Sound [signal] noise: significative effects in contemporary sonic art practices

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Abstract
The article discusses the intricate relationship between sound and signification through notions of noise. The emergence of new fields of sonic artistic practices has generated several questions of how to approach sound as aesthetic form and material. During the past decade an increased attention has been paid to, for instance, a category such as “sound art” together with an equally strengthened interest in phenomena and concepts that fall outside the accepted aesthetic procedures and constructions of what we traditionally would term as musical sound—a recurring example being “noise”. In order to explore the effects and signifying modes of sonic material considered peripheral to established musicological methodologies, other types of discourses have appeared. The aim of this article is to investigate and evaluate such discourses of the sonic arts and to do so from the perspective of a continuum between sound and noise. It is moreover suggested that we consider sound in relation to the concept of “signal” which is exemplified through analysis of actual works.

Keywords: sound; noise; signal; sonic; signification; virtuality; Tsunoda; López; Fell; Basic Channel

To begin with noise as a point of departure for discursive clarification might seem contradictory. Most research and literature occupied with noise as phenomenon, concept or broader theme agree that a crucial property of noise is that it cannot be defined absolutely and categorically. Rather than speak about noise one should, at least, speak about multiple noises, which is what sound and media scholar Douglas Kahn does in his seminal book on sound in the arts. Noises are, according to Kahn “interchangeably soundful and figurative, loud, disruptive, confusing, inconsistent, turbulent, chaotic, unwanted, nauseous, injurious.”1 However, it is exactly this ambiguous and disorderly nature of noise—keeping in mind the manifold significations it implies as a generic term—that makes it productive as a matrix or trope for analyzing other phenomena through. For instance, the “semantic wealth” of noise can be considered as something which has been “exploited in numerous works on music and sound.”2 In fact, the occurrences and discourses of noise and noises, along with silence one should note, have proved to be central to the historical and aesthetic taxonomies of twentieth century avant-garde music. This history will not be rehearsed here, though. Instead, noise

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as an avant-garde phenomenon will be compared with the idea and rhetorics of noise emerging as a key component within a different theoretical framework; that of information theory, initially formulated by Claude Shannon in 1948.3

While a mathematical theory of communication may appear irrelevant for the understanding of experimental sonic practices, the model which Shannon proposed and developed further with Warren Weaver, would later come to influence the work of “some of the foremost media theorists of second half of the twentieth century” from Marshall McLuhan, to Michel Serres, Friedrich Kittler, and N. Katherine Hayles.4 And the model and the conceptualizations of noise it involved for modern media theory is, thus, of definite interest when investigating the impact of shifting media technologies on artistic practices of recording and manipulating sound. It is this theoretical and analytical perspective that most obviously seems to relate to an overall discussion of the change from sign to signal. However, I will argue that a productive common ground is to be found between a (post)phenomenologically inspired philosophy of sound and the considerations on signals and systems derived from information theory.

A multitude of other aspects of discourses on noise could be mentioned, but it is the association of these two perspectives with aesthetics that will serve as the main focus for the article—the point being that this composite approach is evident in recent attempts to explain the character of contemporary sonic art practices. Concerning the latter I should specify here that my reference to “sonic art” is meant to cover a range of experimental artistic occupations with sound, from electronic music in the form of album releases to works categorized as “sound art” that might involve installational elements and determined physical locations.5

SOUNDING MATERIALS

An example of the latter type of work can be found in the practice of Japanese artist Toshiya Tsunoda. Tsunoda has investigated the perceptual processes related to aural characteristics of different soundscapes, locations, and objects; carried out, for instance, as recordings of various surfaces through the use of contact microphones capturing the resonances of metal plates, fences, and asphalt textures.6 Or, more recently he has addressed the thresholds of human hearing through attention to low frequency sounds with his recordings of underwater currents from the Maguchi Bay.7 This theme of borderline sonic perception is articulated explicitly on the album Low Frequency Observed At Maguchi Bay of which half of the featured tracks only contain frequencies below 20 Hz—the limit of our normal auditory capacity. As a consequence these tracks appear silent to the ear, although the speaker membranes actually vibrate in accordance with the speed of the low frequency sound waves, whereby Tsunoda accentuates and challenges habitual conceptions of silence and audible presence. Moreover, he not only connects his working with sound to characteristics of physical materials but also to broader conceptions of space: “We grasp a place or a space conceptually as a map or a model. But when we observe a vibration, every space is constantly trembling. If we pay attention to the behaviour of the vibration, some new phenomenon different from the conceptual map will emerge.”8 As such, Tsunoda’s practice points toward an alternative perceptual experience produced by a certain framing and awareness of unnoticed vibrational forces and domains of sound which are potentially significant. Rather than aiming at traditional compositional structures of tonality and rhythm, he explores another kind of materiality as well as spatiality of the sonic—using recording technology to enhance our sensory capacity, stretching our ears towards what might immediately be observed as non-musical noise.

