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Listening Biennial presentation

Noise as Sonic Experience

Since a couple of decades, noise has lurked around the fringes of sound studies, slowly but steadily carving out a niche for something that could be called noise theory.

Except for a couple of precursors like Jacques Attali and Michel Serres in the 1970s, noise has only started to be theorized as a sonic experience since the (anti)musical genre of the same name has developed in the 80s and 90s. With a little delay, Paul Hegarty's *Noise/Music* from 2007 was one of the first academic publications to deal with the entangled mess of concepts, aesthetics and acoustics that both surround and emerge from noise. In recent years noise theory has notably shifted from questions of the sonic to more philosophical and/or political implications (Cecile Malaspina's *An Epistemology of Noise* from 2018 and Mattin's *Social Dissonance* from 2022 are relevant examples of this and I'm deeply in debt to these two authors).

In this presentation I want to re-focus on the sonic aspects without sacrificing the valuable work on noise as a philosophical and political concept – it's inevitable to tackle the broader implications of noise if you want to address it as a phenomenon of the sonic. Noise has a tendency to complicate itself, as I'm hoping to show you. First I'll give you an overview of the semantic and conceptual field that noise unfolds. I'll carry on with two exemplary cases of noise in practice: one from the aesthetic field of noise as music and the other from the political spectrum.

[Slide: noise etymology]

The sonic in general and more specifically noise open a complex field of metaphors that make them both describable and ambiguous at the same time. The word *noise* itself derives from old French where it means conflict or strife. It remains unclear if its origin lies in the Latin *nausea* (sea-sickness) or *noxia* (wound, damage etc.). Today it carries ambiguous and multiple meaning, analog to other European languages like the French *bruit*, Spanish *ruido* or Italian *rumori*.

[Slide: noise translations]

I want to focus on the conceptual ambiguities of noise and the political implications of the sonic experience that arise from this. In my first language German, the translation of noise divides into four words that conveniently correspond to distinct fields of meaning: *Rauschen* as in white or

stochastic noise, *Lärm* as in loud or annoying sound, *Geräusch* as in unmusical or insignificant sound and *Störung* which can mean both annoyance and disruption of a signal. This allows for a simple yet effective deconstructive trick: translate a word with complex meaning into another language, follow a few etymological and epistemic traits and examine the conceptual differences and relations that emerge from this procedure. I want to show that these distinct definitions influence each other when the word *noise* is commonly used and that they create a zone of ambiguity that is 'noisy' in itself. (I'd be more than happy to learn about possible translations of noise in your respective languages later in the discussion).

[Slide: Lärm]

Lärm: is translatable as loud or annoying sound, the word derives from the Italian *all'arme*, the call to arms. As loudness it is physically measurable and quantifiable, e.g. any exposure to a sound louder than 120 dB might be the last thing that you will ever hear. Interestingly, silence on the dB scale doesn't signify the absence of sound. 0 dB means that sound levels are so low that they are masked by the noise that our own nervous system produces. For a hearing being there can be no absolute silence. Loud sound is objectively detrimental, but can be nonetheless mobilizing and enjoyable (think concert, rave etc.).

As annoying sound, it is an aesthetic and social judgement. Noise is the sound produced by the others, their bad taste in music heard through apartment walls when you're trying to sleep.

But loud sound also has a political ring to it. This shows in noise abatement regulations and in socioeconomic territorialization: who gets to live in the noisy part of town, which social groups are deemed to be noisy and under which circumstances loudness is perceived as the sonic marker of power and authority rather than as an annoyance.

[Slide: Geräusch und Rauschen]

Geräusch: is, in short, any sound that is neither musical nor meaningful. The definition of 'noise-sound' as the opposite of 'music-sound' dates to German physicist Hermann von Helmholtz' work from the 19th century but is still used to this day. According to his *Sensations of Tone* from 1863, a musical sound has a periodic waveform. A sine wave is a good example for this: a perfectly symmetrical waveform, a single pitch without any timbre or overtones. Its opposite is white noise: a perfectly random and thus aperiodic waveform (in practice, the separation of both is not easily accomplished. All musical sounds produced by physical instruments lie somewhere between these two abstract poles).

