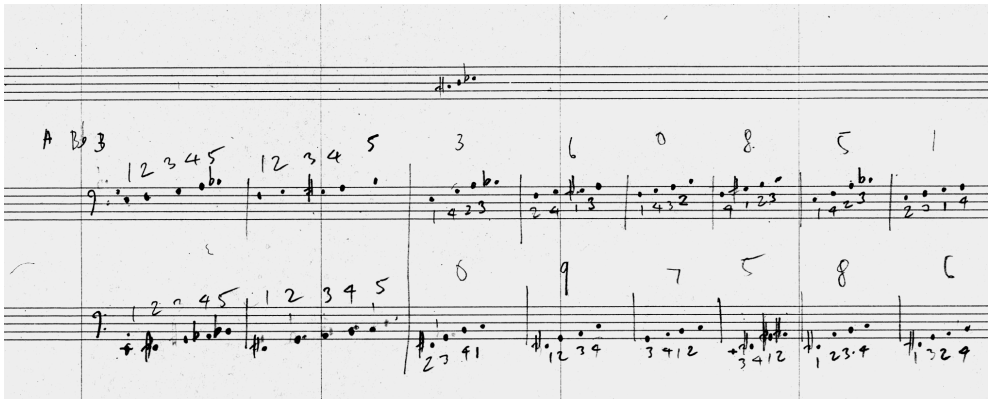
From Turning Wheel to Unknown Song: How Birtwistle Writes a Monody, ca. 1980

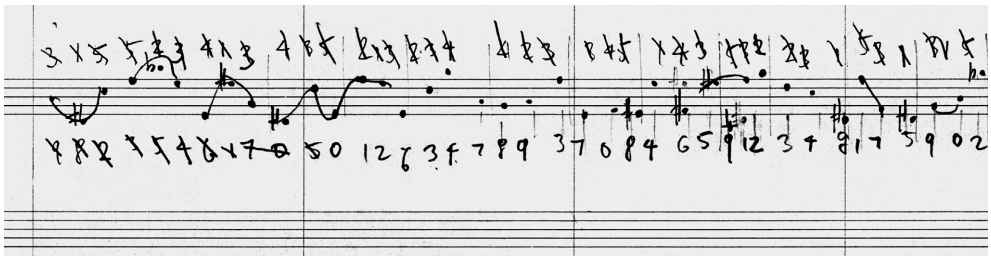
by Brian Robison

Despite a recent surge in writings on Sir Harrison Birtwistle's music,[1] its idiosyncratic logic remains opaque, and thus seems to defy analysis.[2] Michael Hall has provided glimpses of the composer's techniques, but as Hall notes, one must take care when generalizing from so few examples.[3] Birtwistle treats each piece as an opportunity to experiment with new permutational techniques; a reliable analytic method will require grounding in extensive study of his sketches. Here I'll trace his creation of Hades's solo "donamus comitem ... lumina flectere,"[4] from *On the Sheer Threshold of the Night* (hereafter abbreviated *Threshold*), composed in 1980. From the single page of manuscript, one can reconstruct the compositional process with a high degree of certainty.[5]

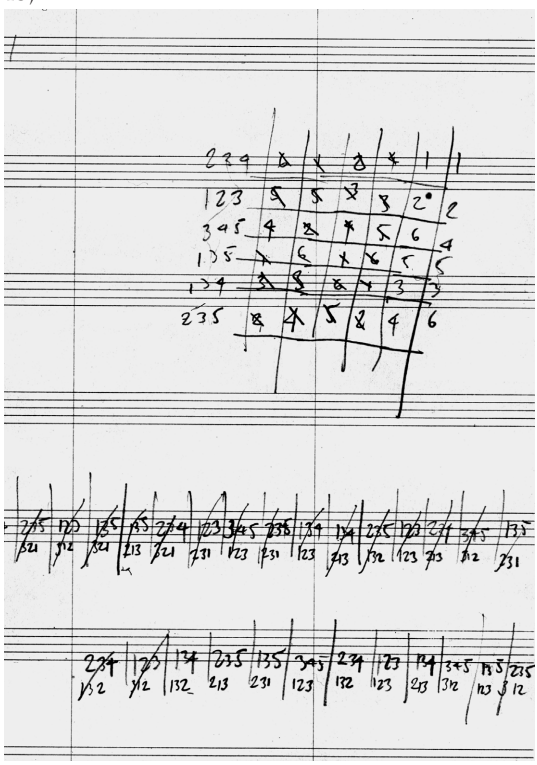
1. *Pitch*. Birtwistle chooses two pitch bands; each comprises two quasi-diatonic pentads, articulating the interval sets ‹1221› and ‹2112› (*Example 1a*, left side).[6]
2. To promote variety of pitches and intervals, he labels the five elements of each pentad and extracts the five possible tetrads from each, according to a pre-defined numeric taxonomy.[7]
3. Rather than select tetrads from the two pentads in simple alternation, he randomizes their succession. He permutes the digits 1–0 above each staff, and then writes the appropriate tetrad under each control digit, where 1–5 denote subsets of the left pentad, and 6–0 denote the corresponding subsets of the right (*Example 1a*, right side).
4. Within each tetrad, he re-orders the four pitches by permuting the digits 1–4, to make two complex series of forty pitches apiece.
5. He then interleaves the two series. Again, rather than alternate strictly between two source sets, he uses eight permutations of the digits 1–0, which he writes below an empty staff (*Example 1b*, lower portion). These control digits dictate the selection of pitches from the two bands (1–5 = upper,



