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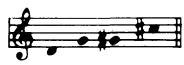
ALBAN BERG: THE ORIGINS OF A METHOD

I

The role played by symmetrical formations in the music written in the first half of the twentieth century has been the focus of much theoretical and analytical attention in recent years. And yet, despite the considerable amount that has been written about the use of such formations in the music of Bartók, Stravinsky, Berg and other composers – and despite the pioneering work of George Perle in his *Twelve-Tone Tonality*[1] and the more recent second volume of his book on the Berg operas[2] – we are, I think, still only beginning to understand just how extensive are the implications which the properties of such symmetrical formations have for the study of post-diatonic music.

To give only one, as yet I think unnoticed, example of the influence that such formations have on the large-scale structure of *Lulu*: although it has been generally observed that an ordered version of Basic Cell I of *Lulu* – the 0167 collection in the characteristic melodic form shown in Ex. 1 – is embodied in all the different sets employed in the opera, no one, I think, has yet remarked upon the fact that, amongst its other unique properties (notably that of being the only all-combinatorial set in the work), the Basic Set of *Lulu* is peculiar in having embodied within it ordered statements of *two* of the Basic Cells of the opera (Basic Cell I of Ex. 1 and the figuration, shown in its most characteristic form in Ex. 2, which I shall call Basic Cell II) and, what is more, of having both at the same sum of symmetry:

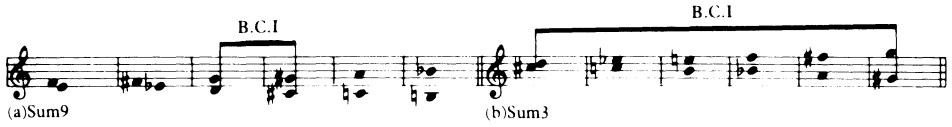
Ex. 1



Ex. 2

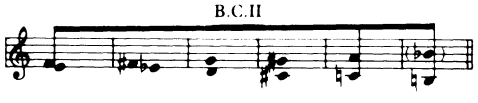
As is well known, the 0167 collection of Ex. 1, Basic Cell I of *Lulu*, is one of only three four-note collections – all of them, necessarily, based on interlocking tritones – that have the unusual property of being referable to two different (that is to say, *not* tritone-related) axes of symmetry.[3] If, as is customary, we represent the axes of symmetry as alignments of the ascending and descending chromatic scale then, as Ex. 3 shows, Basic Cell I, at the pitch shown in Ex. 1, can be regarded as being symmetrical at either Sum 9 or Sum 3: [4]

Ex. 3



Basic Cell II of *Lulu* (Ex. 2), on the other hand, is not symmetrical but is what we might term 'potentially symmetrical', which is to say that it can be turned into a symmetrical figuration through the addition of a single note – the one note that distinguishes the inversion of the Cell from its prime form. In the case of the pitch level shown in Ex. 2 (which is the main pitch level of the Cell throughout the opera) the missing note is B♭. Example 4 shows how, with this addition, this form of Basic Cell II becomes a member of the same Sum 9 symmetry as Basic Cell I in Ex. 3a:

Ex. 4



In an article published seventeen years ago[5] I showed how Berg employs a common axis of symmetry as a way of relating all the different rows employed in the second half of Act 2, Scene 1 of *Lulu* – with the result that some 200 bars of the scene (including Dr Schoen's 'Five-Strophe Aria' and the music that precedes and follows it) are organized, first, around Sum 9 and then around Sum 7 symmetries. The choice of Sum 9 as the axis of symmetry at the beginning of this passage is determined by the fact that, as Ex. 4 has shown, this alignment contains Basic Cell II at what is its primary pitch level in the work and the level at which it has dominated the music earlier in the scene. The choice of Sum 7 as the axis of symmetry of the second half of the scene is similarly determined by the fact that this is one of the two alignments which contain Basic Cell I at *its* primary pitch level, on the notes E-A-B♭-E♭.

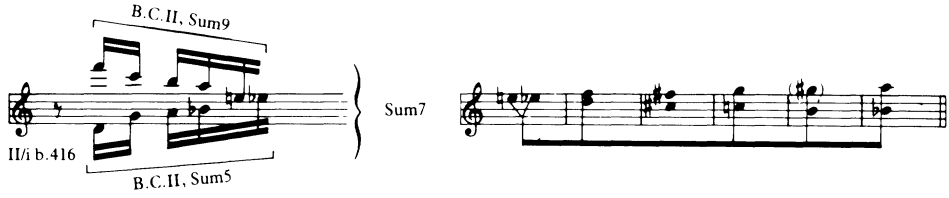
The influence which the inversionally symmetrical properties of these Cells have upon the large-scale structure of this scene is, however, much more far-

reaching than I suggested in my original article. On the basis of our observations about the way in which Basic Cells I and II are embodied in the Basic Set itself it is now possible, I think, to extend our remarks on the function of these Sum symmetries to explain something of what happens in the following 'Film Music' Interlude.

