

# **Music Production: Recording technologies and acousmatic listening**

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## **Abstract**

Recorded sound is *acousmatic*, meaning that it does not display any visual sound sources. When people listen to recorded/acousmatic sound, they generally apply their previous experiences with the acoustical conditions of sounds to the new experience. Divergence from these expectations often results in an experience of the music as unnatural, uncanny, hyperreal or surreal—that is, as an expansion of the world as one knows it. There is, however, also another force that affects auditory perception: the tuning of people's ears, or the mind's ability to adjust to new sonic environments with dispatch. Accordingly, new musical expressions, made possible by recording technology, eventually become naturalized, transforming one's reference and starting point for new listening experiences. This chapter discusses and reviews literature concerned with these two perceptual mechanisms pertaining to acousmatic sound as well as the more general relationship between musical live performances and recorded music.

## **Keywords**

Acousmatic sound, recording technology, virtual space, ecological perception, spatiotemporal coherence, source bonding, naturalization processes

## Introduction

For centuries, all forms of music were realized by musicians at a specific place and unfolded organically in time. Accordingly, music was, without exception, only accessible to those who were there when it was performed, and that audience was always able to link the sound they heard to a visible and present source. These specific and defining qualities of music did not change until the invention of the phonograph in 1877, which occasioned the cultural shift to an era of what Canadian composer and writer R. Murray Schafer (1969) has labeled *schizophonia*, to draw attention to the newfound ability to separate (*schizo* is “split” in Greek) the sound (*phōnē* in Greek) from its source and, importantly, from the performative moment.

In this chapter, we will start by reviewing research into the relationship between live and recorded music, as well as discussing the constraints that pertain to *acousmatic* listening—that is, listening to sound without a visible source (Schaeffer, 2004, pp. 76-77). Then we will focus on two perceptual mechanisms that are at work when one experiences recorded or *acousmatic* sound. The first of these mechanisms concerns the perceptual disconnect that can arise when people compare music to a historically and culturally deep-rooted notion of music as *source bonded* (coming from a specific source) and *spatiotemporally coherent* (emerging at one specific place and time). Here, we will also address the surreal effects that can accompany discrepancies between recorded sound and people’s expectations, whether driven by ecological constraints, that is, the relation of living organisms to their physical sonic surroundings as regulated by acoustic laws, or previous experiences with live and recorded sound. The second mechanism concerns processes of naturalization, or the continuous “tuning of the ear.” What we mean by this is that new musical expressions, made possible by recording technology, eventually become naturalized, transforming one’s reference and starting point for new listening experiences. Ultimately, we will point to some directions for future research related to this discussion.

### The recording becomes the primary text

While Schafer characterized *schizophonia* as a permanent and uniform condition after the splitting of sounds from their sources by recordings, Ragnhild Brøvig-Hanssen (2013)

distinguishes between three different phases within this condition: the mechanical, the magnetic, and the digital. The mechanical era is related to the invention of the phonograph, which challenged our traditional understanding of sounds as emerging directly from a live source. When Edison demonstrated his speaking phonograph in 1888 members of the audience fainted and this disembodied sound must, in Dave Laing's words, have been "a vital shift in the experience of listening to music" (1991, p. 7). However, although the sounds of a musical performance were liberated from their origins in time and space, these sounds remained a unit on recordings for a long time—what one heard there was the sound of a spatiotemporally coherent event that had been captured in one "take" (the rare exceptions to this fact were recordings that resulted from very early applications of the technique of overdubbing). Despite the degraded sound quality of the recorded sounds, the musical reproduction presented by the mechanical recording medium remained "trustworthy," in that the sounds were legitimate signs of a previous performance, with an actual and causal connection to what they represented. As such, in the earliest phase of schizophonia, the original and reproduced musical events were connected by similarity and affinity, but, in addition, the recorded sounds were *indexical* signs of the preexisting event, to use the vocabulary of Charles S. Peirce.<sup>1</sup>

