Domestic Spatial Investigations:
Expanding the Perception of Space through Experiments with Sound

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Abstract

This study focuses on the search for a method to capture and represent the perceived auditory quality of spaces in order to make them more accessible in terms of architectural design and artistic practice. The theoretical part of this study introduces the new phenomenological concept of 'felt-body' spatial experience and how it relates to auditory perception. This is where the body becomes the constitutive element through which it can enter into felt-body resonance with the aural environment. Based on this theory, a method can be developed within the field research in the context of domestic spaces. Field notes and binaural recordings are able to capture the auditory experience in context, and a field research report can be developed that further details the sounds. The focus of this study is on the presence of sounds in respective situations, the interpretation of what led to their emergence, and the effect they create in interaction with the environment. Moreover, it builds the source for aural maps of the spaces. The initial results of this extensive research show that this approach is relevant and that it is possible to document the various auditory qualities in context through both body movement and position.

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1 Introduction

To a large extent, the auditory experience determines the perception of architecture, meaning that the urban environment is often intentionally designed to condition the aural experience. However, there is a lack of awareness in current design and planning practices that one hears in every architectural environment; and through hearing, one experiences the architecture as well as shapes it. Only in some instances is auditory experience included in the design and planning process. Areas of building and room acoustics cover the subject of sound for architecture as a specialist area of building physics. They deal with sound as something that is purely functional and approaches the auditory experience of the architectural environment only to the extent that either the sound must not interfere or it should spread optimally for sound performance, as is the case in concert or lecture halls. In building and room acoustics, hearing is thus understood as a purely physiological process, and is therefore reduced to individual aspects. Interpretations, associations and focusings of auditory perception, which all play a decisive role in the effect of sound, are not taken into account. However, lack of awareness is not the only reason why auditory perception plays such a subordinate role in design and planning practice. Even if the necessity of consciously designing architecture from the auditory aspect were recognised, there is still no method for making such a design possible. Admittedly, there is a growing awareness of the auditory dimension in architectural and urban contexts, but publications[1] still only emphasise the necessity of sound design, without pointing out ways in which the conscious design and shaping of sound can succeed.

This study is motivated by the need to develop a method by which the auditory-aesthetic quality of a space can be recorded and documented in order to integrate it into the architectural design. Therefore, a practice-oriented approach is necessary in developing a suitable method because the auditory experience of rooms corresponds to the perception of architectural space. Therefore, the study concentrates on the context of domestic apartment spaces. In particular, living is of interest, as it creates a diverse spatial relationship through which life spatialises. Thus, one lives in a room if one feels a part of it and becomes involved with it. In addition, although the living space is a real space, it is, more than this, a space charged with vital qualities in which one experiences a feeling of comfort. In everyday

[1] Fowler, 2017; Kang & Schulte-Fortkamp, 2016

listening, one usually concentrates on meanings as well as information and ignores the sound quality of the home and how it contributes to its atmospheric presence. Once one settles into an apartment, living becomes something one gets used to, and sound quickly becomes something that one simply does not hear.

From this perspective, a study of the interiors of different apartments provides valuable information about the general condition and auditory quality of the rooms and can make a lasting contribution to the design of the auditory architectural experience. Therefore, the strategies and methods developed in this study are based on three apartment studies at locations in Voorburg, Berlin and Hamburg. In order to achieve the overarching research goal, the focus of this study is organised around sensing and recording the auditory experience in a particular context, documenting the sound characteristics, comparing the sound categories between the apartments and reproducing the aural experience. The practice focuses on personal experience, whereby the New Phenomenology offers the approach of felt-body spatial experience, through which one senses everyday situations. It creates the possibility to make a sensual experience clear through interactions with space. From the phenomenological position, the method develops through a practice-led process through which one sets oneself in resonance with the aural environment through bodily interactions. In this way, the sound can be linked back to the felt-body experience and named as an impression of the situation.

Although the individual work steps and findings did not progress in a linear fashion, the chapters have the following sequence. Chapter 2 introduces the New Phenomenology in the form of a short introduction and outlines the path of knowledge through felt-body perception and communication before transferring it to the auditory experience in context. In Chapter 3, the theory links to practice and primary methods for the project are developed as well as their application. Chapter 4 contains the project description, which includes reflective and subjective descriptions of the experience of the research as well as the results of the applied methods. The final chapter links back to the findings from the theoretical discourse in order to show, in a concluding summary, that it is possible to describe the auditory context through the development method.

2 New Phenomenology as a research approach

A phenomenological approach is applied to this work since it focuses on the development of a method to capture the experienced auditory space. This approach is particularly useful in opening up a realm of reality that has so far been little explored – to discover the specific contexts of perception and to sensitise towards them. For auditory research, therefore, an understanding of the term 'New Phenomenology' must be explained from the outset.

New Phenomenology owes its conceptual and thematic foundation to the philosophies of Hermann Schmitz. The specificity of his phenomenology is the spatial structure of felt-body experience and the precise conceptual elaboration of one's condition (Schmitz, 1965). Therefore, Schmitz's work makes it possible to fully grasp the difference between felt-body and body and to relate their aspects to one another systematically. Section 2.1 introduces the concept of New Phenomenology in order to locate the theoretical elements of the body, felt-body, feeling and atmosphere, in an overall picture. Section 2.2 outlines the perception of the felt-body in order to relate it to the auditory experience, as described in Section 2.3.

2.1 Concept of New Phenomenology

New Phenomenology is a phenomenological movement introduced by the philosopher Hermann Schmitz in the 1960s and has continued to be developed ever since.[2] Schmitz conceived his theory in his ten-part work 'System of Philosophy', which he wrote between 1964 and 1980. His phenomenology aims to make real-life understandable in order to get closer to the involuntary experience of life (Schmitz, 1998, p. 11). It concentrates on the perceptible felt-body, which one feels as belonging to oneself within the limits of one's own body, without using one's senses.

Here, one is carried by a felt-body dynamic, which is embedded in everyday situations and moved by feelings and atmospheres (Schmitz, 1998, pp. 15-27).[3] Schmitz's considerations always refer to phenomena that show themselves concretely. He defines them as a fact; as something which seems unchangeable to someone at a specific point in time, even with an

[2] In recent years, his theories have spread into the English-speaking world in more recent publications (Griffero, 2016; Schmitz, 2019). Furthermore, one of his students, Gernot Böhme, places his concept of 'Atmosphere' at the centre of his 'New Aesthetics' (Böhme, 1998).

[3] Atmospheres are something between oneself and the surrounding environment. Section 2.2.4, the perception of half-things, goes into more detail.

arbitrary variation of all possible assumptions. As a result, it forces itself upon oneself in such a way that one cannot seriously deny its existence (Schmitz, 1967, p. 1). Thus, the character of phenomena in Schmitz's work always encompasses a context of meaning. Therefore, he proceeds from a broadly defined phenomenological term, which includes not only sensory perception and the mental imaginative process but also a broad spectrum of human experiences. The multi-layered way of experiencing and becoming aware of feelings does not take place within a closed interior space, as in traditional phenomenology,[4] but as an experience with its felt-body spatial quality. The sphere of the felt-body differs from general perception and sensory division. The felt-body sensation lies beyond the conventional discretion of sensory performance. Its specific dynamics are thus always characterised by communication and their dialogical relation to the environment. Felt-body concern cannot be found, therefore, in the space of inner seclusion, but only through the surrounding space and through a dialogical dynamic. Schmitz (1998), therefore, speaks of feelings as atmospheres that connect closely with the concept of the felt-body.

2.2 Perception of the felt-body

Immediately below the surface of everyday perception lies a possibility of self-awareness through New Phenomenology, which becomes accessible through the layer of felt-body. Schmitz's concepts of felt-body sensation (2.2.1), his system of feeling (2.2.2), felt-body communication (2.2.3), and the perception of half-things, including sound (2.2.4) are outlined in the following subsections.

2.2.1 Felt-body and body

In his investigations, Schmitz concentrates on the field of felt-body impulses. In it, he sees a difference between felt-body and body and explains it as follows:

'Everyone experiences that he not only perceives his own body sensually with the help of his eyes, hands and the like but also directly in the area of this body [...] feels something of

[4] Schmitz criticizes the philosophers who have dominated history since Plato and Democritus for separating human thought from most of the involuntary experience of life. He calls this a fatal imprint, which consists of three components, namely psychologism, reductionism and introjectionism (cf. Schmitz, 1998, pp. 12–15). In summary, what remains after the reduction of the outside world through the senses shifts into the private world of the soul and remains there.

himself: e.g., hunger, thirst, pain, fear, lust, tiredness, comfort. In contrast to other modern languages, German has two words that make it easy to differentiate the two: felt-body and body'. (Schmitz 1965, p. 5; my translation). For Schmitz, the felt-body is what one feels of oneself, and the body is what one sees of oneself. The habitual idea one has of oneself, the so-called body scheme, has correspondingly clear limits, which the felt-body does not have as it is only perceptible but not visible. The field of felt-body impulses accompanies us at all times. Hardly a minute passes in which one does not feel anything that is not felt-body, even if it is only a pressing in the throat or a pulling in the belly. Often these movements are continuous; one does not know precisely how to classify them. However, they can contract into a specific profile: for example, hunger. In this context, Schmitz (1965) speaks of an 'unsteady sequence of islands.' (p. 26; my translation). 'The felt-body is almost always [...] occupied by such body islands, a wave of blurred islands that form, reshape and dissolve without a constant connection [...]' (Schmitz 1998, p. 16; my translation). The felt-body impulses can, therefore, be felt holistically or partially in places of individual felt-body islands. One feels tired, or only has tired legs or tired eyes. The present places felt on the felt-body are 'absolute places'[5] of subjective orientation and open up the dimension of a pre-dimensional, surface-free space (Schmitz). This notion of space is particularly noteworthy because it represents one of the essential elements of Schmitz's overall concept.

2.2.2 Archetypes of Sentiment

From the spatial organisation of the body, something of a dynamic emerges from which Schmitz develops the structure of sentiment, its changes and its elementary states. Schmitz proposes nine terms to describe sentiment, namely narrowness, width, direction, tension, swelling, intensity, rhythm and protopathic and epicritic tendencies (Schmitz, 1998, pp. 15-22). All these terms are connected: narrow is the opposite of vast, tension is the opposite of swelling, and protopathic and epicritic tendencies are opposing terms.

What is meant by these terms is partly self-explanatory – the feelings of narrowness and vastness are familiar to everyone from their own physical experience. One knows narrowness

[5] 'By an 'absolute place,' I mean a place that is already independent of location and distance' (Schmitz, 1998, p. 17; my translation).

from fear, anxiety, shock; one feels the vastness in intoxication and euphoria, but they are also felt when one steps outside from a narrow space. The narrowness of one's own body always stands out against the background of the vastness. The concept of vastness is one of the fascinating concepts of Schmitz's philosophy because it is both a spatial concept and a physical state. Schmitz (1967) combines two themes within this concept that are usually strictly separated. According to him, the vastness one sees outside, and the vastness one feels, are identical. Something similar applies to the concept of narrowness. In Schmitz's view, this word, too, not only denotes a way of feeling but is also meant spatially. For the experience one has of narrowness it is always a spatial experience at the same time. In the narrowness, one feels that one is not everywhere and nowhere, but 'here.' This 'here' has a strange quality because it is not a geographical place. Schmitz speaks of an 'absolute place', which one experiences in the narrowness. Here, one binds oneself in a very particular way.[6] This 'here' is a physical condition. Narrowness and vastness are essential analysis terms for Schmitz as they denote primary types of felt-body conditions. He interprets these types as impulses that alternate with each other. Schmitz speaks of a dialogue between narrowness and vastness, and a characteristic dynamic of the felt-body sentiment manifests in this.

Schmitz understands the tension and swelling as mixtures of narrowness and vastness. In tension, there is an overabundance of narrowness, in swelling, there is an overabundance of vastness. The word 'swelling' refers to the meaning indicated in the expression 'proudly swollen breast'. Swelling is something pleasurable for Schmitz as it involves the overcoming of obstacles. He understands that tension and swelling are opposing forces and they, therefore, deviate from the general use of language, which does not know this confrontation.

Furthermore, the fact that intensity and rhythm are primordial phenomena of the felt-body seem self-evident. The felt-body events are thoroughly rhythmical, and the experience of intensity is always physical. Everyone knows what is meant by these words from their own experience. Schmitz connects these terms with his other concepts. For him, intensity is the simultaneous interweaving of tension and swelling. One can understand this thought by taking a deep breath and then holding it: one feels the tension and swelling at the same time; it is an

[6] In this context, Schmitz also speaks of a 'primitive present', in which self-confidence develops, and one can detach oneself from one's own situation.

intense sensation. By rhythm, however, Schmitz does not mean pulsation, rather the ‘ups and downs’ of tension and swelling.

Moreover, the direction is what leads from the narrowness into the vastness and vice versa. In many felt-body movements, one can perceive something like a direction; one can often feel it. When one closes one's eyes and exhales, the breath follows a direction – it moves away and disappears into the distance.

The next two terms are something out of the ordinary. While the five terms explained so far are taken from colloquial language, they were only stylised by juxtaposition and connection. Epicritic and protopathic tendencies, however, are neurological terms used to distinguish different types of pain (Schmitz, 1998, p. 22).[7]

Protopathic, according to Schmitz, is a tendency that is opposed to finding a place, ‘dull, diffuse, blurred, radiating’ (Schmitz, 1998, p. 22; my translation), while epicritic is a tendency that seeks a sharpness, points to a location. There are diffuse, dull pains, and those that strictly circumscribe them. Some pains – epicritic types – can sting, such as pain inflicted by fine needles; others – such as protopathic types – can be felt holistically. The distinction between epicritic and protopathic pain is related to the juxtaposition of narrowness and vastness, but does not coincide with it (Schmitz, 1998, pp. 22–23).

