Narrative Sonic Ambiances: Designing Positive Auditory Environments Using Narrative Strategies

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Summary
Positive auditory environments are environments that allow their inhabitants to exhibit self-selected proactive adaptive behaviour. The way people experience their auditory environment in terms of pleasantness, eventfulness, and familiarity indicates the degree to which they feel safe and comfortable in this environment. By taking the design of positive auditory hospital environments as a case study, this paper will explore how narrative strategies may contribute to the design of positive auditory environments. In this exploration two concepts will be discussed: ambiance and narrative. The concept of ambiance addresses the interrelatedness of environments and the subjects that populate these environments. Ambiances are ongoing and temporal negotiations between the sensing body in relation to other bodies and the environment. Narrativity is what makes a temporal phenomenon engaging for its observers. Narrative here is understood as a representation of a temporal development. It is a representation of sequence of logically and chronologically related events. Therefore, an auditory environment that can be interpreted by its inhabitants as a soundscape consisting of sequences of sounds that make sense to them in time, thus as a narrative, is likely to be experienced as one that is pleasant, eventful, and to an extent familiar. As a consequence, a narrative auditory environment may improve the temporal negotiations between the environment and its inhabitants and allow them to exhibit self-selected proactive adaptive behaviour.

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1. Introduction

The manner in which human subjects experience an environment is greatly influenced by the way this environment sounds. An environment that is experienced as noisy — that is, consisting of unwanted sounds from the perspective of its inhabitants — is generally qualified as unpleasant by those inhabitants. The interpretation of sound as noise is co-dependent of the extent to which sound actively constrains the range of available behavioural options by constraining mind-states to the here and now [1]. Prolonged presence in annoying auditory environments limits proactive adaptive behaviour, which erodes proactive optimisation of long-term needs with ensuing health effects. Annoying sounds become dominant, as they actively constrain the range of available behavioural options by constraining mind-states to the here and now [1].

Positive auditory environments, by contrast, are environments that allow their inhabitants to exhibit self-selected proactive adaptive behaviour [1]. The way people experience their auditory environment in terms of pleasantness, eventfulness, and familiarity indicates the degree to which they feel safe and comfortable in this environment. The first two categories, pleasantness and eventfulness, give an indication as to the degree in which the auditory environment is agreeable to its inhabitants. Familiarity refers to the extent to which listeners are able to recognise what the sounds were, and if these sounds were part of the auditory environments they generally inhabit. A calm soundscape, for instance, is an auditory environment that is experienced by listeners as pleasant and uneventful. A chaotic soundscape, in contrast, would be interpreted as unpleasant and eventful, and a monotonous soundscape as unpleasant and uneventful [2].

This categorisation can be extended by making a distinction between fore- and background sounds. The combination of pleasant and unpleasant fore- and background then determines the overall assessment of an auditory environment [1]. Moreover, the way people experience their environment in terms of pleasantness, eventfulness, and familiarity indicates the degree to which they feel safe and are able to self-select proactive adaptive behaviour. A calm environment,

then, would consist of a pleasant background with few foreground sounds. In contrast, a chaotic environment can be interpreted as a confusing or taxing combination of foreground sounds that overall provides no indications of safety. A monotonous environment has few sounds that stand out on a background not indicative of safety. An exciting or lively environment, on the other hand, has many appreciated and well discernible foreground sounds [1], not unlike Murray Schafer's hi-fi soundscape [3]. As a consequence, sound design strategies should be developed that do not try to create a temporary distraction or just block unwanted sounds, because this could lead to a monotonous soundscape. Instead, these strategies should acknowledge the basic need of inhabitants to feel that they are an integrated part of the environment [4].

