Stockhausen: Sounds in Space

Analysis, explanation and personal impressions of the works of the avant-garde composer Karlheinz Stockhausen.

MIKROPHONIE I

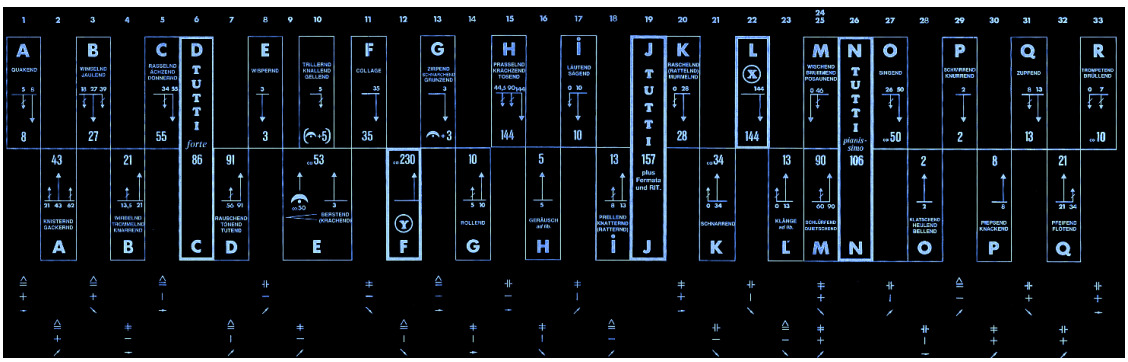
No.15: MIKROPHONIE I (MICROPHONY I) for 6 players (2 groups of 3) with tam-tam (gong), 2 microphones, 2 filters with potentiometers (1964), [ca. 28']

Development

In 1964, Stockhausen acquired a 5-foot Paiste tam-tam (gong) which was first used in performances of MOMENTE, where it was struck, caressed, scratched and scraped in various ways with various drumsticks, mallets and screwdrivers. After installing it in his garden, he noticed that he could get additional sounds from it using metal keys and stones. Eventually, he had his studio engineer from in the house record his actions out in the garden as he rubbed and hit the tam-tam, manipulating a microphone to capture sounds at different distances. The recording engineer also randomly manipulated the frequency bandwidth and gain, all without hearing what Stockhausen was doing outside. After returning inside they listened back and realized they had discovered a new sound world.

In this piece Stockhausen essentially invented a form of "live electronics" (as opposed to electronic music produced by splicing tape or other means). He also pioneered the use of the microphone as an instrument in itself (basically using its sensitivity and proximity to a sound source to create a range of musical values). This is why he calls the work Microphony (microphone - symphony).

Connection Scheme



Connection Scheme for Brussels Version.
In this graphic, the Structures used in the Brussels realization score are printed in the rectangles.

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POPULAR

A normal Connection Scheme would only have the alphabet letters in the boxes.
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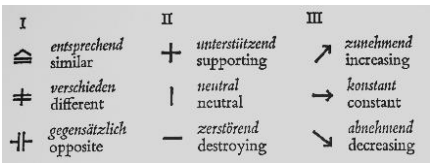
There are 2 scores necessary before a performance is possible. The first part is a graphically-notated "connection scheme" (above, colored by me) which describes the sequence of how one "structure" (sound event) must contrast or support a previous Structure. For example, the connection scheme could indicate that Structure B should be 1, different, 2, supporting, and 3, increasing Structure A. The next symbol in the connection scheme might say Structure C must be 1, similar, 2, destroying and 3, decreasing Structure B. The Structures are essentially played in alternating turns by the 2 trios, but there is alot of overlapping as well (sometimes simultaneous entries). When 2 groups overlap, being "destructive" to another Structure could actually include disrupting the ability of the other team in creating their Structure, such as causing the tam-tam to swing from striking it too hard.

This connection scheme does have a few "fixed" points, such as a tutti quiet Structure, a tutti loud Structure, and Tutti 157 (below) which is a collection of all the Structures in a single group burst of activity. All of the other 30 sound events in the score are selected by the performers from the individual Structures provided by the composer, so each performance would likely be different, but the general shape of the piece would remain the same (Stockhausen notes that the distribution of the Structures should somewhat match the distribution of textures in Tutti 157, shown below). Stockhausen has also published his own choice of Structure ordering as a model, and created a performable "realization score" (see below).