The analytical instruments with which Schmitz analyses the felt-body condition are the epicritic and protopathic pairs of terms that are somewhat different, while the other terms are strongly linked (see Figure 1). This connection expresses the strong changeability of the felt-body state.

[7] The British neurologist Henry Head coined the terms protopathic and epicritic in order to attempt to differentiate the sensory system. Through his experiments on the radial nerve, he has contributed significantly to the understanding of sensory investigations (Lenfest et al., 2011).

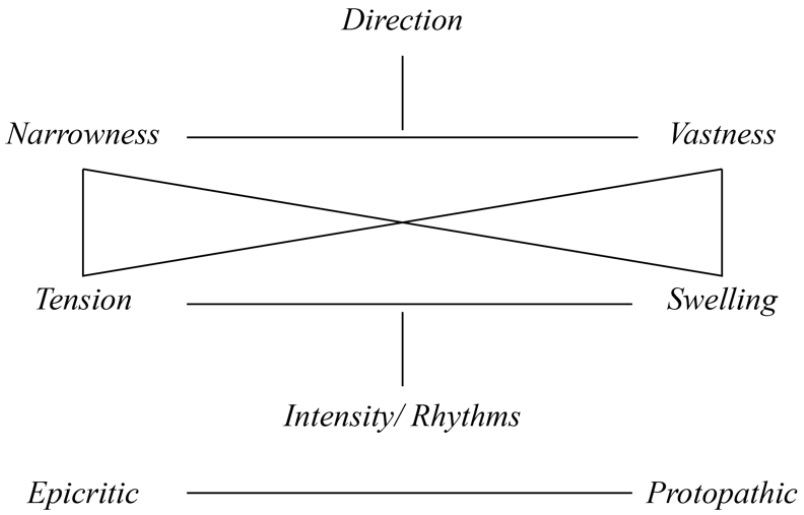

Figure 1: Archetypes of sentiment

The only 'static' term that Schmitz uses to analyse the state of sentiment is the term 'body island.' However, these islands are not static and unmoving, like real islands, but rather float on the waves. The other terms refer to dynamic processes. Therefore, as long as one lives, one feels oneself as a restless, quivering entity. Schmitz describes the physical state as being unstable and always ready to change (cf. Appendix A, B, C for descriptions of the experienced auditory spaces).

In addition, the experience of the felt-body is also the experience of a special kind of space. Here, there are no precise contours, but only radiations without an outline. Schmitz argues that the diffuse spatiality of felt-body sentiment is the first spatial experience, which is usually superimposed by the intellectual spatial models within which one operates – for example, when handling maps. The felt-body field exhibits a peculiar spatiality that cannot easily be shown in a coordinate system because the felt-body impulses cannot be sharply delimited and localised (cf. Appendix A, B, C drawings on the experienced auditory spaces). Therefore, every felt-body impulse has its own, unmistakable gestalt.[8] Schmitz provides an analytical schema for this. The meaning of it lies in the fact that it is universal, i.e., that all felt-body

[8] Schmitz (1998) speaks of suggestions of movement that one feels within one's own body in the form of gestalt sequences (p. 33). Section 2.2.3 Felt-body communication and 2.3.1 Hearing and listening, explain this in more detail.

impulses can be described by this schema, even if they never merge into such descriptions. The schema thus provides a suggestion for comparing typical felt-body impulses and for relating them to each other.

2.2.3 Felt-body communication

With felt-body communication, Schmitz differentiates it from empathy because it exceeds the meaning of it and goes far beyond. It is not about the similarity of stimulus and sensation but rather about the similarity of suggestion of impression and its felt-body impulses. In other words, the 'affinity between felt-body and perception' (Schmitz, 1978, p. 59; my translation).

It is due to the holistic character of perception that impressions are rooted in situations and not within free-floating things, i.e., a pointed gestalt appears as the tip of the corner in this room; the squeaking gestalt appears as the squeaking of this door to this room. The felt-body resonances (pointed, round, dull, squeak) form the communication milieu in which perception is modulated. On the path of felt-body communication, one becomes an affected person who perceives an event less with the individual senses, and instead feels them in a holistic sense felt-body spatially. Schmitz thus addresses a fundamental form of perception. It does not presuppose thinking and does not have to lead to cognitive thinking.
Instead, it arises through embodiment and is 'not only possible among bodies but also as an inanimate object such as a flying stone. [...] This is due to the bridge qualities which can be felt in one's own body as well as in encountering gestalt' (Schmitz, 2016, p. 40; my translation).

'Physical dynamics are dialogical from the outset because narrowing and vastness are bound to each other as tension and swelling, as long as the conscious experience does not interrupt' (Schmitz 1994, p. 123; my translation). The physical entanglement in surrounding spaces is so fundamental that the perception of all forms has an a priori felt-body character. In other words, each space becomes the object of felt-body communication at the moment of approach (cf. Section 2.3.3 The felt-body way of hearing).

The very narrow corridor in the twilight, by which one walks along the wall with one's hands groping blindly, is experienced as a constriction (narrowness); in contrast, a large room such as a living room, flooded with light, echoes with a feeling of expanse (vastness) with every

step. The meaning of spatial experience constitutes the background of real situations. Thus, the narrowness of a pointed corner of a room can appear oppressive because it offers no space for movement. However, the same corner – if it is a place of retreat and tranquillity – can also be perceived as a place of comfort. Following this, the transfer of characteristics of space into a felt-body sensation takes place through 'movement suggestions' and 'synesthetic characters'. Movement suggestions are movement tendencies 'which are not movements, but announce, impose or suggest such movements' (Schmitz, 1978, p. 38; my translation). Schmitz calls suggestions of movement that emerge on figures 'Gestalt movements' (Schmitz, 1978, p. 40). In the corridor situation described above, for example, they are transferred by the suggestion of slow movements into the felt-body feeling within this space. The suggestion of movement, therefore, proves to be a bridge of synesthetic characters in which 'the felt-body and the objectively perceived overlap' (Schmitz 1978, p. 38; my translation). In other words, the suggestion of movement emanating from gestalt processes makes the 'perceived and the perceptible comparable in felt-body terms' (Schmitz, 1978, p. 54; my translation).

Many everyday situations in life have a felt-body component. Once one has become aware of the felt-body field discovered by Schmitz, one will quickly notice other situations in which one goes along felt-body, although outwardly, one may not move at all. Thus, every form of togetherness, even if it does not or only briefly lead to actual touch, intervenes very clearly in one's felt-body condition. In the presence of someone else, it becomes narrow or wide, one is absorbed within them as an element, or it constricts one's breath.

2.2.4 The perception of half-things

After outlining the three-dimensionality of the felt-body, one can follow Schmitz in the thought that feelings represent themselves spatially, but without a location, as atmospheres (Schmitz, 1998, p. 23).[9] 'A solemn or a tender morning silence is wide; an oppressive, burdening and heavy silence, on the other hand, is narrow, protopathic and dull. Both types of silences are synesthetic characters related to the felt-body' (Schmitz, 1998, p. 23; my translation). Silence is an emotional phenomenon that exists for those who feel it. It radiates a

[9] In this work, atmosphere aligns with the term coined by Schmitz, since he locates it as something that is between things, and this is, above all, for the sound perception of importance. events. felt-bodily resonance

mood that can be felt spatially around oneself. Thereby, Schmitz understands 'Stimmung'[10] as being the 'primal layer, the ground or background' (Schmitz, 1969, p. 263; my translation) of a feeling. Once a Stimmung has tinted one's sentiment, it opens one up as the affected person to the possible transmission through atmospherically directed feelings that fit into the current situational Stimmung. Furthermore, one usually thinks that feelings are something that the individual carries within oneself. Here, however, some phenomena exist between oneself and the surroundings. With the phenomenon of Stimmung, Schmitz emphasises the spatiality of atmospheres. The spatiality thesis seems unusual, since one is inclined to transfer everything that has to do with feelings into a private inner world and to regard it as a visceral reaction to certain external stimuli. However, this operation is difficult or impossible to perform in atmospheres.

They are neither internal nor private because the experience of atmospheres is easily interchangeable with someone else. They are public, and yet they are emotional and quasi-emotional phenomena.

Atmospheres are intersections between one's surroundings and the emotional spatial qualities in which one experiences the environment (Schmitz, 1998, p. 25). Therefore, the general notion associated with the word 'feeling,' which transfers it into a private state of mind, breaks through. Atmospheres, like general feelings, transform the felt-body state, but they do not urge action. Atmospheres are active as diffuse backgrounds for actions. Although they act as stimuli, they are not direct motives for action; instead, they are influences. They are not driving forces but instead open up a range of possibilities for statements (Schmitz, 1969, p. 348). It is, therefore, possible to perceive atmospheres without actually being affected by them. In other words, one is entangled in atmospheres but is not helpless before them.[11]

Moreover, the term atmosphere refers to a sphere that has become alien to modern thought. It is considered a natural idea to assume that the world that one shares with others is essentially

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[10] The German word 'Stimmung' is comparable with the word 'mood'. It is a spatial term in this context, which is why the German language form remains.

[11] cf. Chapter 2.3 Listening modes and felt-body obstinacy, in which one can turn towards the sound atmosphere and tune into it.

a world of ‘things’. Things are argued over, bought, sold or consumed. These are the main things, and what is in between can only be considered as a medium – a medium that is assumed for itself to be without quality and structure. Only when the contact with things is disturbed, for instance through rain or fog, does the medium attract attention as such. Otherwise, one thinks of it as a neutral in-between medium.[12] Therefore, Schmitz's observations show that the medium of the ‘in-between’, as such, has a certain quality. The concept of the atmosphere emphasises this. Based on their ontological peculiarities, he assigns them to the category of ‘half-things’. Half-things differ from things, among other ways, in the way that ‘they disappear and return without there being any point in asking where they have been in the meantime.’ (Schmitz, 1978, p. 80; my translation) Half-things are fleeting in their appearance but immersive in their experience, thereby underlining the emotional character of atmospheres and their liveliness.

Between human beings, there is not an emptiness, or nothing, but atmospheres – perhaps not always, but as a general rule. Moreover, these atmospheres intervene profoundly with one's existence. They have an effect not only on one's sentiment but also on one's actions.

2.3 Listening and felt-body obstinacy

The following section refers to the previously discussed concepts of New Phenomenology, the felt-body and felt-body communication concerning the aural experience. Furthermore, it develops an understanding as to how the relationship and contact between half-things, of which sound is one, presents itself in concrete terms. The felt-body sentiment emphasises itself as a specific form of knowledge of the auditory experience. It also discusses the relationship of the interactions between the sounding environment and oneself as the resonating subject, so that the possibility of a felt-body understanding of sound is ultimately possible. The following sections cover hearing and listening (2.3.1), body and felt-body obstinacy (2.3.2), felt-body listening (2.3.3), atmospheric sound space (2.3.4) and auditory felt-body understanding (2.3.5).

[12] The term ‘atmosphere’ is suitable for describing the sound because it regards it as something that is in between things.

2.3.1 Hearing and listening

Felt-body communication (cf. Chapter 2.2.3 Felt-body communication) also distinguishes between movement suggestions and synesthetic characters perceived as Gestalt in hearing. Therefore, 'hearing is a receptive and powerful trigger of felt-body communication, which overtakes seeing.' (Schmitz, 1998, p. 33; my translation). Rhythms, as suggestions of movement, get under the skin and jump onto the audible felt-body (cf. Appendix A, B, C sound descriptions) meaning that auditory experiences are interpreted based on their synesthetic characters and similarities to other felt-body experiences (Schmitz, 1998, p. 35). One feels an affectedness in one's own body through embodiment. Therefore, within embodiment, one's own body connects in felt-body communication with another thing – sound, in this case – and forms an overarching, fleeting entity (Schmitz, 1998, p. 64), and the felt-body dynamic unfolds in a reciprocal embodiment.

In felt-body communication, one reacts to what one perceives and therefore finds 'resonance'[13] in oneself. When one hears a cyclist's bell coming from behind, one interprets it as interacting by stepping aside to avoid and make room for the cyclist to pass. Felt-body and perception can, therefore, merge together. The sound is detached from the source and hits one's consciousness, enters, and resonates with it. Interaction, therefore, describes an action that combines perception with sound. It is an action-oriented interpretation of a situation based on the perception of something. Action can be defined as hearing and interaction as listening. Listening can, therefore, move us, through emotion, to an action. In this way, interaction goes beyond mere perception and explains how it translates into spatial participation. One understands it as comprehension of participating meaning that the interaction emphasises the differences between hearing and listening, which translates into spatial participation. In this way, one only hears what moves us to action and what interacts with us, and this process of structuring is divided into aspects with different meanings. One can evaluate the importance of sound through distance, volume, and timbre, for example. From this, one gains experience through which one can structure the space surrounding oneself with categories of meanings, thereby acting in a structurally guided way. This attachment to already learned, familiar structures avoids the constant renegotiation of them

[13] The term resonance is further elaborated in section 2.3.3 on felt-body listening.

while experiencing. Furthermore, structuring means subdividing the space that opens up within the limits of perception into fields of meaning. In this process, a difference in meaning emerges with specific threshold values that delimit the states of concern and participation from one another (cf. Appendix A, B and C for descriptions of auditory experiences and sound maps). Meaning and interpretation can be explained using a gestalt psychological 'basic figure approach' (Ihde, 2007, p.38, p.79). One can extract focal phenomena from noise so that other phenomena become less relevant. The philosopher Don Ihde (2007) explains this as follows: 'this attention is keyed into personal-social structures of daily life in such a way that there are habitual and constant patterns of appearance to those things that normally remain fringe phenomena and those that may be focal' (p. 74). However, the selection of appearing phenomena grounds on their interacting meaning.

