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Materialisation of fixed media music

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Conclusion

The experience of the 8 loudspeakers is extraordinary. There is no room for anything but immediate listening. The air was so alive one was simply part of it. (Cage 1953 [1993], 143)

In this letter to Pierre Boulez, John Cage reflects enthusiastically on the experience and the atmosphere of the first concert at the University of Illinois (1953) with eight tape recorders and eight loudspeakers surrounding the audience, where his piece *Williams Mix* was premiered. 70 years later, the extraordinariness of listening to multichannel music still strikes me every time I attend a concert of electroacoustic music.

The main objective of this research has been to understand and articulate the importance, indispensability and artistic possibilities of the public presentation of fixed media electroacoustic music, regarding such presentation as the only way to fully materialise and experience this music. I have shifted the focus from the fixity of the medium towards the diversity and wealth of the listening experiences that it can engender, and I celebrated the creativity and imagination that multiple actualisations of a piece of fixed media music can afford. I have explored this topic through a close observation of my own practice as a composer, performer and listener of fixed media music, as well as through documenting and observing other composers' approaches, conducting interviews with some prominent practitioners in the field, and drawing on various sources of literature such as music history, electroacoustic and computer music, sound studies, conducting, architecture, and philosophy. Throughout this process, I have experimented and enacted the ideas generated through my research by composing new works of fixed media music for various configurations, sound systems and technologies, as well as presenting them in diverse circumstances. By considering the composing and performing processes as components of a single continuum, I have delineated the reciprocal relationship between these processes to shed light on the question of what it means to *perform* fixed media music. I have done so by providing an insight into the practice from within, reflecting on my own activities and concerns in the form of (audiovisual) autoethnographic work.

The electroacoustic technology of sound recording has transformed our conception of music: from documenting and 'storing' a musical performance (as in recording a concert) to *constructing* a performance through editing, to composing the music *with* and *onto* the medium. While this notionally fixed medium seemed to suggest and promote the emancipation of the music from live performance, in practice the collective listening situation and the bodily presence of the audience gave rise to a performative situation and a quality of liveness. The responsibility for shaping the audience's experience, by controlling the parameters involved in materialising the 'fixed' sound files, requires an agent that we may call a performer. My research has demonstrated that fixed media music should not be regarded as an abstract entity, but rather as something that needs to be materialised and formed as a sonic substance in space, so that it can come to life and become music. In other words, the sounds heard by the audience are inseparable from the space of their performance; the circumstances under which such a performance takes place play an important role in the sonic result. It follows that there is no perfect and ideal *realisation* of a piece of fixed media music, but rather different *actualisations* related to the circumstances and contingencies of the situation in which they are presented. Just as with orchestral performance, CDs or online platforms for private listening give only a limited impression of the richness and spatiality of the music.

While giving a comprehensive account of spatialisation techniques and their history was beyond the scope of my research, I have nevertheless tried to formulate an understanding of the role and importance of space as a musical parameter in composing and performing fixed media music by proposing the concepts of *spatial polyphony* and *post-mix*. Spatial polyphony is concerned with thinking compositionally in terms of multiple sound sources at every stage in the process of music making, rather than considering this as an 'ornament' added at the end of the process. At the same time it grounds the work within its performance context, so that the work comes to full existence only in the performance space. Listeners to such spatially conceived compositions find themselves so to speak *inside* the music, becoming more active participants rather than distant 'observers'. Composing in a higher number of channels than those to be used in a performance - which I have termed *post-mix* - proved to offer more flexibility in adapting fixed media pieces to various circumstances. This in turn prompts a more creative and artistic approach to performance, which, as demonstrated in my case studies, may generate quite new musical experiences from a single piece.