By taking the design of positive auditory hospital environments as a case study, this paper will explore how narrative strategies may contribute to the design of positive auditory environments. In this exploration two concepts will be discussed: ambiance and narrative. The concept of ambiance addresses the interrelatedness of environments and the subjects that populate these environments. An ambiance can be defined as a space-time qualified from a sensory perspective, and foregrounds the interaction between the properties of an environment and the lived experience of its inhabitants. Ambiances are ongoing and temporal negotiations between the sensing body in relation to other bodies and the environment. Ambiance therefore is a productive concept in order to analyse the impact of auditory environments on its inhabitants. Narrativity, for its part, is what makes a temporal phenomenon engaging for its observers. Narrative here is understood as a representation of a temporal development. It is a representation of sequence of logically and chronologically related events. Therefore, an auditory environment that can be interpreted by its inhabitants as a soundscape consisting of sequences of sounds that make sense to them in time, thus as a narrative, is likely to be experienced as one that is eventful, pleasant, and to an extent familiar, because the sounds make sense to them in time. As a consequence, a narrative auditory environment may improve the temporal negotiations between the environment and its inhabitants and allow them to exhibit self-selected proactive adaptive behaviour.

2. Ambiance

The concept of ambiance addresses the interrelatedness of environments and the subjects that populate these environments. An ambiance is always situated in space and time; it is the environment that surrounds and absorbs personal and social lives. It represents what inhabitants of an environment immediately grasp through sensory perception and experience [5]. An ambiance thus can be defined as a space-time qualified from a sensory perspective, and foregrounds the interaction between the properties of an environment and the lived experience of its inhabitants. It asserts the activity of inhabitants and the role of social practices in the sense people make of the environment [6]. Ambiances are ongoing and temporal negotiations between the sensing body in relation to others and the environment. In this view, sensing subjects are nothing but resonant bodies that try to become in sync with their environment by attuning to an ambiance [6].

Conversely, the process of setting up an ambiance comes down to "setting the tone" of an environment, which involves several complementary processes dealing with coalescence, upkeep, medium, resonance, and impregnation. Each of these processes contributes to the transformation of a physical environment into a lived ambiance [6]. Firstly, an ambiance gives consistency to an environment, in that it provides that environment with a certain "feel." This implies a movement of *coalescence* of the various factors that make up an environment. And even though an environment, and its ambiance, can, and will, change over time, a certain degree of consistency allows an environment to have its own identity, an identity that is codetermined by its ambiance. Put differently, the *upkeep* of an environment depends on whether an ambiance is installed in a lasting way. The *medium* is the intermediate place starting from which an object becomes perceptible, visible, audible. *Resonance* refers to the ability of human subjects to affect both other subjects and the surrounding world, as well as to the ability to be affected by them. Resonance thus is relational and depends on the medium that allows inhabitants to perceive and to be perceived. Resonance, in turn, also results in feeling an ambiance rather than merely perceiving it. Through the process of *impregnation* inhabitants not only inhabit an environment, but they are also themselves inhabited by that environment [6].

Although an ambiance involves all the senses at once, the processes of resonance and impregnation show that sound and ambiance are particularly closely related. Both sound and ambiance question the idea of a clear distinction between the perceiver and the perceived, the subject and the object, the inside and the outside, the individual and the world [4]. Like sound, an ambiance is immersive. Both ambiance and sound surround inhabitants of an environment and almost literally place them in the midst of a world [6]. Moreover, sounds influence the ways in which inhabitants attune to an ambiance, as positive sounds can stimulate and noises can frustrate proactive behaviour [1]. As a consequence, positive auditory environments can stimulate the attuning to the ambiance of an environment, with being able to attune to the ambiance considered as a form of proactive behaviour. A pleasant, positive auditory environment is one that is not con-

fusing to listeners and that allows its inhabitants full freedom and control over mind-states. Such environments are interpreted by their inhabitants as soundscapes consisting of sequences of sounds that make sense to them in time and therefore enable attuning to this environment.

3. Narrative

The process of attuning to an ambiance is a temporal negotiation, one that may be stimulated through manipulation of one or more of the processes (coalescence, upkeep, medium, resonance, and impregnation) that set up an ambiance. As discussed in Section 2, sound is a powerful medium to help set up an ambiance, as it impregnates inhabitants of an environment and establishes, through resonance, relations between inhabitants and the environment they inhabit. This section will explore how narrative, and sonic narrative in particular, can be used as a strategy through which coalescence and upkeep can be realised.

Creating stories is one of the oldest activities human subjects use their imagination for. Stories do not necessarily have to be told in words. Images, too, can convey narratives, for instance via wordless graphic novels. Also, a narrative does not need to be consciously created; a narrative, which can be defined as the representation of a temporal development [7], can emerge as a result of the interplay between the component parts of an object or phenomenon and an observer [8].