The figure-ground approach is overly two-dimensional for the structuring of space. Therefore, it should only stand here as an analogy. The structuring of space through the interpretation of interaction only gains depth through spatial participation. It thus enables a plurality of different fields of meaning. They open up, and one can interpret them, as explained by the figure-ground approach, but can also structure the space through their interacting power based on the differences in meaning. Therefore, they both enable and condition spatial participation.

2.3.2 Body and felt-body obstinacy

The entanglement of felt-body and body happens through oneself. The body forms the felt-body and vice versa. They stand in a reciprocal relationship of meaning, whereby the body has a 'normalising function' for the felt-body (Lindemann, 1996, p. 166). The body thus determines a programme of feelings and behaviour – how the felt-body feels (Lindemann, 1996, p. 172). Having a body shapes one's own felt-body experience. How one can feel oneself at all is determined by the knowledge one has of one's own body (Lindemann). Fundamental to this is to recognise that one always moves with one's felt-body and body already in the world. Through subjectively acquired body knowledge, one takes perception creatively into one's own hands and becomes both a product and a producer of one's own physical perceptions. By appropriating one's own body, a situational felt-body appears through listening. Therefore, space can be acquired aurally, through body practice with felt-body perceptible impulses. Concerning a felt-body action, a certain felt-body obstinacy needs

to be considered. This felt-body obstinacy can participate in the shaping of the auditory appropriation process, i.e., the felt-body is available in different ways through body posture.

‘The reader sits relaxed […] in an armchair; […] he puts the book aside and closes his eyes. The environment in which he lives together with the body disappears from him in one fell swoop. A different area suddenly takes its place, almost something like a new world. Memories, gracefulness, temptations, admonitions, tender atmospheres, felt-body impulses appear as an initial, at most vaguely structured, unmistakable abundance, like a concert that otherwise hardly comes into its own through the extraverted optical contact. The felt-body perception is in the foreground here, but more holistic. […] My felt-body, when I close my eyes, makes me more aware of myself than usual, and shows me what is going on around me. […] At the same time, it becomes more permeable or transparent to feelings and new forces that come mixed with it and through it’ (Schmitz 1977, pp. 207–208; my translation).

The above paragraph shows that one is not merely passively exposed to these many impressions; one can also collect oneself sitting through concentration and become aware of one's own situation. One becomes open to the background, but at the same time keeps the situation under control. According to Schmitz, the armchair is not only a support for posture but also an enclosure and is thus a kind of archetype of living (Schmitz, 1977, p. 211). It is instructive to compare the situation of sitting with the study of the two other postures: lying and standing (cf. Schmitz, 1965, pp. 251). Anyone who stands has risen before. Of all body postures, standing requires the most significant concentration because the supporting surface is the smallest here. Standing is not only the end of getting up, but it is also a beginning from which one can make any movement. For the felt-body during standing, the direction is of importance: physical directions are activated immediately from a standing position. Standing is therefore not particularly favourable for contemplative self-observation. It is the body position of the activity. On the other hand, lying on one's back is the most impotent posture one can take. One can no longer see clearly what is approaching from the right or left; the optical perspective is unfavourably shortened compared to sitting or standing. One is also more exposed to one's felt-body when lying down than in other positions, tiredness overcomes us faster than in other positions. It may make a difference whether one lies down, stretches out, or contracts into a ball. The angulation of the limbs from the torso promotes

sleep, since the bodily islands of the arms and legs come loose from the body. It is the first step towards relaxation (Schmitz, 1965, p. 251).

In this context, Schmitz speaks of fatigue as a particularly receptive form of the felt-body condition in atmospheres. Here, he starts from the charitable tiredness without the individual islands of tension remaining. In this tiredness, the felt-body comes to itself; the breath flows by itself, entirely evenly. ‘The tired person becomes more susceptible to foreign influences because his felt-body tension no longer closes him off as tightly as it would do otherwise against them’ (Schmitz, 1965, p. 250; my translation). Fatigue not only increases emotional alertness but also promotes the ability to empathise with felt-body communication. Schmitz's phenomenological thesis of the particular sensitivity of a tired person seems particularly convincing because it contradicts the opinion that fatigue is nothing more than a state of exhaustion.

Someone who is lying down is passive and no longer possesses the full power of their thoughts and play of their felt-body impulses. Sitting is somewhere in between lying down and standing. Anyone who sits can quickly stand up and one has the situation under control. One's limbs spread in moderation, one's legs rest on the upholstery with arms on the armrests. Thoughts can develop without drifting apart in dreams. The felt-body relaxes. The understanding of the felt-body also changes; it cannot always be used consciously in every situation or used intentionally for specific actions. Through certain body postures, one can consciously ensure that an attachment becomes possible.

2.3.3 Felt-body listening

Based on Schmitz's understanding of the felt-body, listening is further described as a resonance phenomenon. In other words, felt-body listening is about the possibility of resonating effectively in the world of sound (Böhme, 2009, p.261). The concept of resonance builds on the idea that something already exists – a quality, a rhythm or a melody that can be thematically interpreted and experienced. From the understanding of the affected felt-body, listening never merely remains an intellectual matter but instead becomes perceptible through felt-body impulses (Schmitz, 1998, pp.15). Through Schmitz's spatially thought felt-body (cf. Chapter 2.2 Perception of felt-body), it is only logical to assume that this internal felt-body space picks up sounds, noises or speech in the mode of resonances and reacts perceptibly to

them. Moreover, that which sounds can do with spaces, namely transform them in their Stimmung can and applies equally to the feeling of the felt-body. The aspect through which this transformation takes place is the gestalt form that one perceives in its sometimes-intrusive quality, with its Stimmung and depth of vibration, which Schmitz describes as a ‘half-thing’. By referring to Schmitz's felt-body philosophy, it is conceptually possible to grasp the perception of a sound situation as an interactive event involving and affirming the felt-body. Listening, therefore, means to feel oneself ‘felt-body’. In Schmitz's words, one deals here with perceptibly close suggestions (cf. 2.3.1 Hearing and listening). At the same time, they can remove the existing boundaries between people and things as well as between people interacting with each other. Through concentrated, active listening, a fusion between the perceived space and the subject resonating with it arises. What Schmitz (2008) calls a ‘one-sided embodiment’ (p. 74) is an affected felt-body presence which moves through certain events whereby the overarching felt-body manifests itself through the temporary suspension of the difference between the object and the subject of perception. In other words, it manifests itself through the mode that hinted already towards the effect of atmospheres on the felt-body. It shows the moment when listening becomes plausible as a resonance phenomenon. It is in the sense that the listener resonates with the aural and enters into a self-qualitative structure, by which sound, rhythm, and content appear equal. Therefore, an understanding of the felt-body is achieved when the limits of the felt-body shift in such a way that, as a resonance producer and listener, one merges with the perceived resonance. The requirement for this is devotion to the variant of the listening situation that appears to be suitable for the situation (cf. 2.3.2 Body and felt-body obstinacy). Successful, active and concentrated listening means felt-body action, and consequently integrates a form of felt-body interpretative understanding of what is perceived. With these classifications, a felt-body understanding as a form of felt-body action is understandable, which in its obstinacy can both suggest to an auditory perceiver to follow a sound and to immerse oneself in it, or to reject it. Felt-body action, therefore counts as a form of felt-body understanding.

2.3.4 Atmospheric sound space

The cognitive interest of this work that demands an analytical set of instruments through which it is possible to think of perceived sounds as having their atmospheric quality. Only in this way can felt-body action and understanding related to sound make sense. At the same time, it is also essential to grasp oneself as a tuned subject, so that both levels can interact

with each other in the sense of felt-body communication. Therefore, the concept of the atmosphere (cf. Chapter 2.2.4 Perception of half-things) offers the advantage of no longer having to make an unsuitable decision between a subject and an object of an auditory event. With the idea of atmospheres created by sound, one can grasp a situational complex.[14] Additionally, the concept of atmospheres allows us to potentially shift the focus onto the experience of sound events. The entire body is involved in the listening process (Ihde, 2007).[15] The body serves as resonance space for sound events, and depending on the frequency, sounds are also consciously perceived with other body parts. One feels, for instance, bass notes in the abdomen or feels it in the small hairs on the skin that start to vibrate as soon as one exposes one's body to an auditory environment. Sounds and noise, therefore, have the characteristics of suddenly addressing the felt-body. Speech such as that of voices touch, one is moved by them, calmed down, or excited. It stands for an affective resonance, as that the listening process must be understood (cf. 2.3.1 Hearing and listening; Appendix A, B, C Section V 4, B 4, H 4).

As already mentioned, the space of reception can be shaped and chosen by the listener. Furthermore, the auditory space that arises in each case can, at the same time, be understood as a space of felt-body presence, as Schmitz calls it. The appropriation of a sonic situation involves, in addition to interpretation, the circumstance of felt-body understanding. It occurs through a situation in the felt-body and the interpretation of the felt-sonority. Therefore, where one stands modifies the felt-body communication (cf. 2.3.2 Body and felt-body obstinacy; Appendix A, B, C). Besides which, acoustic events have an omnidirectional effect on the body and penetrate, as well as propagate through them. They transcend and finally change it as vibration phenomena, which resonate in the body and the surrounding environment. Therefore, the reverberation, as a resonance of the sounds in the felt-body, refers to its spatial constitution. Sounds do not only change the immediate surroundings as

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14 The institute CRESSON (the research centre on the sound environment and urban space) in Grenoble uses the term 'Ambiance' to describe auditory environments. Their studies focus exclusively on sounds. In comparison, the term 'atmosphere', as in Section 2.2.4, the perception of half-things, is broader and goes beyond the purely sonic. It offers a holistic perception of the respective situations.

15 'As an exercise in focal attention, the auditory dimension from the outset begins to display itself as a pervasive characteristic of bodily experience. Phenomenologically, I do not merely hear with my ears; I hear with my whole body. My ears are, at best, the focal organs of hearing. This may be detected quite dramatically in listening to loud rock music. The bass notes reverberate in my stomach, and even my feet 'hear' the sound of the auditory orgy' (Ihde, 2007, S. 44).

auditory perception, but they are always an inherent part of the environment and influence the interacting felt-body sensation.[16] According to Böhme, the '*Stimmungsraum*'[17] is understood as 'on the one hand, the tuned space, i.e., a certain atmosphere or tone that lies above the respective environment, and on the other hand, the spatially poured atmosphere within which I participate with my mood' (Böhme, 2004, p. 134; my translation). The motif of participation in atmospheres is now recognisable, as is the overall concept of the sounding atmosphere. The sonic sphere, therefore, always expresses a co-construction through the listener. Accordingly, the event of the perception of sound situations is communication between the sounding environment and someone who already brings in a fundamental vibration. Listening itself is thus regarded as an affective as well as a cognitive process based on the felt-body.

2.3.5 Sound and felt-body

Through the conceptual assumption of the interaction relationship between a sounding environment and the felt-body, is the existence of a connection established. For this purpose, the felt-body philosophy of Schmitz and his concept of felt-body communication were employed. As explained earlier, not least through the concept of the atmosphere, the felt-body experience and sensation were at the forefront of the cognitive interest. Schmitz's approach is therefore preferable, as the affective involvement is at the centre and leads to impressionable techniques through which one perceives sound phenomena. In this sense, the sound situations should be understood, so that one can conclusively describe their atmospheric effects. Above all, the emotionally tinted sounds highlighted as acoustic half-things manage to appeal to the listener in an effective way. Through their atmosphere, they achieve a subjective mood and thus modify the felt-body. The difference between seeing and hearing is the possibility to immerse oneself in hearing and to be carried by it. Therefore, the direction of origin, unlike visual appropriation, can be forgotten. At the same time, the spaces constituted by sound events that envelop us are to be taken seriously. (cf. Schmitz, 2008, p.…). Within the listening situation (cf. 2.3.2. Body and felt-body obstinacy) and its constitutional relationship lies the possibility for sound spheres to become a reality as soon as they strike a felt-body resonance.

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[16] Jean-François Augoyard and Henry Torgue developed the book Sonic Experience at the CRESSON Institute based on their research practice. It describes the different effects that sounds can trigger in a context in the listener. Therefore, it is particularly worth considering for the following study as it offers a tool for finding sound categories (cf. Appendix A, B, C).

[17] It is a space that evokes a specific Stimmung and is a fixed term in the German language.

As mentioned early, the body holds a vital position in resonating with the environment. Thus, one can receive sound through one's design, but also through involuntary audible sound events. Also, as mentioned previously, the body holds a vital position to resonate with the environment. Thus one does not only intentionally receive through one's position, but also gets involuntarily affected by sound events. With such a background marked as a situational interaction relationship, it is possible to find listening positions that are oriented by spatial situations. In their reciprocal references, context-related listening situations arise. It is also necessary to differentiate between body knowledge and experiential knowledge, from which felt-body obstinacy abounds.

