horn 3, trombone 4 and horn 4.



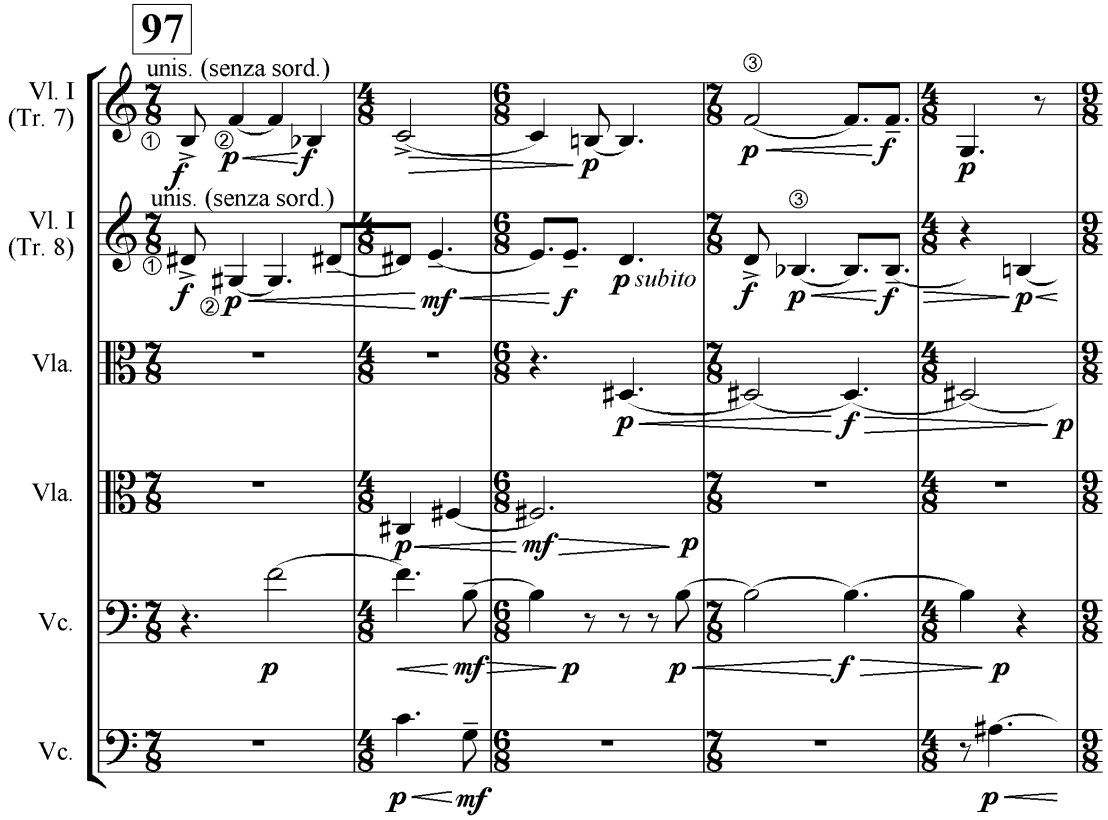
Ex. 11.43 Opening of Variation 5.

End of the Development

Seventh and Eighth transformations: **[97]**+1 to **[103]**–1

This is the 'section for strings alone [although woodwind do enter at its end], in which the registration gradually moves upward' described by Davies.[67] Here the cross-phrasing takes the form of transformations 7 and 8 being played in counterpoint on the first and second violins[68] against a very reticent accompaniment of the remaining strings. (In segment (6) of transformation 7, the pitches are a major second higher than those specified by the transposition, *i.e.* those specified by the untransposed transformation, and the same occurs from the fourth note of segment (8).)

[67] Davies, 'Symphony'.
[68] This is a special type of transformation canon, in which the entries are simultaneous (see *Chapter 5* under *Two new forms*): with an ordinary canon simultaneous entries would simply be doubling and not a canon at all.



Ex. 11.44 Opening of Variation 6.

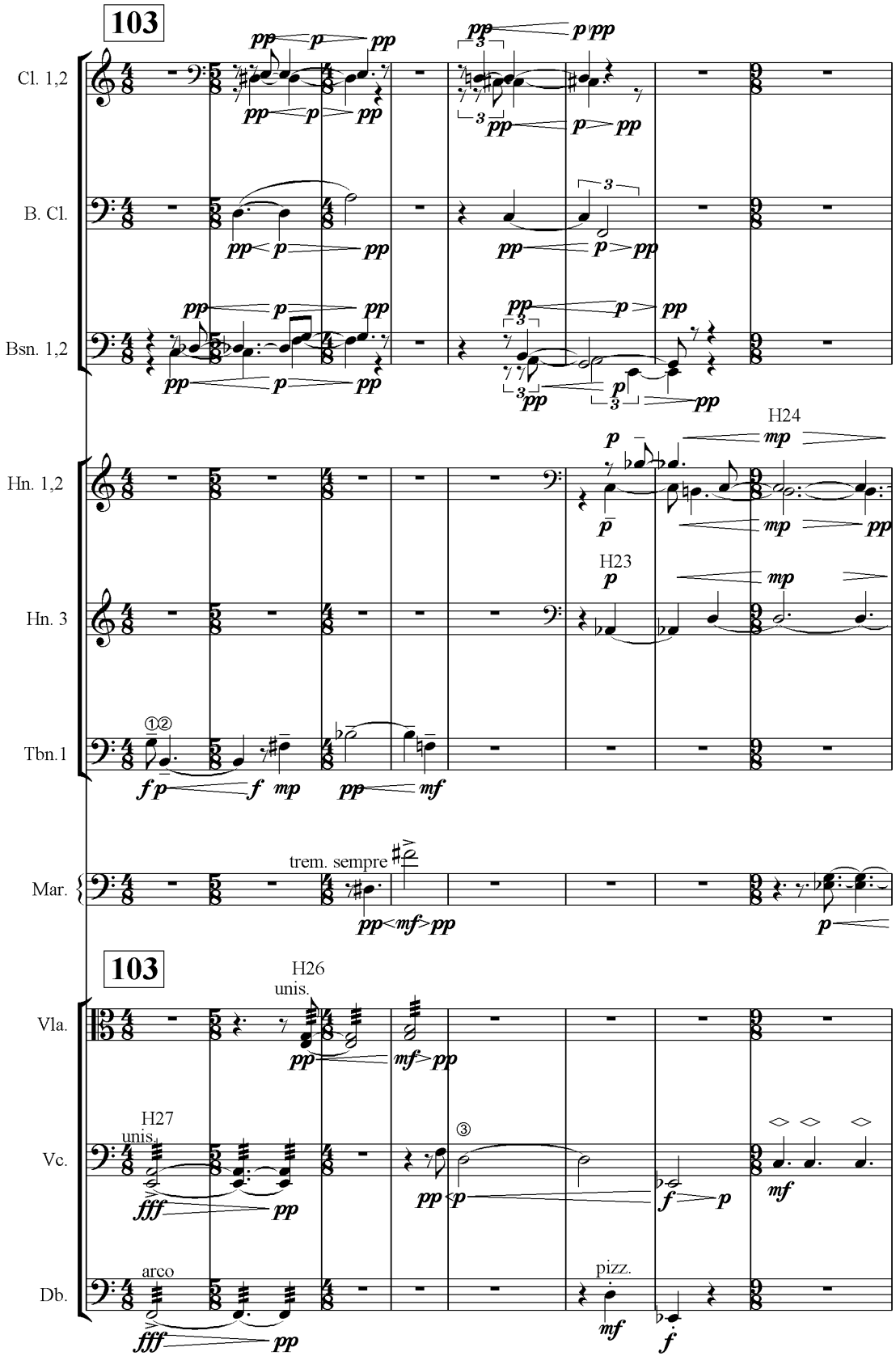
Recapitulation/Coda

Ninth transformation: **[103]**+1 to end.

This in two clearly distinct subsections, beginning at **[103]** and **[105]** respectively, separated by a double bar.

First subsection (1) and (2) are played without overlap by the first and second trombones, and then (3) by the cellos. At the same time, H27 is played by string tremolos on the cellos and double basses, followed by H26 and H25 on violas and marimba: thereafter, H23, H24, H18, H15, H13 appear on various instrumental combinations.[69]

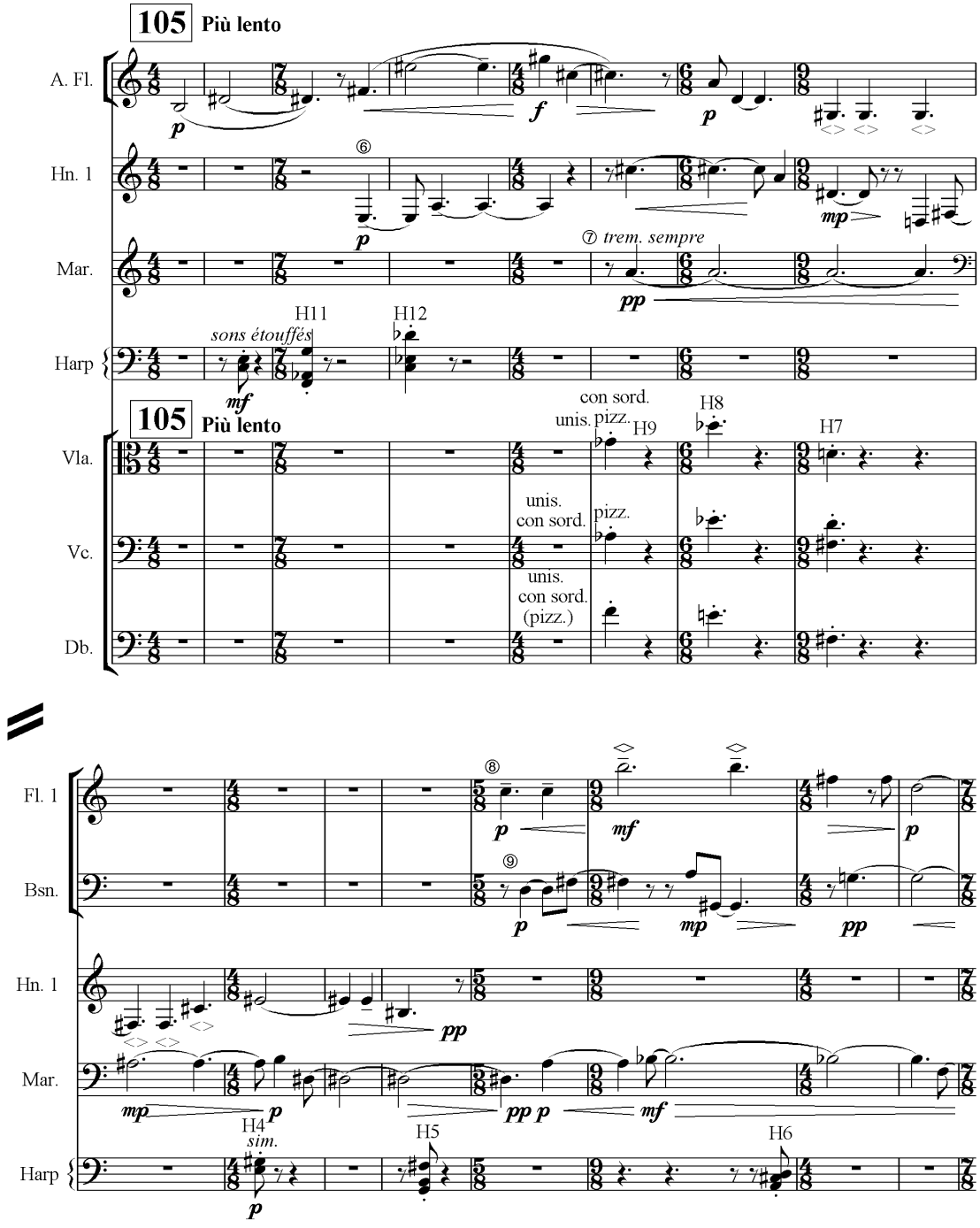
[69] There are other possible triads from the square which are difficult to make out because of the freedom with which they are handled.



Ex. 11.45 Opening of Variation 7

Second subsection Here there is cross-phrasing by overlapping of all segments. (5) is on the alto flute, in counterpoint with (6) on the first and second horns and then (7) on the marimba, with doubled note lengths. (8) and (9) are in counterpoint on first flute, then piccolo, and first bassoon.[70] Triads H11 and H12 are played by the harp, H9, H8 and H7 by pizzicato strings violas cellos and double basses, H4 by harp (with an *Ausfall* B on the marimba) and H2, H1 by pizzicato first and second violins.

[70] Davies's reference 'back to the alto flute's solo lines in the second movement' (see *The Composer's Comments*, at the beginning of this section) is hard to discern, since segments (5) and (8) of transformation 9 seem to have little in common melodically with the alto flute solo at the opening of the second movement. Perhaps it is the texture, with solo alto flute, then flute, then piccolo against a sparse accompaniment.



Ex. 11.46 Opening of Variation 7, second subsection.

Fourth Movement

The Composer's Comments

> The finale—presto—has the same tonal outline as the first movement, and is a series of long build-ups of tension, often over pendulum-like pairs of chords, the whole being a 'perpetuum mobile' that climaxes in a version of 'Ave Maris Stella' thematic material (the same as in the opening of my work of that name) for unison strings, followed by another for trumpets. The last stabbing off-beat chords are a fifth above their harmonically 'logical' position. I did not want the last gesture to sound 'final' in a rhetorical way, giving the impression that I thought I had completely worked through and solved the problems posed by the Symphony and could therefore afford to write a (falsely) 'affirmative' conclusion. But, the transposition to the fifth, and the off-beat attacks, make audible my impression that the argument was not concluded and that I was aware I had only opened up fields of investigation and not finally harvested their fruits. These final chords put a brake on the generation-transformation processes, no more.[71]

> The end of the whole work—the stabbing chords—is an adaptation of Sibelius's solution at the end of this same work [Fifth Symphony].[72]

> …the overall shape and some of the details of the formal structure in the last movement came, on the surface level, from 'Don' in Boulez's *Pli Selon Pli*.[73]

Overall form

Davies's pre-composition charts for this movement, unlike those of the previous three, have no structural comments. The division into sections (and sometimes subsections) is, however, reasonably clear, and, as may be seen from the last column of the following summary analysis table, is on the whole backed up by different instrumentation in the different subsections. Thus, the whole of the first section is founded on a single spiral path through the magic square, and the subsections, indicated by double bars, correspond to Davies's segments of that path. The second

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[71] Davies, 'Symphony', P. 96.
[72] *Ibid.*, p. 95.
[73] *Ibid.*, p. 95. On this point, see *Appendix E*: *The forms of Boulez's 'Don' and the Fourth Movement of Davies's First Symphony*.

section is another path, as is also the sixth, which has here been divided into three subsections, the first two on the basis of segments of the path, the third being simply the 'Sibelius 5' chords. Paths are not easily heard in the other sections, but the third is very homogeneous and has double bars only at its beginning and end, so it seems fairly well established. The fourth and fifth sections are rather more speculative, but there is a decisive change of texture at **[136]**, so there seem to be at least two sections here; and what have been taken to be subsections here (indicated by double bars) seem too short to constitute sections either in themselves or in combination of adjacent ones.

In the first and second sections, further subdivisions, not indicated by double bars, have been indicated by dotted lines. In the first, the first to fourth subsections seem to form a single group characterised by a very slow, regular, clear presentation of the spiral on the marimba, whereas the fifth to ninth subsections seem to form another, with somewhat faster, not always regular and often unclear presentations on various instruments. In the second section, there is a clear change of texture at rehearsal mark **[123]**.

Serial structure

Spiral paths: Whereas the first movement of this symphony used a variety of paths through the magic square, the third and fourth (with the exception of the fifth section) use only the outwards spiral P-0, already used in the first and third movements (see *Chapter 15*, under *Spiral-related paths*) which starts at the central cell of the square and moves anti-clockwise to the top left-hand corner, as illustrated in the following table, and its retrograde, R-0.

	1	2	3	4	5	6	7	8	9
1	C# 1	F 6	C 2	E 7	B 3	G# 8	A 4	F# 9	D 5
2	A 6	G# 2	C 7	G 3	B 8	F# 4	D# 9	E 5	C# 1
3	D# 2	B 7	A# 3	D 8	A 4	C# 9	G# 5	F 1	F# 6
4	G 7	E 3	C 8	B 4	D# 9	A# 5	D 1	A 6	F# 2
5	G 3	G# 8	F 4	C# 9	C 5	E 1	B 6	D# 2	A# 7
6	D# 8	C 4	C# 9	A# 5	F# 1	F 6	A 2	E 7	G# 3
7	A# 4	F 9	D 5	D# 1	C 6	G# 2	G 7	B 3	F# 8
8	D 9	F# 5	C# 1	A# 6	B 2	G# 7	E 3	D# 8	G 4
9	G# 5	D# 1	G 6	D 2	B 7	C 3	A 8	F 4	E 9

Each spiral may also occur transposed by a tritone, as illustrated in the next table, and the transposed outward and inward spirals will be designated P-6 and R-6 respectively.

	1	2	3	4	5	6	7	8	9
1	G 1	B 6	F# 2	Bβ 7	F 3	D 8	Eβ 4	C 9	Aβ 5
2	Eβ 6	D 2	F# 7	C# 3	F 8	C 4	A 9	Bβ 5	G 1
3	A 2	F 7	E 3	G# 8	Eβ 4	G 9	D 5	B 1	C 6
4	C# 7	Bβ 3	F# 8	F 4	A 9	E 5	Aβ 1	Eβ 6	C 2
5	C# 3	D 8	B 4	G 9	F# 5	Bβ 1	F 6	A 2	E 7
6	A 8	F# 4	G 9	E 5	C 1	B 6	Eβ 2	Bβ 7	D 3
7	E 4	B 9	Aβ 5	A 1	F# 6	D 2	C# 7	F 3	C 8
8	Aβ 9	C 5	G 1	E 6	F 2	D 7	Bβ 3	A 8	C# 4
9	D 5	A 1	C# 6	Aβ 2	F 7	F# 3	Eβ 8	B 4	Bβ 9

As already seen, the third movement was a set of variations on transformations of P-0 into R-6: the fourth movement, on the other hand, uses in the first section R-0, very slowly, but growing a little faster and gradually less explicitly; in the second section it uses P-6, faster but also implicitly and in the first subsection of the sixth there is a clear explicit statement of R-6, which switches in the second subsection to R-0.

Arcs of spirals: The spiral paths are not only played entire. From the very beginning, short passages (which will be called ‘arcs’) from both spirals, chosen with apparent freedom, are played (on various wind instruments) in all subsections except 9, and also later in the movement, in subsection 2 of the section 4. Outward arcs will be denoted by the co-ordinates of the cell with which they begin (their final cell, or the length of the arc, will not, in general, be given), *i.e.* the row, followed by a comma, followed by the column, all three within brackets: *e.g.*, the short outwards arc from

the untransposed square on the first horn in bar **[106]**–2, namely C5, Dβ9, Bβ5, Gβ1 will be denoted by (5,5) (see below, First section, Second subsection). With outwards arcs from the transposed square, the coordinates will be followed by a prime: *e.g.*, the longer arc from the transposed square beginning on the first trumpet in the second bar of the movement, namely F6, Aβ1, D5, G9, … , will be denoted by (5,7)' (see below, First section, Second subsection). Inwards arcs from either square will be denoted by coordinates in italics: *e.g.*, the arc from the transposed square on the first trumpet in the first bar of the movement, namely Dβ7, A2, Eβ6, D2, F#7 will be denoted by *(4,1)'*.[74]

These arcs are played much faster than the tenor: in subsection 1, the unit is $\frac{1}{3}$ quaver, in later subsections the unit is variable and sometimes irregular. The seventh subsection introduces rhythms of even quavers, which reappear in the fourth, fifth and sixth sections. Thus, similarly to the tenor, they become irregular. Regardless of the segment of the path from which these arcs are derived, they tend to have the same general shape of a arpeggio-like fall and rise, both syncopated: in them may perhaps be heard an echo of the 'Thor's hammer',[75] 'swinging theme' or 'swan hymn'[76] of the finale of Sibelius's Fifth Symphony, and they will be referred to as 'swinging motives'.

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[74] There are not infrequently deviations from the pitches prescribed by the magic square in these arcs. Two particularly clear examples are the first trombone (6,5)' from **[111]**+3 to **[112]**–1, where the minim Eβ in bar **[112]**–3 should be a B, and the first flute *(9,4)'* from **[120]**–4 to **[120]**–2, where the crotchet A# in bar **[120]**–3 should be an Aβ.

[75] Tovey, Donald Francis, *Essays in Musical Analysis, Volume II: Symphonies (II), Variations and Orchestral Polyphony*, (Fourteenth Impression, Oxford University Press, London, 1978), Ch. LVIII, 'Sibelius: Symphony in E Flat Major, No. 5, Op. 82', pp. 121–129.

[76] Hepokoski, *Sibelius: Symphony No. 5*,4 p. 37.

Summary analysis table

Section	Spiral		Subsection	Arcs			
First	R-0	Marimba	First	R-6	Trumpet	First bar	Anacrusis
			Second	All four forms	Wind	Second bar to **[107]**–1	‘pendulum-like pairs of chords’
			Third	All four forms		**[107]**+1 to **[109]**+5	Anacrusis
			Fourth	All four forms		**[109]**+6 to **[113]**–1	‘pendulum-like pairs of chords’
		Allusive, strings	Fifth	All four forms	Wind, strings	**[113]**+1 to **[115]**–1	
		Allusive, strings, marimba	Sixth	All four forms	Strings	**[115]**+1 to **[117]**–1	
		Trilled solo violins I and II	Seventh	All four forms; even, irreg.	Tuned percussion	**[117]**+1 to **[119]**–1	Bird cries
		Piccolo	Eighth	All four forms	Flutes, crotales	**[119]**+1 to **[120]**–1	
		Trombones, trumpets	Ninth			**[120]**+1 to **[122]**–1	

Second	P-6	Shared: timpani, harp, double bass				**[122]**+1 to **[123]**–1	
		clarinet, marimba, harp				**[123]**+1 to **[125]**–1	string chords
Third				All four forms	Oboes	**[125]**+1 to **[128]**–1	Piccolo and string trills; trumpet fanfare motifs; whirling
Fourth			First	R-0 and R-6; even	Violas, celli, double basses	**[128]**+1 to **[130]**–1	
			Second	All four forms R-0 and R-6; even	Woodwind, trumpets, horns Fanfare motifs: violas, celli	**[130]**+1 to **[136]**–2	Hammered rhythm on woodwind and brass; gradually whole orchestra
			Third	R-6	All trumpets	**[136]**–1	Anacrusis, whole orchestra

Fifth	First						**[136]**+1 to **[138]**–1	
	Second						**[138]**+1 to **[139]**–1	
	Third						**[139]**+1 to **[139]**+4	Tremolo string chords, ***pp*** dying away to nothing
	Fourth						**[130]**+5 to **[140]**–1	Reminiscence of opening bars of symphony, *pizz*. first violins
Sixth	First	R-6 ↓		Celli, double basses, moving up to all strings			**[140]**+1 to **[143]**–1	Whirling
	Second	*(7,6)*	(5,5)'	Trumpets	Trombones	Various	All strings	**[143]**+1 to **[145]**–1
	Third							**[145]**+1 to end	‘Sibelius 5’ chords

As shown in the *Summary analysis table* above, the movement is in six sections, some of which have a number of subsections.

First section: opening to **[122]**–1

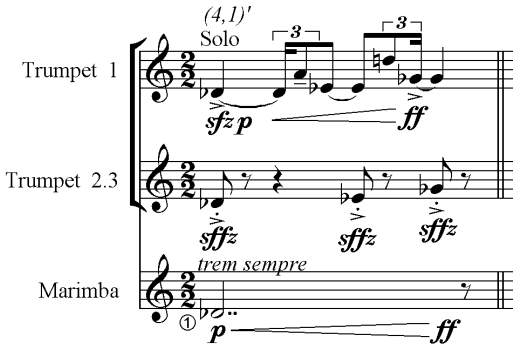
The 'tenor' underlying the whole of this section is, as already mentioned, R-0, *i.e.* the inwards clockwise spiral path through the original square, which Davies subdivides in the same way as that transformation, into nine subsections (indicated by double bars), using consecutive segments of the path. The subsections fall into two distinct groups. In the first, subsections 1 to 4, the tenor is played by the marimba, analogously to the exposition section of the first movement, very slowly (with duration unit a semibreve). In the second group, subsections 5 to 9, the tenor is played much less explicitly, and somewhat faster, not by the marimba (which is silent in 5 and 9) but by various strings in 5 (with duration unit a dotted minim), various strings and tuned percussion in 6, by solo violins in 7 (with duration unit a minim in both), by the piccolo in 8 and by various instruments in 9 (only approximately respecting the durations in both).

Another idea is prominent in this section, namely the 'pendulum-like pairs of chords' referred to by Davies, which occur from early in the subsection 2, the cor anglais and oboes (doubled by the crotales) rock, in minims, from the augmented fourth Aβ–D a tone down and back, whilst on the off-beats (the syncopation quickly becomes slightly more uneven) the two flutes and piccolo (doubled by the glockenspiel) rock between the same augmented fourth (now spelt G#–D) a tone *up* and back: the chords are thus based on a whole-tone scale on Bβ (with the augmented fourth Aβ=G#–D emphasized), so appearing to have nothing to do with either form of the spiral path through the square. Their interval of an augmented fourth, however,

reflects, in a new instance of *übergreifende Form,* the interval of a tritone between the original and transposed squares

First subsection: first bar

The first subsection is a single bar anacrusis, on the first trumpet playing the retrograde arc *(4,1)'* from the transposed square, expressively doubled by ***sffz***s on the onsets of the Dβ, Eβ and Gβ by the other two trumpets, and by the marimba sustaining the first segment of the magic square path, Dβ thus playing the first segment of the spiral path.

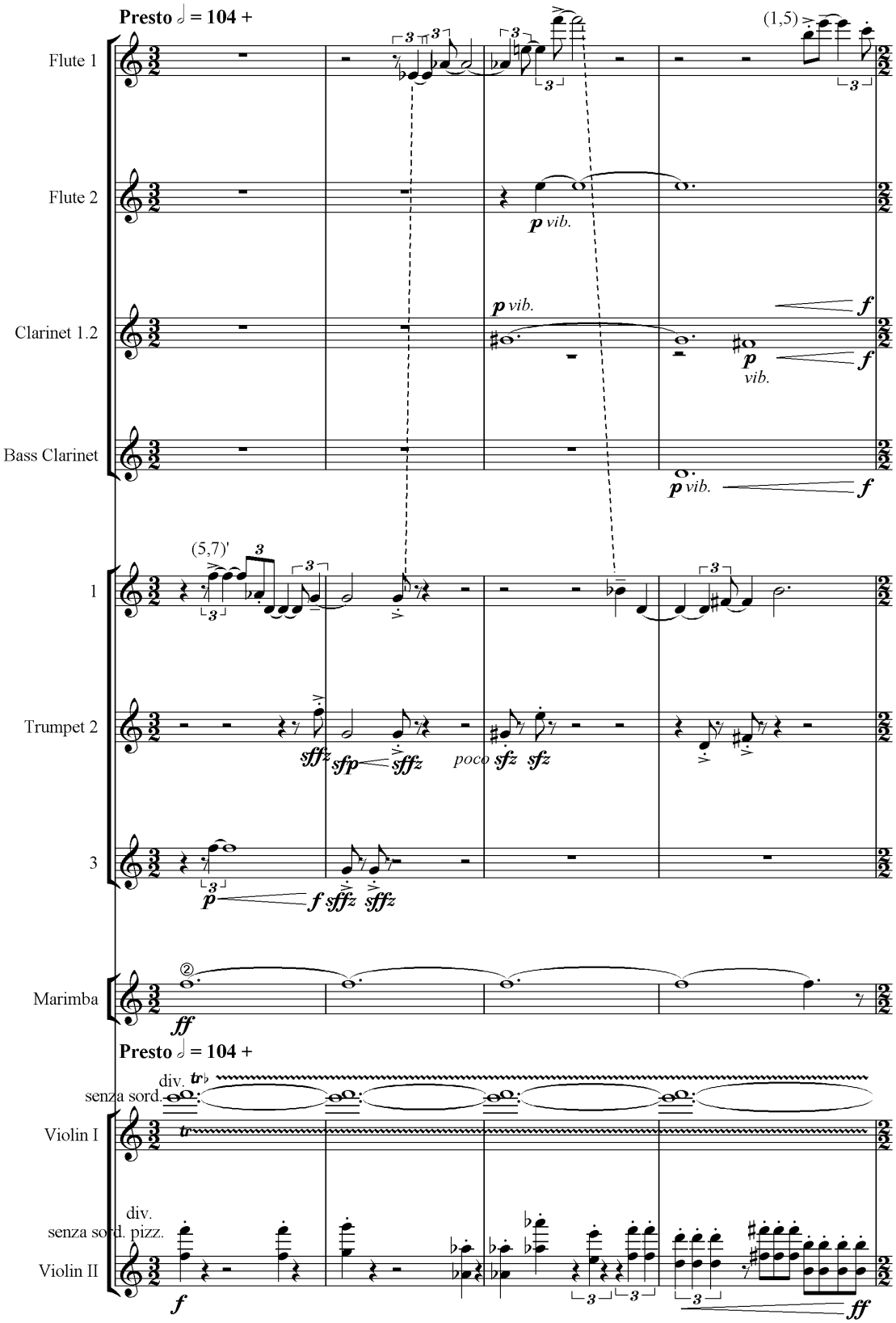


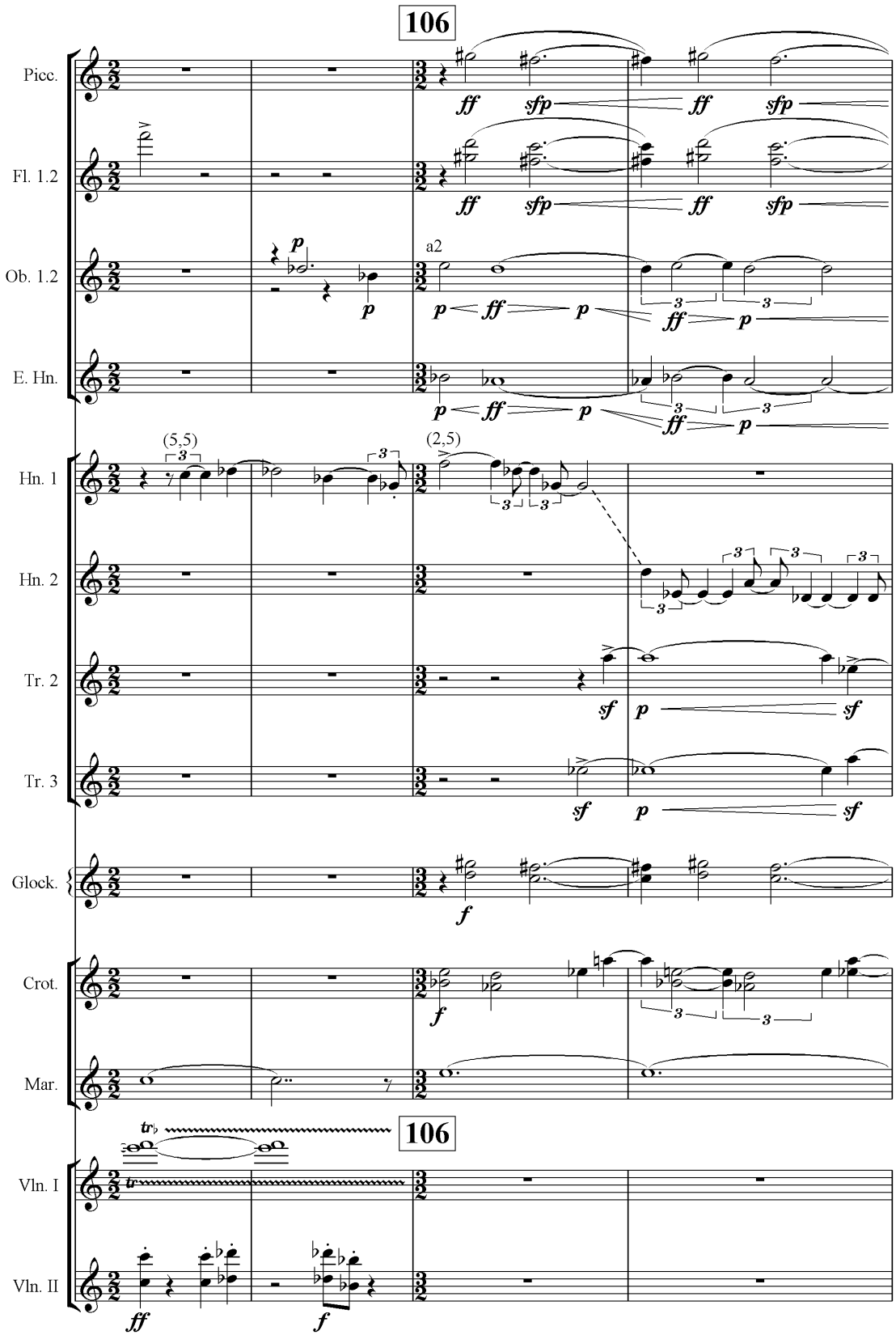
Ex. 11.47 Opening of the fourth movement.

This opening bar is repeated later in the movement (at **[109]**+5 and **[136]**–1).

Second subsection: second bar to **[107]**–1

Over the marimba playing the second segment of the path (since the marimba now plays F6, its part in the first five bars of the movement is Dβ, F, the 'dominant' and 'tonic' of the movement, which thus begins with what, in Davies's scheme, is, presumably, the equivalent of a perfect cadence), other swinging motives are played faster, on various wind instruments.


Presto ♩ = 104 +
Flute 1
Flute 2
Clarinet 1.2
Bass Clarinet
1
Trumpet 2
3
Marimba
Presto ♩ = 104 +
senza sord.
Violin I
senza sord.
Violin II
div.
pizz.



Ex. 11.48. Opening of the second subsection of the fourth movement.

First, the arc (5,7)' is passed from the first trumpet to the first flute and back, followed by (1,5) on the first flute, (5,5) on the first horn, then (2,5)' is passed from the first to the second horn. (From here on, specific arcs will not, in general, be named in the text, but will be indicated in illustrations.) At bar **[106]**+1 the pendulum-like pairs of chords add a third voice to the quodlibet counterpoint.

This subsection and the following two call to mind the opening of one of Pérotin's *organa quadrupla*, say *Sederunt principes* or *Viderunt omnes*:[77] it has a very slow statement of R-0, analogous to the eponymous plainsong's *cantus firmus* of the Pérotin *organa*, and arcs (many of which – *e.g.* the trumpet entry in the second bar, may be heard as an extension of Pérotin's *duplum*, *triplum* and *quadruplum* in the rhythmic *modus 3*: θκ ;θ in *Sederunt principes*) in counterpoint with it and one another. The passing of the arc (5,7)' from instrument to instrument (and perhaps also the counterpoint between arcs) is reminiscent of voice exchange, which Hoppin sees as 'the basic device from which the Notre Dame composers evolved ways of organizing and integrating the simultaneous melodies of polyphony'.[78] It also happens that the opening interval of the *duplum* and *quaduplum* of *Viderunt omnes* is an augmented fourth, the interval used in Davies's 'pendulum-like pairs of chords', although this may be a coincidence.

The subsection ends with two different swinging motives, on the first trombone and first oboe, played in counterpoint.

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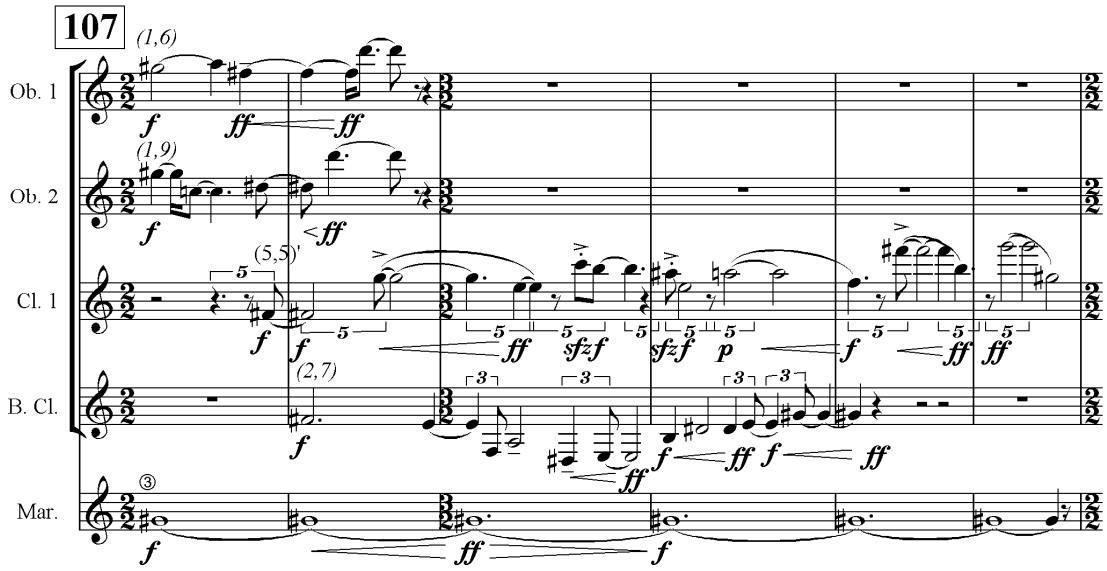
[77] *The Works of Perotin: Music and Texts Transcribed with Explanatory Preface and Performance Directions by Ethel Thurston*, (Kalmus, New York, 1970). Pérotin is not listed in the index to Seabrook's biography *Max*, but a student whose interest in early music and plainchant had been sparked by his professor's warning against 'any music written before 1550: it's dangerous' (see *Chapter 2* under *Early Music Foundations*) can hardly have failed to study the two organa quadrupla: moreover, the similarities of this subsection to the two *organa* are so striking that they can scarcely be coicidence.

[78] Hoppin, *Medieval Music*, p. 241.

Third subsection: **[107]**+1 to **[109]**+5

The subsection begins with four different swinging motives, on the two oboes, the first clarinet and bass clarinet, over the marimba playing segment 3 of the path, as shown below.



Ex. 11.49 Opening of the third subsection of the fourth movement. (other parts omitted)

(*etc.*: other parts omitted)

The rest of the orchestra gradually builds up a thick tapestry of sound to a fortissimo. Finally, in **[109]**+5 the marimba (whose last note in this segment of the path is again C#) and two trumpets play the opening anacrusis.

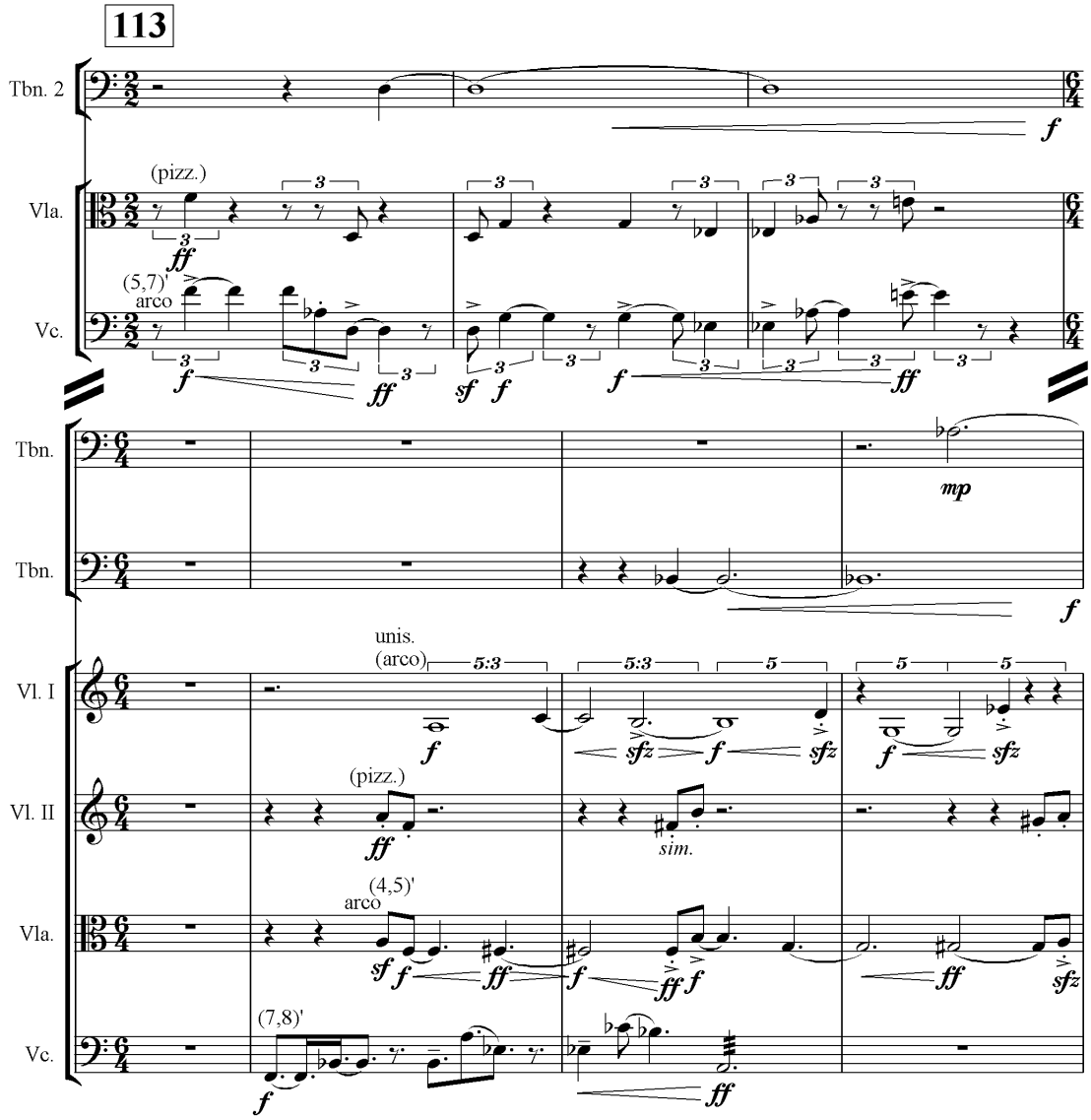
Fourth subsection: **[109]**+6 to **[113]**–1

For four bars the cor anglais, clarinets, bass clarinet, bassoons and double bassoon play the pendulum-like pairs of chords from the first subsection. The marimba's segment 4, from **[110]**+1 to **[111]**–3 and from **[111]**+1 to **[112]**–1, is embellished by trills and octave tremolos, over which various instruments play various swinging motives. At **[112]**+1 the timpani make their first entry in the

movement, over which further swinging motifs are played and the subsection builds up in ten bars, with string chords in a regular repeated rhythm (reminiscent of the ending of the first group of the exposition of the first movement) to a ***fff*** climax, the end of ‘building to a point, making the point, and then moving away’.

Fifth subsection: **[113]**+1 to **[115]**–1

For this, and the following subsections, the segment of the main spiral path (here with unit a dotted minim) is only hinted at, as may be seen in the next example, which begins with a swinging motif, now on the cellos.



Ex. 11.50 Opening of the fifth subsection of the fourth movement (double bass part omitted).

The required F4 at the beginning of segment 5 is the first note of the arc (5,7)' (with all attacks expressively doubled by pizzicato violas and the third note, D, sustained by the second trombone), not quite at the beginning of the bar, and is considered to last for three $\frac{2}{2}$ bars (*i.e.* four dotted minims), although not actually played again. Similarly, the next note of the segment, A8, is played by the first violins halfway through the next bar, and is considered to last for four $\frac{6}{4}$ bars, *i.e.* eight dotted

minims, and so on throughout the subsection. (With almost every new note of the segment there is a marked change of texture.) The subsection continues with further swinging motifs and long notes on the two trombones.

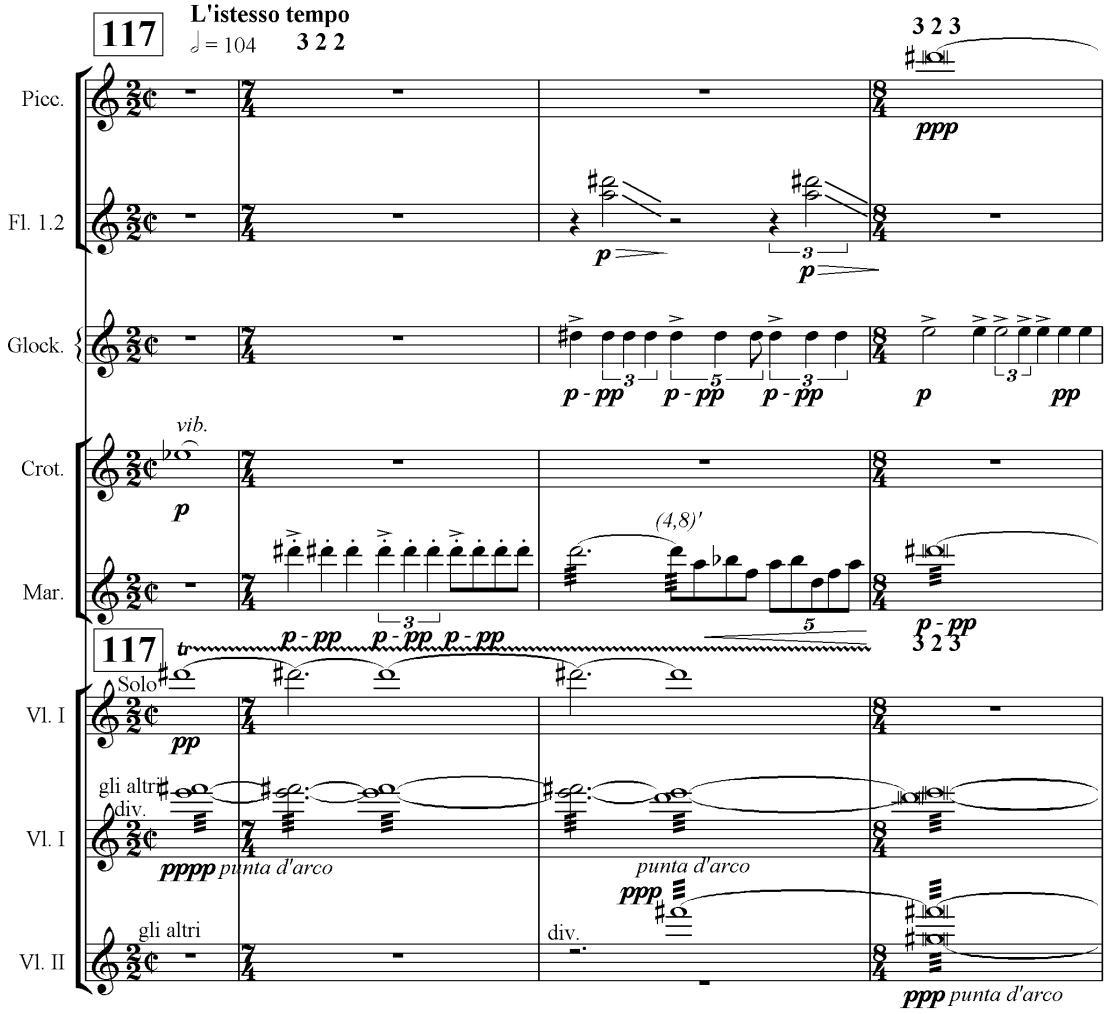
Sixth subsection: **[115]**+1 to **[117]**–1

The spiral path segment (now with unit a minim) continues to be only hinted at. The cellos play a swinging motive at **[115]**+1, and another (now with inexact rhythm) at **[115]**+3, as do the first violins at **[116]**–4 (the initial G is played by the second violins). The trombones play triads, the timpani enter melodically, the marimba plays trills, and the double basses slow melodic glissandi with crescendi. The subsection ends with a ***ff***.

Seventh subsection: **[117]**+1 to **[119]**–1

All instruments except piccolo, flutes, tuned percussion and first and second violins drop out. The spiral path segment (still with unit a minim) is played with trills by first and second violins. From **[117]**+3 to **[119]-**3 there are 'bird cries'.[79] The same note is repeated (in written-out accelerandi) by the marimba and then the glockenspiel, with a concluding arc in even quavers: this sounds very much like the cry of a curlew, although the certain identification of the actual bird poses problems even to experts. And a falling motive (no bottom note specified) is played glissando by two flutes in tritones

[79] This may be an allusion to the second movement of Beethoven's Sixth Symphony, or to the music of Messiaen, in particular to his *Quatuor pour la fin du temps*, in the opening movement of which, *Liturgie de crystal*, the clarinet imitates a blackbird and the violin a nightingale.



Ex. 11.51 Opening of seventh subsection of the fourth movement

(which may be related to the pendulum-like pairs of chords first played in Subsection 2): these are the cries of the golden plover.[80] Between May and August these birds nest on flat hilltops (as above Maxwell Davies's cottage 'Bunertoon': see the illustration at the beginning of the third movement); if a nest seems threatened, both cock and hen birds attempt to distract the threat by standing as tall as possible and simultaneously (here imitated by two separate flute voices) uttering the call. (There seem to be three pairs of birds: one in A and D#, one in A# and E and one in D and G#.)

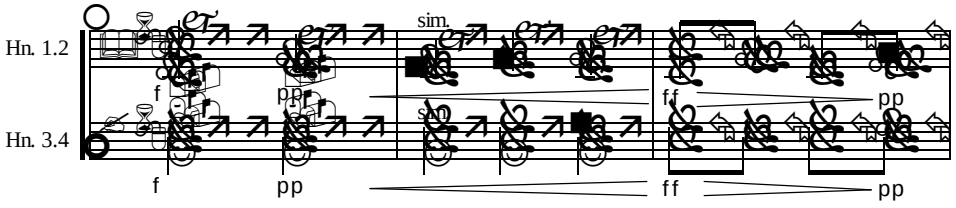
[80] Identification from track 52 of the first CD of the two CD set *British Bird Sounds On Cd* issued by the British Library.

Eighth subsection: **[119]**+1 to **[120]**–1

There is an abrupt change of texture, but with similar instrumentation. The spiral path segment, with only approximate note lengths, is played by the piccolo in repeated notes with irregular rhythm. The second, and then the first, flute play swinging motives. The remaining instruments contribute a background of sonic blur: trills from the marimba, two-note chords doubled an octave higher by repeated quavers on the harp, repeated sextuplets and tremolos on the divided first violins and held two-note tremolo chords on the divided second violins.

Ninth subsection: **[120]**+1 to **[122]**–1

The spiral path segment, still with only approximate note lengths, is played mainly by the trumpets and trombones, with the F4 by the oboes in octaves, as also the first A#5, and the second C#9, with the concluding C5 on half of the cellos, tremolandi. There are initially up and down melodic glissando chords on lower strings, but the subsection is dominated by the development of a new idea consisting of rhythmically relatively regular four-note chords (marked ‘brassy crisp’) whose lowest note is, until their last two occurrences, a pedal on the pitch of the spiral path .

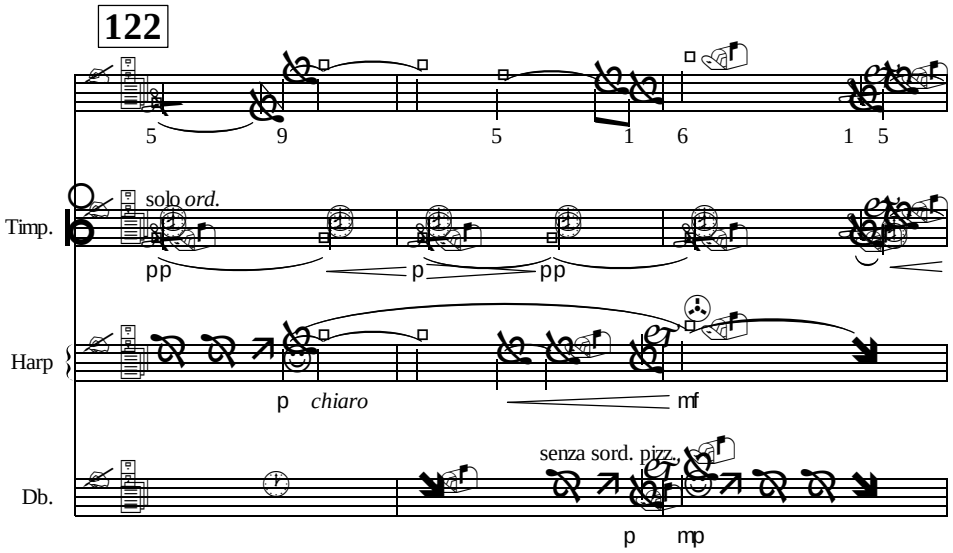


Ex. 11.52 Ninth subsection: new idea of four-note chords.

The subsection (and indeed the whole section) concludes with a diminuendo to ***pp***. which finally gives way at the end to a chord on bassoon, double bassoon, trombones and tremolando lower strings, which fades to ***pp***.

Second section: **[122]**+1 to **[125]**–1

This is Maycock's central 'episode of sparse bleakness',[81] which, may be divided into two subsections (informally: the only double bar is at the end). Like Section 1, it is based on a single spiral path (this time P-6) through the square, but now the path is implicit. The following example shows, on the first stave, the opening of the path, which is not played as such by any single instrument, whilst the remaining staves show the score parts for timpani, harp and double basses, which actually play the notes of the spiral.[82]



Ex. 11.53 Second section: spiral path distributed between instruments.

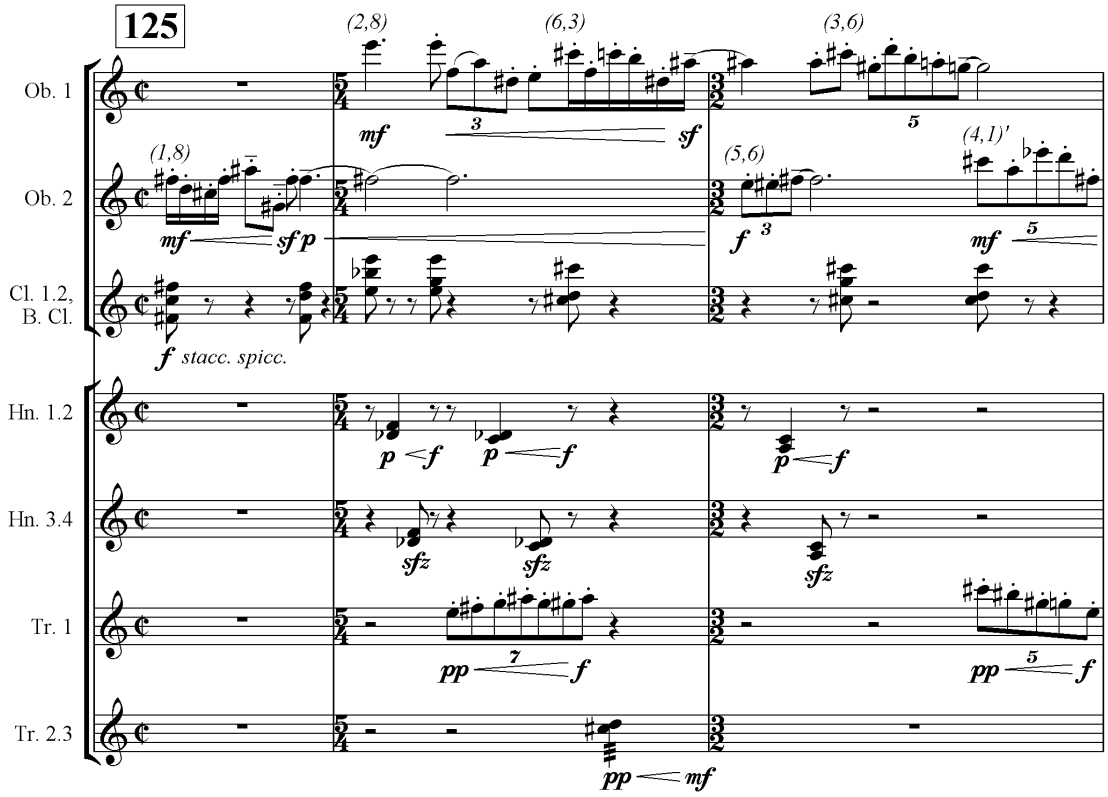
The first subsection consists of a duet between timpani and harp, becoming a trio with the entry of the marimba, and with expressive doubling of certain notes by pizzicato double basses. In the second subsection (beginning at **[125]**+1) the timpani drop out, the clarinet the marimba and harp, taking over P-6, and cellos divided into eight parts twice slowly build up a ***pp*** held chord.

[81] Maycock, Robert, 'Extended Note', http://www.maxopus.com/works/symph_1.htm, 10/10/02, p. 6.
[82] The whole section is shown in Davies's pre-composition charts (Add. Mss., 71327) sheets 71 verso, 70 verso, 69 verso, 68 verso 66 verso and 67 verso. The first stave here is copied from the chart on sheet 71 verso, the other three from the very slightly different version in the score.

Third section: **[125]**+1 to **[128]**–1

Here a very full texture starts. The piccolo and strings have long trilled notes: those of the piccolo are more melodic, those of the strings constitute long slow chords (those of the divided violas, which start C#, F, C, appear to be the beginning of the path R-0, but this is hard to trace thereafter). There is a continuous whirling reminiscent of that in the coda and close of the first movement (**[49]**+1 onward), first by the glockenspiel, to which are gradually added in succession the remainder of the tuned percussion, crotales, marimba, celesta, the tubular bells and finally two-octave sweeps up and down in thirds by the harp. The horns and clarinets play staccato chords, the two oboes alternate in rapid figurations derived from arcs, the two flutes play dyads. But the main idea consists of rapid fanfare motifs on the first trumpet ('a virtuoso first trumpet part revives the momentum': Maycock[83]), each culminating in a second on the other two trumpets.

[83] Maycock, 'Extended Note', p. 6.

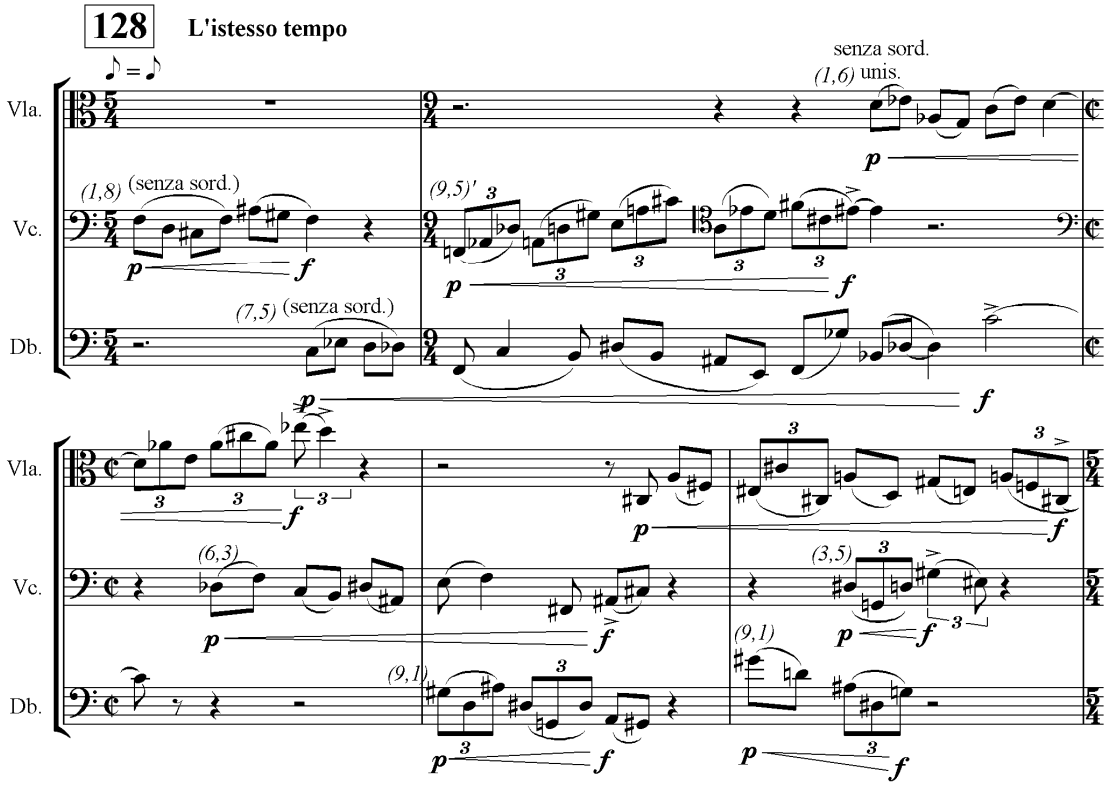


Ex. 11.54 Opening of third section.

Fourth section: **[128]**+1 to **[136]**–1

First subsection: **[128]**+1 to **[130]**–1

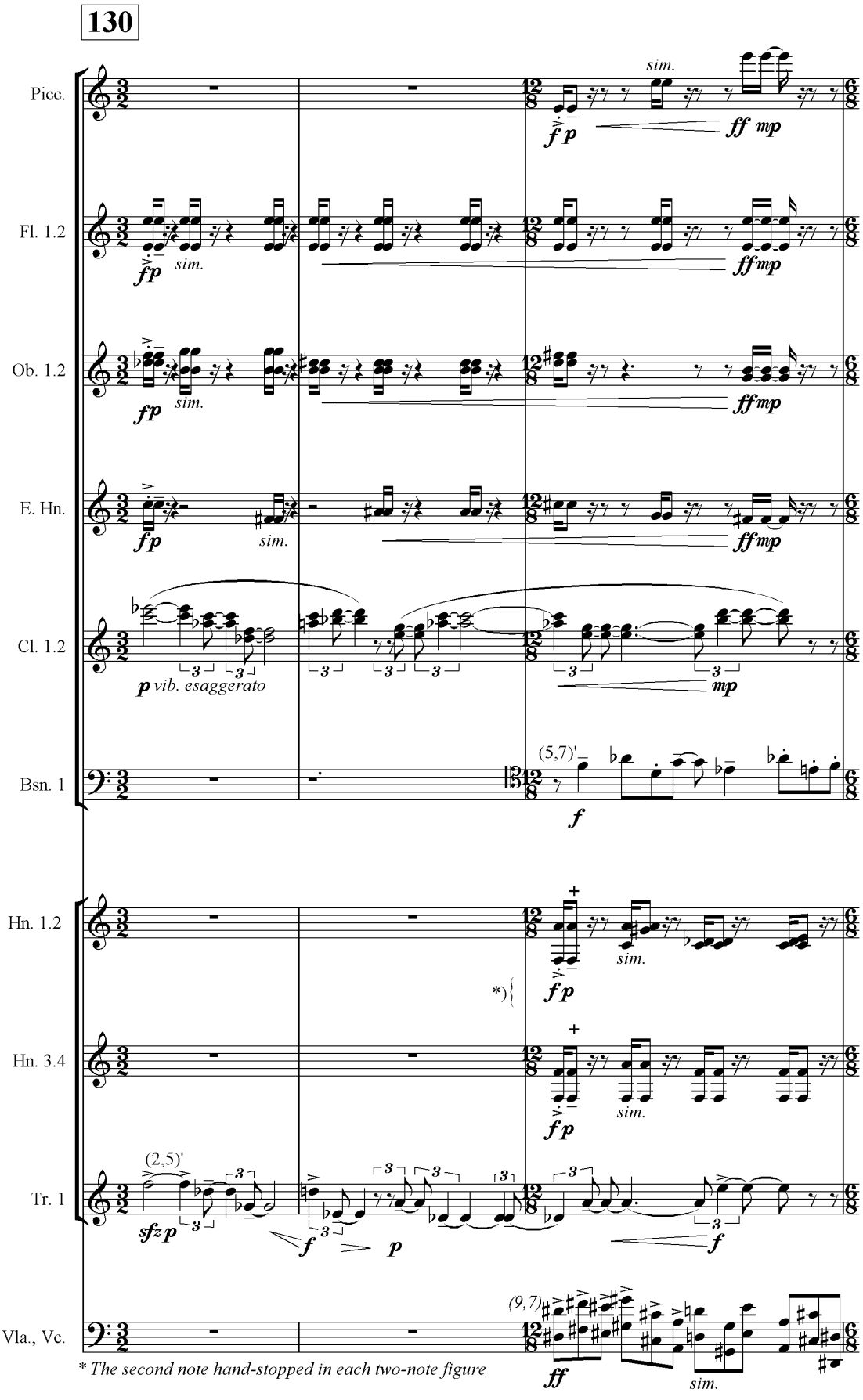
This is characterised by quaver and triplet quaver figures on the lower strings, (most attributable to spiral arcs) each swelling from ***p*** to ***f***, which, in one form or another, will dominate almost all of the rest of the movement. The texture gradually fills out to the end of the subsection.

