

Artificial, Natural, Historical Acoustic Ambiguities in Documentary Film

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In: Adams, Gibson, A., editor, *Transdisciplinary Digital Art: Sound, Vision and the New Screen*, Communications in Computer and Communication Science. Springer, 2008.

Abstract. This article discusses the role of sound for the formation of authenticity and historicity in film. In the light of the documentary *All That We Have*, it argues that the delimitation between ‘natural’ and ‘artificial’ constitutes a key element for the construction of the authentic. Algorithmic sound synthesis is shown to be a possible intervention within this construction. Informed by a generally epistemological orientation, this analysis inquires how form, method and content may together contribute to a critique of a naturalization of history.

1 The Authentic Source

*[The talkie] has conquered the world of voices, but it has lost the world of dreams. I have observed people leaving the cinema after seeing a talking film. They might have been leaving a music hall, for they showed no sign of the delightful numbness which used to overcome us after a passage through the silent land of pure images. They talked and laughed, and hummed the tunes they had just heard. They had not lost their sense of reality.*¹

Pleasant or unpleasant, many commentators who have experienced the transition from silent film to talkie describe a similar experience: It seems as if film had *woken up*, had lost its dream-like character. In the new genre of ‘talkies’, the human voice had entered the scene and brought with it a whole field of narrative possibilities, which were used excessively; still today dialogue makes one of the main dimensions along which a majority of films are organized. Dialogue is to a great extent tied to the correlation of *voices* to their respective persons: It is the person who is the cause of the voice, and, from the perspective of the narrative, it is the person’s network of intentions, obligations and contingencies that causes what is said.

The dream-like character of the silent movie might be a result of a distortion of this causal relation: It seems as if a person tried to say something, but no voice leaves her mouth—then, a little later, we read in the following intertitle

¹ René Clair, 1929. [1]

what has been said. The sensorimotor cycle is inhibited by the temporal interval that separates visual from the narrative, and opens a space for the psychological and for the ambiguity between inside and outside.²

Closing this gap, though, does not dispel the doubt about who is the true originator of an utterance: Was something said because the author wanted us to hear it? Was it said by a character in order to cause an action of another character? Is it an intrigue altogether?³ One can never be sure. At least the truthful source of the voice itself will be eventually reaffirmed, in a ‘cartesian strategy’, by the consistency of physical causality in filmic space: The consistency of *natural sound* provides the necessary background for the voice’s corporality. To this end, the sound is composed so that coincides with the picture in an plausible manner, forming a causal texture for the events.⁴ Thus, the physical impression of sound is the seal on the authenticity of their material source: the spoon rattling next to the cup, a quiet harrumph, or the classic footsteps in the gravel.

In fiction film, the *origins of actions* usually are either attributed diegetically⁵ to the film’s inner logic and its characters, or simply to the authors’ motivations. Conversely, a documentary film is expected to be faithful to actions that either happened while the picture was filmed, or to those that happened possibly long before, where documentary takes on the role of a witness to the past. This fidelity can be *passive*, in the sense that the ‘profilmic’ actions are untouched by production and simply reflected, it may also be *active* in the sense that the film *investigates* in order to clarify the delimitation between fact and fiction. The

² In *Triebe und Triebchicksale* [2, p. 212] (1915), Freud describes the first differentiation between inner and outer world as the result of the experience that some stimuli can be avoided by muscular activity (e.g. escape), while others, necessities caused by drives, withstand such attempts.

For Bergson, the indetermination between action and reaction is a key function that creates two systems: one in which the images change dependent on the movements of a single image (the body) and one for which the images vary by themselves [3, p. 9]. This investigation of indetermination is taken up by Deleuze and serves as a basis for the distinction between image types [4, 5].

³ The films by Ernst Lubitsch, such as ‘To Be or Not To Be’, are a good example for the extensive use of intrigue in dialogue that was common in the early talkie era.

