The Performance Practice of Electroacoustic Music: a practice-based exchange between musicology and practice

Artikulation

Introduction

Artikulation was realized at the electronic studio of the Westdeutscher Rundfunk (WDR) between January and March of 1958. Involved in the realization were also Gottfried Michael Koenig and Cornelius Cardew. The title „Artikulation" was suggested by Herbert Brün. The work was premiered on March 25, 1958 within WDR's concert series „Musik der Zeit" in Cologne. (s. Ligeti, *Gesammelte Schriften*, vol. 2, p. 165-169).

Ligeti himself describes the different sound materials as "quasi körnige, brüchige, faserige, trockene, nasse, schleimige, klebrige, gallertartige und kompakte" elements that are sometimes combined, fragmented or assembled into a dense mass. In the process, relationships similar to those found in language are established. Ligeti compares the musical structures to the articulation of a language. On a compositional level, he puts the work into a context with works such as *Aventures* and *Nouvelles Aventures* (ibid. pp. 78).

The compositional process involved strictly serial procedures in the realization of tape sequences and aleatoric techniques in selecting them in the montage process (s. G.M. König, Ligeti und die elektronische Musik, in: Otto Kolleritsch (Ed.), *György Ligeti. Personalstil - Avantgardismus, Popularität*. Wien: UE, 1987, pp. 11.

Audio and written sources

Rent material

The performance material received from Schott includes a DVD with four mono files at 48kHz/24 bit. Duration is 3:45:76.

Archival material

The Ligeti collection at Paul Sacher Stiftung has copies of material for Ligeti's own use such as the CD from the Wehinger edition, mono tapes etc. There are also roughly 100 pages of sketches for

"Artikulation".

Commercial releases

György Ligeti (Wergo, 1988). Source tape: "Bandkopie WDR 1958" (cf. CD booklet). Duration: 3:43:86.

Acousmatrix 6: Cologne-WDR: Early Electronic Music (Acousmatrix, 1991). Source unknown. Sound quality similar to Wergo release. Approx. 6db louder than Wergo release. Duration: 3:43:81.

Score

Ligeti: *Artikulation. Elektronische Musik. Eine Hörpartitur von Rainer Wehinger*. Mainz usw. Schott, 1970

A „Hörpartitur" (listening score) for Artikulation was realized by Rainer Wehinger and published by Schott in 1970 (later releases in 1984, 1988, 1994). It was realized on the basis of an analysis of the tape (Nordwall 1971, p. 203). In a recorded talk (unpublished, 1983) found at Paul Sacher Stiftung, Ligeti calls Wehinger's score "rather accurate, rather precise".

Technical reports

Difference in duration

At 3:45:76 the audio received from the publisher is roughly two seconds longer than the commercial releases. Since the difference amounts to less than 1%, we assume that it is due to wow and flutter in the tape machines used in possibly two different transfers (s. also Glissandi).

Audio from publisher: 3'45.76 CD release (Wergo): 3'43.86 CD release (Acousmatrix): 3'43.81 CD from Wehinger score: 3'43.81

Crosstalk

Crosstalk, such as noticed in the audio provided by the publisher, results from neighboring tracks on a tape being magnetized over a longer period of time and/or imprecise position of the tape machine's heads .

Sound restoration

In the sound restoration of the four mono files, high and low pass filters, as well as the Waves z-noise plugin were used. High and low pass filters were set first, then a noise profile was established for each channel and the noise was reduced as far as possible. Sound envelopes were drawn, and the passages without wanted signal (pauses) were reduced by 6-8 db. Because of the impulses and sounds on the other channels it was possible to mask the envelopes so that no "pumping" noise is heard. The performance team felt that the restored version helps to highlight the polyphonic dialogue

in space. With the noise, the four speakers seem to be continually present in the space.

Performance

Performance during workshops

General comments

Rainer Wehinger's "Hörpartitur" indicates that the projection of the four channels in space follows a cardinal point pattern, forming a rhombus around the listener. The suggested position of the loudspeakers is like a rhombus in relation to the seats in the hall. This results in a difference between front, side and rear speakers that is more noticeable as in a rectangle disposition: the sound from the rear speaker will be more strongly reflected while the side speakers can project the sound very directly. This should be taken into account when determining the position of the speakers. The front speaker should not be positioned too closely, so that the difference in sound to the rear speaker (behind the listener's head) is not increased. If subwoofers are used, one subwoofer per channel or a distribution such as L-R is recommended. Use of a single subwoofer would distort sound localization. Depending on the acoustic properties of the performance space, actively controlling the dynamics during the performance can be advisable.

Performance of January 29, 2015

For this performance, a de-noised version of the audio was used (s. above). 4 speakers were positioned to form a rhombus around the audience. This disposition was doubled above, using a total of 8 speakers. The more impulse-like sounds were generally played on the lower speakers, while in passages using more reverberation; the sound was moved to the upper speakers. In addition to this, impulse-like sounds were amplified in order to highlight the dynamics as well as the polyphony of the piece.

Select bibliography

Ligeti, György, 1958, Werkkommentare: Artikulation, in *Gesammelte Schriften*, ed. Monika Lichtenfeld, Mainz, Schott 2007, Vol. 2, pp. 165-160.

1967, Gedanken zum musikalischen Theater_Artikulation, *Gesammelte Schriften*, ed. Von Monika Lichtenfeld, Mainz, Schott 2007, Vol. 2, pp. 78-85.

Miereanu, Costine, Une musique èlectronique et sa "partition": Artikulation, in *Musique en jeu*, 1974, No. 15, pp. 102-109.

Wehinger Rainer, Ligeti, György, *Artikulation: elektronische Musik: eine Hörpartitur von Rainer Wehinger*. Mainz: Schott, 1970 [Introduction, in German]

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