The question is, then, how to approach the type of auditory resonances produced by artwork such as Tsunoda’s? One suggestion would be to regard the sounding material in terms of notions of “signal” rather than of “sign”. In the sonic art practice of Tsunoda (a.o.) the noises heard certainly have an effect on the listener, although they do not signify or convey “musical” meaning in a traditional way. Rather, their receptive impact is generated by a non-representational gesture toward actual reverberating materials situated in a “constantly trembling space”; that is, a space in which continuous background noise is potentially about to develop into distinct signals, with or without the use and transmissions of analogue and digital technology.
This, of course, calls for a redefined analytical understanding of the artistic use of non-musical, auditory “fabric”, and currently, though very broadly put, one can identify two strands of theoretical thinking about the effect and “signifying” mode of noise in relation to sonic art practices; on the one hand, this entails a partly phenomenologically informed discourse that focuses on, for instance, embodiment, site-specificity, materiality and physicality of sound. On the other hand, one finds a discourse that deals with the processing and de/coding of sound, inspired by information theory, cybernetics, and theories on digital vs. analogue mediation. An interesting example that falls in line, mainly, with the first cluster of theories is provided by philosopher and critic, Christoph Cox who suggests that we apply what he refers to as a “materialist” approach to a wide range of audio based art. According to Cox, artists such as Tsunoda, Christian Marclay, and Francisco López have “explored the \textit{materiality} of sound: its texture and temporal flow, its palpable effect on, and affection by the materials through and against which it is transmitted.” He furthermore states that these works reveal: “that the sonic arts are not more \textit{abstract} than the visual but rather more \textit{concrete}, and that they require not a \textit{formalist} analysis but a \textit{materialist} one.”

Meandering between the philosophy of Nietzsche, Schopenhauer, and Deleuze (among others), Cox both subverts the idea that we should think of music and sound as purely abstract phenomena with an inherent symbolic language, and at the same time claims that “sound is not a world apart, a unique domain of non-signification and non-representation. Rather, sound and the sonic arts are firmly rooted in the material world and the powers, forces, intensities, and becomings of which it is composed.”

In this way, Cox launches his theoretical stance amid two divergent, dominant positions within sonic discourse: one that traditionally considers music as the abstract form of art \textit{per se}, while insisting on its signifying and representational qualities, i.e. its symbolic relation to an overall musical structure and order. And another, that argues for an understanding of music (and sonic arts in general) as something fundamentally signifying, as “pure sound”, which should be approached through phenomenological manoeuvres that claim to be non-preconditioned and open, but may lead the auditor into the pitfalls of essentialism or naïve subjectivism.

\textbf{NOISE AS SIGNAL AND POTENTIAL}

At this point, we should consider the implications of information theoretic and cybernetic notions of signal transmission and noise as being part of a revised discourse on sound, noise and signification. The relation of information theory to sonic art practices can appear to be somewhat distant, but this intentional “detour” is partly motivated by the notion put forward by Bill Brown that “materiality has a specificity that differentiates it from its superficial cognates, such as physicality, reality, or concreteness.” Thus, the perception of sound as “material” reaches beyond the mere physical effect of propagating waves and specific vibrating substances toward a more complex field of signification. At the same time the comprehension of sound as abstract and symbolically related to a recognized and predictable musical system is contested by another discourse which grounds all auditory signals in an undifferentiated field of noise, as hinted at above; a position, which is partly derived from information theory and cybernetic models of communication and which characterizes, for instance, Michel Serres’ influential writings about the topic of noise and signification. This is also, in some respects, the point of departure for both Cox and Aden Evens, the latter of whom argues that we conceive of every significant sound, timbre, and tone as “contractions” of noise. According to Evens noise is, then, “inaudible, the confused mass of vibration, in which sound relaxes or dissipates. Perception requires a contraction, but noise is the uncontracted. Imperceptible, insensible, and sense-less, noise is the depth which gives to be contracted.”