II

The way in which the change (we might almost say 'the modulation') from Sum 9 to Sum 7 symmetries in the middle of the scene is effected is of considerable interest. Marked dramatically by the first revolver shot at b.416, the shift from Sum 9 to Sum 7 is achieved by superimposing two versions of Basic Cell II in the way shown in Ex. 5. In this example the upper part is the potential Sum 9 version of Basic Cell II (the version that has been heard throughout the previous part of the scene) and the lower part the potential Sum 5 version of the same cell. Together the two forms are inversionally symmetrical at Sum 7, the sum of symmetry that will govern the remaining section of the Five-Strophe Aria:

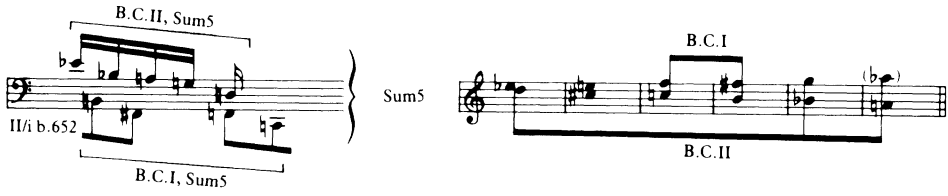
Ex. 5



We might, parenthetically, note that the Sum 9 and Sum 5 forms that are superimposed at this point themselves have a special significance, since not only does the note row associated with Dr Schoen have embodied within it an ordered statement of Basic Cell I but, in addition, the first five notes of Schoen's row at I-0 are identical in content with the upper (Sum 9) version of Basic Cell II in Ex. 5 whilst the next five notes are identical in content with the lower (Sum 5) version of the same cell. [6]

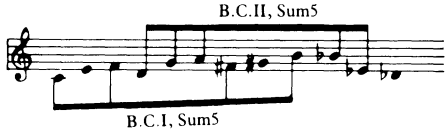
Sum 9 and Sum 7 symmetries thus dominate almost the whole of the second half of Act 2, Scene 1 of the opera, with a Sum 5 version of Basic Cell II acting as a transitional link between these other – more important – sums. It is this transitional, but otherwise ignored, Sum 5 axis that is taken up at the beginning of the 'Film Music' Ostinato that follows. As Ex. 6 shows, the Ostinato interlude begins with repeated statements of both Basic Cell I and Basic Cell II at a level at which they share a common axis of symmetry: both are symmetrical at Sum 5:

Ex. 6



Ex. 7 shows how these Sum 5 forms of Basic Cells I and II are embodied in the Basic Set at P-O. It is at precisely this level – which is also the primary transpositional level of the set in the opera as a whole – that the canonic statements of the Basic Set now open the Agitato section of the Film Music Interlude:

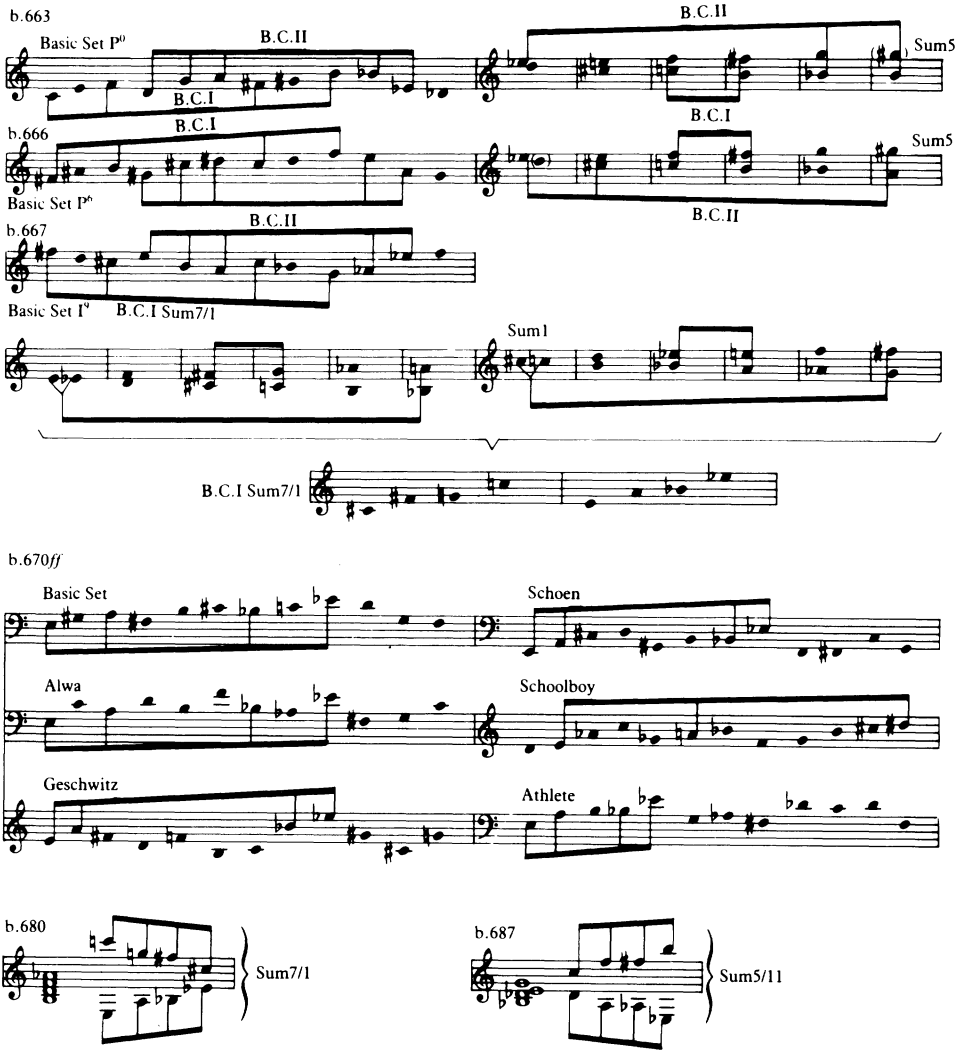
Ex. 7



But if the opening section of the Film Music is concerned with the Basic Set at *its* main pitch level, the section which leads up to the central palindromic bar of the Interlude is similarly to be concerned with statements of Basic Cell I at its most important level, that is to say on the notes E-A-B♭ -E♭ , at which level it is symmetrical at Sum 7 or Sum 1. It was at this level that the Cell was first heard as the very first notes of the Prologue at the start of the work, and it is at this level that it will dominate the final scene of the opera. It is, therefore, fitting that it should appear at this same level here at the very centre of the piece.

The transition from the Sum 5 axis of the opening and Agitato section of the Film Music to the Sum 7/1 symmetries of the passage leading up to the middle of the Interlude is ingeniously contrived. Example 8 shows the course of the main events during the whole of this passage:

Ex. 8 Film music 'Ostinato', Act II bs 663ff.



After the initial statements, at b.663, of the Basic Set at its main pitch level (beginning on C), the row is progressively shifted up until (at b.666) it reaches its tritone transposition, beginning on the note F♯ – the combinatorial transposition which incorporates another Sum 5 version of Basic Cell II and at which reappears the same Sum 5 version of Basic Cell I that we heard three bars earlier. The prime form of the Set is then replaced by the inversion also beginning on F♯, in which form the Sum 5 versions of the Basic Cells are replaced by a Sum 7 version of Basic Cell II and a version of Basic Cell I which is symmetrical at both Sum 7 and at Sum 1.

As Ex. 8 demonstrates, the complementary form of this version of the Basic

Cell is that on the notes E-A-B♭-E♭, the primary pitch level of the Cell. It is this complementary level that determines the transpositional levels employed in the following section when, from b.670 onwards, all the important note rows in the opera are played and Basic Cell I on the notes E-A-B♭-E♭ is extracted from each.

The overall progression of the Film Music Ostinato from Sum 5 to Sum 7/1 symmetries is now summed up in the central section of the Interlude. Bar 680 presents simultaneous statements of the two Sum 7 versions of Basic Cell I against a residual diminished-seventh chord that is also symmetrical at Sum 7/1; while the palindromic b.687, at the very centre of both the Interlude and the whole opera, similarly presents the two complementary versions of Basic Cell I symmetrical at Sum 5/11 (the axis of symmetry of the opening and closing passages of the Ostinato) in the same way.

III

I have been concerned here with a relatively short passage – a passage of some 325 bars in a work that runs to almost 4000 bars – yet even so brief a survey demonstrates, I think, the skill and ingenuity with which Berg exploits the unusual structural properties of these symmetrical formations and gives some indication of the extent to which these properties influence the large-scale structure of the opera.

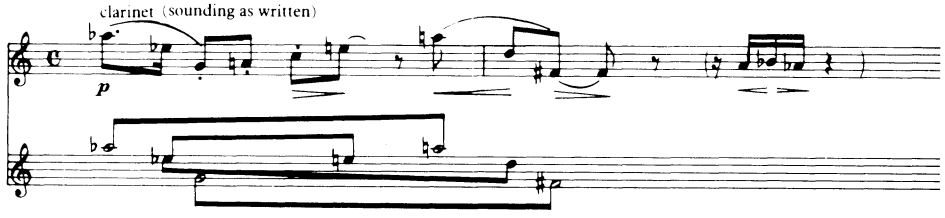
In the second volume of his book *The Operas of Alban Berg* George Perle has argued that the musical language of *Lulu* rests, not upon what Hans Keller called 'a phoney twelve-note technique', but upon a technique which, differing in many respects from that of Schoenberg, is both more far-reaching and more systematic in its approach to the radical concepts embodied in the idea of the twelve-note method than is that of his two 'Second Viennese' colleagues; that the intricate serial organization of the opera is only one aspect of a more comprehensive system of pitch organization which embraces not only 'orthodox' twelve-note rows, tropes, serial tropes and various incidental sets but also the complete array of interval cycles as well as diatonic, whole-tone and other 'familiar' formations.[7]