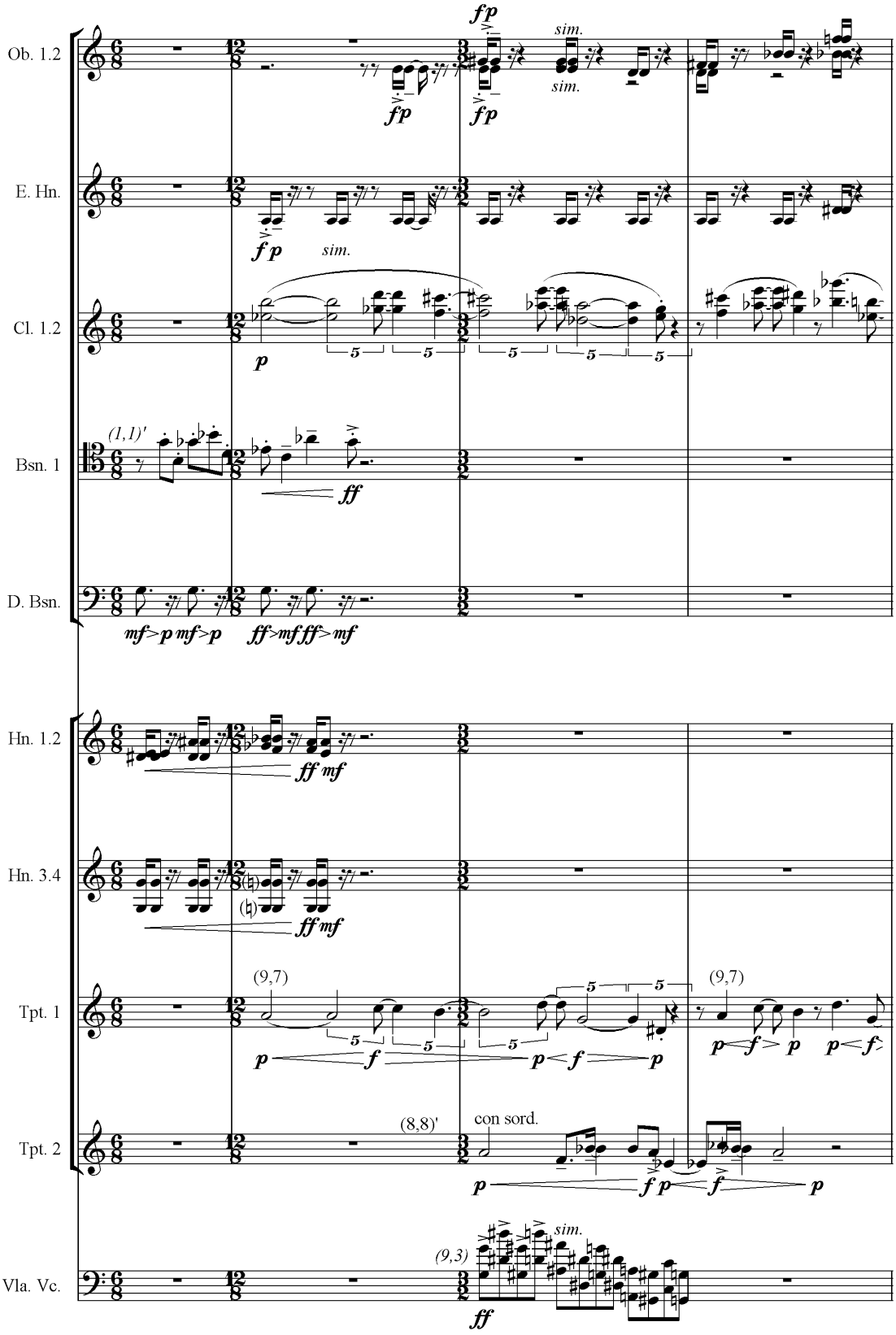


Ex. 11.55 Opening of first subsection of fourth section (other parts omitted).

Second subsection: **[130]**+1 to **[136]**–2

A hammer-like figure enters on the woodwind and horns, and continues throughout most of the subsection. (2,5)' is played, now in strict rhythm again, by the first trumpet, 'doubled' by clarinets in thirds, and is joined, in counterpoint, by (8,8)' on the muted second trumpet: later, various other arcs are played, sometimes in counterpoint with one another, by brass and woodwind. Further, the quaver and triplet figures heard in the first subsection, now appear as fanfare motifs in octaves on violas and cellos, developed from bar-long arcs at **[130]**+3, through a longer one at **[131]**+1, to long crescendo upward and downward rushes as the end of the subsection is reached. From bar **[133]**–1 onwards there are melodic glissandi in dyads on divided double basses.


130
Picc.
Fl. 1.2
Ob. 1.2
E. Hn.
Cl. 1.2
Bsn. 1
Hn. 1.2
Hn. 3.4
Tr. 1
Vla., Vc.
sim.
vib. esaggerato
(5,7)'
(2,5)'
(9,7)
* The second note hand-stopped in each two-note figure



Ex. 11.56 Opening of second subsection of fourth section (other parts omitted).

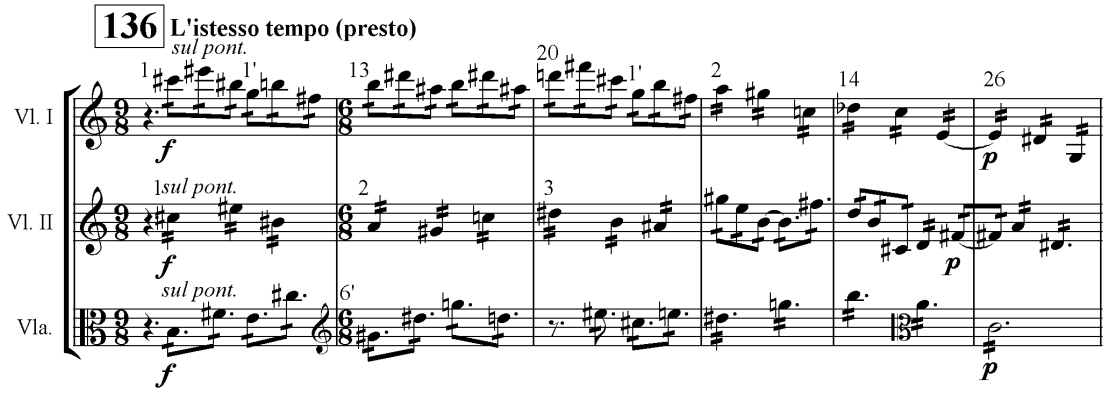
Third subsection: **[136]**–1

The whole orchestra (except tuned percussion and harp), make a massive statement of the anacrusis which opened the movement. All three trumpets play the arc *(4,1)'*, ***fff***, expressively doubled on the onsets of the Dβ, Eβ and Gβ by all four horns, ***fff***, and three trombones, ***ff***,wind, and with all woodwind and all strings, tremolando sustain the Dβ, growing from ***p*** to ***fff***.

Fifth section: **[136]**+1 to **[140]**–1

First subsection: **[136]**+1 to **[138]**–1

The quaver and triplet idea is now played *sul ponticello*, tremolo, by the three upper strings, in counterpoint and each starting in a different rhythm whilst the cellos and double basses have slow up and down melodic glissandi. After four bars, the piccolo and flutes join in with long notes.



Ex. 11.57 Opening of first subsection of fifth section (other parts omitted).

Apparently uniquely in the movement, the pitches come not from either of the two spirals but from the three-element row-segments in the first movement, some of which are indicated in the illustration.[84]

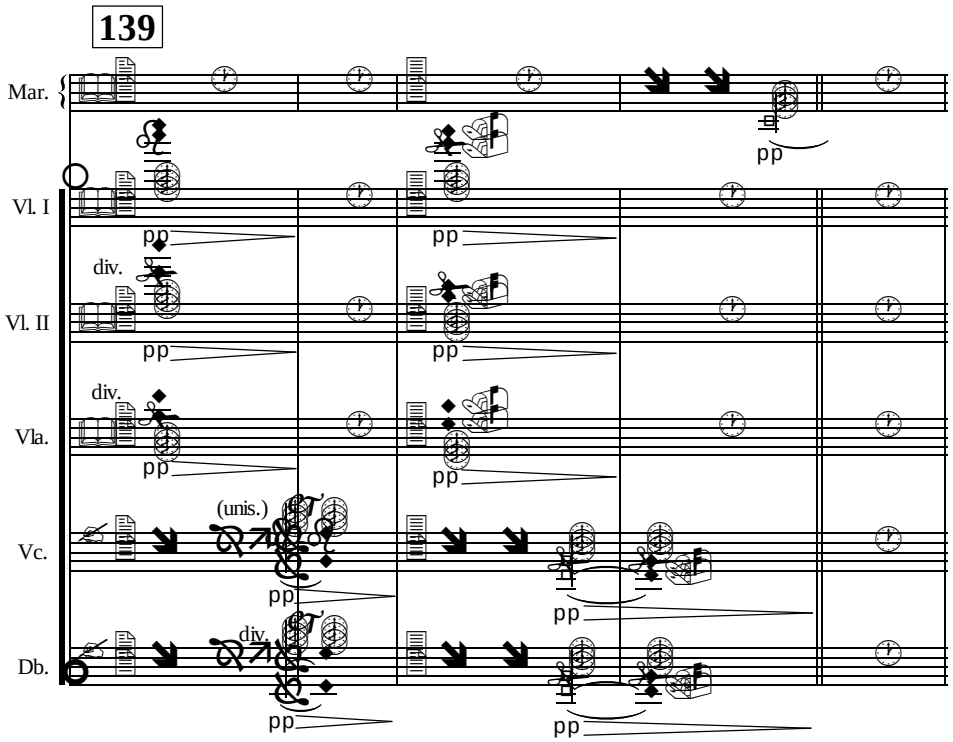
[84] Some of the sequences are also spiral arcs, *e.g.* the first four notes in bar **[136]**+1 of the viola part come from (3,4)', but this is to be expected, since 13 three-element row-segments (specifically 1, 4, 7,

Second subsection: **[138]**+1 to **[139]**–1

The counterpoint continues, but now the violas now play trills and the melodic glissandi drop out.

Third subsection: **[139]**+1 to **[139]**+4

Upper and lower strings alternately play long tremolo chords, diminishing from ***pp***.



Ex. 11.58 Third subsection.

2, 5, 6, 13, 15, 22, 23, 21, 24, 27) are also spiral arcs: what is crucial is that others of the three-element row-segments used here are not spiral arcs. Some sequences of notes, however, cannot be identified as three-element row-segments, and this also is to be expected, since, because the quavers (and dotted quavers and crotchets) are even, rhythmic clues to identity are missing, and should just one pitch in a set of three, or the order of its elements, have been changed, then it would be impossible to be certain from which row-segment they come.

Fourth subsection: **[139]**+5 to **[140]**–1

The glockenspiel and then the celesta start a whirling, and the marimba a tremolo G. The first violins play a brief reminiscence of the string pizzicato at the very beginning of the Symphony.[85]

Ex. 11.59 First violin pizzicato.

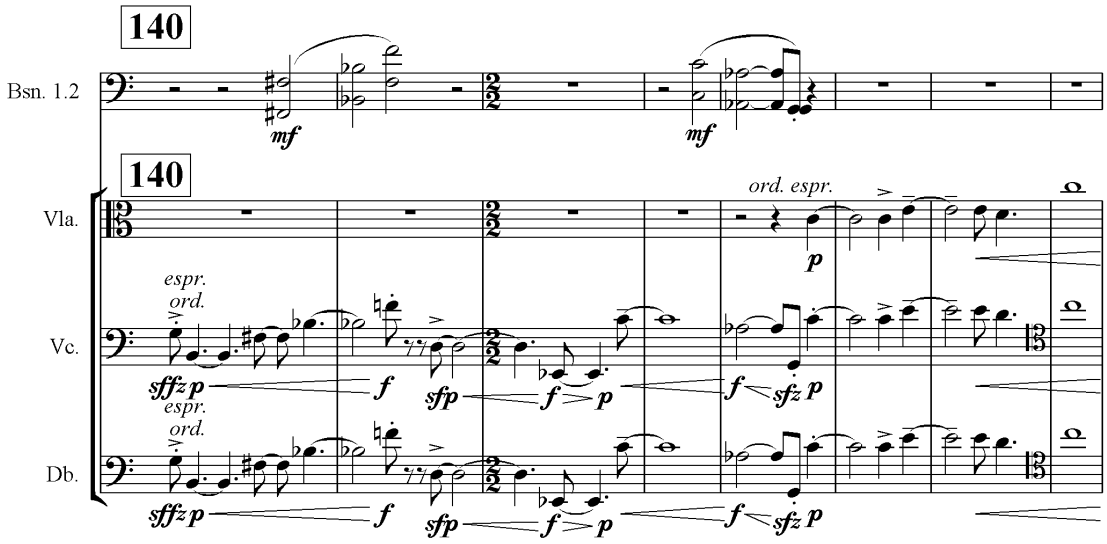
Sixth section: **[140]**+1 to **end**

First subsection: **[140]**+1 to **[143]**–1

All tuned percussion except the harp and tubular bells join in the ostinato melismas. After the apparent vanishing of any spiral path or arcs, a long arc of R-6 makes a triumphant reappearance (in quaver units) on all strings, sometimes expressively doubled by the bassoons in octaves (and soon with the double bassoon as well).[86] The theme starts on the double basses and cellos in octaves, to which are successively added the violas the second violins (with the double basses dropping out)

[85] There is an error in the published score in bar [140]–1, first violin part: the first triplet crotchet at the beginning of the bar is missing (in the example above a rest has been supplied).

[86] Davies's statement that the final version of the *Ave maris stella* thematic material is the same as in the first section of his chamber work *Ave maris stella* appears to be an error of memory. The chamber music version simply reads along each line of the (original) square (see the quotation of the opening of the work in *CHAPTER 15* under *The magic square*, *Straight-line paths*, *Horizontal line paths*), whereas the finale version is a R-6. Of course, the first nine pitches and durations of the two paths are the same.



Ex. 11.60 Beginning of string statement of R-6.

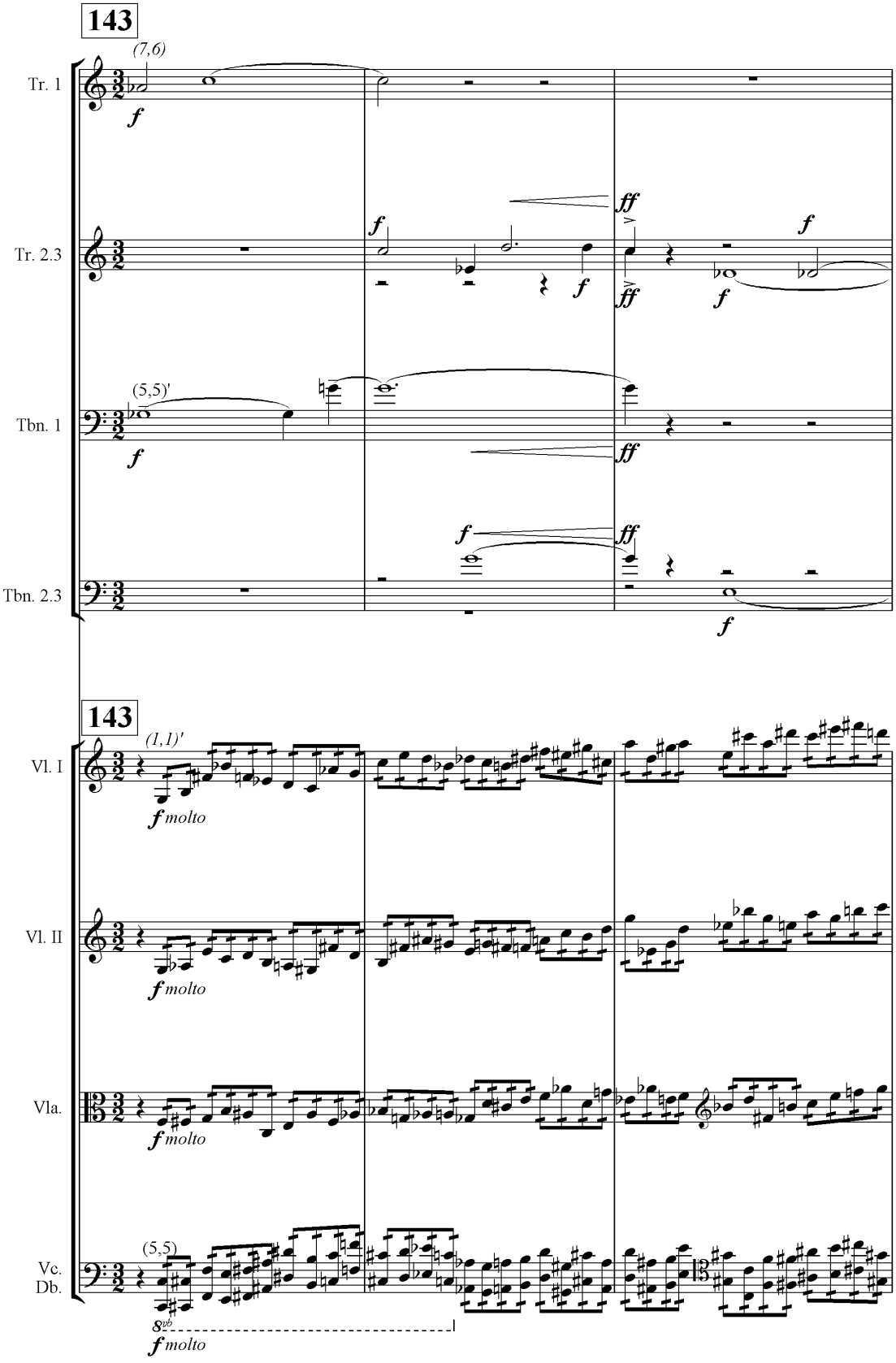
and the first violins, constituting a minimal *Klangfarbenmelodie*. The music moves gradually upwards, until when it reaches the sixty-fifth note of the spiral, C#7 (bar **[143]**–1) in the seventh row and column it is all on leger lines.

Second subsection: **[143]**+1 to **[145]**–1

All woodwind except the bassoons and double bassoon successively join in the whirling. The quaver and triplet idea, in its fourth appearance, is now played by all strings, tremolo, in homophonic four-part counterpoint, constituting something like a different whirling.[87] All this, however, is simply background to two arcs played in counterpoint by the brass. The first is *(7,6)*, the remaining sixteen notes of the spiral, but on the untransposed square, played by three trumpets, with (as foreshadowed in the first transformation **[52]**+1 to **[54]**+3 of the second movement: *q.v.*) notes being expressively doubled by another trumpet, which then takes over the melody for

[87] The first violins start with an arc, and the cellos (doubled an octave lower by the double basses) with another (both with some slight changes of order of the pitches), but there seems little point in trying to trace any more arcs, since all that is audible is a rapid, blurred scurrying.

another few notes. The second arc is (5,5)' the retrograde of the first, but in the transposed square, played similarly by the three trombones.



(From previous page) Ex. 11.61 Opening of second subsection.

Third subsection: **[145]**+1 to end

This consists simply of the Sibelius-like chords, leading to a ***fff*** conclusion.

Comments

There is a strong sense with this (first) symphony Davies had reached, compositionally, a goal towards which he had been aiming since he began to compose. The technical skills he had been mastering and, more especially, the special techniques he had made his own – transposition squares – or invented – transformations and (after the second movement had been written) magic squares – all came together in one triumphant achievement. As he himself put it:

> Recently I began to feel that I could write the orchestral music, with the orchestral sound, towards which I had been slowly and intermittently working over the years; and, perhaps optimistically, I believed that the present work could mark the possibility of the beginning of an orchestral competence. Hence the title—Symphony.

But this was only a beginning, the first of a cycle of seven symphonies.

The symphony was premiered (in the Royal Festival Hall) on the 2nd February 1978. In June of the same year Keller published an article arguing that it was not a symphony[88] and for comprehensibility it is necessary to give a brief account of this article.

His argument starts with the assertion that 'one essential characteristic of symphonic thought' is 'large-scale integration of contrasts'.[89] This contains three ambiguities: whether 'large-scale' means over the whole work or within single movements of it; *what* it is that is integrated; and *how* it is integrated. With regard to

[88] Keller, Hans, 'The state of the symphony: not only Maxwell Davies's' *Tempo*, 125 (1978), pp.6–11. Reprinted as Ch. 24 (pp. 106–110) in: Keller, *Essays on Music*.
[89] *Ibid.*, pp. 7, 8.

the first ambiguity, 'large-scale' might mean over the whole work. This would be the natural interpretation, particularly since he writes 'a symphony as we know it is large-scale, and it has to be integrated'[90] Keller, however, does not here consider symphonies as wholes but only individual movements (and not just any individual movements). Indeed, he systematically conflates whole symphonies with their sonata-form movements, claiming the generality of treating the former whilst basing his arguments on the latter. This is quite explicit:

> … the symphony has always been regarded as a sonata for orchestra, and since the core of the concept of the sonata is indeed sonata form, the prototypical symphonic contrasts within a movement have been acknowledged to be those between first and second subject, …[91]

There is thus no discussion of the integration of contrasts between the outer and central sections of a ternary-form movement, between a theme and its variations, between a rondo theme and the various episodes: the only individual movements considered are those in sonata form.

With regard to the second ambiguity, as to what it is that is integrated, Keller's insistence that symphonic integration is the integration *of contrasts* is unsound. He asks ' … what do you want to integrate if it isn't contrasts?'[92] The answer is plain: 'integrate' means to make whole, and, as a simple matter of logic and the English language, it is *separate parts* which are to be integrated. Further, the word 'contrasts'[93] suggests both binary contrasts, and a stronger difference than just separate parts; these two qualifications are how Keller interprets the word.

With regard to the third ambiguity, as to how contrasts, or better the separate parts, are to be integrated, Keller is completely silent. Two possibilities suggest

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[90] Keller, *ibid.*, p. 8.
[91] Keller, ibid., p. 8
[92] *ibid.*, p. 8.
[93] This is a category error: it is contrasted *parts* which are to be integrated, not the contrasts themselves.

themselves. The separate parts might be components of a clear form (well-known or similar to a well-known one), as with the first three movements of this symphony: or they might be integrated by a common thematic thread running through them. The *filo* relationship between themes in Mozart's piano concertos has been discussed by Forman,[94] and both Berlioz and Liszt aimed at furthering integration by explicitly introducing thematic connections between movements. Indeed, it has been argued by Reti,[95] and illustrated by a detailed thematic analysis of Beethoven's Ninth Symphony, that there is between-movement thematic unity in symphonies, although this may not necessarily be immediately apparent. In Davies's symphony, the first two movements are integrated in this way by the plainsong *Ave maris stella* and the first, third and fourth by the magic square derived from it.

Now the acknowledged contrast between first and second subject mentioned in the quotation above is not fundamental enough for Keller. He rejects thematic contrast between them because there are many monothematic sonata form movements in Haydn and a few in Mozart (although even in such movements there is some thematic distinction between first and second subjects: the latter is not simply a transposition of the former). He further rejects key-contrast between first and second subjects on the ground of the first movement of Mozart's string quintet in G minor (K. 516), where the second subject appears in the tonic,[96] and the first movement of the

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[94] The word first appears without explanation in a letter of the 13th August 1778 from Leopold Mozart in Salzburg to Mozart in Paris: the concept is briefly discussed, without being named, by Girdlestone (Girdlestone, C. M., *W.-A. Mozart et ses Concertos pour Piano*, Desclée de Brouwer, Paris, 1953), pp. 23–24, and (this time named) by Einstein (*Mozart: His Character, His Work*, Granada, London, 1983), p. 151 and more fully by Forman (Forman, Denis, *Mozart's Concerto Form: The First Movements of the Piano Concertos*, Rupert Hart-Davis, London, 1971), pp. 81–87.

[95] *The Thematic Process in Music* (Faber & Faber, London, 1961).

[96] A single extreme exception seems insufficient reason for the rejection of an almost universal rule. In science, a single counter-example is sufficient to disprove a theory, but elsewhere it is different. 'Within the humanities norms, generic options, and more-or-less standard procedures are not laws at all. And since they are not, there was no need to suppose that the existence of numerous exceptions or deviations invalidated the norm.' Hepokoski, James and Darcy, Warren, *Elements of Sonata Theory:*

'Haffner' symphony (K. 385), (and here he seems certainly wrong: it has been pointed out by Blom[97] that there is a perfectly good second subject, in the right key, but that the first subject combines contrapuntally with it). Instead of thematic contrasts or key contrasts, he asserts that 'the elementary and elemental contrast in the sonata's modes of thought … *is the contrast between statements* (whether monothematic or polythematic) *and developments* (whether they concern themselves with the statements or not)'. He then takes this formulation further: 'In tonal music, therefore, it is the contrast between harmonic stability and harmonic lability (modulation), while in atonal symphonism … the differentiation is achieved by a variety of means … '. This second formulation, which is taken up in his second paper on symphonic form,[98] (whose very title, 'Der symphonische Urkontrast: die falsche Geschichte der Sonatenform', makes the conflation of whole symphonies with their sonata-form movements quite explicit) which will be discussed in connection with Davies's Symphony No. 2,[99] is not a simple logical consequence of the first, but an extension of it: exposition is not synonymous with harmonic stability (since the second subject is normally in a different key, and reached by modulation, and there are often other modulations in the exposition) nor is development synonymous with harmonic lability (modulation), although both pairs are very highly correlated. Keller goes even further: he challenges the reader to 'think of a single symphony which, in his opinion, is worth its name, where this contrast cannot be shown to operate as ultimate motive power'. Three points arise here. First, there is the same conflation of whole symphony and single sonata-form movements, and again movements not in sonata

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Norms, Types, and Deformations in the Late-Eighteenth-Century Sonata, (Oxford University Press, Oxford, 2006), p. 7.

[97] Blom, Eric, 'Mozart', 'Wolfgang Amadeus Mozart (1756–1791)', Hill, (ed.), *The Symphony*, Ch. 3, pp. 55–91).

[98] Keller, Hans, 'Der symphonische Urkontrast: die falsche Geschichte der Sonatenform', *Österreichische Musikzeitschrift*, 39/11 (1984), 579–585.

[99] See below, *Chapter 13*, *Comments*.

form (and indeed, movements in sonata form without development) are simply passed over. Secondly, it is unclear what the criterion of being 'shown to operate as ultimate motive power' means. Indeed, thirdly, there is a circularity here. It might be suggested as a counter-example that Davies's first symphony is worthy of the name despite Keller's assertion that 'the contrast between statement and development is neglected, if not indeed largely ignored'.[100] It would be open to Keller to argue that *on other grounds* it is not a symphony worthy of the name: his claim, however, is that it is not a symphony worthy of the name *because* of this contrast, which is circular.

(It should be noted that here Keller is basing his argument on classical symphonies, and, basically, criticises Davies's Symphony for being insufficiently like those by Haydn and Mozart. But twentieth-century symphonies are not always like that. Both Darcy[101] and Hepokoski[102] have pointed out what they term 'deformations' in sonata form since the eighteenth century. Indeed, Sibelius – a composer whose work Davies particularly admires – said, that the movements of his Sixth Symphony, 'from a formal point of view are treated completely freely and do not follow the usual sonata scheme.'[103] But Sibelius's music was so unsympathetic to him that he once wrote, '… I never write about Sibelius'.[104])

On the basis of his (first) formulation, Keller makes two points about Davies's symphony. One is his criticism of the third movement as not symphonic because 'there isn't enough to integrate from the symphonic point of view, because characterization, definition, and articulation don't heed the demands for incisive

[100] Keller, 'The State of the Symphony', p. 10.
[101] Darcy, 'Bruckner's sonata deformations'.
[102] Hepokoski, *Sibelius: Symphony No. 5*.
[103] Interview in *Svenksa Dagbladet*, Feb. 27, 1923, p.3. The full quotation is: 'För övrigt har den som de flesta symfonien fyra satser, vilka dock formellt sett behandlas fullkomligt fritt och *icke följa den övliga sonatschemat*.' (my italics).
[104] Keller, Hans, 'Resistances to Britten's Music: Their Psychology', *Music Survey*, 2 (1950), pp. 227–236; reprinted as Chapter 2 (pp. 11–17) in: Keller, *Essays on Music*, p. 11.

contrast. Above all, the contrast between statement and development is neglected, if not indeed largely ignored.'[105] Since the movement is in (transformation) variation form, with a sonata form (but again without first and second subjects) lightly overlaid, there is not, even on Keller's argument, the same need for there to be a contrast between statement and development. There is plenty of differentiation between the component variations, as may be seen above from the *Summary analysis table* of the movement: it is to be wondered at that Keller did not hear it. Indeed, possibly he did, which may be why he here raised his demand above his original formulation, for not just contrast, but 'incisive contrast': but if his own formulation is to be changed to fit his argument, then no valid discussion is possible.

Keller's second point about the symphony is his quotation of Davies's statement that 'Any 'development' consists of transformation processes',[106] which he purports to refute by examples from Mozart. But this shows simply that he has not understood what Davies means by transformation processes:[107] processes which by a series of slight changes gradually transform one 'sequence of pitches and rhythmic note-values' into 'something else - e.g. its own inversion, or another piece of material altogether'.

Despite its unsatisfactory arguments, Keller's paper may have been influential, as will be seen when the second symphony is discussed.

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[105] Keller, *Essays on Music*, p. 10.
[106] Davies was writing specifically of the first movement of the first symphony: this quotation out of context gives it a universal application which can scarcely have been intended.
[107] Described above in *Chapter 5* under *Davies's fully evolved transformation processes*: see in particular the quotation from Davies's 'Four Composition Questions Answered' and also Roberts, *Techniques of Composition*, pp. 305–306).

PART V: SYMPHONY NO. 2

CHAPTER 12: THE SEA AND WAVES; MAGIC SQUARES WITH A HYPER-SQUARE

The Sea, and Waves

The Sea

Davies wrote that the slow movement of his First Symphony became an 'invocation of the extraordinary, almost unearthly, treeless winter land-and-seascape of the Orkney island where I live [Hoy]'. He has similarly described how the sea in the Pentland Firth below the restored croft [Bunertoon] in Rackwick Bay in the south of Hoy where he then lived was an inspiration for much of the Second Symphony, both giving its general mood and also suggesting two new musical forms.

> At the foot of the cliff before my window,[1] the Atlantic and the North Sea meet, with all the complex interweaving of currents and wave-shapes, and the conflicts of weather, that such an encounter implies.
>
> The new symphony is not only a direct response to the sounds of the ocean's extreme proximity, subtly permeating all of ones existence – from the gentlest Aeolian harp vibrations as the waves strike the cliffs on the other side of the bay in calm weather, to explosive shudders through the very fabric of the house, as huge boulders grind over each other directly below the garden, during the most violent westerly gales – but also a more considered response to the architecture of its forms.

Waves

> I have observed two basic wave-types of potential interest – that where the wave-shape moves through the sea, while the water remains (basically static) – as where breakers roll in towards a shore-line (moving form, static content of a wave)

[1] That is, the window of Bunertoon. It looks out over the Pentland Firth.

Ill. 12.1 Photograph of Rackwick Bay from Bunertoon, 22nd June, 2006, by

Moira Phillips.

> – and that where the wave-shape is static and constant, while the water moves through it – as when an obstacle, a sea-wreck, for example, protrudes through the surface of a tide race, making a plaited wave-shape behind it (static form, moving content of wave).[2]

[2] The beginning of this quotation suggests that both wave-types are visible from Bunertoon, but a different quotation makes clear that this is misleading. ' … there are two kinds of wave. In the first the water content of the wave remains static while the form goes through it: for instance, when you look out from my window at the bay, there are wave shapes on it, but if you look at an object, a piece of wood or whatever, it just remains stationary. Then there's the other sort, like you see when you go past the blockship on the way to Hoy on Stevie's ferry, where the tide goes through and the water at the side makes a shape like ringlets, which remain constant while the water is whizzing through: then the form is constant but the content is changing rapidly.' (Griffiths, *Peter Maxwell Davies*, Part II, p. 127.) The blockship is the *Inverlane*, which was sunk in Burra Sound (between Graemsay and Hoy) on the 30th May, 1944 (and is now broken up and invisible from the ferry which plies between Stromness and Moaness Pier on the north of Hoy). The photograph, from The Orcadian, 17th February 2000, was taken by Mr Ewart Omand of Stromness the preceding December, and was kindly made available by Mr David Coltherd of Kirkwall.

Ill. 12.2 The blockship Inverlane in Burra Sound (photograph from December, 1999).

> While I was first working on the musical potentialities in these two extremely different wave types, and various interactions between them, I came upon André Gide's exact observation of the same phenomenon, noted in an early diary, while on holiday on France's north coast, and also upon Leonardo da Vinci's precise sketches of both wave types.
>
> These two formulations governed the composition of the new symphony, in small architectural detail, and also in long time-spans over whole movements, and more. For example, after the short slow introduction, the first movement proper starts with six 'antecedent' phrases on horns, with 'consequent' phrases on violins, where even the contour is obviously wave-shaped, and the static form and changing melodic and rhythmic content are carefully underlined. In contrast, at the opening of the third movement, the repeating identities of the rhythmic and melodic figures clarify the changing forms of their successive statements.
>
> …

> Deeper in the structure, but I hope still articulate, are large-scale 'pointers', like the surfacing of parallel climactic points of the design in the second and third movements – accelerating strokes and, in the fourth movement, the transformation of what starts as a slow movement into a real Allegro finale.[3]

A sidelight on the use of wave-forms in this symphony is given by Seabrook.

> He found the appropriate mathematical works in which to read up on this, and spent a long time doing so. Then he took the equations and theories out with him on his daily tramps across the hills of Hoy and paced out different distances, using the ever-changing gradients of the hillsides to lay out these wave-forms on a physical medium. The result, he will assure anyone who enquires, is there for all to hear in the music – for all to hear, that is, who can. But if he is asked, 'Well, what if I can't hear any of that?' his reply is instantly and completely reassuring: 'Doesn't matter in the slightest,' he says quite cheerfully. 'Nobody could be expected to hear all that.' He immediately goes on to elaborate: 'These things are of enormous interest to composers, and of none whatsoever to listeners.'[4]

Rotations

The formal process of rotation

As well as the devices of transformation and magic squares familiar from the first symphony, in the present symphony Davies uses a process labelled by Hepokoski, writing on Sibelius, as 'rotation':

> In such a process Sibelius initially presents a relatively straightforward 'referential statement' of contrasting ideas. … the referential statement may either cadence or recycle back through a transition to a second broad rotation. Second (and any subsequent) rotations normally rework all or most of the referential statement's material, which is now elastically treated. Portions may be omitted, or merely alluded to, compressed, or, contrarily, expanded or even 'stopped' and reworked 'developmentally'. New material may also be added or generated. Each subsequent rotation may be heard as an intensified, meditative, reflection on the material of the referential statement.[5]

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[3] Davies, 'Symphony no. 2', Griffiths, *Peter Maxwell Davies*, Part III, p. 172. For the citations of Gide and da Vinci, see *Appendix F: Allusions to André Gide and Leonardo da Vinci in Davies's Composer's Note on Symphony No. 2.*

[4] Seabrook, *Max*, pp.197–198.

[5] Hepokoski,, *Sibelius: Symphony No. 5*, p. 25. See also the same author's: 'Rotations, sketches, and the sixth symphony', Ch. 11 (pp. 322–351) in: Jackson and Murtomaki (eds.), *Sibelius Studies*, (Cambridge University Press, Cambridge, 2001).

This process is used in the two passages which Davies (see above, *The Sea*) explicitly refers to as being influenced by the two types of waves he describes, namely in the exposition of the first movement (six rotations) and the first (and largest) part of the third (seven rotations), as will be explained in the analyses of the movements.

Serial structures of the Second Symphony

Basic series

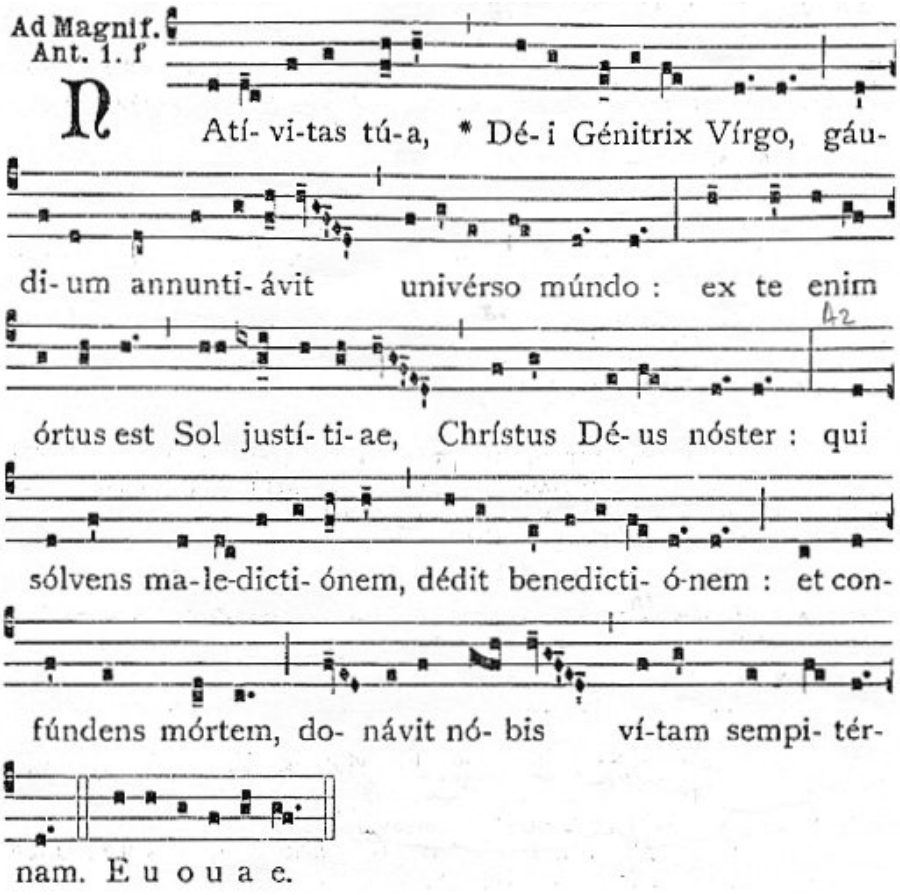
There are three of these. First, fundamental to the music is a short melodic fragment, D, F, E, E♭, G, D♭, C♭, which Davies in his manuscripts calls 'BELLS'.[6] Secondly,

> A certain thematic unity is provided throughout by the use of the plainsong Nativitas Tua, Dei Genetrix – proper to the birthday of the Virgin Mary, which happens to be my own birthday; this symphony is a birthday gift for the Virgin.[7]

The plainsong is

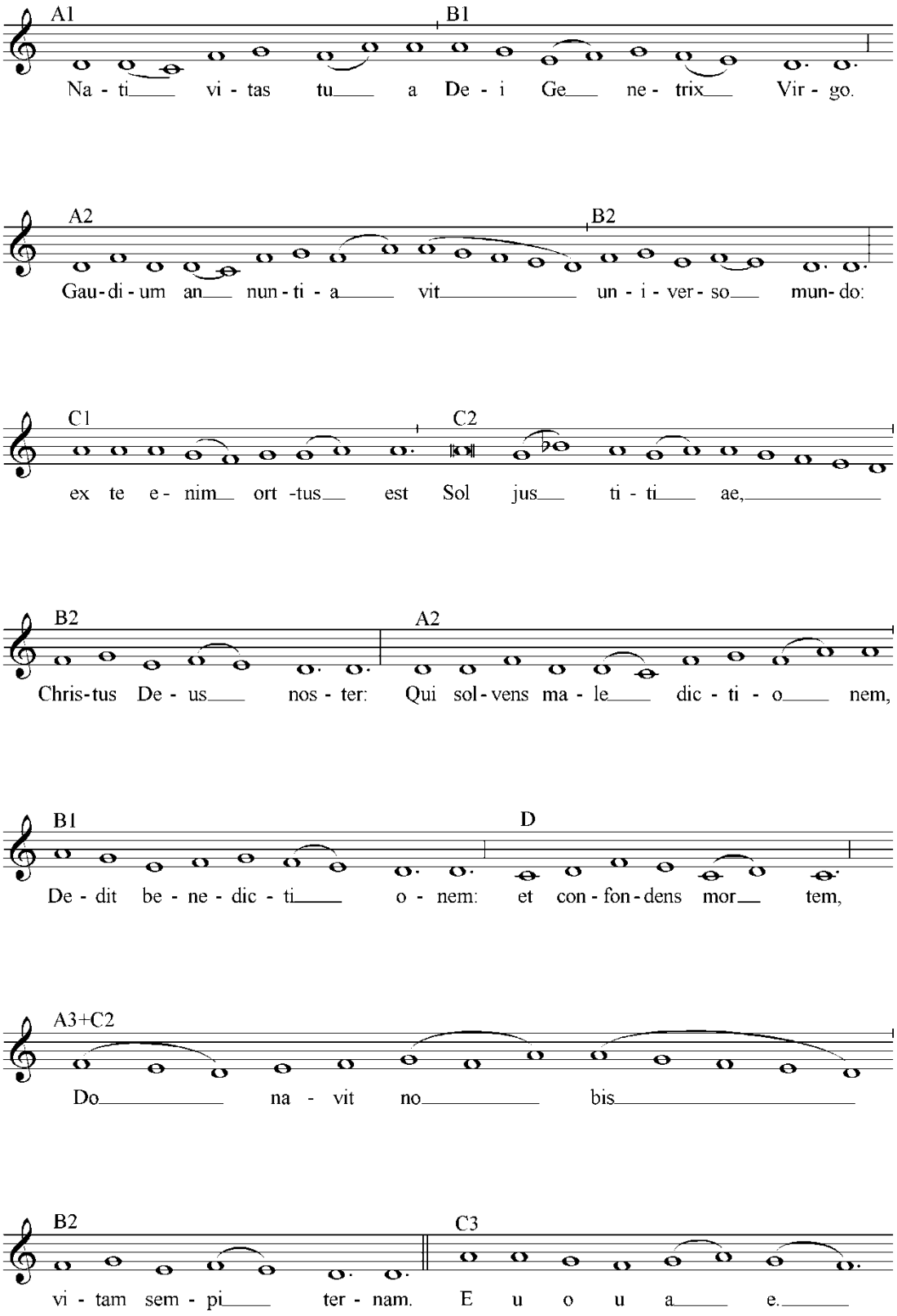
[6] Searches on electronic data bases have not yet revealed the source of 'BELLS'. What seems an obvious candidate is the seven-note series E♭, D♭, G♭, F, B♭, C♭, A♭ used in 'Full fadom five' the second of Stravinsky's *Three Songs from William Shakespeare*: the series, which has been termed 'motif de cloches' by Craft (Craft, Robert, 'Trois Chants de Shakespeare', pp. 148–150 in *avec Stravinsky*, Igor Stravinsky *et al.*, Editions du Rocher, Monaco, 1958) and the song ends with the words 'Ding, dong', Unfortunately, it has not been possible to find any correspondence between the two series, which in fact use different scales (although both are symmetrical: that of 'BELLS' about D, E♭ and that of 'Full fadom five' about A♭). Davies replied to a query about this that he had forgotten, but thought it was from the *First Taverner Fantasia* or at least its early workings. It can scarcely be from the Fantasia, since the eight (hand)bells there are tuned to the scale of C# major, and do not play any recognisable form of 'BELLS'. Neither did a search of the manuscript sketches of the work (British Library Add. Mss. 71444, ff. 13v–22) reveal any trace of 'BELLS'. Sir Peter replied to a query about this that he could not remember, but thought it might be in the manscripts for the *First Taverner Fantasia*: study of these (British Library, Add. Mss. 71315), however, were not fruitful.

[7] Davies, 'Symphony No. 2', p. 175



Ex. 12.1 The plainsong *Nativitas tua* (*Liber Usualis*, p. 1627).

or, in Davies's own transcription,



Ex. 12.2 Davies's transcription of the plainsong *Nativitas tua* (British Library, Add. Mss. 71335, sheet 2).

(The letters indicating sections of the plainsong are Davies's: in fact, only the two segments marked A1 and B1 are used in the symphony.)

Serial structures

All three of Davies's serial techniques, transposition squares, transformation processes and magic squares, are used extensively throughout this symphony, indeed extensions of magic squares also occur. They will all be described in some detail in the analyses of the individual movements: here, only an overview will be given.

Transposition squares do occur by themselves, but their main use is in the construction of magic squares. Transformation processes figure more often, most especially in the third movement: a theme alluding to the plainsong *Nativitas tua* is subjected to a number of transformations, and a series of 'transitions' between occurrences of the plainsong theme is also a series of transformations. Most often used, however, are magic squares. One is derived from a 5 × 5 transposition square of the first five distinct pitches of *Nativitas tua* and the square of Mars, and a similar 5 × 5 magic square is similarly derived from the same transposition square, but with transpositions of rows 2 to 5. The two are laid side-by-side to make a 5 × 10 rectangular extension of the magic square which is used throughout the second movement. Another magic square is derived from a 6 × 6 transposition square of BELLS and the square of the Sun. This is extended to what will be called a hyper-square, which contains a version of itself in each of its rows. Both the square and its extension are used in the first movement.

CHAPTER 13: THE SYMPHONY

First Movement

Composer's comments

> The four movements follow the old symphonic plan in outline. In the first, after an introduction containing the germ-cells of all the material for the whole symphony, there is a quick sonata movement, with transformation processes in place of a tone development, and a systematic exploration of the B – E sharp pivot – rather than a statement of a tonal centre – followed by a moving away from and a return to that centre.[1]

Davies's sonata form is clearly to be seen in the following Summary analysis table. The serial structures used in it are explained immediately after the table.

[1] Davies, 'Symphony No. 2', p. 174.

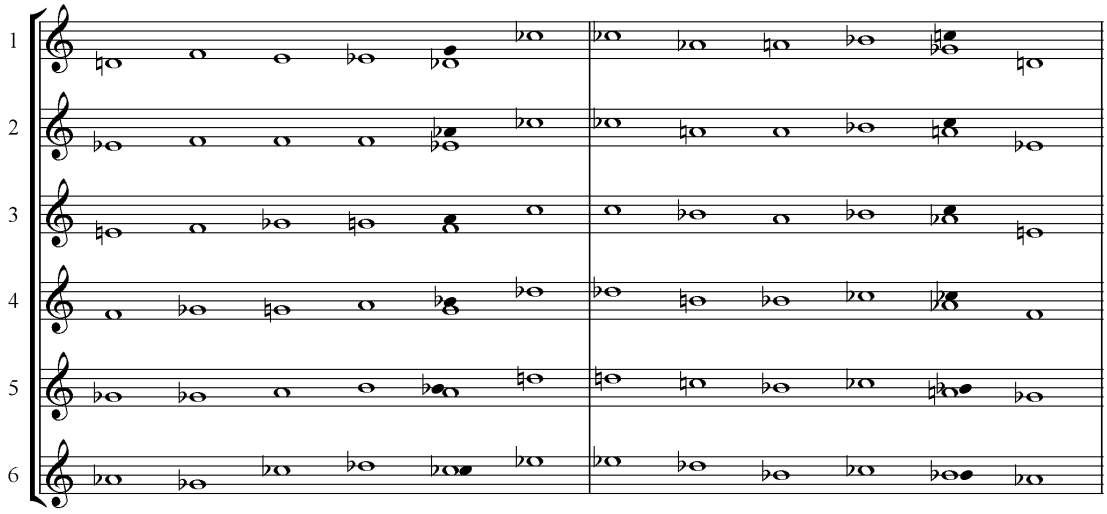
Summary analysis table

Introduction			Start to **[C]**–1		Fragments
Exposition	First subject	Antecedent Consequent Successive transformations of antecedent and consequent	**[C]**+1 to **[D]**–1 **[D]**+1 to **[E]**–1 **[E]**+1 to **[O]**–1	Horns	Main pitches of hyper-square
				Vl. 1, 2	Inner pitches of hyper-square
				Similarly	Similarly
	Second subject		**[O]**+1 to **[Q]**–1	Cellos Bsn. 1	Boustrophedon rows of SOL

Development		First subsection			**[Q]**+1 to **[T]**–1	Glock., Crot. Vln. 1.2 Hn. 1	Main pitches, inner pitches of hyper-square BELLS→A1 of plainsong↔I BELLS to B1
		First bridge			**[T]**+1 to **[U]**–1	Wind	Chords
		Second subsection			**[U]**+1 to **[X]**–1	Strings Glock. (Harp)	Inner pitches, Main pitches of hyper-square
		Second bridge			**[X]**+1 to **[X]**+2	Tpts., Tbns.	Chords
		Third subsection			**[X]**+3 to **[A1]**–1	Fl. 1.2↔Ob. 1.2 Cl. 1.2↔Bsn. 1.2 Vl. II, Vla. Vl. I.II Hns.	I TS↔TS I SOL↔SOL
	Recapitulation		Second subject		**[Z]**+1 to **[A1]**–1		
			Consequent		**[A1]**+1 to **[C1]**–1		
			Antecedent		**[C1]**+1 to **[E1]**–1		

Coda	First part	Coda theme	**[E1]**+1 to **[H1]**–1	Vl. I,II	Inner pitches of hyper-square
	Second part		**[H1]**+1 to **[J1]**–1	Mar. Timp. Harp	Inner pitches of hyper-square SOL, rows 1, 2 I SOL
	Third part		**[J1]**+1 to **[Q1]**–1	Orchestra	Free
	Fourth part		**[Q1]**+1 to **[V1]**–1	Cl. 1.2↔Bsn. 1.2 Bass Cl., D. Bsn. Vl. I.II, Vla.	 I SOL *Nativitas tua*
	Fifth part		**[V1]**+1 to **[W1]**–1	Upper WW, Glock., Crot. Vl. I.II	Whirling SOL
	Sixth part	Coda theme and ending	**[W1]**–1 to end	Vl. I	Inner pitches of hyper-square

BELLS is transformed into the opening, A1, of *Nativitas tua* in a six-step process (left-hand half of the following figure), and its inversion into part of the second phrase, B1 (right-hand half), but omitting the second G, both of which occur, interleaved, in the first part of the Development section of the first movement.



Ex. 13.1 Transformations of BELLS and its inversion into A1 and B1 of Nativitas tua (from Davies's manuscripts[1])

Transposition Squares[2]

Two of these, derived respectively from BELLS and from its inversion, are used in the third subsection of the Development section. In the first, which will be referred to as TS, the sequence is turned into a six-part sequence by making the fifth part the dyad G, Dβ[3], and a 6 × 6 transposition square is made from this sequence, *i.e.* the sequence of pitches in the first column are the same as those in the first row.

[1] British Library, Add. Mss. 71335, Sheet 3: the final pitch of the fifth line of the right-hand half of the figure is Gβ in the manuscript, but G$\forall$ in the score (I, **[S]**+5).
[2] See *Chapter 3* above.
[3] Davies notes, at the top right of sheet 3 of Add. Mss. 71335,: TO FORCE A SEVENER INTO A SIX BY SUPERPOSITION.

TS

Transposition square from BELLS

1 D 1	2 F 2	3 E 3	4 Eβ 4	5 G Dβ 5	6 Cβ 6
7 F 1	8 Aβ 2	9 G 3	10 Gβ 4	11 Bβ E 5	12 D 6
13 E 1	14 G 2	15 F# 3	16 F 4	17 A Eβ 5	18 Dβ 6
19 Eβ 1	20 Gβ 2	21 F 3	22 E 4	23 Aβ D 5	24 C 6
25 G Dβ 1	26 Bβ Fβ 2	27 A Eβ 3	28 Aβ D 4	29 Gβ C 5	30 E Bβ 6
31 B 1	32 D 2	33 C# 3	34 C 4	35 E Bβ 5	36 Aβ 6

(The numbers of the cells, which are used only in the construction of the magic square, are given in grey in their top left-hand corners, and their column numbers, which will become duration numbers in the magic square, in their bottom right-hand corner.)

The second transposition square, which will be referred to as I TS, is constructed similarly from an inversion: B (here spelt Cβ), Aβ, Aν**,** Bβ**,** Cν, Gβ**,** Dν of BELLS.

I TS

Transposition square from the inversion of BELLS

1 Cβ 1	2 Aβ 2	3 Aν 3	4 Bβ 4	5 Cν Gβ 5	6 Dν 6
7 Aβ 1	8 Fν 2	9 Gβ 3	10 Gν 4	11 Aν Eβ 5	12 Bν 6
13 Aν 1	14 Gβ 2	15 Gν 3	16 Aβ 4	17 Bβ Eν 5	18 Cν 6
19 Bβ 1	20 Gν 2	21 Aβ 3	22 Aν 4	23 Bν Fν 5	24 Dβ 6
25 Cν Gβ 1	26 Aν Eβ 2	27 Bβ Eν 3	28 Bν Fν 4	29 Gν Dβ 5	30 Eβ Aν 6
31 Dν 1	32 Bν 2	33 Cν 3	34 Dβ 4	35 Eβ Aν 5	36 Fν 6

Magic Squares

Two pairs of magic squares, and one further square derived from the first of the first pair, are used.

The Squares of the Sun

The square of the Sun is derived from TS above by writing the numbers of the magic square of the Sun in the top left-hand corner of each cell of a 6 × 6 square, and inserting in each of its cells the contents of the cell with its number in the preceding transposition square: the column numbers from the transposition square are now the

duration numbers.[4] (In contrast with the First Symphony, the duration numbers are not often used.)

SOL

Square of the Sun

6 Cβ 6	32 D 2	3 E 3	34 C 4	35 E Bβ 5	1 D 1
7 F 1	11 Bβ E 5	27 Aν Eβ 3	28 Aβ D 4	8 Aβ 2	30 E Bβ 6
19 Eβ 1	14 G 2	16 F 4	15 F# 3	23 Aβ D 5	24 C 6
18 Dβ 6	20 Gβ 2	22 E 4	21 F 3	17 A Eβ 5	13 E 1
25 G Dβ 1	29 Gβ C 5	10 Gβ 4	9 G 3	26 Bβ Fβ 2	12 D 6
36 Aβ 6	5 G Dβ 5	33 C# 3	4 Eβ 4	2 F 2	31 B 1

Because of its different construction from the 9 × 9 Square of the Moon used in the First Symphony, the internal structure of SOL differs from that of the Moon in the following ways. First, the pitches in every row are not a rotated transposition of those in every other row: they are, however, symmetric about the bottom-left to top-right diagonal. Secondly, although the durations in each row are the integers 1 to 6 in some

[4] This square is designated SOL STR in Davies's manuscripts, and will here be referred to simply as SOL. This square is derived from a magic square (unlike the Square of the Moon used in the first symphony, which was derived from a magic square which had been reduced to a Latin square), and its thematic content is harder to grasp (unlike that of the Square of the Moon, whose rows consisted of transpositions and circular permutations of a single melodic line).

order, those in each column are not, although (since those in each of the first and sixth columns are three 1s and three 6s, those in each of the second and fifth are three 2s and three 5s and those in each of the third and fourth columns are three 3s and three 4s) they all, like those of the rows, have the same sum, namely 21. Further, it will be seen that in some cells a second pitch a tritone above the first has been added in a smaller font (resulting from a single pitch added above the penultimate one in a transposition of the six-note sequence).

The second square of the first pair is derived from I TS in the same way as SOL from TS.[5] It is

[5] The square is designated SOL INVER in Davies's manuscripts, and will here be referred to as I SOL.

I SOL

Inversion of the Square of the Sun

6 D 6	32 B 2	3 A 3	34 Dβ 4	35 Eβ A 5	1 Bν 1
7 Aβ 1	11 Aν Eβ 5	27 Bβ Eν 3	28 Bν F 4	8 F 2	30 Eβ A 6
19 Bβ 1	14 Gβ 2	16 Aβ 4	15 Gν 3	23 Bν F 5	24 Dβ 6
18 C 6	20 G 2	22 A 4	21 Aβ 3	17 Bβ E 5	13 Aν 1
25 C Gβ 1	29 G Dβ 5	10 Gν 4	9 Gβ 3	26 A Eβ 2	12 B 6
36 F 6	5 Cν Gβ 5	33 C 3	4 Bβ 4	2 Aβ 2	31 D 1

In it the durations are the same as those of the first and the pitches are the inversions of those of the first in an axis between C and Dβ.[6]

SOL and I SOL are used in the first movement, and SOL in the third.

The Hyper-square[7]

This square,[8] which is derived from SOL, is used extensively in the first movement: each cell contains not only a pitch, which will be referred to as the 'main'

[6] *I.e.*, obtained by interchanging C with Dβ, B with D, Bβ with Eβ, A with E, Aβ with F and G with Gβ.

[7] This term is used by analogy with Cohn's 'hyper-hexatonic system', Cohn, Richard, 'Maximally smooth cycles, hexatonic systems, and the analysis of late-romantic triadic progressions', *Music Analysis*, 15 (1996), pp. 9–40.

[8] It is shown in British Library, Add. Mss. 71335, Sheet 5, from which the table below is transcribed.

pitch, and a duration number but also, below them, in a slightly smaller font, a row of six (or in the first two row of the square, five) pitches[9], which will be referred to as the 'inner' pitches. These inner pitches do not have any associated durations: indeed they tend to be played with (more or less) regular rhythm. The square is constructed as follows.

The cells of the first row contain the pitches and durations of the first row of SOL (these are the main pitches), and, below them, in each cell the retrograde of a row of cells of SOL (subject to certain omissions explained below), the sixth row in the first cell, the fifth row in the second cell, *etc.* (thus the inner pitches in the whole of the first row of the grand square consist of the retrograde of those in SOL, starting at the bottom right-hand cell and working back along the columns and then up the rows: these are the inner pitches).

The remainder of the hyper-square is constructed by: first inserting the same retrograde row of SOL in each remaining row of the grand square, and then transposing each of its rows (both main and inner pitches) so that each row of main pitches begins with the same pitch as the first row, namely B.

The final hyper-square is obtained by certain further modifications.

1. It can be seen that in the first row the first of the inner pitches would the same as the main pitch, in the second row the second of the inner pitches would be (and in the fourth column is) the same as the main pitch and in the third, fourth, fifth and sixth rows respectively the third, fourth, fifth or sixth of the inner pitches are the same as the main pitch. In the first two rows of the final square these duplicating inner pitches are omitted (except, as just noted, in the fourth column of the second row).

[9] Or dyads. To save tedious verbosity, this qualification will henceforth be omitted.

2. In the fifth column of the first row a Gβ is inserted in the middle of the inner pitches.
3. In the fifth column of the sixth row, the penultimate member of the row of inner pitches is not the expected G over Dβ but the untransposed Bβ over E.

				6	D					2	E					3	C					4	E Bβ			Gβ[11]		5	D				
			G[12]			Bβ			**Gβ**	**Gν**		A						Aβ							**Aβ**	AV	**Bβ**			E			
F	Eβ	Dβ	Dβ	Aβ		E	G	Gβ	C	Dβ		Eβ	F	**Eν**	Gβ	Dβ		D	Gβ	F	Gν	Eβ		Aβ	D	Eβ	**EV**	F		Bβ	C	**E**	**D**
				1	E Bβ					5	Eβ A					3	D Aβ					4	D					2	Bβ E				
			Dβ						Gβ	**Dβ**								**D**					Bβ		**D**	Eβ	**E**						
	A	G	**G**	D	Aβ		Dβ	C	**C**	GV	Bβ		BV	**Bβ**	C	G	Gβ	**Aβ**	C	B	Dβ	AV	E		Aβ	AV	**Bβ**	Bν	Aβ		Gβ	**Bβ**	**Aβ**
				1	Eβ					2	Dβ					4	DV					3	E Bβ					5	Aβ				
			Eβ			Gβ			**D**	**Eβ**		F						E					C		**E**	F	**Gβ**			C			
Dβ	**B**	A	**A**	EV	Bβ	C	**Eβ**	D	Aβ	AV	C	B	**Dβ**	**C**	DV	A	Aβ	Bβ	**D**	Dβ	Eβ	Cβ	Gβ	**E**	**Bβ**	BV	**C**	Dβ	Bβ	Gβ	Aβ	**C**	**Bβ**
				6	E					2	D					4	Eβ					3	G Dβ					5	DV				
			F			Aβ			Bβ	**F**		G						Gβ					D		**Gβ**	**GV**	**Aβ**			**D**			
Eβ	Dβ	**B**	**B**	Gβ	C	D	F	**E**	**E**	BV	**D**	Dβ	Eβ	**D**	EV	B	Bβ	C	E	**Eβ**	F	Dβ	Aβ	Gβ	C	**Dβ**	**DV**	Eβ	C	Aβ	Bβ	**D**	**C**
				1	Bβ E					5	Bβ					4	BV					3	D Aβ					2	Gβ				
			B			D			**Bβ**	**BV**		Dβ						C					**Aβ**		**C**	Dβ	**DV**			Aβ			
A	G	**F**	**F**	C	Gβ	Aβ	B	**Bβ**	**E**	F	Aβ	G	AV	**Aβ**	**Bβ**	F	E	Gβ	Bβ	A	**BV**	GV	**D**	C	Gβ	GV	**Aβ**	AV	**Gβ**	D	E	Aβ	**Gβ**
				6	Bβ E					5	E					3	Gβ					4	Aβ					2	D				
			Bβ			Dβ			Eβ	**Bβ**		C						B					G		**Cβ**	CV	Bβ			G			
Aβ	Gβ	E	**E**	**B**	F	G	**Bβ**	A	**A**	**EV**	G	Gβ	Aβ	**Gν**	Aν	**E**	Eβ	F	A	Aβ	Bβ	**Gβ**	Dβ	Cβ	F	Gβ	E[13]	**Aβ**	F	Dβ	Eβ	**G**	**F**

[11] This insertion in the row for this cell occurs generally in the square.

[12] In Davies's manuscript, this is written as two consecutive pitches: G, Dβ.

[13] This is the *untransposed* entry for this subcell (see the corresponding dyad in the first row: the transposed entry would be Dβ over G), but it is used in **[T]**–2 and **[X]**–2.

Both of the latter two modifications appear to be illustrations of what Davies is referring to in an already quoted passage:[14]

> There are also purely superstitious deviations – something done first in Prolation, where I broke absolutely perfect arithmetical symmetry, out of a conviction that it was presumptuous – possibly even dangerous! – to attempt any exact imitation of higher natural perfection.[15]

The hyper-square is constructed to consist of *übergreifende Form*, and when the main and inner pitches are played simultaneously, as in the first and second subsections of the Development section of the first movement, then there is *übergreifende Form* in the music.

Pitch-sequences

Paths through the squares SOL and SOL I are rows (because of the diagonal symmetry of these two squares, the pitch sequences of their columns are the retrogrades of those of their rows), and those through the grand square are exclusively rows.

General harmonic colouring

The distributions of the frequencies of pitches for the two squares of the sun and for the grand square is much less regular, wider and more skewed, than that for the square of the Moon in the first symphony. Analogously to the latter square, however, the most frequent pitches for SOL, E and D (and Bβ) and for SOL I, A and B (and Eβ), include the tonic B only for SOL I (it is the least frequent for SOL), and do not

[14] *Chapter 5*, under *Common features of the algorithms*.
[15] Davies, 'Four Composition Questions Answered', p. 3. This may be an echo of the deliberate error in Persian carpets, put there on the ground that it would be blasphemous to attempt perfection, which is the prerogative of Allah.

include the ‘dominant’ F. There is a very similar pattern for the grand square, with both the main pitches and the inner pitches.

Pitches		
SOL	SOL I	No. of onsets
E	A	7
D	B	5
Bβ	Eβ	4
Aβ	F	
Dβ	C	
F#	G	
Eβ	Bβ	
G	Gβ	
F	Aβ	
C	Dβ	3
A	E	2
B	D	

Pitches		
		Total duration of all onsets
E	A	26
D, Bβ	B, Eβ	18
Aβ	F	17
Dβ, C	C, Dβ	15
F#	G	14
Eβ	Bβ	13
G	Gβ	11
F	Aβ	10
A	E	8
B	D	7

Hyper-square, major pitches

Pitches	No. of onsets
E, D	9
Bβ, B	7
Aβ	4
Eβ	3
Gβ, Dβ	2
G, C, A, F	1

Pitches	Total duration of all onsets
E	39
Bβ	35
B	25
D	20
Aβ	14
Gβ	10
Dβ	9
Eβ	8
G	5
C	4
A	3
F	1

Hyper-square, inner pitches	
Pitches	No. of onsets
Aβ	27
Gβ, Bβ	25
C	24
D, E	23
G	22
Dβ, F	21
B	20
A	19
Eβ	18

Again, the lack of any pronounced structure in the frequencies of pitch-class attacks contrasts strongly with that in a typical piece of tonal music such as Brahms's *Intermezzo* in B minor, Op. 119, No. 1 (see above, *Chapter 10*, *The Magic Square*, under *Harmony*).

Introduction: start to **[C]** –1

The 'germ-cells of all the material for the whole symphony'[16] are hard to identify. In the first bar, and again in bar **[B]**–5, there is an anticipation of the descending repeated cello quavers from the very beginning of the third movement, and in **[B]**–3 there is a rising violin tremolo figure reminiscent of the plainsong *Nativitas tua*, but most of the ideas presented are so minimal that they give little clue to what they foreshadow.

