

# Sonorous Deserts Schizoanalysis Sound Studies Inhuman Ecology

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## ***Sonorous Deserts: Schizoanalysis, Sound Studies, and Inhuman Ecology***<sup>1</sup>

### **Abstract**

The article investigates the impact of the work of Gilles Deleuze and Félix Guattari on contemporary sound studies and proposes a revision of the schizoanalytic project as a development of the field of sound studies relevant to its present conditions. Being driven by the inhuman and ecological tendencies in the humanities, sound studies are seeking sonic thinking to be a pathway between reductionist materialism and phenomenological anthropocentrism. The author argues that the

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<sup>1</sup> The author expresses gratitude to Mads Krogh, Anastasia Karkacheva and the editors of this article for producing necessary moments of its constant deterritorialization.

schizoanalytic approach, being a process philosophy of abstract machines, is capable of synthesizing material-informational and environmental-agential accounts of the sonorous contemporaneity. Discussing Havana Syndrome, Earth's hum cases and the transition from electronic dance music (EDM) to intelligent dance music (IDM), he outlines the inhuman sonorous ecology that serves as a cartographic extension of sonic thinking.

**Keywords**

abstract machines, auditory culture, Deleuze and Guattari, electronic music, inhuman, sound studies, territorialization

**Introduction: Inhuman and Ecological**

In his article “Sound Studies without Auditory Culture” (2015), Brian Kane introduced several arguments against the so-called ontological turn in the academic field of “auditory culture” or “sound studies.” In this field, Kane argues, a canon of texts has been previously delineated, topics have been organized and central problems have already been defined. However, with the growing popularity of speculative realism and its assimilation by Western academia together with the posthuman turn, some new paradigms have emerged at the core of this structural framework, pushing the limits of the established research area and posing new problems within it. Kane’s critique is directed toward “a niche of scholarship within sound studies that sets itself apart from studies in auditory culture by focusing on the ontology of sound and is built on the work of Gilles Deleuze in order to develop a philosophical naturalism with respect to sound” (Kane 2015: 3).

Kane deals with what he calls the “Deleuzian metaphysics” line of argument exclusively on the basis of the virtual/actual dichotomy (as this framework is shared by the authors he criticizes), widely developed in the works of Brian Massumi, Canadian social philosopher and translator of the French poststructuralists. Massumi’s main topics include affect studies, incorporeal materialism, process philosophy (inspired by Alfred North Whitehead) and the ecology of the virtual (inspired by Félix Guattari), each of which deals with the problem of formation and re-evaluation of values in contemporary society. Actual and virtual dichotomy denotes differences between empirical subjects and the complexes of forces and powers that give rise to them respectively. Virtuality of the sonorous flux

is much broader than the listeners' actual sonic experiences and it encompasses processes both realized and unrealized, which can be actualized within subjective or discursive frameworks. Recently proposed sonic materialism (Schrimshaw 2017) is inspired by the theory of autonomous affects, developed by Massumi, which presupposes the existence of affects separated from subjects and connected to the things themselves and events between them. Sonic materialism is based on the structural equivalence of sound and affect in the concept of signal. Sound-affect need not be heard (i.e., actualized) in order to be ontologically coherent. Signal, being an object of sound, is inaudible yet functional. Such an approach displaces the ontological adjustment of sound as an object of music (and of specifically musical or human regimes of listening).

Inspired by the posthuman turn in the humanities, sound scholars evince great interest in the debates on what Reza Negarestani (2014) defines as the problem of the *functional autonomy of reason* or *augmented rationality*, which calls for a re-engineering of thought about the human through "re-modification, re-evaluation, re-constitution and re-orientation" of its relation to the "labor of the inhuman" (Negarestani 2014). Sonic materialisms/realisms (Cox 2011; Schrimshaw 2017) reconsider the sonorous as "anonymous flux akin to the flows of minerals, biomass, and language" (Cox 2011: 155), and insist that "sonorous forces are not sounds as they are articulated and combined, but vibratory powers from which heard sounds are actualised" (Bennett and Colebrook 2009: 68–81). The word "power" here indicates a critical dimension of this Deleuzian niche in sound studies and those powers "from which heard sounds are actualised" refer to the problem of expression, which is developed in Deleuze and Guattari's *A Thousand Plateaus* (1987) by taking into account the problem of language on the basis of differences between functional regimes of signs (expressions) and material regimes of physical systems and bodies (contents) (Deleuze and Guattari 1987: 501–17).

Simultaneously, the establishment of *environmental thought*, capable of grasping the interconnections between various types of objects and processes (Morton 2007), was also being integrated into the dramatically growing field of sound studies—in forms of acoustic ecologies of the urban territories or those of the planetary order (LaBelle 2010; Kahn 2013). In this context, the environmental agenda changes the second meaning of the concept of *inhuman* defined by Jean-François Lyotard in his lectures on time. Its dual character is designated by the denial of the overlapping of the inhumanity of systems (cognitive functions instrumentalized as machines of artificial intelligence and that of data collection, segmentation and analysis within networks) and the inhumanity of "soul" (sublime in the Kantian sense), which allows thought to rethink its own limits (Lyotard 1991: 2). The inhumanity of the system should not take over or replace the inhumanity of the creative act of thought, it is dangerous—

this is what Lyotard argues. Environmental agenda takes into account inhuman process actors within this act of thought, without denying the transformations of human intelligence in the structures of machinic realism and their impact on the structures of the reality of Capitalocene.

