

A LIBERATED SONIC SUBLIME: Perspectives On The Aesthetics & Phenomenology Of Sound Synthesis

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ABSTRACT

In this paper I will investigate the aesthetics of electronic sound synthesis, materiality and the contemporary sublime in an analysis and discussion of interrelated phenomenological, philosophical and cultural considerations through chosen sound and music examples. I argue that the aesthetic experience of sonic timbres that seem unearthly to us resembles that of a transcendental sublime in the uncanny experience of the synthesis of both known and unknown sounds. Both experimental music and “switched-on” reinterpretations are addressed through explorations of sound in time, space and technology and I discuss if we as listeners are able to differentiate materiality from its superficial cognates when challenged by sonic doppelgängers. Concepts of sonorous perception are taken into account from a phenomenological point-of-reference with the purpose of discussing a Varèsian liberation of sound synthesis, arguing the transcendence of the boundaries in the physical world being possible through the aesthetics surrounding an unfathomable technological sublime in the art and infinite sea of possibilities of synthesizing electricity.

1. INTRODUCTION

In the creation of an electronic sound, analog or digital, the synthesized sound can, roughly speaking, be described as either resembling a natural sound, e.g. a physical model or something from nature itself, or the sound can be non-specific and its liking non-existent in the physical world. It serves this paper to use the descriptions made by Steven R. Holtzman [1] about these types of sound synthesis being either “standard” or “non-standard”, alongside John Chowning’s [2] notion on “known” or “unknown” timbre and my own definitions of “familiar” and “unfamiliar” sounds. This division in synthesis methodology in many ways resembles when we as listeners react and try to put into words the aesthetic experiences of listening to electronic sonic timbres: We can either relate the sounds to something we know from the natural world or our traditional ecological knowledge [3]

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of music, or we can ultimately try to fathom the sounds in their own existence and in conjunction with one another to provoke a mood, emotional and/or sensory relation within the listener. The objectification and paradox in the effort of materializing sound becomes a personal aesthetic judgment of timbre and Kantian aesthetics [4], but I will later in this paper argue that it is in fact an active participation in a phenomenological *liberation of sound* in continuum of the idea presented by Edgard Varèse [5] in 1936. I do acknowledge specific types of synthesis – additive, subtractive, FM etc. – with regards to their different timbral qualities, albeit theory in this area does not serve any major importance for the points made in this discussion as it is mainly based on aesthetics.

In this paper I will firstly discuss the nature of sound synthesis in connection with Freud’s [6] notion of *the uncanny* through a phenomenological and sensory-based viewpoint in the relation between perception and the ambiguous materiality of sound synthesis. I will elaborate on these concepts in connection with the aesthetic experience as presented by Goldman [7] through various theoreticians and philosophers, and later with the contemporary sublime [8]. All discussions will be exemplified through examples of chosen sound and music that benefit the argument of this article in the case of aesthetics and not in depth in relation to music theory, psychoacoustics or mathematics, although I acknowledge the importance of these factors. Finally I will reflect on the topic by discussing the significance of a phenomenological revisit to Varèse’s *liberation of sound* in the experience of both 20th and 21st century electronic sound synthesis and music through modern aesthetics and the contemporary sublime.

2. SONOROUS PERCEPTION, AESTHETICS & SPATIALITY

There is a fundamental phenomenological interest present in the discussion of the synthesis of familiar and unfamiliar sounds in terms of sensory perception that needs to be addressed from its origin. In his book, “Phenomenology of Perception”, Maurice Merleau-Ponty [9] makes a distinction between what he (through the terminology of neurologist Kurt Goldstein) calls *zeigen* and *greifen* [ibid.,] (p. 116), meaning roughly the movements of *pointing* and *grasping*. He hereby assesses the differences in perception in terms of vision and hearing, and argues that:

“[...] sound, of itself, calls forth [...] a grasping movement, while visual perception calls forth a designating gesture.” [ibid.] (p. 116)

