

INTERPRETING AUDIO SCORES: EXPERIENCES AND INSIGHTS

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ABSTRACT

This paper provides a resuming insight into my experiences of interpreting audio scores as a clarinetist. It draws on moments from my experience that began with my first encounter with audio scores and have since continued through sustained and intensive engagement within the framework of a research project about audio scores. The experiences from the initial Encounter with an audio score through to the Performance are described from the perspective of a clarinetist trained in the classical music tradition, who has repeatedly engaged with contemporary music out of personal interest, without having completed any specialized training in this field. The interpretation of contemporary music, extended techniques and collaboration with composers, usually based on written scores, are therefore familiar to me. However, they do not constitute the everyday content of my work as a musician. The starting position of working with musicians, who are somehow familiar with contemporary music but do not work with it in their everyday life, is, in my view, one that composers in contemporary music frequently encounter and will continue to encounter and one for which audio scores can offer unexpected advantages and possibilities.

1. INTRODUCTION

1.1. Audio Scores: Definition

Before turning to my own experiences, I would like to provide an overview of some methods and approaches to audio scores. S. Bhagwati [1] proposes a possible definition by describing audio scores as scores that primarily use auditory means of communication to convey defined aspects to performers. These aspects can be communicated in different ways and can serve various functions: audio scores may contain information or instructions, encourage imitation and provide examples. Auditory scores can therefore exist entirely on their own or function as a supplement, extension or completion of visual scores, offering advantages and facilitation for performers (see J. Bell [2]). Conversely, visual and/or printed elements of scores may also serve as supplements to audio scores.

1.2. Situative / Live Audio Score, Fixed Audio Score

In principle, a distinction can be made between audio scores that are generated in the moment (for example, generated live by the composer) and thus react to what is happening in the concert and scores that are completed in

advance (for example, fixed media) and played back during the performance (see S. Bhagwati [1] and E. Schimana [3]). Audio scores therefore do not necessarily have to be situational or real-time.

1.3. Acoustic Memory

E. Schimana [3] presents another method in which the score is completely absent during the performance. *Acoustic Memory* describes an approach in which the score is conveyed through audio and memorized by the performers during the rehearsal process. During the performance, it is then presented from memory.

1.4. Different Approaches

Depending on the approach and the composer's instructions, which are discussed during rehearsals, the conveyed information can be handled either more strictly (accurately reproducing only what is heard) or more intuitively (treating the information as guidance for further development). These agreements have a significant influence on the interpretation. Even in the former case, the individual and subjective interpretations of the musicians may vary and thus play a decisive role in the final outcome. In the latter case, the scope of interpretation can extend so far that it may be understood merely as an impulse for improvisation.

1.5. Audible Score as an Artistic Medium

An interesting aspect of audio scores is the possibility of the score functioning as an artistic medium. Depending on the mode of transmission, the score may be delivered via headphones or loudspeakers (or other experimental means). This allows composers, depending on their artistic intentions, to present the score audibly as part of the overall work (provided it is played back live). If the score is played through loudspeakers, it is the composer's decision whether, for example, the entire score (all tracks) is played clearly through four loudspeakers in the space or whether each musician has their own loudspeaker (and individual track) placed nearby, possibly audible only to them. Hybrid forms are also possible.

2. Experiences in Live Generated Audio Scores

One of my first experiences with audio scores was with live-generated audio scores. I worked with a composer who already had several years of experience with various musical ensembles and has applied audio scores as a

long-standing compositional method. During the process, we carried out, among other things, small performances. In addition, there was a recording process primarily intended for psychoacoustic analysis. As a result, the following presents subjective analyses and observations from the perspective of the performer, that is, from my perspective.

2.1. Setting

Even for specialized terms such as live-generated audio score, there are numerous interpretations and variations. The setting I will describe here is as follows: each musician positions themselves next to a loudspeaker. The composer sits at her mixing console, which she operates live. The score is transmitted through the loudspeakers in separate tracks (one track per musician), with the goal of as precise an imitation as possible. What is particularly interesting is that the score is generated live and the composer reacts directly to what I, as the performer, play.

2.2. Development, Methods and Rehearsals

Before the first actual rehearsal in the final setting, there was a sort of preliminary planning sessions with the composer, still without the electronic setup. During this session, the fundamental basics of the composition were clarified, primarily through the composer's questions (possible pitch range, possible extended pitch range, etc.). In addition, four different "Performance methods of the score" were discussed: 1. Long tones, 2. Two tones simultaneously, 3. Noise, 4. Staccato.