The development of an inhuman ecology in sound studies was inevitable due to the multiplication of technological assemblages and historical breakthroughs within the sonorous field. As Jonathan Sterne puts it in his seminal book *The Audible Past* (2003), since the end of the nineteenth century the ear has become a measurable object, hearing has been instrumentalized and “the tympanic has taken on a life of its own” (Sterne 2003: 84). The autonomy of the tympanic function made it possible to manage vibratory powers by technologies of recording, reproduction, and distribution, which bound inhuman actors with human ones and composed new territories of their interaction, not limited by actual state borders or cultural differences. Moreover, the contemporary condition of ubiquitous listening (Kassabian 2013), offering endless possibilities for varieties of experience (Schulze 2018: 126–32), leads to the development of new ensembles of sonic skills (Bijsterveld 2019), blending scientific and artistic (i.e., technical and creative) approaches to the sonorous.

Kane accuses authors related to the “ontological” turn of setting themselves against the “linguistic turn” and of challenging the relevance of research in auditory culture “in favor of universals concerning the nature of sound, the body, and media” (Kane 2015: 3). However, inspiration in the form of Deleuze and Guattari’s schizoanalysis provides sound scholars with a means of tackling the problem of language within sonorous symbolization and the fetishism of listening (Bonnet 2016: 133–95). The schizoanalytic project, working with dispositive structures of the capitalist economy and its obsession with the multiplication of networks that bind together actual objects and virtual flows, understands the experience itself as a realization of the intertwined statuses of events and things through the de-individualization of the experience up to the point where processes of becoming take place. It highlights the possibility of unmapping the real—removing established environmental-agential tissue of material-informational fluxes and re-composing social and natural territories as organized objects, millieus and rhythms between them.

Thus, whereas Kane makes some important points along the way in his relevant critique, he seems to be misguided and associates the development of the *inhuman ecology* by several sound scholars with the development of the “ontology of sound.”<sup>2</sup> Inhuman sonorous ecology is a

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<sup>2</sup> In some senses, one can say that Kane confuses ontology with the overlapping of ontological and epistemological approaches to the social field that takes place in the work of Deleuze and Guattari. This overlapping was highlighted, for instance, by Manuel DeLanda in his open lecture for the students and faculty of the European Grad-

movement of sound studies toward a philosophy of systems (machines, fluxes, ears, bodies, sensations) and processes of connection, resonance, transduction, disjunction, territorialization. Such a development mirrors the twentieth century's complexification of productive sonorous forces and potential vibratory powers both in both cultural and scientific areas. Approaching the architecture of abstract machines, assemblages, and territories, schizoanalysis is highly beneficial for sound studies. It is effective as an example of blending aesthetics, science, and politics within the social field, and as a method for constructing diagrammatic schemes of elusive and impalpable sonorous processes.

## Scape—Ocean—Territory: Sonorous Forces and Sonic Thinking

Clarifying the images of “anonymous fluxes,” sound studies have been constantly alternating the metaphors that describe the substance of sound. Although these transformations deserve to be thoroughly examined elsewhere, several types of them can be highlighted here to show a movement to the inhuman ecology of the sonorous: flat surfaces of soundscapes as the imprints of acoustic environments perceived by humans (Schafer 1993), fluid bodies of *sonic oceans* as immersive informational reservoirs (Toop 1995) are replaced now by complex images of *sonorous ar chipelagoes* (Bonnet 2016), *acoustic territories* (LaBelle 2010) or battlegrounds inhabited by sonic intelligence agencies (Goodman 2010).

The problem of the substance of sound has always been tough for Western philosophers and scientists to overcome. Since Aristotle and Plato, two fundamental conceptions have been struggling: the *resonant* and the *pneumatic*. The former supposed sound to be a fact in the resonant body, the latter—a *sequence of waves* moving from one place to another. Though, even in the works of Aristotle, a conception of the pneumatic can be found: *pneuma* is defined as the beginning of movement itself, a moving substance of everything (Bos and Ferwerda 2008: 47–48). Jean-Baptiste de Lamarck, agreeing with the conception of the resonant (and with that the fact that sound is indeed produced by a shock and by an *object set vibrating*), observed in 1799 that sound is transmitted not only through

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uate School EGS Media and Communication Studies department program Saas-Fee Switzerland, 2011. DeLanda proposes that the assemblage theory of Deleuze and Guattari is grounded in an ontology of not having to reach a consensus about everything, and stresses the twofold character of the word assemblage—as a complex of organized elements or entities and as an agency. This twofold character is also evident in the inhuman-ecological tendency, which deals with the overlapping of material-informational and environmental-agential levels of the social field. DeLanda's lecture can be accessed online: <https://www.youtube.com/watch?v=j-15e7ixw78>

air but also through liquid and solid bodies (Bonnet 2016: 62). His next theoretical step was to affirm the existence of substance proper to sound: ethereal fire, spreading all the way through the milieu to the auditory nerve (Ibid). This fire is similar to pneuma, a kind of absolute wave, an ocean of sound, or, as Bonnet puts it, “the *sonorous bath*,” a “myth of materiality” (2016: 64), which is the backbone of Western thought on the sonorous.

Inhuman ecology in sound studies seeks to find a middle path between these two conceptions. Resonant bodies and sonorous facts, sequences of impulses and organized waves are being analysed as geohistorical movements of matter/information and environmental formations built on its base. Such an approach is capable of unmapping the processual mechanics of the sonorous field by auditing transformations of sonic flows as various resonating entities organized in territorial movements within a sociopolitical context as well as that of the art.

