“KONZERT IV”

”computer”

Piece for 4 musicians, 1 Computer and 4 Speakers

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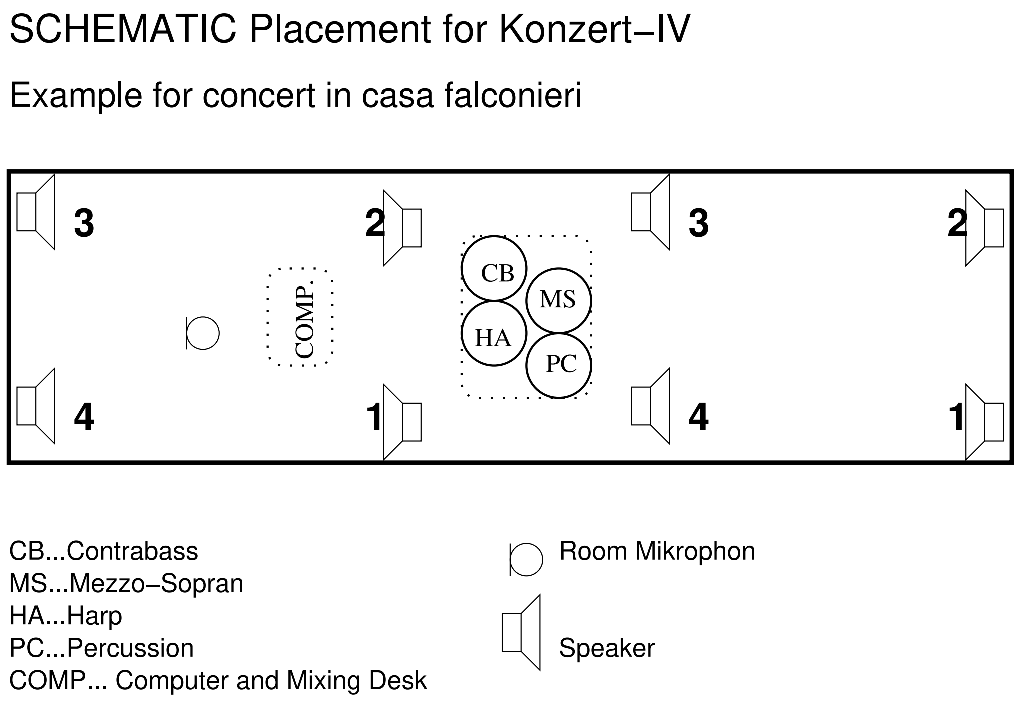

Figure 1: basic setup in the concert room

All sounds and the composition is generated live with the programm, which is also generated the basic structure of the music score for the musicians.

The computer musician coordinates all the piece. A basic setup is shown in figure . Always 4 Speakers makes up a sound room, whithin the listeners should be placed. The speakers are organized anti-clockwise from 1 to 4 and the optional second space the same,so that in between the two spaces the speakers are clockwise placed.

The speakers should point away from the musician to reduce feedback.

A room-microphon is set up about the middle of one space, which is the source for the sounds for the third part of the piece.

The signal path is shown in figure . The musicians are microphoned as described in their voices. The signal should be as dry as possible und is amplified over all speakers in mono and euqally, so that it is clearly heard from any psoition and should sound very "near" to the listeners. The same signal is used for the computer which selects some phrases out it.

The 4 computer outputs are made out of spatialized voices from the computer and distributed to the four speakers. The volume of

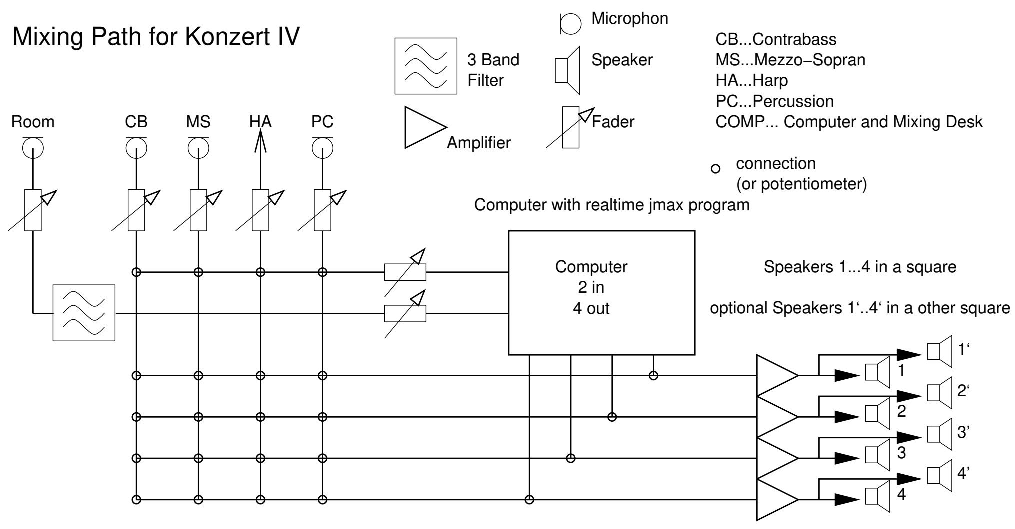

Figure 2: signal path for the concert

the computervoices should be the same as the live amplification at the beginning and could be much louder later in the piece.