In this section, the possibility of a shift of perspective was developed, which aimed to constitute the experience of sensory perception. Therefore, in the process of hearing, a pre-reflexive, at times obstinacy based, felt-body knowledge finds its expression, which translates into bodily action. Such a felt-body action is capable of structuring a situation, as well as influencing the felt-body perception. Listening is therefore emphasised as a feeling of one's felt-body, because when one hears one noticeably integrates the sound environment. Therefore, a conceptual basis takes shape which, on the one hand, grasps a subjective interpretation of sound as a mental, as well as felt-body bound process, and, on the other hand, builds upon the knowledge as a starting point for a felt-body understanding. The auditory felt-body understanding integrates the atmospheric effects of sound spaces and thereby falls back on felt-body bound experiences in the body and bundles them into listening situations. Concerning the acquisition of sound, one can, therefore, assume that one can create the desired physical effect through body practices.

3 Auditory field research

After the new phenomenology has been presented in theory and related to auditory perception, the following chapter presents the method by which the auditory-aesthetic experience develops in context (3.1). Through body movement and posture, one can set oneself in bodily resonance with space and track down auditory-aesthetic fields of meaning (3.1.1). Through binaural recordings (3.1.2) and notes (3.1.3), the field of meaning are orbited and later on condensed into a field research report (3.1.4). While the following pages present the methodology primarily in theory, the concrete application and implementation become comprehensible in the later project description, which follows this chapter (cf. 4. Project – Presentation and Reflection).

3.1 Method of auditory field research

Regarding the phenomenological research approach of this work, the study emphasises a qualitative method. While opening up a realm of reality that has so far been minimally researched, the qualitative study serves to discover and sensitise oneself to specific perceptual contexts (Breidenstein, 2015, p. 45–50). Accordingly, a qualitative-empirical method of auditory research doesn't pursue a representativeness but rather an exemplary, i.e., if the auditory influences one's perception, then it is possible to exemplify it by capturing striking impressions (cf. chapter 2.3.1 Hearing and Listening). Consequently, a phenomenological approach obliges one to obtain open perceptions and describe them. However, each sound is characterised by an ever-present process of production and destruction, which makes it difficult to have concrete access to it. Therefore, two types of access are of relevance here. On the one hand, there is object focus, which concentrates on the consistency of the sounds, i.e., through intensified conceptual work, enrichment, and condensation of terminologies. On the other hand, the sound can be further narrowed down by a specific selection of methods for the respective context. From this knowledge, the proposal of a qualitative-empirical method for the description and development of auditory quality in context through field research results.

As an empirical method, field research stands for an inductive approach to an object of investigation, i.e., the acquisition of empirical data in a field of investigation and the subsequent possibility of systematic evaluation of the data (Breidenstein, 2015, p. 7–11). For research within aesthetics, field research tries to investigate a phenomenon as inter-subjectively as possible when concerning its descriptiveness and content—for example,

through participant observation, memory protocols, descriptions, maps, and through intensive examination of one's observations, thoughts, feelings, language habits, and merging as well as condensing the descriptions (Breidenstein, 2015).

3.2 Auditory-aesthetic perception in the field

For the present phenomenological auditory research, the personal presence in the field of investigation is unproblematic and, in fact, desirable. It enables effective participation in the auditory perception situation and, thus, a description of the state of being in the sonic space. Furthermore, the specification of field research as ‘aesthetic’ underlines the involvement of the investigator in the auditory field of perception and points to the phenomenon-related, qualitative orientation of research. Since the investigation of the auditory-aesthetic questions the specific state of being in a specific environment, the felt-bodily is of great importance in the process of perception (cf. chapter 2.3.2 Body and Felt-Bodily Obstinacy). In classic cases of aesthetic research, one considers perception either concerning a specific execution of the senses or regarding a specific object of perception. Whereas in the felt-bodily perception of an auditory situation, the execution becomes the object, and in the felt-bodily presence, the specific auditory imprint is thematised (cf. *2*.3.3 Felt-Bodily Listening). Precisely because the investigation clarifies the role of personal experience and expectation in addition to the felt-bodily perception, the description of auditory experience in field research presupposes a conscious engagement with perception, its conditions, and contents.

3.2.1 Recognising the auditory field of meaning

To experience spaces openly and auditory-aesthetically, one approaches them step by step. By walking and pausing, one can discover possible auditory fields of perception that are not possible in the purely functional appropriation of space. The perception of everyday sound and of the environments and rhythms of life in their respective spaces, which appear ordinary and unspectacular in everyday observation, thus form the basis for fields of meaning (cf. 2.3.1 Hearing and listening). The auditory-aesthetic is then consciously traced and set in felt-bodily resonance by the body as a reference in space (cf. 2.3.2 The body and felt-bodily obstinacy). In this way, impression mediators, who in their totality constitute the auditory-aesthetic quality of space, are sensed and attempted to be identified as a component and condition of the auditory-aesthetic (cf. Appendix A, B, C). Besides, based on plans, essential points of reference are mapped, from which one can examine the distribution of sound phenomena,

their development processes, and effects in space. On this basis, a delimitation can take place in order to show the spatially understood area in which an auditory-architectural design can become active concerning sound. The maps are decisive because the architecture determines and modifies the sound, and only in joint-consideration can information be gained about the generating parameters of the auditory-aesthetic situation.

3.2.2 Recording the auditory field

In addition to lingering and repeating sequences of movements in order to open up the environment auditory-aesthetically in its entirety, binaural recordings of the event are suitable. It enables the best possible directional localisation of sound events during playback. Thereby, they can serve as an aid for remembering and analysing the auditory environment, as well as for identifying sound events and their temporal and spatial occurrence. When playing back the recordings via headphones, a spatial impression occurs, in terms of localisation and distance, that comes close to spatial hearing at the location of the recording. Thereby, the binaural sound recording happens at ear level. At the entrance of each ear canal, there is a microphone with omnidirectional characteristics. The interaural signal difference required for spatial hearing develops by the shadowing effect of the head, the shape of the auricles, and the differences in propagation time due to the microphone distance.

3.2.3 Notes in the perceived auditory field

The recording of all perceptions takes place in the respective context and opens up opportunities to record changes in sound effectiveness without resorting to a potentially false memory. The notation is an adequate tool to trace sounds and to describe them around them. In the field, everything that is perceived (impressions, feelings, one-sense conspicuities, associations) one records in order to obtain as open a description of perception as possible and to integrate the sound into a linguistic network. Therefore, one should write down observations as promptly as possible and in such a way that one can remember and reconstruct them at a later point in time. Thereby, the notes are not complete descriptions of a sound situation, but rather an expression of what the sound brings about in felt-bodily resonance with the environment.

3.2.4 Reflection on the auditory field

Because one is involved in the sound events and because of the transformation and sewerage of the synesthetic, translating felt-body perception (cf. chapter 2.2.3 The felt-body communication) into a linguistic, written form may be difficult. Therefore, a linguistic multi-levelness characterises the auditory field research. The acquisition of terminology of auditory events in field research takes place from the 'special' to the 'special,' whereby an intermediate step extends the cognitive step from feeling to its term. The linguistic description of the subjective perceptual reality in the resonance field of the environment represents a further 'special' related to the 'special' of felt-body perception. By noting down perceptions in the field research report, one transfers their (emotional) participation and involvement in feeling the sound situation to a more cognitive level in the mode of distanced perception. The transition from the 'special' to the 'special' is thus a shift in the dimension of concern in perception. With this, the dimension of the linguistic relativized 'unaffectedness' becomes the first formulation of a term. This process forms the description for the preparation of a field research report (cf. Appendix A, B, C descriptions of sound situations) and not already the evaluation of the felt-body perception concerning a concept of the sound situation. Therefore, the notes in the field are not yet an accurate description of the auditory perceived situation. As the perception of perception, the change from the 'special' to the 'special' is instead an aesthetic-reflexive reference. In the understanding of field research as a subjective qualitative method of searching for concise and exemplary sound perceptions on site, noting that it can thus be described as the perception of perception.

3.2.5 Documenting the auditory field

For the intermediate step from the 'special' to the 'special', the change of media (from sound to speech) must be considered not to start immediately with the field research report in the field of investigation. It would correspond to a (temporal and consequently content-related) shortening of the perception for the sake of the report and would create the danger of only perceiving the auditory in a shortened form. The notation within the framework of auditory-aesthetic field research is describable by the Parcours Commenté (Thibaud, 2003, p. 113–138). It is an investigation technique developed at the CRESSON Institute which, by participating in an atmosphere according to the principles of 'walking, perceiving and

describing,'[18] by walking and speaking together, researches in the field of investigation (Thibaud, 2003, p. 113–138). The field research method consists of the following four steps: first, the qualities of the environment and the state of well-being are 'observed' (feeling); second, perception is 'accompanied' (taking notes); third, the ambiance is 'conjured up', noted down, and remembered (addition to memory protocol); and fourth, one 'discusses' oneself in writing and evaluates the notes (unit of data collection and evaluation person).

The notation of perception requires follow-up research. Before the evaluation of the field, the research report is carried out. One supplements the report by a memo account (cf. Appendix A, B, C). Especially when the recordings in the field prove to be challenging to understand concerning auditory effectiveness, the supplementation of the field research report in the mode of memory offers the opportunity to incorporate a further, distanced description into the investigation. Thereby, the recall stands in the increased consciousness regarding the auditory-aesthetic background experience. Because it can clarify the field research report, the memorandum supplements form the intermediate step from the 'special' to the 'special'. The accounts reconstruct perception with words, thus reflexively catching up with promoters and suppressors of auditory experience. In this way, they alleviate the vagueness problem of auditory experience.

3.2.6 Concentration of auditory field notes

Being involved in the situation is essential for auditory perception and, thus, for description. It is the reason why the auditory event cannot be grasped in its entirety and must, therefore, be included descriptively in partial aspects. Even before the evaluation is carried out, the additions to the memorandum are a possible methodological step. The partial aspects successively recorded in the notes are to be understood as simultaneous perception and provide descriptions of the state of mind related to the entirety – this becomes particularly important when one has recorded many description details. In the auditory-aesthetic field research, the need for communication in this regard is satisfied by an inner dialogue, as well

[18] Cf. Thibaud, 2003, p.113-138. There are also three hypotheses on the method which state: first, that a prominent, non-involved researcher perspective is impossible; second, that there is a direct relationship between perception and description; and third, that movement creates access to perception.

as descriptive adherence supplemented by reminding comments on perception. The inner dialogue is possible by a linguistic focus on the field researcher. For field research, a methodical short-circuiting of what one observes and what one discusses is a decisive point, as is the unity of data collection and the evaluation person (Thibaud, 2003, p. 113–138).

Thus, it corresponds to a 'Parcours Commenté' of only one person: The noting or 'accompanying' of one's observations, the remembering or 'conjuring,' and the 'discussing' with oneself. The reflection and evaluation of one's notes connect to one's language and vocabulary, creating a balance of the linguistic peculiarities and an appropriate meaning for the individual notes. Therefore, it enables and expands a suitable reflection of the notes. Individual access offers the opportunity to thematise and reflect on the pre-linguistic 'in-between' of sound in a particularly concentrated and perceptive way. Field research thus benefits from a linguistic and a biographical-cultural aspect: on the one hand, the field research report is supplemented and enriched using the same vocabulary and language. On the other hand, if the person who did the research also does the evaluation, the personally underlying theoretical concepts and models introduced into the field research (also unconsciously) can be refined and developed in a constant recourse.

After the various methods relevant to the work are outlined, the following chapter deals with the selected examples in the context of three residential spaces in Voorburg, Berlin, and Hamburg. Additionally, the chapter explains in which form they are used and which results they have produced.

4 The auditory-aesthetic living space – presentation and reflection

Through the prior theoretical understanding of body and felt-body, it is possible to encounter attentively emerging sonic phenomena. Besides, the basic methodological framework offers the possibility of recording situations found in sound through field research. In the following, the fundamentals developed are applied in the context of living space. For this purpose, the selected spaces for this study are presented (4.1). Further on, the description divides into a presentation of the project (4.2), the implementation and the reflection of the methods in context (4.3), and the presentation of the results (4.4). The chapter is followed by a concluding reflections on the project (5)

4.1 The apartment as a field of study

In the beginning, case studies are presented to illustrate the selected field of research. The peculiarities of the rooms, as well as overlapping points, are highlighted. Further on, in section 4.1.1, the rooms are compared. A detailed description of each apartment is in Appendix A, V1; B, B1; C, H1 in the first section. For practical reasons, the analysis of the work for the further study is limited, in order not to get out of hand in terms of time and topic. This reflects in the selection of the rooms and the focus on living spaces. Section 4.1.2 describes the research spaces and circles the context. Against the background of the objective of this work, the examples are chosen in order to show variation. Therefore, one can recognise the similarities, as well as the differences, that lie in the aural character of the apartments and what constitutes their auditory-aesthetic quality.

4.1.1 Comparative description of the apartments

The study focused on apartments in the urban context. The first property was, a maisonette apartment in a terraced house in a housing estate in Voorburg, Netherlands, was investigated (cf. Appendix A). The next property was, an apartment in a rear building of a perimeter block development in the district Kreuzberg in Berlin, Germany (cf. Appendix B). The final property was an apartment in a front building, also in a perimeter block development, in the district of Ottensen in Hamburg, Germany (cf. Appendix C). While the terraced house is in a side street, the perimeter block in Berlin is located at an intersection connecting two main streets while the apartment in Hamburg lies in a traffic-calmed area with an adjacent

pedestrian zone. All apartments are on the 1st floor and are accessible via a communal staircase.