In the chapter of *Anti-Oedipus* dedicated to schizoanalysis (Deleuze and Guattari 1983: 273–383), Deleuze and Guattari ask: How are partial objects combined within various abstract systems? What chains of connections and filters are decoding the fluxes? This question opened a path that was developed in *A Thousand Plateaus* in the concept of transcoding or transduction (Deleuze and Guattari 1987: 314). Philosopher of technology Gilbert Simondon supposed it to be “the individuation of real itself” (Simondon, quoted in Barthélémy 2012: 230). Transduction delineates transformations of processed energy: voltage, current rate, sense, or any other data. Originating in the “Mathematical Theory of Communication” by Claude Shannon, this notion is used to “represent mathematically operations performed by the transmitter and receiver in encoding and decoding the information” (Shannon 1948: 394) and defines the virtual space between transmitters and receivers as chains or sequences of transducers as subjects: they even can be “connected in tandem and the result is also a transducer” (Ibid).<sup>3</sup> In sound studies, the concept of transduction (or transcoding) is used to criticize the philosophy of “travelling sound,” which postulates the ontological association of sound with movement (a pneumatic conception of the sonic). Such a critique, even if it proposes “thinking not with, but across transduction” (Helmreich 2015: 229), implies the re-constitution of transcoding as a concept. Some sound scholars, however, reject this notion as the property of “engineering cultures represented in the nineteenth-century military dispositive” (Schulze 2018: 92). One of the earliest authors of sound studies, Jacques Attali uses the concept of transcoding when he speaks about music as the channelization of sonorous forces into modes of musical production, which are

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<sup>3</sup> For more on the concept of transduction and sound studies, see Safonov (2019).

composed with transformed codes of social organization (Attali 1985: 35). Attali concludes that post-repetitive (i.e., after the twentieth century) mode of the sonorous economy is a mode of *composing* (Attali 1985: 133–49), a regime of constant territorializations of the material-informational content (recorded tracks) and environmental-agential expressivity (assembled distribution of mixes) which gives rise to the new forms of value within capitalism. Such a forecast seems to be relevant nowadays, after many questions as to the substantiality of art and scientific processes have been posed by new electronic technologies and questions about the algorithms of distribution have been posed by renewed market conditions. Inventions of recording and reproducing sound, the integration of non-musical objects and the space itself into the performance, experiments with temporality, improvisation, automation, computational aesthetics and so on—all these innovations have deterritorialized the flux of sonorous forces, multiplying the number of possible sonic practices as well as the material chains of equipment and instruments. Such a deterritorialization requires not only “new skills” but new thinking, which is proposed as *sonic thinking*.<sup>4</sup>

Steve Goodman’s “Ontology of Vibrational Force” seems to be a draft of the sonic thinking program:

An ontology of vibrational force delves below a philosophy of sound and the physics of acoustics toward the basic processes of entities affecting other entities. Sound is merely a thin slice, the vibrations audible to humans or animals. Such an orientation therefore should be differentiated from a phenomenology of sonic effects centered on the perceptions of a human subject [...] While an ontology of vibrational force *exceeds a philosophy of sound*, it can assume the temporary guise of a *sonic philosophy*, a *sonic intervention into thought*, deploying concepts that resonate strongest with sound/noise/music culture, and inserting them at weak spots in the history of Western philosophy, chinks in its character armor where its dualism has been bruised, its ocularcentrism blinded. (Goodman 2012: 70, own emphasis added)

Goodman’s ontology is not only focused on overcoming the classical dualism of Western thought (subject/object) and “blinding its ocularcentrism.” It is first and foremost a piece of systemic thinking (how things organize themselves and reorganize themselves in the nexus of relations) and abstract modeling (what patterns of organization reveal in the process of such interactions): “if we subtract human perception, everything moves” (Goodman 2012: 71).<sup>5</sup>

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<sup>4</sup> For more on the concept of sonic thinking, see Herzogenrath (2017).

<sup>5</sup> There could be an exploration of the common Bergsonian roots of Deleuze

Two pages of Goodman’s proposal are full of negative definitions, but on the final page he comes up with the primal concern: “texturhythms of matter, the patterned physicality of a music beat or pulse, sometimes imperceptible, sometimes [...] visible.” He also places the ontology of vibrational force in three “disciplinary detours: philosophy, physics and the aesthetics of digital sound”: “An ontology of vibrational force forms the backdrop to the affective agency of sound systems (the sonic nexus), their vibrational ontology (rhythmanalysis<sup>6</sup>), and their modes of contagious propagation (audio virology),” and gives way to the concept of sonic philosophy as sonic thinking (Goodman 2012: 72).

Holger Schulze claims that sonic thinking (together with the sensory) is a part of corporeal thinking. Corporeal thinking is a corollary of the historical development of sonic science since the nineteenth century (quantifying sound, extracting sonorous objects—materializing listening, embodying technology—corporealizing the senses, territorializing agencies). It is an *immanent practice* that “starts with *corporeal* and *experiential* tensions, with a sense for situated, for argumentative, and for social bodies, for forms of *cohesion*” (Schulze 2018: 73, own emphasis added). Schulze’s account of nanopolitics (2018: 163–66) is a concretization of micropolitics in the sphere of the sensational experience immersed into the dispositive structure of sonic technologies.

Consequently, sonic thinking analyzes auditory apparatuses (predispositions and abstract machines of cultural generativity), tackling sonorous processes as “epistemic qualities of conceptualizing the relations between or statuses of things” and “directing attention towards physiological, mental and imaginative processing of sound as a perceived phenomenon, understanding corporeality as a dimension of the sonic” as well (Gerloff and Schwesinger 2017: 176). Thus, sonic thinking is capable of producing variative conceptual models that describe territorial systems developed *on* or *by* the sonorous forces with inhuman actors included.<sup>7</sup>Such an analysis remains a “critical-clinical anthropology”<sup>8</sup> of Deleuze

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and Whitehead, especially within Goodman’s attempt to upgrade Deleuze and Guattari in a mixture with the process metaphysician. Moreover, today one can notice a trend to override Deleuze and Guattari with another American systemic thinker: Wilfried Sellars (e.g., in the works of Ray Brassier and Reza Negarestani from the neorationalist camp or Will Schrimshaw in the sound studies field). This all deserves further scrutiny that is not in the scope of this paper.