The room microphon stands in the middle of the room and should be positioned very high so that the listeners cannot influence it to much and it should take a lot of the room reverb especially of the computersounds. This microphone is used in the last part of the piece and should be muted at start. The filter, which can be the filters of the mixing desk, are to adjust the input spectrum.

All players and the computer programm are started synchron at time 0'00". Its necessary that the computer musician give the sign for starting the stop watches of the musicians. After 36" the first tone is played from the bass, where it is important that this tone is caught by the computer since the computer voices depends on it.

The program structure is shown in figure . You can think of the programm as a big brain remembering the phrases. The first part is a selection programm which selects the phrases and put them in primary memorys in form of loops. A second process starts and begins to alter this loop content, which is called aging.

On an next stage there is a selection which selects pieces from the primary 4 memories for two secondary ones and also an aging process alters the content of the memory.

On the third stage parts of the secondary memories are selected and put in the last one which is also altered, but very slow.

Now a composition process which is started at time 0" takes pieces from the memories and plays them as 7 voices with different pitches, which are spatialized to the four speakers.

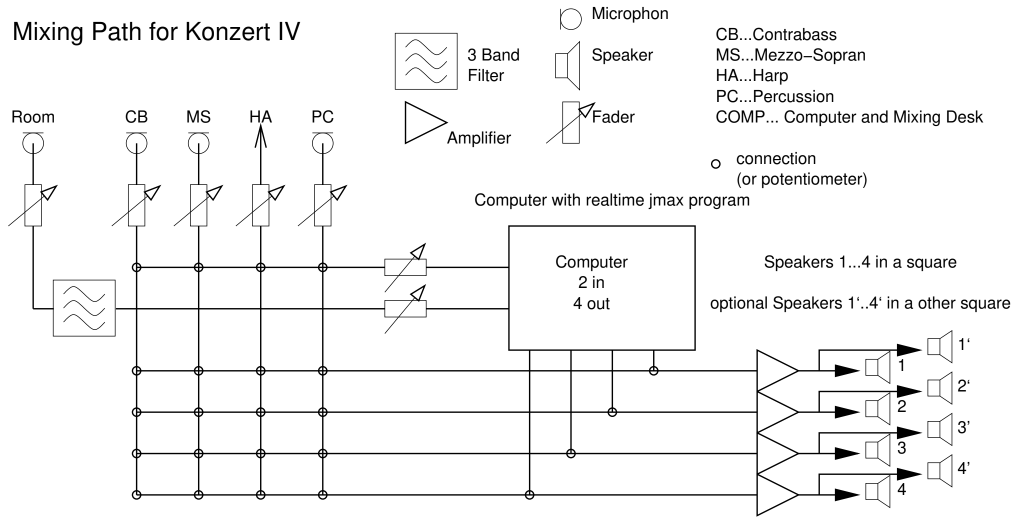

Figure 3: program structure

The whole composition can be thought of three parts and a rough timeline is shown in figure . The first one where the musicians play most of the sounds and the computer learns their phrases. The second one, where the musician and the computer plays together in an equal balance and the third one where the musicians has stopped playing and the computer takes over. At this point the input of the room microphon, which is sampled as an instrument voice, is added to the memories. After a while the reverb of the room forms cluster-sounds of the of sounds where the main resonances of the room are dominant, so that at the end the main tones of the room forms a kind of chord of the room. Therefore if the high or low or middle frequencies become to dominant it should be corrected live with the filter and also process speed should be controlled with the room microphone fader.

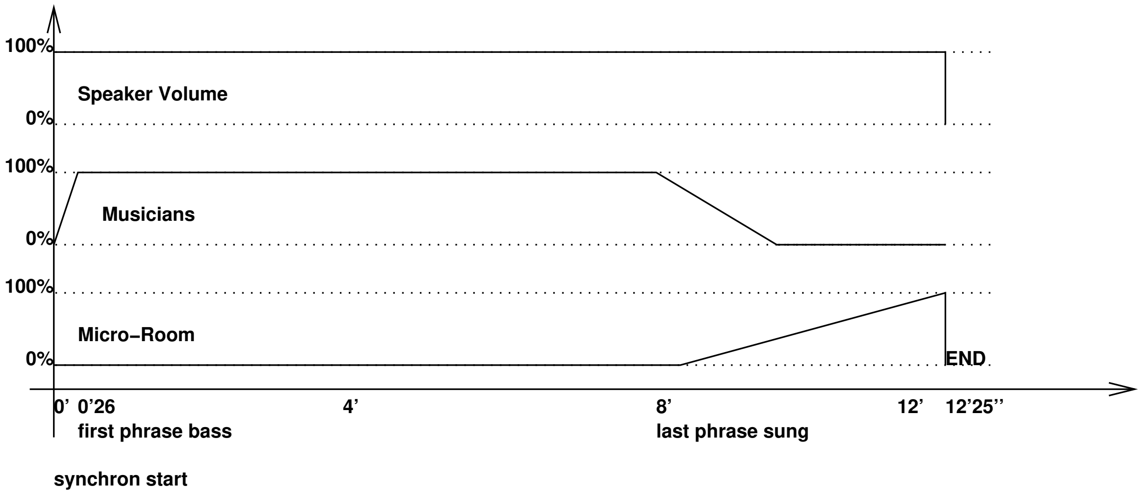

Figure 4: Timeline for the computermusician