Exposition: **[C]**+1 to **[Q]**–1

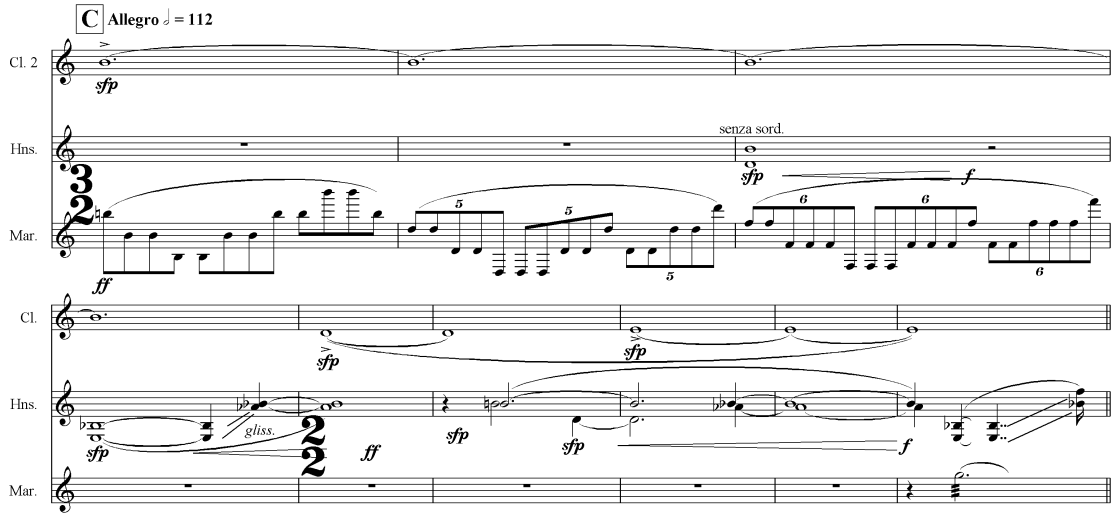
First Subject: **[C]**+1 to **[O]**–1

The first subject consists of what Davies refers to as an 'antecedent' and a 'consequent', and is thus a period: it occurs in six different transformations

Antecedent: **[C]**+1 to **[D]**–1, **[E]**+1 to **[F]**–1, **[G]**+1 to **[H]**–1, **[I]**+1 to **[J]**–1, **[K]**+1 to **[L]**–1, **[M]**+1 to **[N]**–1

A fanfare motive on the marimba (first trumpet in the last two transformations) introduces sequences of dyads on the first and second (doubled by the third and fourth) horns. These dyads are drawn freely from the main pitches of the hyper-square,[17] always starting with the sixth D, B (*i.e.* the mediant and dominant of what Davies states is the key of the symphony, namely B minor).

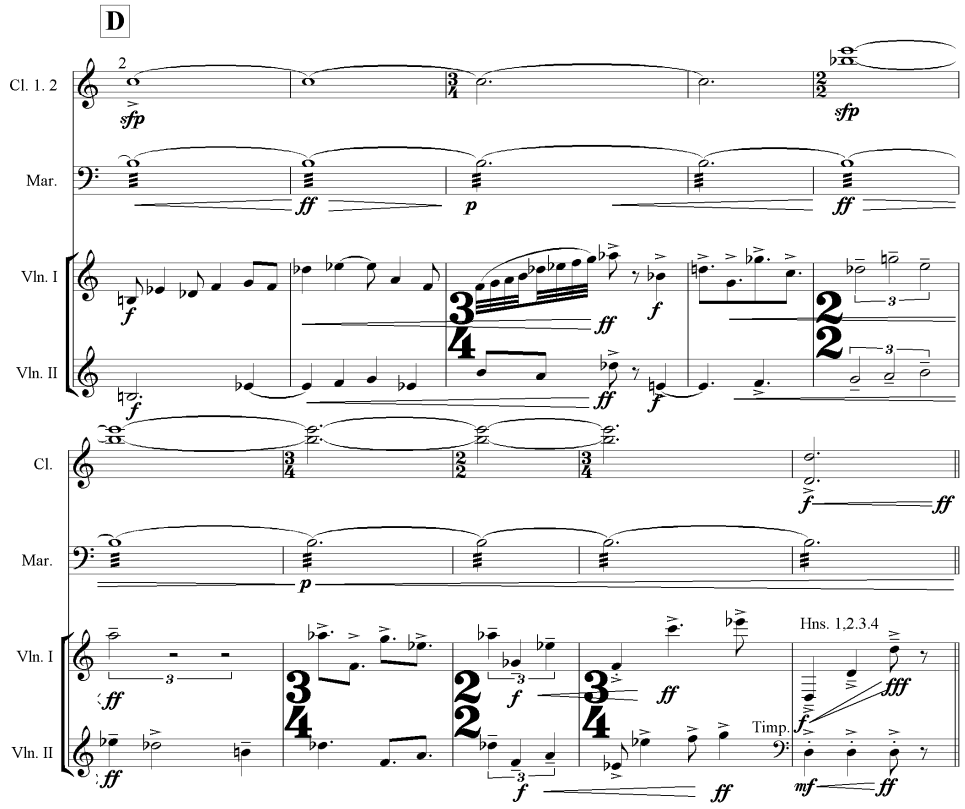
[16] See *Composer's comments* above.
[17] Annotations in Davies's manuscripts suggest that they are taken from the rows in reverse order, but any such derivation is too free to be easy to follow.



Ex. 13.2 Antecedent of the first subject.

Consequent: **[D]**+1 to **[E]**–1, **[F]**+1 to **[G]**–1, **[H]**+1 to **[I]**–1, **[J]**+1 to **[K]**–1, **[L]**+1 to **[M]**–1, **[N]**+1 to **[O]**–1

This is a marked contrast to the antecedent. In place of the largely homophonic horn calls, the first and second violins in a much more contrapuntal duet (but the seconds clearly an accompaniment to the firsts) play a rhythmically irregular nine-bar melody: in contrast to, and counterbalancing the marimba fanfare figures at the start of each antecedent, all four horns in unison conclude the consequent with a pitch (in the last transformation this becomes the dyad D, Aβ) rising in octaves, supported by the timpani. But the strongest contrast is in the serial derivation.



Ex. 13.3 Consequent of the first subject.

Whereas the horn calls of the antecedent were taken freely from the main pitches of the hyper-square, the string melody is taken very freely from its inner pitches (sometimes including the main pitches),[18] successive rows for the successive transformations.

Davies cites this set of transformations as an illustration of his second type of wave-form: 'even the contour is obviously wave-shaped, and the static form and changing melodic and rhythmic content are carefully underlined'.[19] The ten-bar form with the same melodic contour (including the eight-semiquaver rising scale in the

[18] This derivation, which is in three stages, is illustrated, for the first two transformations, in *Appendix H: Construction of the Double Square of Mars*.
[19] Davies, 'Symphony no. 2', p. 172.

third bar), virtually identical time-signature changes and rhythm within each bar,[20] which is indeed 'obviously wave-shaped', is played six times, the only alterations being omissions of certain bars.[21] The melodic content, being derived from transpositions of the same sequence, might be expected to be similar in each transformation, but in fact in each of them it is derived afresh and so freely from the sequence as to be quite different.[22]

Harmony

Two further voices throughout the first subject bring out the harmonic structure as described by Davies.

a. The second clarinet, assisted by the first in dyads, plays successive rows of the main pitches of the hyper- square, *i.e.* rows of SOL transposed so that each begins with B, one row to each antecedent-consequent pair: if the end of the row is not a dyad, then it is played as an octave. This emphasises Davies's tonic, B, throughout the first subject.
b. The marimba plays intermittently, starting in the first two antecedent-consequent pairs, a tremolo tonic B, then, intermittently throughout the third and fourth pair, a tremolo 'dominant' F, and finally, intermittently throughout the last two pairs, a tremolo tonic B (at the end spelt Cβ.) This may be part of Davies's 'systematic exploration of the B – E sharp pivot'.

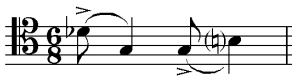
[20] Davies's reference to 'changing … rhythmic content' can scarcely be other than a slip.
[21] In the second occurrence (**[F]**+1 to **[G]**–1), the sixth bar is omitted, in the fourth occurrence (**[J]**+1 to **[K]**–1) the eighth and ninth bars, and in the final occurrence (**[N]**+1 to (**[O]**–1) the sixth to the ninth bars.
[22] For the first two transformations, see again *Appendix G: Genesis of the consequent of the first subject of the first movement of the Second Symphony.*

	A1	C1	A2	C2	A3	C3	A4	C4	A5	C5	A6	C6
Cl. 2	Row 1		Row 2		Row 3		Row 4		Row 5		Row 6	
Mar.	B→		B→		F→		F→		B→		Cβ→	

Second Subject:[23] **[O]**+1 to**[Q]**–1

Paralleling the marimba fanfare figures introducing the antecedent of the first subject, this section begins with a two-voice rhythmic fanfare on the trombones, with one voice, the rising tetrachord B, C, D, E doubled by the timpani. The trombones continue to make rhythmic interjections throughout the rest of the subject, whilst the timpani, now joined antiphonally by pizzicato double basses, play regular crotchet and quaver pulses on the white-note heptachord B to A.

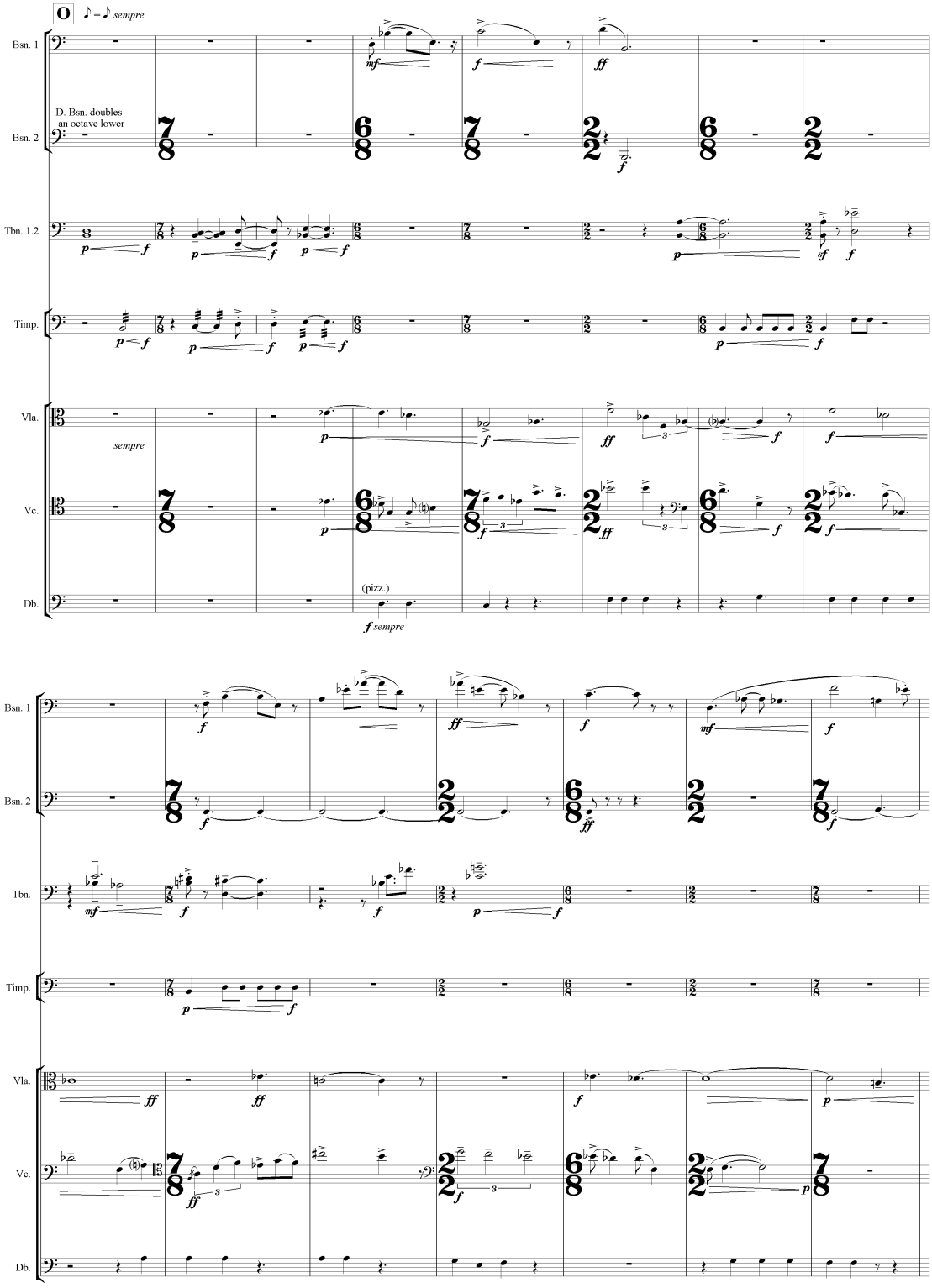
The main thematic material is presented by the cellos, accompanied by the violas, playing a melodic line whose first five pitches, Eβ, Dβ, G, Bν, F, are the last five of the pitches in the final row of SOL, but which thereafter appears to develop freely. It contains a characteristic U-shaped figure, in the rhythm ε θ ε θ ,



Ex. 13.4 Characteristic U-shaped figure of the second subject.

(bar **[O]**+4) which will be of importance later.

[23] Driver, 'Extended Note II' [on *Symphony No. 2*], http://www.maxopus.com/works/symph_2.htm, 05/09/03, p. 7, writes of this section that 'it cannot really be called a second subject', but gives no reason. In fact, structurally it can scarcely be anything else, since it is a section with new thematic material and a different texture, between the end of the first subject and the beginning of the development.



Ex. 13.5 Second subject

Just as the first subject was played in six transformations, so the second subject (stated in **[O]**+1 to **[Q]**–1) is repeated, transformed, in **[Q]**+1 to **[R]**–1. And

just as the opening of the statement come from the final row of SOL, so five of the first six distinct pitches of the counterstatement, Aβ, Gβ, F, B, D, C (*i.e.* all except B), are five of the six pitches of the final row of ı SOL.

Again, just as the main melody of the consequent of the first subject is accompanied by the second clarinet playing retrogrades of rows of SOL transposed so as to begin with a B, so here the main melody is accompanied by the first bassoon playing a boustrophedon path (see above, *Chapter 15*, under *Straight-line paths*, *Horizontal line paths*) through SOL, odd-numbered rows retrograde, even numbered forward, with unit a quaver (dyads becoming successive notes with total duration that of the dyad).

Further, just as with the first subject, the marimba plays first a tonic B, then a 'dominant' F, and finally a tonic B again (basses B, F, B), so here the same pitches (the last spelt Cβ) are played in octaves by the bassoon and double bassoon.

	Statement			Counter-statement		
Bsn. 1	RR1	R2	RR3	R4	RR5	R6
Bsn. 2, D.Bsn	B	F	F	F	—	Cβ

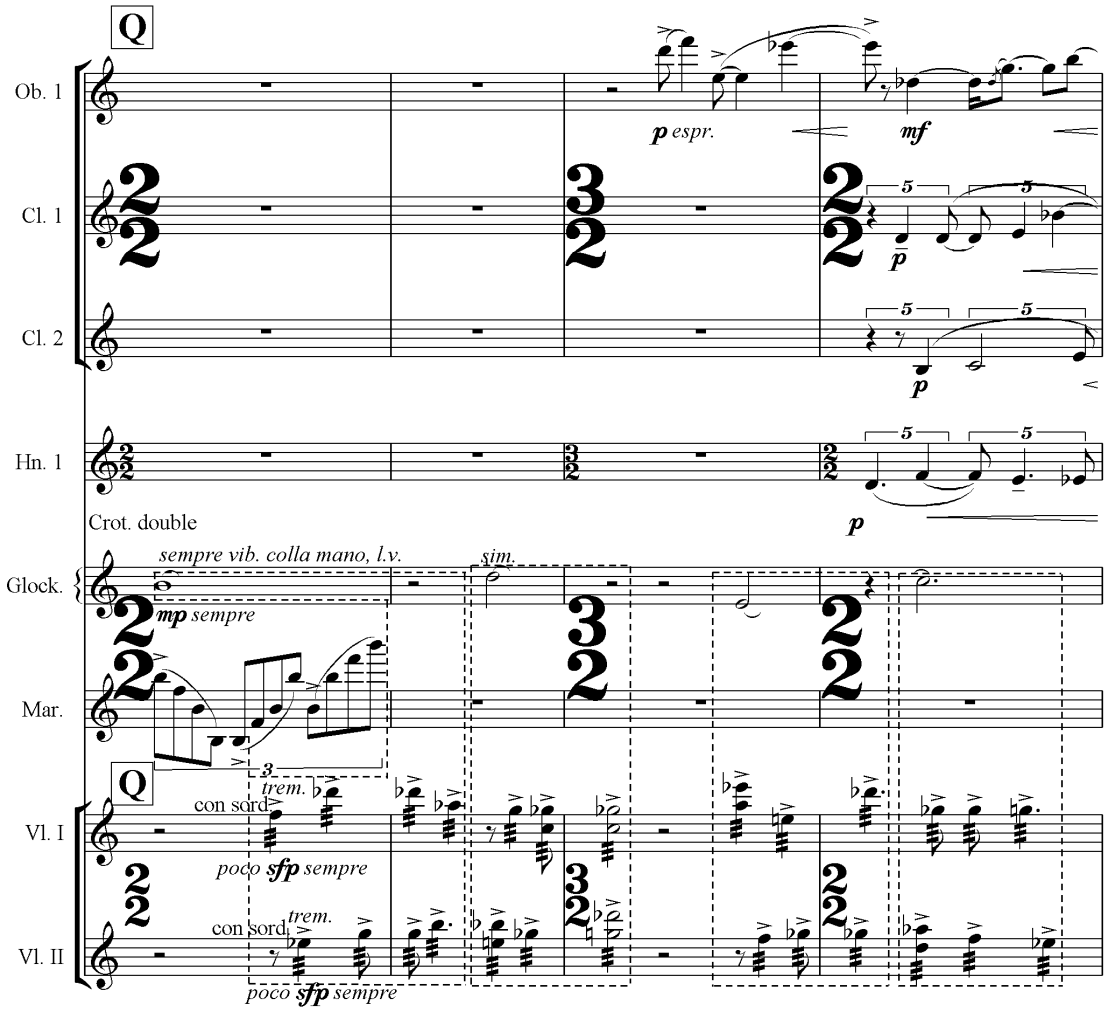
It may be noted that the three main melodic ideas of the exposition, the antecedent and consequent of the first subject and the second subject, are duets, and indeed the latter two are presented in counterpoint. The same will be seen to be sometimes the case in the other three sections of the movement.

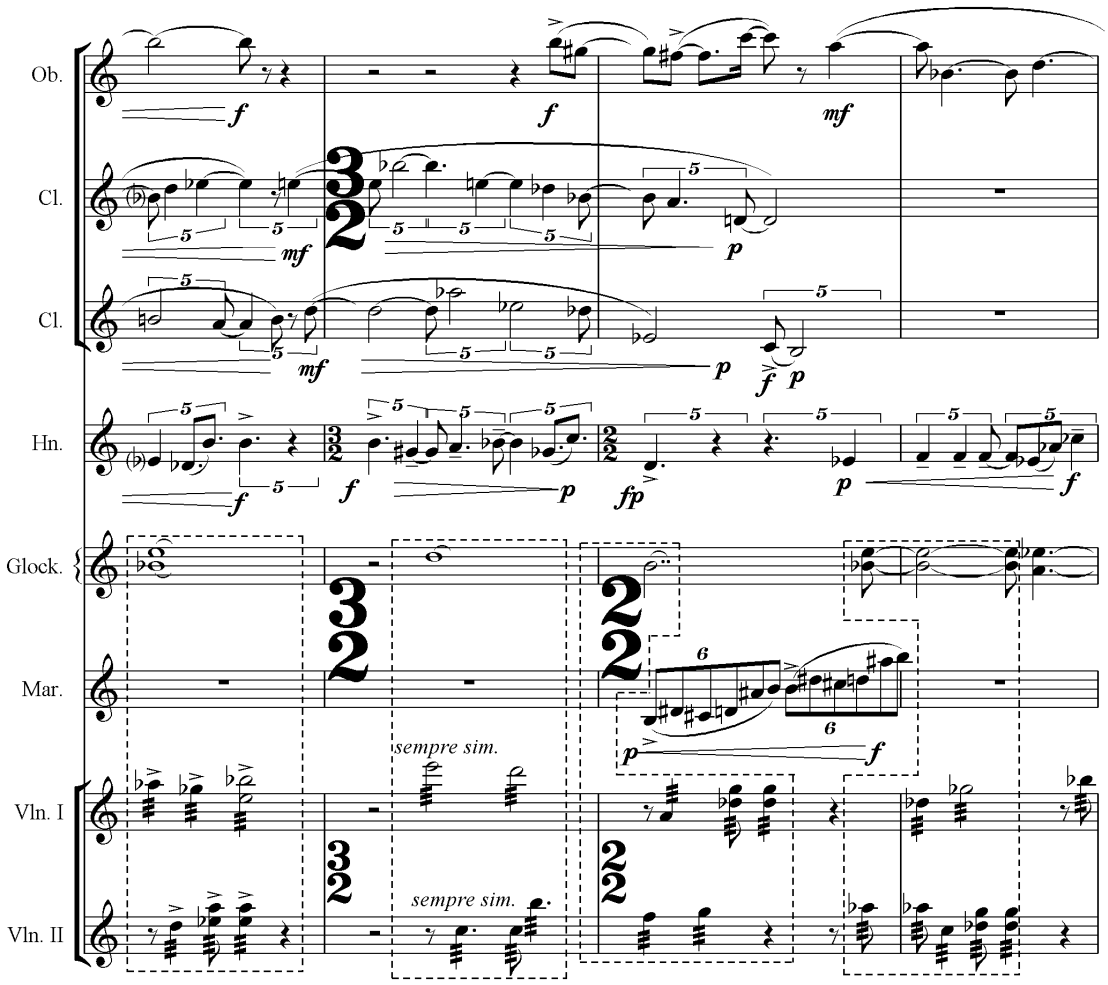
Development: **[Q]**+1 to **[A1]**–1

The development is in three subsections, with short bridges between them.

First subsection: **[Q]**+1 to **[T]**–1

This begins with an allusion to the fanfare motive on the marimba which introduced the antecedent of the first subject.





Ex. 13.6 First subsection of the development.

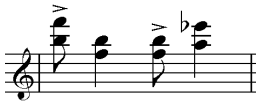
Starting at the same time, a harmonic background is provided by successive rows of the hyper-square, the main pitches played by the glockenspiel doubled by the marimba and each main pitch accompanied by the inner pitches of its cell, as indicated by the dotted outlines in the above example) on tremolando first and second violins: this is, as already mentioned (see above, under *Magic Squares*, *The Hyper-square*), another instance of *übergreifende Form*. These successive rows, each of which is introduced by a different allusion to the marimba fanfare motive (as in bars **[Q]**+1 and **[Q]**+7 in the example), accompany the melodic line on the first horn, which presents alternately transformations of BELLS into the opening phrase

of *Nativitas tua* and the inversion of BELLS into the second phrase (see Fig. 13.1 above).[24]

Counterpoints to these transformations are played by the first oboe and two clarinets: it is not easy to see any serial derivations for these counterpoints, save that that of the oboe begins with BELLS.[25]

First bridge: **[T]**+1 to **[U]**–1

This consists of rhythmic chords, reminiscent of those introducing the second subject, initially from all winds and from cellos. The U-shaped figure recurs in the form



Ex. 13.7 Recurrence of U-shaped figure.

(clarinets, bar **[T]**+1)

Second subsection: **[U]**+1 to **[X]**–1

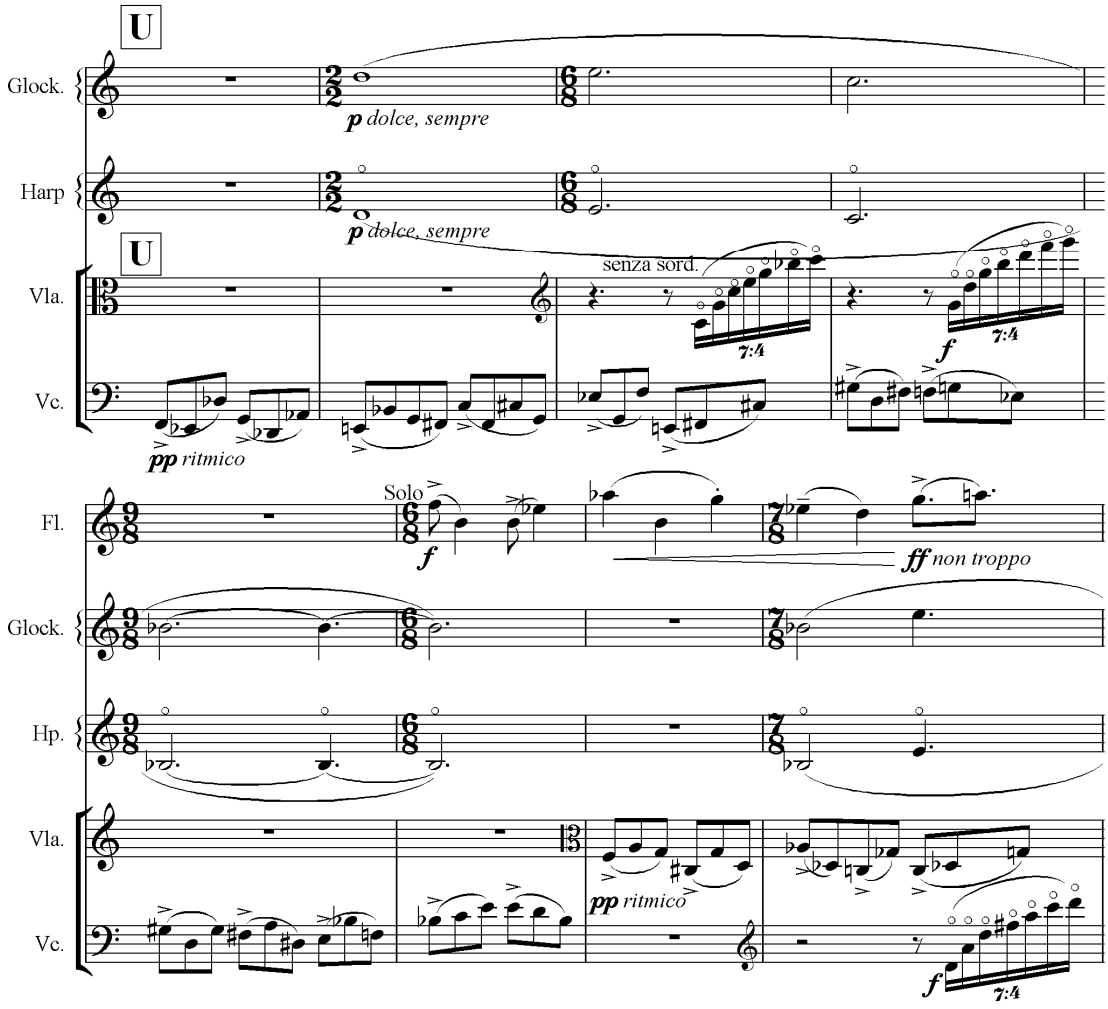
The second part of the development consists of another statement of the hyper-square. The main pitches are played, incompletely, now by the glockenspiel and harp. Each row begins a bar later than the 'inner pitches' on the strings, without the initial B, and most rows lack one or more of its last pitches/dyads. Thus the harmonic function of the initial B, which was still present in the first part, is now excluded.

---

[24] The apparent rhythmic complexity of these transformations results from their tempo being in a 5:4 ratio to the main rhythm. Thus, the rhythm of the first phrase is (omitting dotting) simply θ θ θ θ εεθ.

[25] The oboe part is marked in various places in Add. Mss. 71335, sheets 24, 25, 26, 27 and 28 by the numbers (each in a lozenge) 1 (**[Q]**+3), 2 (**[S]**+1), 3 (**[S]**+3), and 4 (**[S]**+6), but this has not yet helped to make clear the serial derivation of the part.

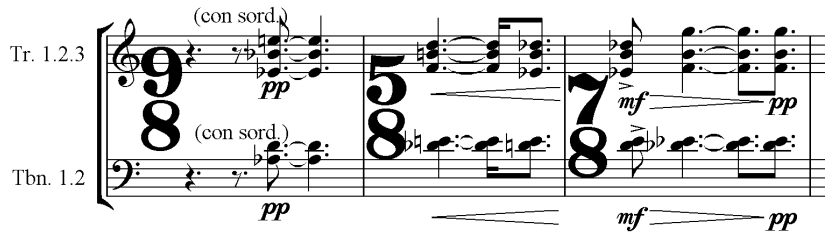
Whereas in the first part of the development the inner pitches had a somewhat harmonic function, being played in demisemiquaver tremolando by first and second violins, here they are more melodic, being played in even quavers by cellos (row 1), violas (row 2), second violins (rows 3 and 4) and then back down again to cellos.



Ex. 13.8 Second subsection of the development.

An additional melodic part is played by the first flute, starting with an allusion to the second subject.

Quite soon, trumpets and trombones start adding rhythmic chords, echoing



Ex. 13.9 Rhythmic chords added in second subsection of the development (bars **[V]**–3 to **[V]**–1).

the introduction to the second subject, in gradually longer passages. The last such occurs at the end of the last bar before the second bridge, and flows seamlessly into the second bridge.

Second bridge: **[X]**+1 to **[X]**+2

This is just two bars long, consisting of rhythmic trumpet and trombone chords, with all four horns adding a fanfare motive in the second bar, leading to the final part of the development.

Third subsection: **[X]**+3 to **[A1]**–1

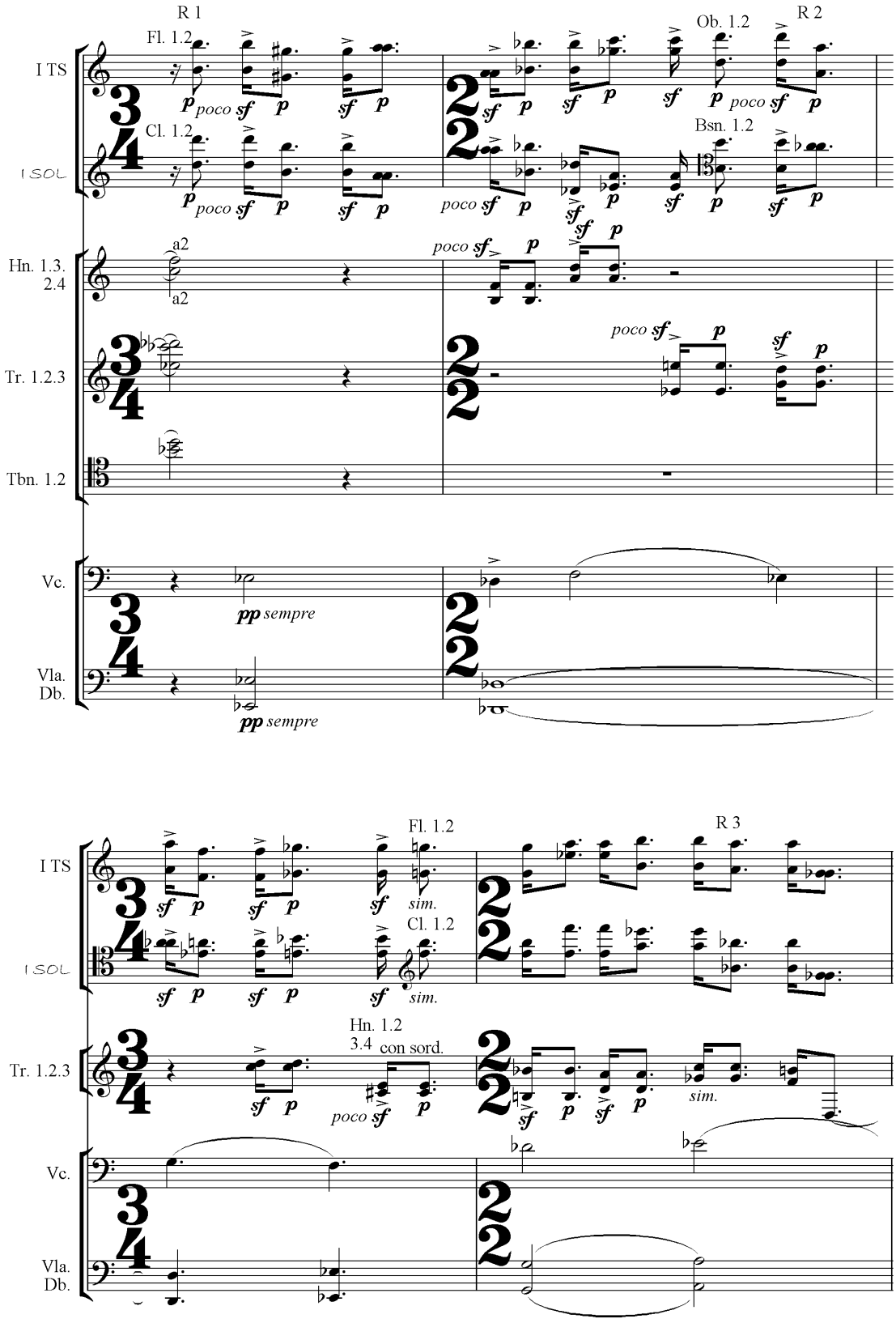
Here the hyper-square, whose main pitches were incompletely present in the second subsection, is absent. Instead, overlapping the final brass chord of the bridge, two groups of woodwinds, flutes alternating with oboes, and clarinets alternating with bassoons, start a duet in a Scotch snap rhythm which persists throughout the subsection into the beginning of the recapitulation, and reappears in the coda. (The texture is strikingly reminiscent of movement VIII of Messiaen's *Quatuor pour la fin du temps*, just as movement 4 of *Vesalii Icones* is reminiscent of movement II of the same work, although Messiaen's final section has demisemiquavers and double-dotted quavers.)

The upper of the two voices (flutes/oboes) plays the rows of I TS, the transposition square on the inversion of BELLS (see above, under *Transposition Squares*), and the lower, (clarinets/bassoons) plays the rows of I SOL. (Single pitches of either square and their inverses are throughout rendered either by octaves or unisons.) The counterpoint continues similarly in a way which is most easily shown in a table.

	Upper voice (flutes ↔ bassoons)	Lower voice (clarinets ↔ bassoons)
[X]+3 to **[Y]**+2	I TS	I SOL
[Y]+2 to **[Z]**+2	TS	SOL
[Z]+2 to **[A1]**–1	TS	I SOL
[A1]–1 to **[A1]**+8	I TS	SOL
[A1]+8 to **[B1]**+6	I TS	I SOL

Thus, all possible combinations of TS and ITS with SOL and I SOL occur, and at bar [**A1**]+8[26] the first recurs. The two voices, which are precisely rhythmically in step throughout, change instruments (also precisely in step) only *between* squares and *within* rows of squares (that is, never at the ends of lines except the last).

[26] Marked in Add. Mss. 71335, sheet 38 by the word '<u>reprise</u>'.



Ex. 13.10 Opening of third subsection of the development (**[X]**+3 to **[X]**+6: double bass parts at sounding pitch).

(**[X]**+3 to **[X]**+6: double bass parts at sounding pitch)

The woodwind dyads are filled out by the horns alternating with trumpets (although their change-over does not quite coincide with those of the woodwind).

Underneath the Scotch snap rhythms the cellos, accompanied by the violas and double basses in octaves, play a slow, quiet thematic line.

Recapitulation: **[Z]**+1 to **[E1]**–1

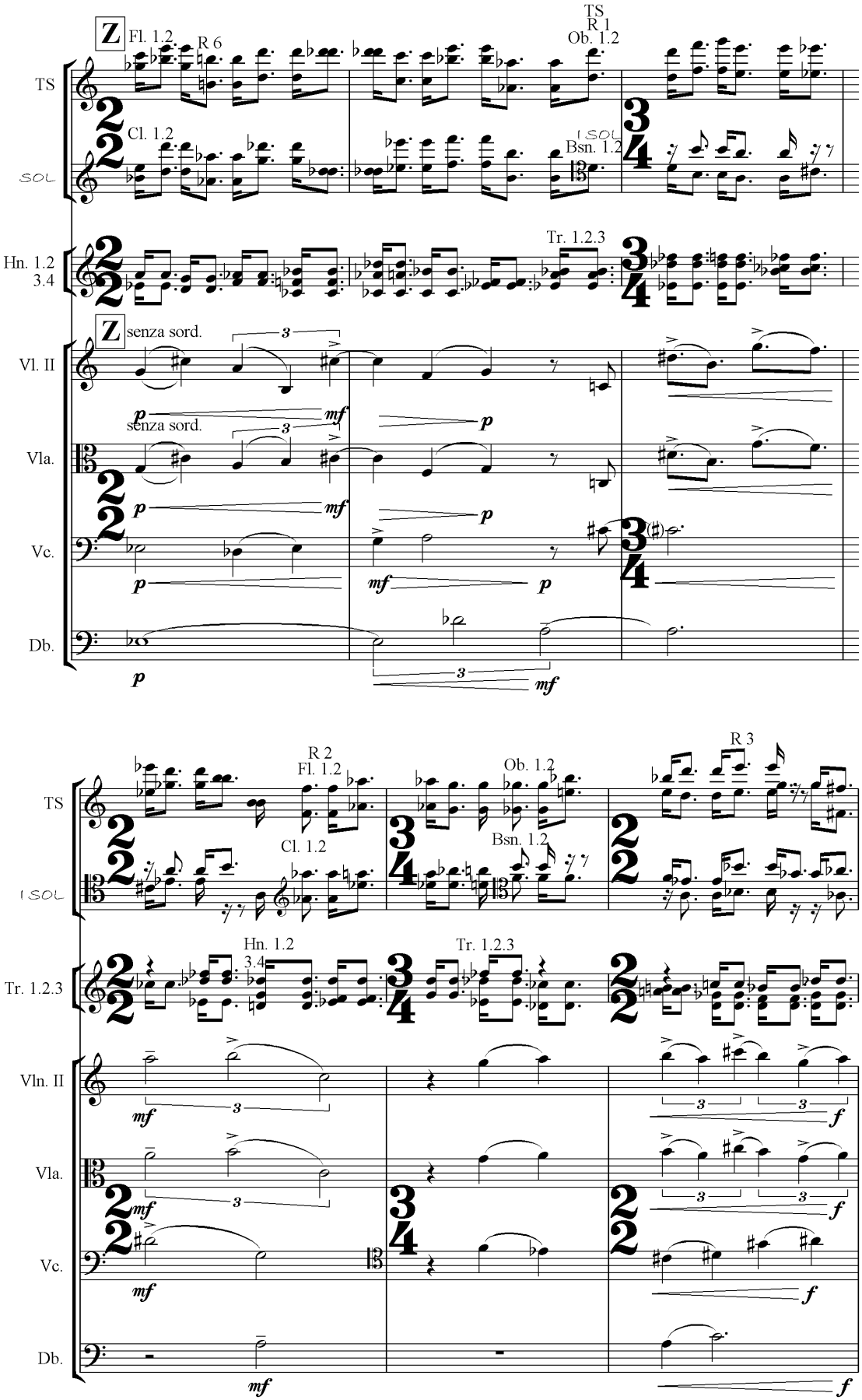
As indicated in the Summary analysis table above, the Recapitulation section overlaps the later part of the third subsection of the Development section.[27] This Recapitulation, is like that in the *Second Taverner Fantasia*, a 'varied recapitulation by inversion', although here 'extremely free' might be a better description than just 'varied': further, the subjects, as well as being inverted, are recapitulated in reverse order.

Second subject: **[Z]**+1 to **[A1]**–1

This is played by the second violins, doubled an octave below by the violas'.[28] The opening U-shaped figure, is freely inverted, with a different rhythm, against the continuing Scotch snap figures.

[27] An alternative analysis would make the Recapitulation begin at **[X]**+3, which is here given as the subsection of the Development, and not at **[A1]**+1. The present analysis has been preferred because, despite the start of the wind Scotch snap rhythms at **[X]**+3 and their continuing over **[A1]**–1 to **[A1]**+1, (1) the music follows seamlessly from the bridge **[X]**+1, **[X]**+2 to **[X]**+3, and (2) there is a clear break in the upper string parts between just before **[A1]**, where the second violins and violas reach a climax followed by a crotchet rest, and immediately after, where the violas drop out of the main melodic line and the first violins enter in octaves with the seconds. The precise naming of the sections here does not, however, seem crucial to the understanding of the music.

[28] Where the latter's compass permits, otherwise in unison.


Z
Fl. 1.2
R 6
TS
R 1
Ob. 1.2
Cl. 1.2
I SOL
Bsn. 1.2
Tr. 1.2.3
Hn. 1.2
3.4
senza sord.
Vl. II
Vla.
Vc.
Db.
R 2
R 3
Vln. II

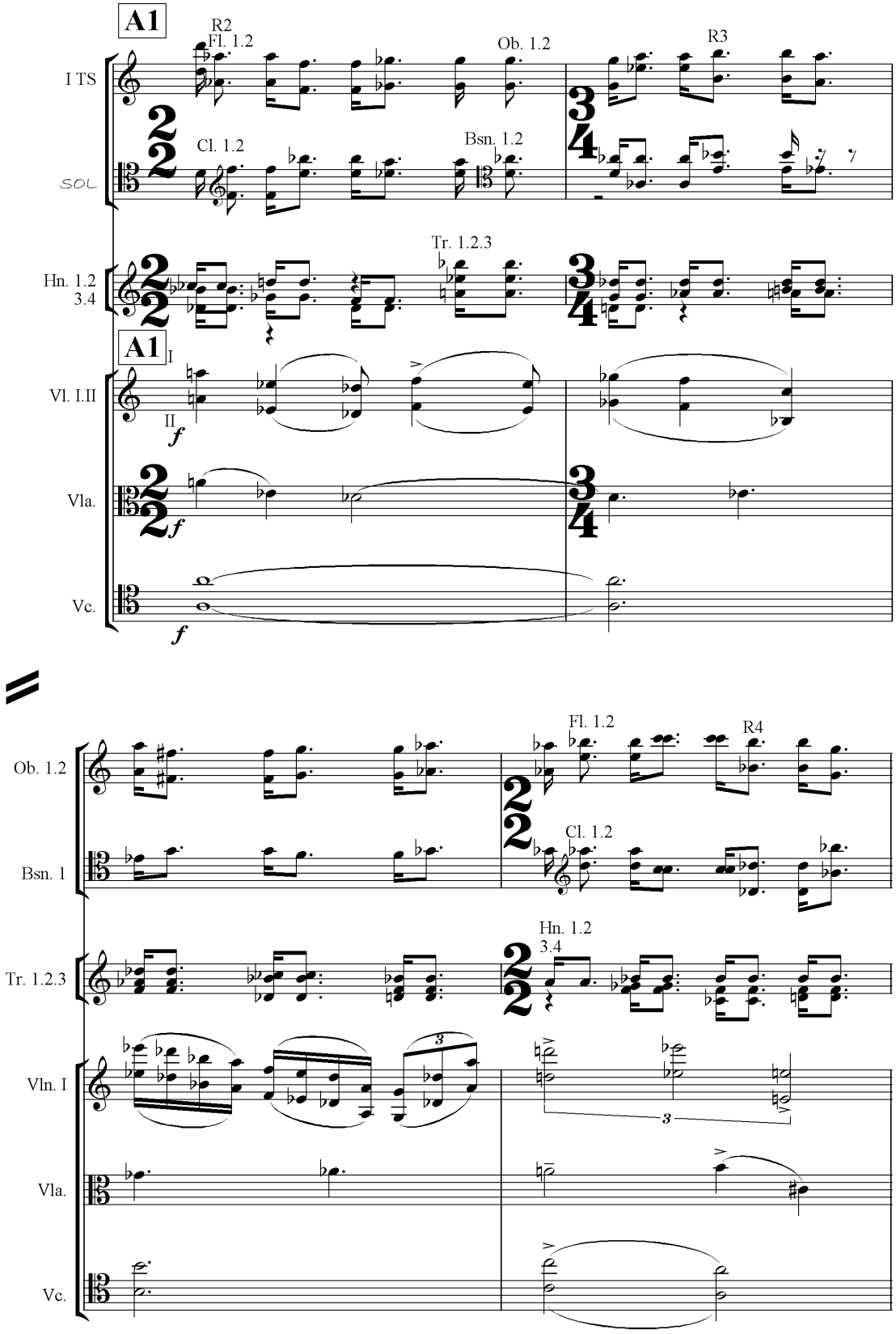
(Preceding page) Ex. 13.11 Opening of second subject in the recapitulation.

First subject: **[A1]**+1 to **[E1]**–1

Whereas in the Exposition the antecedent and consequent of the first subject were played in six transformations, here they are each played only once.

Consequent: **[A1]**+1 to **[C1]**–1

The original upper melodic line is played by first and second violins in octaves, against the still continuing Scotch snap figures. The recapitulation here is also very free, but the inversion of the original rising semiquaver scale is unmistakeable. Towards the end of the subsection the transformational and serial processes run down: first the transformations in flutes and oboes finish, the sixth row of I SOL is played by the bassoons; then the interchanges between flutes and oboes, clarinets and bassoons stop and are replaced by chords, and finally by repetitions of the same chord, still in the Scotch snap rhythm, whilst the horns and trombones completely drop out of these figures. Finally, there is a string chord swelling from *pp* to ***fff*** and then diminishing back to ***p***, a wave shape, and thus another instance of *übergreifende Form*.



Ex. 13.12 Consequent of the first subject in the recapitulation.

Antecedent: **[C1]**+1 to **[E1]**–1

The only recognisable part of this is the sixth D, B (not inverted) played ***fff*** by two stopped horns, this time doubled at the second by the other two, held for six bars. Over this held chord, the first violins, doubled an octave lower by the seconds, play the first row of SOL.

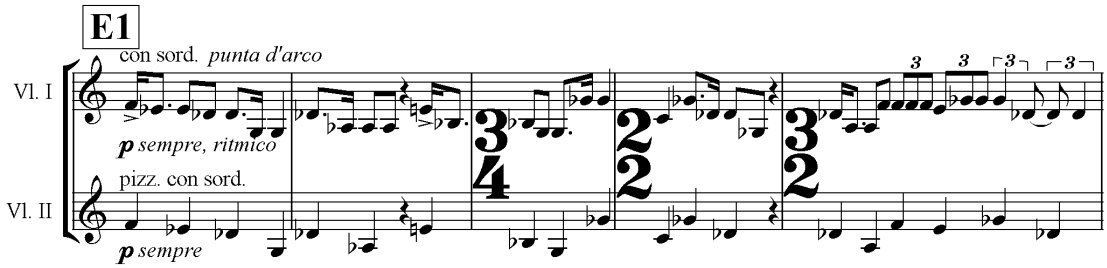
After a few further bars, the marimba plays an inversion of the fanfare motive with which the Exposition began, and the Recapitulation ends.

Coda: **[E1]**+1 to **[Y1]**+6

The coda is proportionally very long. It both presents new material and further develops ideas from both the Exposition and the Development.

First part: **[E1]**+1 to **[H1]**–1

This subsection presents a new idea (recapitulated at the end of the coda, and thus framing it) which will be referred to as the Coda theme, consisting of a rhythmic version of the inner pitches of the first three rows of the hyper-square played by the first violins, expressively doubled by the second violins, pizzicato, playing the first pitch of each crotchet beat.



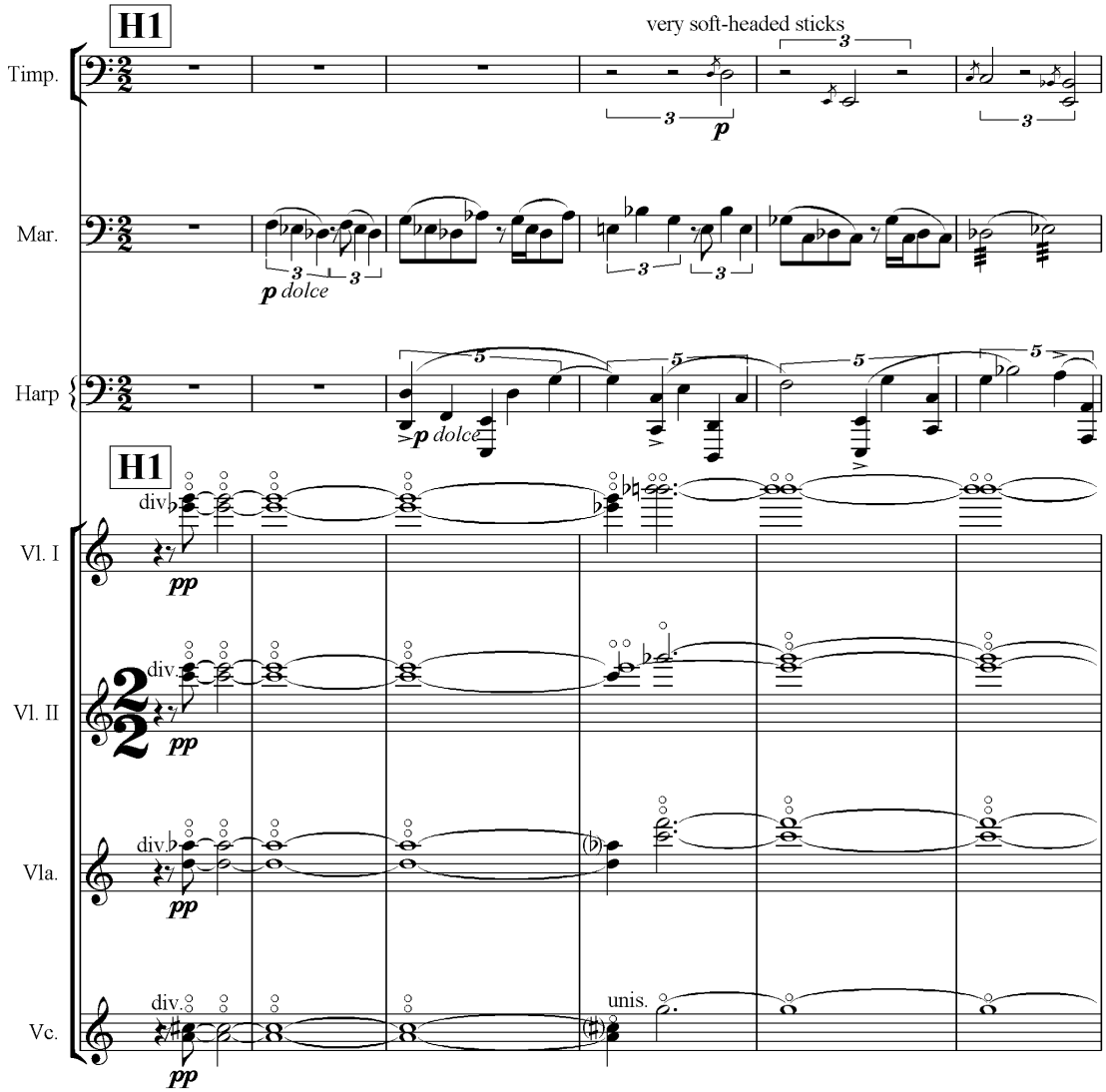
Ex. 13.13 First part of the Coda.

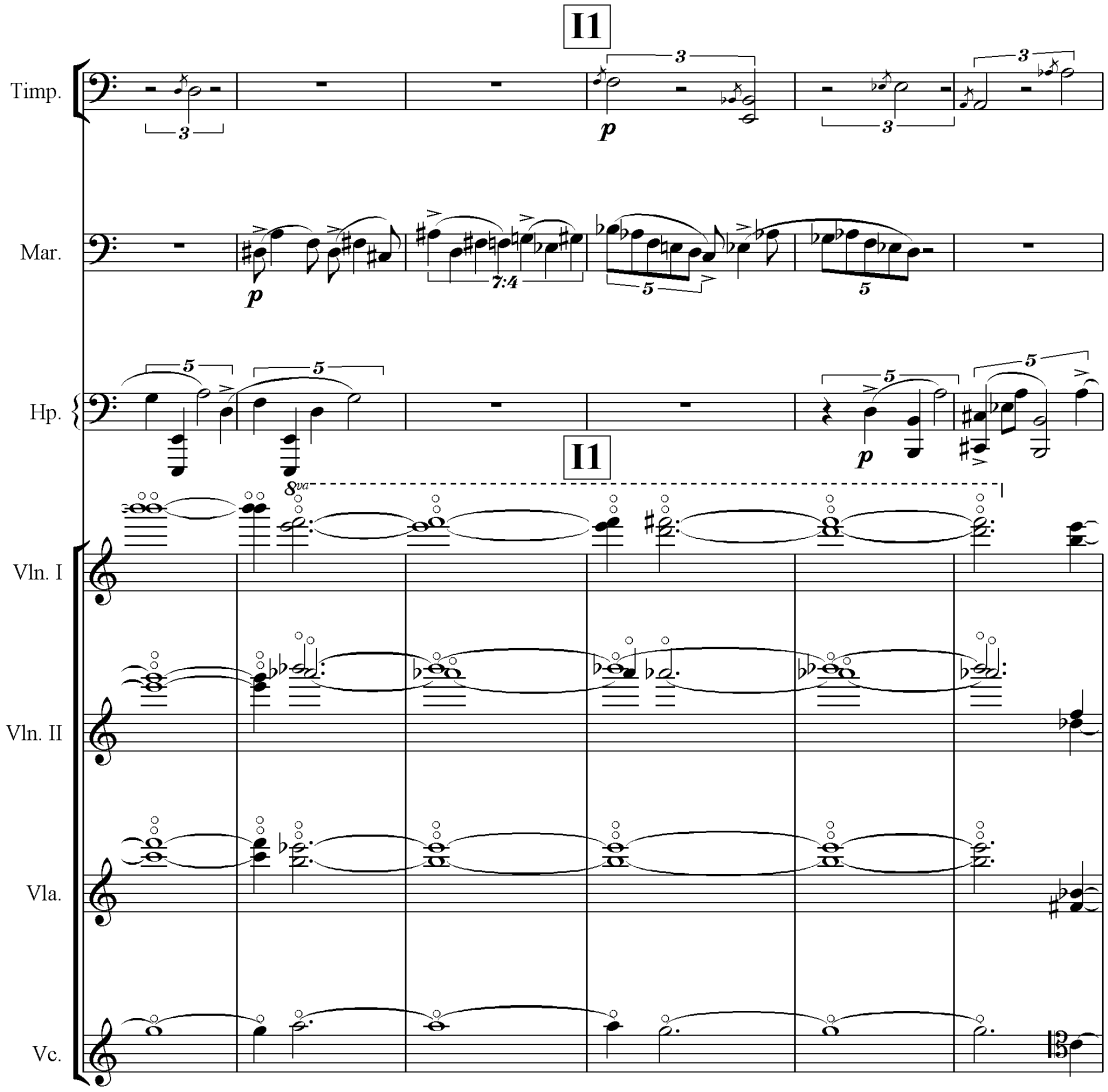
At the middle of the subsection, there are horn fanfare figures, and almost at the end there are more, this time played by all the brass.

Second part: **[H1]**+1 to **[J1]**–1

From here on until the final subsection, the structure becomes gradually more like a fantasia: fragments of different serial origin are freely played in counterpoint.

In this subsection, over held string harmonic chords, the tuned percussion play free serial fragments: the marimba, the first row of the inner pitches of the grand square, and in counterpoint the timpani the first two rows of SOL, and the harp parts of I SOL.



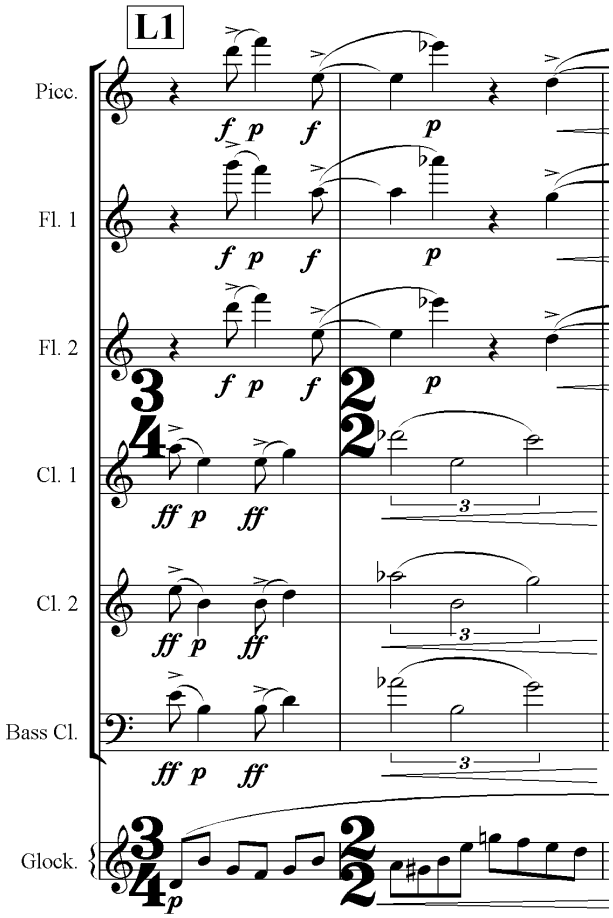


Ex. 13.14 Beginning of the second subsection of the Coda.

Third part: **[J1]**+1 to **[Q1]**–1

This subsection of the coda is the longest, and in it the free character of the second part is intensified. It starts with downward and upward fanfare figures on the double basses, rhythmic pulses on the marimba and contrapuntal lines on other instruments, including allusions to the U-shaped figure of the second subject on the first bassoon. At **[R1]**–5 the glockenspiel plays BELLS, then, a few bars later a figure in triplet crotchets, which, another few bars later speeds up again: just before the double barline at **[R1]** this becomes a line in quavers reminiscent of the cello

quaver figures in the second part of the Development. At **[R1]**+1 this is joined by a statement of the U-shaped figure in fourths on the clarinets (the lower line doubled an octave below by the bass clarinet), and BELLS in octaves on the piccolo and second flute (with a homophonic counterpoint on the first flute).



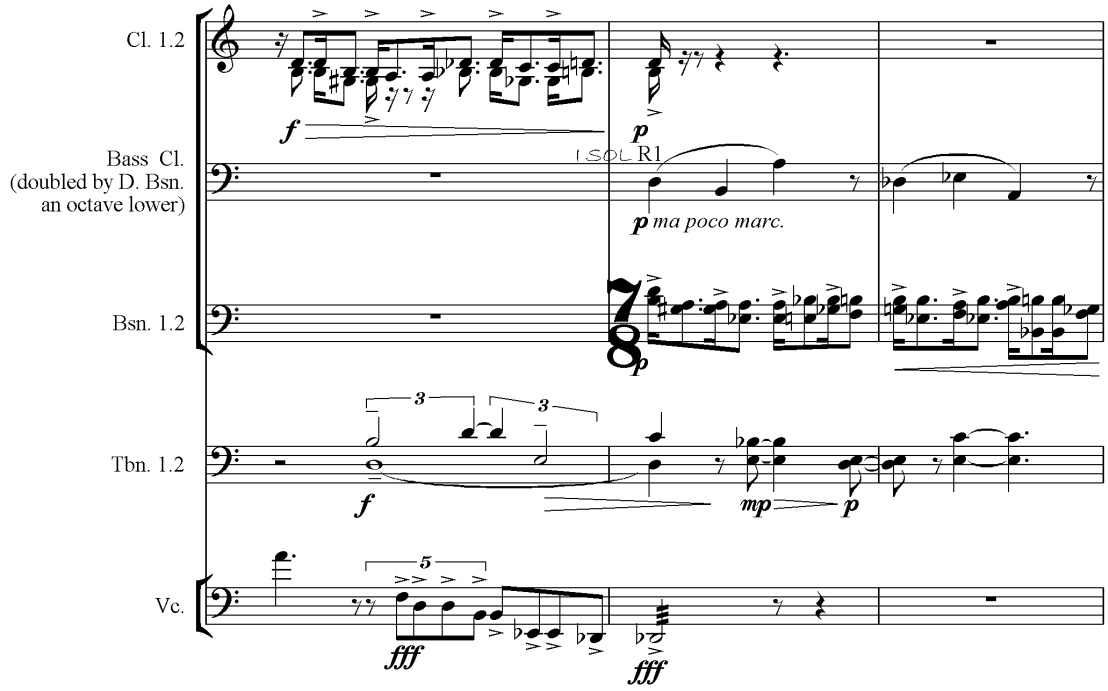
Ex. 13.15 Part of the third subsection of the Coda.

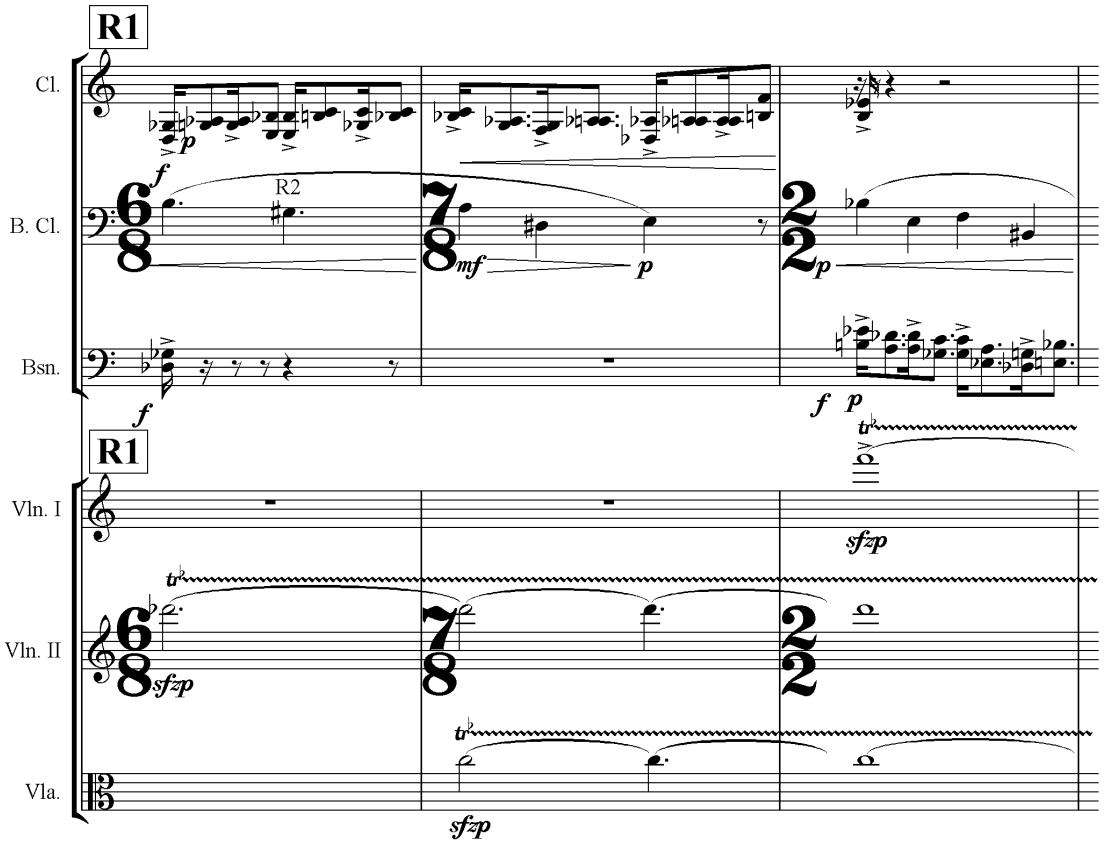
This is followed by a lengthy development of the U-shaped figure by the woodwind, intermittently accompanied by the glockenspiel quaver line. The texture becomes fuller and fuller, and reaches a climax at **[Q1]**.