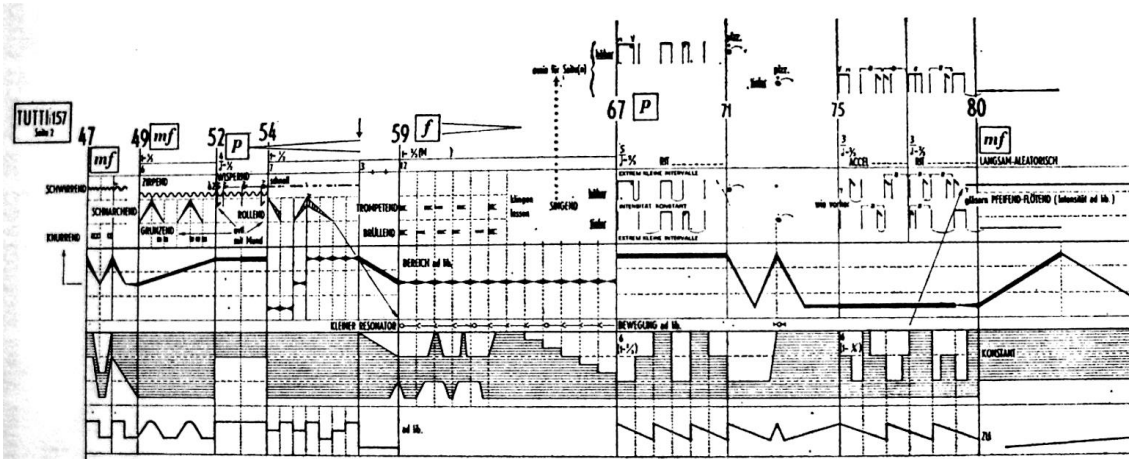


Symbols used in the connection scheme.
Each instruction step from Structure to Structure uses three choices, one from columns I, II, and III.
(Maconie)

The connection scheme was basically designed to create a sense of polyphony based on the contributions of each of the 3 players in each group: sound-making, microphone placement and filtering.

Realization Score

The Structures which are to be ordered into a "realization score" (in accordance with the Connection Scheme) are on loose sheets of paper. These Structure pages are graphically notated in 4 rows, with each row divided into 3 sub-rows. The top row describes the sound as 1 of 36 onomatopoeic adverbs (such as whirring, roaring, croaking), made by the first player scraping and rubbing various plastic, rubber, paper and metal objects against the tam-tam. Stockhausen leaves it up to the performers as to how exactly to get these sounds. This first row also indicates the relative pitch (high, middle, low) and intensity. The second row describes the second player's movement of the microphone to and from the sound source (the thickness of line indicates a range between the highest value of that sub-row and the lowest value). The third and fourth rows are the frequency bandwidth and gain (both controlled by a third player). Each trio of players has their own score and they generally alternate in their Structures, except in the "tutti" Structures.



Top half of Structure "Tutti 157", page 2, showing 1 group only.
Other Structures only have 1 group's instructions, but Tutti 157 has both groups'.
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Brussels Narrative

In the Brussels realization score, the Structures' onomatopoeic names came out something like this (as indicated from the CD track names):

I Quakend	1	I: croaking, quacking
II Knisternd - Gackernd	2	II: crisping, crinkling - cackling
I Winselnd - Jaulend	3	I: whimpering - wailing
II Wirbelnd - Trommelnd - Knarrend	4	II: whirling - drumming - grating
I Rassenlng - Aechzend - Donnernd	5	I: clashing, clanking - groaning, creaking - thundering
I+II Tutti forte	6	I+II: Tutti forte
II Rauschend - Toenend - Tutend / I + II Glaesern Singend	7	II: rushing, rustling - ringing, resounding - hooting / I + II: glassy singing (whining)
I Wispernd	8	I: whispering
II Berstend (Krachend)	9	II: bursting (crashing)
I Trillernd Knallend Gellend	10	I: trilling, tinkling - banging, clanging - yelling
I Collage	11	I: Collage
II Y (Ypsilon)	12	II: Y (Ypsilon)
I Zirpend - Schnarchend - Grunzend	13	I: chirping - snorting, snoring - grunting


Stockhausen
Music (1952-1
WDR Electron
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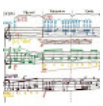
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PLUS-MINUS