<sup>6</sup> In *A Thousand Plateaus*, the concept of rhythm (within the problem of the refrain) is left underdeveloped, and Goodman adds to it Gaston Bachelard and Henri Lefebvre’s perspectives on rhythmanalysis in order to fill this Deleuzian gap (Goodman 2010: 85–95).

<sup>7</sup> Variations on the topic of sonic thinking can be found in Herzogenrath (2017).

<sup>8</sup> See Andrew Culp’s article in this issue for details.



and Guattari—a method focused on redefining and making sense of the boundaries between the human and nonhuman in the ecological domain of *territoriality*.

## Phenomenology, Eventalism, and Schizology

For Goodman, paths for the ontology of vibrational force (or the inhuman sonorous ecology) are localized between reductionist materialism and phenomenological anthropocentrism. The former reduces sounds to quantifiable objects and neglects incorporeal affects, whereas the latter “denigrates the vibrational nexus at the altar of human audition” and neglects nonhuman participants of the nexus (Goodman 2012: 71).

François Bonnet in his project of *dynamic economy of sonorous situations* (2016: 325), stresses the necessity of focusing attention on the labor of the inhuman by investigating zones of the inaudible sonorous and criticizing the human authority of listening. Goodman’s brief comment on the back cover of Bonnet’s *The Order of Sounds: A Sonorous Archipelago* (2016) tells us that Bonnet’s approach “tiptoes through a minefield laid out by both a discursive imperialism that forces the sonorous to speak and the false promise of direct access made by ontologies of sound” (Bonnet 2016). Primarily, Goodman questions here any ontological approach to the sonorous, as does Bonnet: “There is no essence of sound and therefore there is no ontology of sound to be discovered or established” (2016: 324).

Throughout his book, Bonnet questions most of the approaches to the sonic in earlier sound studies, for instance Pierre Schaeffer’s obsession with the typomorphology of *sound-in-itself*, or Raymond Murray Schafer’s fear of contemporary *schizophonia* and the desire to listen only to hi-fi soundscapes in the Heideggerian countryside. The proposed *schizological* approach owes a lot to the project of schizoanalysis and is a middle way between phenomenological and eventful approaches to the sonorous. For phenomenologists, sound presents itself (or appears) only as targeted by intentionality. For eventfulists, sound exists independently of its sensible address, only “when the event takes place.” The schizological perspective, according to Bonnet, “is not to reduce sound to a physical-phenomenological composite object. It’s rather a matter of considering sound under its twofold aspect of phenomenon and event without ever attempting a synthesis of the two” (Ibid.: 91).

The main subjects of schizology are: extraction of sense from the sonorous, symbolizing it and making listening the instrument of authority and power, rendering it into textual or other visible informational mediums, the divided nature of sound and effects produced *by* and *in* the sonorous field (reflections, temporal distortions, illusions, etc.). One of the most important tasks is to establish *a logic of the separated*, a thought

capable of grasping the sonorous in total multiplicity of its appearance. Separated sound is localized both in the place of a vibratory event and on the paths of its propagated consequences. Schizologist Bonnet argues that the nature of sound can only be a nature separated from itself. This is not a philosophical naturalism (supposed by Kane to be an extension of a Deleuzian metaphysics): “Rather than a nature of sound, there is a *range* of sound” (Bonnet 2016: 92)—it is a *dynamic synthesis* of the phenomenal and eventful nature of the sonorous, grounded in the oeuvre of Deleuze and Guattari.

## A Map Unfolds a Territory: Schizoanalysis and Pragmatics

Schizoanalysis is connected to Professor Challenger, a hero of Arthur Conan Doyle, who visited the center of the Earth and “claimed (?) to have invented a discipline he referred to by various names: rhizomatics, stratoanalysis, nomadology, micropolitics, pragmatics and the science of multiplicities” (Deleuze and Guattari 1987: 43). The object of schizoanalysis is explicated in the chapters of *A Thousand Plateaus* dedicated to linguistics and language, especially in the chapter 5, “On Several Regimes of Signs.” Schizoanalysis is equaled to *pragmatics* (an area of linguistics interested in speech acts and effects of context), but pragmatics of a particular nature. In chapter 3, “The Geology of Morals,” the authors tell us that Professor Challenger, the “inventor” of schizoanalysis, “preferred to cite [...] the Danish Spinozist geologist, Hjelmslev” (Deleuze and Guattari 1987: 45). Louis Trolle Hjelmslev, founder of the Copenhagen School of linguistics, built his alternative version of Ferdinand Saussure’s structuralism and grounded it in a distinction between content and *expression* (Hjelmslev 1963 [1943]: 47). These notions became crucial for Deleuze and Guattari in revealing the main concepts of their project. A distinction between content (regimes of bodies and physical systems) and expression (functional structures and regimes of signs) is applied in various forms to their analyses of the social field.<sup>9</sup> Originally being the alternative to the signifier/signified pair, planes of content/expression are “detached” by Deleuze and Guattari from the problem of language: “Despite what Hjelmslev himself may have said, his net is not linguistic in scope or origin” (Deleuze and Guattari 1987: 45).

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<sup>9</sup> There are actually five notions in Hjelmslev’s net: matter, *form* and substance, content and expression. There are indistinct and unformed matters. Chosen matters are substances. Matters chosen in certain order are forms. There are forms and substances of content. There are forms and contents of expression. Content and expression are “*really*” distinct (Deleuze and Guattari 1987: 43).