1a)



1b)



1c)

Example 1: Harrison Birtwistle, *On the Sheer Threshold of the Night* for soli and chorus (1979–80). Excerpts from sketch for "donamus comitem … lumina flectere" (Harrison Birtwistle Collection).

1a) Source pentads *(left)* and some of the extracted tetrads *(right)*.

1b) Birtwistle creates a compound melody *(below)* and assigns durations *(above)*; only the beginning of the series appears here.

1c) Birtwistle permutes the succession of six duration triads *(above)* and also the succession of durations within each triad *(below)*; only the middle of the series appears here.

6–0 = lower); within each band, the pitches are taken in (nearly) strict succession. The result is a compound melody of eighty pitches.

6. *Rhythm*. Birtwistle independently derives a duration series in similar fashion. He chooses a single source pentad, labeling the elements 1–5: "1" = triplet-sixteenth, "2" = triplet-eighth, "3" = eighth, "4" = triplet-quarter, and "5" = quarter.
7. From this pentad, he selects the six triads that incorporate the central element ("3" = eighth), and he writes these in a column. Beside it, he writes six columns of numerals, each permuting the digits 1–6 (*Example 1c*, upper portion).
8. He applies these six columns in succession to generate a series of six ordered hexads of duration triads, or 108 durations.
9. He transcribes the triad series as numerals; below each triad he permutes the digits 1–3, as order positions that randomize the succession of durations within each triad (*Example 1c*, lower portion).
10. He maps the first eighty durations onto the eighty-pitch monody, written as element labels (1–5) over the monody staff (*Example 1b*, upper portion).
11. To transcribe these additive rhythms in conventional notation, he writes a series of headless sixteenth-note stems; each bar contains twenty-four stems beamed as four groups of six. He then writes slurs to map the additive series onto these pulses. For example, the first duration is "3" = an eighth note = three triplet-sixteenths, so he connects the first three stems with a slur.
12. Below the slurred headless stems, he writes the pitches and rhythms in conventional notation with the Latin text underlaid, but without articulation or dynamic markings.

Michael Hall has previously shown Birtwistle's use of randomization as a compositional tool.[8] However, Birtwistle often departs from strict formula, imposing his personal taste on the outputs of his musical automata and thus complicating the task of even purely statistical analysis.

Some alterations clearly avoid the immediate repetition of a pitch. In step 3 above, his matrix dictates re-ordering the lower pitch band's fifth tetrad as $F\sharp$–*A*–*B*–*C*. However, the fourth tetrad ends with $F\sharp$, so he exchanges the fifth tetrad's $F\sharp$ and *A*. Likewise, his matrix dictates re-ordering the lower pitch band's ninth tetrad as $B\flat$–*G*–$F\sharp$–*E*, but the eighth tetrad ends with $B\flat$. Hence, he exchanges the ninth tetrad's $B\flat$ and *G*. In this way, he avoids immediate repetitions of a pitch, but preserves the distribution of pitches.

Other alterations represent scribal errors or *ad hoc* adjustments. In step 5 above, he uses the first pitch of the lower band twice, as the 62nd and 65th notes of the series; here he seems initially to have neglected marking that *G* the first time he used it. Independently, in step 3 above, the matrix

upper band	E^3	F^3	G^3	$G\sharp^3$	A^3	$B\flat^3$	B^3		?
occurrences	4	6	7	3	8	4	3		D^3 1
lower band	E^2	$F\sharp^2$	G^2	$A\flat^2$	A^2	$B\flat^2$	B^2	C^3	?
occurrences	3	6	9	4	3	3	3	4	

duration (triplet-16ths)	1	2	3	4	5	6	7	12	20
occurrences (pitches)	11	16	17	13	6	5	1	1	1
occurrences (rests)	+6		+3				+1		
total occurrences	17	16	20	13	6	5	2	1	1

Table 1: Frequency distribution of pitches and durations in Hades's vocal line (pp. 18–21 in the score).

dictates re-ordering the upper band's tenth tetrad as *G–F–G♯–B*. However, he writes the *F* notehead above the fourth line of the staff, so that it looks like *G*. In step 5, there is no corresponding *F* at the end of the composite line, and only one *G*. This seems to reveal an expedient elision to correct for the extra *G*: on reaching the last *three* positions of the interleaved series, he discovered that he had *four* pitches to use, of which the first two appear identical. On the one hand, he must have recognized that one *G* was an error; on the other hand, it was quicker and simpler to combine both as one note, rather than retrace his previous work to find the superfluous *G* and rewrite the line in accordance with the matrix.