The idea is that sound is something we connect to the movement of grasp, i.e. tactile cognition – what one through Merleau-Ponty’s notions of “sonorous stimuli” and “auditive sensitivity” [ibid.] might define as a type of *sonorous perception*, much alike Juhani Pallasmaa’s [9] dividing of vision and hearing into experiences of *exteriority* and *interiority*. When we make an aesthetic judgment of music or sound we tend to use these references of tactility, something interior: A sound can be perceived as hard or soft, coarse or delicate, cold or warm etc. In the realm of musical metaphors perceptual signifiers, as Back [11] argues, are some of the only culturally based descriptive means in terms of moving towards an abstract language in music, as “The step from abstraction to abstract representation has not yet fully occurred [...]” [ibid.] (p. 164). Of course, in the experience one also relates music, as with any art form, to a certain feeling or mood, but, as Alexander Baumgarten [7] would argue, the aesthetic is first and foremost “[...] cognition by means of senses, *sensuous knowledge*.” (p. 255, my italics). This conclusion corresponds through its almost empiristically epistemological sense with Merleau-Ponty’s concepts of sonorous perception in terms of the experience of sound in oneself, in the spatiality of one’s own body and one’s psychoacoustics:

“Sound always directs us towards its content, its signification for us; in visual presentation, to the contrary, we can much more easily ‘abstract’ from the content and we are much more oriented toward the location in space where the object is situated.” (from Goldstein’s (1931) “Über Zeigen und Greifen”, cited in [9] p. 116)

In the realm of space and time in terms of sound appearing in the world, one could argue that sound we *know* from and sensory perceive in the natural world, as opposed to a synthetic sound, appears in an acoustic environment in time and therefore exists. The spatiality of one’s own body and the spatiality of the physical world are perceptually inseparable, but the distinction between the two corresponds in certain ways with when we, in the experience of sound, relate what we *hear* to what we *know*; We expect the noise of the world to resonate with the noise of the body. This is evident in the medium of recording technology, which is arguably a method for remediation and the manipulation of spatio-temporality for a repeated and identical experience via playback. Here follows an example:

In 1937 Olivier Messiaen premiered his piece “Oraison” [12], also known as the fifth movement of the “Fête des Belles Eaux”; a site specific composition played from tape through loudspeakers at an exhibition of fireworks along the Seine in Paris [13]. The piece was written for one of the earliest electricity-based instruments, the Ondes Martenot [14]. The Ondes Martenot emits a ghostly, unearthly sound and shares the timbral characteristics of a

string instrument like, for instance, the cello. In 1941 Messiaen re-wrote the piece into a movement for his chamber work “Quatour Pour la Fin du Temps” called “Louange à l’Éternité de Jésus” [15]. In this version, the electronic sounds of the Ondes Martenots used for “Oraison” were replaced by acoustic piano and, in fact, a cello.

The recordings listed in the references of this paper exemplify the difference in spatiality as an active in the aesthetic and sensory experience of sound. These experiences of recorded sound are anchored in phenomenological and cultural heritage. We will begin by asserting the former: In the recording of “Louange à l’Éternité de Jésus” it is apparent that the listener is positioned in church- or concert hall-like acoustics that reverberate the sounds emitted by the instruments in a delicate manner. The piece is, more or less, written for these particular performance spaces and not initially for recording. In the case of “Oraison”, although it is the exact same piece compositionally, the listener has no point-of-reference in the beginning of the piece as to which space we as listeners are situated in or even what instrument is in fact being played, and therefore whether or not the piece is even performed by a human being. The same perceptual considerations might have been evident at the premiere of the piece as it was played back from tape at the Seine in 1937 [13] – here both the medium, tape, and the instrument, the Ondes Martenot, become transmitters of an unearthly sound.

The perception of a recording of the Ondes Martenot as a musical instrument, and its sonic relatability to e.g. the cello, also stems from its embedding in the listeners traditional ecological knowledge (hereafter TEK) [3]. Berkes et al. define TEK as the “[...] cumulative body of knowledge, practice, and belief [...]”, “[...] an attribute of societies with historical continuity in resource use practice.” (p. 1252) Despite the main focus on local ecological/environmental knowledge and corresponding resource use activities, the anthropological notion of TEK serves the cultural and historical argument of this paper. The distinction between known and unknown sounds is rooted in the TEK of Western music tradition. The Ondes Martenot has no instant recognizable timbre because of its limited time and use in the continuity of Western music tradition and cultural heritage. The “hollow” or “nasillard” [13] timbre, whether in the context of classical music like “Oraison” or contemporary pop like Daft Punk’s “Touch”, remains sonically abstract to this date.