In a semantic system like human language that is basically built from noises, true noise would be any sound that escapes a given system of signification. Coughing is no part of language, but it can be very signifying if strategically placed – so a true escape from significance is hard to achieve (being labelled crazy for not speaking in a significant way is an inclusion and exclusion from significance at the same time).

Who is producing noises and who produces meaningful sound is a question that occupied philosophy from its very beginnings, e.g. the theory of *phone* and *logos* in Aristotle's *Politics*. Here, only the male citizens of the Athenian polis were in possession of *logos*, that is language, truth and meaning. Everybody else – women, children, slaves, non-greeks (the 'barbarians') – only had a voice or *phone*, but no meaningful language. To the Greeks, they produced noises when they opened their mouths. This ancient elitism is still active in contemporary racist stereotypes of language, dialects and accents. Outside of language and music, we are of course surrounded by noises from various sources all the time – be it from cars, animals, wind or whatever: the components of the soundscapes that surround us. The distinction of (pleasant) sounds and (unpleasant) noises is a more or less unconscious value judgement that we perform constantly.

Rauschen: shares its etymology with *Geräusch* but designates a specific form of sound like white noise, pink noise etc. As electronically generated noise (mostly as a side-effect in electronic circuits – heat is a byproduct of electronics and it inevitably produces thermal white noise in components like transistors and resistors) it gave birth to basically all modern (or 20th century) theories of noise. It touches on the thermodynamic concept of entropy, Brownian movement, electronic engineering, information theory and cybernetics.

'Rauschen' is onomatopoeically close to its source, the 'shhhh' of the sea or the wind in the trees. It is also a verb that has its English equivalent in 'to swoosh' or 'to woosh'. It must be noted that ideal white noise is more of a mathematical abstraction than an empirical sonic event. It is defined as all audible frequencies at equal amplitude. The human ear is not able to perceive this, since our hearing emphasis frequencies around that 4 kHz that are crucial for speech discrimination. On the microscopic level, we are always surrounded by the emanations of what is called Brownian molecular movement or Brownian noise (named after its discoverer, the 19th century botanist Robert Brown): the constant random fluctuation of particles. All matter is noisy, in complete silence there is noise or *Rauschen* to be found.

[Slide: Störung]

Störung: translatable as disturbance, interference, malfunction, or nuisance. This is the principal meaning of noise in Claude Shannon's *Mathematical Theory of Communication* and it is the definition farthest removed from any acoustic connotations (though, as annoyance or nuisance it can fold back into acoustic territories of meaning). The role of noise in this model is worth to be discussed in detail. Shannon's theory emerged during WW II and was first published in 1948, its main concern is the effectiveness of communication in a technological setting (in his days mainly telephony, radio and telegraphy). In short: the information source has some message it wants to communicate. The message gets coded in a transmittable way and is broadcasted via a transmitter through a channel of communication that is affected by a noise source that changes the signal, then gets collected by a receiver to finally get decoded by the messages destination. In a situation like this here, it would work the following way: me, the 'source' has an information it want's to share, like this talk. I use a specific code, the English language and transmit the message as a signal – speech – through a communication channel (this microphone, pa system, the air in this room) to your ears as receivers and your brains decode it. In the preface to Shannon's theory, his colleague Warren Weaver has noted: "When I talk to you, my brain is the information source, yours the destination; my vocal system is the transmitter, and your ear and the associated eighth nerve is the receiver." (Warren Weaver p. 14). Everything that was not intended by me, from me mispronouncing to ambient noises in this room to misunderstandings on your part, everything that changes the message on its way is what the theory calls noise.