Other alterations are less easily explained. In composing the rhythmic series, Birtwistle alters nothing in steps 6 through 10 (i.e., he permits immediate repetitions of a duration), but in step 11 he omits three durations for no obvious reason. More importantly, in step 12, he does not adhere strictly to the additive rhythms dictated by his matrix, apparently relaxing them to meet prosodic demands of the Latin text (e.g., adding two extra pulses to the end of "lumina" allows the syllable "flec-" to fall on a downbeat).

Birtwistle's incomplete use of his original series of 80 pitches and 108 durations complicates the task of reconstructing them through score analysis alone, but awareness of his penchant for methodically permuting small sets recommends simple note-counting as a start. The vocal line contains 71 pitches and durations; the status of 71 as a prime number suggests treating it as a subset of either 72 (as 24 triads or 18 tetrads), 75 (as 25 triads or 15 pentads), or 80 (as 20 tetrads or 16 pentads).

Turning attention to the frequency distribution of pitches *(Table 1)*, the presence of a single D^3 in the entire line (p. 20, "Tartara") indicates its origin as a scribal error. Although one can't immediately determine whether it ought to be *C* or *E*, one can temporarily disregard it and thus clarify the division into two distinct registral bands. Within the upper band, three of the seven pitches occur roughly twice as often as the others, suggesting two

source pentads that share three pitches; likewise, within the lower band, two of the eight pitches occur roughly twice as often as the others, suggesting two pentads that share two pitches. This finding narrows the interpretation of 71 to either a subset of 75 or 80. When the succession of pitches within each band is considered, pitch repetitions within triads or pentads recommend positing an original series of twenty tetrads, and the spurious D^3 can be corrected to C^3.[9]

Analysis of the monody's durational content is less straightforward, owing to Birtwistle's more free treatment of his matrix-generated durations. Nevertheless, the distribution of durations points toward the eighth note as a central value, and the scarcity of immediately repeated durations (in sharp contrast to the rhythms of all other parts) strongly suggests the generation of additive rhythms from a permutational matrix.

[1] Michael Hall's *Harrison Birtwistle* (London: Robson Books, 1984) was recently joined by his sequel *Harrison Birtwistle in Recent Years* (London: Robson Books, 1998), Robert Adlington's *The Music of Harrison Birtwistle* (Cambridge: Cambridge University Press, 2000), and Jonathan Cross's *Harrison Birtwistle: Man, Mind, Music* (London: Faber & Faber, 2000).
[2] Quotations that illustrate analytic attitudes ranging from puzzlement to pessimism are collected in the introduction to my doctoral thesis, *Carmen Arcadiae Mechanicae Perpetuum: Toward a Methodology for Analyzing Harrison Birtwistle's Music Since 1977* (DMA dissertation, Cornell University, 1999, Ann Arbor: UMI, 2004), pp. 1–3.
[3] Michael Hall, *Harrison Birtwistle in Recent Years* (see note 1), pp. xii–xiv.
[4] Harrison Birtwistle, *On the Sheer Threshold of the Night* (London: Universal Edition, 1980), pp. 18–21.
[5] Paul Sacher Foundation, Harrison Birtwistle Collection, Folder *On the Sheer Threshold of the Night*, "Skizzen und Entwürfe."
[6] In *Carmen Arcadiae Mechanicae Perpetuum* (1977) and … *agm* … (1978–79) Birtwistle consistently exploits all six partitions of a tritone span as two semitones and two tones: ‹1122›, ‹1212›, ‹1221›, ‹2121›, ‹2112›, and ‹2211›. In *Threshold*, Birtwistle often limits himself to the two symmetrical pentads, but creates variety by extracting subsets as shown in step 2. These integer labels for intervals do not appear in the sketches; rather, Birtwistle uses integers to designate set elements, sets, or order positions.
[7] "1" = {1234}, "2" = {2345}, "3" = {1345}, "4" = {1235}, and "5" = {1245}. This taxonomy of subsets does not appear in the *Threshold* sketches, but matches that used in subsequent works.
[8] Michael Hall, *Harrison Birtwistle* (see note 1), pp. 54–56, 89–92, and 98–103, and *Harrison Birtwistle in Recent Years* (see note 1), pp. 4–11, 13–21, 33–34, 74, and 123–25.
[9] If the errant *D* is interpreted as a misplaced *E* (i.e., as belonging to the upper pitch band), then segmentation of the upper band into triads results in an eighth triad of *E–F–E*, and segmentation into tetrads results in a sixth tetrad of *G–E–F–E*. In each case, the repetition of a pitch within a segment suggests that the *D* is more likely a misplaced *C*.