2.2.1. Methods: Single Long Tones

During the first practical rehearsal in the electronic setup with loudspeakers, we were able to start without further preparation. Crucial for me was the prior information that only three tones would appear in the first section. My expectation - or rather fear - that I would have to "guess" the notes in audio scores was fortunately dispelled. Instead, the live-generated audio score conveyed to me how long and how loud the tones of the score, that is, one of the three agreed-upon tones, should be played. The function of the audio score, therefore, is not to guess pitches but to provide impulses and instructions regarding the duration, intensity and sequence of the tones.

2.2.2. Methods: Two Tones Simultaneously

In retrospect, the long tones almost functioned as a preparation for the second method. Without explicitly discussing it, during the course of practicing the long tones, suddenly not just one tone but two tones simultaneously were transmitted through the loudspeaker, that is, through the score. Perhaps it was the previous instruction to play as precisely as possible what is heard that led me to stop attempting to play single tones. Rather, there was a kind of "falling into" the loudspeaker. When two tones were played simultaneously, this did not result in playing one tone or the other but in an attempt to imitate the simultaneous sound of both tones. Technically, this involved a combination of partially opening or closing keys, adjusting the (lip) embouchure and possibly changing the direction of air and breath, which produced this attempt at imitation. On the clarinet, alternative fingerings are quite common when playing quarter tones.

However, these are rarely, or only in very specific personal agreements, combined with the embouchure and air adjustments I employed here. Each moment is not fully reproducible. Whenever the combination of the two tones in the score repeated, the attempt at imitation triggered a different clarinetistic playing combination.

2.2.3. Methods: Noise

Similar to the second method, the third method developed in a comparable way. Without further technical arrangements, a kind of noise or flutter was added to the live-generated score alongside the long tones. The most obvious way to imitate such sounds on the clarinet is the flutter-tonguing technique, which I initially applied in the low register. A defining aspect of the entire rehearsal process across all ranges and methods was the ongoing, direct exchange with the composer. Through these discussions, it became clearer in which direction the composition should proceed.

The flutter-tonguing method worked wonderfully in the first two ranges. However, the combination of extreme pianissimo and flutter-tonguing could not be executed technically in the highest register of the instrument. Therefore, I switched to a method that primarily consisted of producing a lot of air in the tone (i.e., noise).

2.2.4. Methods: Staccato

In comparison to the other three methods, the fourth approach is somewhat distinctive. At the beginning of this stage, individual tones were again transmitted, this time short, that is, staccato. Initially, these were single tones of the same pitch. Subsequently, a second and third tone were introduced, presented in quick succession and eventually even simultaneously. In addition to the tones of the lower range, occasional tones from the second range were incorporated. As in the previous methods, working in the mode of "falling into" the loudspeaker resulted in an interpretation characterized by a rapid sequence of staccato tones across varying pitches, as I aimed to "capture" as many tones as possible. Notably, compared to a traditional written score, achieving such an energetic, fast and spontaneous outcome would be challenging, or only feasible with extensive rehearsal and practice.

Regarding the technical implementation, the composer indicated that for this method, a loop track was created for each pitch, causing each tone to be repeated at regular intervals (e.g., every 4.78 seconds). Additional tones were assigned separate tracks with differing temporal spacing, resulting in a score in which tones are sometimes presented simultaneously but more often sequentially and in varying order.

2.3. Merging with the Score and the Concept of Mimesis

As mentioned above, this process involves a kind of "falling into" the loudspeaker, which I would like to examine in more detail here. In art theory, the concept of *mimesis* has repeatedly played a central role. W. Benjamin [4] describes a situation of observing and hunting a butterfly and entering a state in which the attempt at imitation goes so far that the butterfly is not merely imitated, but a sensation arises of almost becoming one with the butterfly. What is at stake here is a

form of complete immersion or merging, perhaps a meditative state, in which technical processes recede from conscious awareness. Already Plato [5], in his work *Politeia*, understands mimesis as the imitation of natural processes or of nature itself.

I am able to draw on this state and this experience in my encounters with live-generated audio scores. After a certain period of rehearsal, at a later stage in which verbal communication may have become less prominent, I had the impression of merging with the loudspeaker, or more precisely, with the sounds of the score itself. It felt like an invisible connection: the loudspeaker thus became a playing partner or ensemble colleague and rather than experiencing the situation as following its instructions, I increasingly perceived it as making music together. In some situations, the setup was arranged in such a way that I was physically turned away from the composer and therefore unable to see her. I believe that this further intensified the focus on what was heard and deepened the sense of merging with the loudspeaker. The recordings confirmed that at certain points the score and the clarinet could no longer be clearly distinguished temporally. At some point, I was playing almost simultaneously with the score, without actually knowing when the next tone would occur.