Many of the elements of that comprehensive system of pitch organization – such as the use of symmetrical formations or of material based on the systematic unfolding of one or more interval cycles (formations and material such as we have just examined in *Lulu*) – are a common feature of Berg's earlier works. Chromatic wedge progressions, which we can regard as the unfolding of simultaneously ascending and descending statements of the interval 1 cycle – are a common feature of Berg's earliest music, as Bruce Archibald observed many years ago.[8] Indeed, as Mark DeVoto has recently pointed out, such progressions are a natural development of Berg's early tonal language.[9] George Perle[10] has shown how important a feature of the Op.3 String Quartet is Berg's explicit use of interval cycles and how the opening of the second movement of the work employs figurations based on symmetrically related P/I dyads of Sum 8 while,

nonetheless, observing that the cyclic principle is still far from providing Op.3 with a 'structure' analogous to what we mean by that term when we use it to refer to music written in the major/minor system. Certainly the frequent chromatic wedge progressions in Berg's non-twelve-note music are rarely used so systematically or over so long a period as to enable us to account for every note in a passage, let alone account for every note in a piece in the way that the expanding chromatic wedge which forms the basis of the fifth of the Op.9 Bagatelles of Webern enables us to account for every note in that piece.

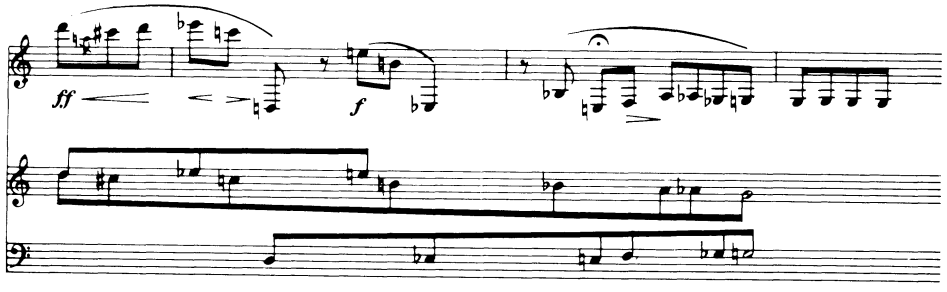
The clarinet phrase that opens the first of the Op.5 Pieces of Berg, for example, presents us – as Ex. 9 shows – with a wedge within a wedge, directing our ear to the rising semitone progression A♭-A on the highest notes of the phrase and the complementary G-F♯ descent on the lowest notes; while, at the registral centre of the figuration, the E♭ on the second note moves both chromatically upwards to E and chromatically downwards to D, a progression which is immediately presented at a different pitch and in a more compact form in the opening notes of the piano part and in the following clarinet figure:

Ex. 9



In the last six bars of the same piece a chromatically contracting wedge progression in the clarinet part homes in on the final repeated G natural. As Ex. 10 demonstrates, the three-octave move from the high to the low D on the first and last notes of the opening figuration outlines the outer limits of the wedge which the rest of the phrase then systematically fills in, until the ascending and descending lines arrive together at the G which forms their goal:

Ex. 10



This passage is exceptional, however, for although the whole of this piece can be

interpreted in terms of overlapping and superimposed wedge progressions (in which any note of one wedge can become the starting point for another) few of them are handled as systematically or as consistently as is that shown in Ex. 10.

At what point, then, did Berg become aware that symmetrical formations, wedge progressions, interval cycles and other such (apparently unrelated) procedures were all different aspects of a single unified system of pitch organization? At what point did he begin to recognize the larger, if not the full, structural and theoretical implications of these techniques?

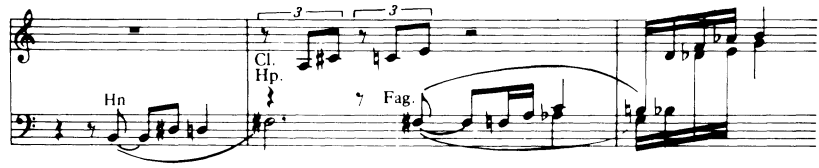
The famous letter which Berg wrote to Schoenberg on 27 July 1920, and which George Perle has reproduced in his article on 'Berg's Master Array',[11] shows that Berg was aware of some of the peculiar structural properties of the interval cycles at the time he was working on *Wozzeck*, as do not only those bars in Act 2, Scene 3 of the opera in which he briefly employs the array but also the sketches for the 'drowning music' of Act 3, which reveal that Berg originally conceived this passage as overlapping chromatic scales which outlined a series of contracting interval cycles on the main beats of each bar.