As Weaver tells us, information theory is not concerned with the meaning or semantics of messages at all: "In particular, *information* must not be confused with meaning. In face, two messages, one of which is heavily loaded with meaning and the other of which is pure nonsense, can be exactly equivalent, from the present viewpoint, as regards information. It is this, undoubtedly, that Shannon means when he says that "the semantic aspects of communication are irrelevant to the engineering aspects." (Ibid.). In order to make information quantifiable and computable, Shannon employed the binary code of Boolean logic: "To be somewhat more definite, the amount of information is defined, in the simplest cases, to be measured by the logarithm of the number of available choices." (Ibid.) – This measure is *bit*, the binary choice between two possible states, 0 and 1.

There's a twist in information theory: Shannon called the measure for a maximum of information *entropy*. Entropy is a term borrowed from thermodynamics where it denotes a state of a system in which all energy is equally distributed and no directed flow of energy is possible. Such a system is

unorganized or 'perfectly shuffled'. When all possible states of a system are equally likely, a maximum of information equals no information at all, everything is ambiguous if 'freedom of choice' is total. According to the second law of thermodynamics, this is the eventual fate of any system: our bodies, the universe etc. When no directed flow of energy is possible because everything is equally distributed, the system dies. What does this have to do with information? Information is at a maximum when all elements of a code are equally distributed, like in a perfectly random sequence of letters. The possibilities of combinations are maxed out to the limit. But of course there's no useable information in an entropic state, it's like an indistinguishable wall of noise. So information always has to navigate between its entropic maximum and its redundant minimum to transport actually useful or 'wanted' information.

Cecile Malaspina writes that "[Shannon's] concept of 'information entropy' and hence also of noise is [...] devoid of any ontological reference: it could inform us about the probability of occurrence of any phenomenon involving large numbers, be it in the flow of signals, flows of people, of goods or unicorns – in short it is ontologically arbitrary." (Malaspina 2018, p. 31).

These definitions of noise tend to crosstalk, intermingle and engage in relations that are mediated by metaphors and analogies. Entropy is used as an analogy in information theory. Because the theory is concerned with electronic communication, white noise is the perfect metaphor for its understanding of noise. Entropy as the eventual heat death of the universe, a thermodynamic equilibrium also called the 'big chill', would probably sound like noise. Loud sounds have a tendency to disturb other communications in their vicinity. Unknown or unintelligible signals are usually perceived as noise and not as useful information and so on. The ambiguity inherent to noise in information theory (the uncertainty of which information is the correct or desired one) is mirrored in the word noise itself: until further qualified, it is questionable which form of noise is intended when we encounter the word in an English text.

[Slide: noise as genre]

To complicate matters a bit further, noise is also the name of a musical genre that puts the system of classification that is genre itself into question. As Ray Brassier has put it: "'Noise' not only designates the no-man's land between electro-acoustic investigation, free improvisation, avant-garde experiment, and sound art; more interestingly, it refers to anomalous zones of interference between genres: between post-punk and free jazz; between musique concrete and folk; between stochastic composition and art brut. Yet in being used to categorise all forms of sonic experimentation that ostensibly defy musicological classification – be they para-musical, anti-

musical, or post-musical – ‘noise’ has become a generic label for anything deemed to subvert established genre.” (Ray Brassier 2009, p. 62). It would be fair to say that noise is the end of music – or, to be more specific – the end of a certain discourse on music, a way to talk about, define or classify music. Needless to say, this ‘end of music’ has been transgressing itself for over 100 years now. From the “art of noises” of the Italian futurists to Japanese harsh noise, with stations like European avantgarde music of the 20th century, free jazz, punk etc., noise has always found ways to fold back into musicality, become ‘genrefied’, break free of definitions and proliferated into a vast array of hybrid, sub-, and meta-genres. Noise-as-genre has played with or incorporated most of the aforementioned definitions: it usually qualifies as loud sound, for the vast majority it is annoying, it incorporates noise and noises instead of musical tones or rhythms, its material is all the noises that information theory mentions (distortions, feedback, every technical malfunction that music technology has produced so far).