Before continuing along the line of Cox’ and Evens’ rhetoric another comment should be added concerning Shannon’s original model of communication. According to Jussi Parikka this model became part of “a larger field of modern thought in which noise and incompleteness were beginning to be included as integral to any functioning system. With this theory of communication, noise was on a mathematical level likened to the actual intended message.” And, just as important, with
this model “noise” is both “conceptualized as something programmatic” and understood as “a modality of modern communication systems that is by definition non-signifying and deals with signals, not signs.”17 From a basic communicative perspective of acoustics, for instance, noise can be perceived as an interference, a disturbance or annoyance that obscures or cancels the exchange of meaning through a process of signal transmission between a sender and a receiver.18

However, as information theory eventually came to suggest, noise should not be described exclusively in negative terms but rather considered as something which adds to the complexity of information: noise infuses into any system of communication or signal transmission process various degrees of uncertainty that enhances the possible outcome of the signal received. Noise is, then, no longer regarded solely as the antagonist of information but rather as a necessary component of it. Also, it should be noted that the reconsideration of the role of noise in cybernetics and systems theories, brought noise as a concept in dialogue with processes of information between, not just a sender and a receiver, but the human body and machines/computers, for instance.19

Most important to the context of this article, is, firstly, how the formal models of information theory made clear that the occurrence of noise is inevitable and crucial in any functioning system. And that what follows, ultimately, from this logic is that noise can be seen as “the signal with the highest information-content” since it includes all possible sets of options for a receiver to select between.20 Secondly, the discussion of information and signal channelling without regards to semantics opens up the analysis of such processes beyond the scope of linguistic meaning. Thus, thinking about sonic art practices through the concept of “signal” allows us to deal with the channelling of sound as significative event, but not related to conventional musical schemes, notation or similar interpretative systems.

**VIRTUALLY NOISE**

Bearing in mind the idea of noise as interrelated with the function of signal, we will now look again at Cox’ and Evens’ readings of sonic art practices. Cox has articulated the rather complex significations of sonic art practices in various ways. According to him, a basic characteristics for works of this kind is that they confront us with a fundamental “sonic flux . . . composed of two dimensions: a virtual dimension . . . “noise” . . . and an actual dimension that consists of contractions of this virtual continuum.”21 Cox develops his argument, referring to Leibniz and Deleuze, around the concepts of virtuality and actuality, claiming that Leibniz made it possible for us “to grasp the distinction between signal and noise not as one between part and whole, ignorance and knowledge but as one between the singular and the ordinary, perception and its conditions of genesis, the actual and the virtual.”22 This points to a conception of noise as the ground for any information and any signal to emerge. To quote Cox again, noise is not just a sound among others, a sound that we do not want to hear or cannot hear, but rather “the ceaseless and intense flow of sonic matter that is actualised in, but not exhausted by, speech, music and significant sound of all sorts.”23 Crucial here is, thus, the articulation of the idea of noise as a field from which significant signals and occurrences can be drawn, as well as the suggestion that certain sonic art practices brings our attention to this field in itself; to the “virtual dimension of sound.”24

Quite often artists working experimentally with sound recording seem to be occupied with probing this virtuality of sound, as was also the case with Tsunoda mentioned above. His strategy is close to that of Francisco López who is considered one of the foremost contemporary sound artists. López is working, too, with field recordings of various locations and settings, from exotic rain forest milieus to buildings in New York.25 His releases also include a large number of “Untitled” recordings in which the origins of the sounds heard are unknown. If we consider both Tsunoda’s and López’s interest in un-edited “found” sound as an occupation with background “noise” that would normally go unnoticed, the common denominator for both is the ambition of emphasizing and framing this ever present but mostly unobserved domain of sound as something fundamental, as the virtual ground for every actual event in any acoustic space and location; something that comes forward, radically, with a piece such as López’s “Wind (Patagonia)” which presents the listener with a continuous recording of wind and...
nothing else. This, according to López himself as stated in the cover notes of the album, has to do with: “An appraisal of the richness of the original sonic material. A non-referential intention […] A passion for drones and their inner universe; that perceptually “invisible” matrix of broad-band noise that is constantly flowing around us.”