Anyone who has attempted to make an audiovisual documentation of a concert of fixed media music knows that this is most likely doomed to fail. Apart from the technical difficulties of recording in low light conditions, the concert situation of fixed media music somehow resists being documented, and the recorded material fails to communicate the essential qualities of the live experience, seemingly to a greater extent than with other musics. I argue that a principal reason for this lies in the *atmospheric* aspects of the concert situation, which are not reproducible in a recording but can only be sensed physically in the performance space: the absence of a stage with performers causes listeners to be more aware of their own bodily presence and that of their fellow audience members. An audio recording of fixed media concert presentations is also reduced relative to its source, the original sound file. Depending on the recording technique, it carries with it the acoustical footprint of that concert hall, which has no relevance when the music is heard in another space. Even using spatial recording techniques such as Ambisonics does not remove the problem of listening to one space inside another. Nevertheless, I have always tried to make ambisonic recordings of my concerts, resulting in an archive of ambisonic B format files. However, I find myself less and less frequently going back to listen to those recordings. If I need an 'impression' of one of my pieces outside the studio or concert hall - in other words a stereo reduction - I prefer to recreate that version from the 'original' multichannel sound files, removing any expectation that the ineffable atmosphere of the concert event might be sensed through the recording. Rethinking the fixed media music concert situation in terms of atmosphere, as discussed by Gernot Böhme and others, provides a deeper understanding of the ineffable feelings which occur only at the here and now of the concert moment. This involves a synergy of various elements ('atmosphere generators' according to Böhme) which together constitute the atmosphere of the concert. When I compose now, I tend to think more broadly than just in terms of the composition itself; I have become more conscious of the circumstances of its presentation in a more holistic manner. Imagining the atmosphere of the concert, in turn, inspires me and guides me through the composing journey. While fixed media music can and often does take place in an acousmatic situation, where the music is 'invisible', lighting can still play an important role as an atmosphere generator. Through this research project I realised the importance of lighting and peripheral vision in shaping the experience of listening to fixed media music, an area which requires further investigation.

Having a background in instrumental music composition, I found that the affordances of electroacoustic music opened up a new *modus operandi* in working with instruments. I have continued to explore the question of what it might mean to make instrumental music for loudspeakers, expanding on the possibilities of shaping and forming instrumental sounds, not only by exploring new timbres but, more importantly, by re-contextualising them, specifically in the context of using traditional Iranian instruments. Although this research has concentrated on electroacoustic music as something distinct from instrumental composition, my work on the Broken Ensemble project should serve to underscore that I regard my work with fixed media as a continuation and extension of composition for more traditional resources, rather than as something alien to it. Broken Ensemble explored the potential and affordances of alternative (or nonstandard) loudspeakers for presenting fixed media music, and the way these might affect and shape the sonic material, while also shaping the performance situation through their visual presence and materiality.

Future perspectives

I plan to develop the spatial polyphonic dimension further by composing for a 'broken string orchestra', increasing the number of sound sources beyond the four instruments that I have utilised so far. This could also include capturing the 'noise' of the audience as input data to control certain variables in the music, introducing an interactive layer to it. Another aspect that I plan to explore includes the use of design and lighting to shape and define the visual presence of this string orchestra in space. Also emerging from this PhD project is a plan for a new research project on discovering the most suitable type of transducers and the manner of their attachment to the instruments, with the goal of achieving a richer sound and having more control over the sonic result, for instance by attaching multiple transducers of various types and sizes to a single instrument.

On a practical level, this research prompted the idea of founding an organisation, Azimuth, involved in presenting and promoting fixed media electroacoustic music, a laboratory to experiment and put into practice my (and the co-founders') ideas in composing and performing this music. Playing to audiences from diverse socio-cultural backgrounds, many of whom would be experiencing such music for the first time, Azimuth proved that fixed media electroacoustic music can reach audiences beyond academic and research contexts; our concerts established a loyal community of composers and listeners. The experience of Azimuth in return enriched this research by setting creative challenges to working with limited resources and non-concert hall venues. For example, Azimuth wishes to continue its activities by exploring new modes of presenting fixed media music, like organising open air concerts which grounds the musical experience in a background of ambient sounds, thus giving rise to new kinds of atmospheres. Another area of investigation would be designing the concert situation in interior spaces more consciously, through collaboration with artists from disciplines such as set designing and lighting.