In this exemplification the sounds that are known to us by music tradition – in “Louange à l’Éternité de Jésus”, the cello and the piano – present a cultural and perceptual frame of reference that is immediate and materially related to the sense of sight, “the location in space to where the object is situated.” [9] (p. 116) Although “Oraison” compositionally predates “Louange à l’Éternité de Jésus”, the aesthetic experience provokes a response of wonder due to the sound of electronic synthesis; even though it timbrally relates to the cello, the Ondes Martenot is still a sound we will have difficulties *grasping*, because sounds generated by oscillators exist in a non-spatial, all temporal environment; They are essentially acoustically bound by nothing. The concepts of sonorous perception of Merleau-Ponty and Goldstein in terms of sound directing us

toward *content* rather than *space* or *location* [ibid.] hereby becomes an essential angle in the investigation of the phenomenology and aesthetics of sound synthesis, whether the sound is part of a TEK of music or not. I will later discuss if in fact the only way to indeed grasp electronic sound synthesis is through an aesthetic experience related to a transcendental sublime.

3. THE UNCANNY MATERIALITY OF ELECTRONIC SOUND

To further investigate through the aesthetic angle on sound synthesis methodology, I will relate the concept of *the uncanny*. In 1919 Sigmund Freud wrote an essay in which he described the phenomenon of “Das Unheimliche” [6] – as in the opposite of “heimlich”, literally meaning the “un-homely” – popularly translated as “the uncanny”. It is from Freud’s point of view related to aesthetics being the “[...] qualities of feeling.” [ibid.] (p. 217) The *feeling* of the uncanny appears when something familiar simultaneously seems unpleasantly or strangely unfamiliar resulting in an emotional response of fright and/or wonder. The Japanese robotics professor Masahiro Mori returned to the subject in 1970 from the viewpoint of technology with his article about “The Uncanny Valley” [16]. He related the uncanny to the human likeness of robots, puppets and zombies, but also to the same considerations as Freud in terms of animate and inanimate beings.

As mentioned in the case of Messiaen’s “Oraison” [12], the ghostly, hollow sound of the Ondes Martenot instrument leaves the listener with an eerie sensation although timbrally it is much alike an acoustic string instrument. The sounds are familiar yet strange, a kind of unsettling re-interpretation rather than a direct emulation of a well-known acoustic instrument. In the case of the vocoder [14], we are explicitly dealing with sounds generated solely from a human being synthesized into something that can be experienced as being uncanny. In the case of Bruce Haack’s “Electric To Me Turn” [17] the vocoder represents the most explicitly uncanny, robotic quality of a purely electronic take on a musically Western and fairly traditionally composed blues tune. The vocoder comes to represent something familiarly unfamiliar and perhaps even ominous, which is evident in the title of Haack’s album: “Electric Lucifer” [ibid.] – an electronic demon within.

The re-interpretation/-synthesis of something essentially human-made or human-like formed the use of sound synthesis at the beginning of its utilization in the arts and in music in the 20th century. Historically the voyage into uncanny electronic synthesis of familiar sounds is far-reaching within the commercial world of both instrument-design of synthesizers (e.g. the Yamaha CS-80 or later the DX7) and in music; most notably through the Moog synthesizer “switched-on” reinterpretations of famous classical works as executed by Wendy Carlos (with the album “Switched-On Bach” [18]) and Isao Tomita (with the album “Snowflakes Are Dancing” [19]). The syntheses of sounds we *know* from the physical world were naturally more useful from a commercial viewpoint,

than the strange and incomprehensible, intangible noise-like *unknown* sounds of the experimental avant-garde from the same era due to missing perceptual [11], but also material signifiers in the general TEK [3] of Western music.

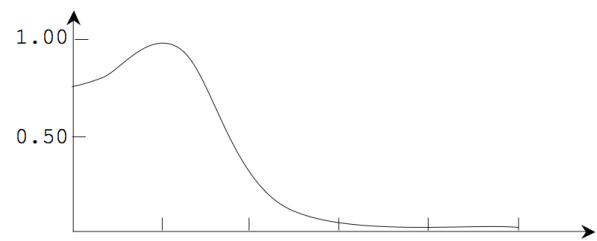


Figure 1. Drum envelope in Chowning [2], p. 8.