Whereas music was still generally heard as a spatiotemporally coherent event even after the invention of the phonograph, the invention of the magnetic tape recorder would revolutionize people's conception of music, and of musical recordings. This magnetic era meant dramatic new possibilities for spatial and temporal designs, embracing the disjuncture between sound and its source(s). The tape recorder offered sound engineers the ability to literally cut tracks apart and paste them together again, and this spatiotemporal disjuncture of sound was even further ushered along by the magnetic multitrack recorder. Musical parts could now be recorded separately, at different times, and, if desired, in different locations. The multitrack recorder also solved the problem of degradation of sound quality that took place after each subsequent overdub. Moreover, because sounds could be recorded through several channels without being automatically merged into a single track afterward, the individual tracks could be altered separately even *after* they had been recorded. This new capacity for manipulation altered the ways in which many musicians, producers, and sound engineers worked in the studio while recording and mixing sound. While some engineers simply applied the multitrack recorder

according to the longstanding conception of music as, at heart, spatiotemporally coherent, others saw new possibilities for “improving” upon reality. Still others experimented with these new recording and editing abilities in entirely unanticipated ways—for example, molding virtual spaces that appeared contrary to natural acoustic laws or exposing the music’s fragmented construction. Such experiments often resulted in a sonic collage of sounds representing different times and spaces.

As emphasized in Brøvig-Hanssen and Danielsen (2016), digital technology did not split these sounds any *further* from their sources than the magnetic tape recorder had, but the digital conversion of sounds into binary numbers made the practice of splitting them from their sources much easier. The ease with which such ‘splitting’ could be accomplished caused changes in the musicians’ and engineers’ practice and, in turn, in the resulting music, constituting a third *digital* era of schizophonia, examples of which are given below.

After the multitrack magnetic tape recorder entered the market, the relationship between reproduced performance and original musical performance was no longer causal. The recording studio changed from an archiving center to a laboratory for “sculpting” patchwork performances out of multiple takes. Already in the mid-1980s Jacques Attali (1985) noticed that the relationship between a live performance and a musical recording had, for all intents and purposes, reversed: “What irony: people originally intended to use the record to preserve the performance, and today the performance is only successful as a simulacrum of the record” (p. 85). Drawing upon Jean Baudrillard’s concept of simulation, Philip Auslander (2008) argues that the distinction between live performances and musical recordings has in fact vanished, due to the ever-increasing two-way interaction between these respective musical settings (p. 35). By this he alludes to the fact that live performances often include prerecorded musical material as well as an extensive use of studio production tools, while recordings, on the other hand, often imply a performance behind the given recording either in terms of their sound or promotion. Whereas there are still important differences between these two formats in terms of their different settings (performance vs. recording), distinguishing between live and recorded music does not always make sense because the musical expressions can, in fact, be identical. Today, the recording seldom only mediates a preexisting performance but has instead become, to borrow Theodore

Gracyk's (1996) characterization, the *primary text* in and of itself (p. 21). In line with this Evan Eisenberg (2005) questions (as does Sterne, 2003, p. 218) whether 'recording' is an appropriate term for this format:

Only live recordings record an event; studio recordings, which are the great majority, record nothing. Pieced together from bits of actual events, they construct an ideal event. They are like the composite photograph of a minotaur. Yet Edison chose the word deliberately. He meant his invention to record grandparents' voices, business transactions and, as a last resort, musical performances. The use we put it to now might strike him as fraudulent, like doctoring the records. (p. 89)

This artistic aspect of the development of recording technologies was first acknowledged within the fields of film, electroacoustic and popular music. Pierre Schaeffer and his Groupe de Recherches Musicales (GRM) were among the pioneers experimenting with "reduced" or acousmatic listening, which Schaeffer (2004) defined as the act of listening to sound for its own sake, and blotting out the listener's associations with the sound's source. Continuing the tradition of Schaeffer, Francois Bayle experimented with an acousmatic orchestra (the Acousmonium, created in 1974) that consisted of loudspeakers of different sizes that were positioned like musicians in a traditional orchestra (Battier, 2007, p. 200).<sup>2</sup> In classical music, on the other hand, the idea of recording as documentation—that is, as a particular manifestation of an idealized work—persisted rather longer. However, as Arved Ashby (2010) points out, the recording has now become primary in classical music as well: "While the musical work played an originaive role in the past—acting as the source and origin of the musical experience—it now serves primarily an aesthetic function, as a point of orientation and demarcation while the listener grapples with the departing landscape of the heard music" (p. 10). Classical music is now *less* likely to be heard in a concert hall than in its recorded form, meaning that people are now, according to Ashby, at a point in history where "recorded simulacra or performances of musical works are [. . .] more relevant, accessible and real than any lingering notion of the pieces themselves" (ibid.).

