Soundanism: Blurred by Breathing

Miguel Álvarez-Fernández  
Departamento de Historia del Arte y  
Musicología, Universidad de Oviedo,  
Spain  
miguelalvarezfernandez79@hotmail.com

Asia Piaścik  
Industrial Design, Universität der  
Künste, Berlin, Germany  
apiascik@gmail.com

Stefan Kersten  
K-Hornz, Berlin, Germany  
sk@k-hornz.de

ABSTRACT

Soundanism is an interactive sound installation that explores possible relationships between breathing, feedback, masturbation, music and sex. The soundanist wears a uniquely designed hatphone, equipped with loudspeakers and breathes into a mask connected to a microphone. A computer analyses his breathing in real time, and this input data are used as parameters for the selection of sounds and their real time manipulation. The work could also be considered a musical (hyper)instrument, but this categorization fosters problems that are extensively argued through the paper. Some of these issues are closely related to the vague and ambiguous nature of breathing, which is discussed in the last section.

Keywords

Sound installation, Hyperinstrument, Interactivity, Breathing, Control, Masturbation, Sexuality.

1. INTRODUCTION

The work by Asia Piascik, Stefan Kersten and Miguel Álvarez-Fernández presented in this paper, Soundanism, uses the listener's breath as the sole external input to a closed feedback formed by a computer system and the soundanist. It tries to reveal interesting aspects regarding modes of interaction with the sound, both from the perspective of the installation as well as the interpretation of the system as a performance instrument.

In the two following sections, the work's visual appearance and its musical realization are described in detail. Then is presented an attempt to analyze the piece from different perspectives and provide possible explanations for the difficulties of its categorization. Finally, the latter questions will be traced back to the inherent characteristics of breathing as a vital (and therefore potentially artistic) activity.

Figure 1. Picture of a soundanist.

Figure 2. Soundanism at Galería Espacio Menosuno, Madrid.

2. DESCRIPTION OF THE PIECE

2.1 Visual elements

One of the fundamental aesthetic aspects of Soundanism consists on the dialogue between the public, the private and the intimate activated by the piece. This confrontation is present in different dimensions (conceptual visual, aural...) of the work, and it is enacted in first term by its very location: the installation is meant to be shown in a secluded area of a public space (a gallery or
exhibition room), separated from other pieces and other visitor’s paths, but facing the exterior of this space. Therefore, the soundanist can enjoy the piece in a private—or even intimate—microenvironment, isolated also by the piece’s listening device, while he/she observes (and is being observed from) the street, just across the barrier provided by the glass of a window.

The bizarre condition of the soundanist, covered with a weird hat and holding a mask on his face in front of the street, is experienced by him and also by the people watching from outside. The visual elements of Soundanism reinforce this strangeness, trying to induce a Brechtian Verfremdungseffekt. Such is the case of the armchair where the visitor of the installation is seated. Though it changes for each different exhibition, this armchair can always be described as something that you would not normally find in an art gallery. Either because of its oldie—but strongly anti-trendy—style, or because of the fact that it is very used, even spoiled, the armchair also enacts the opposition between the private, represented through the familiarity of something that could be just taken from our home, and the public, embodied in the clinically aseptic, white and immaculate space of the classic gallery.

On the armrests of the chair, two fundamental elements of the installation wait for the visitor to put them on (see Figure 3). When seated, the soundanist finds on his/her right what the authors of the piece have called the hatphone. It is a kind of hat, mainly made of nubuck in a similar color to Caucasian skin, that encloses in its interior fourteen small loudspeakers. These loudspeakers are arranged in three sections: two in both sides of the head, near the visitor’s ears, and the other occupying a central band just over the middle of the head, with the speakers focused downwards (in order to generate intracranial vibrations that reach the inner ear directly through the skull). At the backside of the hatphone, the wires that connect all the loudspeakers inside the hat are joined together in a thick cable that falls down to the floor, parallel to the visitors’ back, resembling a spinal cord. This cable is connected to an amplifier, which is half-hidden below or behind the armchair, next to the CPU of the computer running Soundanism’s software application.

Another smaller wire comes out of the hatphone, in this case from its right side. It is 30 cm. long, and attached to its end there is a small electrets microphone, protected and covered with a plastic piece. The visitor of the installation, after putting the hat on himself, has to mount this microphone on a mask that is placed on the left armrest of the chair (there is a new mask for each soundanist). This mask, with the size and the shape of a small hand, is made in pale pink plastic and has a small hole in the center, where the user has to insert the microphone. After that, the soundanist just has to put the mask on his face, covering mouth and noise, and breathe (see Figure 4).

