

Aesthetic and Philosophical Implications of Noise in *Morphons and Bions* (2011)

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Abstract—The new work, *Morphons and Bions* (2011), is a real-time computer music work generated in Pd. All sounds in the work are synthesized as opposed to recorded. The sound sources rely fundamentally on white noise and digital noise mediated by classical synthesis techniques and random processes. Since the work is built on a substrate entirely made of noise, the piece is situated within certain philosophical and aesthetic issues surrounding noise, its use, and its definition. This paper seeks to address these issues.

Keywords—noise music; sound synthesis; random and stochastic processes;

I. INTRODUCTION

Van Nort [1] provides a general overview of some of the most important thoughts on noise since the 20th century and provides a starting point for the questions to be addressed. At a physical level, acoustic noise is a sound that has random fluctuations across a frequency spectrum, where white noise is equal energy in all bands. Henry Cowell was most interested in acoustic noise, as it existed in the production of sound in musical instruments. (173) Russolo's famous treaty on noise in music began a process of redefining noise. Russolo's noise was primarily mimetic, as it was based on the industrial and urban sounds of the 19th and early 20th centuries. (173) John Cage furthered the acceptance of noise into music by likening the distinction between noise and musical sounds to the dissonance and consonance of earlier music. (174) However, it was Pierre Schaeffer who ultimately made noise into music with his *musique concrète*, finishing what Russolo, Cage and others started. (175) With the advent of communication theory, Shannon defined noise as any signal that interfered with the transmission of a signal. (174) Noise became a footprint of the recording and transmitting technologies. Different media exhibited different noise profiles, and the reception of the media was influenced by the audience's knowledge of it. Specifically, the audience re-interpreted the noise into silence. This especially impacted the work of Oliveros and Tudor, for example, whose instruments were the technologies themselves. (175) Digital technologies eliminated the communications noise of analogue technologies. However, Cascone's "aesthetics of failure" capitalized on digital errors, (e.g,

"glitches, bugs, ... clipping, aliasing, distortion, quantisation noise, etc."), the new noise of the digital era. (177)

These definitions of noise and its uses arise from physical or scientific definitions of signals. Social, economic, and cultural noise can be defined as anything that is unwanted in the process of achieving or receiving something else. For Attali, noise and music are "rooted in their socio-economic context." This "implicates the individual in the creation of meaning." (175) For Douglas Kahn, noise is "otherness." It is something else, what is outside of what is wanted and has the power to attack and reinforce society. It is "appropriated noise" that acts as "counter-hegemony." (175) In a historico-philosophical approach, Van Nort interprets Paul Hegarty's definition of noise music as a quasi-Hegelian music in that it is aware of itself and its history. And, in that awareness, noise music lives on the boundaries of music and noise. Van Nort points out the paradoxical "impossibility if we consider noise as that which is outside of our systems of representation." (177)

From another perspective, Iannis Xenakis' work with random processes approached the question of noise obliquely. Xenakis [2] claimed that absolute serialism was perceived as arbitrary randomness: "The enormous complexity impedes the ability to follow the entangled lines and has a macroscopic effect of an irrational and random dispersion of sounds in the audible spectrum of sound." Though Xenakis did not use the word "meaningless," he implied that the fruitless endeavor to perceive the underlining structures and processes in absolute serialism equates to insignificance. In terms of communication, insignificant sounds (meaningless non-messages) are defined as noise. This can be a technical definition, as with Shannon, or a cultural definition, as with Kahn. Xenakis created order (music) from senselessness (noise) by imposing random processes on material. He argued that if something were to sound random, it made more sense to shape it with actual random processes.

The following sections address noise from its acoustic realities, to its concept in relation to signal, to its existence within cultural systems, to its control through random processes, and ultimately, to its historical context. Specifically, the aesthetic and philosophical implications of noise in these contexts are addressed in the work, *Morphons and Bions*, engaging the issues in a practical example.

II. ACOUSTIC NOISE

In my previous works, recorded sounds formed the basis of musical material, since recorded acoustic sounds have a richness of timbre and spectral complexity. Synthesized sounds often seem dry, thin, plastic, and artificial. However, the philosophies that engendered working with the recorded sounds exhausted themselves. It became necessary to turn to new approaches. Therefore, taking on synthesis appeared to be the next musical challenge.