2.4. Requirements and Precision

In the course of the rehearsal and analysis process, I repeatedly arrived at a particular realization: strictly speaking, I am also unable to fulfill the requirements of the audio score with complete precision. Even when, based on a state of merging informed by the concept of mimesis, I come very close to the score, it is impossible to perform it in exact accordance with it. In this context, however, I also question how closely the intentions of composers can be realized when performing from a written score.

In follow-up discussions with the composer, it became clear that the instruction to play as precisely as possible with the score functions more as a necessary means to an end than as an absolute requirement for the interpretation. As mentioned above, this attempt induces a meditative, highly concentrated state that results in a sense of merging with the score and consequently in a resonance with its musical energy. In this form of audio score, it is ultimately not decisive whether my clarinet tone ends in perfect temporal alignment with the score as the tone will become very soft and may "disappear" behind the potentially longer-lasting score. For listeners, such discrepancies would hardly be perceptible. Moreover, it became clear to me that I also have the option of omitting certain tones of the score while playing others. An option that arises, at least in part, from the technical possibilities described above.

2.5. Interpretation and Interaction

Where, then, does the scope for interpretation lie within this form of audio score? Naturally, the interpretative freedom is more limited than in scores that function primarily as impulses. Nevertheless, certain parameters remain embedded within the score, as it is still the performers' interpretation that determines, for example, how dynamic indications are realized in practice.

Decisions regarding which tones are played and which are omitted may likewise be understood as interpretative acts. However, the implementation of the methods described above is of central importance for the interpretation. The manner in which noise or flutter is produced, or how the score's impulse to play two tones simultaneously is realized, varies from performer to performer.

A crucial aspect of interpretation in this context is what I would describe as the "interaction between performer and composer". The live generation of the audio score does not only mean that the composer directly influences what the musicians play. The reverse is equally true. My interpretation as a performer, in turn, influences the composer and thus the score itself. The composer hears what I play and responds accordingly, for instance by retransmitting the signal at a different dynamic level - more reduced and soloistic, or more intense. As a musician, I therefore exert an indirect influence on the score, even though this aspect does not involve conscious decisions to "manipulate" the score.

2.6. Another Experience of a Situational Audio Score

At this point, I would like to mention another process involving a different composer and a different approach to situational audio scores. The compositional concept likewise falls within the category of situational audio scores. However, in this case, the score is not transmitted via live-generated electronics. Instead, the rehearsal process involved two musicians (clarinet and double bass) positioned facing one another, both instructed to play the same pitch. The central instruction was to listen closely to the resulting acoustic beats and resonances that emerge when identical pitches are produced and either to work against these phenomena by reducing them or reinforce them.

This rehearsal took place at an early stage of the project. At a later point, the approach is intended to be realized within an ensemble context, involving two distinct groups. Even at this preliminary stage, however, it can be observed that a form of interaction emerges here as well between the "score", in this case, the other musician and myself as the performer. The score does not originate from an external source, but is instead produced by the performers themselves in the moment, that is, situationally.

3. Experiences in Acoustic Memory

As described above, the method of *Acoustic Memory* refers to audio scores that are performed live from memory during the performance. I had the opportunity to explore this method as well in collaboration with a composer who has repeatedly integrated it as a consistent and established element of her artistic practice.

3.1. Setting und Source Material

During the initial meeting, I received the audio score in the form of a 45-second audio file. This file consisted of relatively short, rhythmic, abstract electroacoustic sounds, characterized by their typical timbres and a pronounced noise-like quality. The conceptual framework of the work was such that each ensemble member would receive a (different) audio score of this type for each

movement of the piece. In addition, a temporal structure was defined that specified when these audio scores were to be performed.

On stage, each musician is therefore provided with a clock and a timeline indicating at which second the memorized 45-second insertion should be performed. This insertion occurs multiple times over the course of each movement.

3.2. Translation and Implied Interpretation

Reproducing melodies and sounds from other instruments is, of course, not unfamiliar to me and translating "noise" onto my instrument has also become familiar through various encounters with improvisation and contemporary music. Nevertheless, finding a melody based purely on electroacoustic sine tones and translating it onto the clarinet can be described as challenging.

At home, my initial effort focuses on gradually familiarizing myself with the file. I listen to it several times in succession. The tones are high and almost piercing. Some sounds follow so quickly that I wonder how they could ever be executed on my instrument purely from a technical standpoint. Were it fully notated, it would likely require hours of practice. As I have experienced with classical works, when something seems unmanageable, a structured approach is required to progress step by step. I therefore divide the piece into segments: ten seconds, another ten, a total of four ten-second segments, plus an additional five seconds at the end. The next step consists of gradually translating the piece, always in ten-second increments, for myself and my instrument. In retrospect, I can say that this is where my personal interpretation becomes decisive. Another musician might translate the piece differently, perceiving and rendering the sounds in another way. My artistic contribution thus represents a substantial part of the final result.