When it comes to sonic narratives, however, things become a bit more problematic. It is generally accepted that sounds can evoke or refer to narratives, for instance by triggering memories, just as a souvenir, a scent, or a photograph in principle is capable of. Triggering memories and narratives, however, is not the same as telling or narrating a story. A novel, for instance, does more than trigger memories or narratives. Instead, it actually represents the events that the story it recounts consists of, events that together constitute a temporal development. And although memory and imagination still play an important role in understanding the narrative, readers do not need to come up with the temporal developments the story consists of themselves, as these are represented by the novel. The question thus is whether a certain sequence of sounds has the capacity to actually tell a story, i.e. to represent the temporal development that constitutes a narrative, even when these sounds are not linguistic.

Although a sound sometimes has narrative-evoking qualities, it often is itself, in isolation, not a narrative. Most individual sounds do not comply with the definition of a narrative as a representation of a temporal development. Sounds may trigger narratives [9], but generally cannot be considered actual narratives, i.e. representations of temporal developments. A sound of a scream can elicit stories about fear or danger, but the scream itself does not have to be a narrative, as it usually is not a representation of a temporal development. Instead, it is the referential quality of a sound, the ability to indexically refer to events that caused this sound, that is responsible for its evocative narrative nature [10]. As a consequence, the sound of a car breaking, for instance, followed by the sound of a thud, a scream and the sirens of an ambulance, can be interpreted as a narrative about a car accident, as the events these sounds indexically refer to — in other words: are represented by the sounds — make up a temporal development.

The definition of narrative as a representation of a temporal development implies that causality, or at least the suggestion of causality, is very important in narrative understanding. A narrative can be understood because its succeeding events can be interpreted as being related in a causal manner, regardless of this relation is a reality or a projection of an apprehending subject. Objects that can be interpreted as containing events that are somehow — metaphorically or otherwise — causally related might be more easily grasped in a narrative manner. Because narrative ultimately is nothing more than a basic pattern-forming cognitive system bearing on sequences experienced through time [11], human subjects try to structure these sequences in the most straightforward way possible, which is in a linear fashion. If possible, they interpret succeeding events as the former being the cause of the appearance of the next [12]. Thus, causal relation is one of the most important kinds of structuring relations within a narrative.

A sonic narrative, then, may be considered as consisting of sequences of sounds that make sense to them in time because listeners interpret these sounds as being causally related. More specifically, it is because a sonic narrative consists of a succession of sounds that listeners can get the impression the sequence of sounds is moving forward. It is this forward motion, and the expectations this impression of movement generates, and which are either met or not, that can be called a temporal development. This development consists of a succession of moments of relative tension and rest, with moments of tension "leading to" moments of rest, and is responsible for evoking the impression that the sonic sequence is telling a story. A sense of causality is suggested by tension and resolution, which is crucial for narrative. Consequently, it is the impression of a succession of sounds constituting a phrase or gesture, i.e. a temporal development, that is responsible for its narrative character. A sonic narrative thus is a sequence of sounds that either can be considered a representation of a temporal development created by the interplay of tension and resolution elicited by the *acoustic* qualities of the sounds in the sequence, for instance by the manipulation of the dynamics or onset of sounds, or as a

result of the *referential* qualities of the sounds the sequence consists of, references that together constitute a temporal development. In both cases, the different sounds that can be heard are coalesced into a unified sequence, a sonic narrative, one that provides consistency and upkeep to the environment in which they sound. And because these sequences of sounds make sense to them in time, it is expected that auditory environments that include sonic narratives are interpreted as positive soundscapes that stimulate proactive behaviour and therefore enable positive attuning to this environment.