Proposed pragmatics (or schizoanalysis) deals with regimes of signs and abstract machines produced by their mixtures. A regime of signs is “any specific formalization of expression” (Ibid.: 111) and constitutes a semiotic system, which always depends on the forms of content (regimes of physical bodies) and thus is never purely linguistic. This particular point is very important for understanding that Deleuze and Guattari kept the problem of language in their work and grounded it in their theory of social and natural forces. Schizoanalysis (or pragmatics) consists of:

*tracing* of the mixed semiotics, under the generative component; making the transformational *map* of the regimes, with their possibilities for translation and creation, for budding along the lines of the tracings; making the *diagram* of the abstract machines that are in play in each case, either as potentialities or as effective emergences; outlining the *program* of the assemblages that distribute everything and bring a circulation of movement with alternatives, jumps, and mutations. (Deleuze and Guattari 1987: 146)

*The object* of schizoanalysis has four components: generic (regimes of signs are mixed by forms of expression), *transformational* (regimes are transformed into each other), diagrammatic (only traits of content and expression remain—physically formed matters and semiotically unformed matters respectively), and *machinic* (with abstract machines semiotizing matters of expression and physicalizing matters of content) (Ibid.: 145).

Thus, schizoanalysis deals with a sort of schematization: the tracing-mapping-diagramming-programming sequence is a cartography of “abstract machines and concrete machines” and “cycles of assemblages” (Guattari 2013 [1989]: 94–103). The problem of cartography is highly problematic in the contemporary condition of so-called speculative realism. For instance, a debate by Reza Negarestani and Levi Bryant, circling around Alfred Korzybski’s phrase “A map is not a territory,” shed light upon the *neorational* and *postphenomenological* approaches to the cartographic problem, while their difference can serve as the amplification of difference between “phenomenological anthropocentrism” and “reductionist materialism.”<sup>10</sup> In sound studies, the cartographic problem is remarkably summed up by Bonnet:

What model or map delivers is the objectification of experience via the representational operation provided by a system of language.

<...>

The Sonorous cartography is at once materialized tendency and metaphor of the territorial logic that animates the sonorous world. The ef-

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<sup>10</sup> Xenogothic (2018). Patchwork Is Not a Model (Part 3). Published online: <https://xenogothic.com/2018/10/02/patchwork-is-not-a-model-part-3/>

fects of the application of territory to sound appear at two levels: [...] authoritarian approach making listening a stake of power <...> and symbolic approach making the supplement of sound its very reason.

<...>

The audible is the sonorous that opens up a potential territorialization. (Bonnet 2016: 244–248)

Again, there is an attempt to go through the “minefield laid out by both” two tendencies in redefining the physical and expressive conditioning of rendering the sonorous audible and writing it (mapping out and unmapping it). This is a question both of (in)human boundaries and ecological thinking. The task is not to represent a territory in a map, but to unfold a territory by the means of cartography.

The schizoanalytic cartography outlined in *A Thousand Plateaus* maps out the basic structure of inhuman ecology, tracing the articulation of content and expression in *stratified assemblages* that extract *territories* and, being operated by *abstract machines*, are effectuated by the processes of deterritorialization and reterritorialization. In some sense, Deleuze and Guattari at the same time universalize and concretize the concept of the apparatus (*dispositif*) by Michel Foucault in an attempt to develop an *abstract cartography of apparatuses* connected to the microsocial, planetary and even cosmic forces.

The geophilosophical method of Deleuze and Guattari posits a problem of delineating the limits of sonorous cartography. It can be applied to various areas of the social field adjacent to the sonorous. A brief outline of various sonorous abstract machines will serve as a methodological sketch for the perspective detailed analysis of the cultural machines of electronic dance music (EDM) and intelligent dance music (IDM); the political machine of Cuban Noise; the geomythological machine of the Earth’s hum, connecting microsocial and cosmic forces.

## Various Sonorous Abstract Machines

The sonorous field does not produce concepts, but they can be “rendered sonorous or musical” (Deleuze and Guattari 1987: 477). Concepts are not synthetic results of the content and expression distinction—they compose this distinction itself, keeping it real. Forms of sonic thinking are expressed by the sonorous content. This content expresses itself in the logic of separated events, whether they occur in a resonant body, an imagination of the receiver or in the effects of interconnected systems (electromagnetic surfaces, natural processes, audio systems, acoustic weaponry, musical history and so on).

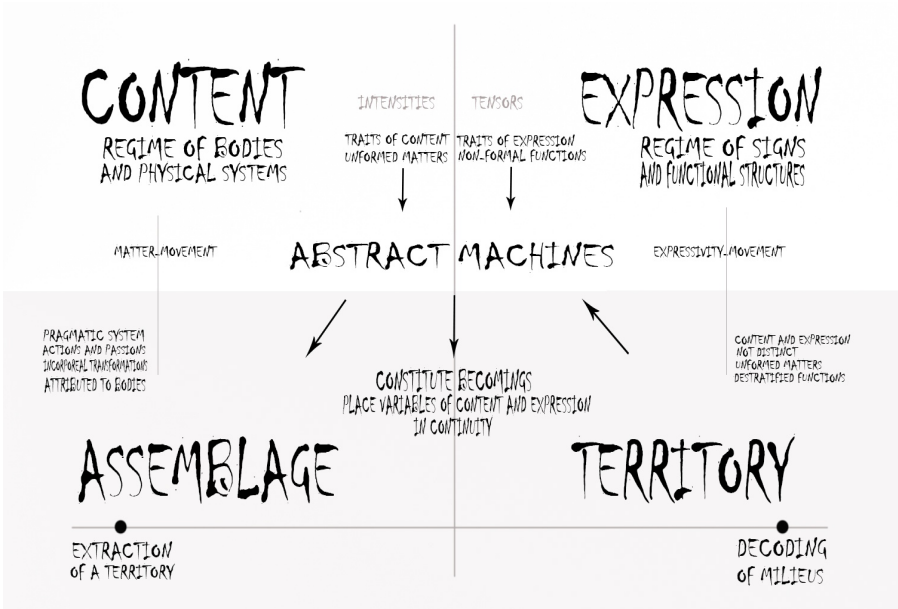


Fig. 1. Scheme for a geophilosophical cartography

music type (selection & organization of sonic objects)	social-communicative organization	object of control & alienation	representational environment dominant structure	subordinated subjectivity	idea of freedom	free observer
church tradition (until XVI)	feudal tyrannies	life	religious myth	slave	philosopher	ascetic
secular composers (until XVIII)	vassal empires	body	patriarchal colonisation	soldier	citizen	author
academic, written (until XX)	bourgeoisie republics	time	techno-scientific democratisation	worker	bourgeois	flaneur
rock-n-roll, popular song (until 1990-s)	capitalist democracies	voice	totality of tele-spectacle	consumer	star	situationist
electronic underground (until 2005s)	global market	desire	media-marketing	spectator	designer	anarchitect
experimental non-academic (until 2020s)	network international	identity	techno-social communications	avatar	blogger	semiomaut
rhythmanalysis	non-local microcultures	connections	augmented everyday	ID/IP	artist	spectre