---

1 This was the case both in Soundanism’s first public presentation at the Espacio Menosuno gallery in Madrid (September – October 2006, see Figure 2 and http://www.menos1.com/espacio/isonora2.html) and at its exhibition in Berlin’s Takt Kunstprojektraum (February – March 2007).

---

2.2 Sonic elements

The analysis and synthesis part of soundanism is realized by a computer application written in the SuperCollider [8] language. The breathing signal picked up by the electret microphone is analysed by an event detection function based on a weighted sum of spectral centroid, high frequency energy, high frequency content and spectral flux features [4]. The first order derivative of these features is summed and compared to a threshold, and the time between subsequent detected events is used to drive a phase-locked loop (PLL), which continuously adjusts the frequency of a scheduler clock. While an attempt was made to explicitly restrict detected events to those originating from breathing, e.g. by combining event detection with transient filtering, the analysis works best in quiet surroundings without the probability of too many false positives.

The sounds presented to the listener are drawn from a large database of both concrete and synthesized sounds related in
various ways to the notion of sex, and ranging from adult movie fragments over animal sounds to industrial, repetitive noises. These samples can mainly be categorized as either periodic –i.e. having a perceivable notion of "tempo"— or non-periodic. Periodic sounds were segmented using the analysis software Sonic Visualizer [2] prior to adding them to the database (analysis frames were exported and used in the form of XML files). Non-periodic and synthesized sounds are further processed by SuperCollider patches to obtain characteristics like harmonicity, dissonance and spectral evolution over time, that are based on features derived from the breathing spectrum.

Using the scheduler implies the presence of two musical tempi at any point in time. As the listener gradually or abruptly adapts his breathing, the scheduler clock attempts to stay in sync and influences the temporal evolution of the sound, which is in turn presented to the listener in a feedback control loop. This continuous process of adaptation and divergence, combined with spectrally forming certain sounds according to the breathing spectrum is the reason why the roles of controller and controlled in this interactive system are not always very clear.

Certain time-varying characteristics of the estimated clock frequency and the PLL are further used to determine the selection of sounds and their timbral manipulation. The estimated clock frequency – or "tempo" – is used as an index into the database to select the sound "closest" in tempo to the current clock speed (the tempo of a segmented sound is defined simply as the reciprocal of its average segment length). The RMS of the estimation error as a measure of perceived "periodicity" is used to weight periodical (segmented) against non-periodical sounds in the selection process.

3. PROBLEMS OF CATEGORIZATION

The dialogue between the visual and sonic elements described in the two preceding sections, enriched through the confrontation of all these elements with the particular aspects of each place where Soundanism is presented, serves to characterize this work as an installation. The location of the work is not relevant because of its acoustic properties, as it usually happens in sound installations, but for the specific context it provides and its collision with the aural experience of the soundanist. While Soundanism’s sound interface is designed to create an immersive listening environment, and the constant erotic evocations of the processed sounds direct the soundanist to the (usually) intimate sphere of sex, this private situation takes place in the public context of an art gallery, where visitors surrounding the user of the installation can only imagine what he is generating and perceiving.²

Parallel to this consideration of Soundanism as an interactive sound (or audiovisual) installation, it is also possible to conceive the work as a musical instrument, a hyperinstrument or even (and maybe more properly) as an infra-instrument [1]. The inclusion of Soundanism in any of these categories remains problematic, and, in fact, one of the main aesthetic purposes of the piece consists in raising questions that concern the very definition of the aforementioned categories, and the assumptions that lie behind these notions. The user of Soundanism can generate and modify sounds through its interface. This, of course, could also apply to the majority of objects that normally surround us, but questioning what else do we need in order to consider something as a musical instrument can help us to perceive the ideological nature of our conceptions.

An analysis of Soundanism as a hyperinstrument is particularly relevant here, because it can reveal important aspects and assumptions about both the piece and this still ambiguous category. Traditionally, the hyperinstrument has been associated with virtuosity. Following Tod Machover [6], in order to achieve musically interesting results with these instruments “we need the power of smart computers following the gestures and intentions of fine performers. Working with such fine performers is a key aspect of our approach to the Hyperinstruments”. In principle, it would be possible for a dedicated user of Soundanism to acquire a strong knowledge both about the way the sound processing algorithms work and about the contents of the sound database. Through practice and discipline, the soundanist could develop a certain musical control of the instrument, because, as Machover explains, “the systems reward skill. Hyperinstruments are extremely sensitive to the nuances and all the special things that the best performers can do, and employ those skills to expand and enhance their performance, all under the performer's control. […] The performer must remain in control at all times.” All this could be applied to Soundanism, but the aesthetical intention of the piece is to question the implications of concepts such as ‘control’, ‘domination’ or ‘skill’, as well as to underline their connection with the presence of these notions in our cultural construction of sexuality.