But the setting down of the array in the chart which he included with his 1920 letter to Schoenberg was, I think, only one stage in the development of Berg's growing understanding of the larger implications of those elements which had already, by that time, become a characteristic part of his musical language.

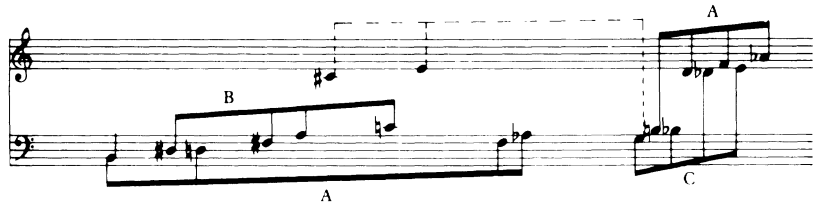
IV

At the beginning of the second of the *Altenberg Lieder*, the voice part presents a three-note figure, consisting of an ascending semitone and descending major third, which returns in inversion as the closing notes of the first vocal phrase and is then taken up by the horns in retrograde – in which form it becomes the starting point for the chain of alternating ascending thirds and descending semitones shown in Ex. 11. Compressed at bs 4-5 into the chain of interlinked vertical major thirds shown in the final bar of Ex. 11, the motif gives rise to the three diminished-seventh chords (two of which are stated overtly on violas and horns) that together produce all twelve notes of the chromatic octave. Example 12, in which the three discrete transpositions of the diminished-seventh chord are labelled A, B and C respectively, shows a schematic reduction of this passage. In the final bars of the song the wind and brass present the explicit diminished-seventh figurations in what, since the two are identical, we may interpret as either a retrograde or an inversion of the corresponding passage at b.5:

Ex. 11



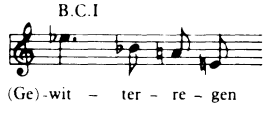
Ex. 12



The diminished-seventh chord is, of course, another of the Basic Cells of *Lulu*. What is particularly interesting about the second of the *Altenberg Lieder*, however, is that it employs not one but *two* of the Basic Cells of that opera – the diminished seventh and what I have called Basic Cell I (the collection shown in Ex. 1) – and that it does so in a way that already anticipates some of the most important features of Berg's handling of these same formations in the later work.

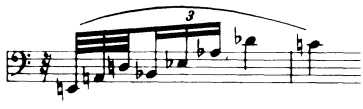
A statement of Basic Cell I appears in the opening vocal line of the second of the *Altenberg Lieder* in the form shown in Ex. 13. A similar statement in the voice, overlapping with an identical orchestral statement, ends the song, while the second half of the song begins, at b.8, with vocal and orchestral statements of the same Cell at its tritone transposition, at which level the pitch-class content is, of course, identical with that of the opening and closing statements:

Ex. 13



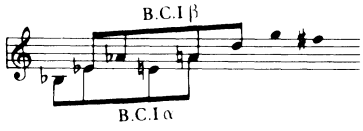
An inverted statement of the same Basic Cell I on the solo cello at b.6, also at a level which retains the pitch-class content of the original statement in the voice part at b.2, introduces the central pause. This cello statement, in which the Basic Cell is integrated into a larger figuration, is shown in Ex. 14:

Ex. 14



The first appearance of Basic Cell I in the *Altenberg Lieder* occurs in the first song of the cycle, when a celesta figuration which has formed part of the introductory web of thematic ideas gradually evolves at b.9 into what, in the second song, is to become the cello figuration shown in Ex. 14. This celesta figuration (which is shown in Ex. 15) consists of two fragments of the cycle of fifths a tritone apart, two fragments which, as Ex. 15 demonstrates, together present two interlocking versions of Basic Cell I: one of them (marked 'α' in the example) on the notes B♭-E♭-E-A, the pitch level at which the Cell will dominate the vocal part of the second song; the other (marked 'β' in the example) on the notes E♭-A♭-A-D. The two versions of the Cell are thus linked by their common tritone, E♭-A:

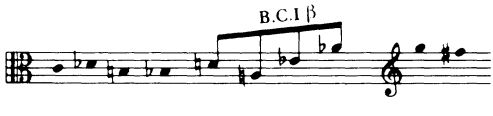
Ex. 15



As a comparison of Exs 14 and 15 reveals, the cello figuration at the centre of the second song is the tritone transposition of this celesta figure, a transposition which (since the two fragments of the cycle of fifths contained within the figuration are themselves tritone-related) simply reverses the order in which the opening two three-note collections appear, so that the cello statement begins with the notes E-A of the 'α' version of the Cell.