In order to get to the apartment in the rear building in Berlin, the entrance of the front-building has to be passed, as well as the inner courtyard. The apartment in Voorburg is the largest apartment, measuring 100m^2, with four rooms for rent next to a kitchen, bathroom, and toilet. All rooms connect through a hallway that spans over two stories. The rear building apartment in Berlin is the smallest of the apartments at 36m^2 with 1.5 rooms. Through a small corridor, a toilet and kitchen can be accessed, while the bedroom opens off the living room. The front house apartment in Hamburg has three rooms in addition to the kitchen, bathroom and toilet and is of medium size at 60m^2. Apart from the living area, which is accessed through the dining room, all other rooms spread from the hallway. Common to all, is the age of the buildings. All were built around the turn of the twentieth century up to the 1920s. In addition, they also comply with new rental models, where walls divide rooms or earlier doorways disappear. Moreover, they all have new windows.

4.1.2 Comparative description of the living rooms

The living room or bedroom in the terraced house apartment in Voorburg lies under the roof. Adjacent is the bathroom, and via a door, the corridor is accessible. Where a spiral staircase leads down to the kitchen and the remaining rooms of the apartment, there is a window to the back gardens, and the side of the house in the opposite row. There is a wall adjoining to the neighbouring house.

Below the room is another bedroom that belongs to the apartment. Furthermore, the landlord rents the room individually and it has several functions. Besides sleeping, working, and relaxing, there is also a refrigerator in the room as well as a kettle. The room is laid out with laminate and the walls are white plaster.

In comparison, the living room in the back house apartment in Berlin faces the inner courtyard via two windows. It connects to the communal staircase through a small corridor which is the passage to the bedroom. There is an outside wall without neighbouring buildings. Up- and downstairs are the living rooms of the neighbouring apartment. Besides a dining

table for meals, there is also a couch on which to relax. The room is laid out with laminate and with woodchip wallpaper on the walls, which is painted white.

The living room in the front building of the three-room apartment in Hamburg lies at the corner to the forecourt of the house and pedestrian zone. It connects to the dining room via two wing doors and has an adjoining wall to the neighbouring apartment. Above the room, there is another apartment and on the ground floor, a Turkish snack bar, and a kiosk. Besides a couch with television, there is also a work area with a desk. In the room, there are wooden planks, and the walls are plastered white.

4.2 Implementation of the methods in the living room context

After the overview of the research, the study of the auditory-aesthetic follows. Thereby, a pre- and additional study sets the scene in 4.2.1. The following section deals with participation and listening in the examination area, and how it is structured is set out in 4.2.2. Through the binaural technique, the context can be recorded in 4.2.3, as well as by noting prominent impressions in the field in 4.2.4. Both procedures create documentation on the context which condenses into reminder logs in 4.2.5. On their basis, one can reflect on the context, and create auditory maps based on it.

4.2.1 Pre-and additional context studies

To avoid possible disorientation due to the broad spectrum of sound finding possibilities, the focus in this work is on an auditory-aesthetic term. Thereby, the use of examples for sensing the auditory quality of an environment is methodically simplified but also tricky. The qualities of an environment can always be perceived, and be determined to be more or less characteristically auditory and more or less intense. Every place, every perceptual situation, offers the opportunity to collect and compare methods. Given this, the auditory-aesthetic field research can dedicate itself to any circumstances where sound has an effect and to try to explain the sound phenomena based on field research reports.

For this reason, a preliminary study was carried out at the beginning of the work in the apartment in Voorburg. The pre-study was carried out by feeling unrestrictedly and unintentionally, the different rooms of the apartment. By letting oneself wander around in the rooms, a sense of relaxation was created, enabling an openly auditory-aesthetic perception of

the surroundings. The architectural context was then tested step by step based on sound stimulation. Without being explicitly addressed by something auditory, new paths or positions were taken. At times, a particular spirit of adventure also steered the explorer to discover new sounding places. In addition to conscious decisions, unconscious factors also guided the path. Above all, it is clear that both constant curiosity and conscious engagement with the dynamics and logic of the auditory-aesthetic field created entirely new perspectives of a familiar environment. Therefore, it resulted in an unfamiliar closeness but at the same time, also a distance. The usual way of looking at things through the intensive examination of the auditory space thus became questionable. Thereby, one is an integral part of the environment, the emerging rhythms and everydayness in the living space; at the same time listener and stranger.

The next step was to think about every day, target-oriented movement patterns for the study and to draw on the knowledge of theory (cf. 2.3.2 body and felt-body obstinacy). Thus, a canon of four-movement forms was determined, which one brought into felt-body resonance with the surrounding space. The process continued from a body in motion to targeted posture, tension and relaxation activities in the investigation space. Thus, it was possible to experience and develop different aspects of the auditory-aesthetic experience in the living space.

The following section 4.2.2 deals with the different resonance spaces that have been conditioned by the body. In addition, there were short supplementary studies before the actual data collection at the respective examination sites. One day before the field study, a test run was carried out to familiarise oneself with the respective contexts and to choose a selection of situations. It was crucial to get an impression of the temporal and structural aspects of the sound spectrum. It is worth mentioning that these analyses and approaches to understanding auditory space are subjective and based on personal impressions.

4.2.2 Body and felt-body resonance with space

The examination of the individual apartments lasted two days and took place one after the other on the days 21–22.12.18 in Voorburg, 24–25.12.18 in Berlin and 27–28.12.18 in Hamburg. The actual data collection happened on the second day, while the first day served to find an approach in context as described in 4.2.1. The study was carried out systematically in order to make a comparison of the results. It was zoomed step by step into the sound context

by slowing down the body movement in four steps. The body as a resonant space (cf. 2.3.3 felt-bodily listening) of the sound could vibrate differently with the environment and reveal the sound characteristics of the space. Thus the body is the measure for the dimensioning of auditory-aesthetic space.

In the first step, all spaces were passed through one after the other, moving from outside to inside. The path to the apartment was included and started outside on the street in front of the house. Once one arrived in the apartment, the rooms were entered, the doors opened and closed. If the light was needed, especially for rooms, the light switch was activated. Then one briefly remained in the room, and if a window was in the room, it was approached and tilted. One then briefly remained in the room, and the window was closed. After that, the room was left, and the door was shut (cf. Appendix A, V2; B, B2; C, H2). The occurring aural space resulted in a linear sequence. The focus lies on the rhythms and transitions, as well as on connection between the spaces. Movement offered the first possibility to approach the context and in addition, to make contact with the mediators of the sound spheres.

Next, the focus was on the transitions (cf. Appendix A, B, C Transition and Stationary accounts). The work was carried out step by step, moving from the outside to the inside. Thereby focusing on one transition at a time. In addition to doors, windows were also examined, as they act as mediators between the rooms. In this case, the private interior of the apartment and the public urban context. For the investigation, one stood in front of the doors and listened for a moment to the room. Then one opened the door, stepped through and closed the door again. Next, one listened to the new space and repeated the process until one had returned to the starting point (see Appendix A, V3; B, B3; C, H3). While opening the windows, one also positioned oneself close in front of them so that one could unlock them comfortably. Following this, one listened to the room in which one stood, then unlocked and tilted the window. One listened to the sound for a moment and closed the window again. After that, one listened to the sounds in the room again (see Appendix A, V3; B, B3; C, C3). With this sequence of movements, one enlarged the context. Thereby, one questions the role of the separation or connection of the components, as well as one exploring their role in the sound context of the apartment.

4.2.3 Binaural recordings within the space

During the step-by-step bodily examination of the sound context in the living room, binaural recordings were made to have a means of comparison for recording of the field research report (see Appendix A, B, and C). By doing so, memories and notes of the perceived situation in the context could be compared. Binaural recording took place at the ear level of the researcher during data collection, as this created a spatial impression of the research context, and would be suitable for reflection. The means for recording in context was primarily investigated in the preliminary study. A specific choreography was determined, particularly for investigations where the researcher moved around (see Appendix A, V2, V3; Appendix B, B2, B3; Appendix C, H2, H3); that is, how the individual had to hold their head to achieve recordings that were as free of noise as possible was observed, due to the presence of clothes and cables. It was therefore necessary to ensure that cables and microphones did not move, and that they were attached close to the body. Several takes were completed on the day of the recording; the stationary recording in particular took much longer to complete. However, for the presentation of results, a shorter section was selected and served as representative of the situation. The transition from outside to inside the apartments began with the first step and ended with the final step of the recording. A combination of transitions and being stationary allowed the observer to listen in for three-to-five seconds into sounds of the space, before moving and pausing for another three-to-five seconds. Stationary recordings at three different periods of the day were each limited to one minute. The same applied to recordings while sitting upright and lying down in context. The sound recordings were also post-processed to reduce possible recorded noise. It is primarily resulting from quiet rooms, especially when the gain is turned up in order to record also quieter exterior sounds. Since the recordings were to be understood primarily as supporting material to convey an impression, the noise did not interfere with the evaluation.

4.2.4 Field notes made in the space

In addition to documenting sound through binaural recording, field notes were written down with pen and paper, following the respective steps used to approach the context. In this way, impressions and mediators of the sonic sphere were evoked and documented, and linguistically defined in a first step. For this purpose, the listener dwelled briefly within the context and noted echoing sounds, often in the form of lists, keywords, or associations. There was no right or wrong answer/approach in terms of noting down observations, since the most

important aspect was the personal ‘aesthetic’ point of view, in terms of reconstructing movement suggestions or synaesthetic impressions. Thus, emotional language based on sensual impressions, which also include colloquial expressions, can capture the everyday, emotionally charged spherical sounds of living spaces. The length of a note sequence depended on the recording step and the situation encountered. Some rooms evoked many associations, while other spaces were quieter (see Appendix A, V4; Appendix B, B4; Appendix C, H4). Similar to the binaural recording, the field notes were also to be understood as supporting material. These underscored the context and sensitised the listener to it. Additionally, supplementary notes were taken, since impressions of the rooms still reverberated with the listener later in the day, resulting in a denser and more vivid picture of the perceived situation.

4.2.5 Memory protocol of spaces

Binaural recordings and field notes were employed to support the memory protocol. The main aim was to summarise and understand situations from a linguistic perspective. A memory protocol, such as a subsequently reconstructed perception using words, is a specific linguistic documentation tool, and therefore represents the condition for the possibility of discourse on the auditory-aesthetic quality of spatial experience (see Appendix A, B, and C, for all descriptions of auditory situations).

The transformation of sound into the medium of language functions alongside a transformation of the order of perception. The ‘spatially simultaneous’ must be transferred into a temporal order, while linguistic understanding of the sound impression suggestions must differentiate what is present in memory as simultaneous perception. Language therefore weaves the auditory experience with, and into words.

In order to revise notes, i.e. the transition from writing down to describing, a range of different writing styles can be adopted. According to the author Italo Calvino, who has studied the relationship between literary and scientific writing, literary writing can be employed to grasp reality, as long as the values of lightness, speed, accuracy, clarity, and complexity are preserved (Calvino, 1995, p.88.). Furthermore, literary writing always aims to reproduce the emotional aspect of things (Breidenstein, 2013, p.99), and to describe images created with the help of imagination. In this sense, Breidenstein et al. also emphasised a

maxim that applies to the style of description: ‘Details instead of summaries, concrete impressions instead of generalisations’. (Breidenstein, 2013, pp.105; my translation). It is further explained by Breidenstein et al. that the best way to convey impressions is for the author to formulate a term close to naive experience, to encompass an impression with a concrete term, and to condense so many details that a description is neither interpretatively exaggerated nor an empty paraphrase.

In order to trace the auditory in the context of field research, language must refer descriptively to perception at the moment of experience. In the descriptions of the situations, it is above all locality within the context that matters. Since the body formulates sound perception as a point of reference, the inclusion of the body in descriptions should make it possible to re-experience the situation, particularly for outsiders, and enable them to wander around in combination with the binaural recordings in space. A personal means of expression will impact the choice of writing style and the type of memory protocol adopted.

Thus, even if the auditory speaks to the individual without words, it can be supplemented with words in such a way that meaningful dialogue can take place. In a phenomenological mode, descriptions aim more at clarifying reality, and less at what reality is.

4.2.5 Prominent auditory impressions

Through the unity of the experiencing field researcher and the remembered descriptions, evaluation of the text can be facilitated, as it is possible to refer to one's perceptions of the qualities of an environment. The field researcher is therefore a competent person who can most adequately oversee the discourse connection between perception and environment.

In terms of memory protocols, sonic impression mediators are noted in their respective context (see Appendix A, B, C, ‘most present’). They uniquely distinguished themselves, and made a decisive contribution to the auditory-aesthetic sphere in space. Primarily through intensified textual work, it was possible to experience auditory spaces more in-depth. Moreover, through the reflection of sound impressions, it was possible to obtain information about how they need to be interpreted in context (see Appendix A, B, C, ‘interpretation’), that

is, to observe the factors that gave rise to them. Additionally, sound effects[19] were noted for situations in order to be able to compare the different rooms and their characteristics. Through this procedure, impressions of the spaces were created, and an attempt could be made to link these imprints to the floor plans of the three. The perceived prominent sound could be mapped according to the floor plan, and the architecture adapted to the perception; that is, when sounds from the neighbouring apartment occurred, the wall could be depicted more transparently and when someone walks above one could be mapped in the floor plan.

5. Final considerations

Concerning the aim of the study, a method was developed for recording the auditory-aesthetic quality of living spaces. Through a step-by-step approach observing the body in relation to sound context, different impression mediators could be tracked, envisioned, and documented.

Furthermore, the methods employed underscored the auditory-aesthetic context in different ways. When crossing the space, the presence of the individual body within said space was most noticeable. The reason for this was that with each step, the room was occupied by vibration, and was thus itself an active co-creator of the atmosphere, and tuned it. In comparison, the moment the individual's body slowed down, and took up a position in space, more sounds became perceptible on the body, setting it in vibration, and thus rendering it 'the felt-body'.
Strikingly, when the apartments were compared (Appendix A, B, and C), overlaps were observed in their sound characteristics. Furthermore, the architectural context modulated them to be similar in nature.