A crucial fact which should also be mentioned in relation to this, is how the attention paid to the “sonic field ignored or suppressed by everyday hearing,”—as it has been described elsewhere by Cox—was actually made possible in the first place by real time recording technology. In short, this concerns the influential point made by Friedrich Kittler about the emergence of recording media such as the phonograph which radically changed the fundamental conceptions of sound. Kittler notes that the phonograph did not symbolically transcribe and detain worldly phenomena in coded systems like text or musical notation which transmit “steady” signals to be decoded from a certain order. Rather the recording of sound reveals a different sort of signal as the phonograph registers chaotic “acoustic events as such”, as Kittler writes.

Thus, on the one hand, the possibility of preserving and re-playing such acoustic events through various technologies is essential to the sonic artistic practices of Tsunoda and López; here the auditory signal received by a listener is not one to be scrutinized for conventional meanings but rather a sound event that serves as an approximation to other fundamental dimensions of sensory experience. On the other hand, the technological medium itself can also be considered as a source of similar sound events, which will be demonstrated below.

**CONTRACTION AND IMPLICATION OF NOISE**

The perspectives referred to above—in connection with the overall theme of a discourse and aesthetics of signals rather than signs—may appear unnecessarily complex for stating something quite obvious about contemporary sonic art practices. Hopefully, at the same time, it should be clear by now why it makes sense to talk about a changed status of sonic signals which exceed the framings of music as a stable system of harmonics and well-tempered tonality; signals which are instead explained from the perspective of noise.

As mentioned earlier, the relation of the sonic signal to noise is also the main concern for Aden Evens, however, not solely in terms of a sonic art practice focused on listening experiences directed toward the ground of noise itself, as with Tsunoda and López. Rather noise is *re-introduced* by Evens into the field of music as to understand the affective and aesthetic implications of “musical” signals: “Noise is the reservoir of sense, the depth in which sounds connect to each other, the background, the difference whose modulation is signal.”

Evens, thus, distinguishes between noise in its “relative sense,” i.e. noise simply heard as “confused” sounds and noise in its “absolute” sense where it is conceived as “the imperceptible, the uncontracted … a depth without dimension from which dimensions are drawn.” In accordance with Cox’s thoughts on the topic, Evens’ point is here, that absolute noise is never heard as such, but that one only “hear[s] the effect of noise.” This effect is exactly what we perceive as musical and sonic signals affecting us beyond representational order—as a certain type of perceptual experience closely connected to what Evens calls the “implication” of absolute noise. Implication and contraction is simply what drives music forward in an ever oscillating movement; something, which is effectuated, for instance, when playing an instrument that, following this logic of noise as the source of musical signals, “is a tool for shaping noise, contracting parts of it into perception.”

Concerning the question of materiality, this obviously makes sense from the point of view of the live performer, who then shapes the ever present vibrational forces that resonate between his body, the instrument, the audience, the physical space and objects, etc., in the actual acoustic setting. As such, a live sonic performance can be considered as rooted in the material world and the “powers, forces, intensities, and becomings of which it is composed” (cf. Cox, above).

However, as this article moves towards its conclusion, the focus will be on the role of noise in analogue and digital sound processes and technologies. Evens admits that the significant contractions and implications of noise are effectively working not only in live performances but also when it comes to analogue recording media and certain sound synthesizing systems—although
in general he has serious doubts about digital and computational technologies which are seen as “mostly incapable of implication, generally make poor music.”32 This, the article claims, is strongly dependent on how the sound processing media are in fact used and deliberately so in relation to noise.

CODA: NOISY CHANNELS AND DIGITAL RANDOMNESS

Evens argues that digital recording and sound production is problematic concerning the expressive qualities of music which are derived from the dynamic interplay and threshold between signal and noise. According to him “the digital deals only poorly with the ambiguity of the limit. For the limit is dynamic, and so resists digital territorialization, refusing to conform to the binary logic that is the sole tool of the digital.”33 This argument resonates precisely with the efforts of sound engineers and psychoacousticians who have persistently strived to eliminate and control (unwanted) noise in relation to the (desired) clearness of signal. From a digital point of view, then, considerations on signal-to-noise ratio are all about getting rid of noise, whereas the significative effect of musical signals depends on a certain sensitivity to and exchange with noise.