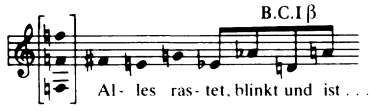
At the same time as the celesta arrives, at b.9 of the first song, at this definitive version of the figuration, the violas begin to unfold a chromatically expanding wedge progression (centring around the note C) which includes Basic Cell I at the pitch of the 'β' version. This wedge progression – the first real melody to appear in the work – is shown schematically in Ex. 16, where the 'β' version of Basic Cell I is indicated by stemmed notes:

Ex. 16



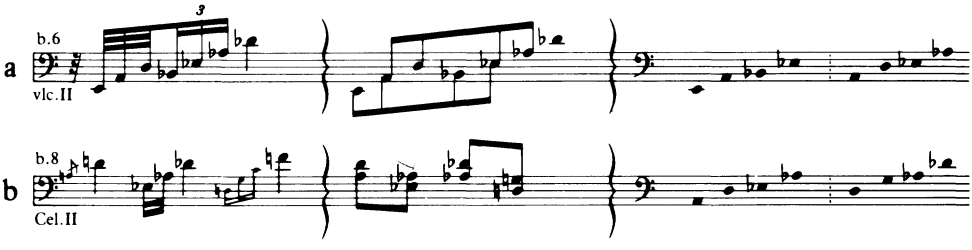
A similar wedge progression in the second vocal phrase of the second song also unfolds a horizontal statement of this 'β' version. This second wedge progression, which is shown in Ex. 17, is, however, at a different pitch level from that which appears in the first song of the cycle, having as its starting point and centre of symmetry not the C which forms the axis of the progression shown in Ex. 16 but the F played in octaves by the piano and viola at b.2 of the song:

Ex. 17



Finally, at bs 8-9 of the second song, the two tritone-related fragments of the cycle-of-fifths progression which are embodied in the cello figuration of Ex. 14 are presented by the celesta as three chromatically descending chords of superimposed fourths, in such a way that the upper notes of the three chords outline the major third/semitone motif which I have already discussed and which originally generated the diminished-seventh chords of bs 4-5. Examples 18a and b illustrate the relationship between the cello figuration at b.6 and the celesta chords at bs 8-9:

Ex. 18



Here already in the *Altenberg Lieder* we find what I have called Basic Cell I handled in a way that demonstrates an understanding of those peculiar properties that are to play so important a role in the structure of *Lulu*:

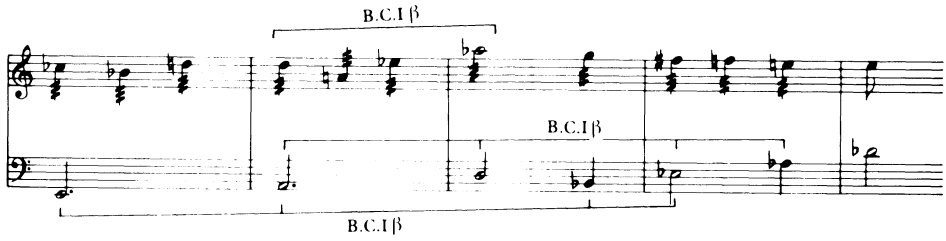
1) a recognition of the relationship between any one version of the Cell and its T6 transposition, its T5 and T11 inversions and the retrogrades of these forms;
2) a recognition of the possibility of interpreting both the Cell itself and the compound figuration to which it gives rise as fragments of different interval cycles; and,
3) as is demonstrated by a comparison of the two different wedge progressions shown in Exs 16 and 17, a recognition of the fact that identical statements of

the same Cell can be generated by two different (that is to say, not tritone-related) transpositions of the same complementary interval cycle.

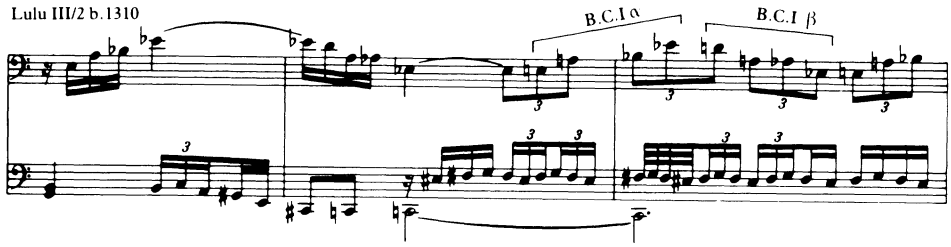
It is, as we have seen, precisely these properties of Basic Cell I that have so extensive an influence on the large-scale structure of the later opera.

The two 'α' and 'β' versions of Basic Cell I contained in the celesta figuration at b.9 of the first song and in the cello figuration of the second song of the *Altenberg Lieder* (that is, the two versions indicated by stems in Ex. 15) are constantly juxtaposed in the final song of the cycle, when the expanded celesta figuration and the wedge melody of the opening song return as the two main themes of the Passacaglia. Example 19 illustrates the juxtaposition of these two versions in one short passage from the final song. It is perhaps coincidental that, as Ex. 20 illustrates, it is these same two versions of Basic Cell I (the same not only in terms of their being related through a common tritone but also in terms of actual pitch class) that are so noticeably juxtaposed at the point when Jack leaves the dying Geschwitz in the final bars of *Lulu*:

Ex. 19



Ex. 20

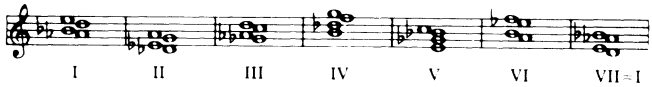


V

But perhaps the most ingenious and the most forward-looking of these early works – forward-looking both in the compositional preoccupations which it seems to reflect and in its characteristically Bergian combination of rigorous technical procedures and emotional spontaneity – is the second of the Op.2 Songs. Readers of *Music Analysis* will be familiar with Craig Ayrey's detailed and perceptive analysis of this song[12] and also with George Perle's survey of the piece in two of his writings.[13] I should like to summarise and, I hope, add something to the findings of these two writers.

In his remarks about this song George Perle has observed that the chord sequence which opens the song at bs 1-4 and also closes it at bs 15-18 consists of a series of French Sixth chords which can be interpreted as systematically progressing through descending semitone or descending perfect-fifth cycles. Example 21 shows the chords of the opening sequence, from b.1 to the first beat of b.4. In order to avoid having to make an arbitrary distinction between the two interval cycles that can generate this sequence, the different chords are indicated by Roman numerals rather than by numbers indicating transpositional levels. With the harmonies changing on the first and third beats of each bar the original statement of this chord sequence progresses from Chord I, on the first beat of the opening bar, to its tritone transposition Chord VII (which is, of course, identical with the opening chord) on the downbeat of b.4, where the return of the opening chord of the sequence coincides with the last syllable of the first line of text:

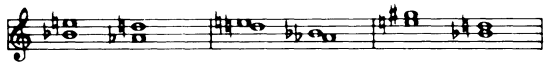
Ex.21



Having reached this point, however, the chord sequence is not abandoned; instead (as Ayrey hints, but never fully states) the whole sequence is presented in retrograde. The series of ascending perfect fourths in the bass line on the first and third beats of bs 1-4 is converted into a series of *descending* fourths – continuing (with melodic decorations) to appear on the first and third beats of the bar – and the chord sequence retraces its steps until it returns once more to Chord I on the first beat of b.7, the return to the opening chord at this point signalling an increase in the rate of harmonic movement as the chords now begin to change on every beat of the bar.

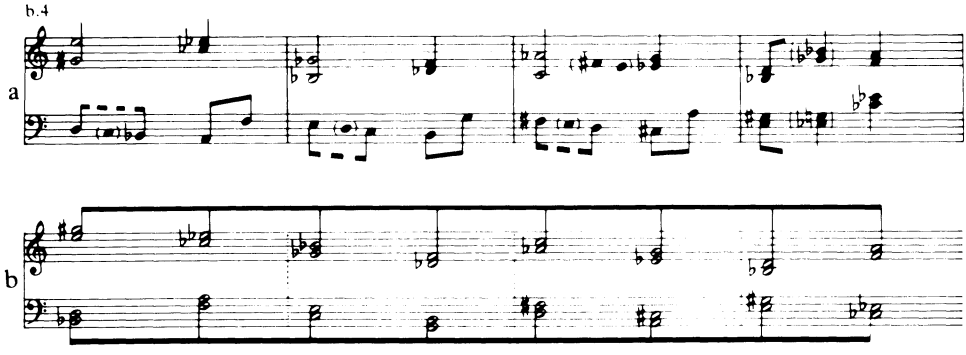
Like the diminished seventh and Basic Cell I of *Lulu* (the other two tetrachords based on interlocking tritones) the French Sixth can be partitioned in different ways to produce two intervals of the same class – in this case, as Ex. 22 shows, into two tritones, two whole tones or two major thirds:

Ex. 22



In the opening bars of the song it is perhaps the tritone sonority of which we are most aware – a sonority that is emphasised by the disposition of chords in the piano part. From the return of Chord I at b.4, however, both the arrangement of the right-hand chords and the melodic line in the left hand of the piano part draw attention to the alternative major-third partitioning, each of the two hands progressing around the cycle of fifths in parallel major thirds (in the manner shown in Ex. 23a and b) until b.7, when the cyclic progression disappears but the major third continues to be the dominant sonority:

Ex. 23



The French Sixth chord is also, of course, a whole-tone collection, and the sequence of chords shown in Ex. 21 alternates chords from the two different whole-tone scales – a feature the large-scale structural implications of which are discussed in Ayrey's analysis.

A further fragment of the opening chord sequence appears in the two bars following the return to Chord I on the first beat of b.7, when an initial move from Chord I to Chord VI and back is followed by the first three chords of the sequence. By this point, however, the French Sixth chords have begun to acquire additional whole tones; and although the passage from b.7 onwards (and most of the central section of the song) maintains both the alternation of chords based on notes from the two different whole-tone scales and the emphasis (established in the preceding bars) on the major-third sonority, the addition of these extra notes obscures the identity of the individual chords. The further statement of the chord sequence itself, which begins at b.7, is finally destroyed at b.9, when the central section of the song begins not with just an exchange but with a realignment of the two melodic ideas with which the piece opened.