First, it seemed most likely that random, micro-fluctuations in amplitude and frequency content created at least part of the interest in acoustic sounds. As Cowell [3] pointed out: there is noise even in musical instruments. (23) So, a white noise generator (**noise~** in Pd) became the foundation of all sounds in the work. Then, classical synthesis techniques such as amplitude modulation, frequency modulation, and subtractive synthesis (filters) modified the noise source to create rich, complex sounds that could cross between noise and tone. Interestingly, some techniques, especially amplitude modulation, created engine-like noises. These mimetic sounds broadened the noise landscape to evoke real-world noise reminiscent of Russolo's noises. (Mimetic is used here to mean to "simulate worldliness" as opposed to being merely "imitative" [4].) The piece itself is shaped by the overarching transition of white noise and engine sounds to garbled, chatter-like textures. By this process, very real noise, white and otherwise, becomes fundamental musical material.

Cage's [5] view of the future of music in 1937 stated that the distinction between noise and "musical sounds" would be the new consonance and dissonance. (4) The passage from noise to tone in *Morphons and Bions* is a move from one state to the other, a movement between dissonance and consonance. Yet now, after seventy-five years, it would be difficult to decide which (dissonance or consonance) is noise.

III. NOISE AND SIGNAL/MEDIUM

In information theory pioneered by Shannon, noise is any part of a signal that does not contain a message. The practical realities of this affect signals and systems of transmission. In *Morphons and Bions*, the system is the digital domain of the computer and real-time software. However, the message in this case is the acoustic noise. So, where can detritus be found in a self-enclosed digital system? Cascone's post-digital aesthetic of failure provides the answer in the form of native digital noise: glitches, clicks, hums, etc. The noise in this system, therefore, is near-instantaneous amplitude changes creating a characteristic click associated with non-zero crossings, an error only audible when created with digital technology.

In this way, *Morphons and Bions* capitalizes on and performs the system in a manner similar to Oliveros and Tudor. Both Oliveros and Tudor harnessed the inherent noises and realities of their studio "instruments" [1]. Again, working within an enclosed digital domain rules out the possibilities presented to Oliveros and Tudor; Cascone's repertoire of glitches provides an avenue for this performance of the medium.

IV. NOISE AND OTHER

For Kahn [4], the notion of non-message extends beyond acoustic noise and signal noise to the noise of cultural artifact. Any sound that is not part of a meaning becomes noise. However, this leads to a paradox of significance: "With so much attendant on noise it quickly becomes evident that noises are too significant to be noises. We know they are noises in the first place because they exist where they shouldn't or they don't make sense when they should. But here too in knowing this we already know too much for noise to exist." He continues to allude to noise (the nonsensical or the incongruent) in all things. "But noise does indeed exist, and trying to define it in a unifying manner across the range of contexts will only invite noise on itself." (21)

Kahn here inadvertently explains the uniqueness of Attali's [6] own discussion of noise. Attali fluidly shifts between meanings of noise from "loudness" to "other", confounding and conflating them to make points. The result is, in some cases, noisy (confused) understandings.

For Hegarty [7], "Noise is that which remains *the* outside of these [systems and structures of meaning] – but not just as opposite: noise is the process of interference between music/sound and 'its' other." (194) Echoing Kahn, Hegarty sets up noise in opposition to music and sound.

Morphons and Bions attempts to create noises that do not fall within the typical sounds of acousmatic music, the domain to which it most strongly belongs. It encroaches into the domain of "noise music" while mostly remaining within a tradition of so-called Western art music. The danger exists here where by vocalizing the other, *Morphons and Bions* in fact reasserts the domination of sound over noise.

V. NOISE AND RANDOMNESS

Although acoustic noise is random fluctuations of frequency and amplitude, noise in general can be all randomness. Anything that is random carries no message; therefore, randomness is noise in terms of signal. Randomness has no order. Therefore, randomness is noise is disorder. Attali [6] says, "With noise is born disorder" (6) and, serial music is "pseudodisorder." (83) To Xenakis [2], the serial methods used by his contemporaries appeared to be random. He claimed that the inner logic of serial systems was not audible, that they might as well have been random. So, Xenakis proposed using randomness instead, while controlling the disorder through random processes.