Perhaps unlike in commercial usability, standard and non-standard syntheses [1] share the attributes of a certain ambiguity in materiality and I argue that both these methods are essentially uncanny in the referential space of the natural world. Bill Brown [20] deals with the concept of materiality and argues that even though “[...] the material serves as a commonsensical antithesis to [...] the spiritual, the abstract, the phenomenal [...]” “[...] *materiality* has a specificity that differentiates it from its superficial cognates, such as physicality, reality, or concreteness.” [ibid.] (p. 49) He references the assertion of materiality as to something’s “[...] look and feel, not simply its existence as a physical object.” [ibid.] Indeed, when talking about materiality, one must first and foremost either acknowledge an object on a sensory basis, much like the aforementioned *zeigen* and *greifen* [9], or try to assert something’s immateriality, which in the extreme cannot be experienced phenomenologically.

However, in the case of sound generated by electricity, asserting Brown’s materiality becomes somewhat a vast space of possibilities of *materialization* more than a distinct materiality or immateriality. The materiality of sound synthesis is therefore somewhat equivocal and uncanny in the course of tangibility. A familiar sound, e.g. of the form (envelope, fig. 1), resembling a drum, as can be heard in Laurie Spiegel’s “Drums” [21], is via a listener’s objectified and material-focused perception a natural drum, but from an aesthetic point-of-view it becomes something else, something known yet unknown and indeed uncanny. It is and is not the referenced object, an acoustic drum, in part because of its derived relation to any natural spatiality as mentioned earlier – it becomes in a sense a sonic *doppelgänger* [6]. As for synthesized sounds that are initially unfamiliar, in e.g. Morton Subotnick’s classic “Silver Apples of the Moon” [22], we are offered no point-of-reference in the natural world whatsoever to the origin of what we are listening to. The same can be said in the case of Messiaen’s “Oraison” [12], but in “Silver Apples of the Moon” the sounds we are presented with leave us in a state of even greater wonder in terms of music cognition or naturalistic relation. Our closest metaphorical parallel to materiality then arguably becomes the albeit erroneous theory of the *fluid* matter of electricity as introduced by Benjamin Franklin [23];

throughout electronic sound synthesis methodology, sound flows freely from one form to the next. We are then left only with an aesthetic judgment of taste, in a Kantian sense free of acoustic “interest” [4]: Are we in fact aesthetically pleased with what we hear, or will we persistently try to sonorously reference these unearthly sounds to any material known to us from the physical world and our cultural heritage? When even the doppelgänger become alien and even more so unrelated to our material reality, do we in fact then, in reference to Brown [20], differentiate materiality from its superficial cognates?

What remains is that the listener can neither *point* out nor *grasp* these electronic sounds [9]; whether familiar or unfamiliar, we cannot *see* nor *feel* them [20] – no matter if they are created through standard or non-standard sound synthesis. At the same time, the sounds are, through recording media, within our sonorous perceptive reach because of our constant reference to the world in which we encounter this aesthetic experience. The experience of familiar electronic sounds is thereby essentially the same as that of the unfamiliar, making both types of synthesis alike in their respective uncanny, unnatural materiality. The ever-morphing matter of electricity becomes in a sense phenomenologically perceivable by the electronic synthesis of sound. A self-defined “uncanny valley” [16] of these unearthly sounds could arguably become a representation of the interrelation between affinity and, instead of human likeness, likeness of the natural world, of acoustics, even towards the laws of physics.

4. AN AESTHETIC LIBERATION OF REMATERIALIZED SOUND

A paramount argument in this paper lies in the realm of an aesthetic experience both sublime and phenomenological in nature. It is necessary to acknowledge the theory of the contemporary sublime and, first and foremost, Edgard Varèse’s lectures on “The Liberation of Sound” [5] collected in 1966 from transcripts spanning from 1936 to 1962. Varèse talks of the boundaries of traditional musical instruments and of linear musical counterpoint and how he foresees “New Instruments and New Music” [ibid.] (p. 17) to allow the writing of a clearly perceivable “[...] movement of sound-masses, of shifting planes.” [ibid.] “The liberation of sound” exists, among other things, in what he calls “Music as an Art-Science” [ibid.] (p. 19) in which the medium of expression is a “sound-producing machine”, in this paper regarded as opposed to the re-production known at the time from phonographs. In a lecture he concludes this new medium to be electronic [ibid.] (p. 19-21).