Fig. 2. Sergey Ogurtsov (2019). *Representation Environment of European Modernity Through the History of Music*. Rights given by author to publish here for the first time.

1. EDM/IDM Machines

Andrew Culp (2019) demonstrates the cartographic method in the form of a table representing the clinical types of capitalist personae: savages, barbarians, and civilized men. His approach to Deleuze and Guattari extensively uses charts (as well as Deleuze and Guattari themselves) in the form of a table *representing the conceptual structure* of the authors' thought. Schizoanalytic chart method can also be applied to art critique. For instance, in order to upgrade the generalized Marxist genealogy of the sonorous economy by Attali, artist and critic Sergey Ogurtsov made a chart for our collaborative art project dedicated to rhythmanalysis.<sup>11</sup> In this chart, Ogurtsov highlights and composes the complex adventures of images, environments, objects, and ideas, mapping out the microtendencies within the sociosonorous field.

Attali presents his genealogy<sup>12</sup> as the linear history of capital destroying itself and decentralizing power up to the point where "taking power" is no longer possible in a repetitive society, and the only way to arrive at the new social order is to create new codes for producing concepts or, again, of rendering them sonorous. Ogurtsov's chart demonstrates that environmental dominant structures of representation are connected to other categories of the social-communicative codification and compose assemblages of forces territorialized by the positions of subordinated or illusionary subjectivities, ideas of freedom, free observers, and objects of control and alienation: all these abstract machines constitute becomings of musical types.

Deleuze and Guattari would answer Attali that there is a variety of types of repetition or repetitive modes, since the problem of *the refrain* is the fundamental one of music as art. Although, the repeating mode of production, together with the development of new audio technologies and their integration into the experimental electronic music scene after the 1950s, has accentuated it extremely.

This accentuation of the problem of the refrain is evident in the evolution of electronic dance music (EDM) with its roots in the postwar German *Krautrock* (or *Kosmische Musik*) movement, which absorbed earlier innovations of avant-garde musicians and engineers (such as Pierre Boulez and Pierre Schaeffer in France, and Karlheinz Stockhausen in Germany). On one hand, Krautrock musicians were some of the first to attempt integrating non-musical objects and background noise into compositions, producing variations of local cultural genres. On the other

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<sup>11</sup> Published online: <https://were-landing-as-they-fell---esis.bandcamp.com/>

<sup>12</sup> From *sacrificing* (with musicians always present at the ritual events and noise itself connected to the divine interventions such as the delivery of Tables of Law) to *representing* (during which Western canons of classical music developed, mirroring the distribution of power, values, and hierarchies) and afterwards to *repeating* (producing molds or models for the market).

hand, in resisting classic rock and its compositional frameworks they developed a *machinic beat*, which became the grounding for techno music and EDM as such. This instrumental repetition, similar to the beat of the assembly line (or a human heart), was the inevitable mutation within the repeating mode (Kotsopoulos 2009). Resistance has also been revealed by territorial movement: being opposed to US colonial expansion on the level of mass media and imported American rock, Krautrock (through the channel of *Kraftwerk*, who simplified the ideas of the movement) made it possible for techno to be deployed in Detroit and then bounce back to German minimal wave (which deals with the micropolitics of rhythm), always in tension with the UK-hardcore technologies (with its punk roots, tribal rhythms, and affective contagion). Always connected to the apparatuses of backers providing the equipment and other means of production (Esch 2016: 185), krautrockers dehumanized the instruments by the means of sonic synthesis (Ibid.: 33), and produced singular sonic situations in the performances. It was calling for another deterritorialization—the becoming of intelligent dance music (IDM), using machinic potentials of computational aesthetics and digital interfaces in order to make dance rhythms inhuman and smooth the striated EDM establishment in a dance of intelligence. Here we can see several separate events of formal development produced by the parallelism of content and expression.

There is one distinct difference between Attali's perspective on the evolution of power in the social field and that of Deleuze and Guattari in *A Thousand Plateaus*. The former analyzes historical regimes of production as they follow each other, while the latter presupposes the existence of recurring cycles of transition between nomadic distribution of forces and their sedimentation within apparatuses of capture or between smooth and striated spaces. Desiring Machines (*Anti-Oedipus*) become Desert Machines (*A Thousand Plateaus*) and vice versa.

Originally created by Boulez in order to make perceptible “the difference between nonmetric and metric multiplicities, directional and dimensional spaces,” striated and smooth spaces are “susceptible to two kinds of breaks: one is defined by a standard, whereas the other is irregular and undetermined” (Deleuze and Guattari 1987: 477). Deleuze and Guattari conclude that these two kinds of space exist only in mixture and constantly translate each other: smooth (“free” in the simplest terms) is always transversed into striated (“occupied” in the simplest terms), and striated is always reversed or returned to the smooth.