In *Morphons and Bions*, random processes give coherent shape to the work by controlling articulations and modulation parameters. The synthesis methods create noisy sidebands that can be more or less "clean" since they are based on classical frequency modulation and subtractive synthesis. The sidebands are controlled by the values of the modulating frequencies or filters. Gaussian and uniform distributions control these frequencies. Exponential distributions control the articulations of sound and silences. When the exponential distribution has a very small mean, articulations happen quickly enough to create amplitude modulation.

VI. NOISE AND HISTORY

Although the notion of noise as music existed since the Futurists in Italy, the concept of “noise music” as a genre derives from practices of Japanese noise bands. Hegarty [8] insists that it is only since the Japanese noise music of the 1990s that it “makes sense to talk of noise music.” (133) This music is rooted in opposition to tradition and in cultural hybridity. Noise in Japanese noise music comes from “volume, distortion, non-musicality, non-musical elements, music against music and meaning.” (133) Here exists the “range of contexts” identified by Kahn.

Hegarty [6] states that what is considered noise must be (à la Attali) historicized perception. (194) Van Nort [1] interprets this to mean that noise music is aware of itself. This completes the Hegelian narrative of synthesis and antithesis of noise, wherein self-awareness signals the end of history/sound. And, in fact it does insofar as it reflects the paradox of meaningful noise expressed by Kahn.

Morphons and Bions represents a foray into a genre with the historical and cultural awareness of noise and its definition. The work attempts to marshal acoustic noise for the benefit of crossing between noise and sound. The structure of the piece moves fluidly along the border of disorder and harmonicity. It makes noise and internally comments on the noise it makes through opposition. By existing on its boundary, it is unclear when “sound” is itself noise to “noise.”

Historically situated after the emergence of noise music as a genre, *Morphons and Bions* remains outside of the same narrative, yet aspects of it are reminiscent of noise music aesthetics. The work exhibits a historicized perspective, and ultimately, the piece is a part both inside and outside of the historical narrative.

VII. CONCLUSION

Morphons and Bions reflects many aspects of noise and order. White noise (like the acoustic noise of Cowell) forms the basis of nearly all sounds in the work (unlike the works of Cowell). In one exception, a digital “click” incorporates the post-digital aesthetic defined by Cascone. The digital click also highlights the medium as the message, the system as an instrument (as with Oliveros and Tudor), and the music’s awareness of itself similar to the conclusions reached by Hegarty/Van Nort about noise music.

White noise is then mediated by subtractive synthesis, amplitude modulation, and amplitude envelopes. These techniques and the articulations of the sounds are controlled by random processes inspired by Xenakis, imposing a kind of natural order on a larger scale than sound synthesis. By using noise and random processes, the piece negotiates the lines between music, noise, and noise-as-music. In a social and economic context, the work insists on its “own code,” in the terms of Attali, and marshals the “other,” in the terms of Kahn, insisting on meaning in noise, a paradox of noise’s definition.

REFERENCES

- [1] D. Van Nort, “Noise/music and representation systems,” *Organised Sound*, 11(2): pp 173-8, 2006.
- [2] I. Xenakis, “Le crise de la musique sérielle,” trans. K. Hagan (unpublished), *Gravesaner Blätter*, 1: pp 2-4.
- [3] H. Cowell, “The joys of noise,” in C. Cox and D. Warner (ed.), *Audio Culture: Readings in Modern Music*, New York: Continuum, 2004.
- [4] D. Kahn, *Noise Water Meat*, Cambridge, Massachusetts: MIT Press, 1999
- [5] J. Cage, “The future of music: Credo,” *Silence: Lectures and Writings*, London: Marion Boyars, 1958.
- [6] J. Attali, *Noise: The Political Economy of Music*, trans. B. Bassumi, London: Manchester University Press, 1985.
- [7] P. Hegarty, “Noise threshold: Merzbow and the end of natural sound,” *Organised Sound*, 7(1): pp 193-200, 2002.
- [8] P. Hegarty, *Noise/Music: A History*, New York: Continuum, 2008.