The contemporary sublime [8] shares from a perceptual perspective many attributes with the traditional sublime: It is an experience that provokes a lost-for-words response, a mute encounter with “[...] intimations of otherness or infinity.” [ibid.] (p. 12), in the Kantian sense of the word provoking reactions of awe because of overwhelming size and magnitude, force or because of something beyond material existence or ordinary perception (a

transcendental sublime (although not directly mentioned as such by Kant)) [4]. The sublime experience in many ways lies on the threshold of wonder and horror, mixing sensations of delight and fear [8]. Whereas 18th century sublime largely dealt with nature to instill the awe-inspiring experience, the source of wonder in the contemporary sublime is “[...] the incredible power of technology.” [ibid.] (p. 12) Varèse, although not frightened per se, was like many thinkers of early and mid 20th century [ibid.] (p. 17) arguably in a state of continuous uncanny or sublimity due to the booming technological progress of his time.

Here follows a discussion of and an aesthetic approach to Varèse’s “liberation of sound” through the unity of the topics that hitherto have been dealt with: perception, spatiality, materiality and the uncanny resulting in a sublime aesthetic experience. Firstly it is important to note that uncanny sounds have always provoked some kind of emphatic response, most notably from a historic viewpoint in the 20th century via the Italian futurist movement: The audience attending Rusollo’s infamous noise-concert premiere in Milan in 1914 allegedly started a bloody riot [24]. This violent reaction, whether being provoked by societal conditions or physical discontent, is a powerful example of how noise, the aesthetic judgment of “[...] any sound one doesn’t like.” [5] (p. 20, my italics), can result in a thundering physical response. People experience horror in the unknown and are bewildered, lost-for-words and even frightened – the audience of Rusollo’s concert indeed had a sublime experience of the uncanny in noise. As mentioned before, traditional ecological knowledge [3] guides our sonic perceptual signifiers [11].

However, I do not believe the experience of electronic sound synthesis to be initially sublime. I believe that it is possible through the lens of phenomenology to open certain doors towards a sublime experience by revisiting Varèse’s “liberation of sound” with the very sounds he discussed; to open certain doors towards freeing electronic sound from a superficial perceptual and cultural categorization. A sonic sublime of sound synthesis begins with the acceptance of this aforementioned non-spatial, interior [10] frame of reference; that the forms we contain in standard (even in non-standard) synthesis [1] are derived from a continuous current: a Pandora’s Box that we open and close by means of changes in e.g. amplitude, the envelope of a sound. It is when we let it out in the world, when we let the electricity flow through the ether surrounding the body [23], when we amplify the sound, that it becomes a part of the natural world of acoustics. However, when contained, the current that is our electrical signal still runs, still exists when powered, as a current in time but not in space.

While the sublime deals with uncontainable forms, materiality [20] has yet again to be taken into account in terms of the aesthetics of sounds in the contemporary experimental electronic avant-garde. Autechre’s audiovisual “Gantz Graf” [25] from 2002 still remains one of the most interesting examples of the uniting of the senses, a unity in perception (*zeigen* and *greifen* [9] in particular) in an experiment of objectification and rematerialization. In the video, Autechre plays with the idea of the object

(fig. 2) as the center of visual and auditory *dematerialization* [20]. In this example we are in a very explicit way dealing with all of the aforementioned sonorous perceptive [9] specificities: Uncanny [6] sounds, both familiar and unfamiliar, that in complementing linearity resemble rhythmic, harmonic and melodic instrumentation and musical functions, have been *dematerialized* only to be audiovisually *rematerialized* [20]. Through the visual representation of an uncanny object, Autechre suggests an aesthetic that is beyond references to natural acoustics and visual space: The piece opens up for immediate transcendence into the arts from something sonorously beyond the perceptive compass of the physical world. The matter of electricity becomes an instrument for sonic materialization.