The current research led to a learning process and sensitisation to sound spheres. The processes of perception and imagination were enhanced by intensive discussion, facilitated by the linguistic expression of sound situations. Additionally, the study results encourage further examination of other forms of writing, and additional exploration through drawing.

[19] Here, the sound categories described by Jean-François Augoyard and Henry Torgue in their book, *Sonic Experience* (2014), were used.

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Figures

Figure 1: Archetypes of sentiment……12

Appendix A – Brick Row-House, Voorburg

V 1 Context

The terraced house is situated in a settlement area south-west of the border to The Hague, in a quiet side street, with a pedestrian traffic connection. The station Laan van NOI is within an eight-minute walking distance. The building is oriented to the north-east and situated between neighbouring buildings to the north-west and south-east. The house has two-stories with attic, with two tenants per floor residing.

The apartment itself is on the first floor on the left and extends over two levels, with a total of 100m2. It has four rooms, three of which are on the first floor and one on the second floor under the roof. The orientation is towards the backyard with gardens and, on the opposite side, terraced houses. Only one room is facing the street. The apartment has been renovated and adapted over the years; there are several drywall elements between the rooms. The connection points of the floor coverings and walls are poorly processed, and some of the windows need an overhaul because they no longer insulate.

Besides laminate as flooring, the walls are plastered and painted white. Only in the bathroom is PVC laid out. The entrance area has an inside toilet, and the kitchen is in a direct transition from this area. The balcony can be accessed through the kitchen and has a small storeroom. To the right and the left of the kitchen are two rooms. Further on, a spiral staircase leads up from the corridor to the second floor. Behind the staircase extends another room. On the upper floor, directly under the pointed roof, lies the bathroom and the last room. They are both accessible through a small hallway. The backyard has a storage room for bicycles. All rooms of the apartment are furnished and individually rented out by the landlord.

V 2 Transition

I go from the side street to the house entrance. In the background, I hear traffic far away. My steps are clearly noticeable on the pavement slabs. Then, I pull the key out of my pocket and unlock the front door. I need a moment. As soon as I plug it into the lock, I hear the reverb of the room. The open knocking of the door echoes like the flipping of a switch and pulls the space towards me. I walk through the door on the hard floor and hear how my footsteps come loose from the outside sounds. The door slams shut behind me as I begin to climb up the staircase. It clearly traces the borders of the sound-reflecting surfaces of the stairs. I go on and change the key in my hand, it clashes briefly. The denim fabric of my trouser legs rubs against itself as I walk further. A common platform, then the first floor. I search for the right key before I reach the entrance. It clashes once again in my hand. Inserting the key sounds smaller here than in the entrance situation. The door opens with a hook; the seal is audible as if I was opening a vacuum. It sounds old. Then, I let the key disappear in my right trouser pocket. I step on to the laminate and close the door. It does not seem locked, as if the locking mechanism does not snap into the locking plate.

Two steps further to my left and I open the toilet door – the handle springs and reverberates in the room, making the small room appear more significant than it is. As I enter, I slam the light switch to my right and immediately close the door. The sounds let the room change in size. I occupy almost the entire space. Therefore, the sounds seem incredibly close. In the background there is a slight buzzing. In reverse order, I leave the room and reach for the first room door, left of me. The door grinds a little as I open it and as I enter, the door creaks. There is no sealing strip in the door frame, and with a bang, the wooden door hits against it. The slamming is dull, making the room seem small. In four steps, I stand at the window and open it. It is a plastic one. It opens somewhat stiffly, and then the background rush of traffic penetrates the room. After a moment I close the window again. It is a bit bulky; I need to use both hands to push it back. Something jingles in front of me. I turn around and walk back to the door. The opening of the door sounds dull again, and the room becomes bigger as I step through. The door still creaks. I turn around, close the door, and walk to my left through the kitchen. The room narrows, and my footsteps become closer.

I open the sliding door to the balcony. Thereby, an almost evenly streaking noise appears. The terrace is 1m deep, and I only take one step forward. The traffic in the distance is still rushing and now clearly audible. A train passes by from the right, and the brakes are squeaking for a moment. Occasional honking from the cars in the background accompanies the situation. I go back inside, hear the laminate under me cracking, turn around and close the sliding door. A dull sound appears while I pull the door. Then it hits the reveal. I walk back into the hallway and turn to the right into the next room. My steps have more reverb. The hall is more extensive and narrows towards the room again; there is a small niche in-between. I reach for the door handle. It is stuck a little. I push the door open, and something hangs on the door and rattles against the door leaf. The room sounds more significant than the other room before. I step inside, turn, and close the door. A metal buckle from a belt that hangs on a cloth hanger rattles once more against the door leaf. The door leaf sounds dull. Right next to the door on the left is a small storeroom. The door sounds thin as I turn it open, and the room behind bigger than it is as I press down the door handle. I step inside and close the door in front of me. It echoes for a brief moment inside the room. It feels very tight. Then a pulsation is audible in the background. I stay a few seconds and leave again. It reminds me of my grandmother's closet. The door handle springs as I push it down. The sound of the door leaf makes the room appear hollow while I close it, and it hits against the frame. I turn towards the

window. My steps sound very bass-heavy while I walk and give off a particular resonance in the room. The floor seems to swing with every move. The plastic window is quickly opened – it is easier than the one before. The background hum of the traffic flows evenly into the room. Shortly after that, I close the window, the sound fades, and the window insulates again.

I go back to the door and hear the fabric of my trouser legs rubbing against each other. Once again, my steps let the floor tremble. Then I walk out of the room. The metal buckle clashes together with the clothing hanger, over which it hangs, against the door while I turn it open. After closing the room door, I turn to my left side and reach for the door handle to the next room. It sounds intense and somewhat stiff as I push it down. It seems as if I am tearing off an adhesive tape around the door frame. The door squeaks and grinds a little. While I close it, I realise that it is the door handle that squeaks. The room has two areas. I turn to the left and take a step on the laminate floor. Then my steps disappear – they are buffered by a carpet under me. Therefore, the room sounds small in this area. I am in front of a window facing the street side of the building. As I pull the plastic window open, something jams. Exterior sounds then emerge, such as the traffic in the distance and a dog barking. I close the window, turn around on the carpet and go back again.

I take two steps on the laminate and stand in front of the door. The door handle squeaks and the foam attached on the inside of the door leaf slides slightly on the ground. After closing the door, I turn one step to my left and continue up the spiral staircase under the roof. The stairs spring and the wood under me creaks as I walk upstairs. This is especially the case with the third step from below. It is deafening. My trouser legs rub against each other as I move. The further I go the narrower the room sounds. Then, one step on the laminate, and I open the door directly in front of me, to the bathroom. It sounds similar to the previous room door. I hear a plop when I open it – a metallic, watery reverb, almost like a vacuum, appears around me. A rustling on my left arises, which gets bigger the further I step into the room. The door closes with a squeak, and the door handle jumps back. I also hear traffic noise in the distance as I turn around. With two more steps, I am underneath the skylight. I reach above me to tilt the window. It is bulky to open and sounds solid with a metallic stutter as I move it.

I hear the traffic louder than before and can look over the neighbouring roofs. After that, I close the window. It is very stiff and locks for a second. I turn back and go outside the room. When the door closes, the noise of the room disappears. Then, I turn to my left and walk two steps further. I unlock the door of the last room of the apartment. It is a little hard to open, and the leaf scrapes on the ground. Also, a sound of insulating tape pulling apart emerges. Foam sticks on the door as well as on the frame. The door handle squeaks a little while I close it, as does the laminate floor under me. I turn to my left side and notice a hum that fills the room. It propagates from the fridge, which I pass by with my right site as I walk further towards the skylight window. The closer I get, the more I hear a distant noise. Opening this skylight window sounds similar to the one before; the insulation sticks here together a bit as I tilt it open. The noise transforms into a clear, loud traffic sound, and the hum inside the room moves into the background. After that, I close the window. The hum is back, and I turn around and continue to walk inside the room.

Most present:

My steps; the reverberation of the rooms; the change in reverberation trough opening and closing the doors, as well as the insertion of the key into the front door; the difference in

expected room size and actual size, especially in the small tiled rooms; the transitions inside the rooms; the staircase in the hallway, the deafening sound of the third step and the reverberation difference of the space coming from the kitchen and walking upstairs; the sounds of the door leafs, especially those that sound hollow; the springs and squeaks of the door handles; as well as that of the floor material.

Interpretation:

The steps mark my presence in the place. They set the rooms in vibration and give it size; the same applies to the sounds of the door. As there are no sealing strips in the door frame, the closing of the doors sets an impulse, as well as the pushing down of the door handles. Some do not seem to be weighted, so more pressure has to be applied when pressing the handle and it cracks loudly; also, the key into the lock of the entrance door puts the hallway of the house in resonance. The corridor has a long reverberation time due to its size and hard surfaces. Accordingly, the size of the room can already be assumed from outside the door. The stimulation of the rooms through the door sounds is particularly interesting in the case of the toilet room and the small storage space in the second room below. Both rooms are equipped with tiles. Therefore, the sound of the door handle reflects very strongly, and one has the feeling that the room is more significant than it is. As soon as I stand in the space and close the door, my presence dampens the sound, and the room sounds even smaller than it is. In motion, differences from one room to the next are particularly noticeable. The staircase in the hallway is particularly impressive because it connects rooms and has different niches. The movement sounds are thus modulated repeatedly. Since the apartment was rebuilt, new partition walls and doors were installed. The new doors are thin and sound hollow. Two of them are fitted with additional material to dampen the sounds. Also, a thin sealing strip is put into the frame. As it is provisional, it does not fit properly and therefore creates the dragging and rubbing sounds. Altogether, the doors and the floor covering should be overhauled, for which the squeaking is an indicator.

Effects:

Amnesia, Attraction, Colouring, Cut-Out (sound-lock), Cross-Fade, Drone, Fade, Filtration, Incursion, Mask, Mixing, Repetition, Resonance, Reverberation

V 3 Transient and stationary

V 3.1 Hallway, upstairs apartment – Room

I'm upstairs in the hallway, standing in front of the last room under the roof. From downstairs, the fridge in the kitchen hums. It sounds even and a repetitive click accompanies the noise. The wind blows past me on the left and rushes over the roof. I reach with my left hand for the door handle of the room. It squeaks as I push it down. I push the door, the leaf and the frame separating from each other with a rough crackle. The door leaf slurs for a moment as I open it and then the door hinges whirr as I push the door open. I step onto the laminate floor, which gives way a little under my weight. My footsteps sound dull upon the floor as I turn around and close the door. It appears that there is foam between the door leaf and the frame. It rubs together as I close it. The door slams, muffled into the reveal and the handle squeaks as I let go of it. Only now do I hear a fast, deep buzz inside the room. It comes from the fridge to my left and fills the whole room, followed by a short click coming from the same direction. After a moment, I reach for the door handle again, this time with my right hand. It squeaks and once again, the foam separates. The door slurs again for a second. With two steps, I am out of the room. The sounds seem louder than inside the room. I turn around and close the door. The closing seems a little louder than in the room. It has more reverberation and appears dull. After that, the hum of the fridge comes back from below, as does the repetitive click.

Most present:

The hum in both rooms by the fridges; the rough crackling of the foam on the door while opening and closing; my steps on the laminate.

Interpretation:

The refrigerators in all the rooms of the apartment create background music. They are all similar in tonality. Foam is attached to the door and frame to better shield the room from noise in the hallway and kitchen. There is also sealing tape on the door frame. As it is only temporary, it does not sit properly and therefore, it crackles when the door is opened. The steps on the laminate are different due to the different reverberation times in the rooms. It is especially evident in the transition from the room to the hallway, as it sounds more reverberant. Besides, the laminate gives way in the room, the steps are dampened here.

Effect:

Attraction, Colouring, Drone, Filtration, Reverberation, Sharawadji

V 3.2 Room – Window

I'm standing in the middle of the skylight with my head underneath it. In the background, I can already hear the noise of the traffic. To my right, the fridge is humming and sounds further away than it is. Its sound is superimposed by the hum of the cars. With both hands, I reach above me and open the window. I bang the metal handle down against the stop so that the mechanism opens. Then I open the window and leave it at an angle. The window slurs briefly. The traffic is now clearly audible. Nearby, dishes clatter in one of the neighbouring flats opposite. Beside my apartment, a train slowly approaches from the right. It comes closer and closer. Then the train brakes, skids and squeals on the rails; a bright, metallic sound that gets louder and then falls off again. After that, I push the window back and press it against the stop. Then I turn the handle upwards so that it clicks into place. This time it blocks a little. It is not as easy as opening it. The traffic sounds dimmer again, but still bright and the fridge whirrs to my right continuously.

Most present:

The hum that comes through the window and becomes even more present when the window is open; the slight whirring of the fridge; the squeaking of the train on the railway tracks; the clicking of the window when opening and closing.

Interpretation:

A motorway runs near the house and creates the hum of traffic. The window no longer insulates properly so that even when it is closed, the hum of the traffic is still audible. The glass filters the noise and makes it more even. The whirring is caused by the cooling cycle of the fridge. It starts as soon as a specific temperature in the refrigerator is exceeded. It then cools down again. In the niche under the roof window, only part of the whirring of the fridge is audible. Moreover, it is masked by the hum of the traffic. The squeaking of the train is characteristic for driving through a curve. Also, the noise is sharp and therefore, sticks out. The window has not been maintained for a long time, so the closing mechanism blocks itself somewhat.