² It is true that the isolating and solitary experience of the soundanist could be compared to listening to a walkman or a MP3 player, but it may be worth noting that the research on the social implications of these new listening devices usually stresses their portability and the nomadic relationships between the user and the environment these technologies encourage. In this regards, cf. [3] and [5].

Figure 5. Soundanism at the PING! 3 Festival, Mallorca.

It is important to mention that, along with this ‘virtuoso’ attitude towards Soundanism, the piece also allows the user to just
breath, avoiding any efforts directed to control the system. The configuration of the piece intended by its authors determines that, in such cases, the musical results will not be very different from the ones achieved by an expert soundanist. In other words, the intentionality of the performer is not the main aspect of Soundanism’s interactive proposal. Coming back to Machover’s reflections about the hyperinstrument, there we can find a quite different, even opposed, perspective on this issue: “My idea was always to try to capture the most complete and integrated sense of the musician's meaning and intention” [7]. As Soundanism’s input is based on its user’s breathing (something controllable just up to a very limited degree), meaning and intention, especially when they reach certain level of complexity, cannot be easily expressed by the soundanist through the instrument. Nevertheless, the piece tends to underline the opposite fact: each of its users expresses himself through breathing, generating and modifying a unique and unrepeatable sequence of sounds that can be considered musical. Soundanism, as a hyperinstrument, enhances and amplifies the expressive possibilities of breathing (an elementary action not only for playing wind instruments, but also for living), although proposing a concept of expression that detaches itself from the notions of meaningfulness, (conscious) intentionality and control. In this sense, the work is more related, for example, to the seminal performance piece Music for Solo Performer (1965), by Alvin Lucier, than to the aesthetical approach implicit in Tod Machover’s words.

As the last paragraphs show, the aesthetical approach embodied in Soundanism tries to place itself inside different categories that are often represented as antagonistic (like public-private, exterior-interior or conscious-unconscious), thus questioning the limits of our conventional definitions of such concepts. The use of the voice as the fundamental medium for interactivity in Soundanism amplifies these artistic interrogations, and reflects them towards other possible oppositions, like materiality-inmateriality, body-mind, animal-human, subject-object…

4. BREATHING’S FEEDBACK LOOP

Soundanism’s interactive system uses human breathing as its main component. Carrying ethereal information, breath travels continuously across all the elements of the work, experiencing radical transformations. First, from the soundanist’s mouth and nose, through the microphone in the mask, to the computer. And from there, through the loudspeakers, and radically altered, it goes back to the head of the soundanist. To his mind or, if we prefer, to his spirit: a word that comes from the Latin spiritus, meaning breath, and thus closing the feedback loop. As Soundanism questions the boundaries between different notions, breathing also remains at the limits of several categories. Like sex, it occupies the borders between consciousness and unconsciousness, escaping from our rational control. It is not a specifically human necessity (or ability), so it also reminds us of our animal nature. And it is probably the most intimate way in which we relate with our environment, literally introducing it in our body, and exalting it totally transformed.

The soundanist has to breathe in order to start listening to any sound from the piece, and this process makes him aware of his physicality, his body. Against the Western conceptualization of listening as an activity that only takes place in our mind, Soundanism places itself and its interactive process all around the head, even penetrating with intracranial vibrations the listener’s skull. Recovering the bodily dimension of music is a priority for the designers of musical interfaces, and Soundanism proposes some possibilities in that direction, trying to focus on this problem through its conceptual, aesthetical and physical dimensions, and tracing some connections between our conceptions of music and sex. Maybe, after all, these activities do not only happen in our brain.

5. CONCLUSIONS

Soundanism as an interactive, immersive experience evades unequivocal categorization. Localized at the borderline between publicity and privacy, the intimate and the extrovert, consciousness and dream, the work questions established categories such as installation, performance and (hyper)instrument. Engaged in a feedback loop, the listener takes a crucial place in the system by breathing, an activity that can be regarded as the very essence of the ambiguities expressed in the work. Rendering his own reading of the piece (and generating the very same signal—or fantasy—he enjoys, as usually happens in masturbation), he can exercise a certain amount of control, while in return being potentially influenced in his body functions such as the breathing rate. The instrument thus becomes a subconscious extension of the listener, sprouting a virtuosity that is far beyond mechanical talent and skills.

6. REFERENCES