Since the function of the recording medium is no longer merely to *document* performances,<sup>3</sup> recordings have, in a way, developed their own set of acoustical and perceptual rules, creating a

sonic environment that serves not only to replicate “real life” but also to expand it and subvert it. Sounds have been liberated from their dependence upon “live” acoustical laws, and between the speakers, anything goes, thanks to technological editing tools and human creativity.

### **Sound as virtual space-form**

Experimental research has shown that a very brief sonic experience often sums up the sound of a whole in a way that make listeners able to, for example, differentiate between spoken voices, instrumental music and environmental sounds based on 50 milliseconds of sound (Bigand et al., 2011) or decide upon the style of the music (Gjerdingen and Perrott, 2008) or identify and actual tune (Schellenberg et al., 1999) after only 200 ms. Accordingly, a given musical recording’s overall “sound”, has been defined as the fundamental character of the particular musical elements that can be identified and described in a relatively short time sample but are nevertheless characteristic of a significant portion of the work (Brolinson and Larsen, 1981, pp. 181-82). This definition rightfully emphasizes that a very brief sonic experience often sums up the sound of the whole, evoking Smalley’s concept of “space-form” (the aesthetically created spatial environment) in his discussions of acousmatic music. This means that when people perceive and remember sound, they sometimes set aside time’s formative role in the music: “although gathered in time, [the space-form] can be contemplated outside the time of listening.” (Smalley, 2007, p. 40). The whole experience collapses into a single present moment and resides in the memory as a space-form (ibid., pp. 37-38).

Scholars have proposed various analytical models for conceptualizing acousmatic sound as such virtual space-forms. For example, Allan F. Moore (Moore et al., 2009) introduces a “sound box” model, in which the vertical dimension of the sound box represents the sounds’ frequency register; the horizontal dimension represents the sounds’ placement within the stereo image; and the depth axis represents the perceived distance from the listener on the sagittal (front/back) axis. While Moore’s sound box denotes an *abstract* space, other scholars have introduced analytical models or metaphors in which the sound of a recording is directly compared to *actual* spatial environments (see Brøvig-Hanssen and Danielsen, 2013; Danielsen, 1998; Doyle, 2005; Lacasse, 2000; and Moylan, 2002). The latter approaches demonstrate an awareness of the fact that

listeners often conceptualize acousmatic sound by comparing it to previous experiences with sound.

### **Ecological constraints?**

According to James J. Gibson's theory of ecological perception, first published in 1979, people (and animals) always approach and understand new environments according to their previous interactions with similar environments. Eric Clarke (2005) introduced Gibson's work in the visual domain to music psychology, including, in particular, Gibson's assumption that perception is a two-way interaction between a person or animal and the environment. In line with phenomenology, this also means that perception is always-already intentional—those who “perceive and behave” (Gibson, 1986, p. 7) are not processing masses of undifferentiated information but rather engaging with the environment to gather only that information that is meaningful given their purposes and context. Gibson's notion of affordance also acknowledges that the same environment can afford different things to different people. Mechanical noise, for example, might be perceived as unbearable repetitive noise for one listener, whereas being heard as a compelling musical rhythm by another. Applying one of Gibson's key terms, then, people perceive what the environment *affords* according to their needs. Clarke, in fact, remarks that Gibson developed the whole notion of affordance to describe the *variousness* of the dialectic between the properties of a given environment and the needs and capacities of its perceiver. Regarding a new sonic “environment” on a musical recording, this means that people first of all engage with those aspects of it that are most meaningful to them, given their range of experience; an experience with one sound environment becomes an instant resource for the structuring and comprehension of a similar environment. Similarly, engaging with and making sense of a recorded sound will probably follow paths established by one's previous engagements with sounds. The importance of previous experience is emphasised by scholars such as Marc Leman and Albert S. Bregman. Leman (2008) is principally concerned with people's attribution of meaning to sound through habits or conventions—what he calls their “cultural constraints” (p. 56). Bregman (2001) is also interested in the ways in which experiential regularities form mental “schemas” that affect the perceptual organization of sound (p. 43).