⁴ Sound appears to have its own peculiar transparency here. It thus seems symptomatic that when people are asked to describe sounds, they consistently describe sources, not the sound itself: this is a motorcycle, a drill, a cricket, a waterfall. For a closer discussion of this relation between transparency and opacity in sound art, see [6]

⁵ The definition of *diegesis* is debated: This term was coined (by Etienne Souriau) *in opposition to the term ‘narrative’*, to refer to all the film’s denotations, to the totality of the fictional world in which the narrative is only a part. Thus, *nondiegetic sound* conventionally denotes sound that is not caused and cannot be perceived by anyone who is part of the film’s denotative space. Background music and off-screen narration are therefore nondiegetic elements. But not unlike the distinction between *form/content* or *medium/message*, for a general situation, it is undecidable where the delimitation is to be drawn. For a controversial discussion of these issues see e.g. [7]

expectation of fidelity is rooted in the promise that the agency of protagonists, be they human or non-human, inscribes its trace as directly as possible into the film's diegetic space. This explains the critical role of 'natural sound' in documentary film: It is witness to the ontic status of its material cause and stabilizes the realist perspective of the documentary dispositive.

2 Natural and Artificial

Interestingly, in the early talkies, the film music is very often diegetic film music—some of the films circle magically around dancehalls, attractive musicians, or find other excuses to place a musical sound source somewhere. Keeping in mind the conventional role of natural sound in film, this is no surprise. Contrary to silent film, by placing musical instruments on screen instead of letting them play in the 'cinematic orchestra pit', they are naturalized as material sound sources, thus closing the sensimotor cycle and, to a degree, freeing film from its psychological ambiguities.

Just like fiction film, many conventional documentary films use nondiegetic film music as an emotional background, or as a compositional method, e.g. to smooth out picture sequences. This sound texture also provides an honorable accompaniment for the 'voice of god', which tells the audience what the picture means.⁶ At first, this seems to contradict the fidelity of a documentation—but it is clear that instead of supporting the topos of direct transmission, it enhances the audience's faith in the sincerity of the witness, represented by the narrator's voice. As long as the level of *explanation*, which can be 'artificial' (i.e. fabricated by the film), is distinguishable from the level of the *object*, which needs to be 'natural' (i.e. factual), an 'authentic' relation between the two can be established. In conventional documentary, this relation is expected to provide a clear separation between the observer and the observed, where the diegetic sound sources are what is observed, and the nondiegetic sound forms a sedan on which the observer is brought safely to the end of the film.

One might argue that a film can hardly be in control over its interpretation and the attribution of authenticity is a complicated process. It can be claimed, e.g. that the differentiation between fictionality and nonfictionality is independent of the film itself, but is the consequence of an 'implicit contract' between viewers and producers.⁷ Nevertheless, this contract is not always implicit, and it can be subject to open negotiation. Since its early stages, numerous film makers have (implicitly or explicitly) made the documentary genre itself a subject of their work. In this spirit, we may investigate the frontier between the attribution of artificial and natural, which provides a frame that allows us to reason about how sound may work in films that attempt to reflect on how authenticity is caused or fabricated. Taking into account the role of sound in this negotiation, this study is likely to get involved in the relation between physical acoustics and whatever falls outside of this category.

⁶ see also: Chion's concept of the *acousmetre* [8]

⁷ [9]. See also Chion's concept of the 'audiovisual contract'[8]

3 The Sound of Home

[...] this feeling of unity and the history and all that ... that's what we want to preserve, that's our heritage, our roots, that's where we came from, we didn't just fall from the sky, that's our real history [...] without the past we're nothing, that's my opinion anyway. You can't just go around claiming that we just suddenly happened, and here we are, now, and it's all good and everything that was, was bad. That's ... history has taught us ... oh well, that should've ... I don't want to stray from the point, ... and the logical consequence of all this would be to build a Local History Museum.⁸

Quite similarly to the natural and authentic, the past is an embattled place. Both objectivity and identity depend on a consent on *what has happened so far*, and any dispute about what is real and what is allowed seems to unavoidably revert to history. Since individual memory as well as the past 'itself' are inaccessible, external and timeless representations of past events serve as proxies and educational means to establish a stable notion of historical fact—on the level of the universal (like the state) or the local (like a family). History as a science maintains a distinct scepticism toward the idea of consistent history and holds that the historical is characterized by contingency regarding the past events, their mediation and their interpretation today.⁹ Regarding individual memory, a similar prudence has been suggested by psychoanalysis.



Fig. 1. A scene from *All That We Have*, situated on a location of local historical relevance

⁸ Helmut Wattenberg, town archivist, transcript from an interview 2002. My omissions are marked by [...], pauses of the speaker by ...