Effect:

Drone, Colouring, Filtration, Incursion, Masking, Niche

V 4 Stationary – Standing

V 4.1 Room

I stand in the middle of the room below the highest point of the roof. My back faces the integrated shelf in the room. To my right is the door towards the hallway and to my left the wall to the neighbouring house. Right in front of me is the skylight.

V 4.1.1 Morning:

A constant hum flows inside the room. Over it lies a whirring sound that fluctuates between a high and a low point. From the outside, the wind pushes against the skylight. A slight rustling is audible. Someone slams a drawer shut in the neighbouring apartment and another one opens with a sliding sound. It echoes dully in the room. The other drawer is also closed shortly afterwards and the person moves away from the drawers. A bird screams from the outside and must be very close. Soon, sparrows start to chirp. The hum is still present as well as the whirring in the room. It is incredibly dominant and comes from the fridge diagonally to my right. The voice of a woman from the neighbouring apartment can be heard, accompanied by a dog bark. Again, drawers open and close and reverberate dully, only this time further to the left. A bird's voice mixes in from the outside. To my right, there is a loud creaking sound from the hallway. It is one of the steps of the spiral staircase. More twittering of birds and again someone opens and closes something in the neighbouring building but this time further away. From the outside, the train approaches; the driving sound becomes louder and forms into a fluid sound. The fridge is still present; its whirring is continuous.

Most present:

The hum and the buzzing of the fridge; the woman in the neighbouring house who opens and closes the drawers; the sound of birdsong sticks out from time to time; the creaking of the stairs in the hallway; the sound of a train approaching slowly.

Interpretation:

The refrigerator's cooling cycle creates different noises. The sound is particularly present because it is constant and fluctuates around a fundamental. The wall to the neighbouring house muffles less well so that voices and movement noises are present. Voices attract attention because our hearing is particularly sensitive in this frequency range. A shelving unit is on the wall of the neighbouring apartment, so rolling noises from the drawer are clearly audible as well as the slamming of drawers. It stands out because it is like a short impulse. Bird calls are filtered by the glass of the window. The window does not insulate well because the standing layer of air between the panes is interrupted so the high voices of the birds stand out clearly from their surroundings. The door to the stairwell mutes the sound poorly. Above all, the creaking of the steps penetrates as the steps are made of wood and have warped over the years. Additionally, the cantilever arm of the spiral staircase springs under load. The noise of the train is higher than that of the traffic. As soon as it gets closer, the sound intensifies and moves to the foreground of perception. Besides, the window also contributes to the fact that the sound reaches the interior almost undamped.

Effect:

Attraction, Cocktail, Colouring, Drone, Filtration, Incursion, Repetition

V 4.1.2 Afternoon:

From the outside, the wind presses against the glass. The rustling sound moves along the edge of the window into the room and changes pitch. The wind stands in the window opening. Further to my right is the fridge, which is humming and whirring. The hum lies over the whir and sounds continuous. It cracks and from time to time, it pops from the refrigerator. The sound of the fridge surrounds me evenly. Then a bird screams from the outside. It suddenly cracks very loudly and brightly from the fridge. For a moment I think it comes from the kettle that stands on top of it. Meanwhile, the wind decreases. The whirring and humming of the fridge remain.

Most present:

The wind as it rushes against the window and pushes through; the refrigerator with its hum and whir as well as loud cracks.

Interpretation:

Especially under the roof, the wind is perfect to hear, because it streaks over the tiles. Further on, the roof window has also lost its insulating function over the years and no longer closes properly. The wind whistles over the small opening gaps. Besides, the window glass has space to move inside the glazing rebate, whereby the wind sets the glass in motion. The refrigerator's cooling cycle provides different sounds. The hum is particularly present because it is constant and oscillates around a fundamental tone.

Effect:

Colouring, Drone, Envelopment, Filtration, Mixing, Sharawadji

V 4.1.3 Evening:

The fridge coos and splashes to my right in a constant fast rhythm. The wind blows from the front against the windowpane. It whistles into the room through the gap between the glass panel and the wooden frame. Then my stomach growls. The wind also puffs as well as presses with force against the glass and withdraws shortly afterwards. Followed by a short crack in front of me. Meanwhile, the refrigerator is still gurgling evenly.

Most present:

The cooing of the fridge with its even rhythm. The wind, as it filters through the glass of the windowpane whistling and pressing on it.

Interpretation:

The cooing is part of the refrigerator's cooling cycle; I assume that there is air in the coolant pipes. The wooden skylight has warped over the years. It has not been appropriately waded and no longer insulates efficiently. This pushes the wind into the room. It whistles through the cracks.

Effect:

Colouring, Drone, Envelopment, Filtration, Mixing, Sharawadji

V 5. Stationary – Sitting and lying

V 5.1 Room – Meditating

I sit at my desk; my hands lie loosely on the table and my feet are on the floor. I close my eyes. The refrigerator on the right coos in a steady rhythm that echoes in the room. It calms me down. Then footsteps echo from below, which I first feel with my body. I flinch briefly and then relax again. At the same time, a noise penetrates the room from the outside. A train drives past the house. The streaking sound pushes through the room. Shortly afterwards, the wind sets in and presses against the windowpane in front of me. It rushes while traffic is humming in the background and a siren sounds from far away. The footsteps below me reverberate dull again and move to the right of me. Then with a loud clack, a door in the hall opens. I have the feeling that the handle is almost torn off. It rattles at the same time; something hits the door leaf. The steps go briefly back into the room and then back to the door. The door closes again with a loud clatter. Every step is noticeable and echoes in my body. Once again, the door handle is almost torn off. The door closes with a loud clack and the person walks towards the entrance. The steps now come out of the hallway. I no longer feel them inside me. With a loud clack, the front door tears open. I hear how the sealing strips come loose and the clack echoes in the hallway. Then the door slams against the seal in the frame and briefly dampens. The trap snaps back into the striking plate with a loud clack. This time it reverberates in the hallway.

Most present:

The cooing of the refrigerator; the streaking noise of the train; the hum of the traffic and the short sound of the siren; the steps out of the room underneath; the opening and closing of the room door, like that of the front door.

Interpretation:

The cooing of the refrigerator is caused by the cooling cycle. I assume that there is air in the coolant pipe, which causes the noise. Near the house is a railway track and as soon as a train passes, it can be heard. Additionally, the roof does not insulate sufficiently and the window hardly covers it anymore. The standing protective layer between the two glasses is defective. Besides, the driving sound separates from the rest of the surrounding sounds as it enters and leaves the scene. The streaking and squeaking are caused by driving around a curve and is a typical sound. The traffic hum comes through the circulating traffic and is carried further by the wind. The height of the room also ensures that the sound levels more. Moreover, the window filters a part of the sound, making it more even and losing the highs and lows of sound. The siren stands out from the scene because it has signal character; through the wooden beam ceiling and the light construction of the house, the steps echo out of the room below me. I feel them with my whole body and they make me flinch because low-frequency sounds suggest danger. It is the body's protective mechanism. The opening and closing of the room door are present because the wooden door hits the frame undamped. There are no sealing strips in the door and the door to the room I am in is too thin. Also, the object that hangs on the door provides another impulse and makes the sound of the door opening and closing louder. Through the snap lock on the front door, the opening and closing echoes in the house and apartment corridor. Perhaps the spring would have to be tensioned differently in

the lock to change the sound. The corridors also provide additional reverberation. As already mentioned, the door of the room does not dampen sufficiently. It's almost as if it wasn't there.

Effect:

Attraction, Colouring, Drone, Filtration, Incursion, Repetition, Resonance, Reverberation

Appendix B – Perimeter Block Development, Berlin

B 1 Context

The perimeter block development is located at a busy traffic junction between the districts Kreuzberg and Mitte. In addition, it has direct traffic connections through the underground line U8, as well as the bus lines 165 and 265. They are located right in front of the street entrance to the building. Moreover, the complex is oriented to the north-east, and has four floors including basement and attic. It was renovated and energetically overhauled between 2009–2014. The facade was newly insulated, and plastic ISO windows were installed.

The apartment is located in the rear building, which can be reached through the inner courtyard. It is separated from the side wing and stands as a single building. There are eight tenants in the building – two of them on each floor. The apartment is on the first floor on the left, having 36m^2 and 1.5 rooms, hallway, kitchen, and bathroom. The kitchen and living room are facing the courtyard. The bathroom, like the bedroom, is oriented towards the backyard. It is used as a parking lot and is surrounded by adjacent offices and rental apartments. The living area is equipped with laminate and woodchip wallpaper, and kitchen and bathroom are tiled. The bathroom, living room, and kitchen are accessible via a small hallway. Besides, from the living room, the sleeping room can be accessed. Through a drywall, this area is separated from the living room as well as from the bathroom. Additionally, the apartment has a compartment in the cellar.

B 2 Transition

I start on the main road in front of the building. From the right, I hear cars driving past the intersection next to the complex – the water on the road splashes when they accelerate. I move towards the entrance gate. Behind me, a vehicle swooshes past me as I open the gateway to the building, thereby masking the unlocking sound. I go further and open the second door to the stairwell of the first building. The crackling when I unlock the door is clearly audible. I walk on, the gate slams shut behind me, and its sound echoes around me in the entrance area. The second door is much more substantial and closes when I am already at the end of the room. Now, the traffic is only quietly perceptible, and my footsteps surface as I walk over the tiled floor. With a light squeak, I pull open the door to the inner courtyard and continue. The driving sounds of the traffic remain behind while the door closes. Besides, it rains around me. I did not perceive the dripping before. In the background, I hear a hum from the vehicles. It seems very distant. I walk fast. Thereby, my steps are muffled by the rain.

The way through the inner courtyard seems long to me. I try to hurry. Arriving at the rear building, I open the door with a clack and accidentally bump my foot against it. The door is made of plastic. It sounds hollow and squeaks while I walk through. The rain fades slowly away as the door closes. Then it slams shut as I arrive at the first intermediate platform. The sound of my jeans is clearly audible as the leg rub against each other. I climb up the steps, which are lined with carpet. My shoes rub on it with every step. There is no reverberation; the room seems muffled and small. Two more platforms and I hear the clinking of the key in my pocket. I pull it out before I arrive on the last step and turn to the left to unlock the apartment door with my right hand. It is not easy to insert the key. I have to pull the door towards me to open it. The reverberation of the release reflects in the entrance area. I pull the key with a clatter back and push the door open as I walk through the frame. The door creaks, and the laminate under me creaks a little as well. I turn around and close the door with another creak. It bluntly hits the frame and locks again. Then, I switch on the light to my right with a soft clack while I turn around. The room sounds small. The floor creaks slightly as I move forward to the door on my left. It opens quiet and dull.

A whirring comes towards me from the front right as I step into the kitchen. It is the roar of the fridge that occupies the entire room. My panting sounds stiff, and with every movement it becomes noticeable. My steps are more present on the hard, tiled floor than on the laminate that feathers them. I turn around and close the door, which bumps into the frame and closes with a clack as I let go of it. To my left is the light switch, which I turn on; it clicks louder than in the hallway. I turn around and go to the window, which is facing the courtyard. My ankle cracks for a moment as I move. Then, I open the window. It sounds like I am opening a sealed box and letting air in. I tilt the window, and traffic hum, as well as rain, appears from the outside. These sounds mix with the hum in the room. After a short moment, I close the window again and push it against the frame. The rain and traffic fade away. With one last clack, it closes again. The humming from the fridge is clearly back. I turn around and approach the door again. With a click, I turn off the light on my left side and open the door. The rubber seal comes loose as I push the handle down, which squeaks slightly. A slight draught occurs as I open it further. I step through the frame on to the laminate, which creaks, and close the door behind me.

I continue straight ahead and click on the light switch to the right of me to light the next room. Then, I reach for the door handle; it locks a little as I push it down with my left hand and crackles. I open the door and step on the tiles into the bathroom. My footsteps almost

disappear. Then a distant, persistent tone sounds, slightly brighter than the line voltage. At the same time, I close the door, which locks again with a clack. I turn around, and my ankle cracks anew. After that, I take a step ahead and already stand at the window to the backyard. I turn the handle with my left hand. It opens slightly and claps as it bumps against the stop. Now the humming fades, and the rain, as well as the noise of the traffic, appears. Shortly afterward, I close the window – it is a bit more difficult to push it back. It hits the window seal and locks with a clack. What remains is the persistent sound from before. I turn around and go back to the door. The door handle squeaks slightly. Then, I pull the door and go outside. Immediately afterward, I close the door, and the lock clicks into place. I switch out the light before I go further to the left. It claps quite loudly. In the meantime, the laminate under me creaks a little. I push the door open to the living room with my right hand. This creates a slight draft of wind. I walk through the door frame and close the door. The handle claps when I push it down, and the sound echoes in the living room. Next to me, on the right side, there is a light switch that I click. I turn in the same direction and go to the left window in the room facing the courtyard. I only need a few steps. My trouser legs rub against each other again, and my footsteps sound soft on the laminate. This seems to be due to my rubber soles. Otherwise, it is quiet in the room.

In front of the window, I grab the handle. It claps while I turn it around and bounces when it hits the stop. The rain and also the humming of the traffic, which goes on, now penetrate into the room. After a short moment, I close the window. It bumps against the seal and snaps back with a clack as I rotate the handle. I turn around and go straight to the bedroom. My trousers rub against each other once more as I move forward, and my steps appear bright. I pull the door towards me with my right hand. It claps effortlessly when I press the handle down and let go of it. I walk into the room, and my steps get closer. They do not have as much reverberation as in the living room. I turn around and close the door with a clack. To my left, I click on the light switch and turn to the window overlooking the backyard. With two steps, I open the window. As I move the handle to the left, the mechanism unfolds, and the window seals separate. The humming and the rain are still there and float into the room. After a moment I close the window, and it claps back into the mechanism. The sounds remain outside again. I turn around and open the door to the living room. Then I press the light switch with a loud click as I walk through the frame. In the living room, I turn around and close the door. It bumps against the seal and claps shut.