The fact that people often compare the acousmatic sound of a recording to previous experiences with sound does not mean that they compare it to an imagined *live performance*. Although people often associate “live performance” with certain qualities rooted in music that existed before the recording medium was introduced, live performances are today as diverse as musical recordings and often involve prerecorded musical material, as well as the extensive use of manipulating tools and signal-processing effects. The live music scene has become a hybrid and pliant environment that falls somewhere between the traditional, spatiotemporally coherent and source-specific musical performance (with its strict acoustical laws) and the virtual spatial environment between the sound speakers (where anything and everything goes). The musicians’ degree of involvement in the musical output can vary (from producing the music on the spot to merely imitating an accompanying pre-recorded music, for example), and the music will not necessarily emerge from a visible source, and it might not sound especially spatiotemporally coherent. A pertinent question is, however, whether the long history of musical performance that preceded the phonographic era constrains music perception even today by providing a source for perceptual comparison to what one hears. This hypothesis, which follows from the theory of ecological perception, remains to be empirically studied.

### **Perceptual friction and the tuning of the ear**

According to the theory of ecological perception people will immediately look for, or start to imagine, the sources of the music, compare the virtual space-forms projected by the music to existing acoustical models, and perceptually “integrate” sounds that stem from different times and spaces into a spatiotemporal whole, despite their fragmented character. This presumed tendency to compare acousmatic music to a pre-phonographic state of the art can create in the listener an “experiential friction,” which might result in the sound being experienced by the listener as surreal, hyperreal, or defamiliarized. Recording technologies are used artistically to generate such perceptual discrepancies between what the listeners are likely to expect and what they hear. In what follows, we will present three forms of such perceptual friction that can emerge when one listens to recorded sound, namely those linked to the bonding of sound to a *source*, the bonding of sound to an existing *acoustic space*, and the bonding of sound to a *temporally coherent performance*, respectively.

## Identifying the sound source

When one hears a sound, one naturally thinks first of the sound source. Who or what is producing the sounds one hears? As Clarke makes clear, “The primary function of auditory perception is to discover what sounds are the sound *of*, and what to do about them” (ibid., p. 3). This is a very fundamental mechanism that also constrains the way one hears music. Even though it is now no longer a given that, for example, a live concert (including electronics and electronic amplification) will present either a temporal or a physical correspondence between the sound that is heard and its production (see, for example, Danielsen and Helseth, 2016), people still search for meaningful relationships between what they see and what they hear, or imagine possible sound sources for the sounds they perceive. In principle, however, acousmatic sound leaves the question of possible sound sources open (due to a lack of visual confirmation). Sounds from electronic and digital instruments are particularly difficult to map to sources because the action-sound *relationships* in such instruments are arbitrary (Jensenius, 2013, p. 181). In acoustic instruments, on the other hand, perceptual action-sound couplings are strong, both because they have a long history and because they are based on mechanical laws.

When dealing with complex auditory environments such as music, listeners tend to group sounds with similar timbres together and hear them as one “auditory stream” coming from a distinct environmental source (Bregman, 2001, chapter 2; Goodchild and McAdams, this volume). Regarding musical instruments, the attack portion has been proved to be crucial for the timbre of the sound, and thus for identifying the sound’s source, followed by information about the spectral envelope and its evolution through time (for example in the form a vibrato) in the sustain phase (Handel, 1995, pp. 430-431; McAdams, 1993; Goodchild and McAdams, this volume). One way to detach the listener from the sound source, thus, is to conceal the source by manipulating or eliminating the early and transient-rich part of the sound. An early example of this is Schaeffer and GRM’s experimentation, starting in the 1940s, with removing the attack or transient-phase part of the sound from the sustain-phase part (Schaeffer, 2004). A more contemporary example of distorting the relationship between the sound and its source is the use of digital pitch correction in popular music production, which affects the attack as well as the sustain phase of the sound. In this case, one recognizes the sound source but in a defamiliarized

form (see Brøvig-Hanssen and Danielsen, 2016, chapter 8). One of the first and most famous examples of digital pitch correction (Auto-Tune) used as a vocal effect is Cher's "Believe" from 1998.

Another potentially uncanny or surreal experience arises when one sees the sound source producing sounds, such as in a live performance, but no sound is heard. If the time from the sound's origination (excitation) to when one hears the sound exceeds what is expected for a particular sound source and space, the engagement might be experienced as unnatural or strange. This might happen, for example, when the sound of a voice is being sampled and processed for later use, or when a performance displayed at a Jumbotron at a large venue is out of sync with the sounds coming from the loudspeakers. The latter examples of a discrepancy between what one hears and what one expects (from what one sees) also demonstrate that the type of sound source, the features of the acoustical space of the sound source, and the temporal unfolding of the sound depend on each other.