4. Narrative Strategies for Designing Positive Auditory Environments

As discussed in the Introduction, a positive auditory environment is one that allows their inhabitants to exhibit self-selected proactive adaptive behaviour, and the degree to which they feel safe and comfortable in this environment can be expressed in terms of pleasantness, eventfulness, and familiarity. Through narrative stategies the pleasantness and eventfulness of auditory environments can be enhanced, just as their familiarity can be increased, because the sounds make sense in time to their inhabitants. As a result of allowing their inhabitants to exhibit self-selected proactive adaptive behaviour pleasant, positive auditory environments also stimulate the temporal negotiations between an environment and its inhabitants, and thus help inhabitants attune to the ambiance of an environment. Furthermore, Section 2 suggested that sound may be an effective medium to help set up an ambiance, as it impregnates inhabitants of an environment and establishes, through resonance, relations between inhabitants and the environment they inhabit.

Section 3 suggested that a sequence of sounds that can be considered a sonic narrative provides consistency and upkeep to the environment in which they sound, because the different sounds that can be heard are coalesced into a unified sequence, i.e. a narrative. Section 3 also explained that a sonic narrative consists of a succession of sounds that gives listeners the impression that the sequence of sounds is moving forward. More specifically, the interplay of tension and resolution that can be heard in a sonic sequence may lead to the representation of a temporal development and thus to a sonic narrative. This interplay can be created by manipulating the timbre, dynamic envelope, and/or onset of sounds in a sonic sequence.

These strategies have been used in a research project on how to design positive hospital auditory environments [13]. During this project patients, visitors, and staff evaluated different designs of hospital auditory environments. One of the designs consisted of natural sounds such as bird song, water, and wind. This design was considered as uneventful and uninteresting by some participants, despite the fact that natural sounds are generally regarded by listeners as calming, pleasurable, and familiar. Only when the continuous natural sounds were mixed and processed to create a sonic narrative, as an evolving soundscape consisting of sounds that may be interpreted as being causally related, which was done by crossfading between different sounds, dynamic and spatial changes, and dynamic equalisation, these sequences of sounds were considered as more eventful and pleasurable, while still remaining familiar to them as well.

The outcomes of this research suggested that a pleasant, positive hospital auditory environment is one that allows for proactive behaviour and stimulates the attuning of inhabitants to the ambiance of a hospital, i.e. the ongoing and temporal negotiations between the sensing bodies of its inhabitants in relation to others and to the hospital environment. Such environments are interpreted by their inhabitants as soundscapes consisting of sequences of sounds that make sense to them in time and therefore enable attuning to this environment. Narrative, as a temporal design strategy, proved to be particularly effective in designing positive hospital auditory environments. Hospital auditory environments that are designed as sonic narratives, i.e. considered as sequences of sounds that make sense in time, may contribute to improving the temporal negotiations between hospital ambiances and their inhabitants, and thus stimulate the attuning of inhabitants to their environments.

5. CONCLUSIONS

This paper discussed how narrative strategies may contribute to the design of positive auditory environments. A positive auditory environment is one that allows their inhabitants to exhibit self-selected proactive adaptive behaviour, and can be assessed in terms of pleasantness, eventfulness, and familiarity. A smooth, unproblematic process of attuning to the ambiance of an environment provides more opportunities for inhabitants of that environment to exhibit self-selected proactive adaptive behaviour. As a result, when setting up an ambiance, which includes the processes of coalescence, upkeep, medium, resonance, and impregnation, care needs to be taken to make the process of attuning as unproblematic as possible.

Sound is an important medium through which an ambiance can be set up, as sound impregnates inhabitants of an environment and establishes, through resonance, relations between inhabitants and the environment they inhabit. When sequences of sounds are designed to create a sonic narrative, the process of attuning to the ambiance of an environment can be made even more unproblematic, as sequences of sounds that can be considered a sonic narrative provide consistency and upkeep to the environments in which they sound, because the different sounds that can be heard are coalesced into unified sequences. An

auditory environment that is designed as a sonic narrative therefore stimulates attuning to the ambiance of that environment and is likely to be experienced by its inhabitants as pleasurable, eventful, and familiar.

To date, only one small-scale research project has been conducted in which the effect of sonic narrative on auditory environments is investigated. The results of this project where promising, but other experiments need to be conducted to further explore the possibilities of narrative strategies for designing positive auditory environments. In these experiments the focus will be on the kinds of sounds that can be used in sonic narratives, on the exploration of the different manipulations that can be performed on the sonic sequences in order to turn them into representations of temporal developments, as well as on the specific requirements and constraints of different spaces for which auditory environments will be designed.

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