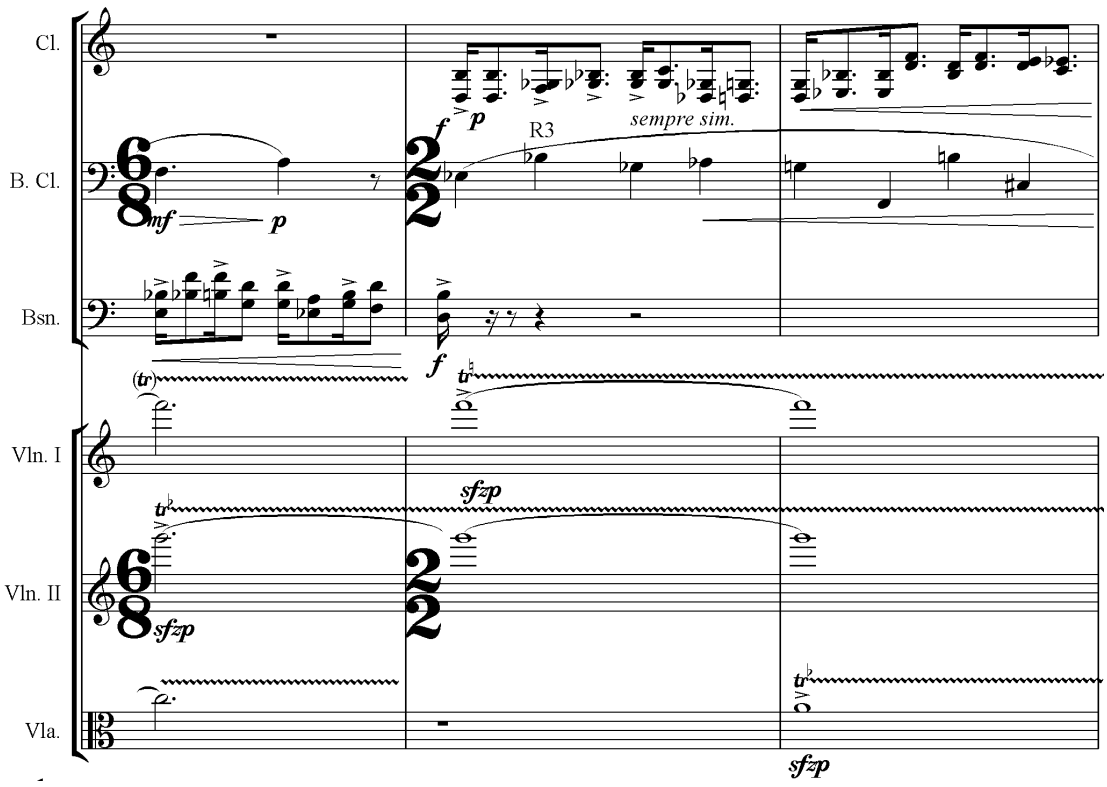
Fourth part: **[Q1]**+1 to **[V1]**–1

After a *pianissimo* held string chord and an upward fanfare figure from the horns, the clarinets, alternating with the bassoons, begin to play a figure in the Scotch

snap rhythm of the third subsection of the Development. Against this, first the cellos play a ***fff*** downward fanfare figure, echoing the horns' upward fanfare figure, then two trombones play the first row of SOL, and then the bass clarinet (doubled an octave lower by the double bassoon) plays successive rows of I SOL. The clarinet/bassoon Scotch snap figures and the rows of I SOL are background for the upper strings, which spell out, in trills, the successive Dβ, B, F, G, F, A, which are the pitches of the plainsong *Nativitas tua* (with the first two flattened a semitone).




R1
Cl.
B. Cl.
Bsn.
R2
R1
Vln. I
Vln. II
Vla.
sfzp


Cl.
B. Cl.
Bsn.
R3
sempre sim.
Vln. I
Vln. II
Vla.
sfzp

(Preceding page) Ex. 13.16 Part of the fourth subsection of the Coda.

This process continues, with gradually more instruments and upwards arpeggio and scale passages being added, until a fortissimo at **[U1]**–1. The motion then stops for six bars, in which all four horns play the U-shaped figure of the second subject in unison, then, *divisi*, an upwards fanfare figure, followed by another from the three trumpets, and finally a *fortissimo* from the whole orchestra. These six bars are a *reculer pour mieux sauter*, leading to the fifth part.

Fifth part: **[V1]**+1 to **[W1]**–1

A whirling from the piccolo, flutes, clarinets, glockenspiel and crotales accompanies the first and second violins (in octaves) playing slowly the first rows of ⊂SOL and then I⊂SOL. This stops three quarters of the way through bar **[W1]**–1, and the final part of the Coda begins.

Sixth part: **[W1]**–1 to end

The Coda theme, played by the first violins (with occasional octave displacements, and this time not expressively doubled by the seconds), brings the movement to a quiet close (a high string dyad, the lower note tremolo, vanishing to nothing).

Overall comment

Whereas the opening movement of the First Symphony 'has the ghost of a sonata form somewhere behind it,' and 'there is no first or second subject material as such',[29] the present movement is quite explicitly 'a quick sonata movement',[30] with first and second subjects, exposition, development, recapitulation and coda. There

[29] See above, *Chapter 11, First Movement, Composer's comments*.
[30] See the beginning of this Chapter, *Composer's comments*.

are, nevertheless certain unusual, but not unheard of, sonata deformations of a kind not described by Hepokoski[31] or by Darcy.[32]

The first of these is the statement of the first subject in six successive transformations. A second, 'counter' statement of a sonata first subject is quite usual, but five counterstatements are rare: Darcy has pointed out a number of 'rotations' of the second subject in Bruckner's symphonies, from the last movement of No. 2 (see above under *Rotations*). For example in the first movement of No. III (1877) '…S begins with a two-bar thematic complex that is stated three times … followed by several iterations of its first bar alone … after inflecting to minor and modulating up half a step, the repetitions begin anew in the key of the Neapolitan.'[33] The result is something similar to the first subject here, although Davies's procedure results from his serialism.

The second is the overlapping of the end of the Development and the beginning of the Recapitulation. This is again unusual, but by no means unheard of: for example, in the first movement of Mozart's Symphony No, 40 in G minor, K. 550, the development concludes with a perfect cadence in Eβ major *i.e.* the subdominant of the relative major, overlapping the start of the recapitulation in the tonic.

The third is the recapitulation of subjects in reverse order. Jackson[34] discusses this extensively, giving a list of movements with such 'reversed recapitulations' from the finale of Haydn's *Trauersinfonie* in E minor, Hob. I:44 to the first movement of Schoneberg's Third String Quartet, Op. 30. Hepokoski & Darcy[35] refer to this as a

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[31] Hepokoski, *Sibelius: Symphony No. 5*, pp. 1–9.
[32] Darcy, William, 'Bruckner's sonata deformations', in: Jackson, Timothy and Hawkshaw, Paul, eds, *Bruckner Studies*, (Cambridge University Press, Cambridge, 1997), Ch. 9, pp. 256–277.
[33] Darcy, *ibid*., p. 271.
[34] Jackson, Timothy L., 'The Finale of Bruckner's Seventh Symphony and the tragic reversed sonata form', Ch. 8, pp. 140–208 in Jackson and Paul, *Bruckner Studies*, particularly Figure 8.1, pp. 144–145.
[35] Hepokoski and Darcy, *Elements of Sonata Theory*.

'fallacy', building a case that it does not happen in mid-eighteenth- century music, and that its apparent appearance in occasional classical works is an 'illusion'. They further refer to Jackson's chapter as an instance of extravagant hermeneutic claims—seriously misinformed' (p. 368, fn. 38), although for this assertion they do not build a case. Their rejection of the idea for such examples as the first movements of Mozart's piano sonata in D, K.311, and violin sonata in D, K. 306 may be justified theoretically, but even in such cases the 'illusion' may have been influential: with movements such as the finales of Bruckner's seventh symphony, Mahler's sixth or Sibelius's fourth, Schoenberg's third and fourth string quartets, the first movement of Havergal Brian's first Symphony (*The Gothic*) and the first movement of Bartók's *Concerto for Orchestra*, the existence of a reversed recapitulation seems unarguable.

The fourth is the unusual relative length of the Coda, which is an example of Schoenberg's dictum that: 'In fact, it would be difficult to give any other reason for the addition of a coda than that the composer wants to say something more'.[36] The first instances of relatively long codas are probably those of the last movement of the 'Jupiter' symphony, and the first movement of the 'Eroica' symphony, but many others followed; for example, those of the first movements Beethoven's Ninth and of Mahler's Sixth are of comparable length to their respective expositions, developments and recapitulations; and the coda of the first movement of Beethoven's Fifth and the Finale of Schumann's Fourth Symphony are longer than either of these three sections; the longest of all is probably that of the last movement of Beethoven's Eighth Symphony.[37]

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[36] Schoenberg, *Fundamentals of Musical Composition*, p. 185.

[37] Kerman, Joseph, 'Notes on Beethoven's Codas', pp. 141–159 in: *Beethoven Studies 3*, ed. Alan Tyson, Cambridge University Press, Cambridge, 1994, p. 151) gives the coda of the first movement of Beethoven's 'Lebewohl' Sonata, Op. 81a as 'probably to be reckoned as his longest sonata-form coda,

These deformations are worth noting simply because they show that even when Davies writes something so traditional as a sonata movement, it is nevertheless a Davies sonata movement.

in relation to the other sections of the form', but that of the finale of the Eighth Symphony is proportionally longer.

Second Movement

The Composer's Comments

The second movement is slow, in F minor, with the C flat (B natural) functioning tonally as the E sharp did in the first. After an introduction a theme on cellos has virtuoso 'doubles' on bassoon, horn, oboe and trumpet.[47]

[47] Davies 'Symphony no. 2', p.174.

S*ummary analysis table*

Introduction	Start to **[B]**–1			
Theme	**[B]**+1 to **[D]**–1	Obbligato Melody: R ε Acc: Γ	Alto Fl. Vc./ Hns. Str., brass	
Interlude	**[D]**+1 to **[E]**–1			
First ‘double’	**[E]**+1 to **[G]**–1	Obbligato: Melody: γ ε Acc: R,C,R	Fl. 1 Mar., bsn. 1 Hns 3, 4, pizz. vc.	ᗰ1
Interlude	**[G]**+1 to **[H]**–1			
Second ‘double’	**[H]**+1 to **[J]**–1	Obbligato: Melody: Γ1–5, δ6–14 Acc: R	Cl. 1 Vln. 1, Hn. 1 Tbns 1.2, pizz. vla.	
Interlude	**[J]**+1 **to [K]**–1			ᗰ4
Third ‘double’	**[K]**+1 to **[M]**–1	Obbligato: Melody: R ≤ε Acc: R	Fl. 2 Vla., fl. 1 (ᗰ2) Vc. (ᗰ4) / Ob. 1: γ1–4 (ᗰ2) ⅓θ	ᗰ2, ᗰ4
Fourth ‘double’	**[M]**+1 to **[P]**–1	Melody: γ5–14 Δ Acc: γ5–14	Ob. 1 Tr. 1 Str.	
Interlude	**[P]**+1 to **[P]**+3			
Fifth ‘double’	**[P]**+4 to **[S]**–1	Obbligato: Melody: R Acc:	Vl. I Vl. II Vla. Vc / Lower ww: γ1–4	ᗰ3
Sixth ‘double’	**[S]**+1 to **[U]**–1	Melody: γ5–14 Ctpt. Λ Acc:	Ww. Brass (ᗰ4) Str.	
Seventh ‘double’	**[U]**+1 to **[V]**–1	Melody: γ Ctpt. δ Acc: R1 θ κ R2 η ε R3 θ R4 εκ R5 ε	Ww. Brass Db. Vc. Vla. Vl. II Vl. I	ᗰ4
Eighth ‘double’ (‘Reprise’)	**[V]**+1 to end	Melody: R ε Ctpt. Θ ⅓θ Ctpt. Γ1–6, δ7–14	Vla., vc.; Vl. I.II Bsn. Hn.	ᗰ1

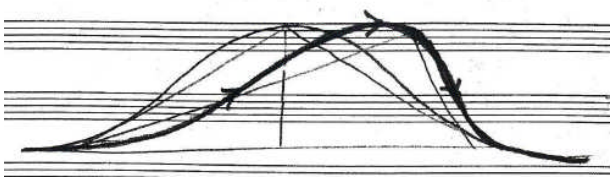
Notes: The acronyms ᗰ1–4, as well as the letters R, C and Greek letters, are explained below in the section *The ‘Magic Square’*.
Duration units are given after paths: both here and in the text, when there are no regular duration units they not mentioned.

Discussion

The main divisions of this movement, in the Baroque form of an air with 'doubles', but preceded by an introduction, and with the 'doubles' sometimes separated by brief interludes, are clearly indicated by Davies's (brief and incomplete) description, by the double bars in the score, and Davies's manuscripts, which indicate the various paths through the double magic square which constitute both the themes and the accompaniments of the 'doubles'.

It may be seen from the *Summary analysis table* that the theme and the first three 'doubles' consist of an accompanied melody and an obbligato. The melody may be doubled (although this is not shown in the table) by another instrument an octave higher or lower playing, more prominently, an ornamented version, and thus heterophonically. In later 'doubles' the obbligato tends to drop out and be replaced by a second melody in counterpoint to the first. In the eighth and final 'double', the accompaniment is replaced by two contrapuntal melodies.

The movement is in the overall shape of a wave, with its crest in the seventh 'double'; in fact, both sheets of Davies's manuscripts which sketch out this 'double'[48] also have a sketch of a normal distribution curve with its summit pushed to the right to form the profile of a wave:



Ill. 13.1 Sketch from Davies's manuscripts

The 'Magic Square'

The theme and its 'doubles' are based on the following double magic square,

[48] Add. Mss. 713334 sheets 19 and 20.

♂ (♂1)
Square of Mars

☉					☾				
F 3	G 1	F 4	Aβ 2	Dβ 5	F 1	A 4	A 2	E 5	G 3
Eβ 5	Eβ 3	Bβ 1	Bβ 4	C 2	F 4	G 2	F# 5	E 3	C 1
Bβ 2	Gβ 5	Aβ 3	D 1	C 4	D 2	D 5	D 3	D 1	D 4
Eβ 4	Eβ 2	Bβ 5	Bβ 3	C 1	B 5	A 3	Bβ 1	C 4	E 2
F 1	G 4	F 2	Aβ 5	Dβ 3	B 3	G 1	G 4	C 2	A 5

This double square[49] will be referred to as ♂ or ♂1,[50] and three other double squares obtained from it by transposition of the pitches of its component squares, interchanging these component squares, or reversing the order of the elements within each row, as ♂2, ♂3 and ♂4. Its construction (for which see *Appendix H: Construction of the Double Square of Mars*), not from BELLS but from the initial phrase of the plainsong *Nativitas Tua, Dei Genetrix*, is again different from those of the Moon and of the Sun. It results in two adjacent subsquares (referred to as ☉ and ☾ respectively) which, first, are completely different in pattern of pitches (in the left-hand one the first and fifth rows are the same, as are the second and fourth, whereas the right-hand one has no such symmetry) and secondly have different but similar patterns of durations in each square. In each row of each square the durations are the a circular permutation of 1, 4, 2, 5, 3; in each column of the right-hand square they are a circular permutation of the same sequence, and in the left-hand square a circular permutation of its retrograde; further, those in the first square are symmetric about the bottom-left to top-right diagonal, and those in the second about the top-left to bottom

[49] It is conceivable that there is a private pun here between the 'doubles' and the double magic square.
[50] It is designated ♂S in Davies's manuscripts.

right diagonal. One further point is that although these are two different squares, they are laid side-by side and usually treated as a single 5 × 10 rectangle.

There are two features of these component squares which should be mentioned. First, although the rows of each square are not, as with the *Ave maris stella* square of the First Symphony, transpositions of one another, there are nevertheless melodic patterns: as already mentioned, the sequence of pitches of the first and fifth rows of ⌓ are the same, as are those of the second and fourth rows (so that for pitches this subsquare is symmetric about its third row), and the third row of ⌶ consists entirely of one pitch. Secondly, diagonal paths from top left to bottom right in ⌓, and from bottom left to top right in ⌶ consist of pitches with the same duration. These properties are unaffected by transpositions or reversal or the order of elements within each row, and are thus present in all the double squares used in the movement, and in the paths through them mentioned above.

M is also briefly used in the fourth movement.

Classification of paths through the 'Magic square'

The main thematic and harmonic material of the movement is derived from paths through these double squares, across the rows, occasionally down the columns, or along diagonal paths either from bottom left to top right or from top left to bottom right.

(i) Row and column paths

Paths reading across successive rows of the double square, occur frequently. The Theme (*q.v.* below), starting at **[B]**, consists of the notes F3, G1, F4, … , G3, Eβ, *etc*. from ⋏⊆1, and other examples may be seen from the *Tabular summary analysis* above. Almost all are straightforward, but the theme of the Eighth 'double' (*q.v.*) is

more elaborate, reading from right to left in ↄ and from left to right in ı. All paths through the double square, which will contain ten notes per row, are referred to as 'R', and individual rows by 'R' followed by the number of the row: individual rows of ↄ or ı are referred to as 'R' followed by the number of the row and prefixed by the letter of the square.

A column path, reading down the columns and from left to right, which contains five notes per column, occurs as part of the accompaniment to the First 'double' (*q.v.*), and is referred to as 'C', with individual columns by 'C' followed by the number of the column.

(ii) Diagonal paths

These paths start in a corner of the double square, and then take diagonal segments across it to the opposite corner. For example the theme of the First 'double' (*q.v.*), starting at **[E]**, starts with the F3 in the top left-hand corner, then follows the (non-central) diagonals Eβ5, G1, then Bβ2, Eβ3, F4, *etc.*, ending with the A5 in the bottom right-hand corner.

The notation for them will be the same as that used in *Chapter 10* for the First Symphony, which for convenience is repeated here. There are eight possible such diagonal paths, which may start from any one of the four corners of the double square, with the diagonal segments being taken either upwards or downwards. For example, starting in the top left corner and taking the diagonal segments upwards gives the path starting:

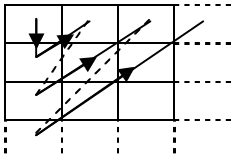


Fig. 13.1 A diagonal path

The nomenclature used assigns Greek letters to the corners of the double square where the path starts, as shown in the following diagram:

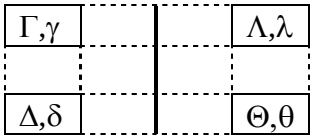


Fig. 13.2 Nomenclature of diagonal paths

a capital letter refers to a path with downwards diagonal segments and a lower case letter to one with upwards diagonal segments. For example, the path of the theme of the First 'double', referred to above, starts in the top left-hand corner and has ascending diagonal segments, and so is designated by γ, and one beginning the same way but then alternating segments as γ/Γ. Where necessary, segments of the path may be referred to by numbers, '1' standing for the starting corner, '2' the first diagonal segment, …, to '14' for the closing corner.

Three further points should be noted. First, although there are eight distinct diagonal paths, there are only four retrograde pairs of paths. Thus Γ is the retrograde of θ, γ of Θ, and in general each path is the retrograde of the path starting in the opposite corner of the rectangle and of opposite case. Secondly, sometimes, as in the accompaniment to the Theme, the diagonal segments of the path are used as chords: in these cases there is no distinction between the path with upwards and downwards

diagonal segments. (It so happens that only one diagonal segment contains the duplication of a pitch – the bottom-left to top-right segment beginning with F2, *i.e.* Γ7, which has two Fs – something which favours the formation of chords from them, but this appears to be fortuitous.) Thirdly, sometimes, as in the theme of the Second 'double' or the horn part in the Eighth 'double' (*q.v.*), a part may change from one path to another.

General harmonic colouring

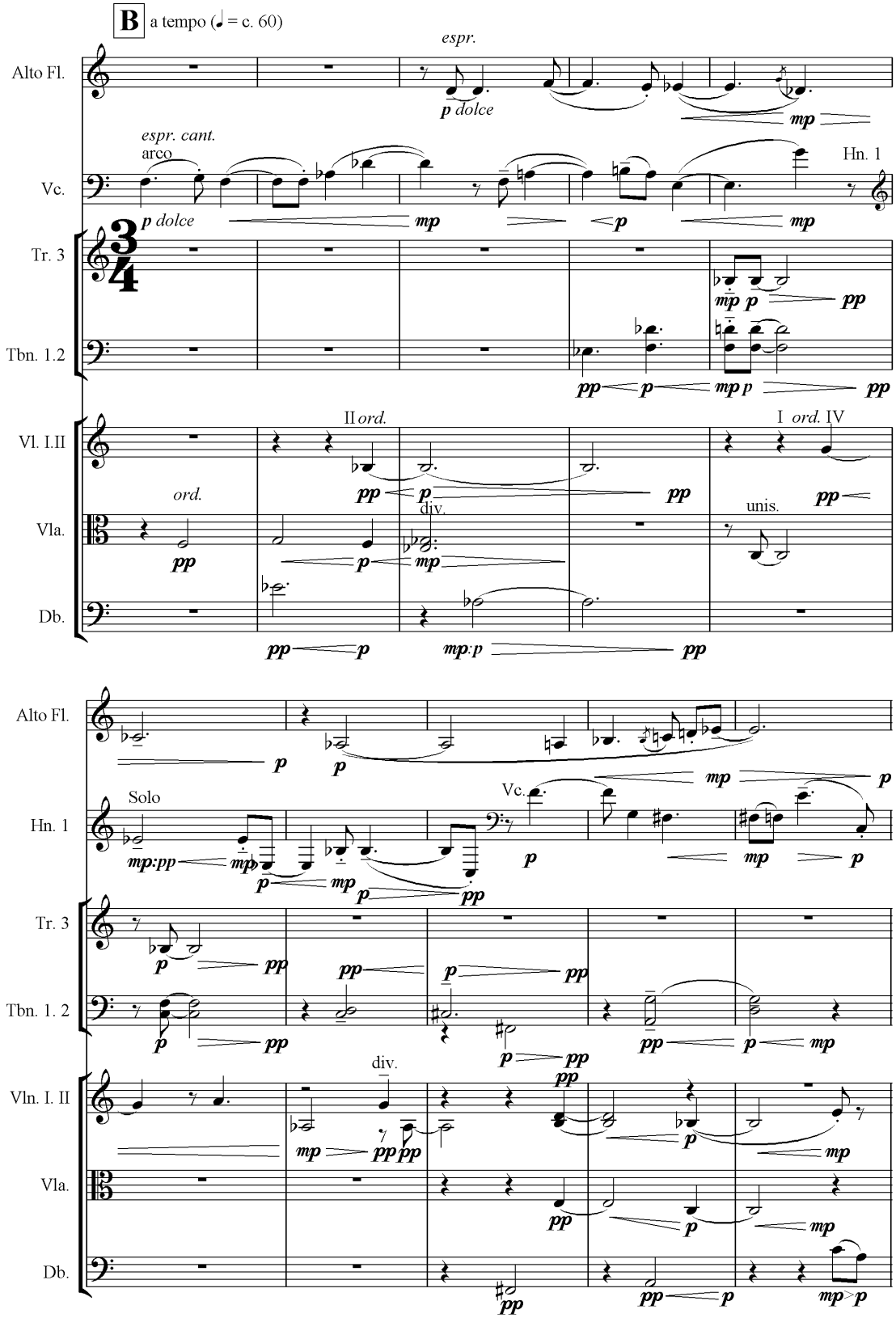
Pitches	No. Of onsets	Total duration of all onsets
D, Bβ	6	16
F, G		15
C		14
Eβ, A	4	
E, Aβ	3	10
Gβ	2	
Dβ, B		8

Introduction: first bar to **[B]**–1

The brass slowly play F, G, Aβ, Dβ, the distinct opening notes of the theme to follow, clearly establishing the key of F minor. There is an upwards rush on woodwind, glockenspiel and crotales, in a crescendo to ***fff***, followed by another five slow quiet bars, diminishing to ***ppp***, and the theme starts.

Theme: **[B]**+1 to **[D]**–1

Both melody and chordal accompaniment are derived from ⩘1.



Ex. 13.17 Theme

The melody (alternately cellos and horn[51]), is given by the successive rows of the square, with unit a quaver,[52] (the Bν in the fourth bar is an appoggiatura): after R1 on cellos, the first five notes of R2 are played by the first horn, the last five and the first five of R3 by the cellos, *etc.* (with unit of duration a quaver). The melody finishes before the end of the section.

The pitches of the accompaniment are taken from the path Γ[53] (the durations of the path are not used here), although not always successively within each diagonal segment. Thus in the first bar (**[B]**+1) the single pitch of Γ1, the F in the top left is played by the violas; in the next bar, the two pitches of Γ2, Eβ and G, are played simultaneously by the double basses and the violas respectively; in the same bar, the Bβ, of Γ3 is played by the second violins, the F simultaneously by the violas, whilst the Eβ has been held from the beginning of the bar by the double basses; in the third bar, the Eβ and Gβ of Γ4 are played by the divided violas, the Bβ simultaneously by the second violins and a crotchet later the Aβ by the basses. This build-up of chords is followed by six five-note chords (Γ5 to Γ10)[54], then chords of size decreasing to one note (Γ14). The accompaniment restarts at **[B]**+11 with Γ1, but the chords Γ9 – Γ13 are not easy to find in the score.

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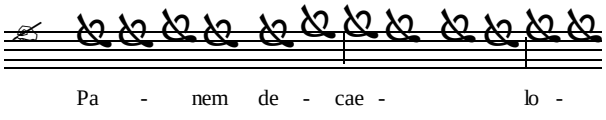
[51] Davies, 'Symphony no. 2', p. 174, writes simply 'cellos', and in this he is followed by Maycock, 'Extended Note I', http://www.maxopus.com/works/symph_2.htm, 05/09/03, p. 5 and Driver, 'Extended Note II', *ibid*. p. 7.

[52] McGregor, Richard, 'The Maxwell Davies sketch material in the British Library', *Tempo*, 196 (April, 1969), p. 17 has suggested that this theme 'appears to be derived from the plainchant *Panem de Caelo*'. As may be seen, there is certainly a resemblance in the first few pitches, but only there, whereas both the pitches and the durations are precisely (with just a few exceptions, such as the Bν pointed out above) derivable from the square.



[53] McGregor, *loc. cit.*, p. 17.

[54] McGregor, *loc. cit.*, Fig 7, follows it for six bars.

The third part, the obbligato on the alto flute, starts with BELLS, but thereafter appears to be freely composed.

Interlude: **[D]**+1 to **[E]**–1

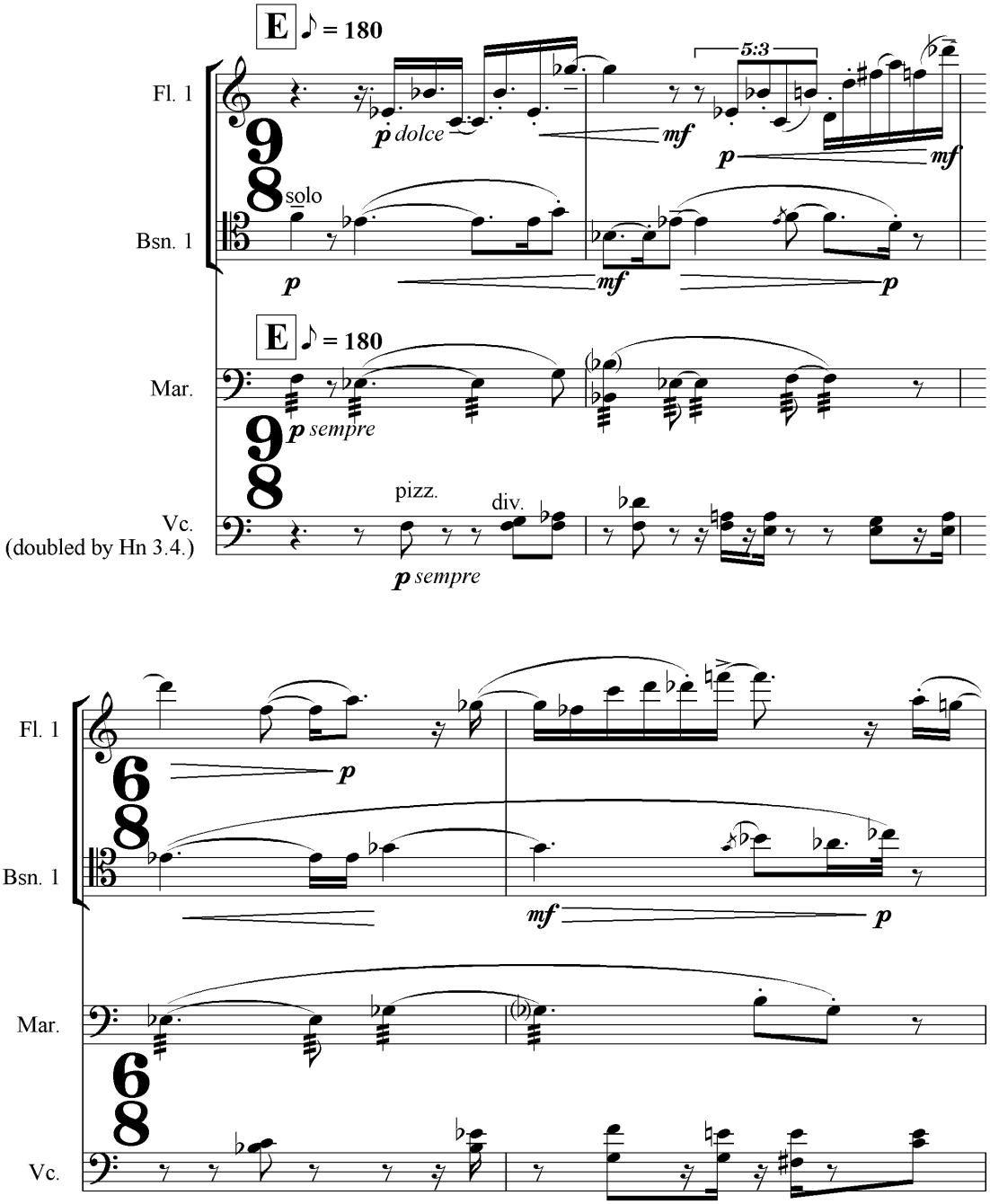
An interlude of six bars (the fifth of which is another upwards rush, on glockenspiel, crotales and harp, followed by an upwards glissando on first and second violins) leads to the next section.

First 'double': **[E]**+1 to **[G]**–1

As mentioned above in the *Discussion*, in this and in the second 'double' the melody is played on one instrument and heterophonically doubled by a slightly ornamented version on another, the latter more prominent. Here the melody, consisting of the diagonal path γ (with duration unit again a quaver) is on the marimba, heterophonically doubled an octave higher by the first bassoon.[55] The accompaniment, on third and fourth horns, doubled by pizzicato cellos, is derived (somewhat freely) from the rows of the double square (thus the F, FG, FAβ, FDβ come from the first row of O, the FA, EA, EG, EA from the first row of I, *etc.*), then (at **[F]**–5) down the columns, from left to right, and finally (at **[F]**+5) from the rows read from left to right and from bottom to top. Hence in this 'double' what was melody (namely the rows of the magic square) has become accompaniment, and what was accompaniment (namely the diagonals Γ, this time read in the opposite direction) has become melody.[56] Again there is an obbligato, this time on the first flute, which starts by ornamenting the theme, but soon becomes free of it.

[55] Davies (Add. Mss., 71334, sheet 12) notes ADD MORE OUTLINE OCTAVE DOWN.

[56] This may be why Davies heads the Theme ERSTES THEMA (Add. Mss., 71334, sheet 34/11) and the first and second 'doubles' (sheets 12 and 13) ZWEITES THEMA.



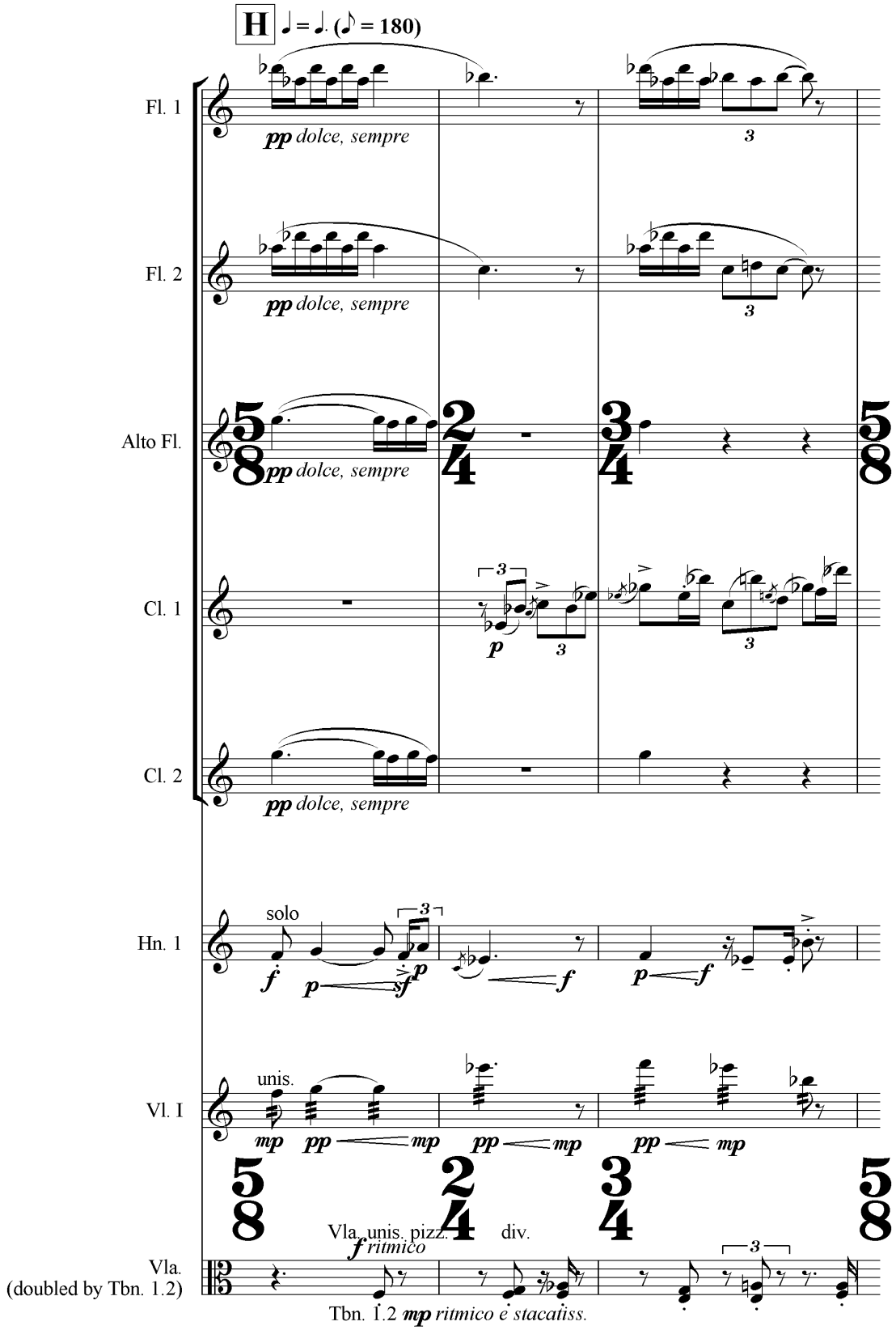
Ex. 13.18 First ‘double’.

Interlude: **[G]**+1 to **[H]**–1

Here seven bars, starting on the double basses with a quiet B (Davies’s ‘dominant’) followed by a retrograde of the first five pitches of the original theme, slow the tempo down to that of the melody.

Second ‘double’: **[H]**+1 to **[J]**–1

The melody is on the first violins, consisting of the diagonal path Γ heterophonically doubled an octave lower by the first horn, the latter, as with the first ‘double’, more prominent. The accompaniment on first and second trombones, doubled by pizzicato violas.



Ex. 13.19 Second ‘double’.

The melody starts as the diagonal path Γ, after Γ5 changing to the diagonal path δ, starting with δ6. The accompaniment begins the same as that for the first ‘double’, and remains similar, but much freer.

The obbligato is now on the first clarinet, decorated by fluttering semiquavers on the flutes, alto flute and second clarinet.

Interlude: **[J]**+1 to **[K]**–1

This consists of a quiet dialogue between alto flute and bass clarinet. The pitches are taken, with some deviations, from a square which has not been used so far, namely ᗰ4 (see below: Third ‘double’). The alto flute plays the first, second and third rows of the right-hand square and the fourth and fifth rows of the left-hand square, whilst the bass clarinet plays the first three row of the left-hand square (after which its pitches are hard to derive from the square).

Third ‘double’: **[K]**+1 to **[M]**–1

This ‘double’ uses two new versions of ᗰ,

ᗰ2

Aβ 1	C 4	C 2	G 5	Bβ 3	D 3	E 1	D 4	F 2	Bβ 5
Aβ 4	Bβ 2	A 5	G 3	Eβ 1	C 5	C 3	G 1	G 4	A 2
F 2	F 5	F 3	F 1	F 4	G 2	Eβ 5	F 3	B 1	A 4
D 5	C 3	Dβ 1	Eβ 4	G 2	C 4	C 2	G 5	G 3	A 1
D 3	Bβ 1	Bβ 4	Eβ 2	C 5	D 1	E 4	D 2	F 5	Bβ 3

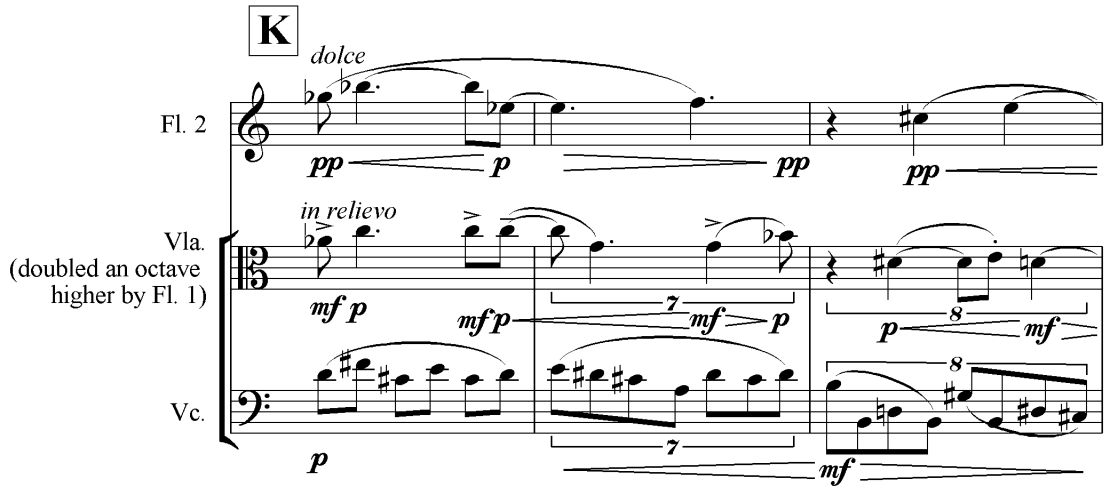
whose left-hand subsquare is ᑎ of ᗰ transposed up a minor third and whose right-hand square is ᑐ of ᗰ transposed down by the same interval, and

$\mathcal{M}4$[57]

D 1	F# 4	F# 2	C# 5	E 3	Aβ 3	Bβ 1	Aβ 4	B 2	E 5
D 4	E 2	D# 5	C# 3	A 1	Gβ 5	Gβ 3	Dβ 1	Dβ 4	Eβ 2
B 2	B 5	B 3	B 1	B 4	Dβ 2	A 5	B 3	F 1	Eβ 4
G# 5	F# 3	G 1	A 4	C# 2	Gβ 4	Gβ 2	Dβ 5	Dβ 3	Eβ 1
G# 3	E 1	E 4	A 2	F# 5	Aβ 1	Bβ 4	Aβ 2	B 5	E 3

which is $\mathcal{M}2$ transposed a tritone.

The melody is on the violas, doubled an octave higher by the first flute, and the



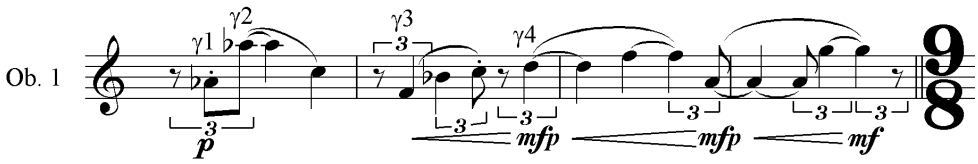
Ex. 13.20 Third ‘double’.

accompaniment on the cellos. The melody is given almost exactly by the rows of $\mathcal{M}2$ (duration unit a quaver, but this is usually part of a septuplet, octuplet, nonuplet, decuplet or quintuplet, so that the heard duration is usually less than a quaver) whilst the accompaniment comes freely from $\mathcal{M}4$, first the rows of the $\mathcal{O}$, then those of the $\mathcal{I}$,

[57] It might appear more logical to number this double square $\mathcal{M}3$ and the next one (see below, Fifth ‘double’) $\mathcal{M}4$, but Davies’s numbering (Add. Mss., 71334, sheet 9), which is that of their construction, has been preferred.

then those of ⌓ in retrograde, then those of ı in retrograde. There is a free obbligato line on the second flute, and (not shown here) two bassoons play in slow counterpoint.

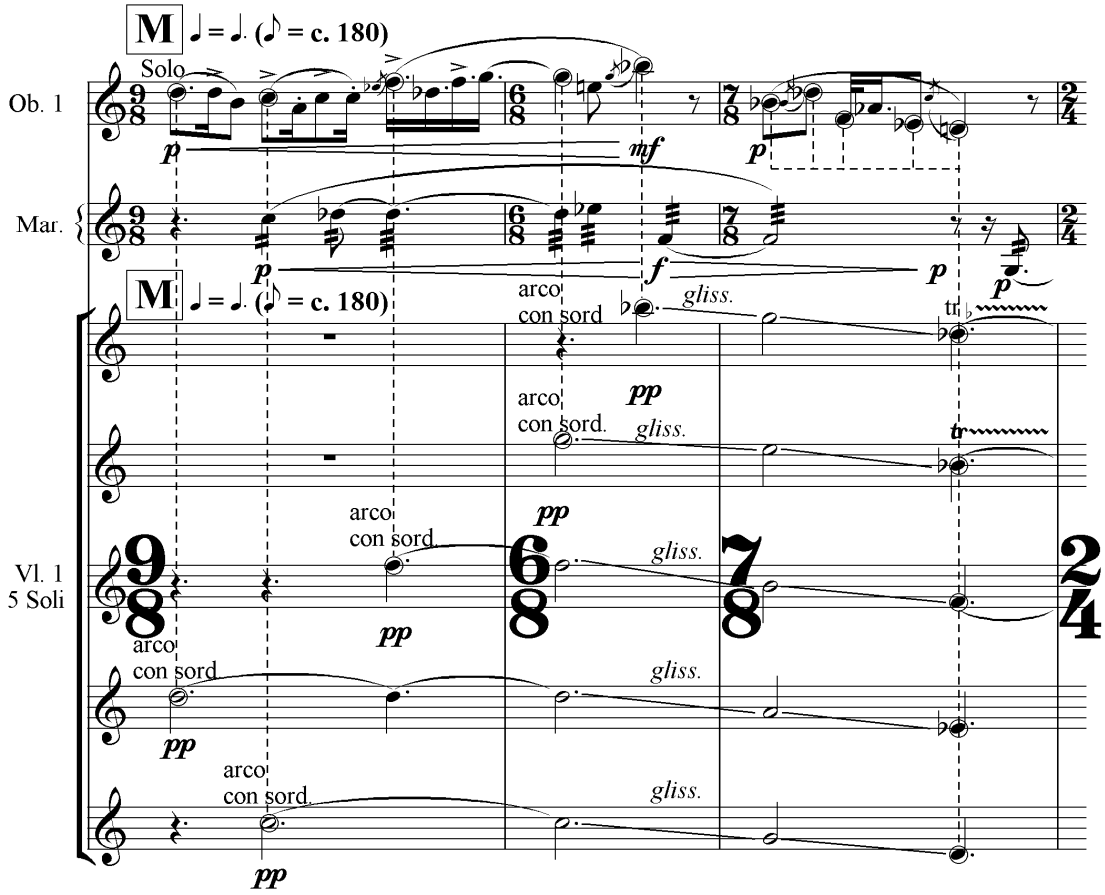
In the last four bars of the section the first oboe enters with γ1–4 of ⋏2 (with duration unit one third of a crotchet). They are a dovetailing of the beginning of the next 'double' into the end of the present one. (This is analogous to the overlap of the recapitulation with the end of the development in the first movement, *q.v.*)



Ex. 13.21 Dovetailing of the beginning of the fourth 'double' into the end of the third.

Fourth 'double': **[M]**+1 to **[P]**–1

There is no interlude: the diagonal path already begun on the oboe continues,



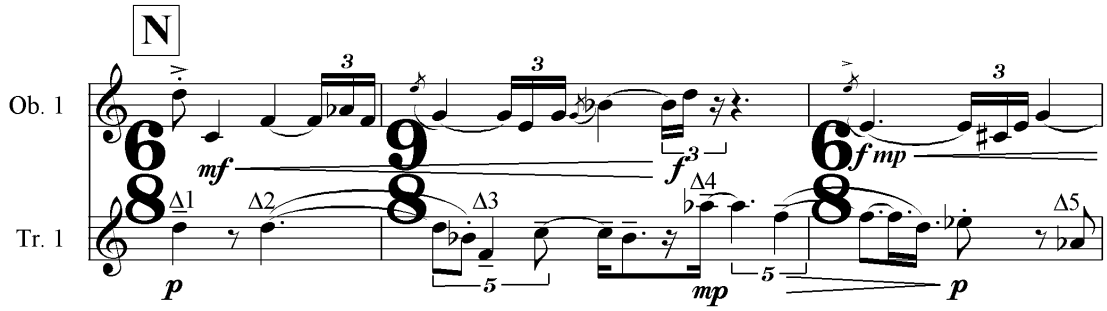
Ex. 13.22 Fourth ‘double’.

now highly decorated, and accompanied by chords derived from it on five solo violins, of which it is thus a heterophonic doubling. Thus the five pitches of γ5 (D, C, F, G, Bβ) on the oboe are partially hidden in various kinds of ornamentation, whilst the same five pitches are played by the violins. The five pitches of γ6 (Bβ, Dβ, F, Eβ, D), are played as a chord, arrived at by downwards glissandi, and the two upper pitches trilled. Diagonal segments at and after γ7, whilst still discernable in the oboe part, are, however, harder to find in the violin chords. There is also a slow accompanying part on the marimba, joined after five bars by the alto flute.

At **[N]**+1 the first oboe playing γ10 is joined by the first trumpet playing the diagonal path Δ (still of ⩛2).[58] The oboe drops out when it reaches the end of its

[58] The Dν in the third bar of this example is a deviation from the expected Dβ.

path, and the trumpet continues, its path becoming more and more decorated, to the end of the ‘double’.



Ex. 13.23 Ending of fourth ‘double’.

Interlude: **[P]**+1 to**[P]**+4

This is little more than a short transition, consisting of just three bars of melodic fragments of one, two or three pitches, and thus too short for any serial derivation to be certain.

Fifth ‘double’: **[P]**+4 to **[S]**–1

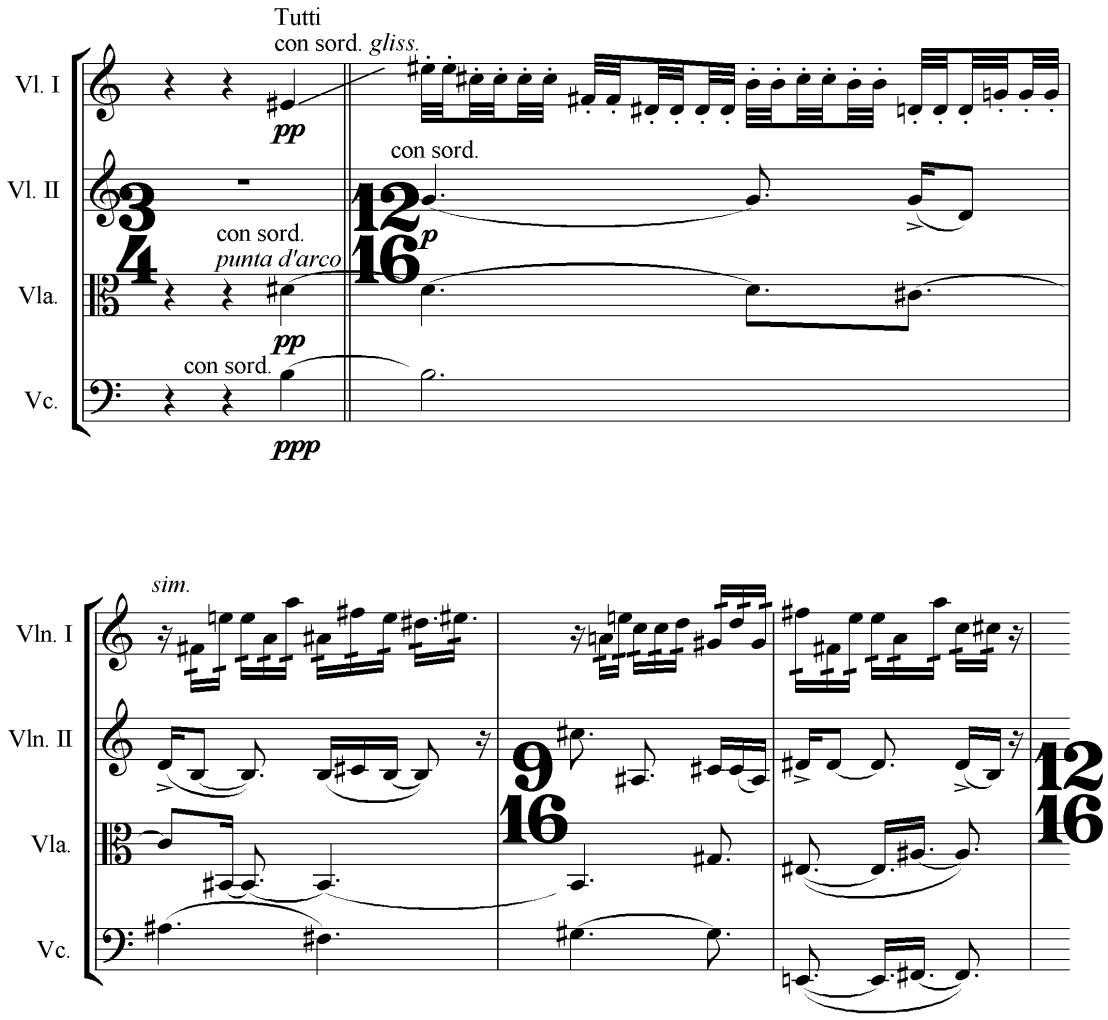
Here a new rectangle, ᗑ3 is introduced, whose rows are those of ᗑ transposed by a tritone and retrograded within each subsquare.

ᗑ3

G 5	D 2	B 4	C# 1	B 3	C# 3	A# 5	D# 2	D# 4	B 1
F# 2	E 4	E 1	A 3	A 5	F# 1	Bβ 3	C 5	Dβ 2	B 4
F# 4	G# 1	D 3	C 5	E 2	Aβ 4	Aβ 1	Aβ 3	Aβ 5	Aβ 2
F# 1	E 3	E 5	A 2	A 4	Bβ 2	Gβ 4	E 1	Eβ 3	F 5
G 3	D 5	B 2	C# 4	B 1	Eβ 5	Gβ 2	Dβ 4	Dβ 1	F 3

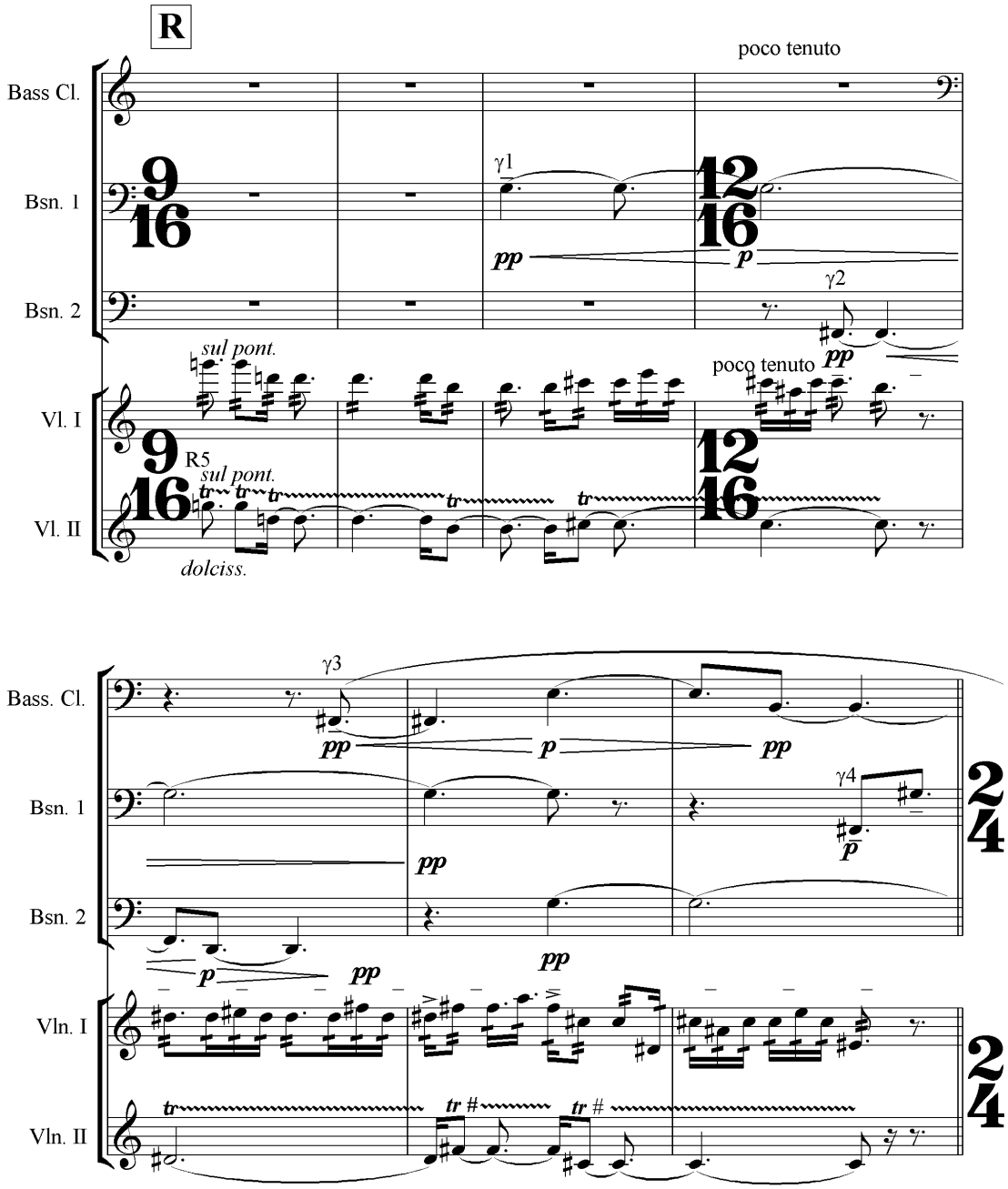
The melody, which consists of the rows of ᗑ3 is on the second violins, accompanied by the violas and cellos, with an obbligato in repeated demisemiquavers

on the first violins. (This obbligato is at times related to the theme, *e.g.* the last six six pitches of its first bar – B, C#, B, D, G – are the retrograde of those of the opening of the theme.)



Ex. 13.24 Fifth ‘double’.

At **[R]**+1 the theme goes into trills, sul ponticello, doubled an octave higher by the first violins playing tremolando and also sul ponticello, the doubling at first strict, but then becoming heterophonic through ornamentation. Two bars later, at **[R]**+3 segments of γ start on the lower woodwinds. This dovetails into the next ‘double’.

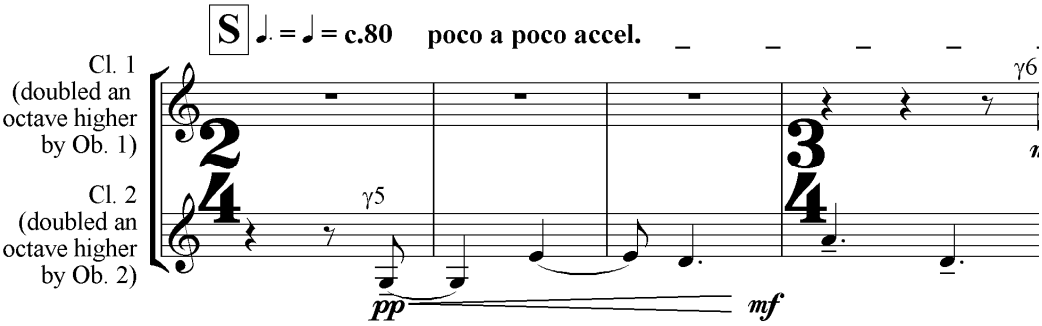


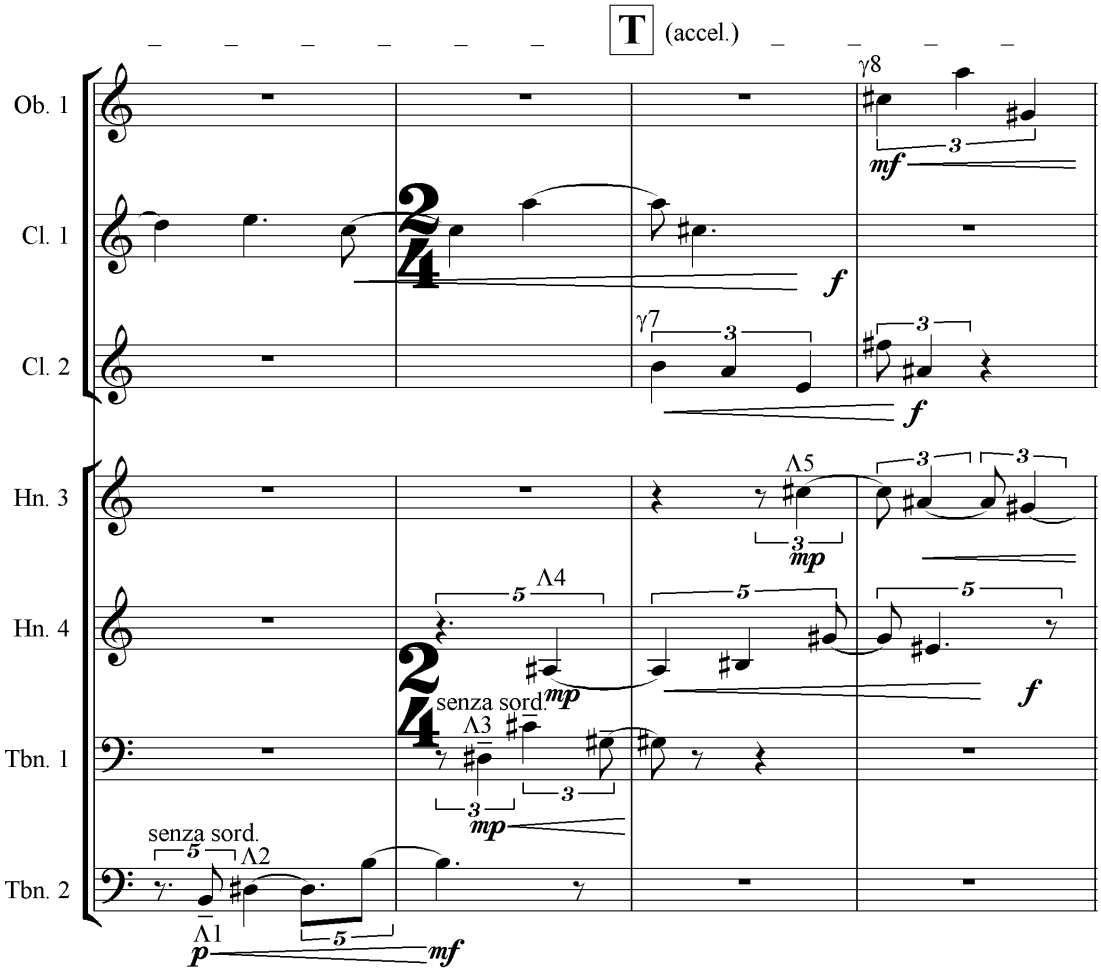
Ex. 13.25 Dovetailing of the ending of the fifth ‘double’ into the sixth.

Sixth ‘double’: **[S]**+1 to **[U]**–1

As already mentioned (see above, *Discussion*) the preceding ‘doubles’ have consisted of a clear melody (on one instrument) and accompaniment. The present and

next ‘double’ each present two melodies in counterpoint (there is an analogy here to the penultimate, sixth, variation of the third movement of the first symphony, *q.v.*, where two transformations of the spiral path are played in counterpoint) on woodwind and brass, both versions fragmented, sometimes overlapping, over slow string chords. The texture becomes thicker towards the climax in the seventh ‘double’ where, as in the ‘Climax’ of the third movement, there are up and down sweeps on the harp and up and down passages on the glockenspiel and crotales. Here the path, γ, begun in the preceding ‘double’ on bassoons and bass clarinet continues in all woodwind except the bassoons, and is soon joined on the brass by the path Λ through the same square (⋏3). Throughout the strings, entering one after another, build up the nine-note chord (in order of entry) D, G, C#, A, B#, Bβ, D#, G#, F# (whose derivation from the third, or any other, magic square has not been found).





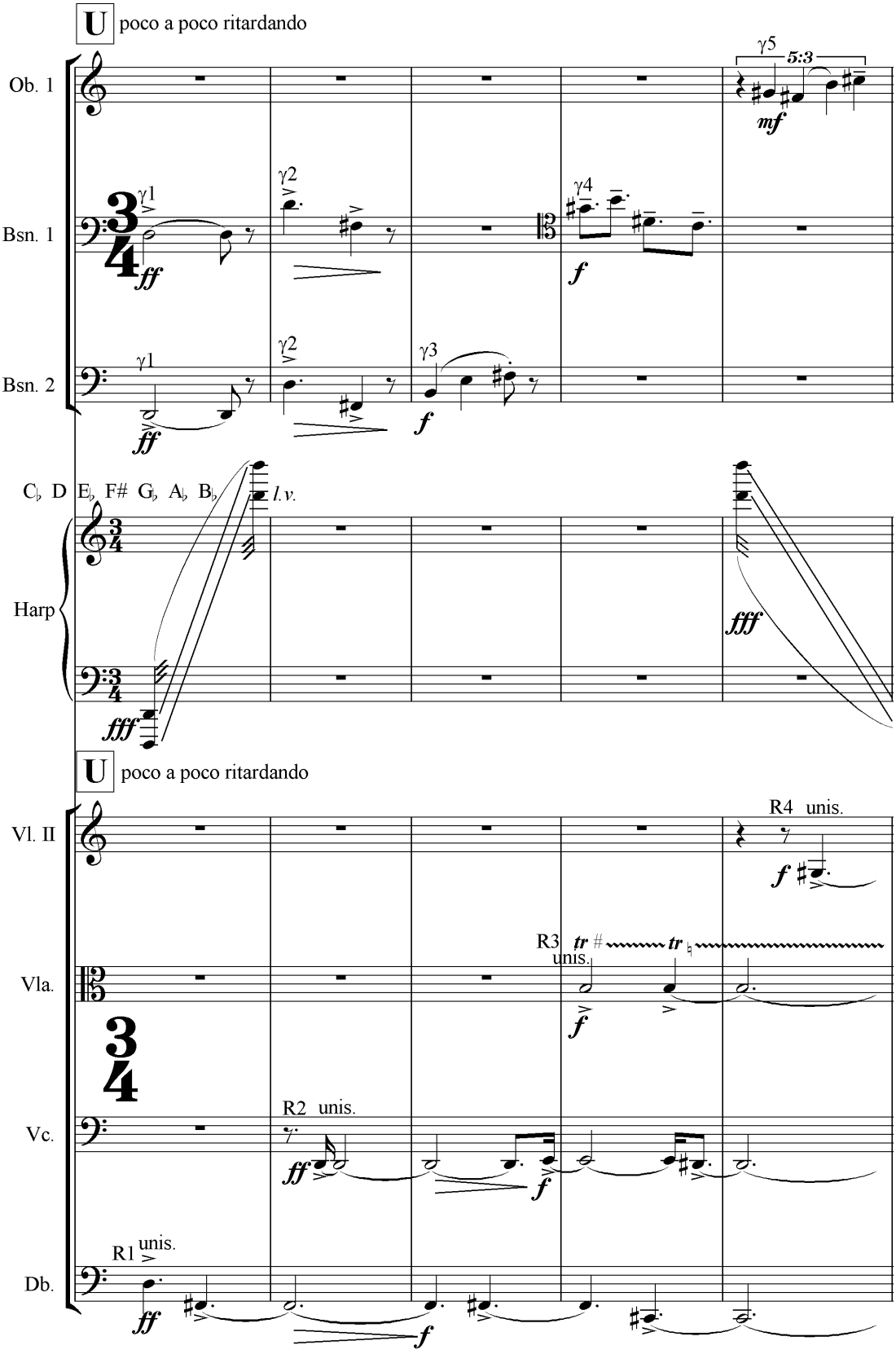
Ex. 13.26 Ending of the sixth ‘double’.