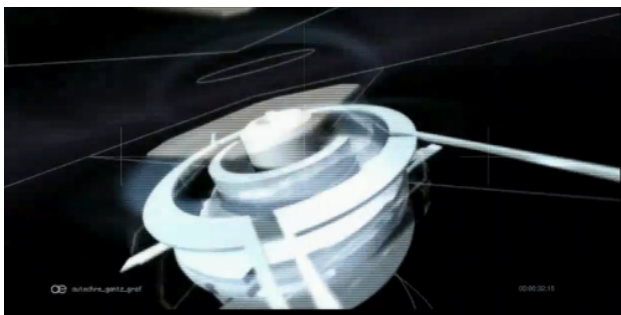


Figure 2. Autechre’s “Gantz Graf” video (2002)

Where Autechre [25] represents dematerialization through “Gantz Graf” in a very high-paced, almost hyperactive manner, the same considerations towards the phenomenological and aesthetic aspects of this sonic sublime also exist in more slowly evolving, drone-like music. John Chowning’s “Stria” [26] deals with the frequency modulation (FM) synthesis that he himself invented. With FM you can alter, as described in Chowning’s research paper [2], the character of temporal evolution to resemble *known* natural timbres. But this technique also paved the way for Chowning to construct otherworldly and uncanny sounds without initial natural spatiality or relation to TEK [3]. The fact that techniques and ideas for natural resemblance can spawn unnatural sonics is evident in Eliane Radigue’s “Triptych” [27] as well: a work dedicated to the five elements, where e.g. synthetic noise is used and filtered to create the sound of wind, but in the process becomes something else. The sounds of a conceptual containment and interpretation of an awe-inspiring nature becomes an entirely different aesthetic experience than a mere emulation or recording of the same phenomena.

The fact remains: Varèse’s “*sound-producing machine*” [5] (p. 19), the technology that is the source of the sonically sublime experience, is a reality and is as important for the aesthetics of the matter as the resulting art. Through this creation of otherworldly timbres music truly becomes an “Art-Science” [ibid.]. This is where my discussion differs from Pierre Schaeffer’s idea of “Acousmatics” [28]. “Acousmatics” refers to a phenomenological notion of separating sound from source in reference to an old Pythagorean teaching method in which

the teacher lectures behind a veil, hidden from the line of sight of the students leaving them only with the sound of their master’s voice. Despite the fact that Schaeffer’s benchmark is in the manipulation of tape (i.e. *musique concrète*), there are phenomenological likenesses to this paper in terms of the sensory-based experience of listening as well as disregarding the Cartesian dualistic mind/body-argument. The difference is in the discussion of aesthetics. In this paper the aesthetic experience appears in the rejoining of sound and source in the materialization that electricity affords much more than the phonographic medium that Schaeffer refers to. The spatiality of recordings is, although manipulative, initially identical on each playback, whereas the spatiality of electricity is non-existent – sound synthesis is initially all about temporality. However, “instrumental progress” [28] (p. 81) is central no matter viewpoint.

Neither a separation of *zeigen* and *greifen* nor of object or subject in the perceptual identification of material are imperative towards a contemporary sonic sublime experience. If we instead sonorously perceive and accept the rematerialization of something as literally invisible and ungraspable as electricity, we are rewarded with a profound aesthetic experience. The notion of the machine is as important as the art itself if we can accept the new material, the new sounds, the “New Instruments and New Music” we are presented to. We can in a sense through the aesthetic experience of sound *emancipate* [4] the uncanny material – if we dare.

5. CONCLUSION

In this paper I have tried to map an aesthetic trail between known and unknown sounds in electronic sound synthesis. I have done so by means of phenomenological and aesthetic philosophy and theory concluding that the aesthetic experience of otherworldly electronic sounds is, however related to a traditional ecological knowledge of music, dependent on the unity of sonorous perception, spatiality, the materiality, de- and rematerialization of sonic substance. The concept of the uncanny is used to underline and illustrate the tension between familiar and unfamiliar sounds in connection with the aesthetic perceptive experience. It emphasizes the ambiguous materialization offered by electricity in both standard and non-standard synthesis, that from a phenomenology of perception are alike.

Sound and source are inseparable, like the interior and exterior spatiality of the body and the world. But the “*sound-producing machine*” is aesthetically sublime: It is the source to something beyond the Pythagorean veil, an uncanny release and movement of sound-masses from Pandora’s box. However, nothing in the realm of sound synthesis is veiled; the matter of electricity is initially invisible and intangible. Because of this the transcendental sublime is a means to truly aesthetically experience and liberate the unearthly timbres of electronic sound from their immediate exterior parallels.

Acknowledgments

I wish to thank Susana Tosca and Hanne-Louise Johansen from the IT University in Copenhagen for guidance in the writing of this paper and the surrounding research, and the reviewers from SMC 2016 for detailed and sound advice.

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