The last four bars of the song, from the second quaver of b.15, present a

straightforward if slightly compressed reprise of the opening bars (if, that is, one assumes that both the B natural on the fourth and the C natural on the last quaver of b.15 are misprints – Berg corrected the C in his own copy but not the B).[14] But, as Perle has shown, this overt reprise of the opening material in the final bars is itself preceded by a 'hidden' reprise at bs 13-15 in which, beginning with the alternations of Chords IV and V at bs 13-14, the piano presents a sequence of chromatically descending statements of the Chord which, having progressed through Chords IV, V and VI, arrives at Chord VII (which is to say Chord I) on the first beat of b.15 – at which point it becomes the first chord in the explicit restatement of the opening bars. If the movement of the bass part in the first four bars of the song suggests that the opening chord sequence be interpreted as the product of a cycle-of-fifths transposition of the French Sixth chord, this 'hidden' reprise at bs 13-15 clearly suggests the alternative interpretation of the sequence as the product of cyclic interval 1 progressions.

VI

In the second of the Op.2 songs we have, therefore, a piece the basis of which is the peculiar structural properties of a single tetrachord – the only other tetrachord that has the same structural properties as two of the Basic Cells of *Lulu*. Thirteen of the eighteen bars which form the piece are based entirely on prime and retrograde statements of a chord sequence produced by systematically transposing this one chord through descending semitone or descending perfect-fifth cycles; harmonic variety is achieved by exploiting the different sonorities that can be obtained by partitioning the chord in various ways. The central and freer five-bar section of the piece continues to exploit the harmonic characteristics of the chord sequence without, however, employing the chord sequence itself.

In his recent book *The Music of Bela Bartók* Elliot Antokoletz has shown how Bartók's exploitation of the structural peculiarities of symmetrical formations can be traced back to the *Fourteen Bagatelles*, Op.6, of 1908, written when Bartók was twenty-seven.[15] The second of the Op.2 songs was composed in 1909, the year after the Bartók pieces, when the twenty-four-year-old Berg was still a student of Schoenberg. It is an extraordinary achievement for so young a composer. Already, in this song, we can see not only the seeds of those technical procedures that are a constant feature of Berg's later music but also evidence, even at this early stage, of a sophisticated understanding of the large-scale theoretical and structural implications of these procedures.

Here, as in Berg's later works, we have a piece built on a rigorous and apparently abstract technical procedure; we have a demonstrably conscious understanding of the structural implications of the different interval cycles and of the relationship between them; and we have an equally conscious realization and exploitation of the possibilities of partitioning the tetrachord upon which the song is based into different pairs of identical intervals. Already we are within

hailing distance of those principles that underlie the cyclic rows of the *Lyric Suite* and the Violin Concerto and of that synthesis of compositional techniques and procedures that will eventually produce the comprehensive and all-inclusive system of pitch organization of *Lulu*.

NOTES

1. *Twelve-Tone Tonality* (Berkeley: University of California, 1977).
2. *The Operas of Alban Berg: Vol. 2, Lulu* (Berkeley: University of California, 1985).
3. See Douglas Jarman, 'Dr Schoen's Five-Strophe Aria: Some Notes on Tonality and Pitch Association in Berg's *Lulu*', *Perspectives of New Music*, Vol. 8, No. 2 (Spring-Summer 1970), pp.23ff.; George Perle, 'Berg's Master Array of the Interval Cycles', *The Musical Quarterly*, Vol. 63, No. 1 (January 1977), pp.1ff.; Elliott Antokoletz, *The Music of Bela Bartók* (Berkeley: University of California, 1984).
4. The terminology is that proposed by George Perle (see notes 1 and 3 above).
5. 'Dr Schoen's Five-Strophe Aria' (see note 3 above).
6. See Perle, *The Operas of Alban Berg: Vol. 2, Lulu*, pp.99-101.
7. *Ibid.*, pp.198ff.
8. 'Harmonic Practice in the Early Music of Alban Berg' (Diss., Harvard University, 1967).
9. 'Creeping Chromaticism', paper delivered at the University of Chicago International Alban Berg Symposium 1985, to be published in the collection of essays edited by Robert Morgan and David Gable (London: OUP, forthcoming).
10. 'Berg's Master Array', pp.7-9.
11. *Ibid*, p.5.
12. 'Berg's "Scheideweg": Analytical Issues in Op. 2/2', *Music Analysis*, Vol. 1, No. 2 (July 1982), pp.189-202.
13. *The Operas of Alban Berg: Vol. 2, Lulu*, pp.161-2; 'Berg's Master Array', p.3.
14. I am indebted to Stephen Kett of Harvard University for this information.
15. Antokoletz, *The Music of Bela Bartók*, pp.16-17, 78-9, 138-42.