Krautrock emerged from the desert of the devastated Nazi culture, a smooth space that had been continually striated by the Allied Occupation and its powerful entertainment apparatuses. The smooth space, which arose as a result, was striated by the market again under the name of *Kraftwerk*—a band that were to a great extent responsible for the deployment of techno culture into the smooth space of the Detroit desert, with

its devastated industrial landscapes and racial crisis. Afterall, IDM was a becoming of the smooth assemblage within the striated cultural territory of the global dance entertainment economy. Media marketing is displaced by techno-social communications, the global market—by international networks, the persona of the anarchist transforms into semionaut (fig. 2).

Of course, such a schizoanalytic sketch of the history of electronic music is incomplete, but it points to the substitution of the refrain problem (or repetition and difference) by the problem of rhythm: the acceleration of economic exchange leads to the multiplication of rhythms (of production and consumption, of invention and ossification, of resistance and relief). To understand abstract machines that are in motion today means to pay greater attention to rhythms, whether within the sonic arts or the social field.

In his unfinished project, *Rhythmanalysis*, French Marxist thinker Henri Lefebvre defines rhythm as a result of interaction between place, time, and the expenditure of energy (2004 [1992]: 15), and seeks to establish a general theory of rhythm as the base unit of matter. For Lefebvre, there are four regimes of rhythm: *isorhythmia* (equality of rhythms), *polyrhythmia* (composition of different rhythms), *arrythmia* (rhythms broke apart and bypassed synchronization), and *eurhythmia* (association of different rhythms) (Ibid.: 67). Rhythm itself is a process of both the production and destruction of time, or the manipulation of time (transduction of time). It is a differentiated time: a duration that has become a quality.

It is indicative that Lefebvre's short book introducing rhythmanalysis was published at the start of the 1990s, when rave culture was dawning, especially in the UK. As Simon Reynolds (2010) argues, it was not the foundation of some popular culture (as it appears to be nowadays), but a unique continuum (*hardcore continuum*) expressed by shifts in style, significant changes in technology and mutations of rhythms, an assemblage of rhythmachines and their variable material-informational properties. It seems that the content of new audio technologies, together with the drastic development of pirate broadcasting systems and underground cultural spaces, was accompanied by a multiple expressivity of local culture. The variability of expression grounded the becoming of the IDM machine, which used the possibilities of computer programming (previously developed by avant-garde academic composers such as Iannis Xenakis) in order to reassemble repetitive beats and static grooves into the kaleidoscope of unpredictability (although still relevant for dancing). As many other events of resistance to law in the cultural field of the UK after the 1950s, the transition from EDM to IDM was accompanied by a strong political reaction.

The week-long Castlemorton Common Festival held in the Malvern Hills in England in May 1992 inspired the legislation that would become



the Criminal Justice and Public Order Act in 1994. One of its chapters is titled “Powers to Remove Persons Attending or Preparing for a Rave,” and right at the start of it one can find the simplest definition of music: “‘Music’ includes sounds wholly or predominantly characterised by the emission of a succession of repetitive beats.”<sup>13</sup>

In response, British duo Autechre (famous for their complicated rhythmic algorithms) protested against it in the form of their *Anti EP* (1994), the sleeve notes of which states:

Warning: Lost and Djarum contain repetitive beats. We advise you not to play these tracks if the Criminal Justice Bill becomes law. Flutter has been programmed in such a way that no bars contain identical beats and can therefore be played at 45 or 33 revolutions under the proposed law. However we advise DJs to have a lawyer and musicologist present at all times to confirm the non-repetitive nature of the music in the event of police harassment.

Important: By breaking this seal, you accept full responsibility for any consequential action resulting from the product’s use, as playing the music contained within these recordings may be interpreted as opposition to the Criminal Justice and Public Order Bill. (Autechre 1994)

The conflict is rendered sonorous (and musical): whereas the apparatus of capture defines the rhythmic structure of dance music according to the repetitiveness of its beats, the nomadic movement is smoothing the rhythmic structure by disrupting beats, but still holding the groove of the track, “Flutter.” Musical forms, being “replaced in electronic music by pure modifications of speed” (Deleuze and Guattari 1987: 267) and regimes of bodies (performers, chains of electric equipment, dancers, police) interact with regimes of functional structures (rhythms of styles, events, and everyday life) producing the modification of rhythm: repetitive beat (or meter) measuring time is full of breaks and disruptions, compression and stretching, which compose the flow of grooves, and associations of rhythms.

## 2. Cuban Noise Machine and Hum Machine

The invisibility of the sonorous, its elusiveness, provides broad possibilities of speculation. The case of Cuban Sonic Attacks on US diplomats in 2017, known in the media as “Havana Syndrome,” (Entous and Anderson 2018) occurring the year after Barack Obama’s celebration of the thaw in relations between the two countries, demonstrates how *several regimes*

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<sup>13</sup> Criminal Justice and Public Order Act 1994, 63.1(b). <https://www.legislation.gov.uk/ukpga/1994/33/part/V/crossheading/powers-in-relation-to-raves>

of noise emerge in the expression of physically unformed matters by the CIA, FBI, NSA, and various scientists. Some of the victims of mysterious attacks remember the sensations of the wave pressure in their heads, “as if they were standing in an *invisible beam of energy*,” some of them highlight their hearing an intensive noise during the attacks (Ibid.). Since then, diplomats and intelligence officers have suffered a variety of health problems, including headaches, hearing loss, memory loss, and nausea, their bodies becoming inhuman. Donald Trump’s administration blamed the Cuban government and began an investigation, a complicated undertaking due to the fact that such attacks would leave no physical (or *visible*) evidence at the scene: no shell casings, no burn marks, no chemical residue. The “attacks” have gained substantial media coverage and have produced various hypothetical explanations. The Cuban Noise (the affliction didn’t have a name, so some of the victims started to refer to it simply as *The Thing*) was interpreted as “concussion without concussion,” (Swanson et al. 2018) microwave or radiofrequency exposure (Golomb 2018), or mass hysteria (due to a similar incident in China and Canada).<sup>14</sup> Moreover, the parameters of the recorded sound released by the Associated Press have led scientists to the hypothesis of crickets being involved (Stubbs 2018), disturbing the hearing organs of the diplomats due to their lack of experience in listening to the rhythmic soundscapes organized by these insects. The *diagrammatic component* here contains traits of content, physically formed matters (affected bodies, minds of the diplomats, and recorded sound released), and traits of expression, semiotically unformed matters (debates on the issue, public announcements as well as the interests of various groups). The abstract machine of Havana Syndrome, fueled by fear and suspicion rendered the tension in the US embassy sonorous, semiotized matters of expression and physicalized matters of content, whereas the source of the event still remains unknown. A deterritorialized flux of vibratory powers forced the sonorous to speak and was split into various mythological personifications of natural or military order: deserts of the sonic have become the assemblages of political desires.