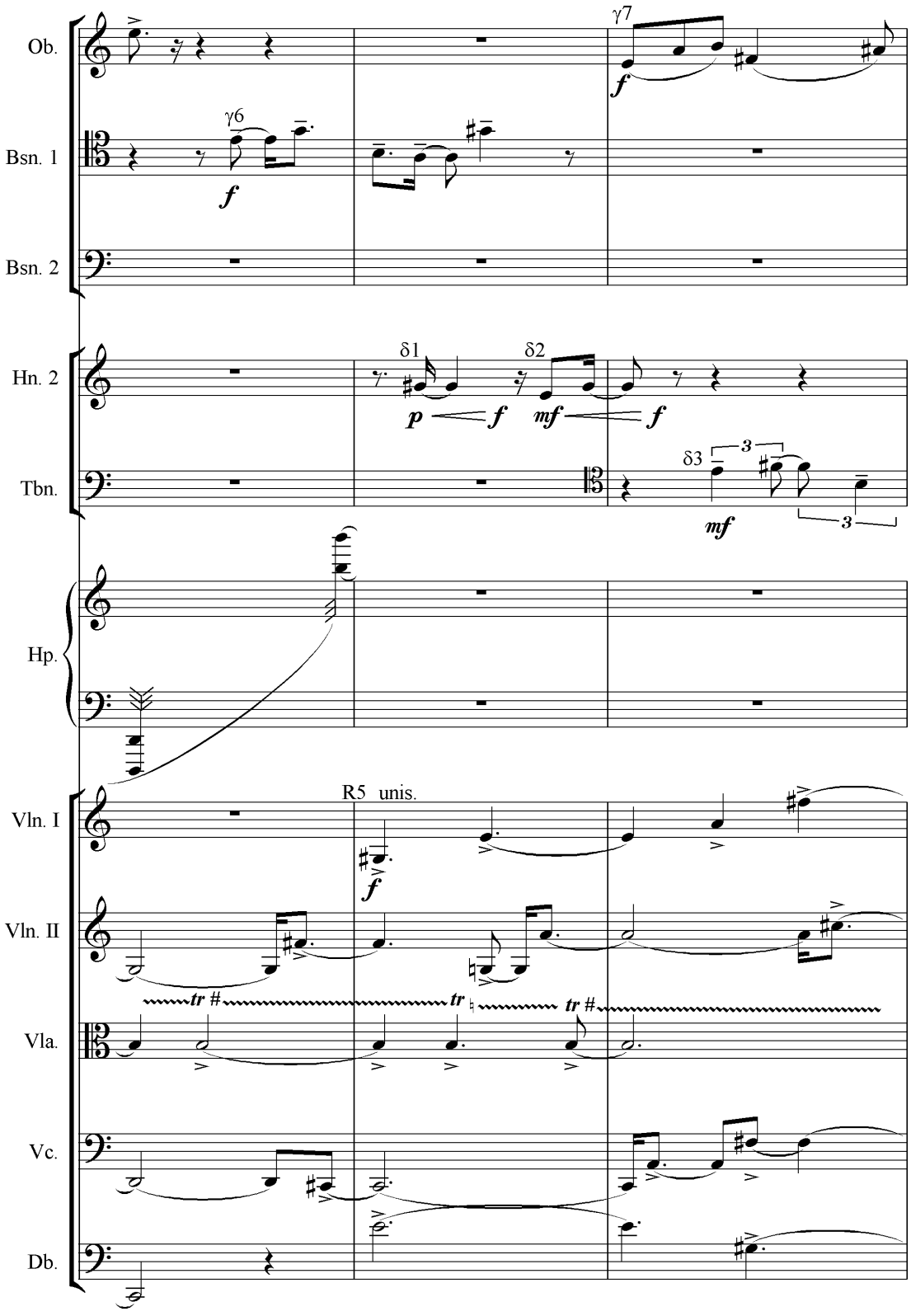
Seventh ‘double’: **[U]**+1 to **[V]**–1

It seems likely that this ‘double’, with its ***fff*** harp sweeps and its concluding ***ff***/***fff*** climax, is the place in this movement referred to by Davies[59] when he writes of ‘parallel climactic points of the design in the second and third movements’; Maycock refers to it as a ‘crisis’.[60] The melody, the diagonal path γ on ⩘4, is played by the woodwind: the pitches start as a dotted minim, then shorten progressively to dotted crotchets, crotchets, dotted quavers, triplet quavers, *etc.*, progressively accelerating. After six bars, a counterpoint, another diagonal path, δ on ⩘4, starts on the brass, the

[59] Davies, ‘Symphony no. 2’, p. 172.
[60] Maycock, ‘Extended Note I’, p. 5.

two paths ending together. This is again accompanied by slow string chords derived from the rows of ⩘4, like the melody progressively accelerating: thus R1 with duration unit six quavers (a dotted crotchet), is played by the double basses, then R2, with unit five quavers, by the cellos, R3, four quavers (a minim), on the violas, *etc*. Towards the end of the section, starting in the last bar of the example below (but not shown there), some woodwind parts are, irregularly, doubled at the fifth, octave, and other intervals.


U poco a poco ritardando
Ob. 1
Bsn. 1
Bsn. 2
Harp
C♭ D E♭ F# G♭ A♭ B♭
l.v.
U poco a poco ritardando
Vl. II
Vla.
Vc.
Db.
R1 unis.
R2 unis.
R3 unis.
R4 unis.
γ1
γ2
γ3
γ4
γ5
5:3
ff
f
mf
fff
tr
tr♮

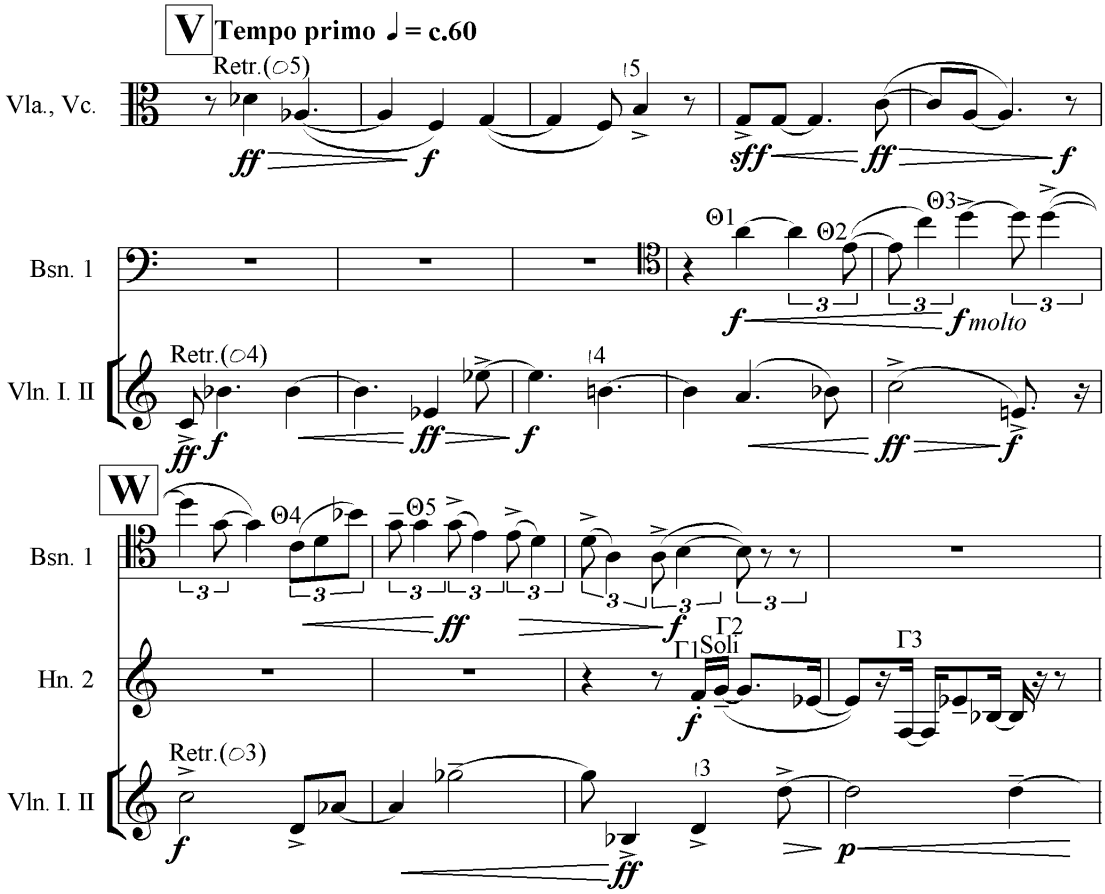


Ex. 13.27 Seventh ‘double’.

Throughout the harp sweeps from a low octave D to a high octave D and (not shown in the example above), the glockenspiel plays rapid (quintuplet semiquavers) up and down figuration, the crotales quintuplet crotchets, and the marimba ***fff*** chords .

Eighth ‘double’ (‘Reprise’): **[V]**+1 to end

After the violence and fragmented statements of the melody in the preceding two sections, the movement ends, again in a manner reminiscent of the seventh and final variation of the third movement of the First Symphony, with a calm statement of a path through the rows of the of ⋀1 on violas and cellos (replaced after five bars by first and second violins). The melody is a path through the rows of the square, from



Ex. 13.28 Eighth ‘double’.

the bottom up, first retrograde through ⌓ and then direct through ⌇, with duration unit a quaver. From bar **[W]**+3 (*i.e.* from the penultimate bar of the above example, although not shown there) the first bassoon part is doubled at the octave by the first oboe, and then taken over by the two oboes in unison, which are in turn doubled at various intervals by two flutes, initially in perfect fifths.[61] After eight bars the bassoon enters with a counterpoint, the diagonal path Θ, with duration unit a third of a crotchet, and after another four bars the second, and then the first, horn enter with a second counterpoint, the diagonal path Γ, which, after Γ6, changes to the diagonal path δ, starting at δ7. The violins, woodwind and horn play together to the end of the movement, ending with a *lunga* ***fff*** fermata.

[61] The Aβ in the second flute five bars from the end seems to be a misprint for A.

Third Movement

The Composer's Comments

The third movement, with scherzo and trio characteristics, has the same tonality as the second, except that the A is natural. Its form consists of super- and juxta-positions of modular 'blocks' of material, the content of which is at first constant, but eventually subject to interior transformation processes, and whose shapes themselves are subject to 'wave-motion', and designed to interlock ever more closely.[61]

[61] Davies, 'Symphony no. 2', p. 174.

Summary analysis table

		Strings, Harp		Woodwind, Trumpet	Horn
First Part	1	A	a: Start to **[A]**–1		
			b: **[A]**+1 to **[B]**–1		
			a': **[B]**+1 to **[C]**–1		
		B: **[C]**+1 to **[D]**–1			
		A': **[D]**+1 to **[E]**–1[62]			
				First transition: **[E]**+1 to **[G]**+4	
	2	A	a: **[G]**+1 to [**H**]–1		
			b: **[H]+1** to **[I]**–1		First Obbligato: **[I]**+3 to **[K]**–1
			a': **[I]**+1 to **[J]**–1		
		B: **[J]**+1 to **[K]**–1			
		A': **[K]**+1 to **[L]**–1		Second Transition: **[L]**–4 to **[M]**+5	
	3	A	**a**: **[M]**+2 to **[N]**–1		
			b: **[N]**+1 to **[O]**–1		Second Obbligato: **[P]**–3 to **[Q]**–1
			a': **[O]**+1 to **[P]**–1		
		B: **[P]**+1 to **[Q]**–1			
		A': **[Q]**+1 to **[R]**–1		Third Transition: **[Q]**+1 to **[U]**–2	
	4	A	**a**: **[T]**+1 to **[U]**–1		
			b: **[U]**+1 to **[U]**+3		Third Obbligato: **[V]**–3 to **[W]**+1
			a': **[U]**+4 to **[V]**–1		
		B: **[V]**+1 to **[W]**–1			
		A': **[W]**+1 to **[W]**+3		Fourth Transition: **[W]**+1 to **[Z]**–3	
	5	A	a: **[Y]**+1 to **[Z]**–1		
			b: **[Z]**+1 to **[Z]**+5		Fourth Obbligato: **[A1]**–5 to **[B1]**+2
			a': **[Z]**+6 to **[A1]**–1		
		B: **[A1]**+1 to **[B1]**–1			
		A': **[B1]**+1 to **[B1]**+2		Fifth Transition: **[B1]**–2 to **[D1]**–2	
	6	A	a: **[C1]**+1 to **[D1]**–1		

[62] Davies's naming of the subsections of each 'rotation', namely a, b, Reprise, MIDDLE EIGHT, Main recapitulation, does not fully bring out the nested ternary structure here.

			b: **[D1]**+1 to **[D1]**+2		
			a': **[D1]**+3 to **[D1]**+5		Fifth Obbligato: **[D1]**+3 to **[E1]**–1
		B: **[D1]**+6 to **[E1]**–1		Sixth Transition: **[E1]**–3 to **[F1]**–4	
	/	A': **[E1]**+1 to **[E1]**+2			
	7	A	a: **[E1]**+6 to **[F1]**–1		
			b: **[F1]**+1 to **[F1]**+2		
			a': **[F1]**+3 to **[F1]**+4	Seventh Transition: **[F1]**+3 to **[G1]**–1	Sixth Obbligato: **[F1]**+3 to **[G1]**–1
		B: **[F1]**+5 to **[G1]**–2			
		A': **[G1]**–1			
	/				
Central Part	‘Climax’: **[G1]**+1 to **[I1]**–1				
	Descent: **[I1]**+1 to **[K1]**–1				
		Woodwind		Strings	Horn
Recapitulation	7	a: **[K1]**+1 to **[L1]**–4			
				Sixth Transition: **[L1]**–4 to **[L1]**+5	Seventh Obbligato: **[L1]**–2 to **[L1]**+3
	/				
	5	a: **[L1]**+4 to **[M1]**–3			
				Fourth Transition: **[M1]**–3 to **[M1]**+7	Eighth Obbligato: **[M1]**–1 to **[M1]**+6
	3	a: **[M1]**+7 to **[N1]**–1			
				Second Transition: **[N1]**–2 to **[N1]**+3	Ninth Obbligato: **[N1]**+1 to **[N1]**+3
	/				
	1	a: **[N1]**+3 to **[O1]**–1			
					Tenth Obbligato: **[N1]**+8 to **[O1]**–1
Coda	**[O1]**+1 to end				

Discussion

Davies’s comments are somewhat sparse and enigmatic. If the movement ‘has the same tonality as the second [F minor], except that the A is natural’, it is presumably in a modal F major, and F major is certainly the key of the opening cello line, but is hard to reconcile with the final chord (a low octave Eβ under a high major seventh Dβ, C). In fact, although the music is very approachable by the listener (because of the clear melodic path of the cello line, which is modal, often conjunct and with diatonic intervals) the structure is somewhat complex.

The movement, the only one of the four which does not begin with an introduction, is constructed from three main elements.

i. The plainsong *Nativitas tua* referred to in the first movement (see above, **First movement**, under 'BELLS', *Nativitas tua, Transformations, Transposition and Magic Squares*);

ii. the Square of the Sun,

SOL Square of the Sun					
B	D	E	C	E Bβ	D
F	Bβ E	Aν Eβ	Aβ Dν	Aβ	E Bβ
Eβ	G	F	Gβ	Aβ D	C
Dβ	Gβ	Eν	F	A Eβ	Eν
G Dβ	Gβ C	Gβ	Gν	Bβ Fβ	D
Aβ	G Dβ	Dβ	Eβ	F	B

which also appeared in the first movement, but here using only the columns as chords;

iii. sets of transformations, given explicitly in *Appendix I: Transformations of the Cello line in the Third Movement of the Second Symphony* and *Appendix J: Sets of Transformations used in the Transitions of the Scherzo of the Second Symphony*, which will be referred to in detail below.

From these main elements are constructed two of the three components of the first and third sections of the movement: these are

I. eleven ‘rotations’ (see above under *Rotations*), the first of which uses *Nativitas tua* and the Square of the Sun;

II. ten transitions, which use the transformations given in *Appendix J*;

III. ten horn obbligati, whose derivation is not clear, and which may be freely composed.

From these components is composed a quite intricate structure. As may be seen from the *Tabular summary analysis* above, which is an elaboration, using Davies’s pre-composition charts,[63] of the brief one given by McGregor,[64] the movement is in ternary form, the third section much shorter than the first, with a short coda. The first section consists of the seven ‘rotations’ just mentioned, played with gaps between then, which are overlaid by the transitions, and the occurrences of the periodic horn obbligati, which are less precisely specifiable. Each ‘rotation’ has a basic ternary form, whose first part is also ternary (see the *Summary analysis table* above: this gives three nested ternary forms, and thus three levels of *übergreifende* Form), the middle section is binary and the third is a very brief recapitulation of the first, in which the rotations, each represented by a single, varied, subsection, are taken in reverse order. The first part of this movement is in one way similar in structure to the whole of the second movement, in that both consist of a set of ‘variations’ (using the term in a very broad sense) separated by short passages. But whereas in the second movement the ‘variations’ result from rearrangements of different paths through the square of Mars, here they will be seen to stem from ‘transformations’ of the cello line which starts the movement; and whereas in the second movement the passages separating the ‘variations’ are short interludes, here there are rather longer ‘transitions’, each built

[63] Add. Mss. 71334, 71335.
[64] McGregor, ‘The Maxwell Davies Sketch Material in the British Library’, pp. 13–16 also gives some concise comments on this movement as illustrations.

from a different set of ‘transformations’, which cover them and, save for the start of the first, overlap the preceding and following ‘variation. There is also a set of horn obbligati with further overlaps.

The scoring is somewhat lighter than in the other movements: the bassoons and trombones are silent throughout, and the horns play only ten solo obbligati and for three bars in the central ‘climax’. Further, in contrast with the second movement, where what is fundamentally (although not on the surface) the same material in each of the ‘doubles’ is very differently orchestrated, here different components of the structure have their own specific instrumentation. In the first section, the ‘rotations’ are played by the strings and harp, the ‘transitions’ by the remaining instruments (except the horns, which play only the obbligati), and within the transitions the sets of transformations are played by woodwind soloists and the first trumpet and in the first transformation parallel chordal ideas are played by tuned percussion doubled by three trumpets. In the third section, these instrumentations are reversed: the ‘rotations’, reduced to their (somewhat lengthened) **a** subsections, are played by the woodwinds and the transitions by the strings. In the central section, after the first two bars, the timpani are silent throughout. In its first subsection all instruments except the piccolo, flutes and brass play scales up and down, and the first trumpet, (doubled by the piccolo and flutes), later joined by the other two trumpets and both horns, play contrapuntally, the only time in the movement when all the brass are heard together. In the second subsection of the central section two solo violins, then a solo viola and a solo cello, finally a solo cello and a solo double bass, are accompanied by tremolando string chords (doubled by glockenspiel and marimba) punctuated by six staccato

semiquaver chords on woodwind and trumpets (doubled by glockenspiel and crotales).

First Section: start to **[G1]**–1

Rotations

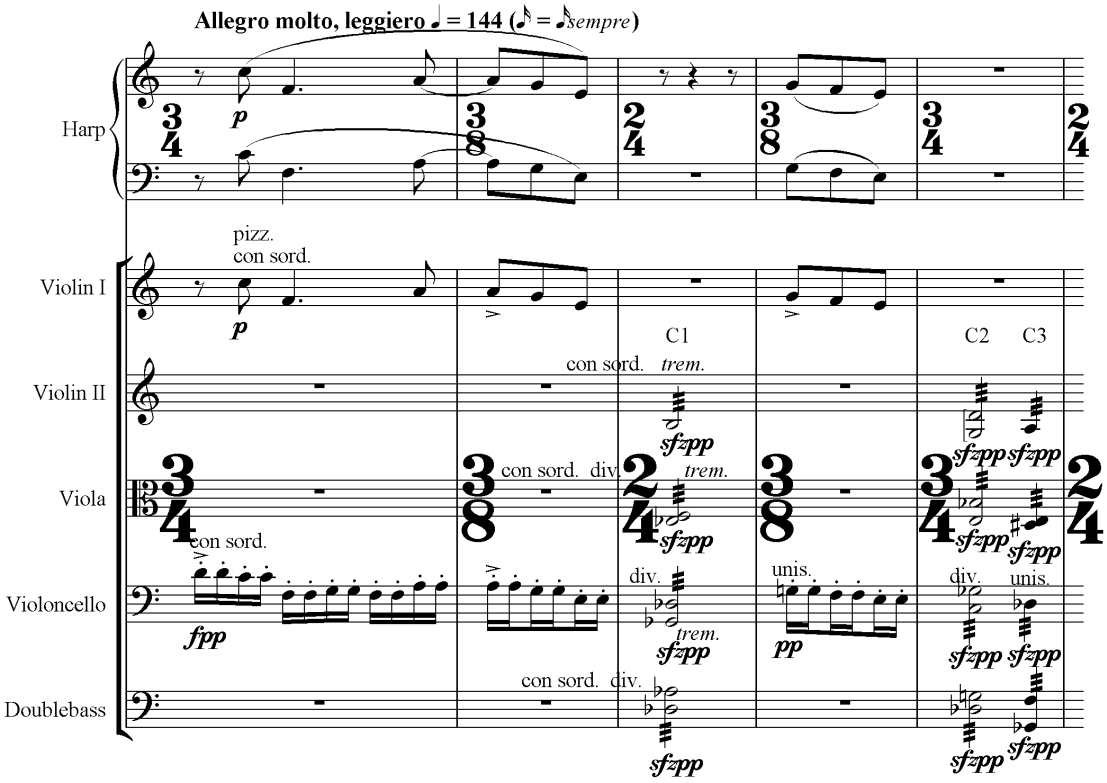
First rotation: start to **[G]**–1

The basic idea consists of two nested ternary structures (see the *Summary analysis table* above).

1A: start to **[C]**+1. This is itself in ternary form.

1a: start to **[A]**–1 The cellos, muted, play repeated semiquavers in F major, and the harp, in octaves, doubled by pizzicato first violins, picks out a melodic line from these semiquavers. In three pauses in this line, all strings except the first violins play muted, ***sfzpp*** tremolando chords, the last time overlapping the end of the cello semiquavers. The cello line constitutes a wave-trough shape and are, as pointed out by McGregor[65], derived from the plainchant *Nativitas Tua, Dei Genetrix*, (see above, *Chapter 12*, under *Serial Elements of the Second Symphony*, whereas the chords are successive columns of the Square of the Sun (see above, *Discussion*).

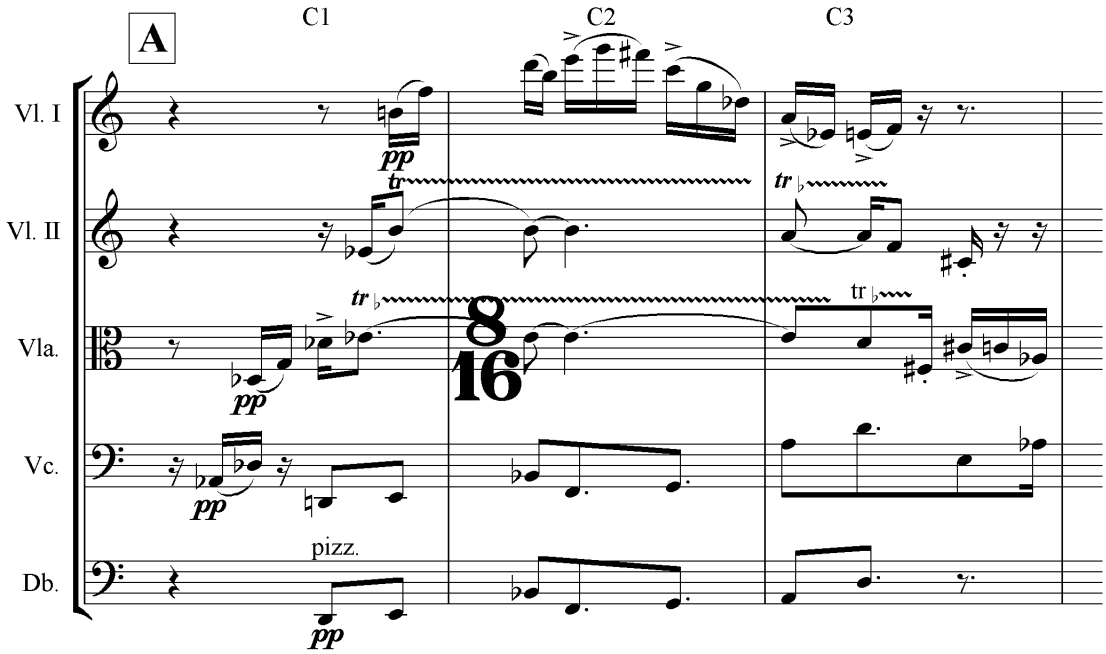
[65] McGregor, 'The Maxwell Davies Sketch Material in the British Library', pp. 13–14.



Ex. 13.29 First rotation: 1a.

Just as the instruments playing the chords are, save for the cellos, different from those playing the (unaccompanied) melody, so the chords consist of pitches, largely flattened, different from those of the melody, which are those of F major. The chords may represent the 'gentlest of Aeolian harp vibrations as the waves strike the cliffs on the other side of the bay in calm weather' (see above, *The Sea*).

1b: **[A]**+1 to **[B]**–1 All strings unfold, in wave-shaped semiquaver passages, the six chords which have just been played.

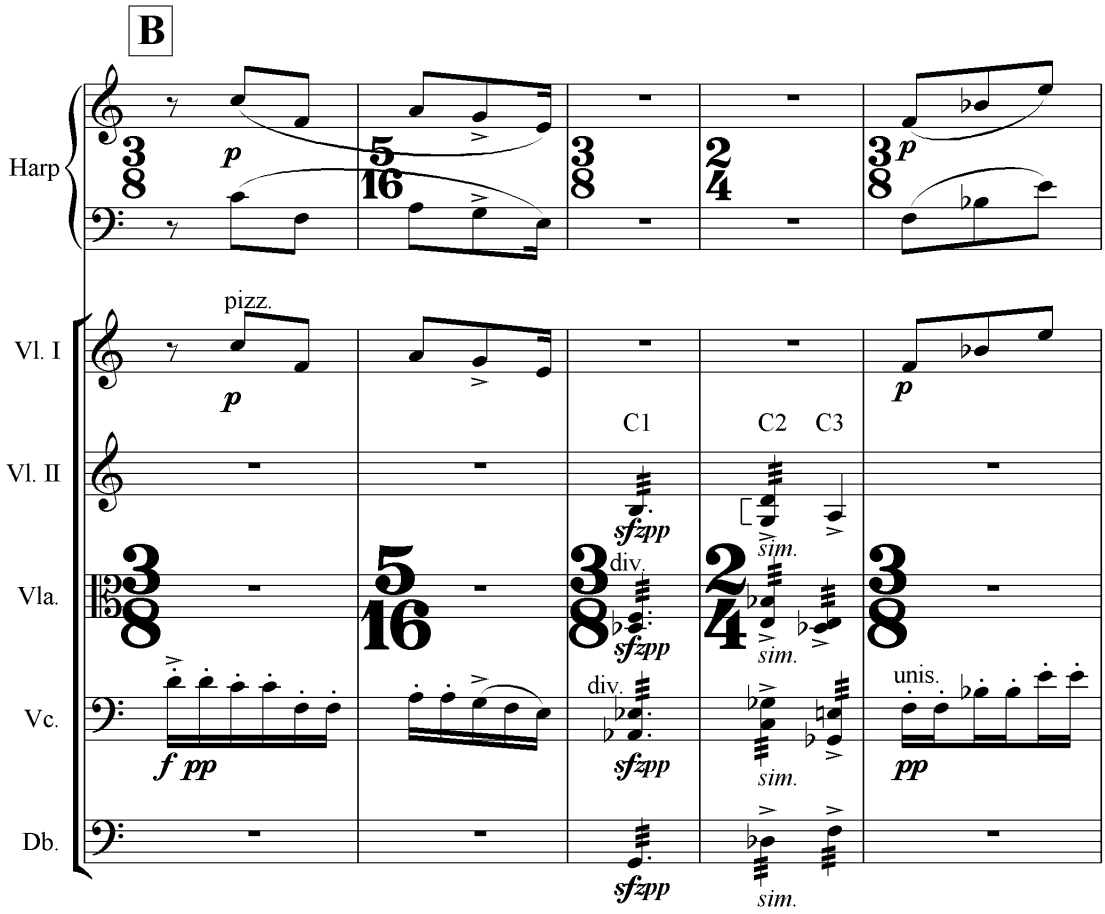


Ex. 13.30 First rotation, 1b.

Thus, the first chord is played in **[A]**+1 as an ascending arpeggio, the second in **[A]**+2, *etc*. (There are again some slight deviations from the columns of the Square of the Sun, as may be seen by consulting it, and some corrections to the deviations in **1a**.)

a': (Reprise)[66] **[B]**+1 to **[C]**–1 This is a shortened recapitulation of **1a**. Two phrases from the melodic line are played, the first with rhythmic diminution, the section with a final E added. The chords are again given by the columns of the Square of the Sun (again with changes).

[66] McGregor, 'The Maxwell Davies Sketch Material in the British Library', p. 13, refers to this as 'B reprise'. Davies, however, both here and in all parallel places, writes simply 'reprise', and indeed the passage is not a reprise of 1b but of 1a.



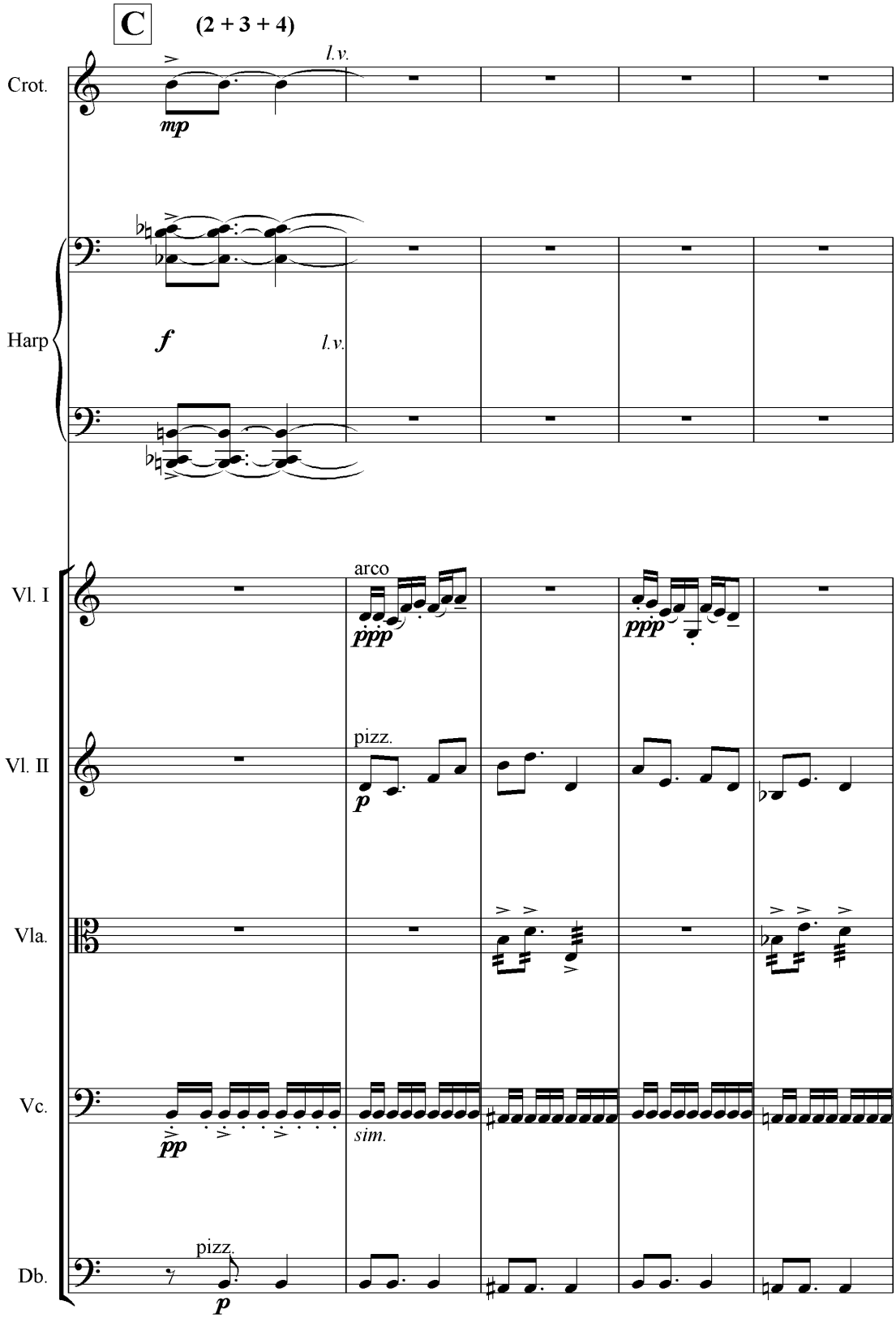
Ex. 13.31 First rotation, 1a' (reprise).

These three appearances of the columns of the Square of the Sun, first as chords, then as wave-shaped arpeggios, then as chords again, appear to be what Davies is referring to where he writes: 'at the opening of the third movement, the repeating identities of the rhythmic and melodic figures clarify the changing forms of their successive statements as an instance of the his first type of wave, 'that where the wave-shape moves through the sea, while the water remains (basically static) – as where breakers roll in towards a shore-line (moving form, static content of a wave)' (see above under *Rotations* for both quotations).

1B (Middle section):[67] **[C]**+1 to **[D]**–1 Here the cello semiquavers become a pedal point which, starting on the modal dominant B, gradually moves down to the tonic F

[67] Add. Mss., 71334, sheet 26: MIDDLE EIGHT.

(with returns to B: B, A#, B, Aν, B, G#, F). The first violins play first fragments of the cello part from 1a, then passages similar to those in 1b.

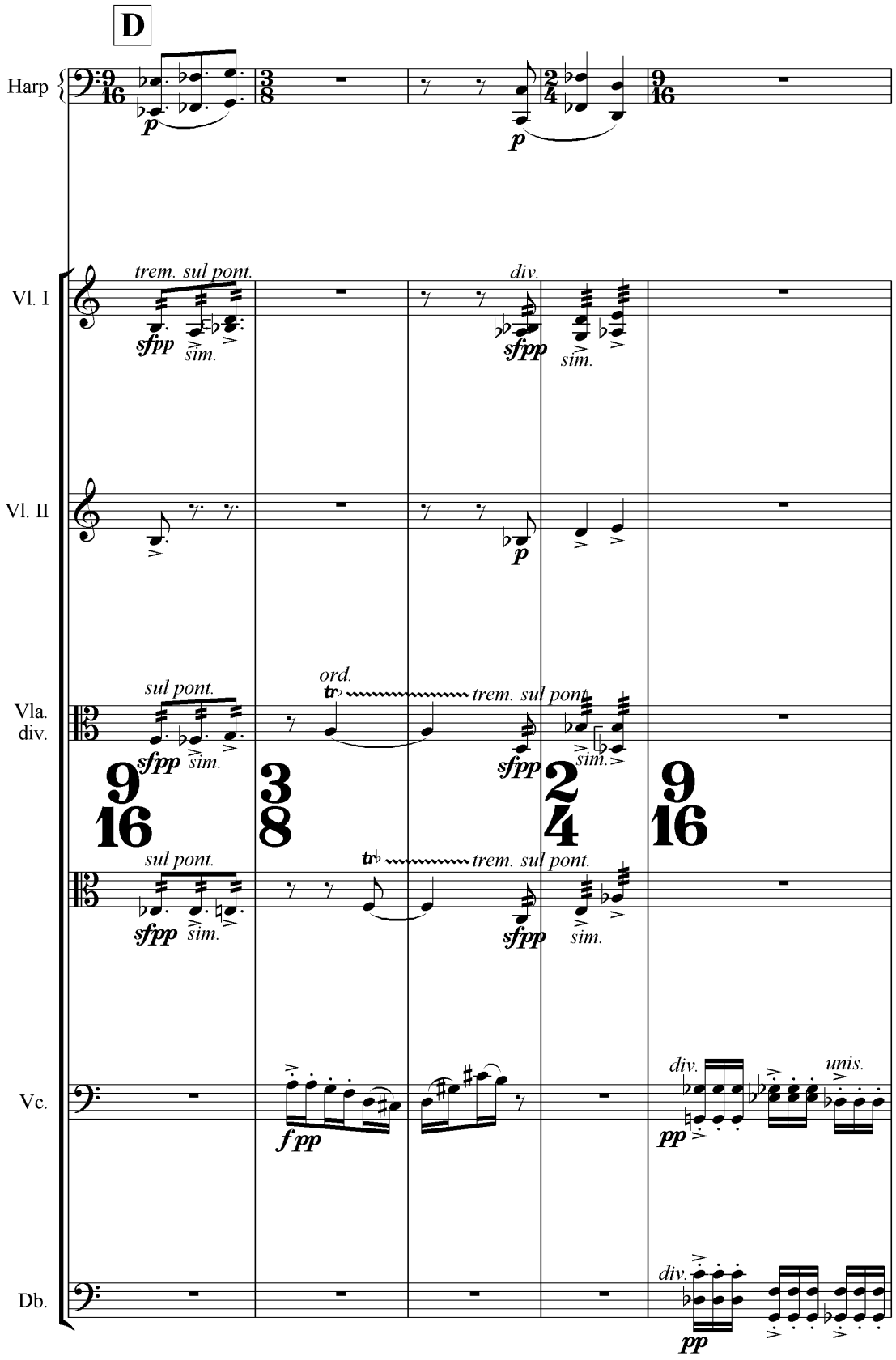


Ex. 13.32 First rotation, 1B (Middle section).

1A': (Main recapitulation)[68] **[D]**+1 to **[E]**–1 This is a very free recomposition of 1a, 1b and the 1b'. The cello semiquaver line becomes just a single phrase (containing, for the first time, G# and C#), accompanied by trill on the violas (but not, this time by the harp, which now accompanies the chords). Everything else is tremolo chords, in four sets of three, making twelve in all, *i.e.* twice as many as in all the preceding subsections. The doubling results from each chord deriving (this time with rather more deviations) from only half a column of the Square of the Sun.[69]

[68] Add. Mss., 71334, 71334, sheet 27: MAIN RECAP.

[69] These appear to be (letting Arabic numerals stand for columns and roman 't' and 'b' for the top and bottom half of each column) 1t, 3t, 2t; 4t, 5t, 6t; 2b, 4b, 3b; 1t, 3t, 2t, but some of these attributions are uncertain: the deviations from the column-halves are such that the source appears irrecoverable.



Ex. 13.33 First rotation, 1A' (main recapitulation).

The penultimate set of three chords (in the penultimate bar) is a combination of chords and cello line, since tremolos are in semiquavers, whereas with all the others, here and in 1a, 1b and 1c, they are in demisemiquavers.

Second to Seventh Rotations: **[G]**+1 to **[G1]**–1

These consist of successively shorter recompositions of the first rotation. This successive shortening is reminiscent of the 'time-perspective' in the third movement of the first symphony (see above, *Chapter11: The Symphony*, under *Third Movement, Cross-phrasing and time-perspective in the movement*): it extends not only over the First Part, but through the Recapitulation to the end. The rotations will not be described one by one: rather, their general features will be outlined.

The a subsections: **[G]**+1 to **[H]**–1; **[M]**+2 to **[N]**–1; **[T]**+1 to **[U]**–1; **[Y]**+1 to **[Z]**–1; **[C1]**+3 to **[D1]**–1; **[E1]**+6 to **[F1]**–1. In these, the cello line is successively transformed, becoming shorter and shorter in the process.[70] The chords are now all of four notes (occasionally three or two) rather than between five and eight, and if they are derived from the magic squares, it has not yet been discovered how.

The b subsections: **[H]**+1 to **[I]**–1; **[N]**+1 to **[O]**–1; **[U]**+1 to **[V]**–1; **[Z]**+1 to **[Z]**+5; **[D1]**+1 to **[D1]**+2; **[F1]**+1 to **[F1]**+2. These, unlike subsection 1b, do not appear to be unfoldings of their preceding a subsections, but rather free transformations of 1b. They all have the same shape, beginning with a semiquaver rest and then a wave pattern in semiquavers starting on Aβ (in 7b, enharmonically G#) which rises rapidly to a crest, falls rather more slowly and then shows a lesser recovery. The amplitude of the waves tends to decrease through the sequence of rotations.

[70] A listing of these transformations of the cello line is given in *Appendix I: Transformations of the Cello line in the Third Movement of the Second Symphony*.

The a' subsections: **[I]**+1 to **[J]**–1; **[O]**+1 to **[P]**–1; **[U]**+4 to **[V]**–1; **[Z]**+6 to **[A1]**–1; **[D1]**+3 to **[E1]**–2; **[F1]**+3 to **[F1]**+4. These are shortened and varied recapitulations of the **a** subsections. The chords, which are (not counting doublings) four-note chords in the second, third and fourth rotation, three-note chords in the fifth, sixth and seventh, are not obviously related to those in the corresponding **a** subsections or to the magic square.

The B subsections: **[J]**+1 to **[K]**–1; **[P]**+1 to **[Q]**–1;

[V]+1 to **[W]**–1; **[A1]**+1 to **[B1]**–1; **[E1]**–5 to **[E1]**–1; **[E1]**–5 to **[E1]**–2. The cello semiquaver pedal point is freely varied, always starting on the 'dominant' B, but ending on F, E, E, E, F, Eβ and D respectively. The first violin part is gradually reduced, being just two short phrases in the seventh rotation.

The A' subsections: **[K]**+1 to **[L]**–1; **[Q]**+1 to **[P]**–1;

[W]+1 to **[W]**+3; **[B1]**+1 to **[B1]**+2; **[E1]**+1 to **[E1]**+2;

These are shortened recompositions of 1A'.

Transitions

The rotations do not follow one another seamlessly: the gaps between the end of one and the start of the next are filled by transitions, which start before the former has finished (except for the first transition, which starts exactly as the first rotation ends), and continue into the beginning of the latter (except for the seventh transition, where there is no next rotation, so that it ends exactly with the seventh rotation).

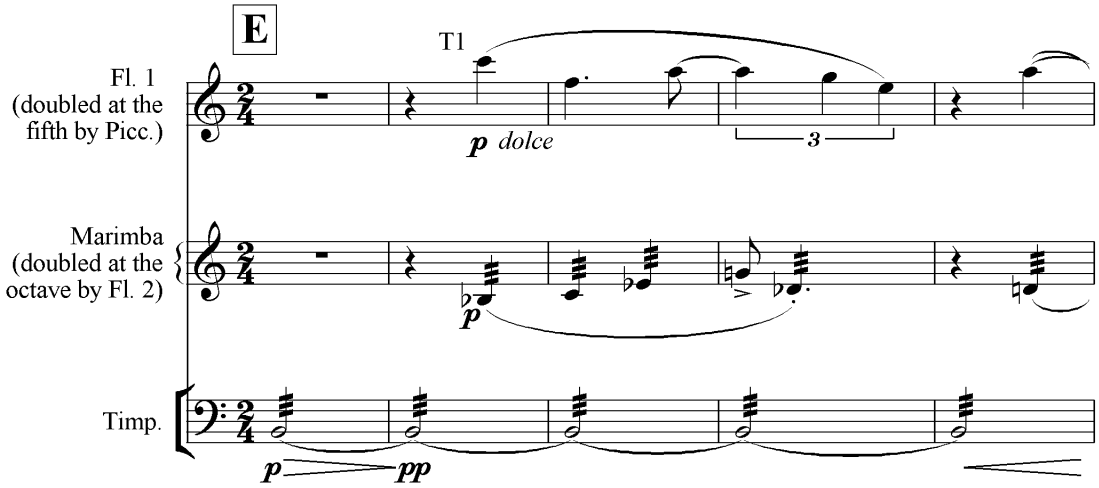
The transitions are highly structured, as may be seen from the following summary table.

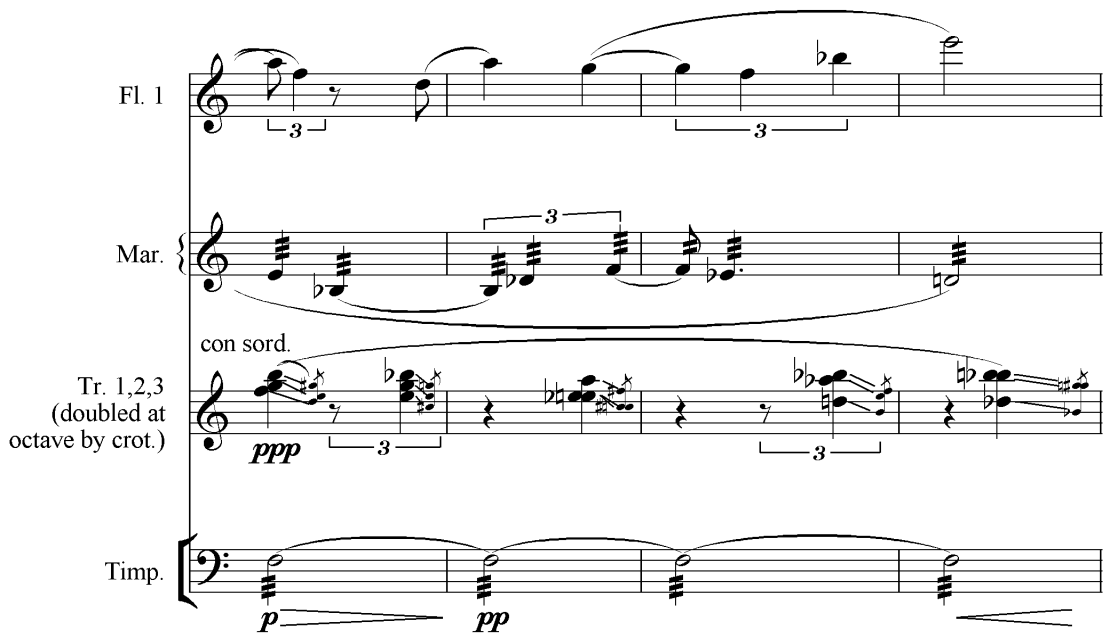
Transition	i. Trans. canons (initial pitches)	ii. Counter-subject	iii. Bass Timpani	iv. Chords	v. Wave-like scales
1 **[E]**+1 to **[G]**+4	C, F, A∨, G, E, D, Bβ	Mar., Fl. 2	B → C	Tr. 1,2,3	
2 **[L]**–4 to **[M]**+5	Bβ	Mar., Cl. 1 (express.)	C → C		Tr. 2,3 Glock., Crot.
3 **[Q]**+1 to **[U]**–2	F	Mar.	Dβ → C	Fl. 1 Tr. 2,3	
4 **[W]**+1 to **[Z]**–3	G	Mar.	D → C		
5 **[B1]**–2 to **[D1]**–2	A	Mar	Eβ → C		Tr. 2.3 Glock., Crot.
6 **[E1]**–3 to **[F1]**–4	E	Mar., Cl. 2	E → C	Ob. 2 (no gliss.) Tr. 2,3	
7 **[F1]**+3 to **[G1]**–1	Bβ		F# → B∨		

The first four sub-components in the columns here may be illustrated by:

Transition 1: **[E]**+1 to **[G]**+4

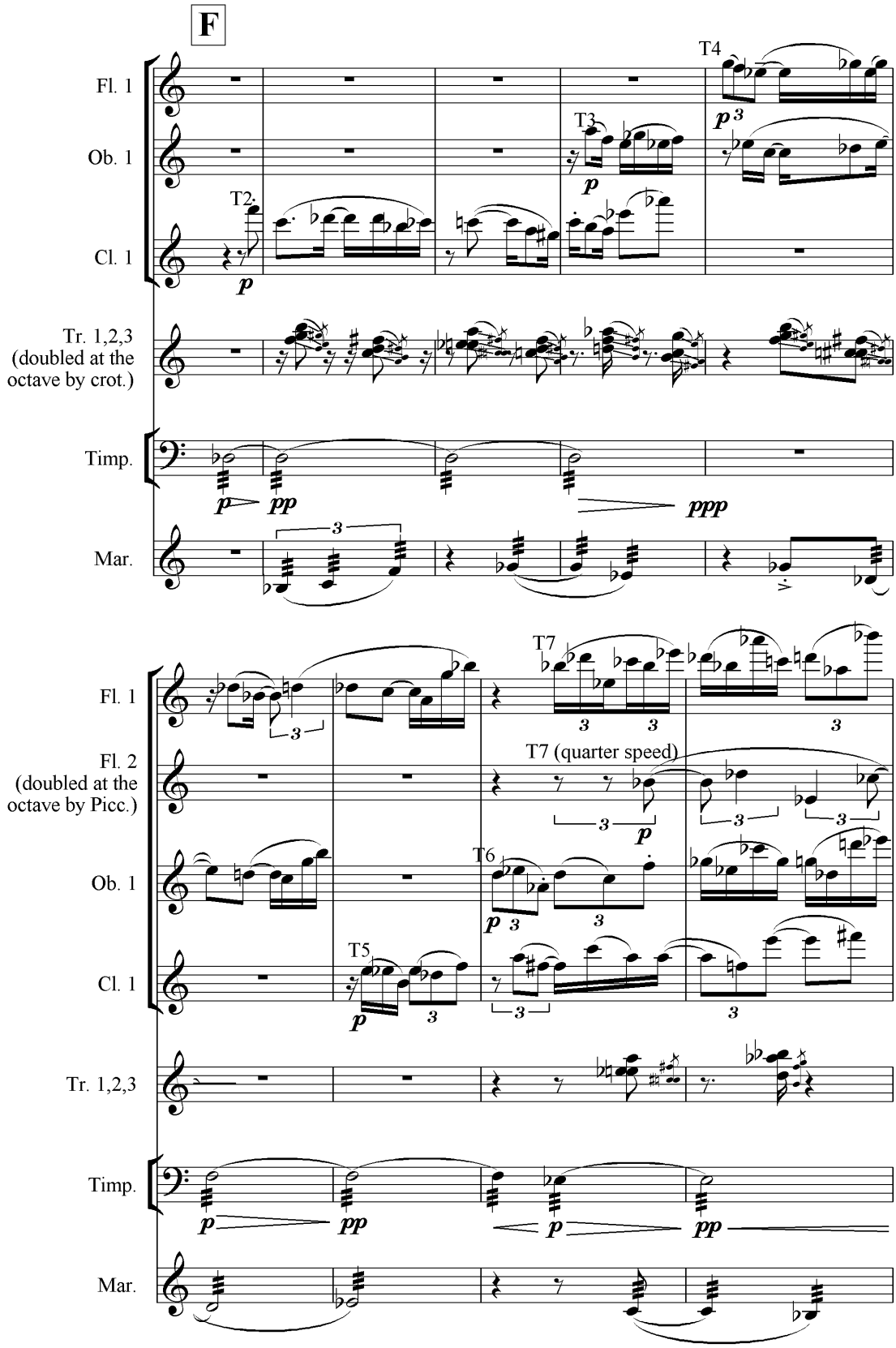
This begins as follows





Ex. 13.34 First transition.

and continues



Ex. 13.35 Continuation of first transition.

The four sub-components here are as follows.

i. A transformation canon (see Chapter 5 above, under *Two new forms*) played by the woodwind. These transformation canons and the timpani bass are the only components which occur in all transitions of the First Part. (For the sets of transformations used, see *Appendix J: Sets of Transformations used in the Transition Subsections of the Third Movement of the Second Symphony*: the set of transformations in this first transition, which have been transposed, in a manner reminiscent of transposition squares–see Chapter 3–so that their initial pitches, C, F, Aν, G, E, D, Bβ, are the successive distinct pitches of the first transformation, is given in *Table P.1*, ⊼⊤ of *Appendix P*: in each of the subsequent transitions, the transformations are transposed to start with the same pitch, as indicated by the table above.) As in subsequent transitions,[71] the first transformation (labelled T1 in the illustration) which here is a free version of the harp and first violin melody in 1a, is stated, relatively slowly, by itself (here and usually by the second flute, sometimes doubled at the fifth by the first flute and always at one or two octaves by the piccolo). The canon proper only starts (with the second transformation) after this line has been played, here at rehearsal letter **[F]**, where the transformations (labelled T2, T3, T4 *etc.)* are played as indicated in the illustration above. The last (seventh) transformation is stated again, at quarter speed, by the second flute doubled an octave higher by the piccolo. The transition is thus framed, in another *übergreifende* ternary form, by slow versions of the first and last

[71] The term 'transition' will be used to refer to the whole passage, 'transformation' for the individual transformations which are its main part.

transformation, on flute doubled at the octave by piccolo. This singling out of the first and last transformation will recur in various ways, in the fifth component below, in the 'climax' of the Central Part of the movement, and in the Recapitulation of the movement.

ii. A middle voice countersubject on the marimba (at first doubled an octave higher by the second flute) to the first sequence of pitches. As soon as it finishes, on a Dν under the first flute's concluding E, it is played again in a slightly transformed version, this time not doubled by the second flute, under the series of transformations (and also the third element: see below, iii).

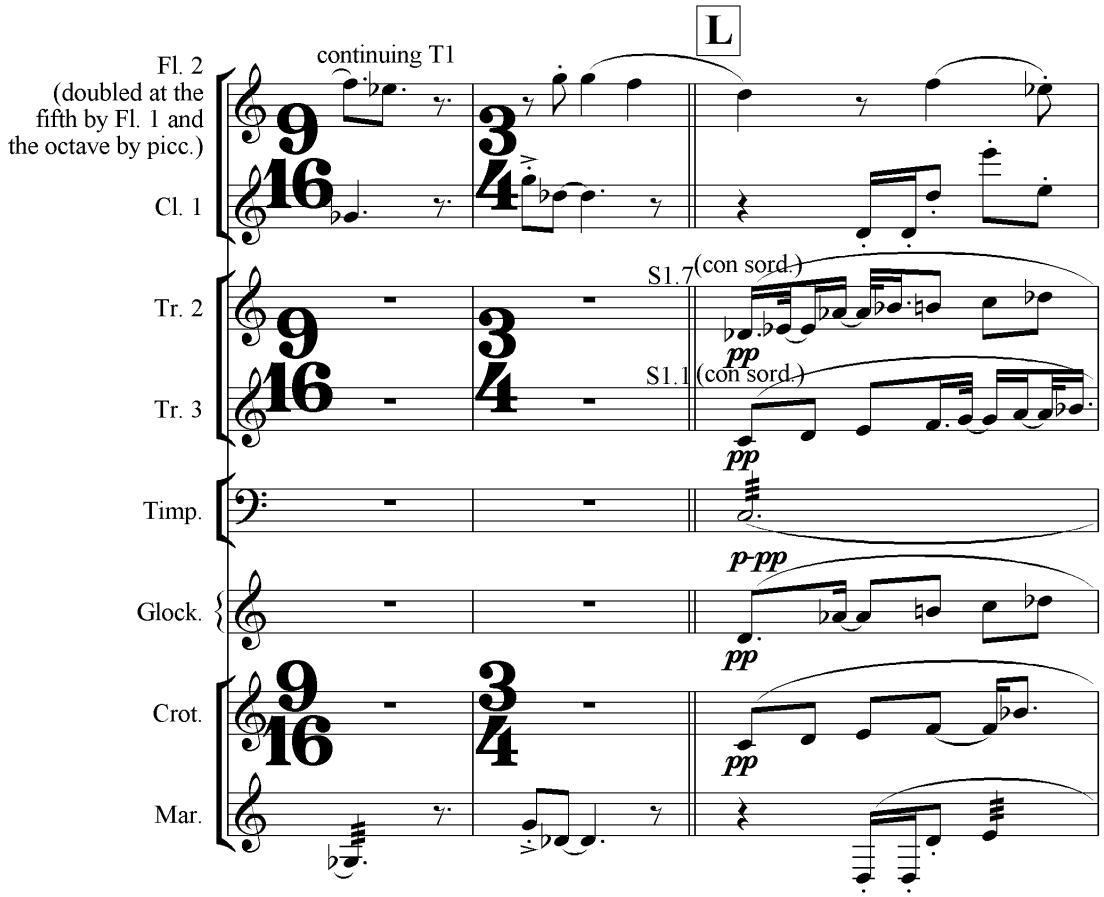
iii. Under these two voices is the timpani bass, a slow sequence of tremolo B, F, Dβ, followed after a bar's rest by F, Eβ, C, overlapping, like the last transformation of the first element, the beginning of the **2a**, the first subsection of the next rotation. The starting and closing pitches of the timpani bass are shown in the table above: the closing pitches are all C, the tonal dominant of F, except for the last one, which is B, Davies's modal dominant of F.

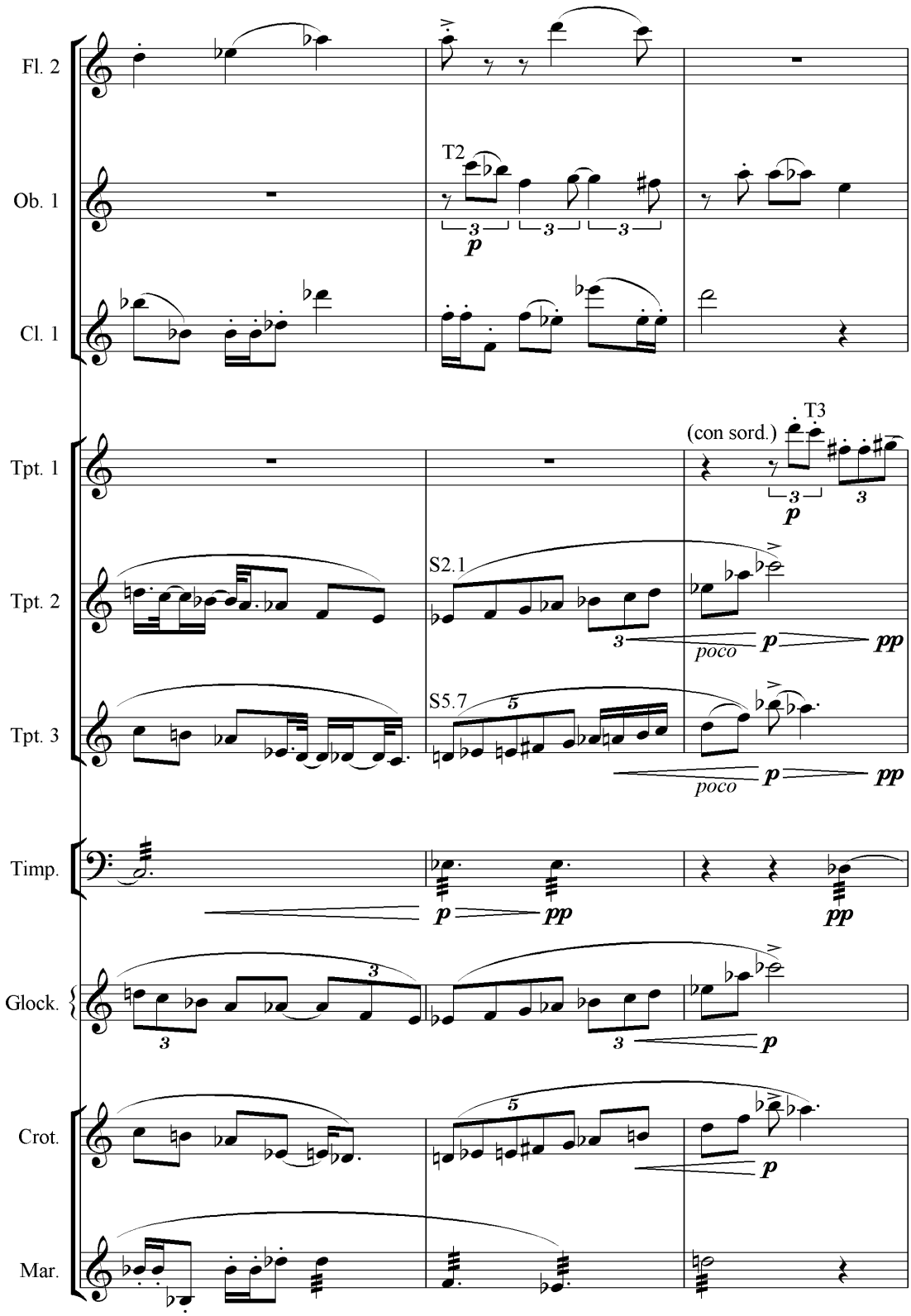
iv. A set of ***ppp*** muted trumpet chords, the pitches each time falling a minor third in glissando, the chords (but not the glissandi) doubled two octaves higher by crotales,[72] all this played, as soon as the first sequence is over, against the series of transformations of it. These are reminiscent of bird cries, specifically and appropriately, (since the sea in the Pentland Firth

[72] There is an inconsistency, almost certainly an error, in the Boosey & Hawkes Miniature score in bar **[T]**–4. The third trumpet has Eν, the crotales Eβ.

below Bunertoon in the south of Hoy was an inspiration for much of the Second Symphony) herring gulls.

v. The fifth sub-component, which does not occur until the second transition (in which the marimba countersubject is expressively doubled by the first clarinet) is shown, overlapping the end of the first transformation and the beginning of the transformation cannon proper, in the following illustration.





Ex. 13.36 Second transition.

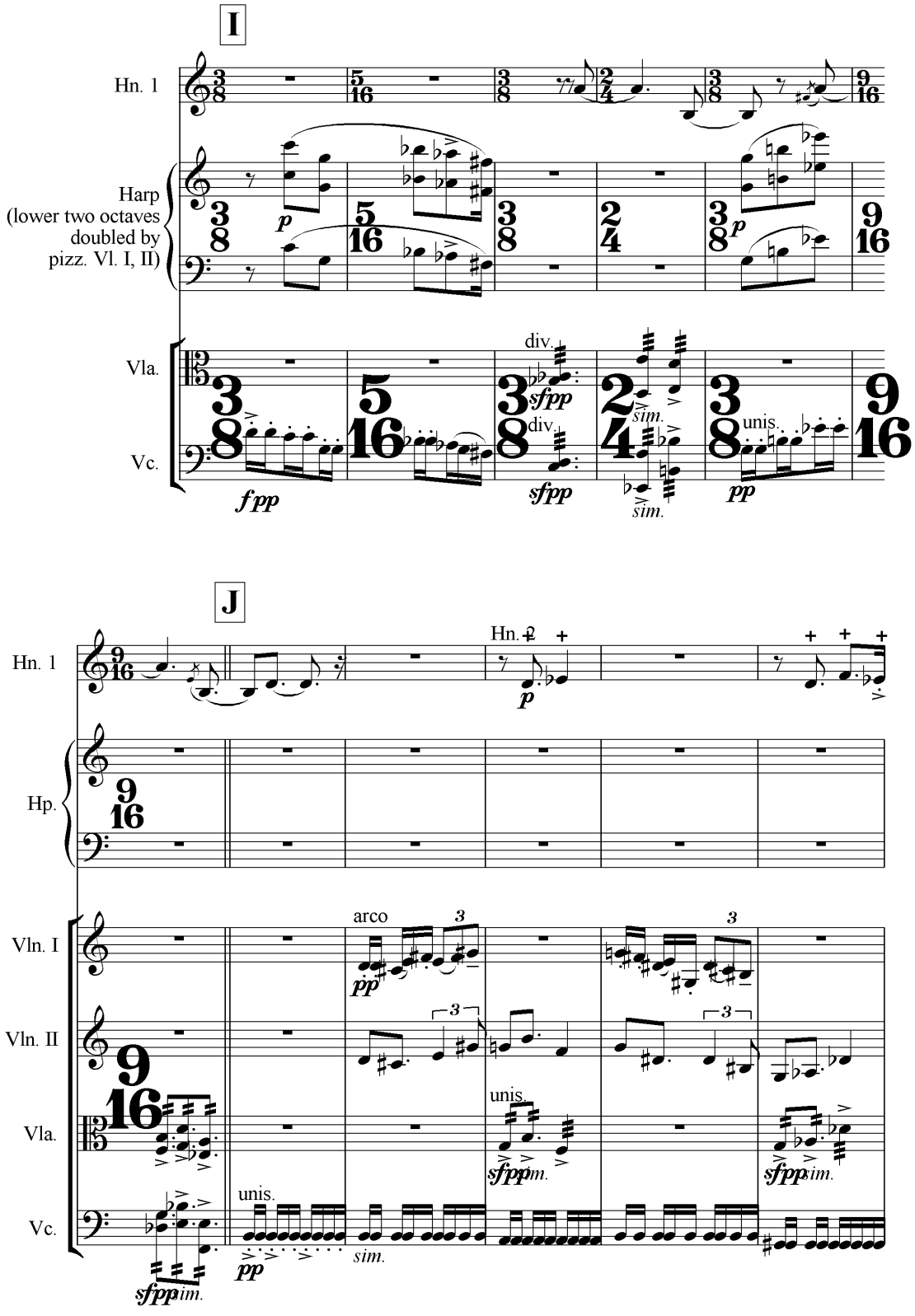
It consists, in an anticipation of the 'Climax' of the central Part, of a pair of wave-shaped scale passages, on the second trumpet[73] expressively doubled by the glockenspiel (sustaining certain pitches), and on the third trumpet similarly expressively doubled by the crotales. The pitches of the scales come from the first and last (seventh) transformation of transitions (see *Appendix K: Derivation of the Scales in the 'Climax' of the Scherzo*): thus in the illustration S1.1 indicates the first transformation of the first transition, and S1.7 its last transformation.

Horn Obbligati

These are a new set of subsections, mentioned by McGregor,[74] which not simply overlap, but completely overlie some subsections of some rotations. The next illustration shows the first, which starts in the third bar of 2.a', and extends to the end of the second Reprise. It can be seen to consist of an alternate diatonic passages for the first horn, unstopped, and the second horn, stopped.