⁹ This stance is maybe best illustrated by a historians' witticism: "*The contemporary witness is the natural enemy of the historian.*"

The documentary *All That We Have*[10] investigates a typical representation of local historical identity, a local history museum in northern Germany. Being a documentary—a classical medium of historical representation—it makes it a subject of discussion what role film plays, in a more general sense, in the production of authenticity. This happens at several levels simultaneously; its subject is the culture of historical representation and formation; at the same time, it makes documentary film the subject of a critical investigation. This is, as we will see, where sound plays a pivotal role.

Following a list of important locations that is published in the museum's book *Lebendige Heimat*¹⁰ the film is composed of a series of panoramic 360° panning shots (e.g. Figure 1). The voice off-camera explains the history of the place, why it is characterized by a series of fires over many centuries, and that, as there are hardly any historical buildings left, a place of historical identity is indispensable. In a fluent transition, the male narrator's voice blends into a female voice,¹¹ who explains the more recent history of the local history museum itself, which has been set fire to regularly since the 1970s. The pictures show places that bear traces of a certain particularity, but obviously fail to present any authentic 'past-as-past'. While the moving gaze of the camera sometimes gets hold of a car or a person, we have a particular, but fairly generic outlook.

Inverting the perspective of Kamensky's previous film *Divina Obsesión* (1999), the complete cycles of panning shots constantly follow the theme of a panoptic desire: the documentary view is typically presented as all-embracing. While *Divina Obsesión* links this panoramic vision to the history of sovereignty and enlightenment,¹² *All That We Have* makes historicity and the construction of identity a subject of discussion. Reoccurring fires, which make up part of the history of the town, while simultaneously destroying its traces, lead to a constant reconstructive activity—this motive is predominant, and instead of naturalizing this history (the area is indeed windy), the off-camera narration explains that the fires were usually set on purpose, with various, and partly unclear motivations. An analogy is drawn between historical identity and the documentarist's realism, which converges in the tendencies of materialization and fixation.

As we have seen, 'natural sound' in documentary film embeds the observer in an envelope of a kind of material authenticity. The fact that the terms *natural sound* and *original sound*¹³ are often taken to refer to the same thing, shows that the idea of the 'origin' is somehow tied to the idea of the 'natural'. Here, in the context of *All That We Have*, this coincidence is questioned and it is shown to be part of a naturalistic historiography. In order to achieve this, the film investigates the border between natural and artificial sound, and in order to be able to abstract from references to origin, it restricts itself entirely to

¹⁰ *Living Homeland*, see: [11]

¹¹ The speakers are: Sarina Tappe (director of the homeland museum), Helmut Wattenberg (town archivist) and Volko Kamensky (film maker).

¹² Kamensky more explicitly refers to the concepts of panoptic view in [12], where he links documentary with the institutional and technical history [13, 14].

¹³ *production sound*, German *O-Ton*

specifically written sound synthesis algorithms and does not use location sound recording.¹⁴ We will have a closer look at some details of the construction of this sound track, which are relevant for the discussion of the relation between the artificial, the natural and the historical. The authors¹⁵ followed the strategy to construct the acoustic situation for each scene in a conversational process from memory, without listening or analysis of any recordings. Negotiating a possible reconstruction of a sound memory, each of the acoustic events is an *acoustic portrait*, or in some cases a *sound icon* of what could be called the *phantasmatic sound object*. Partly, this results in a kind of hyperrealism, where each sound is overly clear and separated, an impression that is magnified by the fact that in most cases one can only hear those sounds whose source is visible.¹⁶ On the other hand, the unity of space is dubious—on many occasions the physical origin of a sound clearly becomes suspicious (Figure 2). Lacking clear locality, the attribution of the origin becomes perceivable as a process, sometimes even as a deliberate choice of the observer. Instead of attempting to simulate what is sufficient to cause a smooth and realistic impression, *All That We Have* plays with the borderline of failure of what may still count as authentic. Since eventually, what specifies the sound is a program text, we may infer that the *natural* itself is a kind of text that is inscribed by the intervention of an investigation of truth.