We can go further and connect geocultural and geopolitical sonorous forces to the personifications of the cosmic abstract machines—geomythological creatures. The *Earth’s hum*, spreading low frequency oscillations all over the planet and its atmosphere, has invoked a variety of explanations:<sup>15</sup> from specific medical conditions (tinnitus, which is far from being solved), industrial (Very Low Frequency radio systems, mining, marine or air traffic, submarines etc.), geological (the planet’s permanent free oscillations caused by earthquakes or during their absence at

<sup>14</sup> <https://www.washingtonpost.com/world/2018/12/03/another-diplomat-was-diagnosed-with-havana-syndrome-heres-what-we-know/>

<sup>15</sup> World Hum database blog: <https://hummap.wordpress.com/2017/12/09/lets-review-the-four-competing-theories-regarding-the-source-of-the-world-hum/>

the bottom of oceans), and even extraterrestrial ones (Schumann resonances). Matters of expression, semiotized on a hypothetical level, at the same time physicalize matters of content on the level of concrete sciences and global processes. Planetary forces connect natural and artificial effects and render them sonorous, even if they are inaudible. Such a dynamic economy of sonorous situations reveals concepts by tracing their mixed outcomes, mapping their propagation, and establishing diagrams and programs of the distribution of forces. Whereas such geomythological entities as Hum are products of the social imagination and scientific creativity, their specific processual territoriality is being personified in separate fields by putting forward objects for the categorization of its aspects (intensities, patterns, and dimensions). Thus, the case of the Earth's hum evokes a discussion on the role of material-conceptual knowledge of art in synthesizing scientific perspectives on the coexistence of different entities (Mikkola 2016).

Various abstract machines connect the microsocial and the cosmic territories of the sonorous. They are, as Deleuze and Guattari tell us “inseparably political, economic, scientific, artistic, ecological, cosmic,” and each one of them is linked to another because their various types “are as intertwined as their operations are convergent” (Deleuze and Guattari 1987: 475). Together they serve as objects of the inhuman sonorous ecology, rising from concrete material-informational regimes of content to the abstract environmental-agential regimes of expression. Their scale is constantly shifted: microsocial transduction can effectuate to a certain degree the macroecological one. Sonic thinking finds here a necessary cartographic extension—a practical knowledge of programs, diagrams, maps, and tracings.

## **Conclusion: Deserts of Forces**

Developing new metaphors for the sonorous field is not just a poetic operation of reimagining its substantiality. It is first and foremost a materialized tendency, connecting the abstract machines of different sound scholars related to sonic thinking, with their ideas deterritorializing the flux of sonic philosophy. However, such a Dionysian pathos at some point requires systemic clarification. That is why the movement from-scapes to oceans is followed by the invention of territorial approaches to the sonorous: being inhuman and ecological, they provide an alternative way of representing the sonorous abstract machines that are at play in the contemporary conditions of the social field. Deserts of sonorous forces are not absolutely chaotic or deterritorialized space-time continuums, but they are extremely complex to unmap due to the specific regimes of sound appearances.

Schizoanalysis has already played an important role for sound studies, as it is implied by a great number of different thinkers in various forms—both materialists and phenomenologists—interested in the logics of sound events or sonic sensations. But nowadays it is productive to reconsider the territorial aspects of this method—for instance, in the task of delineating the limits of sonorous cartography. Machinic unconscious, arrhythmic transduction processes, assemblages and dispositifs, governed by abstract machines, produce the inhuman sonorous ecology, affectuating bodies on both micro- and macro levels. That’s why an emerging *sonic thinking* can benefit from the inhuman and ecological reading of *Capitalism and Schizophrenia*, ungrounding its conceptual structure from the perspective of sound studies. The central concept of territoriality can provide means of connecting the transformations of vibratory powers—from the nanopolitics of sonic situations to the Earth’s hum hyperobjects, and from the material-informational to environmental-agential levels and backwards.

Deserts distribute particles of sand, smoothing the landscapes and organizing assemblages of dunes operated by the abstract machines of wind, which are partial objects of the Earth Machine. The surfaces of deserts can be striated by paths: nomadic distributions, reterritorializable into apparatuses. Sonorous deserts find themselves all over the social field—in the smooth landscapes of devastated industrial economies, in auditory hallucinations and sonorous illusions, in atmospheric processes, transcoding energy alike current circuits of filters, distortions or delay machines in an electronic performance. Movements leave traces in a landscape, always already disappeared, horizon is fluctuating or even invisible, any action is at the same time rule-governed (logical) and pattern-governed (situational). The inhuman ecology of sonorous deserts provokes flexible cartographies, attentive to alterations, variations and indistinct noise: they compose the movement itself. When the smooth space is regulated by its translation into the striated space, “one organizes even the desert.” When the striated space is reversed to a smooth space, “the desert gains and grows; and the two can happen simultaneously” (Deleuze and Guattari 1987: 475).

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