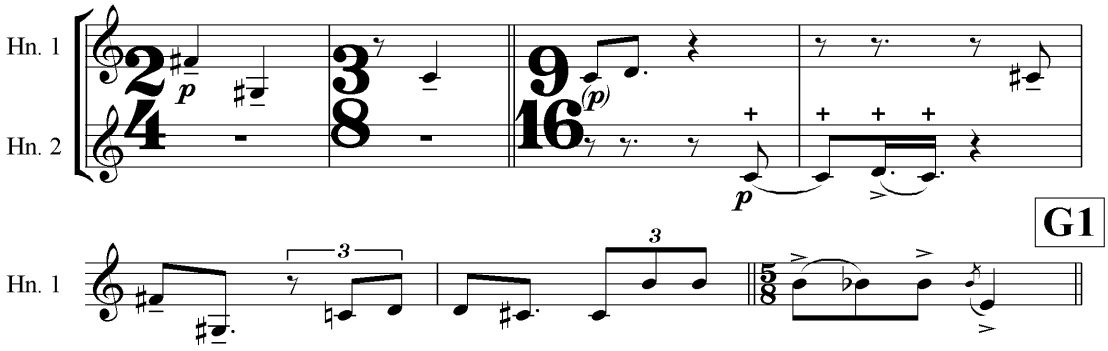
[73] There is an error in the Boosey & Hawkes miniature score in bar **[L]**+1 of the second trumpet part, where the durations add up to more than a bar. The second note in the bar, the Eβ, should almost certainly be a demisemiquaver, not a semiquaver.

[74] McGregor, 'The Maxwell Davies Sketch Material in the British Library', p. 13, who, however, has them in each rotation, whereas there is none in the first. He also has them starting on b subsections, citing Davies's (Maxwell Davies Manuscripts, 71335, sheet 37V) 'in 2b': but in fact the manuscript reads 'in 2b cont', and '2b cont' turns out to be the following Reprise. In fact, except for that in the fifth rotation, which two bars before the end of the b subsection, all the obbligati begin in the Reprise subsection of their rotation.



Ex. 13.37 First horn obbligato.

All six horn obbligati in the first part have the same shape and similar melodic contours, but become gradually shorter. For example, the last obbligato in the first part, which covers 7.a', B and A', is as follows.

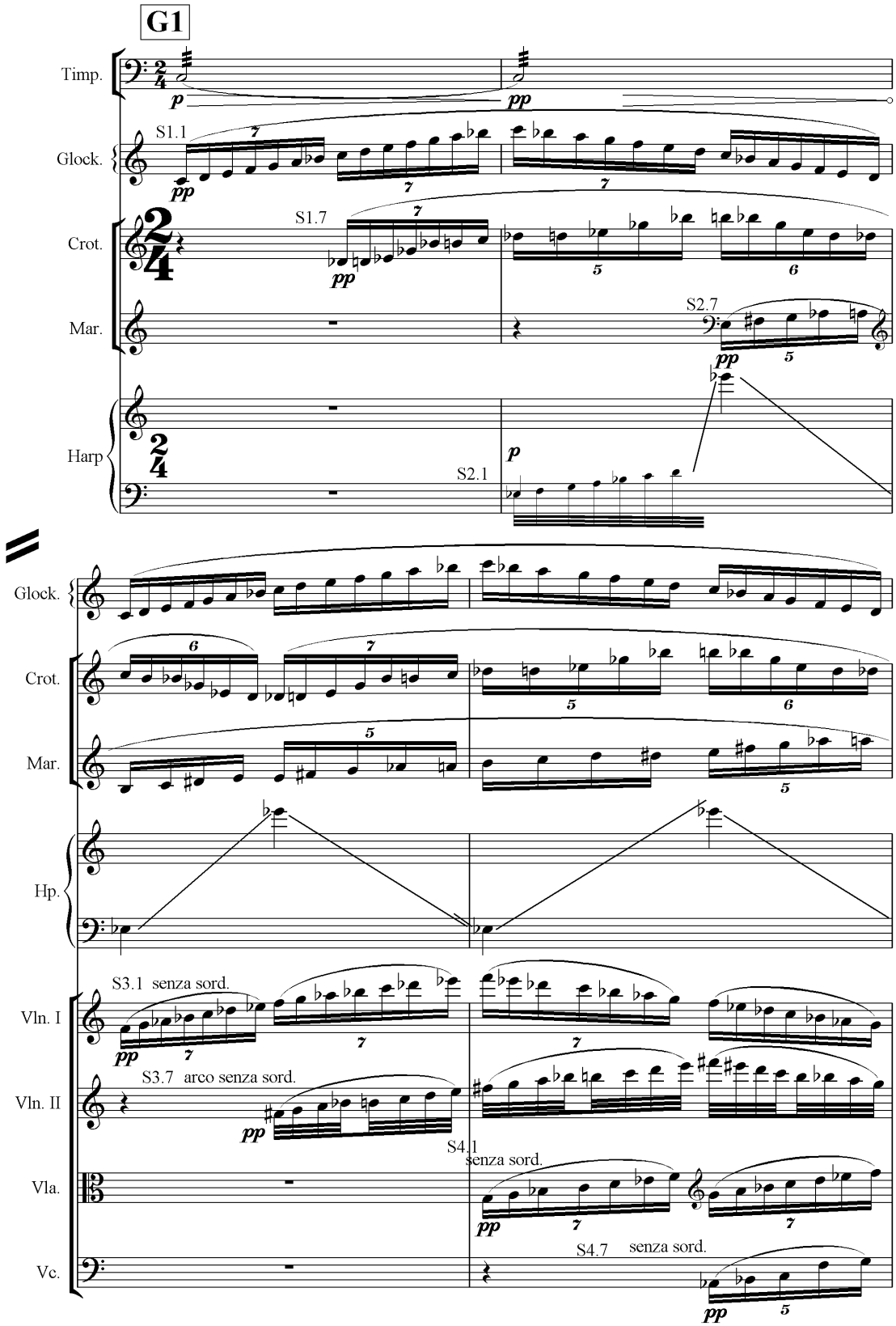


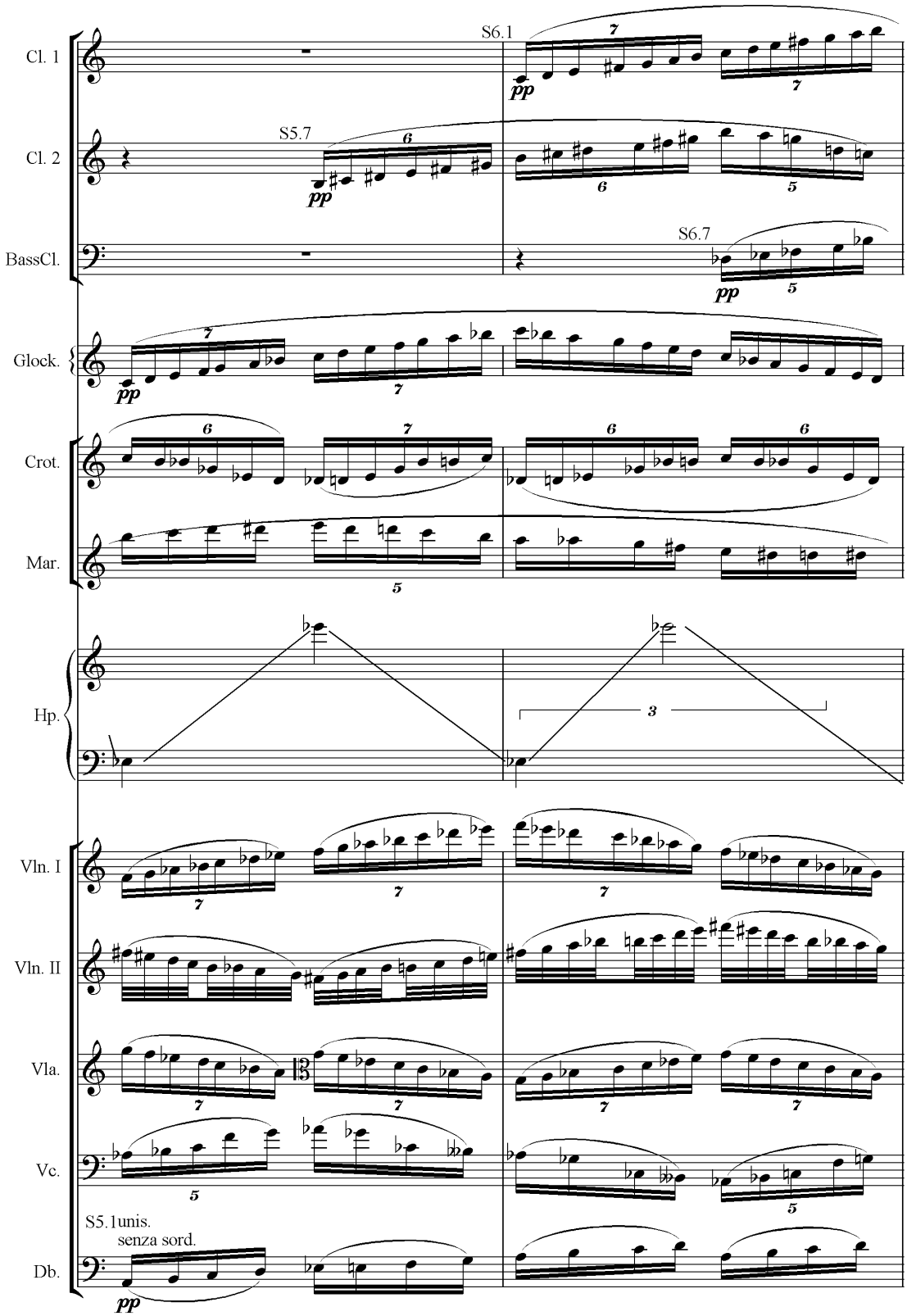
Ex. 13.38 Last horn obbligato in the first part.

Central Part: **[G1]**+1 to **[K1]**–1

'Climax': **[G1]**+1 to **[I1]**–1

After two bars of a quiet tremolando C (the tonal dominant of F) on the kettledrum, instruments one by one begin sweeps of two octaves up and down (thus wave shapes, but indeed wave shapes which cross one another), first the glockenspiel, then the crotales, harp, marimba, first and second violins and so on until fourteen instruments are taking part. The different scales they are playing are derived, sometimes with some freedom, from the first and last of each of the seven sets of transformations which make up the transitions (for details, see *Appendix K: Derivation of the Scales in the 'Climax' of the Scherzo*, but probably all most listeners will hear is a wash of sound).

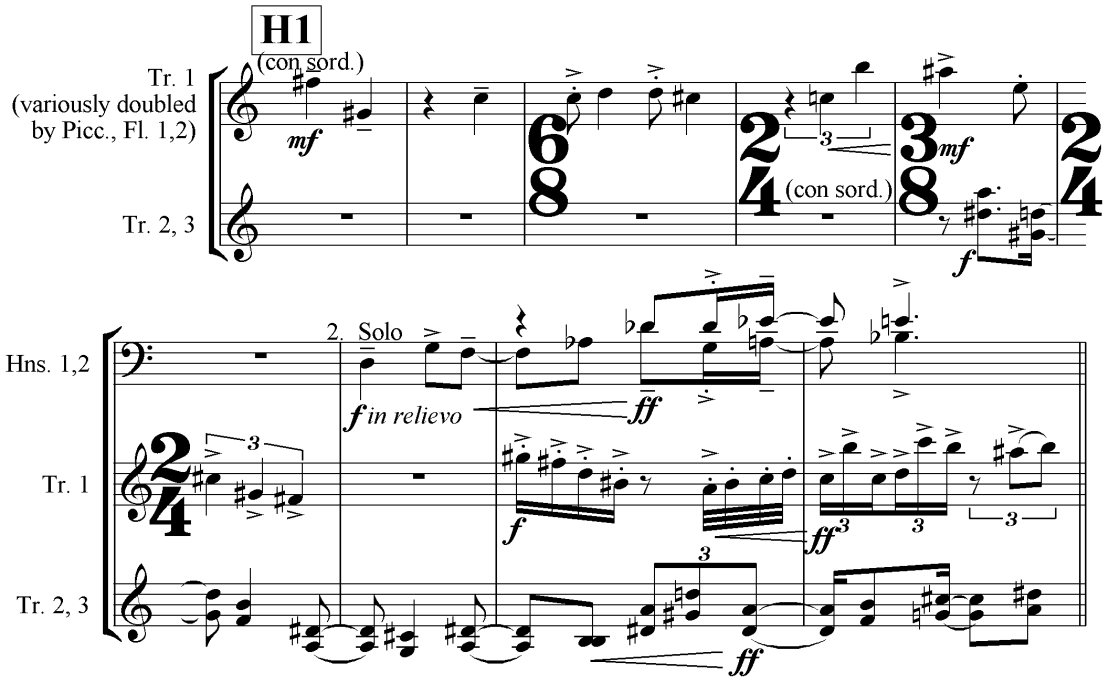

G1
Timp.
Glock.
Crot.
Mar.
Harp
Hp.
Vln. I
Vln. II
Vla.
Vc.
S1.1
S1.7
S2.1
S2.7
S3.1 senza sord.
S3.7 arco senza sord.
S4.1 senza sord.
S4.7 senza sord.



Ex. 13.39 ‘Climax’ of the Central Part.

After seven bars, the first trumpet (doubled by piccolo and flutes at the tritone, octave and compound fifth, forming the chord 0,6,12,19) plays a theme, later joined

by the other two in parallel at the tritone and finally by the second horn, later joined by the first (the only time in this movement when all the brass play together).

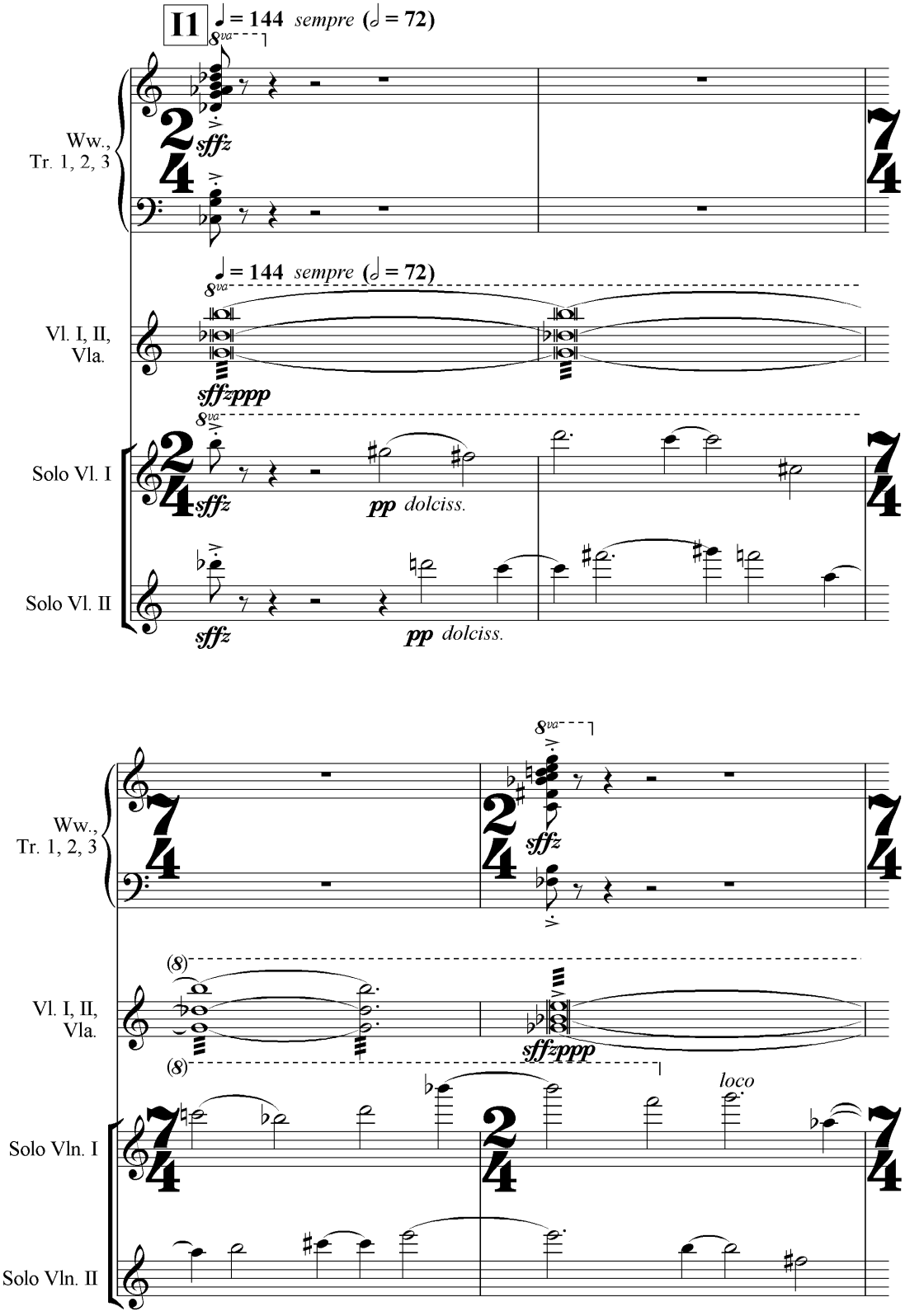


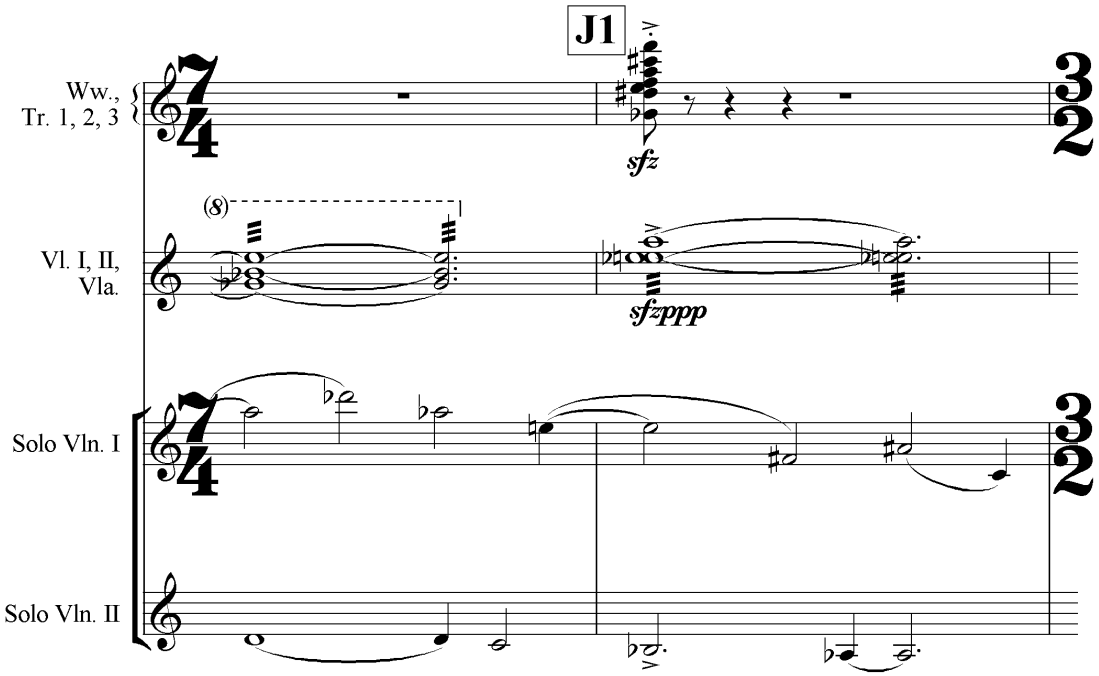
Ex. 13.40 Theme.

This builds up to a ***ff*** climax, ending with a loud crash from the whole orchestra.

Descent: **[I1]**+1 to **[K1]**–1

The final crash of the preceding section is the first of six accented staccato semiquaver chords on woodwind, trumpets and tuned percussion, involving gradually fewer instruments (the piccolo, flutes and oboes drop out), with pitch gradually moving downwards and volume decreasing from ***sffz*** to ***p***. After each chord, three pitches from it are sustained by tremolo strings, glockenspiel and marimba. All this accompanies a solo string duet which starts with two violins, after the fourth chord moves down to viola and cello, and after the sixth chord to cello and double bass. All instruments diminuendo to nothing, and the third part of the movement starts.

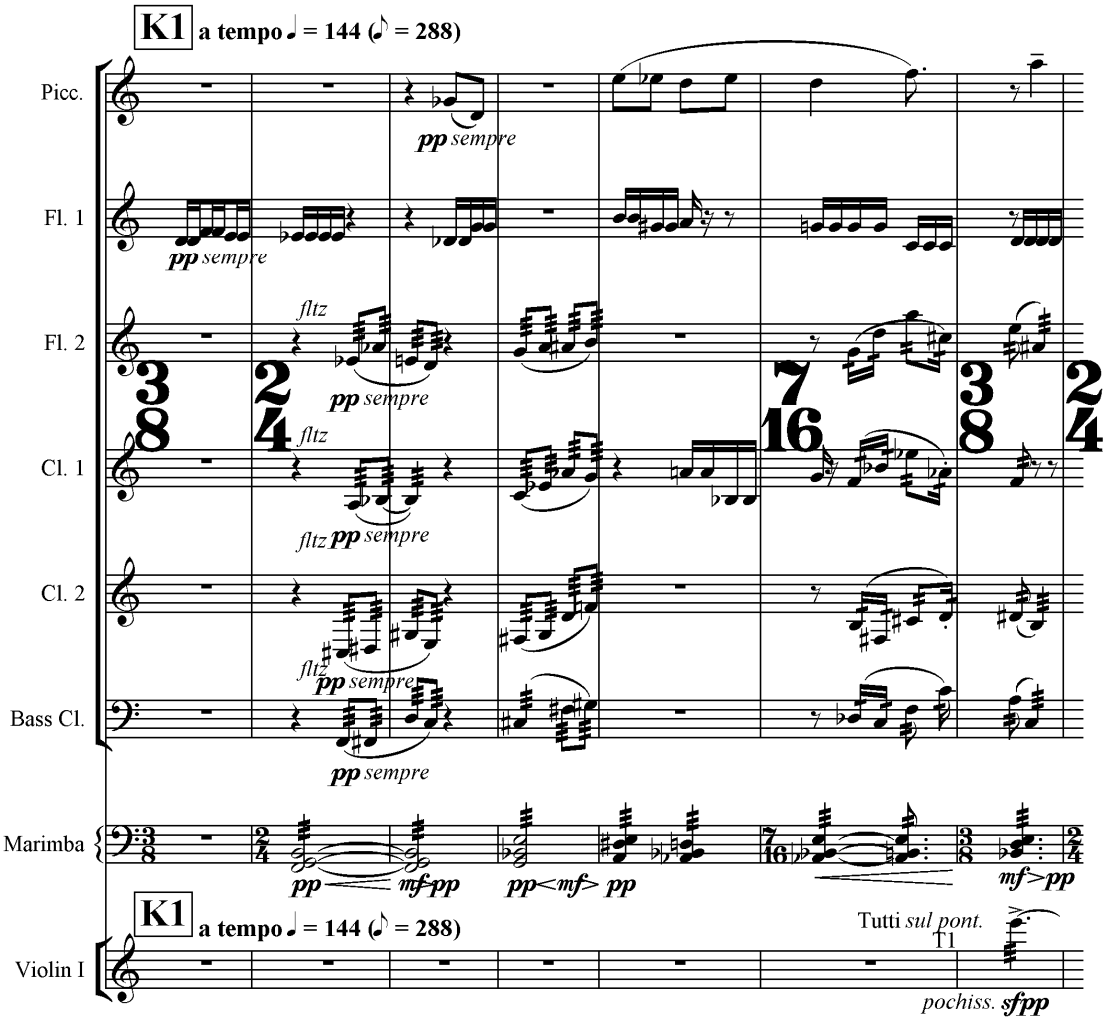

I1
♩ = 144 sempre (𝅗𝅥 = 72)
8va
Ww., Tr. 1, 2, 3
sffz
Vl. I, II, Vla.
sffzppp
Solo Vl. I
pp dolciss.
Solo Vl. II
(8)
loco
Solo Vln. I
Solo Vln. II

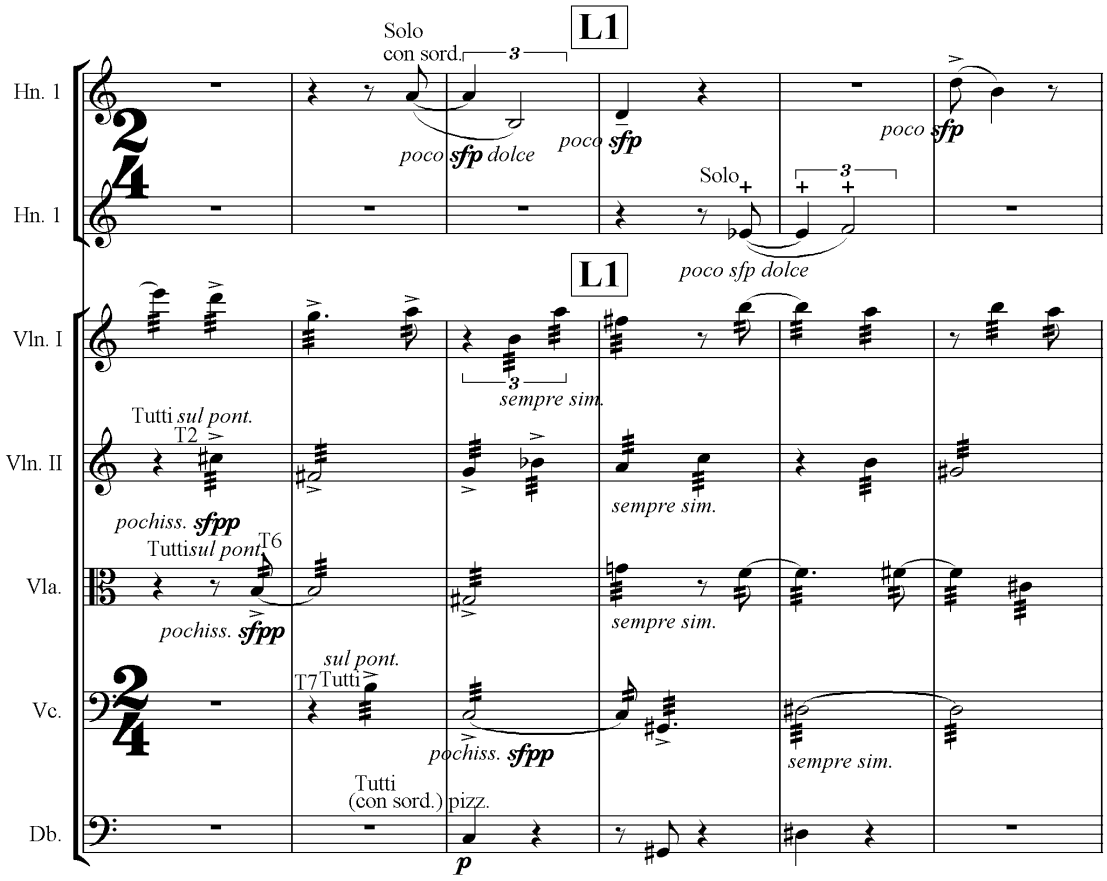


Ex. 13.41 ‘Descent of the Central Part.

Recapitulation: **[K1]**+1 to **[O1]**–1

The Recapitulation consists of only the **a** sections of the odd-numbered rotations and the even-numbered transitions, in reverse order, *i.e.* 7a, Transition 6, 5a, Transition 4, 3a, Transition 2, 1a. As already mentioned (see above, *Discussion*), the instrumentation of the first part is reversed. It may be illustrated by 7a, Transition 6 and the Seventh Obbligato.


K1
a tempo ♩ = 144 (♪ = 288)
Picc.
pp sempre
Fl. 1
pp sempre
Fl. 2
fltz
pp sempre
Cl. 1
fltz
fltz pp sempre
Cl. 2
fltz
pp sempre
Bass Cl.
pp sempre
Marimba
pp mf pp
pp <mf> pp
mf > pp
K1
a tempo ♩ = 144 (♪ = 288)
Violin I
Tutti sul pont.
T1
pochiss. sfpp



Ex. 13.42 Reacapitulation: transition 6 and the seventh obbligato.

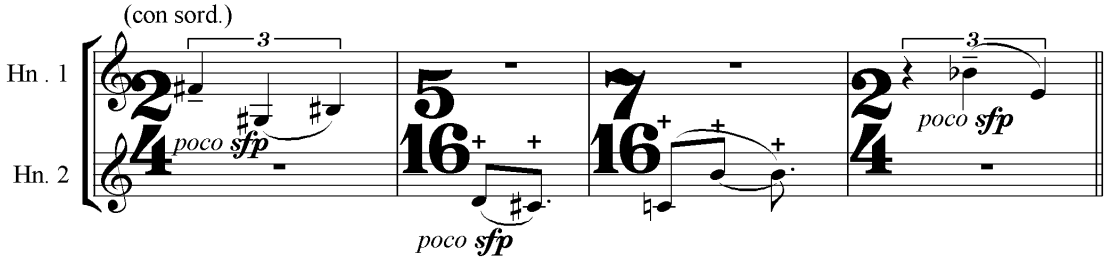
a sections: **[K1]**+1 to **[L1]**–4, **[L1]**+4 to **[M1]**–3, **[N1]**–7 to **[N1]**–1, **[N1]**+3 to **[O1]**–1. The *Nativitas Tua* semiquavers are nearly the same as in the corresponding rotations in the first part. In the seventh rotation they are played by the first flute, in the fifth alternately by first flute and first clarinet, and in the third and first rotations by the first clarinet. The tremolo chords, which are similarly nearly the same as those in the first part, are played by flutter-tongued flutes and clarinets (including the bass clarinet). One structural difference from the first part is that the three-trumpet chords, which were part of the first, third and sixth transitions, are now (no longer gull cries) played on the marimba as part of the **a** sections.

Transitions: **[L1]**–4 to **[L1]**+5, **[M1]**–3 to **[M1]**+7. These are shortened, each consisting only of the first two and last two transformations (see *Appendix J*, *Table*s

J.8 to *6.10*), played by the strings, one line to each transformation, with the double basses doubling the cello line.

Horn Obbligati: **[L1]**–2 to **[L1]**+3, **[M1]**–1 to **[M1]**+6, **[N1]**+1 to **[N1]**+3,

[O1]–3 to **[O1]**–1. These are much shorter than in the first part. The first, which is shown in the illustration above, is manifestly an abridgement of the first in the first part (see above, The Horn Obbligati), and the last of the last. The latter, by some cyclical teleology, consists of the first nine pitches of the first trumpet part in the **'**Climax**'** of the Central Part (*q.v.* above).



Ex. 13.43 Last horn obbligato.

Coda: **[O1]**+1 to end. This is very short. Long chords are held on woodwind and strings; two trumpets, and then two horns, play passages reminiscent of the horn obbligati; and there is a concluding upward rush on strings, glockenspiel, crotales and harp. Beneath all this the timpani play repeated 'dominant' Bs, which gradually migrate down to a ***pp*** and then a ***ppp*** A. Finally, over a held Eβ

a solo first violin play the G#, F#,D, C from its opening in the Descent of the Middle Part (*q.v.*), a solo second violin adds a D, Bβ, Dβ, and all final pitches diminuendo to nothing.

Fourth Movement

Composer's comments

> The finale starts with passacaglia characteristics, in B minor – a long, slow melody for strings. The pace and material gradually transform to parallel the first movement, and then evolve further into a tonal finale. Towards the end, for the first time in the whole work, the D tonality – hitherto only touched as a step between B and E sharp – comes into its own, in preparation for the final cadence on the minor third, B and D.[75]

Discussion

The form here is not a usual textbook one, but is quite clear, especially with the aid of comments by Davies in his manuscript sketches.[76] After a brief introduction ending on a low modal dominant F on the timpani there is a slow (**Adagio**) opening in ternary form 'with passacaglia characteristics' and a clear tonic B. Its Reprise accelerates, in a way reminiscent of the second movement of the First Symphony (*q.v.*: itself stemming from the first movement of Sibelius's fifth symphony), through a Transition section to a sonata form movement, complete with first and second subjects ('Sturm und Drang' subsection and 'Big Tune'[77] subsection respectively), development and recapitulation. The three-part Coda is a very freely composed reverse recapitulation, in D, of the reprise and middle sections of the opening and of the introduction, and ends with the B and D mentioned, the former on double

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[75] Davies, 'Composer's Note' [on *Symphony No. 2*], pp. 9–10.
[76] Several of which are quoted in footnotes below.
[77] The terms are Davies's, from Add. Ms., 71334, sheet 35, which also outlines the projected further course of the movement. Below a sketch of **[F]**+2 to **[G]**–1 is written:
THEN STURM UND DRANG SECTION
MIDDLE EIGHT BIG TUNE NUMBER
DURCHFEURUNG [RUECKF]
RECAP OF OPENING
APOTHEOSIS (TAKE TUNE STRINGS OF MID EIGHT)

Summary analysis table

Introduction		Start to **[A]**–1	θ = c.60	Melodic line	Alto fl.
Passacaglia-like section	First part	**[A]**+1 to **[C]**–1		ε *f* η *Nativitas tua*	Vc. Other strings
	Middle part	**[C]**+1 to **[D]**–1			Wind
	Reprise	**[D]**+1 to **[G]**–1	θ = c.72	ε *f* η Bruckner rising line ⋀∝	Vc. Vla. Vl. I
Transition		**[G]**+1 to **[I]**+1	θ = c.132	ε *f* η ⋀∝	Vc., Db. Vla.
Exposition	First subject: 'Sturm und Drang' subsection	**[I]**+1 to **[M]**–1	η = 76	ε θ𝓚 ξ ε𝓚 ⋀∝ Counterpoint	Ob., Bsn. Fl., Alto fl. Vla. (divisi) Vl. I, II
	Second subject: 'Big tune'	**[M]**+1 to **[P]**–1	θ = 132	Unison	All str.
Bridge		**[P]**+1 to **[Q]**+2	θ = 92	Melodic line	Alto flute
Development		**[Q]**+4 to **[W]**–1	η = 100 to η = 132	⋏⋀, R (Repeated quavers) ι⋏⋀, γ	Vc., Db. Ob. (Cl., Vl. I)

Recapitulation	First subject: 'Sturm und Drang' subsection	**[W]**+1 to **[Y]**–1		3:2(ε θ) ∧∝ Counterpoint: ε θ	Hns. Vl. I, Vla. Vl. II, Vc.
	Second subject: 'Big tune'	**[Y]**+1 to **[B1]**–1	θ = 72	Unison (∧∝)	Vl. I, II, (Vla., Vc.)
Coda	First part	**[B1]**+1 to **[E1]**–1		ε *f* θ ξ¬ε𝓚 Rising scalic line	Timp. Most wind Hns.
	Second part	**[E1]**+1 to **[G1]**–1	θ_θ._θ = 72	4 + 6 + 4 ξ Circling figures ∧∝ Chord built up from sustained notes	Strings, and later Glock., then Mar. Tr. Glock., Crot. Hns. Ww.
	Third part	**[G1]**+1 to end	θ = 84 to θ = 44	3:2(ξ¬ε) Melodic line	Timp. Alto flute

basses and both on the marimba, although both pitches are tonally contradicted by piccolo, the latter also by the harp.

Apart from the Passacaglia-like section, in whose reprise (see below, Reprise) the bass and viola part are recapitulated exactly (the latter by half of the second violins), and two paths (the first of them transposed) through the square ⩘ (from the second movement) in the Development section, the major part in the movement is played not by thematic lines, but rather, as in *Revelation and Fall*, by textures: this is true, in particular, of the first and second subjects and their recapitulations. There are five recurring textural elements whose presence link together successive distinct sections and subsections. These may be listed as follows.

i. Alto flute melodic line This occurs at three key points in the movement:

(a) in the Introduction,

(b) in the Bridge between the exposition and Development of the sonata form, and

(c) in the final (third) part of the Coda.

ii. Scotch snap rhythms There are several kinds of these, as indicated in the *Summary analysis table* above by the exact rhythm of one of their feet. They are reminiscent of those in the third subsection of the development section of the first movement. One particular kind of Scotch snap rhythm, which will be referred to as a 'separated Scotch snap', consisting of a quaver, a quaver rest, and a longer note length, occurs only in the First part and Reprise of the Passacaglia-like section, the Transition from it, and the recomposed recapitulation of it in the First part of the Coda.

i. Sustained trills These, which are represented by ⩓∝ in the *Summary analysis table*, occur frequently in the movement, in particular as a common

element linking the Reprise of the Passacaglia-like section, the Transition and the ‘Sturm und Drang’ section.

ii. String counterpoints Counterpoints between first and second violins occur in the first subject ‘Sturm und Drang’ section and its recapitulation.

iii. String unisons Unisons of violins, violas and cellos occur in the second subject ‘Big tune’ and its recapitulation.

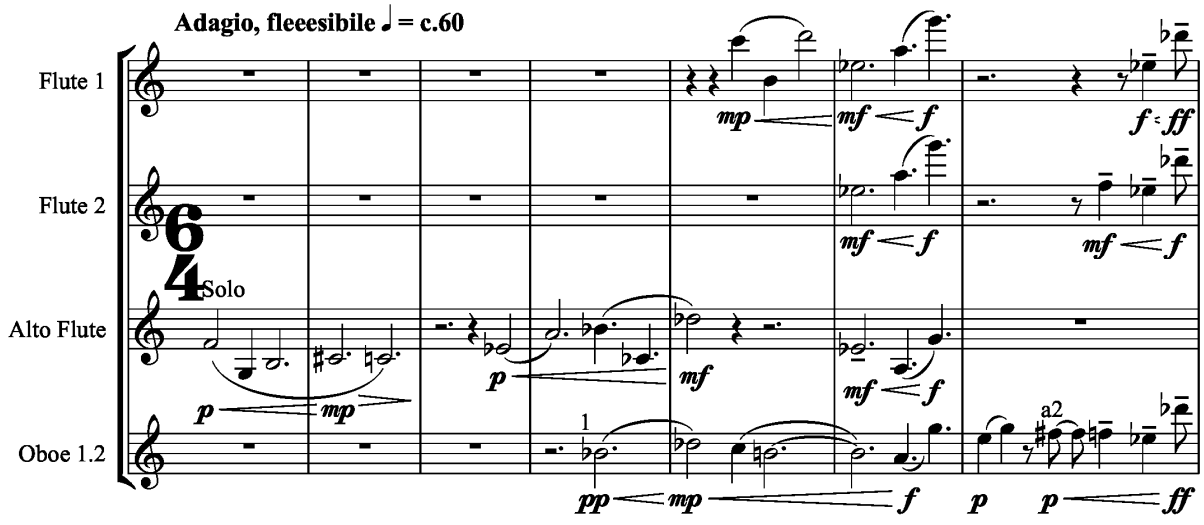
There is, further, a play with these textural elements in the Exposition and Recapitulation.

I. The ‘Sturm und Drang’ first subject in the Exposition is characterised by four of them: two different Scotch snap rhythms, prolonged trills and a counterpoint between first and second violins which is almost a quodlibet counterpoint, whereas in the Recapitulation one of the Scotch snap rhythms moves into the counterpoint, which is now homophonic.

II. The ‘Big tune’ second subject in the Exposition is in rigorous unison of violins, violas and cellos (half way through joined by double basses), whereas in the recapitulation the violins in unison are expressively doubled by violas and cellos playing prolonged trills.

Introduction: Start to **[A]**–1

The movement starts with the melodic line referred to in the *Discussion* above, starting on the alto flute, then moving (with a little expressive doubling) to other woodwind instruments.



Ex. 13.44 Opening: the alto flute melodic line.

It is followed by a ***sffz*** chord, consisting of two interlaced minor sevenths a diminished fifth apart, A to G and Eβ to Dβ, on brass and lower woodwind, and finally repeated strokes of F, the modal dominant of B minor, in a separated iambic rhythm on the timpani.

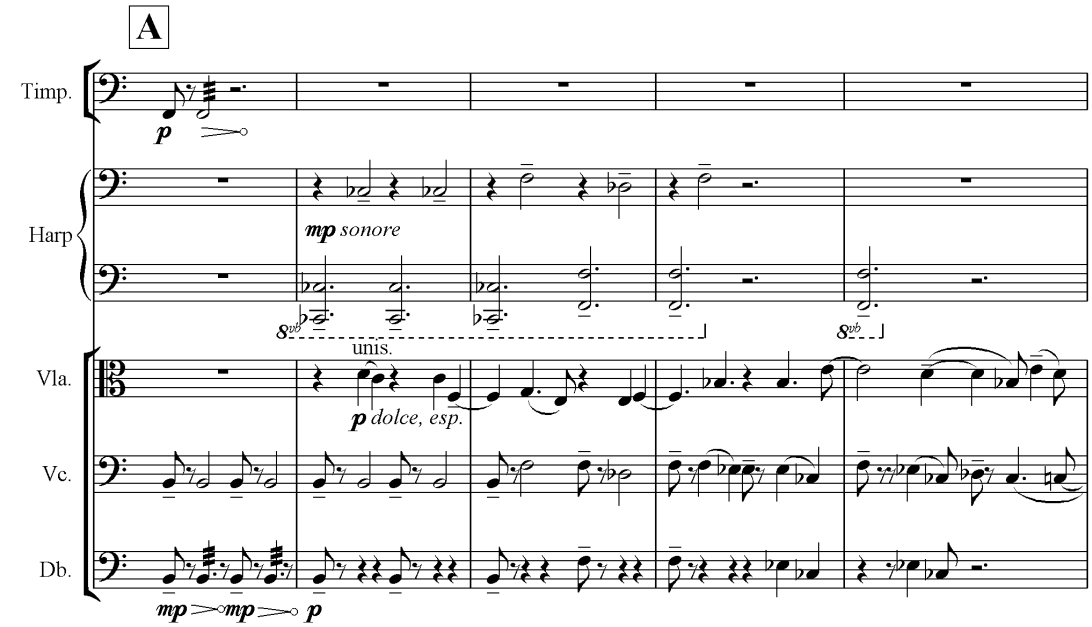
Passacaglia-like section: **[A]**+1 to **[G]**–1:

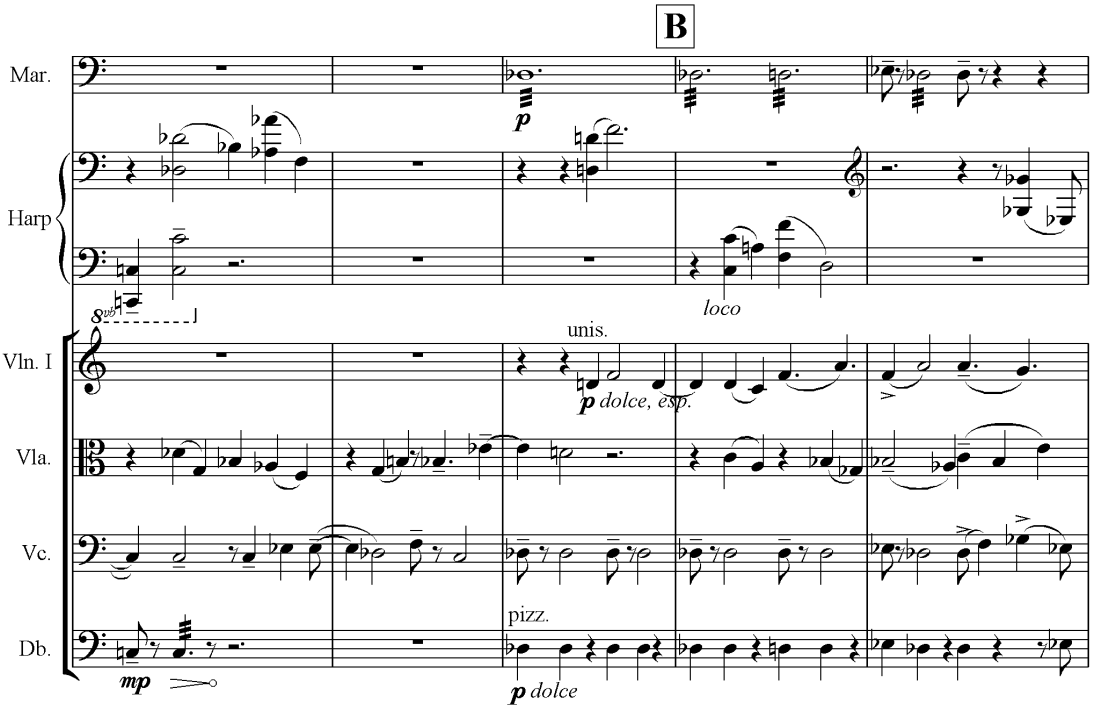
The section is not a passacaglia, but only has 'passacaglia characteristics' (see above, *Composer's comments*). It is in compound, not triple, time (specifically the time signature is $\frac{6}{4}$, not $\frac{3}{4}$), although to the ear it is indistinguishable from $\frac{3}{4}$, and the bass, which sounds like one from a passacaglia, is not a repeating ground bass (although some of its elements repeat). The section is in clear ternary form.

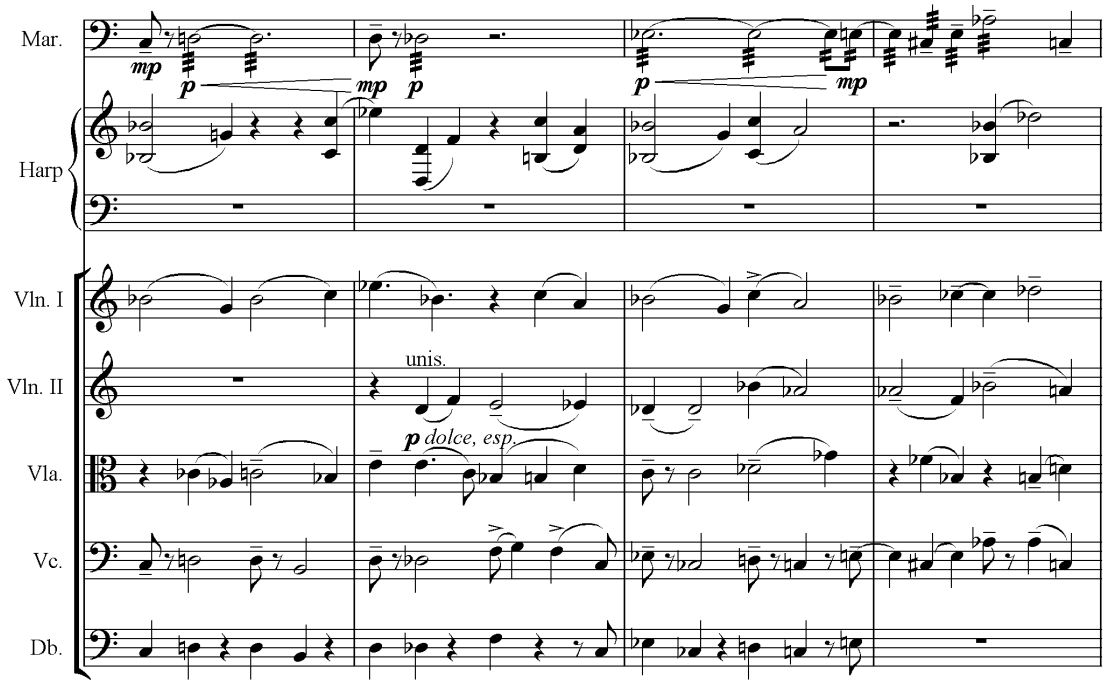
First part: **[A]**+1 to **[C]**–1.

In the first bar, the timpani play another 'dominant' F, which fades to nothing, and the celli and double basses state the tonic B. Then the main voice, with a separated Scotch snap rhythm, starts in the cellos, expressively doubled by the double basses sustaining certain pitches, and later, differently, by the marimba. (The harp starts with yet another expressive doubling of the cello line, but then expressively

doubles other voices.) This accompanies three other voices: first the violas start a gentle theme whose initial notes follow the melodic contour of the opening of the scherzo; after six bars the first violins start a counterpoint which soon quotes from the plainsong *Nativitas tua*; after another five bars the second violins make a third voice, starting with the first four notes of BELLS.







Ex. 13.45 The first part of the passacaglia-like section.

Middle part: **[C]**+1 to **[D]**–1

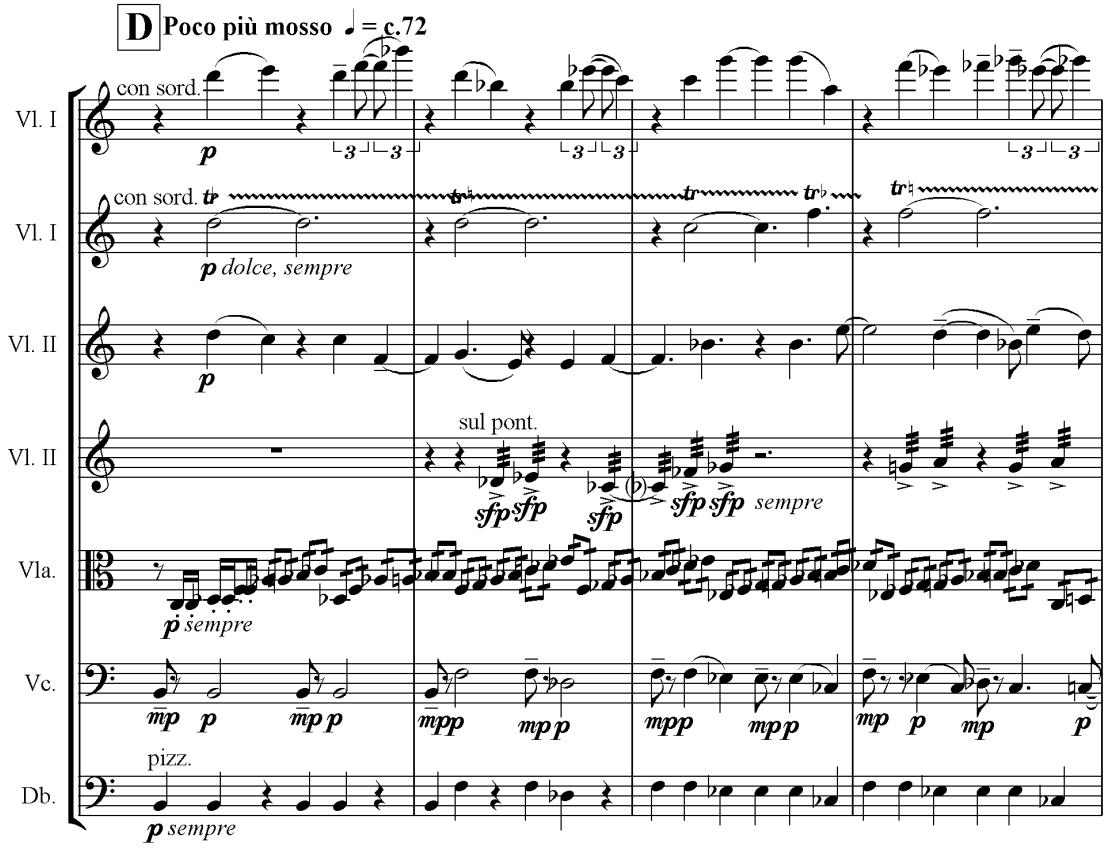
In this short subsection (of only seven bars), there is a complete change of texture: the strings drop out and are replaced by woodwind and trombones playing long lines, horns with rhythmic pulses and tuned percussion.

Reprise: **[D]**+1 to **[G]**–1

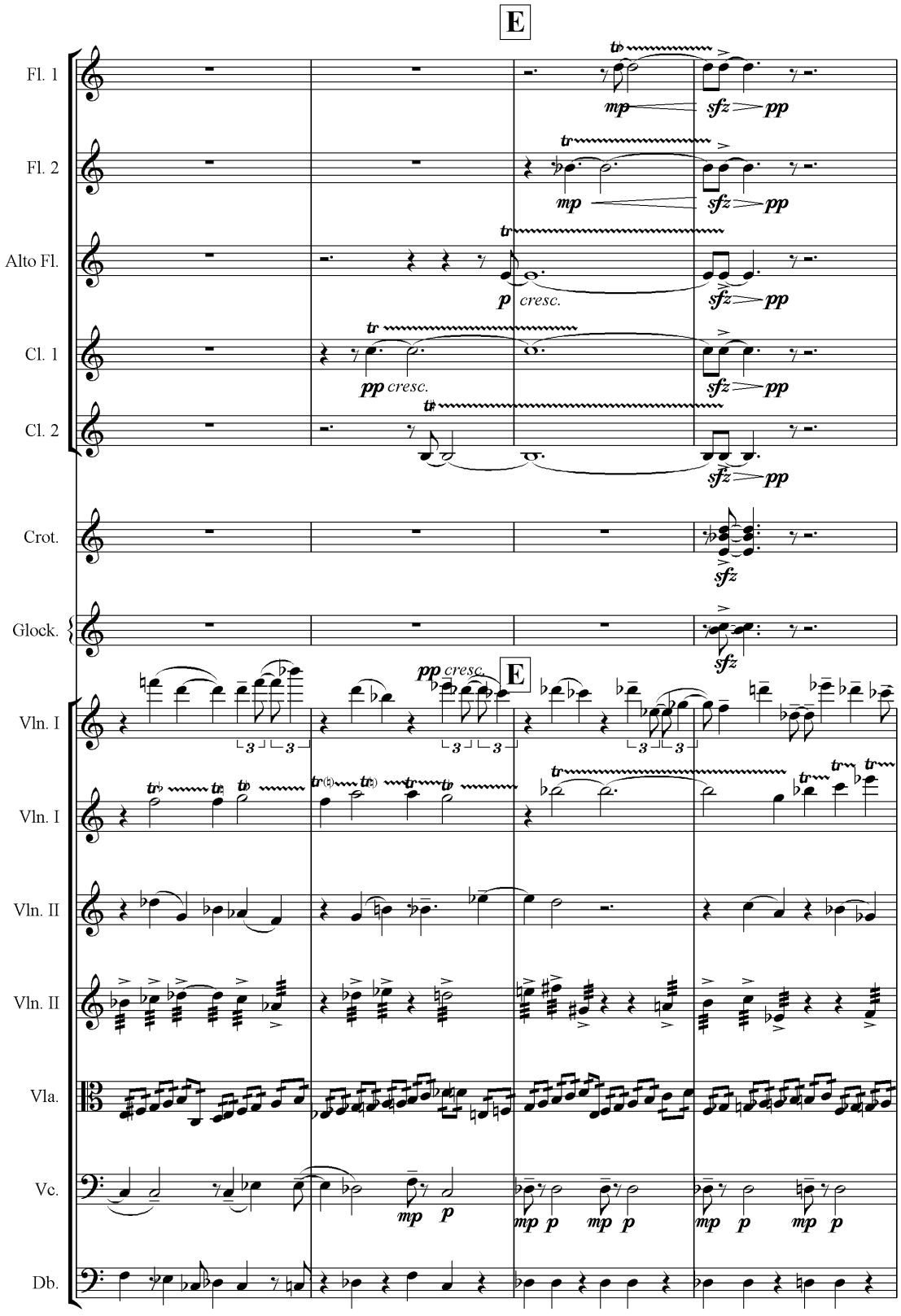
This subsection, slightly faster than the first (θ = c.72 as opposed to θ = c.60) is marked 'REPRRISE FIRST STATEMENT' by Davies,[78] and indeed, omitting the first subsection's introductory bar, the previous viola line is repeated by half the second violins, an octave higher but otherwise note for note, and the previous bass line in the cellos is repeated exactly. There are, however: a new line in rising tremolo semiquavers, based on the solo bassoon line in bars 67–69 of the **Andante. Feierlich,**

[78] Add. Mss., 71334, sheet 34.

etwas bewegt of Bruckner's Second Symphony, by the violas;[79] prolonged trills from half the first violins (soon reinforced by prolonged woodwind trills); and a high descant from the other half. The trills are soon reinforced by woodwind trills, and five times swell to a climax, reinforced by accented sforzando chords on the glockenspiel and crotales, before starting again pianissimo.



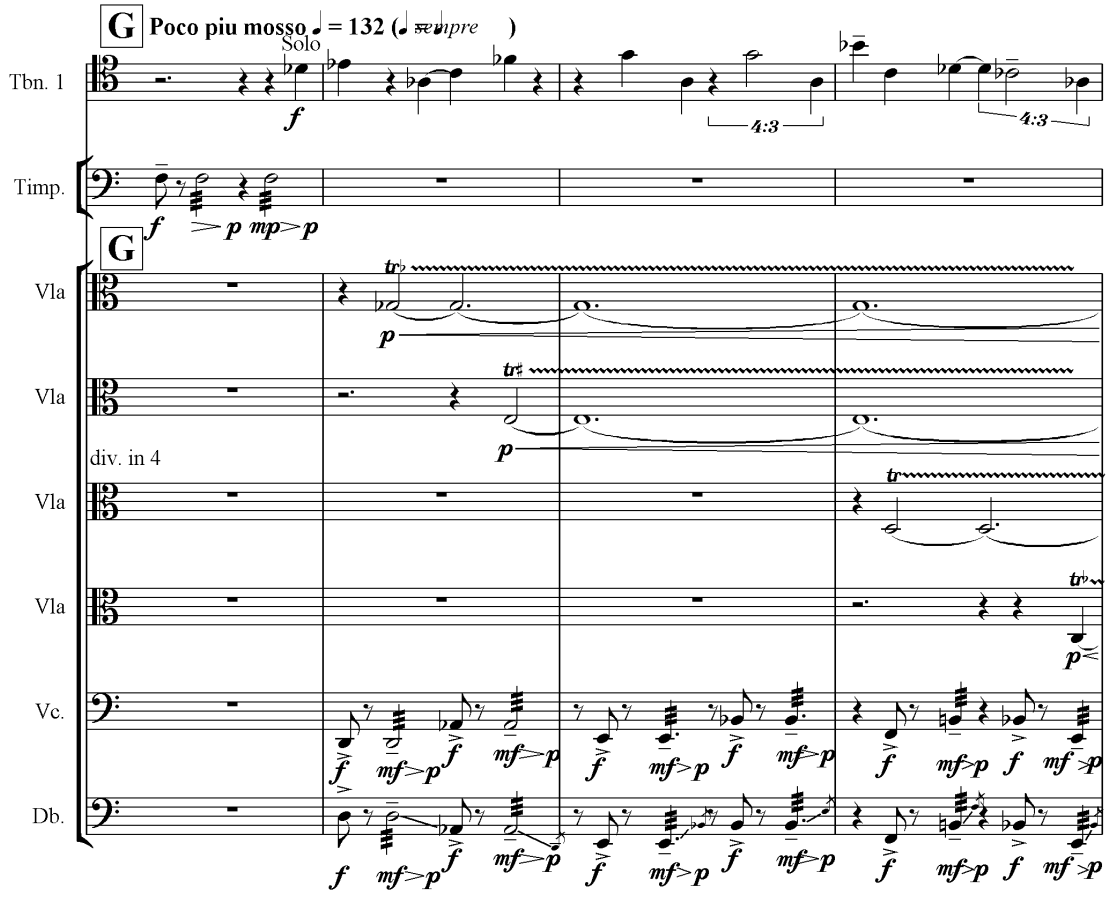
[79] In the 1877 version recommended by Cooke, Deryck, 'The Bruckner problem resolved', *Musical Times*, 110 (1969), pp. 20–22, 142–144, 362–365, 479–482, 828. The part is marked 'EX BRUCKNERS SOW [*sic*] MOVEMENT!' by Davies, *loc. cit.*



Ex. 13.46 Reprise of the passacaglia-like section.

Transition: **[G]**+1 to**[I]**–1

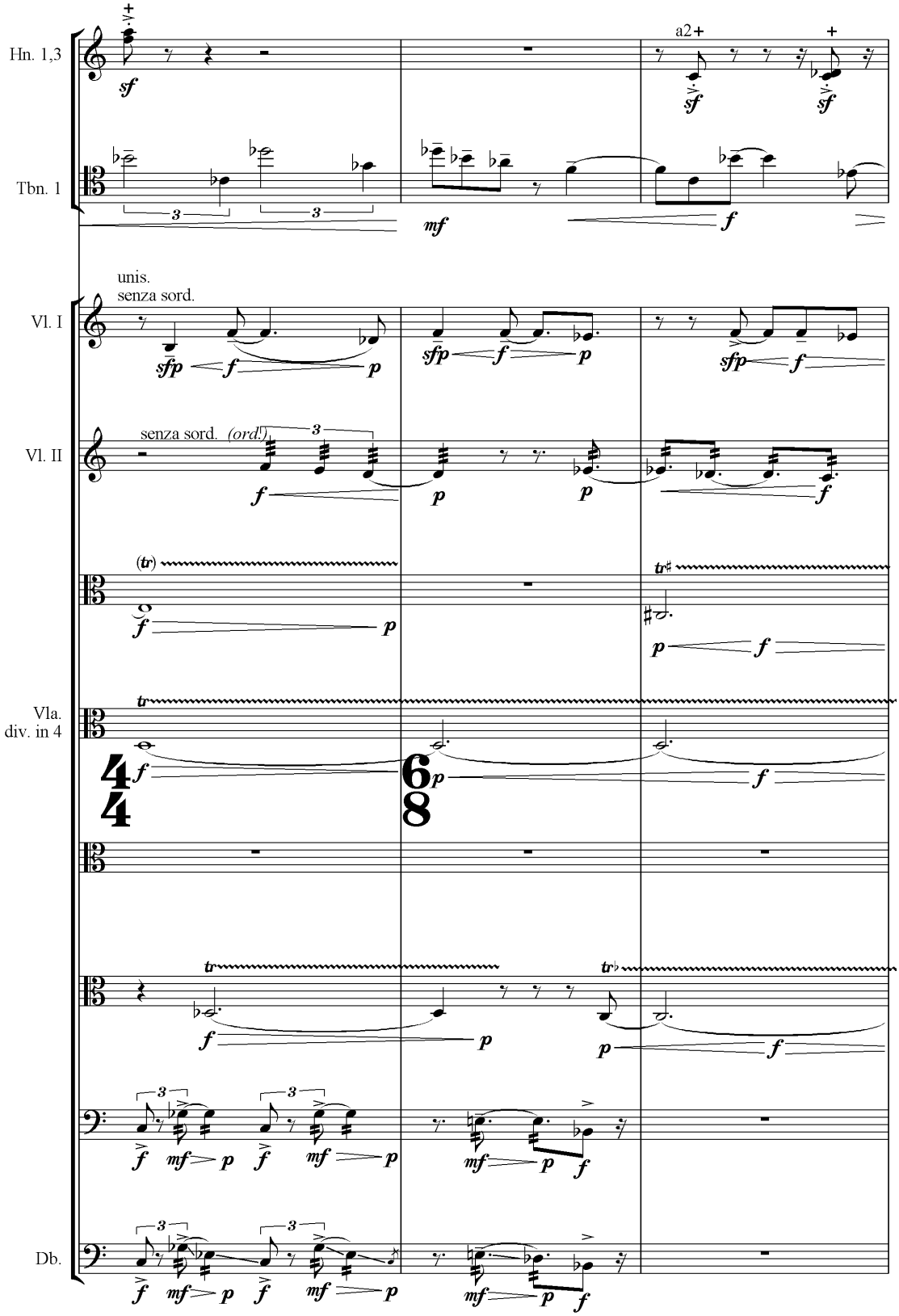
After timpani strokes on the modal dominant, F, similar (but an octave higher) to those which introduced the passacaglia section, the first trombone starts a melody (of no obvious serial origin) accompanied by a bass in the cellos (almost exactly doubled by the double basses) similar to that of the first section, and in the same separated Scotch snap rhythm, but now starting on D; there are also prolonged trills, now on the violas, divided in four, and long held notes on the clarinets, bassoons, horns and the second trombone (not shown in the following illustration).