[Slide: Vomir]

I will now demonstrate the metaphorical entanglements of noise with two examples. One from the realm of aesthetics and musical genres and one from the area of politics.

Within the vast multitude of subgenres of noise that emerged during the past decades, harsh noise wall stands out as one of the possible dead ends of music: an aesthetic of the sonic that ‘perfected’ a certain approach and doesn’t allow any further development in that direction, thereby raising the issue of aesthetic progress in general. Paul Hegarty has described this issue thusly:

„So harsh noise wall brings us to the moment of being ‘after noise’. In one way, it is the end of noise, the end of music – the final sound. [...] Harsh noise wall is a sign of completion, of being sated with noise, and is one of the last sounds, even if it does not happen at the final moment of history. In this, it is like all avant-gardes – none of these imagined they were a way station to the next movement.” (Hegarty 2021, p. 245). HNW picks up on the aesthetics of Japanese harsh noise from the 1990s and diligently removes all dynamics, movement and variation until nothing but a static wall of distorted noise remains. One of the protagonists of the genre is Romain Perrot from France with his project Vomir. To demonstrate, here’s an excerpt from his 2007 six CDr box *Claustration*...

All six CDs contain essentially the same noise with slight variations in equalisation from track to track. That goes for his entire output, the length of different tracks only dictated by the playing time of the different media. If music ever came close to mimicking an entropic system, then it’s here. This reflects in Vomir’s album titles and slogans: “No ideas, no change, no remorse”, “Social Distancing”, “Here Goes Nothing”, “Proanomie” etc.). In concerts, he often wears black plastic bag over his head

and remains motionless for the duration of the show. Perrot has also published a manifesto of harsh noise wall, the *Proclamation of the Bruitist Wall*. It's opening sentence reads:

"The individual no longer has an alternative but to completely refuse the promoted and preached contemporary life. The only still free behavior is the noise and withdrawal, to never surrender to handling, socialization, and entertainment."

Vomir's noise aims at being anti-communication, noise as the negation of sociality and information, a sonic form of hikokomori syndrome, a nihilist simulacrum of total rejection of society. But of course writing a manifesto is a very communicative act in itself. And furthermore, the materiality of the noise somehow contradicts the claim of seclusion and entropic stupor. Especially in a concert situation, the noise of Vomir allows for a sonic phenomenon that hardly any other music allows for in this radical form: because there are not structures to latch on to, the brain of the listener starts to impose its own onto the material (analogous to the shapes one discovers in clouds or structured surfaces). These can shift in any direction, in a sense HNW is the form of music that gives the listener a maximum of liberty in how to interpret it (a maximum of choices in the vocabulary of information theory). It opens one's ears to the random fluctuations of Brownian molecular movement or something very similar. If shared by many individuals, it becomes a backdrop for being singular plural: everybody hears the same thing while all hear it radically differently. The asserted rejection of community and communication turns into a communal ideal: everybody equal but different.

[Slide: noise and riots]

We can find the metaphors of noise at work in the situation of protest, unrest, and riots. They unfold among the dividing lines of a simple dichotomy: order on one side and noise as disorder on the other. This can be exemplified by a quote from Brandon LaBelle's *Acoustic Territories*:

The riot, the street fight, and the demonstration may be understood as dynamic instances of conflict and debate, as well as an audible interaction between writing (the dictates of law) and noise (the suspension of law), an interaction that lends to defining history: on one side, the law as a signature of written record, decree, juridical account, and on the other, a drive toward its overturning, whose momentum relies upon, is initiated, or calls for the development of a separate language, one that stands in opposition, or that brings the law in its own hands. [...] Thus, riots, street fights, and demonstrations produce an audibility that seeks to overturn or overwhelm the written record, the law and house rule with a meaning determined by volume and the promise embedded in making noise. Such actions in turn

instigate new patterns, aiming to re-configure set rhythms with other timing. To break the law then is to also break the functioning order of a given system. (LaBelle 2011, p. 109)

This is a somewhat romanticised notion both of riots and of noise, but it gives a clear picture of how the acoustics of a political situation can be organized and how metaphor is used to bridge concepts (noise as a metaphor for disorder, the written word or law for order). Reality is more complex, both on the sonic and on the conceptual level. I will use some examples from law, the empirical acoustics of riots and technological developments to expand from LaBelle's text and give an account of what I mean with noise as a strategic metaphor.