Some artists working within the field of experimental electronic music seem, however, to employ an aesthetic strategy established exactly through intentional modulations and contractions of noise, as discussed above. The producer team Basic Channel (Moritz von Oswald and Mark Ernestus) has during the past 20 years crafted a number of pioneering and, to this day, highly influential music releases ranging from minimal techno to electronic dub reggae. Most of their material has a definite experimental edge to it, an important part of which is the varying use of noise as a deliberate effect in the mix of the synthesized music. And the artist name itself, “Basic Channel,” conveys a near affinity to the workings of signal transmission and noise thresholds. Their productions from the early 1990s were already inspired by dub music’s heavy use of reverb and echo effects, adding an enhanced spatial and ambient quality to the otherwise repetitive beat structures. As Joanna Demers quite accurately describes the characteristics of this music, sound “appears to linger thanks to processing techniques that make it seem as if a clearly defined pitch or drum attack is travelling through a large space before dissipating several moments later.”34 Such are substantial parts of Basic Channel’s productions that they appear as a poignant example of the principles, at work, which Evens seeks to describe for musical signals in general in terms of contractions, implications, and modulations of noise. Listening to select tracks, also from Ernestus’ and von Oswald’s later oeuvre, one is struck by the explicit way in which heavy reverberations and echoings “threaten” to take over the distinct sonic signals—i.e. the artificially generated sounds of bass-line synthesizers and drum machines—adding an almost chaotic, organically emergent feel to the overall musical atmosphere. Through mixing processes, kept painstakingly secret by the artists, the listener perceives of the stable electronically produced sonic signals against a constant background of noise which, in turn appears, equally modulated by the signals themselves; as continuing echoes and reverberations of them. In some cases Basic Channels drives this aesthetics to an extreme, as with the piece “Mutism”.35 Instead of clearly distinguishable tones, pitches, or rhythmic structure, the 5’56” track consists mainly of free flowing noises, rumbles, hisses, and statics which only momentarily indicate a sort of structuring principle. By close listening, one realises that what is heard seems to be, solely, the effects of lost signals which together form a series of fuzzy residual noises. As the signals themselves are muted, hence the title of the piece, the most continuous sonic element is a randomly panning white noise frequency which is being modulated into near-tonality but remains on the verge of becoming a distinct tone-signal. As such “Mutism” present its listener with a sounding material that is not accurately musical by convention, but which aspires to be so in a perpetual tension, moving close to and away from the threshold that separates signal from noise.

Another, and concluding, example of an artistic rendering of musical signals in relation to noise would be the production of UK artist Mark Fell, whose use of digital computational processes involves the application of generative systems and pattern recognition. The principle behind his album *Multistability*36 refers to the ambiguous state of a system that is neither stable, nor completely instable but changes its condition
continuously.\textsuperscript{37} This implies a certain type of dynamics which determine the character of the sonic signals we hear, and subsequently generates an experience that could only be accomplished through the use of digital technologies.

According to Evens, digital sound is essentially characterized by a lack of noise, or more precisely by its lack of interrelation with noise. As such, digital sound synthesis demonstrates “a linear relationship between input and output complexity, wherein the complexity of the sound is directly proportional to the complexity of its method of generation.”\textsuperscript{38} In other words, digital sound is fundamentally predictable, and therefore excused from noise. However, the noisy “grain” of unpredictability can be infused deliberately into the system, creating a different form of affective, digital sonic experience. And not only, as was the case with Basic Channel, in the form of residual noise-resonances of sound processing, but rather by applying patches that control the sound output through stochastic and random procedures, which is precisely what Fell is doing on his album.

In this way the various tracks on Multistability appear simultaneously synthetic, very much “digital” in expression, and erratically surprising, changing from short repetitive patterns to impulsive and chaotic outbursts of compressed sound particles. The otherwise smooth transmission of signals within the “noiseless” digital system is, then, obstructed by the resistance of randomness which results in a haphazard series of sonic signals that comprise another sort of noise or “grain”, eventually reaching the bewildered ear. Although the sonic qualities of Fell’s work are much closer to distinct tonality than the recordings by Tsunoda and López, or the “Mutism” track by Basic Channel, his deliberate method of unpredictability and randomness has a remarkable aesthetic effect; as the sound signals are relocated from inside of the computational system and transferred to the acoustic space, it creates a manifest type of sonic tension, which could only be produced by the interface controls of digital media—the experience of this noisy digitality is, thus, realized between the fundamentally “anti-septic” and predictable signal processing of the computer, and the disorganized outcome of Fell’s artistic application of stochastic progressions.

The works considered and analyzed above, all express the dynamic principles of significative effects emerging from sonic matter as rooted in the constant movements produced between noise and signal. Restating the formulation by Evens, one could readily claim that noise here functions in several ways as “the reservoir of sense, the depth in which sounds connect to each other”, as referred earlier. And so, the intention with this article has been to demonstrate how noise is set to work as an intensification of sonic signals, not merely as antithetical to traditional musical aesthetics, but exactly by opening up sound and music toward further potential signification.