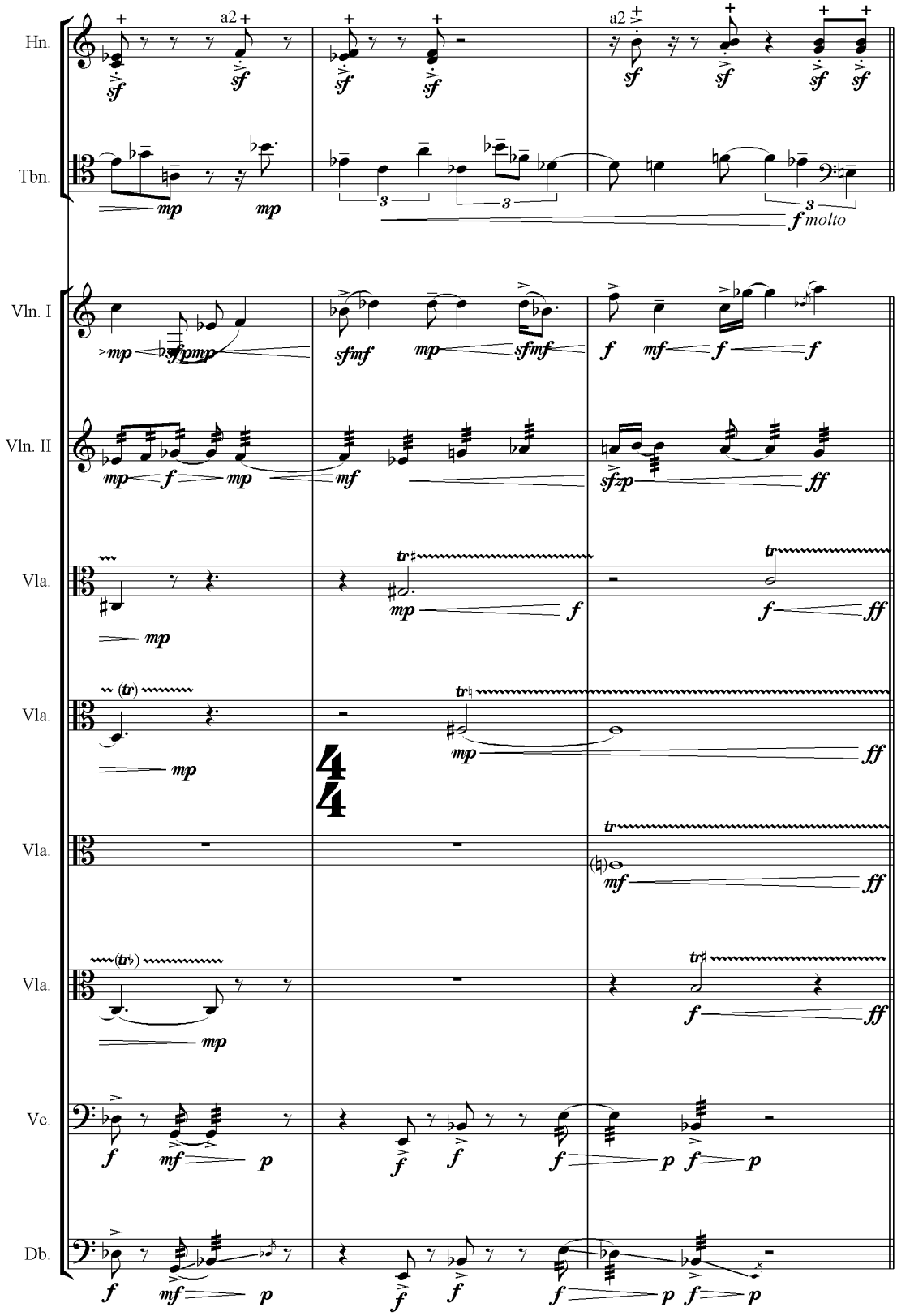


Ex. 13.47 Transposition from passacaglia-like section to exposition.

As the section proceeds, the cello melody, reminiscent of that in [A] and [D], but now starting a minor third higher, becomes fragmented, there are rhythmic pulses

on the first and third horns, stopped, and a duet starts between the first and second violins (the latter tremolo).



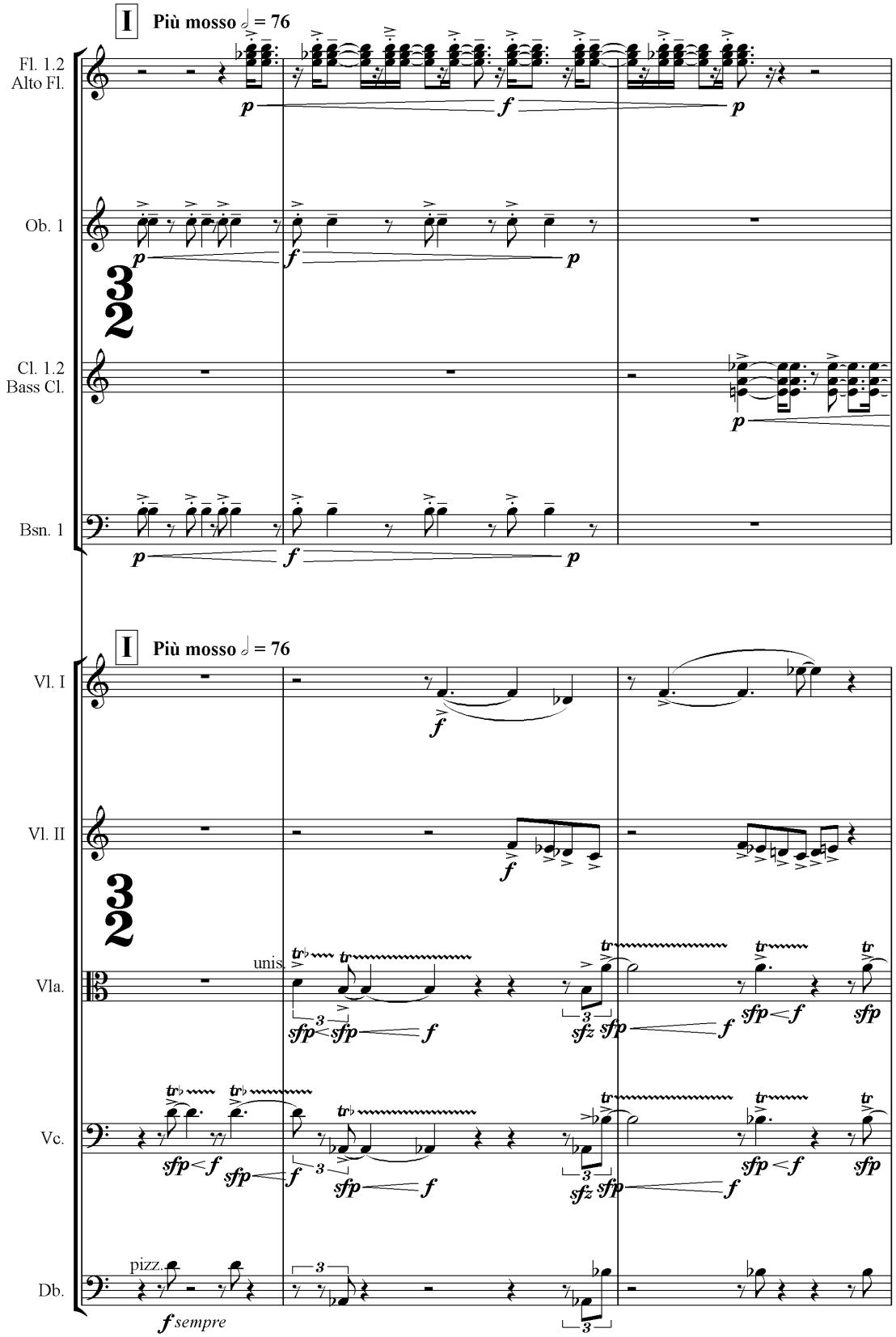


Ex. 13.48 Continuation of the transition.

First subject: Sturm und Drang subsection: **[I]**+1 to **[M]**–1

The cello theme is played much fragmented (and expressively doubled by pizzicato double basses emphasizing onsets), the prolonged trills become amalgamated, and there are further prolonged trills from the violas. The separated Scotch snap rhythms of the original theme now reappear as two different (unseparated) such rhythms, the first in a minor ninths (B and C) in first oboe and first bassoon (doubled, at different octaves, by the crotales) and the second in an incomplete semi-diminished seventh (E, Bβ, D, *i.e.* the G is missing) in the alto flute and first and second flutes (doubled, again at different octaves, by the glockenspiel).[80] All this accompanies the continuation of the duet between the first and second violins which started in the previous section (*q.v.*), a texture which is reminiscent of the consequent of the first subject in the first movement, and towards the end of the subsection the first and second violins play rapid upward scales reminiscent of the third bar of that consequent.

[80] There are a few errors in the published score here: in bar **[I]**+1of the cello part, a quaver rest is missing between the two sounding pitches, and I bar **[I]**+3 of the flute 1 and 2 part and the alto flute part a minim rest is missing at the end of the bar.

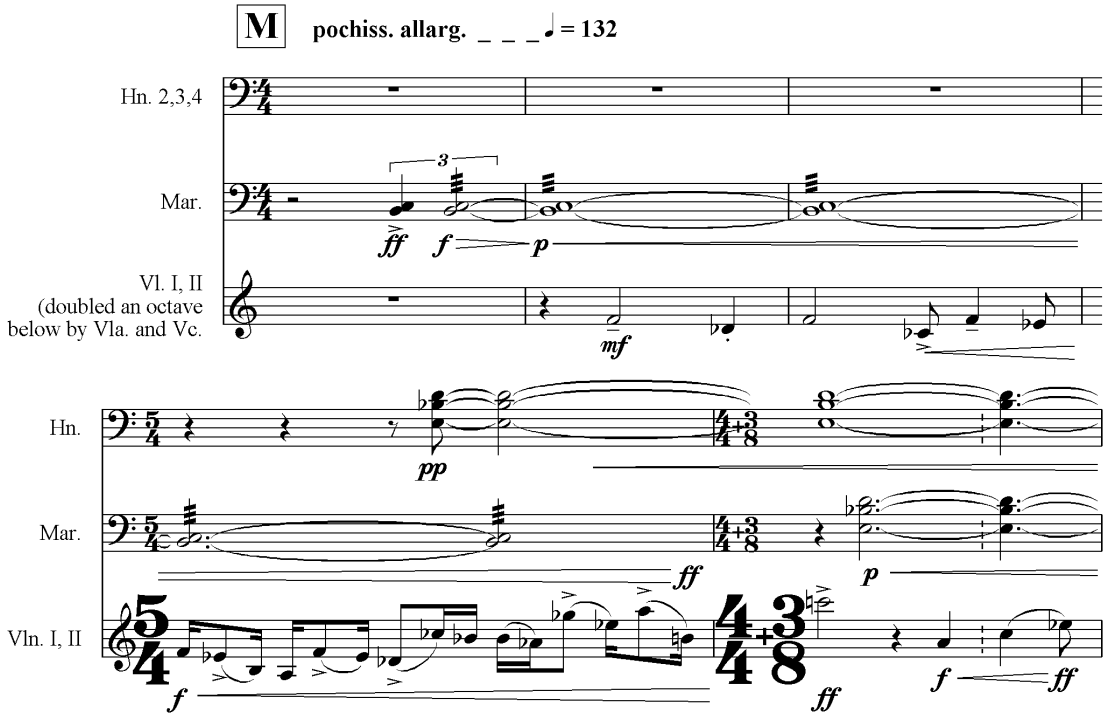


Ex. 13.49 First subject: Sturm und Drang subsection.

Second subject: 'Big tune'[81]: **[M]**+1 to **[P]**–1

The subsection starts with the same two chords as the previous subsection, now not in Scotch snap rhythms but as held chords (reminiscent of the antecedent of the first subject in the first movement). The oboe and bassoon chord (now reduced from a minor ninth to a minor second) is played tremolo by the marimba and the flutes and alto flute incomplete semi-diminished seventh by three trombones.[82] Against this background, all the violins, with violas and cellos an octave lower,[83] start (in a way reminiscent of the last movement of the First Symphony, **[140]**+1 to **[143]**–1) a melody in ternary form.[84] The first part starts, after a bar of silence, with a four-bar idea.

[81] See above, second footnote to first paragraph of *Discussion*.
[82] This exact repetition of the chords of the previous section is not continued beyond the first two.
[83] Occasionally the viola's notes are raised an octave where its compass makes this necessary.
[84] To the right of a sketch of this melody in Add. Mss., 71334, sheet 38 is written:
STRINGS IN UNISON WITH POSS UPPER DIVISION AT PIAK (*sic*)OF PHRASES
LEADING TO FIRST TPT ENTRY IN FINALE HIGH WITH CILLO (*sic*) FIGURE FROM OPENING OF MVMT
THEN TO A DEVELOPMENT OF SORTS
TRANSP PARTIC (particularly?) TO
T BRANCHES FR.
The last two lines are somewhat baffling. 'TRANSP' clearly refers to the transposed rows of the Square of Mars which begin the Development, but the remainder has so far resisted explanation.



Ex. 13.50 Second subject: 'Big tune'.

This is immediately repeated, varied, and then played a third time. The middle part, in which the double basses join to double the rest of the strings, moves more slowly, the note lengths being crotchets, dotted crotchets and, at the end, quavers, and starts to be reminiscent of the consequent of the first subject in the first movement. The third part is a clear recomposition of the initial four-bar idea, but now includes the upward (sextuplet and septuplet) semiquaver scales characteristic of that consequent.

The 'Big tune' is accompanied throughout, as it began, by long held notes.

Bridge: **[P]**+1 to **[Q]**+2

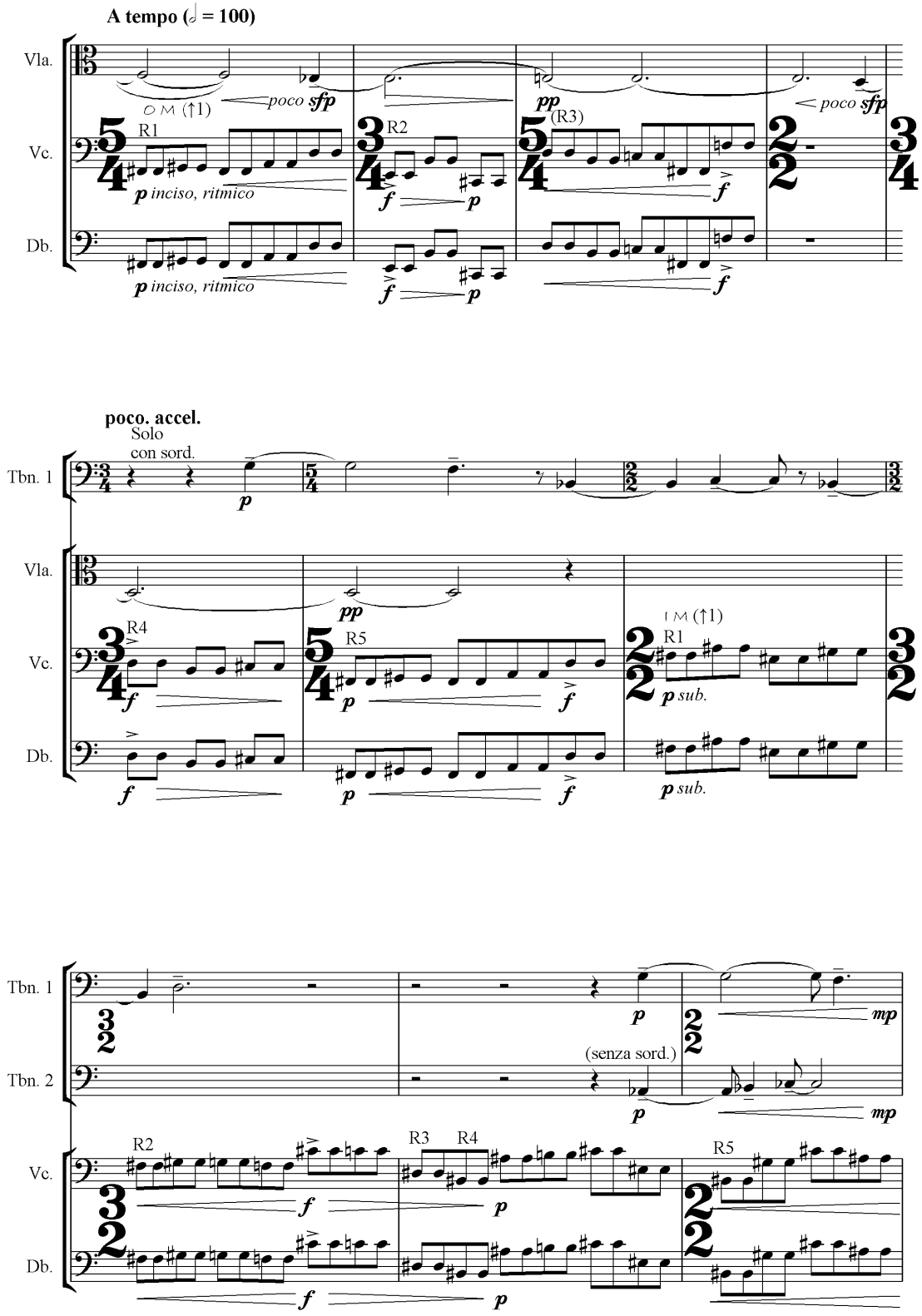
The wind crescendo from ***f*** to ***fff*** and then ***ppp*** tremolo strings accompany the alto flute, expressively doubled by the harp, plays a quiet line reminiscent of its introduction to the movement. This happens again, and then the music fades to nothing, there are three quiet F#s on the timpani, reinforced by pizzicato lower strings

(the double basses changing to *arco* after the first of them), a ***pp*** G# from the double basses, and a grand pause of single bar.

Development: **[Q]**+4 to **[W]**–1

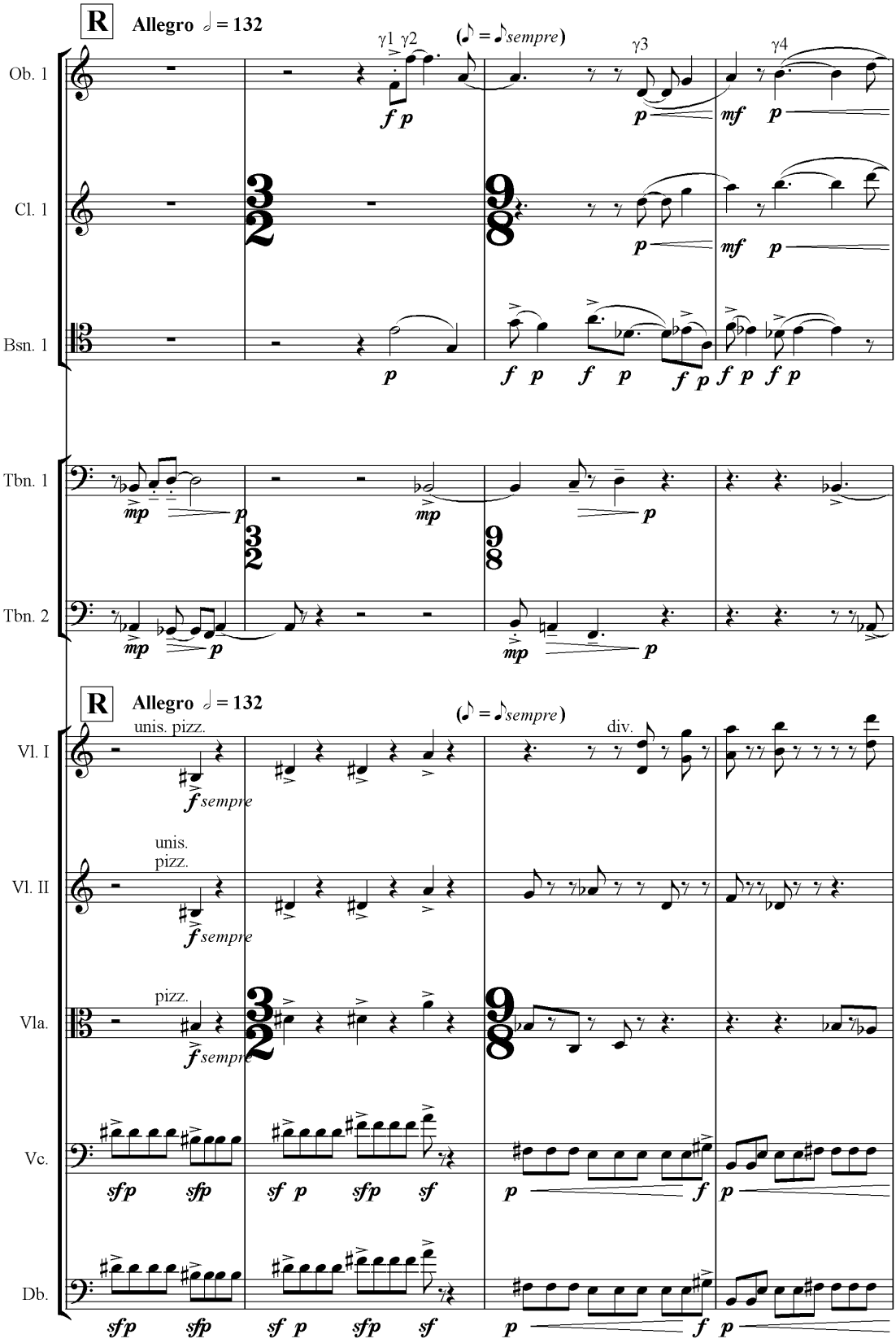
The section starts with material which is new (to this movement). The double basses play a short passage in repeated quavers, starting with the F#, the tonal dominant of B, and G# from the end of the bridge, which is followed by a slower E, B and C#. After a bar's rest these are all united into a longer phrase, and then, after another bar's rest, into a continuous passage in repeated quavers, accelerating to allegro, which consists of the rows of M, first of OM, then of IM, from the second movement transposed up a semitone, with repeated pitches treated as single notes.[85]

[85] At the bottom of Add. Mss., 71334, sheet 38, these rows are given in repeated quavers in the bass clef, with, above them, 'ANFANG DURCHFUHRUNG TRANSFORMATION OVER THIS' and, below it, '(BUT TRANSPOSE!). The third row of O M, is treated anomalously: the pitches should be Bβ, Gβ, Aβ, D, C, but the first four are given as if in the treble clef, Dβ, Bβ, Cβ, F, and the fifth, simply anomalously, as Dβ.



Ex. 13.51 Opening of development.

The trombones start playing short phrases in approximate contrary motion, and, when Allegro is reached (at rehearsal mark **[R]**) the development is fully under way.



Ex. 13.52 Continuation of development.

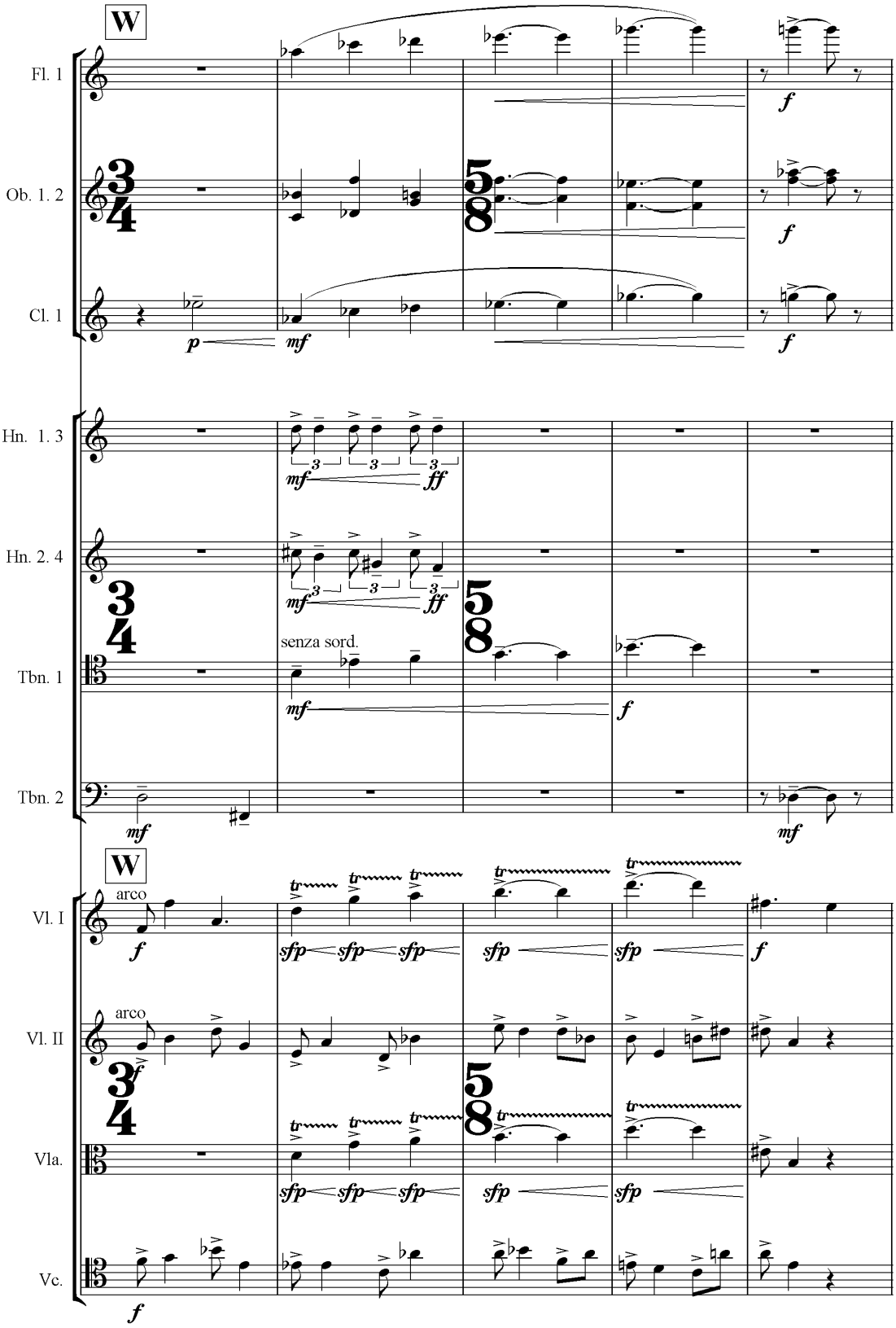
There are four separate voices here, two continuations, two new. First, the cello and double bass repeated quavers continue, the first two bars expressively doubled by pizzicato violins emphasizing the ***sf*** first quaver of each set of four. Secondly, the two trombones continue their short phrases, from the third bar onward, irregularly, expressively doubled by pizzicato violas. Thirdly, the first oboe starts to play the diagonal path γ through the inverse ι of the square MARS from the second movement, with duration unit a quaver: some phrases are doubled an octave higher by the first clarinet, and all are expressively doubled by pizzicato first violins emphasizing onsets. (The eighth diagonal, C, E is omitted and the path is not followed beyond the ninth diagonal, the single note A.) Fourthly, the bassoon plays a new idea, expressively doubled by pizzicato second violins emphasizing some onsets.

At **[U]**+1, the repeated quavers are played just by the cellos, and their expressive doubling by pizzicato double basses. At the same time, the leading voice becomes one of the two oboes, some phrases being doubled an octave higher a flute, and later by both flutes in octaves.

Recapitulation: **[W]**+1 to **[B1]**–1

First subject: 'Sturm und Drang' subsection: **[W]**+1 to **[Y]**–1

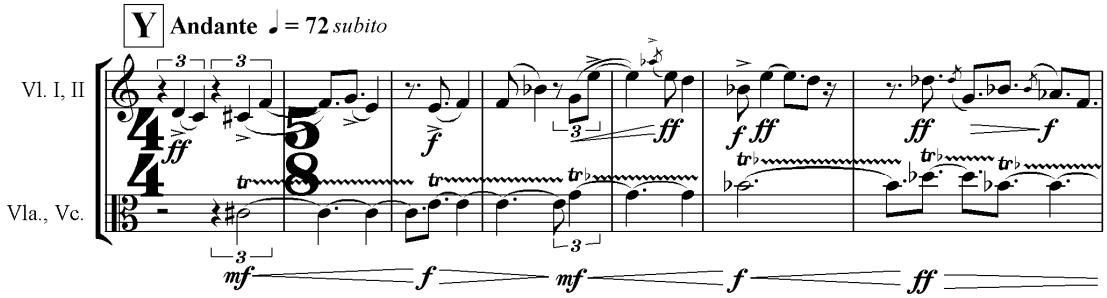
The first part is a free recomposition of the Sturm und Drang subsection of the Exposition. The prolonged trills are played in octaves by the first violins and violas (occasionally joined by the second violins and cellos); the (different) Scotch snap rhythms are now played by four horns (with different, varying, chords); and the previous duet between first and second violins becomes a homophonic one between second violins and violas (with many Scotch snaps, slower than those of the horns).



Ex. 13.53 Recapitulation of first subject.

Second subject: ‘Big tune’: **[Y]**+1 to **[B1]**–1

The second part is a very free recomposition of the unison string ‘Big tune’ of **[M]**+1 to **[P]**–1. The unison of all strings except the double basses becomes a unison of all violins, expressively doubled by prolonged trills (from the previous part) in unison on violas and cellos marking onsets, particularly those after a rest. (Occasionally the doubling is not completely strict.)



Ex. 13.54 Recapitulation of second subject.

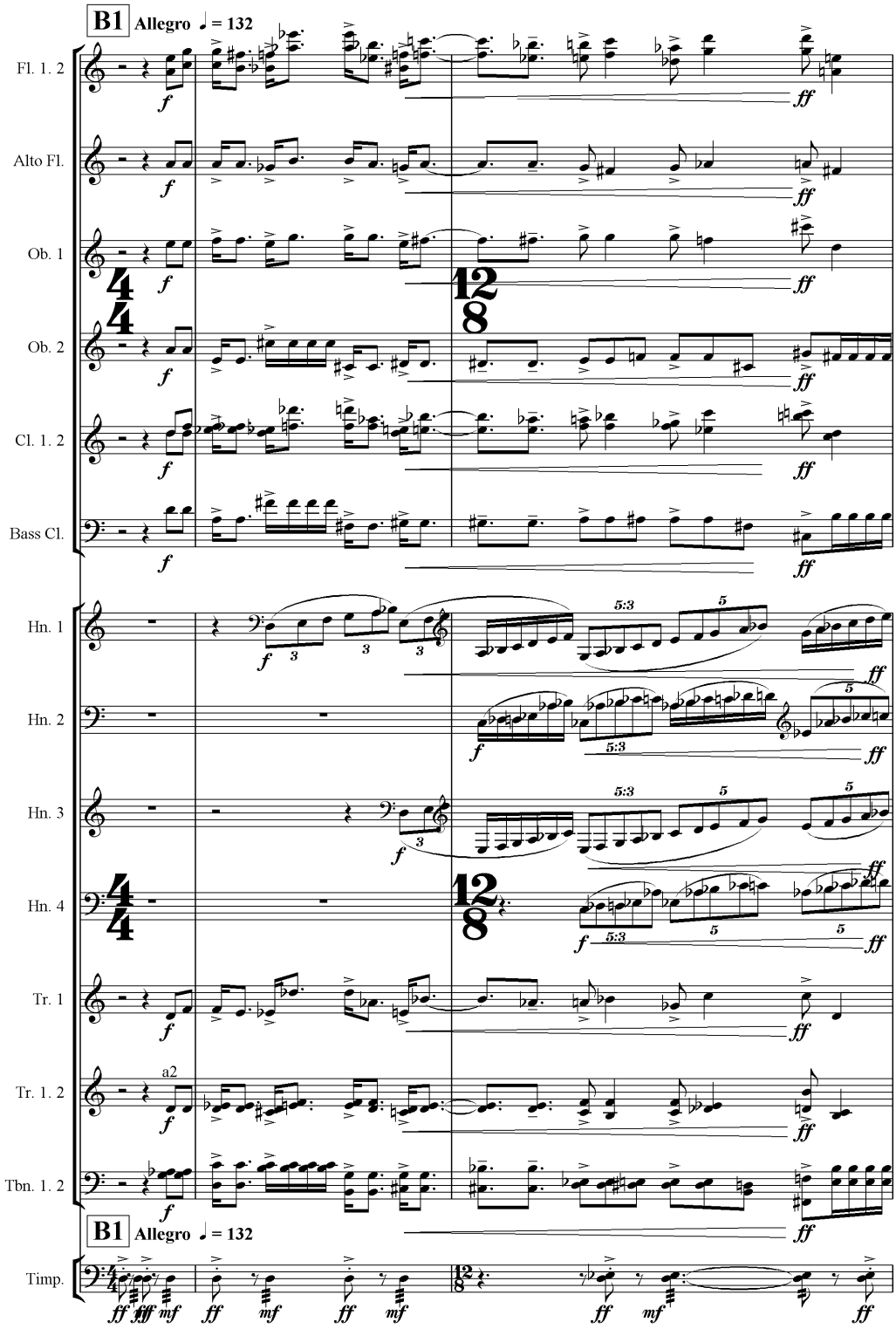
The theme is accompanied throughout (although this is not shown in the illustration above) by long held notes, as was that of **[M]**+1 to **[P]**–1, and also by tremolandi on the glockenspiel and marimba and a line moving up and down within the compasss of a seventh on the crotales.

Coda: **[B1]**+1 to end

The Coda is a reversed recomposition (even freer than those in the Recapitulation) of the Passacaglia section and of the Introduction.

First part: **[B1]**+1 to **[E]**–1

There is first a recomposition of the **Reprise**, but now in D (see above, Discussion). The timpani play a version of the separated Scotch snap with which the First part began (**[A]**+1). Over this most of the winds play Scotch snap rhythms, and four horns play scalic upward-rushing passages reminiscent of the violas’ reference to the slow movement of Bruckner’s *Second Symphony*.



Ex. 13.55 First part of coda.

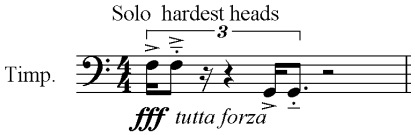
This passage occurs, freely recomposed, five times: after the first four occurrences, which rise to a ***ff*** climax, there is a three octave upward scalic sweep of the harp; the final climax is ***fff***.

Second part: **[E1]**+1 to **[G1]**–1

The middle of the Passacaglia section switched texture from strings and tuned percussion to wind and tuned percussion. Here the reverse switch is made. All the strings hammer out a rhythm of 4 + 6 + 4 semiquavers. After two bars they are joined by the glockenspiel playing the rhythm and crotales circling around in quavers between D and the same pitch an octave higher. After another four bars almost the whole orchestra joins in: the marimba plays the rhythm; the crotales (doubled by the second trumpet) continue their circling, the glockenspiel (doubled by the first trumpet) starts another circling; the third trumpet starts a circling in semiquavers; the horns play prolonged trills and the woodwind build up held chords. The whole builds up again to a ***fff*** climax.

Third part: **[G1]**+1 to **end**

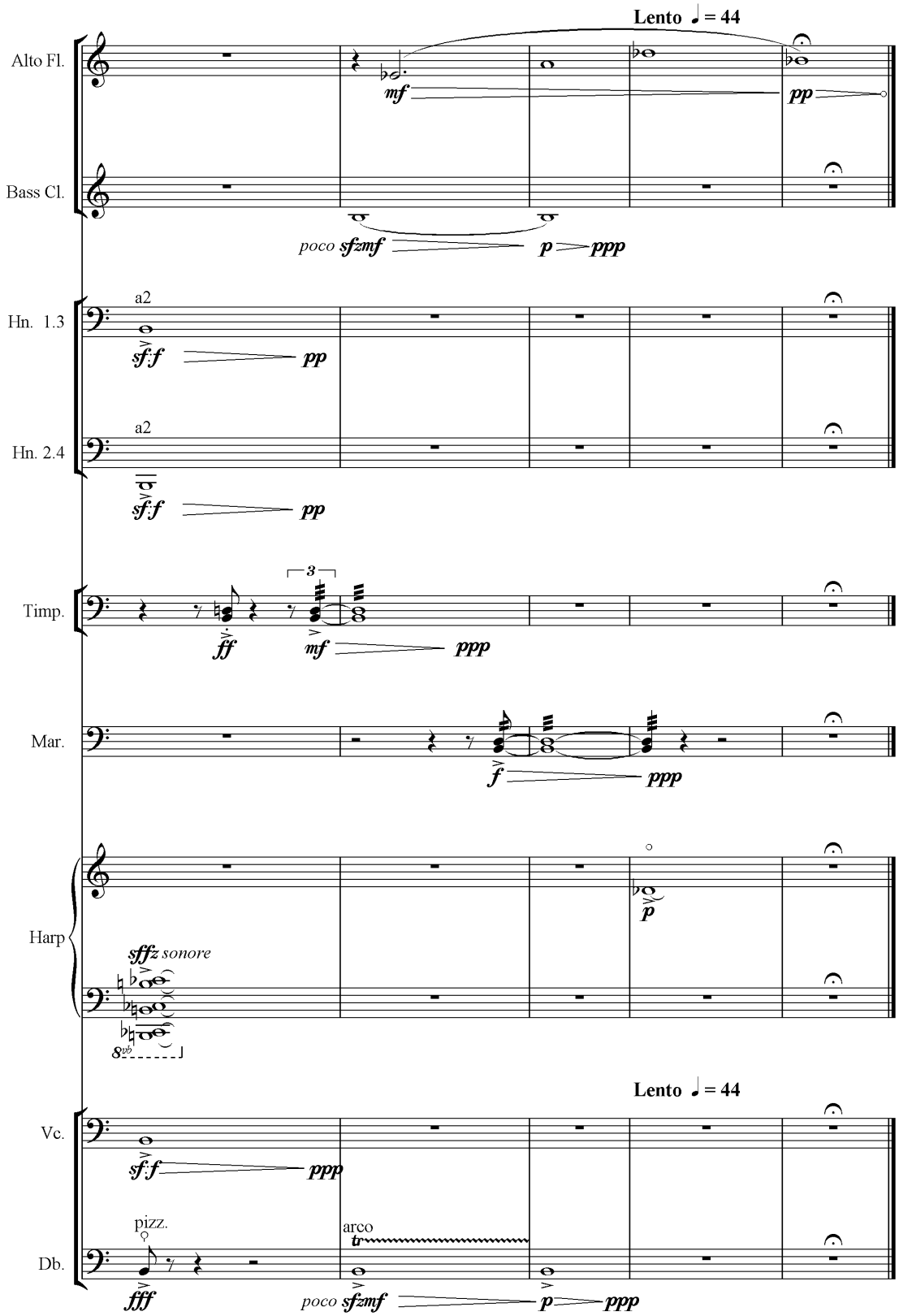
There is a sudden hush, with only the violins and viola playing a sustained ***pp*** tremolo chord. The timpani play an F, and then a G, in iambic rhythm.



Ex. 13.56 Third part of coda.

After two bars, the tonic B is sounded by lower strings, harp, horns and then bass clarinet, the tonic minor third B, D by timpani and then marimba, *i.e.* a Locrian chord of B, but this is undermined by the alto flute, recalling the very opening of the movement, playing the slow melodic line Eβ, A, Dβ (doubled by a harp harmonic),

Bβ, of which the A clashes with the B by a whole tone, and the Eβ, Dβ and Bβ with one or the other pitch of the tonic minor third by a semitone.



Ex. 13.57 Ending.

Davies notes: 'An amusing tailpiece – at the very moment that I wrote the final drum-strokes, there was a tremendous, thunderous rock-fall from the cliff at the other side of the bay, opposite my windows.'[86]

Comments

Whereas in the first symphony the single magic square was not used in the second movement (which was written before the technique had been invented) but only in the last three to be composed (first, third and fourth), in the second symphony magic squares are used in every movement, and with a number of modifications: in the second movement two are juxtaposed and transpositions of the juxtaposition are used freely; and in the first movement the radical development of the hyper-square is employed.

Also whereas the first symphony did not start as a symphony, but only gradually emerged as such, the second seems to have been so conceived from the start. The forms of the movements are also more conventional: with the first symphony, the first movement 'has a ghost of a sonata form somewhere behind it',[87] the second moves from lento to scherzo, stemming from the first movement of Sibelius's Fifth Symphony, the third is a set of variations, but transformation variations, and 'the overall shape and some of the detailing of the formal structure in the last movement came … from 'Don' in Boulez's *Pli Selon Pli*'; in the second symphony, contrastingly all four movements, 'follow the old symphonic plan in outline', the first being (after an introduction) a quick sonata movement', the second (again after an introduction) a theme with 'doubles', the third has 'scherzo and trio characteristics' and the finale (with an introduction which has 'passacaglia characteristics'), is again in sonata form.

[86] Davies, 'Symphony No. 2', p. 174. (It is not completely clear whether this refers to the opening ***fff*** *tutta forza* F and G of the subsection, or to the final dyad D, F.) The cliffs opposite Bunnertoon are visible in the first photograph of this chapter, but it is no longer possible, nearly thirty years later, to make out for certain the traces of this rock-fall.

[87] All quotations in this paragraph are from Davies, 'Symphony' or 'Symphony No. 2', as appropriate.

There is another way in which this symphony is more conventional than the first, namely in harmonic structure. In 1984 Hans Keller had published a second paper on symphonic form,[88] in which he asserted that the fundamental symphonic contrast was between harmonic stability (which characterises statements) and harmonic lability (modulation, which characterises development).[89] At the end of the first paragraph of this paper he also stated that he had presented its ideas to every significant contemporary composer with whom he was in contact, particularly symphonists (which should certainly include Davies) and met exclusively with enthusiastic agreement.[90] Be that as it may, it is certain that whereas in the first symphony 'the voice or part which unifies the harmony is not necessarily a bass line, but often a 'tenor' which usually has long notes, and the harmony is understood upwards or downwards from this',[91] the tenor being a path through the magic square with a long unit of duration, in the first movement of the second symphony it has been seen that the exposition emphasises the tonic B and 'dominant' F (see above, *First Movement* under Exposition), whereas this emphasis is no longer present in the development (see above, *First Movement*, under Development, Second subsection. This harmonic structure clearly shows the contrast between harmonic stability and lability asserted by Keller.

[88] Keller, 'Der symphonische Urkontrast …'.
[89] Indeed, he takes the argument further, claiming that transitions, because they also modulate, would also properly be called developments, but it is not necessary here to consider this extension.
[90] 'Sie wurde jeden bedeutenden zeitgenössischen Komponisten unterbreitet, mit dem ich in Berührung war — vornehmlich natürlich allen Symphonikern, und ich darf vielleicht vorausschicken, daβ ich vorläufig ausschliesslich auf begeisterte Zustimmung gestoβen bin.', p. 579.
[91] Davies, 'SYMPHONY', p. 160.

PART VI: CONCLUSION

CHAPTER 14: RETROSPECT AND PROSPECT

Retrospect

This retrospect of the analyses of Davies's orchestral works up to (and including) the *Second Symphony* will consider a number of topics. First, its difficulty for listeners will be illustrated by a number of examples. This will be followed by a somewhat lengthy discussion of the reasons for this difficulty: Davies's serial procedures (a resumption, in the light of the analyses in the intervening chapters), melodic lines, rhythms and harmony.

Examples of the difficulty of Davies's music for listeners

In his notes on his *First Symphony*, Davies wrote: 'The symphony … is uncompromising in its demands on performers and listeners.'[1] Indeed, Davies's music in general does not always reveal itself easily; occasionally even experienced critics make mistakes. For example, Keller[2] remarks of the third movement of the First Symphony 'the achievement does not make the music symphonic', by which he means, in part, that 'the contrast between statement and development is neglected' (on the preceding page he wrote of ' … the fact [*sic*] that the elementary and elemental contrast in the sonata's modes of thought … *is the contrast between statements … and developments …* '): but this, also conflating symphonic and sonata form, clearly overlooks the fact that the movement is not in sonata form but a set of (transformation) variations: indeed, he subsequently referred to variations as 'durchführungsfeindlich', *i.e.* hostile to development.[3] Again, as already seen, Driver[4] wrote of the second subject of the first movement of the Second Symphony that 'it cannot really be called a second subject', whereas in fact, as shown under *First*

[1] Davies, Symphony No. 1, p. 162 in *Part III* OF Griffiths, *Peter Maxwell Davies*.
[2] Keller, 'The state of the symphony: not only Maxwell Davies's'.
[3] Keller, 'Der symphonische Urkontrast: die falsche Geschichte der Sonatenform', p. 584.
[4] See above, footnote in *Chapter 17*, under *First movement*, Second subject.

Movement in *Chapter 17* above (footnote to Second subject) it cannot be called anything else. As a final example, Murray,[5] in a review of Davies's Fifth Symphony, refers to 'Max's atonal idiom', a description explicitly rejected by the composer (see below, under *Harmony*).

The audibility of Davies's serial procedures

It is worth considering why this is so, why the music can be so hard to follow, and to what extent the listener may be helped by making clear the pathways through the serial structure. There are two reasons for the difficulty. First, there is sometimes so much music, *i.e.* the polyphony is so crowded, that it is not possible to follow everything at the same time, and, secondly, the various voices in the polyphony can be individually hard to follow.

The overcrowded polyphony can be of three kinds. Even without quodlibet counterpoint, when the voices are of the same kind, but frequently crossing and on the same instrument or family of instruments, as in the already quoted 'short development' in the Introduction of the *Second Taverner Fantasia* (bars 21–116: *q.v.*, *Chapter 7*), the music can be, as already mentioned, 'extremely difficult to follow by ear' (see above, *Chapter 3*, under *Other developments of transposition squares*). Individual voices which are paths through transposition squares or transposition processes are not too difficult, but paths through magic squares, unless they are simple row paths, can be hard to grasp. Further, with quodlibet polyphony, but with the voices crossing and on the same instrument, as in the passage from the third of the *Five Pieces for Piano* (see above, the first example in the section *A Texture: Quodlibet polyphony* of *Chapter 2*), the four voices have already been described as

[5] Murray, David, 'Maxwell Davies's new Fifth', *The Financial Times*, 11 August 1994, p. 11.

'for many virtually impossible to follow as such'. Only when the voices are playing quodlibet counterpoint on different instruments or groups of instruments, can it be, although still difficult, not so difficult to follow the music. Examples are the Transition (**[16]**+1 to **[21]**–2) of the first movement, or the Fourth transformation (**[86]**+1 to **[91]**–1) of the third movement, of the First Symphony, or the start of the development (**[Q]**+1) of the first movement of the *Second Symphony*. As to a possible listening strategy here, it may suffice to quote again the passage from Tovey given in *Chapter 1* above (see under *The audibility of Davies's serial procedures*):

> Much vexatious damage is done to the enjoyment of music, even for musicians themselves, by the mistaken notion that in order to understand polyphony you must be able to attend to all the parts at once. No such mistake was made by the sixteenth-century theorists to whom Palestrina's polyphony was the final outcome of a tradition as ancient to them as Bach is to us now. They analysed their harmony as between two parts at a time; and this was adequate.[6]

Davies's polyrhythmic passages, such as in the first movement of the *Sinfonia* or his mensural cannons (see above, *Chapter 2*, under *A subtype: polyrhythm*) are even harder to follow: indeed, London quotes psychological work which 'suggests we are unable to hear two metric frameworks at the same time, but either hear polyrhythms in terms of a dominant metre, or construct a composite metre to accommodate both rhythmic streams'.[7] Examples of such passages, constituting an *historical* pathway[8] through Davies's music, are the multiple time signatures in the first movement of the *Sinfonia*, the long passage in Sinfonia, subsection VI, of *Revelation and Fall*, where the cello enters with a retrograde, in a *completely* different

[6] Tovey, *A Companion to 'THE ART OF FUGUE'*.
[7] London, Justin, 'Rhythm', *New Grove Dictionary of Music and Musicians, Second Edition*, Ed. Stanley Sadie, 21, pp. 277–309, p. 284: this does not exclude the possibility that the rarely gifted may be able to.
[8] For this term, see *Chapter 1*, under *Davis's 'serial structures'*.

tempo, of the long set of transformations in the upper voices, and the first section of the development of the first movement of the Second Symphony, where the transformations on the horn are in a different metre from the other voices.`

There is an additional reason why the polyphony may be hard for the listener to follow. In connection with the first symphony, Davies wrote: 'As in my previous works, there is no 'orchestration' as such – the instrumentation functions simply to make the musical argument clear … '[9] This is, however, not absolutely always completely realised. A striking example is the statement on handbells ('Start slowly and very quietly and gradual *cresc. ed accel.* … Repeat as necessary …) of the anonymous thirteenth-century song *Worldes blis* in the *Coda* of the eponymous *Motet for Orchestra* (of which Davies has written 'The whole work may be heard as a quest for this (pre-existing) material'[10]): despite the song being perfectly clear on the pages (126–129) of the score, so much is going on in the rest of the orchestra that little more of it can be heard than a faint tinkling (in the composer's own recording:[11] of course, it is conceivable that this is an artefact of recording, and that in a live performance the song would be clearly audible). Similarly, the tonics and 'dominants' played by the marimba in the first subject of the exposition of the first movement of the Second Symphony, although perfectly clear in the score, are between virtually and completely inaudible.

One source of difficulty in hearing the parts in Davies's counterpoint lies in the expressivity and frequent dynamic changes he specifies for their performance: usually each is full of dynamic markings and hairpins, and whenever it happens that one part has an ***f*** or ***ff*** whilst another has a ***p*** or a ***pp***, the former will tend to drown the latter.

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[9] Davies, Symphony No. 1.
[10] *Composer's Note* at the beginning of the score.
[11] Royal Philharmonic Orchestra (Collins Classics 13902), made nearly a quarter of a century after the disastrous Promenade Concerts premiere.

Melodic lines

Another reason why Davies's music is not always easy to follow lies in the nature of the melodic lines themselves: they can be very high, among the leger lines of the treble clef or very low, in particular pizzicati on the double basses, so that in either case it is quite hard to make out the actual pitches being played. Even in the less extreme ranges, the lines are often highly chromatic, using disjunct intervals and frequent octave displacements. With transposition squares, where statements of the line are simply transpositions of one another, there is not so much difficulty, and similarly with sets of transformations, provided the line being transformed is not extremely long (as it is in the third movement of the first symphony, consisting of a series of 81 notes), in both cases, also provided the listener is aware of what is going on. With magic squares, however, problems can arise, depending on the square and the path through it. Thus with the square of the moon used in the First Symphony, as already shown (see *Chapter 16* above, under *Pitch-sequences*), horizontal line paths are relatively easy to follow (provided again that the listener is aware that the rows are circularly permuted transpositions of each other) but there is no such regularity in other paths (with the exception of the diagonal path Λ, which consists of segments of one to eight pitches from the sequence of pitches derived by a 'first-only sieve' of the plainsong *Ave maris stella*: see above, *Chapter 15*, under *Diagonal line paths*). With the Square of the Sun and its inverse, and the four versions of the Square of Mars used in the second symphony, which, as already shown, are constructed quite differently from the Square of the Moon (see *Chapter 17* above, under *The Squares of the Sun* and *The 'Magic Square'*) there are some symmetries (the diagonal symmetry of the Square of the Sun and its inverse, and the fact that in one half of the Square of Mars – in any of its four forms – the first and fifth rows are identical, as are the second and

fourth, whilst in the other half the third row consists of five occurrences of the same pitch), but these are scarcely enough to offer much help to the listener.

Rhythms

Davies's rhythms are often complex, sometimes with a change of time signature almost every bar. They are in general without pulse, highly syncopated and made additionally complex by triplets, quintuplets or other n-tuplets. The rhythmic patterns of transformations are probably the easiest to follow, provided the melodic line being transformed is not too long, since the rhythm, like the line, is transformed in small steps. There is no pulse in the rhythm of paths through the magic squares used in the first two symphonies. At best, there is one of two types of rhythmic pattern. First, with row or column paths, there are sets of nine (*Square of the Moon*), six (*Sun*), ten or five (*Mars*) notes whose total duration is the same, and which (except for column paths in the Square of the Sun) consist of all possible integer durations from 1 to the size of the square (for example 6,2,3,5,4,1 for the first row of the Square of the Sun) in some order. Secondly, with some diagonal paths through the Squares of the Moon there is something approaching a pulse, consisting of duration numbers, increasing from 1 and then decreasing back of notes, of the same duration (see *Chapter 15* under *Rhythm, Diagonal line paths*.) (Although each of the two halves of the double *Square of Mars* separately have the diagonal symmetry which gives rise to such a path in the Square of the Moon, their diagonal symmetries are opposed, which breaks up the path: see *Chapter 17* under *Second Movement, The 'Magic Square'*.) Proper psychological experiments have not been carried out, but it seems on the face of it that neither of these types of pattern is likely to be readily perceptible, the first probably less than the second.

Harmony

Davies has insisted that his music is not atonal.

> … I have never thought of any my music as other than modal or tonal. This may involve operating high in the spectrum of the harmonic series, and the 'fundamental' of a chord may be implied, deep below the surface, rather than present in physical fact – but implied it is. There are rare occasions of bimodality or bitonality, such as in the third of my *Five Piano Pieces* … [12]

This is emphasised, in the first two symphonies, by Davies's systematic naming of the keys (and sometimes 'dominants') of the various movements.[13] Nevertheless, the highly chromatic nature of the music makes the tonic hard to hear. In fact, the question of tonality is nuanced: Whittall wrote, reviewing Davies's Second Symphony, of 'tension between those sections in which the symmetrically related pitch centres are unambiguously present and those in which they are not',[14] and in later papers argued that 'Since 1982 Davies's practice has tended to involve a dialogue of 'rooted' and 'floating' textures,'[15] and contrasted 'focused' and 'floating' textures.[16] In particular, Jones[17] has spelt out in detail, in quasi-Schenkerian tables, tonal centres and 'floating' textures in all four movements of Davies's third symphony. Puffett[18] has noted a similar 'mixture of open and closed forms … whereby compact, self-

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[12] Davies, *Four Composition Questions Answered*, p. 2.
[13] To be sure, he writes of a 'systematic exploration of the B – E sharp pivot – rather than a statement of a tonal centre' in the *Composer's comments* on the first movement of the Second symphony, but this movement is clearly in B.
[14] Whittall, Arnold, Untitled review of Symphony No. 2 by Peter Maxwell Davies, *Music and Letters*, 64 (1983), pp. 318–320.
[15] Whittall, Arnold, 'Comparatively complex: Birtwistle, Maxwell Davies and modernist analysis' *Music Analysis*, 13 (1994), pp. 139–159.
[16] Whittall, Arnold, 'Peter Maxwell Davies and the problem of classicizing modernism', from: *Classicizing Modernism in Music of the 20th Century*, Hermann Danuser (ed.), (Amadeus, Winterthur, 1996). In both of these papers, Whittall illustrates the concepts in the fnale of Davies's Third Symphony, which is outside the scope of this enquiry. Similarly, Jones gives a complete analysis of the Third Symphony from this point of view, indicating the tonal centres and floating passages throughout each movement (Jones, *Analytical Perspectives on the Third Symphony of Peter Maxwell Davies*, Volume 2, pp. 68–71, Examples 3.5, 3.6, 3.7 and 3.8.)
[17] Jones, *Analytical Perspectives on the Third Symphony of Peter Maxwell Davies*, Volume 2, pp. 68–71, Examples 3.5, 3.6, 3.7 and 3.8.
[18] Puffett, Derrick, *Richard Strauss: Salome*, (Cambridge University Press, Cambridge, 1989), pp. 181–182, footnote 16 to p. 61.

contained tonal structures … alternate or overlap with open-ended, 'atonal' passages' in Wagner (Loge's narration in *Das Rheingold* and Siegmund's 'Spring Song' in *Die Walküre*) and in a number of passages in Strauss's *Salome*. As far as focussed textures are concerned, as pointed out by Piston and deVoto,[19] tonality can be established or preserved by 'Dominant and tonic pedal points and ostinati', as noted, for example, in the exposition of the first movement of the second symphony.

Davies has suggested that the question of what harmonic system he uses is an inappropriate one.

> Its not a question of a harmonic system; it's just the way it is, almost. There are some things I would use and others I wouldn't but, if I were asked to systematise it, I'd find it very difficult. After all, composers like Messiaen and Stockhausen and Xenakis make the strangest statements about the techniques which they think they're using when in fact they're doing something else, and I'm a little bit reluctant to go into that kind of discussion, because I might be working at it from one end when what comes out is something completely other, with a logic that I'm not aware of.[20]

There can be other puzzles: in his comments on the *Second Taverner Fantasia*, Davies wrote that 'the final bars [546–548], … crystallize the harmonies of the music so far into three essential chords', which is somewhat enigmatic.[21] (The harmony, at least in outline, is often easier to follow in the first two symphonies, where Davies, in his *Composer's Comments*, indicates the keys of the various movements.)

It is clear that Davies's harmony will require a separate (and probably extensive) systematic investigation of its own.

Remembering

Some of the difficulty in following Davies's music stems from the fact that the difficulties of the melodic lines and rhythms described above make it hard to

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[19] Piston, Walter and DeVoto, Mark, *Harmony, Fifth Edition,* (W. W. Norton & Company, New York, 1987), p. 528.
[20] Griffiths, *Peter Maxwell Davies, Part II*, p. 124.
[21] 'Second Fantasia on John Taverner's In Nomine'.

remember them in the way that a listener to a piece of common practice music learns, often without conscious effort, at least to recognise, of not to be able to recall, the theme of a passacaglia or set of variations, the subject(s) of a fugue, a rondo subject, the first and second subjects of a sonata-form movement, *etc*. Davies has written that he 'thought it necessary to learn, quite literally, the contents of the [transformation] charts … '[22] and that a magic square is 'to be learned and known intimately',[23] but most listeners will not wish to go that far.

Form

An immediate consequence of the difficulty in remembering the melodic lines and rhythms[24] is that it is hard for the listener, even on repeated hearings, to discover and follow the structure of a movement: if the theme of a set of variations, or the first and second subject of a sonata-form movement cannot be remembered, or even recalled, then the listener is unlikely to be able to identify them as such, and may even mistake the form of the movement, resulting in the kinds of misunderstandings exemplified at the start of this chapter.[25] This difficulty is often compounded by the fact that although the forms of the symphonic movements on Davies's historical pathway to his first symphony are relatively conventional, those in his first (and second) symphony are often his own, rather different, versions of conventional ones, versions which are also often elaborated by his serial structures. A number of

[22] Davies, *Four Composition Questions Answered*, p. 3.
[23] *Ibid.*
[24] Textures may sometimes be more easily remembered.
[25] This kind of misunderstanding is not unheard of even in common practice music: early reviews of Brahms's Fourth Symphony (see Brahms, Johannes, *Symphony No. 4 in E minor, Op. 98*, ed. Kenneth Hull, Reviews of First and Early Performances, pp. 166 ff.) show no realisation that it is a passacaglia and indeed, according to Evans 'it was some time before even professional critics discovered the basis of the movement (Evans, Edwin, *Handbook to the Chamber & Orchestral Music of Johannes Brahms, Second Series Op. 68 to the end*, William Reeves, London, 1912, p. 164, fn.), and neither Doernberg's nor Simpson's analysis of Bruckner's Seventh Symphony shows apparent bafflement by its form and no realisation that it has a reversed recapitulation (Doernberg, Erwin, *The Life and Symphonies of Anton Bruckner*, Barrie and Rockliff, London, 1960, Simpson, Robert, *The Essence of Bruckner: An essay towards the understanding of his music*, Victor Gollancz Ltd, London, 1967), p. 156. Such things seem obvious once they are realised.

illustrations may be given. For example, the first movement of the first symphony has, as Davies puts it, 'the ghost of a sonata form somewhere behind it, there is no first or second subject material as such, and any 'development' consists of transformation processes.'[26] The slow (third) movement of the same symphony is, as has been seen, a kind of theme and variations, but the theme (a spiral path through the magic square) is much longer than the listener might expect, and is transformed at each occurrence, and it has been seen that the form of the fourth movement of the symphony seems to be completely *sui generis*.[27] Similarly with the second symphony: the form of the second movement is intricate, although it might just be detected by a very gifted listener, but that of the third, consisting of an intricate structure with overlapping transitions *and* obbligati in quodlibet polyphony (see the *Summary analysis tables* for these movements), seems beyond the reach of almost anyone who is unprepared. What seems most likely to be helpful to the listener, and the approach taken in this essay, is, building on the results of Roberts and those of a number of other scholars cited, who have described primarily Davies's compositional techniques, to give a narrative (Tovey-like) and contextual account of the work being analysed has been to (see above, *Chapter 1, Type of Analyses to be given in this Thesis*), the narrative to include both a delineation of the form and, often, a description of the serial processes being used, and, less often (as, for example, with *Revelation and Fall*[28]), the timbres and textures, which may be more important than the serial processes.

[26] Davies, 'Symphony No. 1', p. 159.
[27] See above, *Appendix E: The forms of Boulez's 'Don' and the Fourth Movement of Davies's First Symphony*.
[28] See above, Chapter 8.

Unsolved problems

These fall under the headings both of retrospect and also of prospect, as problems for future scholars. They may be divided into two categories, specific and general.

Specific

- Davies's comment, quoted above, that 'the final bars [of the *Second Taverner Fantasia*], … crystallize the harmonies of the music so far into three essential chords'
- Davies's reference to the St. Thomas Wake pavan being ''projected' through a progressive series of mathematical curves, which affect it much as, in visual terms, would distorting mirrors of systematically varying degrees of convexity and concavity'[29] remains unexplained.
- Similarly, it has not been possible to follow the serial processes in Stone Litany.[30]
- The 'transformation of some plainsongs into others' in the first movement of the First Symphony (*q.v.*).[31]
- Davies has said that

  > ' … in the First Symphony … the relationships take what's happening in the small span—in the basic cell—and project that over a large span, so that you get transpositions upon transpositions upon transpositions, branching out from those main notes.[32]

  It has scarcely been possible to find instances of this.

[29] See above, *Chapter 7, St Thomas Wake*.
[30] See above, *Chapter 9, Stone Litany*.
[31] Davies, in reply to a letter enquiring about this, wrote 'I have long forgotten the details of my first Symphony'.
[32] Griffiths, *Peter Maxwell Davies, Part II*: Conversations with the Composer, p. 125.

- The source of the seven-note segment 'BELLS' in the first movement of the Second Symphony (*q.v.*).[33]

General

Some problems recur often, with regard to a number of different works.

- Following serial processes when they become free.

  The first occurrences of both fully-fledged transformation processes (in the second of the *Seven in Nomine*) and magic squares (in *Ave maris stella*) use them with complete rigour, but later occurrences are often much freer. A similar progression can take place within a single work, the processes being initially rigorous, but subsequently becoming gradually freer, so that it is gradually harder to follow them. It may be suspected that this even happens within a single line. A strikingly clear (non-serial) example of this occurs within the fifth symphony: in bars **[J]**+1 to **[L]**–1 the first flute plays the upper voice from *Chat Moss,* start to **[B]**–1, but although the quotation is initially exact, it later becomes rhythmically free.

  It is possible that what happens in such works is something analogous to what novelists sometimes report, that their characters sometimes 'take over' and do things quite different from what the author had planned. Perhaps in such pieces by Davies the music 'takes over', and insists on taking its own path, quite different from the serial processes.

- Determining whether passages are hard-to-discern serial or freely composed.

  Davies's music is full of passages where it has not been possible to trace any serial process, either in particular parts or in all of them. In such cases it has therefore not been possible to determine whether the process has been

[33] Extensive, and as yet unsuccessful, searches have been made to locate this.

used with such freedom that it can no longer be uncovered, or whether the parts are in fact freely composed.

- Harmony.

  (See above, under *Retrospect*, *Harmony*)

There are doubtless many other unsolved problems of which I am not even aware.

Prospect

Since all the works considered here were found to contain hidden riches, it seems desirable that all of Davies's major works not dealt with in the present essay, including the remaining symphonies, the Strathclyde Concertos, and the Naxos String Quartets should be given full analyses similar to those attempted here. (Of these, the Third Symphony seems to be the only one which has been so treated, by Jones,[34] in an essay to which the present one has turned out to be a prequel.) For each work where this is not done, listeners are likely to lose an important and valuable part of the music.

[34] *Analytical Perspectives on the Third Symphony of Peter Maxwell Davies, Volumes 1 and 2*.

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APPENDICES

APPENDIX A: MAXWELL DAVIES'S PROGRAMME NOTE

FOR THE FIRST BRITISH PERFORMANCE OF *PROLATION*[1]

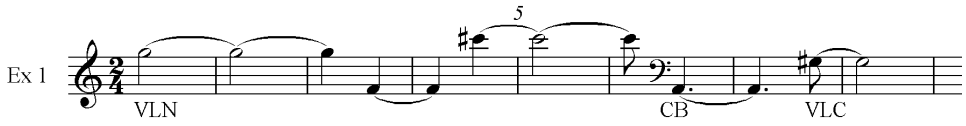
I	VIVACE	($\theta = 128$)
II	TRANSITION	(RITARD. $\theta = 122 \rightarrow \theta = 44$)
III	LENTO	($\theta = 44$) – VIGOROSO ($\theta = 88$)
IV	ACCELERANDO	($\theta = 64 \rightarrow \theta = 128$)
V	CODA	($\theta = 44$)

…

Prolation governed the relative proportion of minim and semibreve in the late mediaeval-renaissance rhythmic system. In the present work the term applies to durations greater and smaller than the semibreve – to whole structures covering hundreds of measures, and to fractional groups of irrational values – and also to groupings of a more complex nature than duple and triple superpositions.

…

The basic five-note series has rhythmic proportions of 10 – 4 – 7 – 6 – 5, expressed at the outset on the strings in quaver values:-



These proportions govern the relationships between note-lengths, phrase-lengths, and section lengths, so that the first movement (vivace) consists of five sections, 0f 10, 4, 7, 6, and 6 longs respectively, each proportionately subdivided (50, 20, 35, 30, 25 crotchets, 20, 8, 14, 12, 10 crotchets, *etc.*,) making a sequence of 5 × 5 closely-knit subsections, with characteristic textures and orchestration. A network of symmetrical cross-references and functions interrelates these – for instance, the ear will immediately perceive the recurrent extended string melodic figures developing

[1] Certain very minor changes have been made to these pogramme notes to increase comprehensibility: the layout of the list of groups has been changed and the punctuation uniformised, the word '*etc.*' has been italicised, bar numbers have been added to the musical examples and the part-writing in the lower stave of bar 421 (Ex. 4) has been clarified.

the opening motif quoted, the translational function of the static wind chords building-up over a whole subsection, the occasional "disruptive" force of the timpani with off-beat sevenths in fortissimo.

The opening movement exploits in particular the harmonic potentialities of the series, establishing and developing simple relationships by the superposition of its constituent notes. This gives a sonorous texture, with comparatively simple rhythms and counterpoint. Dynamically, the overall contour is a crescendo, reaching its climax across the double-bar-line, in the culminative opening of a short transitional movement, which reduces tension and speed (*fff* θ = 112 → *ppp* θ = 44) in preparation for the third movement, which follows immediately. This transition consists of five chords of five notes each only, with attendant mensural proportions.

