

# contact

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Example 1

Example 2

Example 3

Example 4

Example 5

KARLHEINZ STOCKHAUSEN: Nr. 17, MIKROPHONIE II for choir, Hammond organ and four ring modulators. English version translated by Hugh Davies and Richard Toop. Universal Edition, UE 15140E, 1975 (£11.25)

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Nr. 17 *Mikrophonie II* was composed in 1965 and is closely related to two works of the previous year. In the summer of 1964 Stockhausen had written *Nr. 16 Mixtur* for orchestra with four sine wave generators and four ring modulators, one of the first examples of live electronic music, in which the instrumental sound is transformed and played back simultaneously over loudspeakers. Immediately after this he wrote *Nr. 15 Mikrophonie I*. (Perhaps one should say "wrote out". Both Wörner and Harvey in their books list these works in numerical order, but the composer writes that *Mikrophonie I* was written immediately after *Mixtur*, (*Texte III*); perhaps the sketches had been written earlier and the elaboration delayed.) In spite of its name, *Mikrophonie I* is not so closely related to *Mikrophonie II*— indeed the formal relationships of *Mikrophonie I* were not developed until the group work *Ensemble* 1967. — while *Prozession* (also 1967) uses almost the same electronic set-up for the tam-tam, whose part starts with material from *Mikrophonie I*.

The ring modulation process in *Mikrophonie II* is different from that used in *Mixtur*. In a ring modulator, two signals (A, B) are combined both additively (A+B) and subtractively (A-B). A and B may vary from the simplest sine wave to the most complex spectrum, even to noise. Each may vary from short attacks to long sustained sounds. (Though A and B must sound simultaneously for any output to result.) The richer A and B, the more complex and possibly noisier the output. In *Mixtur* and studio works such as *Telemusik* (1966) (as well as a host of electronic and live electronic works from many composers previously and subsequently), one of the inputs is a sine wave. This simplifies matters considerably and generally results in a less complex, 'cleaner', sound. The other input remains as complex as desired.

In *Mikrophonie II* the 'complex' input is vocal: eight singers are divided into two each of first sopranos, second sopranos, first basses and second basses; each group feeds one microphone, each of which in turn feeds four separate ring modulator/amplifier/loudspeaker systems. Potentiometers control the level of modulated sound and hence the ratio of live to electronic sound. The Hammond organ output is kept very low and functions mostly as the second input to the four ring modulators. On the Hammond organ the timbre may be continuously varied: i.e. the proportion of the overtones to the fundamental frequency. Thus the vocal sound is modulated with a whole spectrum of (harmonically related) waves — unlike the simple sine wave used in *Mixtur*. The resulting modulated sound is therefore very complex and often dense, especially when the singers make percussive short sounds (whose spectra are non-harmonic with many transient components), or the organ plays chords or even clusters.

Stockhausen tries to redress the balance of this internal complexity (which does result at times in apparent distortion, although this effect, the mediation between 'natural' and 'synthetic' sounds, is one of the compositional determinants of the piece) by a choice of Hammond organ pitches which reinforce the fundamental or specific overtones of the vocal sound. Yet I would think that control of the overtone structure — a major pre-occupation in works such as *Stimmung* (1968) and *Sternklang* (1971) — which this type of modulation complicates, has led to a return to the use of a pure sine wave input for the ring modulation used in *Mantra* (1970).

*Mikrophonie II* is in fixed moment form (this may arguably be a contradiction in terms). As in many pieces from this period, the Fibonacci series determines the moment durations (from 3 to 144 units of about a second). The number of times each duration occurs seems to be determined mostly by the natural number series: i.e. 1 of 144 units, 2 of 89, 3 of 55, 4 of 34, 5 of 21, 6 of 13, but then 8 of 8, 2 of 5 and 2 of 3. There are eight moments in which taped excerpts from previous works play an integral part: a repeated cycle of

*Gesang der Jünglinge*, *Carre* and *Momente* three times each; nine different extracts in all, though two are played simultaneously — hence the eight moments (one of each duration up to 89 units). These are associated with a monophonic vocal texture in each case. The relationships between other moments are determined by degrees of change between monophony and polyphony, which link directly to the 'known-unknown' and 'natural-synthetic' series which lie behind the piece: an example of Stockhausen's expansion of serial thinking in the late 50s and early 60s to a much higher conceptual level.

The translation of the score into English seems at first unnecessary — the text consists of nonsense phrases — except for the convenience of the introduction and directions. Yet listening to the recorded (German) performance, one can hear that to appreciate fully the significance of the nonsense phrases and the many styles in which they are to be sung, the meaning of the individual words must be clear. Problems lie with the greater number of softer consonants in the English, which make the rhythmic declamations much more difficult: "either and either either" instead of "oder und oder oder" for the second basses in Moment Three, for example. The layout of the score seems at first to be relatively free, but in fact most aspects of a performance are determined. The notation of the Hammond organ part combines exact pitches with near graphic presentation of cluster, tremolo and trill formations, along with indications for timbre and dynamic, which control the modulation level directly. The vocal parts are notated with varying degrees of freedom with respect to rhythm, pitch and dramatic nuance, from exact to "within a given range" to free. Style of singing is very important, with instructions such as "à la Jazz, cool" and "like an old crone". In fact the composer has explained that (contrary to much music of this type) the score became freer during rehearsal, the final result allowing more possibilities for the singers and the organist to interact according to the 'acoustical context'. Another British performance is now urgently needed.