Hence, this research project has raised questions that open up perspectives for future research, also regarding the communication of ideas and performance suggestions from composers of fixed music to possible performers of their work, in the absence of a traditional score. To explore this area, I will embark on a project of 'publishing' my fixed media music, not as reduced (stereo) versions, but as 'raw' material: a package including the original sound files accompanied by suggestions on how to actualise the pieces. The intention is to investigate how best to

communicate the musical ideas of the composition and the intended quality of its constituent sounds, as a guide to other performers as they adapt it to whatever performance circumstances. The intention here is not to specify an 'ideal' performance but to suggest how performers might think about this adaptation. In addition to technical information and suggestions for post-mixing, such a 'score' may involve an analysis of the work and its structure to give an insight into the dynamic interrelationships between its sections. These instructions could take the form of an explanatory, anecdotal, poetic or abstract text, and can even include pictures, illustrations, videos or anything that can communicate the *atmosphere* which surrounds the work.

On the audiovisual part

The idea of integrating video into my project gave it an equally important dimension. The resulting double research trajectory involved, alongside its focus on sound, space and atmosphere, an exploration of the affordances of the audiovisual medium in artistic research. I carried out extensive experimentation in combining video, sound, image and text in order to find my way through the infinite possibilities that such combinations would offer. The audiovisual medium enabled me to articulate issues and aspects of my research that were difficult to convey through text or sound alone, especially in working with concepts such as atmosphere. In fact, what I was doing the whole time was composing, sometimes with sounds, sometimes with images and sometimes with words. The audiovisual part of my dissertation is itself a fixed media piece, which requires performance, just like its subject matter. In other words, the multichannel pieces integrated into this part of the dissertation are post-mixed when they are presented in public, together with the multichannel soundtrack and the spoken text and interviews. The presentation of the documented experiences thus becomes a new experience - reality doubling back on itself.

The integration of the audiovisual medium introduced a new observational angle into the practice through the lens of the camera: it allowed me to observe certain things that otherwise might have gone unnoticed, and this helped me to elaborate and reflect on those issues in the textual part of this thesis. Moreover, through interviews with composers and practitioners in the field, and by documenting their practice, I was able to gather some firsthand and up-to-date information and gain insight into the current state of affairs in the field. The audiovisual medium also helped me in the process of self-reflection through documenting my own performances.

One of the challenges here was the combination of video and spatial audio. While the image has a frame, and thus occupies a fixed point in space, the multichannel sound track surrounds the audience. This might create a conflict, formulated by Michel Chion (1994) as *spatial magnetisation*: a psychological phenomenon where the image 'magnetises' the sound events as if they emanate from the image, negating their original location. This phenomenon, in fact, undermines spatialisation. Therefore, I had to be conscious as how to combine the visuals with the spatial sounds. By reducing the level of activity in the image during the denser spatial polyphonic moments, for instance by employing static shots, or abstract and out of focus (blurry) images, or even eliminating visuals altogether the 'magnetisation' effect could be mitigated and the focus could turn to listening.

The experience of making this audiovisual part of my dissertation inspired me to design a course to help and motivate other students to integrate various media in their artistic research. I have now been teaching this course as a Master elective at the Royal Conservatoire in The

Hague since 2023, and I find it extremely illuminating to observe how each student adapts these techniques and approaches in relation to their own capacity and interests. 'Non-traditional research outputs' (NTRO) are still in its infancy and given the countless possibilities and the potential that the audiovisual medium offers, specifically in relation to artistic research, it is yet to be fully explored. I hope that the audiovisual component of this thesis can serve as a point of departure for others, as well as myself, to develop further this fusion of (spatial) sound and visual communication in the presentation of research outputs in the field of music, as well as other disciplines such as, dance, theatre and visual arts.