4 Sound and Formalism

Artificial sounds have accompanied the cinema from its beginning: The need of a separate sonic reconstruction of the acoustic scene at least needed to compensate for the difficulty of location sound recording. This constraint gave rise to a whole art form that spans from foley to film music in which to a certain degree the difference between musical accompaniment by instruments and the noise produced as a location sound replacement became negotiable. Jacques Tati's oeuvre comes to mind here, and it is not by accident that his staging of modernity, and its superposition with acoustic abstraction and ambiguity is so successful.

With the beginning of electronic sound synthesis, the idea of a complete universality of artificial sounds met with the mysticism of a secret life inside the electronic circuits; it seemed that everything was possible. In the acoustic narrative of science fiction sound tracks, technical, electronic sound sources converge

¹⁴ The algorithms have been implemented in the programming language *SuperCollider* [15]. Apart from the off-screen narration, no recorded sound has been used as material in the soundtrack.

¹⁵ The soundtrack was programmed during the year 2003 by Julian Rohrhuber, in conversation with Volko Kamensky, at the Hamburg Art Academy. It was mixed down by Alberto de Campo, Rohrhuber and Kamensky at the Academy of Media Art, Cologne.

¹⁶ In this way it could be claimed (in contradiction to Metz) that the impossibility of off-screen sound is only conventional: Metz had stated a fundamental difference between image and sound because, according to him, there is no off-camera in sound, as it always surrounds the audience.



Fig. 2. An agricultural vehicle is passing a church, a pipe organ is playing inside.

with alien languages and robot voices.¹⁷ Here, the electronic is seen as a path that promises the escape from the ordinary. On the other hand, electronic sound over time became a means to replace the orchestra and mimic physical sounds naturalistically, which was partly a economical issue (replacing musicians and foley artists by machines) but also promised the editor or composer to gain more control over the result.¹⁸ The specific efficacy of electronic sound that permits the extraordinary just as well as the ordinary can be traced to its pivotal position in the production of evidence: a particular magnetism¹⁹ draws the sound into the image if there is a possible source to be seen; as we have discussed before, this association is responsible for a significant part of the impression of fidelity. From the perspective of origination, algorithmically generated sound inserts an essential rupture here—it doesn't originate only from a physical sound source entirely different from the picture's, like in montage,²⁰ but there is no physical source to be found at all.

Considering sound synthesis in the context of documentary film, or more precisely, within a reflection on authenticity construction, we have to take a

¹⁷ See e.g. [16]

¹⁸ See e.g. [17]

¹⁹ This attraction is not only a *spatial magnetism*, as Chion describes it in [8, p. 69-71], but also a *causal* and *material magnetism*: the sound becomes embodied and embedded in the causal structure of the narrative. There is a perceptual basis for this in everyday experience, sounds and active objects are nearly always synchronous; thus we readily fuse simultaneous percepts from different modalities into a single entity with a causal connection.

²⁰ Much of the immersive 'realism' of conventional film sound depends on finding good atmos in sound libraries, unless one has the opportunity to make recordings at the filmed locations—and the ambience there is appropriate.

closer look at the methods of creating sound with computer programs. Instead of reducing the computer to a tool that neutrally assists in production, here, we take the program as something that embodies assumptions about the world which enter (usually without notice) the narrative structure of a film. *All That We Have* especially takes into account the magnetism of those location sounds with a clear relation to the physical and visual, but also considers the almost unnoticeable background of ambient sound; in some situations, this could be a quiet sound of water, leaves or traffic, in others, the complete absence of recording artifacts like wind noise, of sound coloration due to microphone directivity. In order to investigate the formation of historical authenticity, it poses the question of the origin on the level of object formation, including sound synthesis into the structure of the inner logic of the film, shifting between sonic realism and a clean, slightly untrustworthy hyper-realism.

This ambiguity of objects and sound sources results from the uncertainty of the source of actions. Here, electronic sound is a constructed, artificial source. Who or what is behind this construction? What *is* the origin of an algorithmic sound? Generally speaking, algorithmic sound synthesis consists in the computation of acoustic waves instead of the reproduction of recordings. A computer program can interpret mathematical or formal methods such as relations between numbers or other abstract entities as a recipe for the calculation of a wave form. Since computers have become fast enough, one may listen to the resulting sounds while they are calculated, and consequently the author may change parameters that affect the output in realtime. Some of these resemble sounds that one has heard before, which may have been of animal or technical origin, or which may have been caused by other physical processes. The method of creating these sound does not need to be analogous in any way to these supposed origins.