For the third movement, lento, the five main sections of the first movement are superposed, (as opposed to juxtaposed) as follows:– the orchestra is divided into five groups,

Group 1 (piccolo, 2 flutes, 2 oboes, cor anglais, violin solo, violins 1, violas) having all of its possible subsection (i.e., variations of subsections 1 – 5 of the first movement) separated from each other by proportional distances;

Group 2 (2 clarinets, bass clarinet, 2 bassoons, harp) has four of the five possible subsections (6– 9 of the first movement) similarly proportioned, and entering at the first appearance of orchestral Group 1;

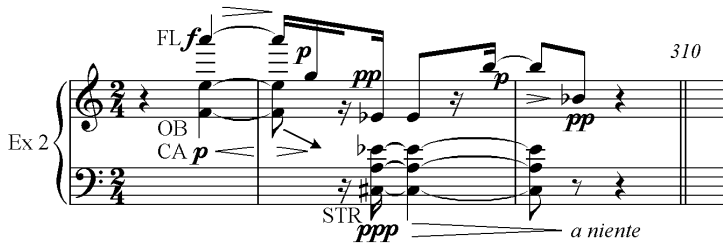
Group 3 (four horns, violins II, cellos, double-basses) has three subsections (15, 14, 13 of the first movement);

Group 4: (three trumpets, xylophone, glockenspiel, celesta) has two subsections (16, 17);

Group 5 (four trombones, tuba, timpani) one only (25).

The entries of groups are governed by the series and its proportions (or rather, the choice of the series and proportions was governed, in part, by considerations of the most effective, dramatic montage of the available forces at this point) – the groups following and piling on each other to make the one entry of group 5 (trombones, *etc.*) the inevitable climax.

The texture of the movement is elaborate and profusely decorated. In the opening section, for instance, the high sustained string/wood chords are embellished by quicker figurations on piccolo, flutes, oboes and solo violin, in complex irrational values, weaving a halo of decorative counterpoint around the main parts. In Group 4, the xylophone, glockenspiel and celesta have a similarly purely decorative function. The movement expresses, then, a slow curve of increasing complexity and intensity up to the entry of Group 5, and a quicker decrease towards the final completely relaxed statement of the flutes:-



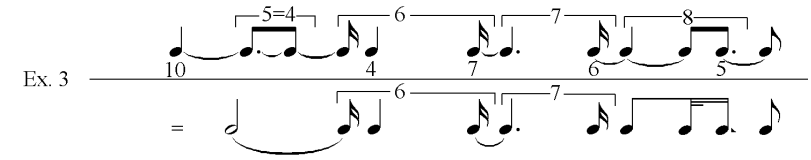
In the following complement to the foregoing, the functions of the orchestral groups are reversed (trombones, *etc.*, having five sections; flutes, oboes, violins I, *etc.*, having one only, at the climax) and the speed is greatly increased ($\eta = 88$). Its nature is now violent, the material being splintered into fragmentary outbursts from each instrument.

The fourth movement reassembles these fragments, ordering them afresh. The first section is heralded by a sustained high G, the opening note of the series, on

clarinet and cor anglais, and the other four sections are similarly heralded by sustained chords of 2, 3, 4 and 5 notes of the series respectively.

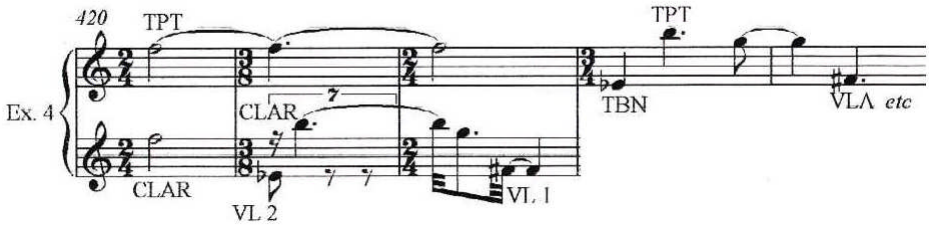
The basic proportions are modified now by an acceleration process; in the first instance the note-values 10, 4, 7, 6 and 5 semiquavers are modified by smaller irrational values:-

Ex. 3



… giving a new set of basic proportions operating throughout the structure. It is in this movement that prolation is used most clearly – the texture is sparse, though again of ever increasing complexity, the sections being progressively quicker. The decoration of the main thread by diminutions and permutations of itself at different transpositions is clear, as in the following simple instance, near the beginning of the movement:-

Ex. 4



This whole movement may be seen as a distillation of the first movement, with new light thrown on certain features, magnified and set in relief by the rhythmic techniques and chamber-music orchestration.

The climax, as in the case of the opening movement, is across the final double-bar-line – at the beginning of the short Coda (lento), which has the five chords of the transition between movements one and three in reverse order. This is the climax of the whole work, and the chords are this time decorated by quick figurations, most

prominent on high wood and brass, and the xylophone. The final sustained chord (woodwind) has the five notes of the series:-

Ex. 5

– while five suspended cymbals sound the retrograde rhythmic proportions.

Peter Maxwell Davies

APPENDIX B: DAVIES'S STRUCTURAL ANNOTATIONS

ON THE MS. OF THE FIRST MOVEMENT OF THE *FIRST SYMPHONY*.

Summary Table	**Davies**	**Sheet**[2]
'First group'	'*Anfang erste Gruppe*'[3],	lxxvi, 35
	'ERSTE GRUPPE'[4]	lxxvii, 2
'Middle section'	'MIDDLE EIGHT'[5]	lxxvi, 52
'Reprise of the first group'	'Reprise *des Anfange*'[6]	lxxvi, 53
'Bridge'	'*Brücke*'	lxxvi, 51v, lxxvii, 12
'Second section'	'ZWEITEGRUPPE'	lxxvii, 17[7]
'Transition'	'TRANSITION',[8]	lxxvii, 23
	'ÜBERGANG AUCH PETER SQU[ARE] ANS WORK',[9]	
	'TRANSITION'	lxxvii, 25
'Development'	'DURCHFÜHRUNG' and 'DURCH'	lxxvi, 15, 16, 17
	'*es ist nur der Anfang zum Durchführung*'	lxxvii, 30
'Development Second Part'	'*Durchführung Zweiter Teil*'	lxxvi, 13
	'*Durchführung* Zweite[?] Pars[?]'	lxxvii, 33
'Introduction to Recapitulation'	'EINFÜHRUNG IN DIE RECAP VORBEREITUNGSGRUPPE UMGEKEHRN IM EINZELN'	lxxvii, 37
'A Kind of Recapitulation'	'EINE ART WIEDERHOLUNG'	lxxvi, 54

[2] Davies, British Library, Add. Mss. 71327–71330.
[3] Phrases in italics are transcribed from Davies's Sütterlin-schrift.
[4] Phrases in Bradley Hand ITC capitals are transcribed from Davies's personal script: see McGregor, Richard E., 'Reading the runes', *Perspectives of New Music*, 38/2 (Summer 2000), pp.5–29.
[5] McGregor notes (*Ibid.*, p. 11, Example 5) that this term 'is used by Davies as a ternary structure B section label only, it does not indicate the number of measures or durational element involved'.
[6] Davies has 'Reprise des Anfanges'. This could alternatively denote a reprise of the opening of the movement, but 'Reprise of the First Group' seems more appropriate in the context.
[7] Davies, 71327, Sheet 14 has the inscription 'DIETEGRUPPE' at the top, slightly to the right of centre. This either refers to **[10]**+1, which is where the sheet begins (as does Sheet 17), or to **[10]**+6, directly over which it is. 'Dietegruppe' is not German. It might be a misspelling of 'Zweite Gruppe' and apply to **[10]**+1, thus duplicating the inscription at the head of Sheet 17, or a misspelling of 'Dritte Gruppe', and apply to **[10]**+6, which would not seem to make any musical sense, since **[10]**+1 to **[10]**+8 (= **[11]**–1) appears to be a seamless passage. No satisfactory explanation for this inscription has been found save possibly a slip on Davies's part.
[8] Phrases in Roman font are in English script.
[9] Needless to say, this inscription (like a number of others) is not entirely comprehensible.

APPENDIX C: FIRST SYMPHONY THIRD MOVEMENTTRANSFORMATIONS OF THE SEGMENTED ANTI-CLOCKWISE OUTWARDS SPIRAL PATH OF MAGIC SQUARE[10]

The numbers at the heads of the column blocks are the segments into which Davies has divided the path. The numbers at the left of the rows (or, after row 1, the blocks of two rows) are Davies's successive transformations of the path, starting with1, the original path. Within each block of two rows, the first row is the transformation of the preceding transformation and the second is its transposition. Davies's occasional redundant natural signs have been omitted.

	1	2				3				
1	**C**5	**C#**9	A#5	F#1	E#6	**E**1	A#5	D#9	B4	C8
2	C5	C8	A#5	G#2	E5	F3	A#5	D#9	B4	C8
	C#5	C#8	B5	A2	F5	F#3	B5	E9	C4	C#8
3	C5	B7	A#5	G#2	E5	F3	A#5	E8	C5	C8
	E5	D#7	D5	C2	G#5	A3	D5	G#8	E5	E8
4	C5	A#6	B3	A#3	D#6	F#5	A#5	E8	C5	C8
	F5	D#6	E3	D#3	G#6	B5	D#5	A8	F5	F8
5	C5	A4	B3	C4	D7	F#5	A4	F8	C5	C#1
	A5	F#4	G#3	A4	B7	D#5	F#4	D8	A5	A#1
6	C#9	G#3	B3	C4	C#5	G7	A4	F8	C#6	C#1
	E9	B3	D3	D#4	E5	A#7	C4	G#8	E6	E1
7	C#1	G4	C2	D6	C#5	G7	A4	F#9	C#6	C#1
	B1	F4	A#2	C6	B5	F7	G4	E9	B6	B1
8	C#1	F#5	C2	D6	C4	G#8	A4	F#9	D5	C#1
	D#1	G#5	D2	E6	D4	A#8	B4	G#9	E5	D#1
9	C#1	F6	C2	E7	B3	G#8	A4	F#9	D5	C#1
	G1	B6	F#2	A#7	F3	D8	D#4	C9	G#5	G1

[10] This table is derived from sheets 1–6 of the pre-composition charts of the Symphony, Add. Mss., 71327.

	4						
1	**F**4	C#9	D5	D#1	C6	G#2	G7
2	F4	C8	C#6	D2	C#5	G#2	G7
	F#4	C#8	D6	D#2	D5	A2	G#7
3	F4	C8	C#6	D2	C#5	G#2	F#8
	A4	E8	F6	F#2	F5	C2	A#8
4	F4	B7	C7	C#3	D4	G#2	F#8
	A#4	E7	F7	F#3	G4	C#2	B8
5	F4	Bβ 6	C7	C4	D#5	G4	F8
	D4	G6	A7	A4	C5	E4	D8
6	F#6	A5	B8	B5	E6	G4	F8
	A6	C5	D8	D5	G6	A#4	G#8
7	F#6	G#4	B8	A#5	F7	G4	F8
	E6	F#4	A8	G#5	D#7	F4	D#8
8	F#6	G3	A#7	A4	F7	G4	E9
	G#6	A3	C7	B4	G7	A4	F#9
9	F#6	F#2	A#7	G#3	F#8	G4	E9
	C6	C2	E7	D3	C8	C#4	A#9

	5								
1	**A**2	B6	D1	G#5	C#9	A4	D8	A#3	B7
2	G#1	B6	D1	G#5	C#9	A4	D8	G#2	B7
	A1	C6	D#1	A5	D9	A#4	D#8	A2	C7
3	G#1	B6	D1	A6	C#9	A4	D8	G#2	C8
	C1	D#6	F#1	C#6	F9	C#4	F#8	C2	E8
4	G2	A#6	C#2	A6	C#9	G#5	D8	F#1	C8
	C2	D#6	F#2	D6	F#9	C#5	G8	B1	F8
5	G2	Bβ 7	Dβ 2	A6	D2	Aβ 5	D#1	E1	C#8
	E2	G7	Bβ 2	F#6	B2	F5	C1	C#1	A#8
6	F#3	A#7	C#2	A#6	D2	G#5	D#1	D2	C#8
	A3	C#7	E2	C#6	F2	B5	F#1	F2	E8
7	F#3	A8	C3	A#6	D2	G6	D#1	C3	C#8
	E3	G8	A#3	G#6	C2	F6	C#1	A#3	B8
8	F4	A8	C3	B7	D2	G6	D#1	A#4	D9
	G4	B8	D3	C#7	E2	A6	F1	C4	E9
9	F4	A8	C3	B7	D2	G6	D#1	G#5	D9
	B4	D#8	F#3	F7	G#2	C#6	A1	D5	G#9

	6										
1	**E**3	G#8	C4	F9	F#5	C#1	A#6	B2	G#7	E3	D#8
2	D#2	A7	B3	D#8	G#4	C2	C5	B2	A#8	F2	D#8
	E2	A#7	C3	E8	A4	C#2	C#5	C2	B8	F#2	E8
3	D#2	A#6	B3	D#8	G#4	C2	D4	B2	A#3	F2	E7
	G2	D6	D#3	G8	C4	E2	F#4	D#2	D3	A2	G#7
4	D1	B4	A#2	C#7	A#3	C3	D4	B2	C7	F#1	E7
	G1	E4	D#2	F#7	D#3	F3	G4	E2	F7	B1	A7
5	C#2	C5	Bβ 2	B6	A#3	B3	E4	C7	D6	G3	E7
	A#2	A5	G2	G#6	G3	G#3	C#4	A7	B6	E3	C#7
6	C2	C#6	A1	B6	C2	A#5	E4	C7	E5	G#4	F5
	D#2	E6	C1	D6	D#2	C#5	G4	D#7	G5	B4	G#5
7	B3	D7	A1	A8	D1	A#5	F#3	C7	F#4	A6	F5
	A3	C7	G1	G8	C1	G#5	E3	A#7	E4	G6	D#5
8	B3	D7	G#2	A8	D1	A6	F#3	C7	F#4	A#7	F#4
	C#3	E7	A#2	B8	E1	B6	G#3	D7	G#4	C7	G#4
9	A#4	D#8	G3	G7	D#2	A6	G#2	C7	G3	B8	F#4
	E4	A8	C#3	C#7	A2	D#6	D2	F#7	C#3	F8	C4

	7												
1	**B**3	E7	D#2	A6	F1	E5	D#9	F#4	B8	G3	C7	G#2	A6
2	C4	E7	F3	A6	D#2	E5	D7	F#4	A#9	F2	C7	F#1	A6
	C#4	F7	F#3	A#6	E2	F5	D#7	G4	B9	F#2	C#7	G1	A#6
3	C4	E7	F3	A6	D#2	E5	D7	F6	A#9	F2	C7	F#1	A#5
	E4	G#7	A3	C#6	G2	G#5	F#7	A6	D9	A2	E7	A#1	D5
4	C#5	E7	G4	A6	C#3	E5	C#6	F6	A8	D#1	C7	E2	A#5
	F#5	A7	C4	D6	F#3	A5	F#6	A#6	D8	G#1	F7	A2	D#5
5	C#6	E5	A5	A6	B4	E5	C#6	F6	G#7	D#1	B2	E2	B4
	A#6	C#5	F#5	F#6	G#4	C#5	A#6	D6	F7	C1	G#2	C#2	G#4
6	D8	E5	B4	A6	A5	E7	C5	E7	G5	C#3	B2	D3	B4
	F8	G5	D4	C6	C5	G7	D#5	G7	A#5	E3	D2	F3	D4
7	D8	E5	C#3	A6	G4	E7	C5	E7	F#4	B4	B2	C4	C2
	C8	D5	B3	G6	F4	D7	A#5	D7	E4	A4	A2	A#4	A#2
8	D#9	E5	D#2	A6	F3	E7	B3	D#8	F4	A5	B2	C4	C2
	F9	F#5	F2	B6	G3	F#7	C#3	F8	G4	B5	C#2	D4	D2
9	D#9	E5	F1	A6	D#2	E7	B3	D#8	E3	G#7	B2	A#6	C#1
	A9	A#5	B1	D#6	A2	A#7	F3	A8	A#3	D7	F2	E6	G1

	8														
1	**D**#2	G7	G3	D#8	A#4	D9	G#5	D#1	G6	D2	B7	C3	A8	F4	E9
2	D1	G#6	G#2	D6	B5	D9	A#4	D#1	G6	D2	B7	C3	A8	F#3	E9
	D#1	A6	A2	D#6	C5	D#9	B4	E1	G#6	D#2	C7	C#3	A#8	G3	F9
3	C#2	A#5	G#2	C#5	B5	C#8	C3	D#1	G6	D2	A#6	C3	A8	F#3	F8
	F2	D5	C2	F5	D#5	F8	E3	G1	B6	F#2	D6	E3	C#8	A#3	A8
4	C3	C6	A1	C4	C5	C#8	C3	D#1	G#5	D2	A#6	C#2	A#7	G2	F8
	F3	F6	D1	F4	F5	F#8	F3	G#1	C#5	G2	D#6	F#2	D#7	C2	A#8
5	B4	C#5	A1	B5	C5	C8	D2	D8	G#5	C#9	A#6	C#2	A#7	G2	F#8
	G#4	A#5	F#1	G#5	A5	A8	B2	B8	F5	A#9	G6	A#2	G7	E2	D#8
6	A#5	D6	A#2	A#6	C#6	C8	E1	D8	G#5	C#9	A6	C#2	A#7	G#3	F#8
	C#5	F6	C#2	C#6	E6	D#8	G1	F8	B5	E9	C6	E2	C#7	B3	A8
7	A4	D#7	A#2	A7	D9	C8	F#2	D8	A4	C#9	A6	D1	B6	G#3	F#8
	G4	C#7	G#2	G7	C9	A#8	E2	C8	G4	B9	G6	C1	A6	F#3	E8
8	G#3	E8	B3	A7	E4	B7	G#2	D8	A4	C#9	G#5	D1	B6	A2	G7
	G#3	F#8	C#3	B7	F#4	C#7	A#2	E8	B4	D#9	A#5	E1	C#6	B2	A7
9	F#5	F9	C4	G#8	E3	B7	A#3	D8	A4	C#9	G#5	D1	B6	A2	G7
	C5	B9	F#4	D8	A#3	F7	E3	G#8	D#4	G9	D5	G#1	F6	D#2	C#7

	9															
1	**G**4	F#8	G#3	A#7	F#2	F#6	C#1	D5	F#9	A4	G#8	B3	E7	C2	F6	C#1
2	G4	F7	A4	A#7	G3	F#6	C#1	D5	F#9	A4	G5	C2	E7	C2	F#5	C#1
	G#4	F#7	A#4	B7	G#3	G6	D1	D#5	G9	A#4	G#5	C#2	F7	C#2	G5	D1
3	G4	F7	A#5	B6	G3	F#6	C#1	C#4	F#9	A4	G5	C2	D6	C2	G4	C#1
	B4	A7	D5	D#6	B3	A#6	F1	F4	A#9	C#4	B5	E2	F#6	E2	B4	F1
4	G4	E6	B4	C5	G#4	F#6	C#1	C#4	F8	A4	F#4	C#1	C5	B4	G#3	C#1
	C4	A6	E4	F5	C#4	B6	F#1	F#4	A#8	D4	B4	F#1	F5	E4	C#3	F#1
5	G#2	D#5	C4	C5	A5	F4	C#1	C#4	F8	A#5	F#4	D2	A#4	B5	A4	C#1
	F2	C5	A4	A5	F#5	D4	A#1	A#4	D8	G5	D#4	B2	G4	G#5	F#4	A#1
6	G#2	D#5	C#3	C#4	A#6	F4	C8	C3	E8	A#5	F3	D#3	A#4	B4	A#5	C5
	B2	F#5	E3	E4	C#6	G#4	D#8	D#3	G8	C#5	G#3	F#3	C#4	D4	C#5	D#5
7	G#2	D6	D2	C#4	B7	F4	C8	C3	E8	A#5	F3	E4	G#3	A#5	B6	C5
	F#2	C6	C2	B4	A7	D#4	A#8	A#3	D#8	G#5	D#3	D4	F#3	G#5	A6	A#5
8	G#2	C#8	D1	D5	C8	F4	C8	C3	D#9	A#5	E1	F6	F#1	A#5	C7	C5
	A#2	D#8	E1	E5	D8	G4	D8	D3	F9	C5	F#1	G6	G#1	C5	D7	D5
9	G#2	C6	D#1	D5	C#9	F4	C8	B4	D#9	A#5	E1	F6	F#1	A#5	C#9	C5
	D2	F#6	A1	G#5	G9	B4	F#8	F4	A9	E5	A#1	B6	C1	E5	G9	F#5

APPENDIX D: DAVIES'S STRUCTURAL ANNOTATIONS

ON THE MS. OF THE THIRD MOVEMENT OF THE *FIRST SYMPHONY*.

Summary Table	**Davies**	**Sheet**[11]
'Middle Section'	'MIDDLE EIGHT[12] ERSTEGRUPPE'	26
'Reprise of First Group'	'REPRISE ERSTEGRUPPE'	27
'End of Development'	'*Ende Durchführung*'	23

Thus, the section before the Middle Section followed by the Reprise of First Group must be the First group. Similarly, the sections after the Reprise of the First Group and before the End of the Development must be part of the Development.

[11] Add. Mss., 71327.
[12] McGregor ('Reading the runes', p. 11, Example 5) notes that this term 'is used by Davies as a ternary structure B section label only, it does not indicate the number of measures or durational element involved'.

APPENDIX E: THE FORMS OF BOULEZ'S 'DON' AND THE FOURTH MOVEMENT OF DAVIES'S *FIRST SYMPHONY*

As noted above (Chapter 16, under Fourth movement, The composer's comments), Davies has written that ' …the overall shape and some of the details of the formal structure in the last movement came, on the surface level, from 'Don' in Boulez's *Pli Selon Pli*'. The correspondence is, however, not immediately evident: there are clear differences in the two structures. First, Cross's analysis of 'Don'[13] divides it into eight sections, whereas Davies's movement falls most plausibly into six. Secondly, two section of 'Don' are 'pre-echoes' of later movements of *Pli selon pli*, which would be impossible for the last movement of Davies's symphony. Further differences will also be observed.

On the other hand, there are, apart from the beginnings and endings of the two pieces, also clear correspondences which allow sections of the two pieces to be placed side by side in the following table. First Boulez's section (ii) is, in Cross's analysis, largely taken up with sets of chords, and 'pendulum-like pairs of chords' occur in the second and fourth subsections of the first section of Davies's movement

Secondly, section (v) of 'Don' is, in Cross's analysis, a *Klangfarbenmelodie*. Now Davies's expressive doubling might be considered similar to *Klangfarbenmelodie*, but it is too widespread throughout the movement to be taken as a counterpart of Boulez's section (v). Again, the first subsection of Davies's sixth section is, as shown in the analysis of the movement, a very minimal *Klangfarbenmelodie*, but it seems too minimal, and positioned, unlike Boulez's, at the end of the movement, for it to be a counterpart of the fairly central section (v). But

[13] 'Form and expression in Boulez's *Don*' *The Music Review*, 36 (1975), pp. 215–230.

Davies's section 2, in which, in the first half, the melody is shared between three instruments, finally passing to the first clarinet in the second half, seems a plausible counterpart to Boulez's section (v).

The third correspondence comes from Boulez's sections (iii) and (vi), which, as already remarked, quote from later movements of *Pli selon Pli*: although no direct correspondence with the last movement of Davies's symphony is possible, its section 5 uses three-element row-segments from the first movement, which may be considered a kind of equivalent to Boulez's quotations. The section cannot correspond to section (iii), since that precedes the section (v), whereas section 5 follows the corresponding section 2: it can, however, correspond to section (vii).

Boulez: *Don* (following Cross)		Davies: Fourth Movement of *First Symphony*	
(i)	'Loud staccato crash' Introduction	1	Subsection 1: anacrusis.
(ii)	*irrégulier* Chords		Subsections 2–4: unit semibreve. (recurrence of anacrusis). 'Pendulum-like pairs of chords'
	Moins hesitant, et moins lent Chords		Subsections 5–7: units various and becoming approximate.
(iii)	(Pre-echoes of later movements) Three brusque chords recalling the opening		
(iv)	*sourdement agité*		Subsection 8.
	plus agité		Subsection 9.
	point d'orgue transition		
(v)	*Klangfarbenmelodie*	2	Spiral P-6 shared between three instruments.
(vi)	*Libre, sans régularité* A1. Four dovetailed trilled chords	3	Trill chords and swirling: fanfares, *etc.*
	B. Brief, disjointed *staccato* figures dissolving into sustained chords	4	1. Quaver and triplet quaver figures.
	A2. Four dovetailed trilled chords		2. Gradually increasing activity Anacrusis.
(vii)	Vocal citations from following movements	5	Three-element row-segments from first movement. ***pp*** tremolo string chords diminishing to nothing. Reminiscence of opening of the symphony.
(viii)	Four independent sections	6	Most of spiral R-6.
	coming together in a fifth.		Remainder, in counterpoint with its transposed retrograde, of Spiral R-6.

These three correspondences, and the beginnings and endings, allow a plausible reconstruction of the way in which Davies's movement came from Boulez's. There are, however, two features which will not fit into this scheme.

First, Cross notes a reminiscence, in section (iii), of Boulez's opening, but Davies's anacrusis recurs twice, at the end of subsection 3 of section 1, and,

emphatically, at the end of section 4, neither of which corresponds in its position in the movement to Boulez's recall of his opening. Secondly, at the end of Boulez's section (iv) there is a *point d'orgue* (which here means not a pedal point but a general pause): something very similar, namely ***pp*** tremolo string chords vanishing to nothing occurs almost at the end of Davies's section 5, but again this does not correspond in its position in the movement to Boulez's *point d'orgue*.

Thus, although 'the overall shape and some of the details of the formal structure in the last movement' may have come from Boulez's 'Don', it has not come without alterations.

APPENDIX F: ALLUSIONS TO ANDRÉ GIDE AND LEONARDO DA VINCI IN DAVIES'S COMPOSER'S NOTE ON SYMPHONY NO. 2

Gide:

> On the edge of the Arno[14] I like to observe at length the powerful wave made by the rolling water of the weir; the weir is on an angle in the river so that the water piles up rather on one side. Against the wall is a fold that hollows out the wall's edge; the water then rolls over itself like a propeller, forming a constant unmoving wave. Wonderful to look at that fixed form with a fleeting and fluid matter always passing through it. In the sea, on the contrary, a drop of water remains motionless, or at least returns to its original place, and it's merely the form of a wave that moves forward.[15]
> 16th December, 1895.

Da Vinci:

First type of wave: there are five drawings entitled 'Deluge … '

illustrating the type of wave in which the form moves but the water

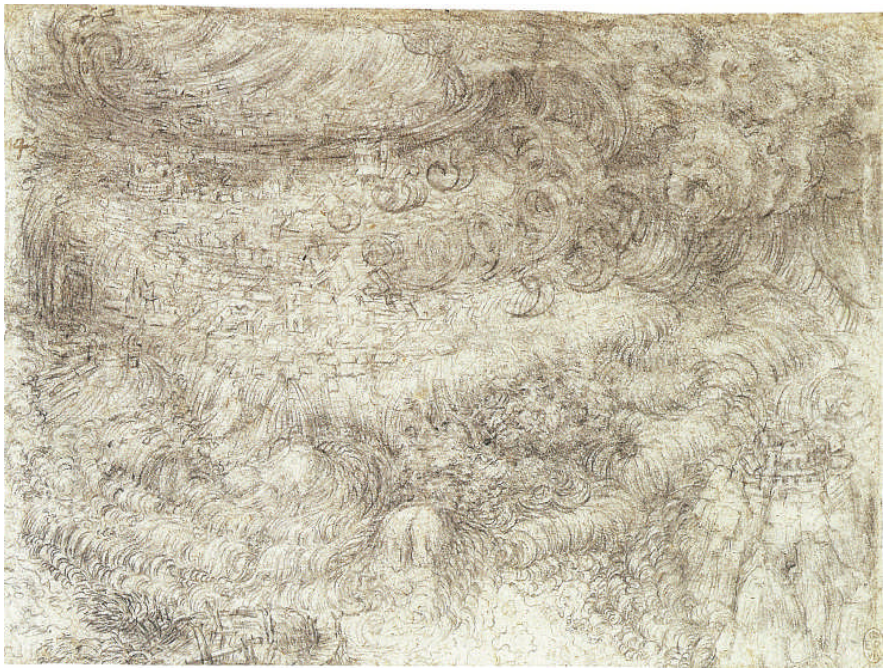
remains stationary, of which the following, in black chalk, 'Deluge over

a town on a Hill' (Windsor Castle, Royal Library, RL 12385r, 1515?,

when da Vinci was in Rome) is an example.

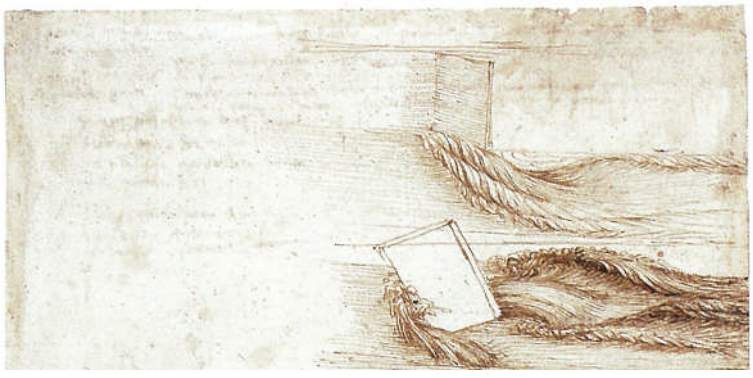
[14] Note, not on France's north coast as stated by Davies.

[15] J'aime, au bord de l'Arno, regarder longtemps la puissante vague que fait l'eau roulant du barrage; le barrage est oblique dans le fleuve, de sorte que l'eau s'amasse un peu d'un côté; c'est, contre le mur, un bourrelet qui creuse d'autant sa lisière; l'eau roule alors sur elle-même en hélice, immobilisant la forme d'une vague. Admirable à regarder cette forme fixe, que traverse une fugace et fluide matière. Dans la mer, au contraire, le goutte d'eau demeure immobile, ou du moins retrouve son lieu, et c'est la forme seule d'une vague qui se promène.



Ill. G.1 Leonardo da Vinci, ‘Deluge over a tow on a hill’ (Windsor Castle, Royal Library, RL 12385r, 1515?)/

Second type of wave: There are two sheets of studies of ‘Water flowing past Obstacles’ illustrating waves in which the form is stationary but the water moves, of which the following top half of one in pen and ink (RL 12660r, 1508–1510, when da Vinci was in Milan) is an example.



Ill. G2 Leonardo da Vinci, a study of Water flowing past Obstacles, (RL 12660r, 1508–1510).

APPENDIX G: GENESIS OF THE CONSEQUENT OF THE FIRST SUBJECT OF THE FIRST MOVEMENT OF THE SECOND SYMPHONY

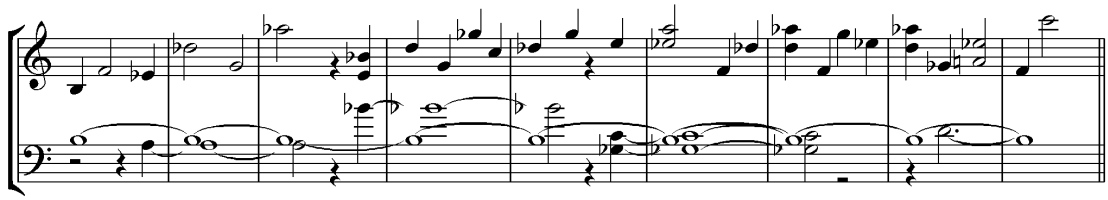
Three stages of this genesis can be traced. The first consists of the inner pitches of the appropriate row of the grand square (in the first two rows, the main pitches may also be used), the second is found in Davies's manuscript sketches, the third and final stage being the transformation as it appears in the score. All three are shown for the first and second transformations.

First rotation: **[D]**+1 to **[E]**–1

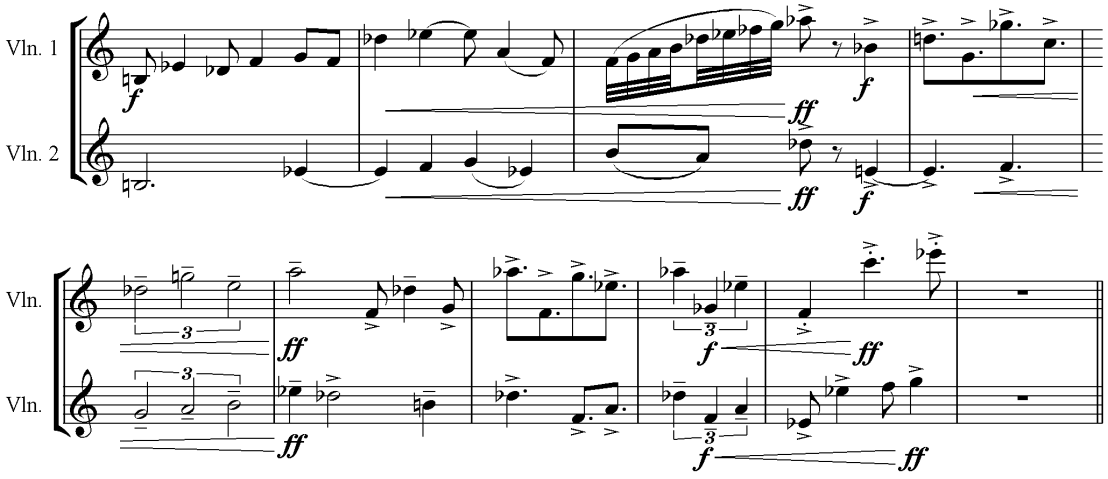
Row 1 of hyper-square

B	D	E
F Eβ Dβ G Dβ Aβ	Bβ E G Gβ **Gβ** C **Gν** Dβ	A Eβ F **Eν** Gβ Dβ
C	E Bβ Gβ	D
Aβ D Gβ F Gν Eβ	**Aβ** Aν Bβ Aβ D Eβ **Eν** F	E Bβ C **E** **D** Bν

Davies, Add. Mss., 71335, sheet 11



Score

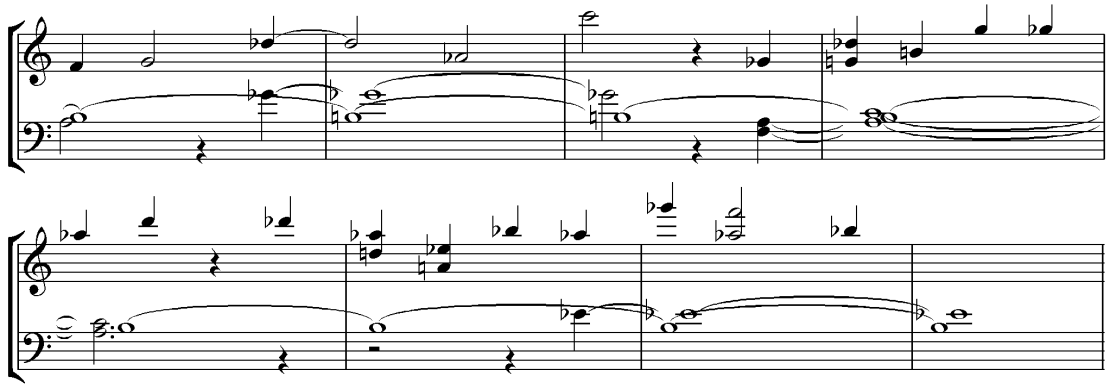


Second rotation: **[F]**+1 to **[G]**–1

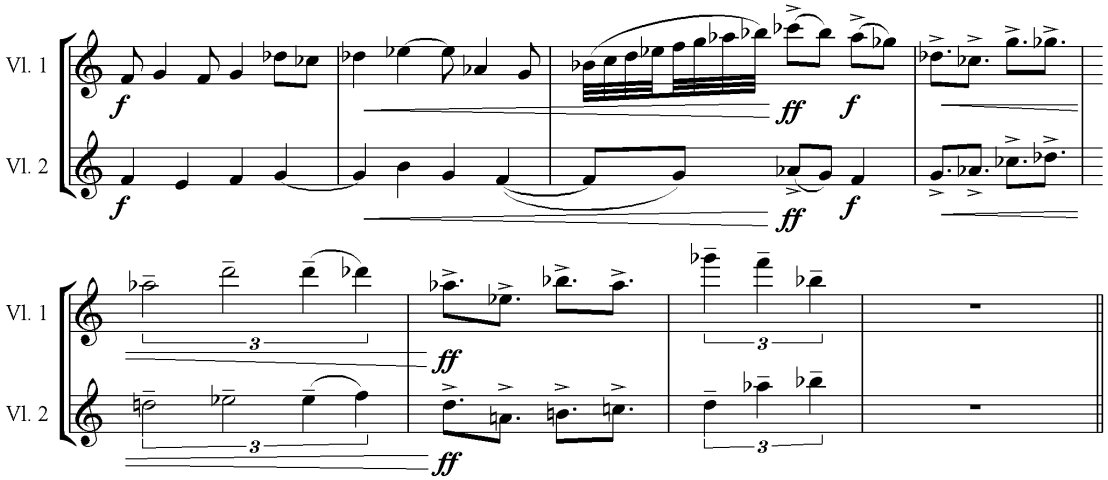
Row 2 of hyper-square

B	E Bβ	Eβ A
Dβ F A G **G** D	Gβ **Dβ** Aβ Dβ C **C** GV	Bβ BV Bβ C G
D Aβ	Bβ D	Bβ E
D +Gβ **Aβ** C B Dβ AV	Bβ **D** Eβ **E** E Aβ AV **Bβ** Bv	Aβ Gβ Bβ Aβ F

Add. Mss., 71335,sheet 13



Score



(It can be seen that in the second transformation the bar corresponding to

the sixth bar of the first is omitted.)

APPENDIX H: CONSTRUCTION OF THE DOUBLE SQUARE OF MARS[16]

The first five distinct pitches of the plainsong *Nativitas Tua, Dei Genetrix* (but with the fifth, A, raised to Bβ) are written in the first row of each of two adjacent 5 × 5 squares. The left-hand square is then made into a transposition square, whereas the reverse transpositions are applied to the second to fifth rows of the right-hand square (as indicated in the margins) so that the sequence of pitches in its first column are the inversion (about the top left-hand cell pitch, D) of those in its first row. The cells of each square are numbered from 1 to 25, these numbers being entered in the top left-hand corner of each cell, and the column numbers of the cells in the left-hand square and the row numbers of those in the right-hand square are entered in their bottom right-hand corner.

	1 D 1	2 C 2	3 F 3	4 G 4	5 Bβ 5	1 D 1	2 C 1	3 F 1	4 G 1	5 Bβ 1	
↓M2	6 C 1	7 Bβ 2	8 Eβ 3	9 F 4	10 Aβ 5	6 E 2	7 D 2	8 G 2	9 A 2	10 C 2	↑M2
↑m3	11 F 1	12 Eβ 2	13 Aβ 3	14 Bβ 4	15 Dβ 5	11 B 3	12 A 3	13 D 3	14 E 3	15 G 3	↓m3
↑P4	16 G 1	17 F 2	18 Bβ 3	19 C 4	20 Eβ 5	16 A 4	17 G 4	18 C 4	19 D 4	20 F 4	↓P4
↓M3	21 Bβ 1	22 Aβ 2	23 Dβ 3	24 Eβ 4	25 Gβ 5	21 F# 5	22 E 5	23 A 5	24 B 5	25 D 5	↑M3

The double square is then constructed by writing the numbers of the magic square of Mars in the top left-hand corner of each cell of two

[16] The derivation given here is a modification of that given by Davies in sheet 34/8 of his manuscripts for the symphony.

adjacent 5 × 5 squares, and inserting in each of its cells the contents of the cell with its number in the preceding double square: the column numbers from the left-hand square and the row numbers from the right-hand square are now the duration numbers.

3 F 3	16 G 1	9 F 4	22 Aβ 2	15 Dβ 5	3 F 1	16 A 4	9 A 2	22 E 5	15 G 3
20 Eβ 5	8 Eβ 3	21 Bβ 1	14 Bβ 4	2 C 2	20 F 4	8 G 2	21 F# 5	14 E 3	2 C 1
7 Bβ 2	25 Gβ 5	13 Aβ 3	1 D 1	19 C 4	7 D 2	25 D 5	13 D 3	1 D 1	19 D 4
24 Eβ 4	12 Eβ 2	5 Bβ 5	18 Bβ 3	6 C 1	24 B 5	12 A 3	5 Bβ 1	18 C 4	6 E 2
11 F 1	4 G 4	17 F 2	10 Aβ 5	23 Dβ 3	11 B 3	4 G 1	17 G 4	10 C 2	23 A 5

Deleting the cell numbers of the magic squares now gives the double square of Mars as shown in Chapter 17.

APPENDIX I: TRANSFORMATIONS OF THE CELLO LINE IN THE THIRD MOVEMENT OF THE SECOND SYMPHONY[17]

OT

1	D	C	F	G	F	A	A	G	E	G	F	E	A	G	F	D	F	G	A	G	F	Bβ	Bβ	E	D
2	C	Bβ	F	G	F	Aβ	Aβ	Gβ	Eβ	Gβ	F	E	A	G	F	D#	Gβ	Aβ	Gv	F	F	Av	Aβ	C#	B#
3	Bβ	Aβ	F	Gβ	F	Gv	G	F	D	F	F#	Fv	Bβ	Aβ	Gβ	Fβ	Gβ	A≡	Fv	E	F	Aβ	Gβ	B	B
4	Aβ	Gβ	F	F	E	Gβ	Gβ	F	Eβ	E	F#	Fv	Bβ	Av	Gβ	F	Gv	Aβ	E	E	Gβ	Av	F	Aβ	
5	Gβ	F	F		E	F	F	E	Eβ	Eβ	F#	F#	Bβ	Bβ	Gv	F#	Aβ	Aβ	D		Gβ	Aβ	Eβ	F	
6	E	E	F		E	E	E	E	E	D	G	(G)	Bv	(Bv)	Gv	G	Av		C		Gβ	Gv	Dβ	Eβ	
7	D		F		E		Eβ	Eβ		Dβ	G		Bv		Aβ		Av		Bβ		Gβ	Gβ	C	D	

NT

1	D	C	F	G	F	A	A	G	E	G	F	E	A	G	F	D	F	G	A	G	F	Bβ	Bβ	E	D
2	D	C	G	A	G	Bβ	Bβ	Aβ	Fβ	Aβ	Gv	F#	B	A	G	F	Aβ	Bβ	Av	G	G	Bv	Bβ	Eβ	D
3	D	C	A	Bβ	A	Bv	B	A	Gβ	A	Bβ	A	D	C	Bβ	Aβ	Bβ	Cβ	Av	G#	A	C	Bβ	Eβ	Eβ
4	D	C	B	B	Bβ	C	C	B	A	A	C	B	E	Eβ	C	B	Dβ	Dv	Bβ	B	C	Eβ	B	D	
5	D	D	C#		Cv	Dβ	Dβ	C	B	B	D	D	F#	F	Eβ	D	Ev	E	Bβ		D	E	B	Dβ	
6	D	D	Eβ		D	D	D	D	D	C	F	(F)	A	(A)	F	F	G		Bβ		E	F	B	Dβ	
7	D		F		E		Eβ	Eβ		Dβ	G		B		Aβ		Av		Bβ		Gβ	Gβ	C	D	

[17] Add. Mss., 71334, sheet 23.

APPENDIX J: SETS OF TRANSFORMATIONS USED IN THE TRANSITIONS OF THE SCHERZO OF THE SECOND SYMPHONY.

Table J1: First Transition[18]

OT

1	C	F	A	G	E	(E)	A	F	D	A	G	F	Bβ	E
2	C	G	Aβ	Aβ	F	Gβ	Gν	E	D#	G	F#	E	Bβ	Eβ
3	C	Aβ	G	Aν	F#	G#	Gβ	Eβ	Eν	Gβ	Fν	Eβ	Bβ	D
4	B	Aν	G	A#	G	Bβ	F	D	F#	Fν	E	Dβ	Bν	Dν
5	B	Bβ	Gβ	A#	G#	B#	E	Dβ	G	E	E	C	B	C#
6	B	C	F	B	A	D	Eβ	C	G#	Eβ	Eν	Bβ	Bν	Cν
7	B	D	E	C	Bβ	E	D	B	A	Dβ	Eβ	A	Bν	(B)

NT

1	C	F	A	G	E	(E)	A	F	D	A	G	F	Bβ	E	Fl. 1, **[E]**+1
2	F	C	Dβ	Dβ	Bβ	Cβ	Cν	A	G#	C	B	A	Eβ	Aβ	Cl. 1, **[F]**+1
3	Aν	F	E	F#	D#	E#	Eβ	C	C#	Eβ	D	Cν	G	B	Ob. 1, **[F]**+4
4	G	F	Eβ	F#	Eβ	Gβ	Dβ	Bβ	Dν	Dβ	C	A	G	Bβ	Fl. 1, **[F]**+5
5	E	Eβ	Cβ	Eβ	Dβ	F	A	F#	C	A	A	Fν	E	F#	Cl. 1, **[G]**–4
6	D	Eβ	Aβ	D	C	F	Gβ	Eβ	B	Gβ	Gν	Dβ	Dν	Eβ	Ob. 1, **[G]**–3
7	Bβ	Dβ	Eβ	Bν	Bβ	Eβ	Dβ	Bβ	Aβ	C	Dν	Aβ	Bβ	(B)	Fl. 1 [G]–3 and Picc. Fl.2, **[G]**–3 (half speed)

Notes

- Here and in subsequent tables, the divisions between rows are as in Davies's manuscripts.
- In both sub-tables above, all columns except the last two in each half contain a stemless crotchet (or quaver): the last two contain a beamed pair of quavers.
- In the second sub-table, NT (New Transformation), the rows are transposed in such a way that the first five begin in turn with the first five pitches – C, F, A, G, E – of the first row.
- The Bβ in the fourth column of the last row of the NT sub-table is inconsistent with the Bβ in the same place in the OT (Old Transformation) subtable (consistency woul require an A). The fact that the Bβ in the OT sub-table is the end of a set of semitone rises down the column suggests that it is correct, but the Bβ in the NT sub-table is what occurs in the score, twice (first flute, bar **[G]**–3, piccolo and second flute, bar **[G]**–1).
-

[18] Add. Mss., 71334, sheet 25.

Table J2: Second Transition[19]

OT

1	C	Bβ	Eβ	F	Eβ	G	G	F	D	F	Eβ	D	Eβ	Aβ	Aβ	D	C
2	B	A	E	Gβ	F	Aβ	Aβ	G	Eβ	F#	Fν	E	Eν	G	A	C	Dβ
3	Bβ	A	E	Gβ	Gβ	Aβ	Aβ	Aβ	E	F#	F#	Fν	F	G	Bβ	Bβ	D
4	A	Aβ	E	Gν	Gν	Aβ	Aν		E	F#		G	F#	Gβ	B	Aβ	Eβ
5	Aβ	Aβ	F	G	A	A	A		F	G		A	G	Gβ	C	Gβ	E
6	G	Aβ	F	Aβ	B		Bβ		F#	G		B	Aβ	F	Dβ	Eβ	F
7	F	G	F	Aβ	Dβ		B		G	G		C	Aν	E	D	C	E G

NT

1	C	Bβ	Eβ	F	Eβ	G	G	F	D	F	Eβ	D	Eβ	Aβ	Aβ	D	C	Picc., Fl. 2, **[L]**–4
2	C	Bβ	F	G	Gβ	Aν	A	Aβ	E	G	Gβ	F	F	Aβ	Bβ	Dβ	Dν	Ob. 1, **[L]**+3
3	C	B	Gβ	Aβ	Aβ	Bβ	Bβ	Bβ	Gβ	Aβ	Aβ	Gν	G	A	C	C	E	Tr. 1, **[L]**+4
4	C	B	G	Bβ	Bβ	Bν	C		G	A		Bβ	A	A	D	Bν	Gβ	Cl. 1, **[L]**+5
5	C	C	A	B	Dβ	Dβ	Dβ		A	B		Dβ	B	Bβ	E	Bβ	Aβ	Ob. 1, **[M]**–3
6	C	Dβ	Bβ	Dβ	E		Eβ		B	C		E	Dβ	Bβ	Gβ	Aβ	Bβ	Tr. 1, **[M]**–2
7	C	D	C	Eβ	Aβ		Gβ		D	D		G	E	B	A	G	D	Cl. 1, **[M]**–1 Picc. Fl. 2, **[M]**–1 (half speed)

Note

- Here and with all subsequent transitions, unlike with the first transition, the rows of the OT sub-table begin with different pitches, whereas those of the NT sub-table all begin with the same pitch.
- When a transformation is reached where two adjacent pitches are the same, as in the fifth, sixth and eighth columns above, then usually (but not always) one of them is subsequently omitted: occasionally the reverse occurs.
- The omission of a pitch to the left of the final D in the last row of the NT sub-table (where the OT sub-table has an E) is what occurs in the score, twice (first clarinet, bar **[M]**+2, piccolo and second flute, bar **[M]**+5).

[19] Add. Mss., 71335, sheets 66V (OT) and 65V(NT).

Table J3: Third Transition[20]

OT

1	F	Eβ	Aβ	Bβ	Aβ	C	C	Bβ	G	Bβ	Aβ	G	C	Bβ	Aβ	F	Aβ	Bβ	C	Bβ	Aβ	Dβ	Dβ	G		F
2	Eβ	D	Aβ	Aν	G	B	Bβ	A	G	A	G#	Aβ	Bβ	Aν	G	F	Aβ	Aν	C	Bβ	A	C	B	F	F	E
3	Dβ	Dβ	Aβ	Aβ	G	Bβ	A	A	G	Aβ	Aβ	Aν	A	A	F	E	Aβ	Aβ	B	Bβ	A	B	A	Eβ	Eν	Eβ
4	B		G		Gβ	A	Aβ	Aν	G	G		Bβ	G		Eβ	Eβ	Aν		Bν	Bν	Bβ	A	F#	C#	D#	Dν
5	A		G		Gβ	A	G	Aβ	F#	F#		Bβ	F		D		Aν		B	C	B	G	E	C	Eβ	C
6	G		G		F	Aβ	Gβ	Aβ	F#	Fν		Bν	Eβ		C		Aν		Bβ	C	B	F	Dβ	A	C#	B
7	F		G		E	G	F	Gν	F#	E		C	D		B		Aν		Bβ	C	C	E	B	G	C	A

NT

1	F	Eβ	Aβ	Bβ	Aβ	C	C	Bβ	G	Bβ	Aβ	G	C	Bβ	Aβ	F	Aβ	Bβ	C	Bβ	Aβ	Dβ	Dβ	G		F	Picc, Fl. 2, **[Q]**+1
2	F	E	Bβ	Bν	A	C#	Cν	B	A	B	A#	A#	C	B	A	G	Bβ	Bν	D	C	B	D	C#	G	G	F#	Ob. 2, **[S]**–5
3	F	F	C	C	B	D	C#	C	B	Cν	C	C#	C#	C	A	G#	C	C	D#	Dν	C#	D#	C#	G	Aβ	Gν	Cl. 1, **[S]**–3
4	F		C#		Cν	D#	Dν	D#	C#	C#		E	C#		A	A	D#		F	F	E	D#	C	G	A	G#	Cl. 2, **[S]**–2
5	F		Eβ		D	F	Eβ	Eν	D	D		F#	C#		A#		F		G	Aβ	G	Eβ	C	Aβ	Cβ	Aβ	Tr. 1, **[S]**+1
6	F		F		Eβ	Gβ	Eν	F#	E	D#		A	C#		A#		G		G#	A#	Aν	Eβ	B	G	B	A	Fl. 2, **[S]**+3

[20]Add. Mss., 71335, sheets 64V (OT) and 59V(NT).

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7	F	G	E	G	F	C	G	F#	E	C	D	B	A	Bβ	C	C	E	B	G	C	A

Ob. 1 → Ob. 2, **[S]**+6, Cl. 1, **[T]**–2 (half speed)

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Notes

- When a pitch with an accidental is immediately followed by the same pitch without an accidental (as, twice in the third row of the NT sub-table 'C# C') comparison with the other sub-table shows that Davies follows the usual convention that the accidental applies also to the following pitch (so that in both cases the C's should strictly speaking be followed by '(#)').
- The first C in the last row of the NT sub-table occurs in Davies's chart, but not in the score (second oboe, bars **[S]**+7, **[S]**+8, first clarinet, bar **[T]**+1).

Table J4: Fourth Transition[21]

OT

1	G	F	Bβ	C	Bβ	D	D	C	A	C	Bβ	A	D	C	Bβ	G	Bβ	C	D	C	Bβ	Eβ	Eβ	A	G
2	Gβ	F	B	C	A	C	C	B	A	B	A	A	C	B	B	G#	B	C#	Cν	Bβ	Bβ	D	Dβ	G	F
3	F	F	B	B	Aβ	Bβ	Bβ	Bβ	A	A	G#		Bβ	Bβ	C	Bβ	C	D	Bν	A	Bβ	Dβ	Bν	E	D#
4	E		C		G	Aβ	Aβ		Aν	G	G		Aβ		Dβ	C	Dβ	Eβ	Aν	G#	Aν	B	A	C#	C#
5	Eβ		C#		F#	F#	Fν		A	F			E		Dν	Dν	Eν		G	G	A	Bβ	F	Aν	
6	Dβ		Dν		F		Eβ		Bβ	Eβ			D		Eβ		Eν		Eβ		A	A	D	F#	
7	B		D		E		C		Bβ	D			B		Eβ		Eβ		Dβ		A		B	D	

NT

1	G	F	Bβ	C	Bβ	D	D	C	A	C	Bβ	A	D	C	Bβ	G	Bβ	C	D	C	Bβ	Eβ	Eβ	A	G	Picc., Fl. 2, **[W]**+3
2	G	F#	C	Dβ	Bβ	Dβ	Dβ	C	Bβ	C	Bβ	B	Dβ	C	C	A	C	Dν	Dβ	Bν	Bν	Eβ	Dν	Aβ	Gβ	Cl. 2, **[X]**–3
3	G	G	C#	C	Bβ	Cν	C	C	Bν		B	A#	C	C	D	C	D	E	C#	B	Cν	Eβ	C#	F#	Fν	Ob. 1→2, **[X]**–1
4	G		Eβ		Bβ	Cβ	Cβ		Cν		Bβ	B	Cβ		Fβ	Eβ	Fβ	Gβ	Cν	Bν	C	D	C	E	E	Tr. 1, **[X]**+1
5	G		F		Bβ	B	A		C#		A		G#		F#	F	G#		B	B	C#	D	A	C#		Fl. 1, **[X]**+2
6	G		Aβ		B		A		E		A		G#		A		Bβ		B≡		Eβ	E	G#	B#		Cl. 2, **[X]**+4
7	G		Bβ		C		Aβ		Gβ		Bβ		G		B		B		A		F		G	Bβ		Picc.,

[21] Mss., 71335, sheets 58V(OT) and 57V(NT).

Tr. 1
[Y]–2

Note

- The layout of the third and fourth rows of second block of the NT sub-table does not correspond to that of the OT sub-table, but the pitches do.

Table J5: Fifth Transition[22]

OT

1	A	G	C	D	C	E	D	C	B	E	D	C	E	D	C	F	B	A
2	Bβ	A	Eβ	F	D	F#	D	Dβ	C#	F#	Fν	Dβ	F	Eβ	C	F	Bβ	Aβ
3	C	C	Gβ	Gν	E	G#	D	Dν	D#	G	G	Dν	Gβ	Fβ	C	F	A	G#
4	Dβ		A	A	G	Bβ	Eβ	Eβ	Eν	A#		E	G	F	C	Gβ	Aβ	Aβ
5	Eβ		C		Bβ	C	Eβ	Eβ	G	B		F#	Aβ	G	C	Gβ	Gν	
6	Gβ		Eβ		C	Dβ	Eβ	Eν	A	C		G	Aν	A	C	Gβ	Gβ	
7	Aβ		G		Dβ	Dβ	Eβ	F	B	D		Aβ	Bβ		C	Gβ	F	

NT

1	A	G	C	D	C	E	D	C	B	E	D	C	E	D	C	F	B	A	Picc., Ob. 1, **[B1]**–2
2	A	Aβ	D	E	Dβ	F	Dβ	C	C	F	E	C	E	D	B	E	A	G	Cl. 1, 2, **[B1]**+2
3	A	A	Eβ	Eν	C#	E#	B	B	C	E	E	B	Eβ	Dβ	A	D	F#	E#	Tr. 1, **[B1]**+4
4	A		F	F	Eβ	Gβ	B	B	C	F#		C	Eβ	Dβ	Aβ	D	E	E	B. Cl., **[C1]**–2
5	A		Gβ		E	Gβ	A	A	Dβ	F		C	D	C#	Gβ	C	Dβ		Ob. 1, **[C1]**–2
6	A		F#		D#	E	F#	G	C	Eβ		Bβ	C	C	Eβ	A	A		Cl. 1, **[C1]**–1
7	A		Aβ		D	D	E	F#	C	Eβ		A	B		Dβ	G	F#		Tr. 1, **[C1]**+2

Picc., Fl. 2, **[C1]**+3

Table J6: Sixth Transition[23]

OT

1	E	D	G	A	G	B	A	F#	B	A	B	A	G	C	F#	E
2	Eβ	C	F	Gβ	F#	A	G#	G	B	A#	B	A#	G	C#	E	D#
3	D	Bβ	E	E	Fν	G	G	G#	B	B	B	B	G	C#	Eβ	Eβ
4	C	Aβ	Eβ		Eν	F		A	A#	C	B		F#	D	Dβ	
5	B	Gβ	D		Eβ	Eβ		B	A#	C#	B		F#	D#	C	
6	A	E	C		D	Dβ		C	A#	D	B		F#	D#	Bβ	
7	G	D	B		C#	B		C#	A#	D#	B		F#	E	A	

NT

1	E	D	G	A	G	B	A	F#	B	A	B	A	G	C	F#	E

Picc., B. Cl., **[E1]**–3

[22] Add. Mss., 71335, sheets 56V(OT) and 55V(NT).

[23] Add. Mss., 71335, sheets 54V(OT) and 53V(NT).

2	E	C#	F#	G	G	Bβ	A	A	C	B	C	B	G#	D	F	E	Tr. 1, **[E1]**+3
3	E	C	F#	F	G	A	A	A#	C#	C#	C#	C	A	D#	Fv	F	Ob. 1, **[E1]**+4
4	E	C	G		G#	A		C#	D	E	D#		A#	F#	Fv		Cl. 1, **[E1]**+5
5	E	B	G		Aβ	Aβ		Fβ	Eβ	Gβ	Fβ		Cβ	Aβ	Fv		B. Cl., **[E1]**+6
6	E	B	G		A	Aβ		G	F	A	F#		C#	A#	Fv		Cl. 2, **[E1]**+7
7	E	B	G#		A#	G#		A#	G	C	G#		D#	C#	F#		Picc., Fl. 2, **[E1]**+7

Table J7: Seventh Transition[24]

OT

1	Bβ	Aβ	Dβ	Eβ	F	Eβ	C	Dβ	Gβ	C	Bβ
2	B	Bβ	Eβ	F	G	F	D	Eβ	Aβ	C	Bν
3	C	Bν	Gβ	Gν	Aβ	G	E	Gβ	Bβ	C	C
4	D	D	A	Bβ	Bβ	Bβ	Gβ	A	C	C	
5	Eβ	Eν	C	C	Bν	C	Aβ	C	Eβ	C	
6	Eν	Gβ	Eβ	D	C#	Eβ	Bβ	Eβ	Gβ	C	
7	F	Aβ	Gν	E	Eβ	Gβ	C	Gβ	Aβ	C	

NT

1	Bβ	Aβ	Dβ	Eβ	F	Eβ	C	Dβ	Gβ	C	Bβ	Picc., Fl. 2, **[F1]**+3
2	Bβ	A	D	E	Gβ	E	Dβ	Dν	G	B	Bβ	Ob. 2, **[F1]**+5
3	Bβ	A	E	F	G	F	D	E	Aβ	Bβ	B	Tr. 1, **[F1]**+7
4	Bβ	Bβ	F	Gβ	Gβ	Gβ	D	F	Aβ	Aβ		Cl. 1, 2, **[F1]**+8
5	Bβ	Bν	G	G	F#	G	Eβ	G	Bβ	G		Tr. 2, **[F1]**+8
6	Bβ	C	A	G#	Gν	A	E	A	C	F#		Ob. 1, **[F1]**+8
7	Bβ	Dβ	C	A	Aβ	Cβ	F	Cβ	Dβ	F		Picc., Fl. 2, **[F1]**+7

Note
The pitch G in the third row of the NT sub-table does not correspond to the Aβ in the same row of the OT sub-table, but occurs in the score (first trumpet, bar **[G1]**–2).

Table J8: Recap Sixth Transition

NT

1	E	D	G	A	G	B	A	F#	B	A	B	A	G	C	F#	E	Vl. 1, **[L1]**–4
2	E	C#	F#	G	G	Bβ	A	A	C	B	C	B	G#	D	F	E	Vl. 2, **[L1]**–3
6	E	B	G		A	Aβ		G	F	A	F#		C#	A#	Fν		Vla., **[L1]**–3
7	E	B	G#		A#	G#		A#	G	C	G#		D#	C#	F#		Vc., **[L1]**–2

[24] Add. Mss., 71335, sheet 52V.

Table J9: Recap Fourth Transition

NT																									
1	G	F	Bβ	C	Bβ	D	D	C	A	C	Bβ	A	D	C	Bβ	G	Bβ	C	D	C	Bβ	Eβ	Eβ	A	G	Vl. 1, **[M1]**–1
2	G	F#	C	Dβ	Bβ	Dβ	Dβ	C	Bβ	C	Bβ	B	Dβ	C	C	A	C	Dν	Dβ	Bν	Bν	Eβ	Dν	Aβ	Gβ	Vl. 2, **[M1]**–3
6	G		Aβ		B		A		E		A		G#		A		Bβ		B≡		Eβ	E	G#	B#		Vla., **[M1]**–2
7	G		Bβ		C		Aβ		Gβ		Bβ		G		B		B		A		F		G	Bβ		Vc., Db., **[M1]**+1

Table J10: Recap Second Transition

NT																		
1	C	Bβ	Eβ	F	Eβ	G	G	F	D	F	Eβ	D	Eβ	Aβ	Aβ	D	C	Vl. 1, **[N1]**–2
2	C	Bβ	F	G	Gβ	Aν	A	Aβ	E	G	Gβ	F	F	Aβ	Bβ	Dβ	Dν	Vl. 2, **[N1]**–1
6	C	Dβ	Bβ	Dβ	E		Eβ		B	C		E	Dβ	Bβ	Gβ	Aβ	Bβ	Vla., **[N1]**–1
7	C	D	C	Eβ	Aβ		Gβ		D	D		G	E	B	A	G	D	Vc., Db., **[N1]**–2

APPENDIX K: DERIVATION OF THE SCALES IN THE 'CLIMAX' OF THE THIRD MOVEMENT OF THE SECOND SYMPHONY

The 'scales' are obtained by treating the pitches in the first and seventh transformations of the NT sub-tables of the various transitions listed in *Appendix J* as ordered sets, starting with the pitch on which the 'scale' starts in the score.

Transition	Transformation	Ordered Pitch Set	Score	Instrument
1	1	C, D, E, F, G ,A, Bβ	Same.	Glockenspiel
	7	Dβ, Dν, Eβ, Aβ, Bβ, Bν, C	Gβ instead of Aβ.	Crotales
2	1	Eβ, F, G, Aβ, Bβ, C, D	A instead of Aβ.	Harp
	7	E, Gβ, G, Aβ, Aν, B, C, D	D# instead of D.	Marimba
3	1	F, G, Aβ, Bβ, C, Dβ, Eβ	Same.	Violins I
	7	F#, G, A, Bβ, Bν, C, D, E, F	No F ascending,. no E descending.	Violins II
4	1	G, A, Bβ, C, D, Eβ, F	Same.	Violas
	7	Aβ, Aν, Bβ, Bν, C, F, Gβ, Gν	No Aν, Bν, Gβ ascending, Aβ, Gβ, Cβ, B≡ descending.	Cellos
5	1	A, B, C, D, E, F, G	Also Eβ.	Double basses
	7	B, C, Dβ, Dν, Eβ, Eν, F#, G, Aβ	No C, Dν, G ascending, G, D, C, B, A descending.	Clarinet 2
6	1	C, D, E, F#, G, A, B	Same.	Clarinet 1
	7	C#, D#, E, F#, G, G#, A#, B	No F#, G#, B.	Bass clarinet
7	1	Eβ, F, Gβ, Aβ, Bβ, C, Dβ,	No C ascending, No Dβ, Bβ descending.	Oboe 2
	7	F, Aβ, Aν, Bβ, Cβ, Cν, Dβ	No Cβ ascending, F, Dβ, Bν, A, Aβ descending.	Oboe 1