Although the experience of a sound from a non-recognizable source or a source that comes forward as audibly and radically transformed may come across as uncanny, such effects generally become more or less naturalized. For example, when the microphone was introduced in the mid 1920s, the close-up microphone singing pioneered by so-called "crooners," such as Bing Crosby and Frank Sinatra, was at first regarded as uncanny: the intimate voice had never before been able to penetrate in a concert hall (for a discussion of the reception of "crooning", see Frith, 1986). As listeners grew accustomed to this familiar-made-unfamiliar vocal sound, however, the microphone-staged voice gradually came to stand for the musical voice itself. Likewise, a distorted guitar sound is today commonly heard as a "natural" sound source even though the source (the guitar) has in fact been manipulated by processing effect(s). Generally, what can be regarded a "normal" sound source in a musical context seems highly malleable.

### **The virtual acoustical space**

Physical spaces operate according to strict acoustical laws, and in an enclosed space, such as a room, sound travels until it meets a surface, (mostly) bounces off of that surface, and then travels until it meets another surface. It gradually weakens as the air and surfaces absorb it, until it dies

out entirely. Sounds situated within open spaces do not contain reverberation (but might nevertheless produce an echo, if, for instance, the sounds hit neighboring mountains, tall concrete fences, canyon walls, or cliffs facing water; see, for example, Rossing et al., 2002: 528). The architectural design and size of the given space—enclosed or open—as well as the texture of its surfaces determine the character of a reverb or echo. When people engage with acousmatic musical sound, which has no visible source, their experiences with these sorts of different acoustical reflection patterns allow them to imagine specific actual spaces. As Denis Smalley (2007) points out, this process is automatic and unconscious, as sounds always will be perceived as bearers “of space in nature and culture” (p. 54). One possible consequence of such a perceptual equation process is that, when a virtual sonic environment is displaying sonic features that could never occur in real physical environments, the virtual space can be experienced as utterly surreal, hyperreal or defamiliarized.

In Prince’s 1986 song “Kiss” (*Parade*, Paisley Park/Warner Bros.), a surrealistic effect arises when two of the axes of the virtual acoustical space (the horizontal and the vertical) display the characteristics of a large hall, while the third axis (the depth) reflects a small “dry” or dampened environment. Another example that is likely experienced as unnatural is Suede’s “Filmstar” (*Coming Up*, Nude Records) from 1996. While a recording sometimes aims at simulating an *in situ* performance space in order to assert the recording’s faithfulness to a pre-existing performance, there is in this song a profound contrast between the simulated *in situ* performance spaces of the verse of the song, which suggests a small, narrow space, and the chorus, which suggests a much larger, broader spatial environment. The sonic result of this radical contrast in spatial settings conforms to what Smalley (1997) calls “multiple spatial settings,” where “throughout the work, the listener is aware of different types of space which cannot be resolved into a single setting” (p. 124).

A third example of discrepancy between the virtual space projected by a recording and the acoustics of physical spaces is “Half Day Closing” by Portishead (*Portishead*, GO! Beat Records), from 1997. Here, several very distinctly different-sounding spaces (a relatively dry small room for a bass guitar, atmospheric sounds that evoke a long, narrow, cylindrical, enclosed environment, like a shaft or a tunnel, and a singer that sounds as though she is performing

through a megaphone) are combined, thus forming a surreal space. This conforms to what Smalley calls “spatial simultaneity” (ibid.). At the same time, the surrealistic effect of what is at one point in time a radical juxtaposition of virtual spaces tends to vanish with the passage of time due to the naturalization processes related to acousmatic sound. The spatial simultaneity produced by multitracking in the 1970s and sampling in the 1980s, is most likely no longer heard as such but rather as a new type of virtual space against which new spatial montages gain their perceptual effect.

### **Temporal coherence vs. temporal fragmentation**

As already suggested, it is likely that people perceive the new music they hear in relation to the historically and culturally deep-rooted notion of music as caused by spatiotemporally-coherent sources. In fact, it is only against such a backdrop that people are able to hear sounds as, for example, a montage. If one experiences a sound as fragmented, it means that one actually hears it as a collage of different temporally (and spatially) coherent performances. Previous research has shown that whether this happens or not, that is, the sensitivity to musical incoherence, varies with both musical context and learning (Tillmann and Bigand, 1996; Lalitte and Bigand, 2006; Ashley, this volume).