CATEGORIES

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II Rollend	14	II: rolling
I Prasselnd - Kraechzend - Tosend / I + II Pizzicato	15	I: spattering, jangling - cawing - roaring / I + II: Pizzicato
II Geraeusch ad lib.	16	II: noise ad lib
I Laeutend - Saegend	17	I: pealing, tolling - sawing
II Prellend - Knatternd (Ratternd)	18	II: slapping, rebounding - chattering, flapping (clattering)
I + II Tutti 157	19	I + II: Tutti 157
I Raschelnd (Rattelnd) - Murmelnd	20	I: crackling (rattling) - murmuring
II Schnarrend	21	II: twanging, rasping
I X(Xi)	22	I: X(Xi)
II Klaenge ad lib.	23	II: pitched sounds ad lib
II 4 sec before the entry of moments 24, 25	24	II: 4 sec before the entry of moments 24, 25
I Wischend - Brummend - Posaunend / II Schluerfend - Quietschend	25	I: wiping, swishing - growling (low buzzing) - tromboning / II: shuffling, slurping - squeaking, squealing
I + II Tutti pianissimo	26	I + II: Tutti pianissimo
I Singend (II Streichtoene)	27	I: singing (whining) (II: String tones)
II Klatschend - Heulend - Bellend	28	II: clapping - howling - baying, barking
I Schwirrend - Knurrend	29	I: whizzing, whirring - grumbling, snarling
II Piepsend - Knackend	30	II: cheeping - cracking
I Zupfend	31	I: plucking
II Pfeifend - Floetend	32	II: piping, whistling - fluting
I Trompetend - Bruellend / Silence at end 1'11"	33	I: trumpeting - bellowing, bawling

(I - First Trio / II - Second Trio)

Performance

"Group Stockhausen" (visible: Aloys Kontarsky, Fred Alings, Harald Boje, Johannes Fritsch)
In these examples the 3rd player in each group is in the audience adjusting the filters and gain.)
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Four loudspeakers in the corners of a hall are used. The sounds from one trio go to the left front/back, and the sounds from the other trio go to the right front/back. The sounds on each side can be panned from front to back as well. Some of the sounds from the stage can be heard as well, but generally the tam-tam is placed in the rear of the stage.

Sound Impressions

This piece sounds very much like a cross between a metal-works factory and a barnyard, with the sounds generally having their own space. Sometimes the players verbalize as well, especially in the Structures where the descriptive "whispering" is used. Unlike electronic music, the piece sounds very organic, despite the main sound source being entirely IN-organic. However some parts are pretty hard to listen to, especially some of sounds which are evocative of nails on a chalkboard. From a musical standpoint, I prefer not to think of this work as "music", but rather "sound design". The performance of this piece and its outcome has much more in common with foley sound artists who create sound effects for movies. There is a "shape" to the entire piece which makes it a composition in its own right, so I guess I would call it a "sound design composition", or maybe just a sound composition. This of course applies to almost

DIENSTAGs GRUSS, WILLKOMEN, SUKA
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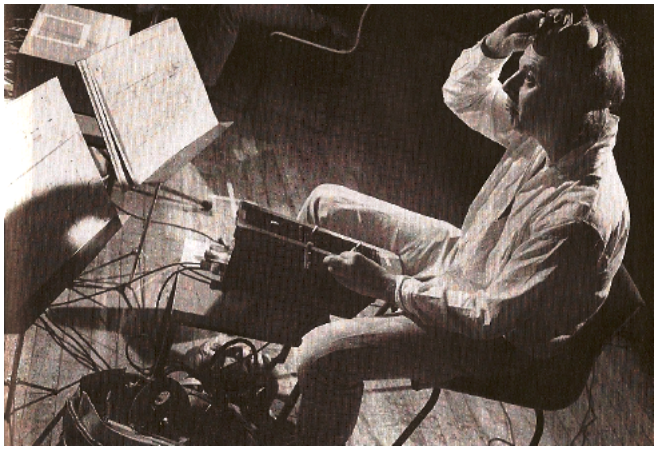
all of Stockhausen's early electronic pieces as well.

One of the most interesting things here from a performer standpoint is that the performer has the least control over the outcome of his "playing" than any other piece I can think of. The sound created is at least twice removed from the immediate action of what he is doing. I imagine that could be either frustrating or enchanting... Finally, Stockhausen has stated that it does not have to be a tam-tam sound source. He suggests a Volkswagon car, or anything that interests the performer, could be used to perform MIKROPHONIE I.



Stockhausen controlling the "filters and potentiometers" using
a Maihak W49 bandwidth filter and a 2-channel mixer.
(© www.karlheinzstockhausen.org)

Links:
Sound Samples, Track listings and CD ordering
Buy the Score
The British Lectures - Live Electronic Music (MIKROPHONIE 1)
MIKROPHONIE I Live, performed by Kontarsky, Alings, Boje, Fritsch and Stockhausen (dir. Francois Béranger)
MIKROPHONIE I Rehearsal (from TRANS und so weiter, 1973)
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Ed Chang

These blogs function not so much as "web diaries" but more like "online books" I've written (or am writing), with each post being analogous to a book "chapter". The blog projects I work on are typically histories, song breakdowns, synopses, and/or analyses. I've learned a lot while creating these things, and I hope you enjoy them.

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