Usually, *real sound synthesis* tries to construct a simplified, but precise model of a physical situation²¹ according to the scientific formalisms that were developed in order to reason about natural causality. Physical properties like mass, kinetic energy, material stiffness become parameters in an algorithm allowing for a synthesis of the vibrational movement of objects. Thus, if we know the shape of a church bell, for instance, we may reconstruct its sound, and knowing some properties of a wooden stick, we may reconstruct its sound when hitting the bell. Once such a physical model has been implemented, typically, its parameters are controlled from a graphical user interface, setting cue points along a timeline. Experimentation is done with different parameters of the model, adjusting them to their appropriate values. Both the formalism that was originally used to implement the application, as well as the algorithmic process itself are not interesting anymore at that point, because on the level of simulation, the *object* already exists. While such a procedure causes similar abstraction effects,²² by itself, it presumes the existence of the natural entity on the one hand, and formally reconstructs the unity of space on the other. In other words, here, the

²¹ See e.g. [18, 19]

²² See e.g. [20]

origin of the algorithmic sound is the simulated object that is mediated through the timeless mechanism of physical laws.

Since *All That We Have* attempts to make fidelity a subject of discussion, the assumption of an existing origin simulated by an algorithm would have been dissatisfactory. There is no general law for real sound synthesis.²³ It seemed more appropriate to make the programming procedure itself part of the conversation, and to discuss changes in the source code and the sound synchronously; thus, to establish a negotiation between sound impression, program text, individual acoustic memory and expectation of the algorithmic possibilities. In other words, there is no model of a supposed material situation that could stabilise the relation between image and purely formal algorithm, so that there are, for instance, no parameters such as distance, size or weight that would refer directly to a model. Also, the whole source code of the program is part of the negotiation, not only predefined parameters.²⁴

To achieve this, parts of the program are rewritten while the whole process is still running, allowing us to hear the result of changes in the text directly as changes in the sound. This technique of just in time programming²⁵ is centered around the abstract relation between a textual representation of a sound algorithm and the acoustic perception it causes. The absence of a graphical user interface causes programming to be a formal experimentation, as well as a conversational literary genre. Due to the interaction on a textual level, the delimitations of algorithmic cause and effect become part of the discussion and the paradigm of manipulating a simulation of a given entity is avoided. Negotiating the relation between ‘sound cause’ and ‘sound effect’, between function and argument, the notion of an *object at the source of the sound* may thus be suspended and the causal source is displaced to the algorithmic process and its textual description. This suspense is not like a riddle, where the author knows the origin, but veils it by the technical means. Neither is the film simply the product of the authors’ thoughts. Rather authors and audience alike are drawn into a process of hypothesising possible constructions of the authentic, of a possible deviant fidelity.

²³ This is not only true for physical modeling, when seen in a cultural context, but also for automatic problem solving of a more general kind. “*When searching for a solution to a problem with a computer, a function is needed for determining whether the search is going in the right direction. [...] For art, it is not possible to write such a function with a computer. Even humans cannot agree whether a work of art is successful, interesting, or relevant. [...] For these reasons fully autonomous composition programs cannot be successful with others or society until the time, if it ever comes, that computers can be said to be aware of the human relation to art and the social context of art.*”[21]

²⁴ This procedure shifts conversation into the position of production, which could be regarded as an affinity to genres like conversational art and fluxus. See e.g. [22]

²⁵ For more details about the theoretical background of *Interactive Programming / Live Coding* in art and science, see [23]. For an overview of different methods and systems, see [24] and [25]

Whilst this algorithm (both as text and as process) was an active part of what caused the acoustic situation, the formalism itself is the result of other situations though. The algorithmic sound's origin cannot be ascertained anymore. Depending on the individual case, it might be a half faded memory of a sound, it might be the particularity of the formal system, it might be a coding mistake that rang a bell. Of course these considerations apply to the process of filmmaking itself. Watching the film, eventually, the question is open once again.

5 Acknowledgements

This paper owes its inspirations from many discussions with Volko Kamensky, Renate Wieser, Alberto de Campo and Anthony Moore. The film sound track would not have been possible without an advanced programming language, an incredible piece of meta-art that James McCartney has brought into existence.

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