The ability to cut and paste recorded material with scissors accompanied the development of the magnetic tape recorder and was soon used to fragment the music’s temporal structure (listen, for example, to the tape experimentation by participants in the early-1950s electroacoustic music scene, such as John Cage, Pierre Schaeffer and Karlheinz Stockhausen). Digital sequencer programs eliminated the extremely time-consuming processes of physically splicing tapes, and the sonic traces of cut-ups is now to be found in more mainstream contemporary popular music as well. An example of this is Squarepusher’s “My Red Hot Car” (2001), in which the vocals are “all chopped up” and the sound pieces are often repeated as a stutter or separated by sound signal dropouts, which in turn overlay a more staccato rhythm upon the performance (see analysis in Brøvig-Hanssen and Danielsen, 2016, chapter 5). Of course, hearing sound as being “cut up” presupposes that one has the capacity to imagine (an) “uncut” version(s) “underlying” the fragmented result (even though one knows that this version might never have existed). When the music is heard as fragmented in this way, it challenges people’s inclinations toward bonding the

different sounds in a musical soundscape to a temporally coherent performance, and the music might thus be perceived as containing a surrealistic dimension to its sound. However, cut-and-paste techniques have today become so common in the fields of popular and electroacoustic music, that they probably no longer generate a “shock effect.” As Caleb Kelly points out, stuttering and skipping sounds “are now simply another part of the sound palette of the digital producer” (Kelly, 2009, p. 10). As we become more familiar with this palette, the fragmented musical event becomes naturalized. In fact, any given experience with a musical environment promptly becomes a reference point as people structure and comprehend the next environment (Loui et al., 2010). Thanks to this tuning of the ear the elasticity as to what is regarded as “natural” is most likely enormous.

### **Conclusion and future research**

The reason why people might conceptualize musical environments as surreal is because they understand the music as a representation of something else and expect this “something else” to comply with their listening experiences. That is, when people listen to recorded sound, they apply their previous experiences with the acoustical conditions of sounds to the new experience. Divergence from these expectations results in an experience of the music as unnatural, uncanny, hyperreal or surreal—that is, as an expansion of the world as one knows it. However, another force also affects auditory perception: the tuning of people’s ears, or the mind’s ability to adjust to new sonic environments with dispatch.

On the one hand, then, music that evokes a sense of surreality generally becomes naturalized over the course of time. On the other hand, the human mind persists in meeting music not *only* on its own terms—as a musical environment in which anything goes—but also in the context of the real world in which people live and accumulate experience. As Smalley (2007) points out, “The idea of source-bonded space is never entirely absent” (p. 38). And, we might add, neither is the idea of a spatiotemporally coherent performance. This friction between the ecological constraints of listening and the liberating processes of naturalization generates a perceptual friction that remains a perceptual conundrum.

Further investigation of this friction is needed in order to understand more of the richness of people's experience with acousmatic music. What are the role(s) of and interaction between these two perceptual forces, which are constantly competing for the listener's attention? Another interesting topic for future research is to study the various significations that music which deconstructs our normal assumptions of sounds and sonic environments have, such as, for example, whether they open up for new representations and understandings of gender, sexuality, ethnicity, human abilities, authenticity, etc. To summarize, deeper insight is needed into the ways in which acousmatic music continues to flout the consequences of evoking people's familiarity with spatiotemporally coherent and source-bonded performances even as it subverts it.

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### Notes

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<sup>1</sup> An index is, according to Peirce, “a sign which refers to the Object that it denotes by virtue of being really affected by that Object” (Peirce 1960: 143).

<sup>2</sup> Michel Chion, also a member of GRM, used Schaffer’s concept of acousmatic listening to describe off-screen music in film, introducing the distinction between diegetic and non-diegetic music. The latter term denotes “sound whose supposed source is not only absent from the image but is also external to the story world” (Chion, 1994, p. 73).

<sup>3</sup> Although the recording medium once had a documentary function, it has, as Alan Williams emphasizes, never been a neutral tool: “It is never the literal, original ‘sound’ that is reproduced in recording, but one perspective on it” (Williams, 1980, p. 53). For a similar point, see Sterne, 2003, pp. 219, 235.