In German law, a demonstration is officially disbanded when the police declares it to be over. This is written down in the Right of Assembly, § 13: "As soon as a meeting is declared dissolved, all participants must leave immediately.". What the law does not state is how this declaration is to be given. In reality, these declarations can be overheard because the police might not be equipped with adequate PA-systems and announcements get drowned out. The written law fails to actualize itself due to a lack of volume (which usually does not hinder the police to start using force immediately).

[slide: LRAD]

This problem of intelligibility is addressed by the LRAD or Long Range Acoustic Device marketed by the company Genasys (formerly LRAD corporation). It uses so called 'hypersonic sound' (two ultrasonic waves that modulate each other and allow to channel audible sound like a beam. Also called a 'sonic laser'). The LRAD can emit sound levels up to 160 dB and is used by police and military forces around the world. Genasys claims that its product is "[...]Low profile, lightweight, and easily mounted and transported to provide a highly effective, long range communication and warning capability, the LRAD 300X broadcasts clear, authoritative voice commands and attention-commanding deterrent tones to determine intent, safely modify behavior, enhance response capabilities, and scale the Escalation of Force if necessary." (LRAD 2015). It is worth noting how closely intelligibility is related to deterrence and force (or non-lethal forms of sonic violence) here. In other publications, Genasys usually emphasizes that the LRAD should not be considered a weapon (though it should be clear by the deployment of these devices during the US Black Lives Matter protests of 2020 and other unrests that this is not the case). In 2017 a New York judge ruled that "as a projector of powerfully amplified sound [the LRAD] is no different than other tools in law enforcement's arsenal that have the potential to be used either safely or harmfully, one example being distraction devices — items like stun grenade, flash bang, or concussion grenades" (Moynihan, Colin/New York Times 2017).

Of course, there are other sonic weapons used by police forces around the world that lack the nimbus of high technology of the LRAD completely. During the *gilets jaunes* protests in 2018 and the protests after the killing of Nahel Merzouk in 2023, the French police used so called *grenades assourdissantes* (flashbang or stun grenades) in large quantities to dispel crowds. The loud bangs of these sonic bombs nonetheless transmit a clear message without using words: “Disperse. Go away. Surrender.”

The word *order* not only has a double meaning, it also has curious function in language and information theory. On one hand it is a reduction of language, something below semantics. As Elias Canetti has pointed out in *Crowds and Power*, animals can understand orders. Information theory does not concern itself with meaning, as Shannon and Weaver assure us: “the semantic aspects of communication are irrelevant to the engineering aspects.” (Shannon/Weaver 1963, p. 8). When the model of communication is applied to a political situation like the riot, it can be viewed as a system of power and force. The order has a special position in this and in this sense Gilles Deleuze and Felix Guattari have attempted a critique of information theory. This can be shown in two quotes, one from *A Thousand Plateaus*: “The order does not refer to prior significations or to a prior organization of distinctive units. Quite the opposite. Information is only the strict minimum necessary for the emission, transmission, and observation of orders as commands. One must be just informed enough not to confuse ‘Fire!’ with ‘Fore!’ [...]” (Deleuze/Guattari 1987, p. 76).