Notes

1. D. Kahn, Noise, Water, Meat: A History of Sound in the Arts (Boston, MA: MIT Press, 2001), 20.
2. Aden Evens, Sound Ideas: Music, Machines, and Experience (Minneapolis, MN: University of Minnesota Press, 2005), xiii.
3. C.E. Shannon, “A Mathematical Theory of Communication”, Bell System Technical Journal 27 (July & October 1948): 379–423; 623–56.
4. Peter Krapp, Noise Channels: Glitch and Error in Digital Culture (Minneapolis, MN: University of Minnesota Press, 2011), x.
5. For a clarifying account of the “sound art” terminology, see Andreas Engstström and Åsa Stjerna, “Sound Art or Klangkunst? A Reading of the German and English Literature on Sound Art”, Organised Sound 14, no. 1 (2009): 11–18.
6. Toshiya Tsunoda, Extract From Field Recordings Archive #3: Solid Vibration, CD. Infringitive, 2001.
7. Toshiya Tsunoda, Low Frequency Observed At Maguchi Bay, CD. Hibari Music, 2007.
8. Toshiya Tsunoda, “Field Recording and Experimental Music Scene”, Erstword, http://erstwords.blogspot.com/2009/07/field-recording-and-experimental-music. html (accessed January 20, 2012).
9. Christoph Cox, “Beyond Representation and Signification: Toward a Sonic Materialism”, Journal of Visual Culture 10, no. 2 (2011): 148.
10. Ibid., 148–9.
11. Ibid., 157.
12. This is critically discussed by Brian Kane in his “L’Objet Sonore Maintenant: Pierre Schaeffer, Sound Objects and the Phenomenological Reduction”, Organized Sound 12, no. 1 (2007): 15–24.
13. Bill Brown, “Materiality”, in Critical Terms for Media Studies, ed. Mark B.N. Hansen and W.J.T. Mitchell (Chicago: University of Chicago Press, 2010), 49.
14. Michel Serres, The Parasite (Baltimore: Johns Hopkins University Press, 1982 [1980]); and
15. Evens, *Sound Ideas*, 14.
16. Jussi Parikka, “Mapping Noise: Techniques and Tactics of Irregularities, Interception, and Disturbance”, in *Media Archeology: Approaches, Applications, and Implications*, ed. E. Huhtamo and J. Parikka (Berkeley, CA: University of California Press, 2011), 256.
17. Ibid.
18. Barry Truax, *Acoustic Communication* (Westport, CT: Ablex Publishing, 2001).
19. N. Katherine Hayles, *How We Became Posthuman* (Chicago: University of Chicago Press, 1999), 145.
20. Philipp Schweighauser, *The Noises of American Literature 1890–1985: Toward a History of Literary Acoustics* (Gainesville, FL: University Press of Florida, 2006), 10.
21. Christoph Cox, “Sound Art and the Sonic Unconscious”, *Organised Sound* 14, no. 1 (2009): 19.
22. Ibid., 22.
23. Ibid.
24. Ibid., 25.
25. Francisco López, *La Selva*, CD. V2_Archief, 1998; and *Buildings [New York]*, CD. V2_Archief, 2011.
26. Francisco López, *Wind [Patagonia]*, CD. and/OAR, 2007. The album features cover notes by Cox, as well.
27. Cox, “Sound Art and the Sonic Unconscious”, 19.
28. Friedrich Kittler, *Gramophone, Film, Typewriter*, trans. Geoffrey Winthrop-Young and Michael Wutz (Stanford: Stanford University Press, 1999), 23.
29. Evens, *Sound Ideas*, 14.
30. Ibid., 15.
31. Ibid.
32. Ibid., 21.
33. Ibid., xiv.
34. Joanna Demers, *Listening Through the Noise: The Aesthetics of Experimental Music* (New York: Oxford University Press, 2010), 97.
35. Basic Channel, “Mutism”, on *BCD*, CD. BCD, 1995.
36. Mark Fell, *Multistability*, CD. Raster-Noton, 2010.
37. Don Ihde, *Technology and the Lifeworld: From Garden to Earth* (Bloomington: Indiana University Press, 1990), 144.
38. Evens, *Sound Ideas*, 95.