I begin with the first ten seconds, translating them onto my clarinet and recording them, thereby creating another personal audio score. I select a few high tones that start softly and gradually become louder, add anticipations and incorporate some multiphonics and slap-tongue techniques. This process allows me to make progress more quickly than expected. I gradually approach the audio file, become more familiar with it, discover a certain internal rhythm and coherence and perhaps begin to feel some affinity for sounds that initially seemed so foreign. The process is similar to learning classical music and written scores: I recall first studying the Brahms Clarinet Sonata at nineteen, when I had to play it repeatedly to follow the full arc of the work effectively.

3.3. Rehearsal with the Composer

After one week, the composer and I met again. She pointed out a few components that were missing in my interpretation, particularly some of the "crackling" sounds. In general, I had interpreted the piece slightly too loudly and the tones lacked sharpness at their onset and offset.

We discussed how precisely the percussive crackling at the specific points in the file needed to be executed, a point that had initially caused me some concern. However, it became clear that the fundamental presence

of the percussive elements as a counterpoint was what mattered most. Once again, the goal was to capture the style of the score. During this process, I reflected that in written scores, considerable time would likely be spent on technically perfect execution. I began to wonder whether conveying the style and the general intent of the composition might be far more important.

After a few attempts, I played somewhat more softly, sharpened the tones and emphasized certain points with percussive finger noises on the keys and slap-tongue techniques. The composer expressed satisfaction and I gradually began to understand the magic inherent in audio scores.

3.4. Presentation

Compared to other types of audio scores, the approach using *Acoustic Memory* is relatively well-prepared for instrumentalists. The presentation took place within the context of a workshop, followed by a discussion. After the presentation, we discussed this approach and it quickly became evident and self-evident that, when listening as an audience, it is not discernible that the work is based on an audio score. It could just as well have been performed from a written (or another type of) score.

4. Further Observations and Conclusion

4.1. The Concept of Mimesis

As discussed above, I would like to explicitly refer once again to the concept of mimesis, which, in my experience, is relevant across all the audio score methods described here. I find it particularly interesting to consider how and in what form the concept of mimesis, understood as imitation and emulation, applies to written scores. In my classical instrumental training, I experienced that mastering the technical skills on the instrument and thus the ability to play the notes accurately, occupies a significant amount of attention, often pushing the methods of mimesis into the background. This is an aspect that manifests differently in the context of audio scores.

4.2. Interpersonal Aspects and the Question of Hierarchy

Throughout the various development processes, which included rehearsals as well as concerts, presentations and workshops, the question of hierarchy arose repeatedly. At first glance, the setting of live-generated audio scores might appear to be characterized by clearly defined hierarchical structures. Based on my experience, however, I would clearly challenge this assumption. Due to the close collaboration with the composer and the interaction described above, I would argue that my personal interpretative scope and my influence on the composition were significantly greater than in the case of written scores. Similarly, within the method of *Acoustic Memory*, I experienced a broader interpretative space and a higher degree of decision-making freedom than I typically encounter when working with written scores.

4.3. Ease of Playability and Practice

In my view, one of the most significant observations concerns the considerably greater ease with which audio scores can be realized in comparison to written scores. In interpreting audio scores, I encountered playing techniques that would likely require extensive and prolonged practice and that, moreover, could certainly not be notated in the same way. In my experience, composers are more concerned with conveying a particular atmosphere and energy. Elements that may recede into the background during the practice and technical realization of written scores. Audio scores therefore offer a much more accessible mode of engagement than written scores, even if the absolute precision of written notation, down to every detail, is potentially relinquished. The decision to employ audio scores thus ultimately lies with the composer, depending on the specific requirements and artistic intentions of the respective work.

Acknowledgments

This research was funded in whole or in part by the Austrian Science Fund (FWF) [grant DOI 10.55776/AR824].

The paper is part of the project "Sound as Score". Project management: Elisabeth Schimana - University of Music and Performing Arts (mdw)/Artistic Research Center (ARC). Project partner: Susanne Kogler - University of Graz (KFU)/Department of Arts and Musicology and Piotr Majdak - Austrian Academy of Sciences (ÖAW)/Acoustics Research Institute (ARI)

I would like to express my sincere thanks to Elisabeth Schimana for the collaboration on working with audio scores. I am also grateful to Katharina Pollack, Piotr Majdak for the collaboration in the field of psychoacoustics and Peter Venus for producing the sound recordings. Further thanks go to Susanne Kogler and Nicolas Müller-Lorenz. I would also like to thank the FWF and the ISF at the Austrian Academy of Sciences (ÖAW), where the recordings were made.

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