And in an interview from 1976 Deleuze states:

Language is a system of instructions rather than a means of conveying information. [...] We ought in fact to invert the scheme of information theory. The theory assumes a theoretical maximum of information, with pure noise, interference, at the other extreme, and inbetween there’s redundancy, which reduces the information but allows it to overcome noise. But we should actually start with redundancy as the transmission and relaying of orders or instructions; next, there’s information – always the minimum needed for the satisfactory reception of orders; [...] then there’s something like silence, or like stammering, or screaming, something slipping through underneath the redundancies and information, letting language slip through [...]. (Deleuze 1995, p. 41).

So how can we frame the relation of noise, order and communication in the situation of a protest or a riot, and what role can the *inter* of noise, its metaphors and their strategic use play in this?

Noise is associated with disorder and violence. But it is not situated on the side of the police or the side of the protesters. As we have seen, the police can deploy noise as sonic violence and it does

this to achieve a maximum of intelligibility – the opposite of noise – while protesters and rioters supposedly use (from the perspective of the law) noise as annoyance and disruption as means of communication or as signs. It is not really feasible to argue with a law vs. noise dichotomy like LaBelle does, since the law/the police produces its own noise – both as *Lärm* or sonic violence from the police and as *Rauschen* or informational ambiguity.

[Slide: Noise as Strategic Ambiguity]

In 2021, a new law – the *Police, Crime, Sentencing and Courts Bill* was debated in the British parliament. One of its articles authorized the police to disperse protests if they were deemed as “too noisy”. In a BBC news interview, then home secretary (minister of the interior) Priti Patel failed to explain what would qualify as a noisy protest.

It is of strategical importance how noise is framed, where it is located, and which groups are deemed to be noisy. From this perspective, Patel’s inability to give a concise definition of noise to journalists is actually not a failure but the strategy in itself. The vagueness of Clause 67 of the *Police, Crime, Sentencing and Courts Bill* reflects this (“ [...] broaden the range of circumstances in which the police can impose conditions on the use of noise at a public procession or public assembly or a one-person protest to include where police reasonably believe the noise generated by persons taking part may have a significant detrimental impact on persons in the vicinity or cause a serious disruption to the running of an organisation.”). Here the law itself becomes noise in the sense of ambiguity. There is no clear definition of noise, which equals an uncertainty as to which signal is the proper one. This gives the police wriggle room in crushing protests: a strategic use of ambiguity, a noise at the heart of law and order.

So I want to argue for an open and dynamic conceptualization of noise that mirrors the impure differences between its concept-fragments and keeps the space of the *inter* open: if noise can be read as a strategic multiplicity of force relations (and also of resistances), its theory should also be dynamic and aware of the ever changing relations and (metaphorical) movements that constitute it. I want to conclude this talk and commence our discussion with another translation of noise. The Greek word *Θόρυβος* (*thorubos*) in its contemporary use carries with it a similar ambiguity as the English word noise and shares the different meanings when translated to German. But in old Greek it also designated a specific form of political praxis. The Greek scholar Ilias Arnaoutoglou informs us that *thorubos* was “an essential feature of social activity in the ancient Greek world. Several scholars emphasized the role of *thorubos* in the working of Athenian democracy, in the assembly and in the lawcourts. Tacon [...] claims that *thorubos*, that is cases when speakers interrupt each other, *demos*

interrupts speakers, *demos* allies with opposing speakers, was an integral feature of assembly debate and by extension of Athenian democracy.” (Arnaoutoglou 2014, p. 1 f). Here we have a definition of noise that shows a line of escape from the dichotomies of noise/order: a noise that is at the same time a disruption and an integral feature of the political process, an audible expression of disagreement and dissent that guarantees the basic functions of political processes. It is in this context that Martin Luther King’s sentence “A riot is the language of the unheard” has to be understood.

The sonic experience of noise can easily morph into an epistemic problem and a concrete experience of the conceptual. Our sonic perception might appear as an anthropological constant, but it is also organized around the historic fault lines (the history we are living and living in, right now) of economy and politics. Experiencing noise, if you listen closely, despite the racket, can open your ears to political struggle and to the, in the words of Douglas Kahn “constant grating sound generated by the movement between the abstract and the empirical” that is noise.