Most present:

The rain and the driving noises in the outside space; the difference in the sounds between the inner courtyard and the backyard; the steps that become louder and louder as I move on in the apartment; the transitions from room to room, the reverberation of my steps and the closing of the doors, like the light switch clicking; the insulation of the windows and doors and the silence of the rooms; the creaking of the laminate and the front door in the hallway.

Interpretation:

The apartment is surrounded by streets. Therefore, mainly driving sounds are present in the outside. The inner courtyard and backyard filter the sounds and the location of the apartment further harmonises them. In the inner courtyard, the hum oscillates around a fundamental tone that is clearly audible. In contrast to this, it sounds more broad-banded in the backyard. Besides, the rain makes the outside sound denser. Both, together, mask surrounding sounds,

so that they dominate the scene in the courtyard and backyard. My steps and physical presence are masked by driving sounds and the rustling of the rain while I am outside. The closer I get to the apartment, the more present they become. Besides, the apartment is also quiet, so that even more attention is paid to one's own activities in the room. Doors and windows are all provided with seals. Therefore, they separate the rooms from each other and from the outside space. The opening and closing of the doors, as well as the actuation of the windows, acts as an impulse. Through it, the size of the room can be quickly estimated, even if one is not yet in it or has not oriented oneself. The floor under the laminate in the hallway has settled, causing the laminate to warp and creak. The door must be adjusted so that it no longer squeaks.

Effect:

Attraction, Colouring, Cut-Out (sound-lock), Cross-Fade, Drone, Fade, Filtration, Incursion, Mask, Mixing, Repetition, Resonance, Reverberation

B 3 Transition and stationary

B 3.1 Hallway – Living room

The fridge hums through the door from behind. It rattles evenly into the room. I grab the door handle with my right hand and push it down. The handle gives way quietly, the trap snaps back and I push the door open with a jerk. A draft of wind appears as I turn it open. I let the handle jump again, it clicks briefly. Then I go into the living room. My steps sound the same as I walk on the laminate floor. My trouser rub against each other. I turn around and close the door again. I press the handle down and it creaks shortly. When I push the door into the frame, it is dampened by the seal. I push it closed with the door handle and release it. The trap snaps shut with an impulse that briefly reverberates in the living room. There is an occasional cracking sound from the heater on my right. Dripping noises comes from the window as the rain hits the pane. After a moment, I grab the door handle again with my right hand and push it down quietly. The door comes loose from the frame with a plop. The sound appears right in front of me. I pull the door further open and walk through it. My trouser legs rub against each other once more and my steps get smaller the further I step into the hall. The whirring of the fridge gets louder with every step. I turn around and close the door, push down the handle and pull the door towards me. It hits the jamb, which is lined with sealing tape and dampens the movement. The trap falls into the lock and closes as I release the handle. It echoes around me. Meanwhile, the fridge keeps whirring. It cracks from the kitchen, twice.

Most present:

The whirring of the fridge in the hallway; the draft of wind as I push open the door; the closing of the door that echoes inside the living room; walking from the living room to the hall, my steps become smaller; the buzzing of the fridge; the closing of the door; the snapping back of the trap into the lock as it echoes in the hallway.

Interpretation:

The door to the kitchen lets the hum, almost undamped, pass through. It lies evenly in the hallway. The room is otherwise quiet. Therefore, the draft is audible while moving into the living room. Besides, the door is effortless to move. The steps reverberate differently in the rooms due to their size. They sound more significant in the living room than in the hallway. The sound of the trap as it snaps back into the lock is like an impulse and seizes the room.

Effect:

Colouring, Cut-Out (sound-lock), Drone, Envelopment, Fade, Filtration, Reverberation, Resonance

B 3.2 Living room – Window

It's quiet in the room around me. I grab the window handle with my left hand and turn it 180° upwards. It seems to block for a moment. The unlocking clicks. The seals come loose and I tilt the window. Louder and louder, the sound of the rain enters the room. The plastic window rattles as it falls back and hits dully against the stop. Now the rain lies around me. It flows and drips in the inner courtyard. Drops fall on leaves and the ground. It echoes from the outside and sounds very far through the different textures. I close the window again. It hits dully against the window reveal and it reverberates just as dully in the room. I close the window by the handle and turn it back. The closing mechanism engages with a loud clack that spreads throughout the room. Then the rain disappears again. It’s quiet, muffled dripping comes is in front of me.

Most present:

The silence; how the rain penetrates the room; the depth and textures of the rain; the dull sound of the rain after closing the window.

Interpretation:

The windows isolate and separate the exterior and interior. The light rain amplifies the sounds and the courtyard adds to it. Therefore, the minute the window is tilted, it appears clearly. The different surfaces provide different textures to the sound of the rain. When the window is closed again, the rain emerges. But most of all, because my consciousness was primed for the sound.

Effect:

Anticipation, Colouring, Cut-Out (sound-lock), Fade, Envelopment, Filtration, Drone, Mask, Mixing, Reverberation, Repetition, Sharawadji

B 4 Stationary – Standing

B 4.1 Living room

I am in the middle of the living room, looking towards the kitchen wall. Behind me is the outside wall of the house. To the right, there are two windows to the courtyard and to the left, the door to the bedroom.

B 4.1.1 Morning:

It is quiet in the living room. A deep hum can be heard far away. Outside, in front of the living room window, the sparrow's chirp. They seem to be quite close.

Most present:

Silence; the chirping of sparrows; distant hum.

Interpretation:

The windows separate the exterior from the interior. The hum of the driving cars in the area is first filtered from the courtyard and then further through the window glass. The sparrows' twittering is also filtered through the glass. Besides, they sit in the hedge under the window, which makes them sound very close.

Effects:

Colouring, Drone, Filtration, Incursion, Repetition

B 4.1.2 Afternoon:

It cracks inside the space and seems to jump all around me. From a distance, a hiss comes towards me and pulls away again. It floats in the room for a short moment. It cracks more and more; raindrops splash on the windowsill outside.

Most present:

The cracking of raindrops in the room. At first, it sounds like the crackling of a plastic package. I need a moment until I notice it is the rain from outside; the approaching noise of the subway that stands in the room for a short moment.

Interpretation:

The windowsill outside is made of aluminium. It cracks as soon as the rain lands on it. Also, the room reflects the small impulses through the laminate flooring. This gives the impression

that the sound is jumping back and forth. The noise of the approaching subway is transmitted by body vibrations, giving the idea that the room is vibrating for a short time.

Effects:

Colouring, Delocalisation, Drone, Emergence, Repetition

B 4.1.3 Evening:

It's quiet in the room. Suddenly, I hear a kicking sound above me, it echoes hard and dull through the floor. Music lies in the background and is a continuous bright sound that changes. The kicks emerge again. Muffled, hard steps wander back and forth above me. A woman's voice appears and talks to the other person. She seems to be in another room right in front of me. Then heavy stomps again, followed by a door that slams shut. The steps belong to a man. He moves back and forth, cleans and throws things around. They seem to have a disagreement. The man keeps stomping. It rumbles. The music has disappeared in the meantime.

Most present:

The muffled stomping echoing from the neighbouring apartment; the woman’s and man's voice.

Interpretation:

The footsteps reverberate through the ceiling. The wooden beam structure of the old building is like a soundboard that makes the footsteps echo louder. The impact sound insulation laid under the laminate hardly helps to dampen the steps, especially when someone gets annoyed and stamps louder in anger. Also, the music and voices are transmitted through the ceiling. The exact speech content cannot be obtained because the component filters the speech, but pitches can be identified and determined as a male and female voice.

Effects:

Cocktail, Colouring, Drone, Emergence, Resonance

B 5 Stationary – Sitting and lying

B 5.1 Living room – Meditating

I sit cross-legged on the yoga mat in the middle of the living room. The window to my right opens into the courtyard. My eyes are closed and I sit comfortably. I try to breathe in and breathe out evenly and become calm. Bird chirping echoes from the courtyard. It sounds very dense. They almost sit with me in the room. My breathing is a bit sluggish; I haven't found the right rhythm yet. I concentrate on staying within myself when I notice the sound in the background that brings an underlying mood to the scene. It sounds evenly from the inner courtyard. A continuous hum that swings around a fundamental. Again, I breathe deeply in and out. Then my attention is drawn by the voice of a man coming out of the courtyard. He talks on the phone but I can't understand what he is saying. Thereby, the hum is still in my ear. Then something clatters from the same direction from where the voice came. After that, an approaching noise sounds. I keep breathing.

Most present:

My breathing, how hard I breathe in and out to try and find a rhythm; the chirping of the birds; the constant hum; the male voice and the clattering that interrupts me briefly; the roar of passing vehicles.

Interpretation:

Through breathing, I focus on the place where I am and notice through the sluggishness that I haven't quite arrived yet. Through the tilted window, sounds penetrate from the courtyard into the room. The yard serves as an amplifier for the sounds and modulates them as well. The bird twittering is very loud because they are in direct proximity but after a while, I fade the sounds out and don't notice them anymore. The hum that produces an underlying tone comes from the courtyard. It filters the surrounding driving noises and creates the sound. The voice directs my attention; it is audible but quiet. However, the human ear is particularly sensitive to speech. I cannot make out what is said but I can determine from the pitch that it is a man who speaks. The clattering is like an impulse and sticks out briefly, the same goes for the passing cars. Their roar floats into the room and out again, through the intersection of the front of the house and the traffic lights, the sound appears in waves.

Effect:

Attraction, Cocktail, Colouring, Drone, Filtration, Incursion, Repetition, Resonance, Reverberation, Wave

Appendix C – Perimeter Block Development, Hamburg

H 1 Context

The building is positioned in the centre of the district Ottensen in the west of Hamburg. Countless shops and restaurants are located in the surrounding area. There is also a traffic-free shopping street in front of the building that leads down to the Altona railway station, which can be reached on foot in five minutes. There is a small forecourt, which separates the traffic streets to the north and south. The building lies over a corner and is therefore aligned to the south and west. It has four floors plus an attic. On the ground floor, there is a kiosk with a Turkish snack bar, and on the remaining three stories there are six rental parties, two per level.

The apartment lies on the first floor on the left. It is oriented to the south, to the shopping street. Only one room extends over the corner and faces west. The apartment has a size of $60m^2$ and three rooms, next to the hallway, kitchen, bathroom, and toilet. It was renovated in 2009 and has received ISO windows. The living area is equipped with planks, and the walls are plastered. The bathroom and toilet are tiled and have woodchip wallpaper. In the kitchen is PVC and the walls are also covered with woodchip wallpaper. All the rooms go off one corridor. The toilet and the bathroom with shower are inside. The kitchen is the only room facing the inner courtyard and is closed from the first floor onwards. A ventilation system of the snack bar is here in direct proximity to the window. Before the renovation, all three living rooms were connected. The opening between the living and sleeping area was closed, which means that the bedroom can only be reached through the corridor. The living area is divided into two rooms, which are connected by a large wing door. The apartment also has a small compartment in the attic.

H 2 Transition

I am standing in the square in front of the main door. It rains, footsteps clack and a suitcase rattles on the cobblestones. Behind me, a car passes by with a hiss and drives up the road to the left. The tires rattle slightly on the cobblestones. I walk towards the entrance. The apartment keys clink in my hand. They are heavy. I stand in the alcove in front of the house. The key clashes clearly, footsteps and a woman's voice appear for a moment. I push the key with my right hand into the lock and turn it around. It clacks dully and for a second time while I turn it back. I open the door with my left hand and remove the key at the same time with my right hand. With two steps, I walk through the small entrance area and arrive at the first step of the staircase. Behind me, the door slowly slams shut, and the voices and footsteps from the street slowly slip away. The door slams against the reveal and snaps into the trap as I walk up the stairs. The PVC on the stairs squeaks under my steps. It is quiet in the stairwell. My footsteps occupy the entire room. They are short, clap, and quickly follow each other. An intermediate plateau interrupts the rhythm, followed by another one. Then, my steps become short and regular again. The legs of my denim trousers rub against each other. I step on to the next intermediate plateau and stand, with another step, in front of the apartment. Below me rustles the foot mat as I step on it.

At the same time, I look for the apartment key and push it into the lock. I briefly touch the handle set while searching for the lock. With a rattle, the metal of the lock and my key collide. I insert the key with my left hand and with a clack, the door opens. It reverberates briefly in the room around me. The unlocking sounds as if the door had not been properly locked. I push the door open with my right hand and walk through it, turn around and push it back into the frame. The door handle squeaks a little as I push it down. After that, the door slams against the reveal and locks again.

Meanwhile, the key clashes in my hand. I put it on the shoe rack in front of me, and as I lay it down, it clatters. I turn to my left and walk straight on for two steps and hear the sound of the wooden planks echoing under me. I grasp with my right hand after the door in front of me. It rattles briefly as I push the door handle down and the door leaf grinds on the kitchen floor for a brief moment. I release the grip and go inside, the floor creaking under me once again. While I am turning around, I close the door. Thus, it briefly hits the wooden reveal. Next, I walk towards the window, and with every step, the planks under me sound. With my right hand, I open the window. It squeaks and springs briefly as I tilt it and pull it against the limit stop.

From the outside, an even rattling starts to penetrate the room. The exhaust air system from the Turkish snack bar under the apartment is right in front of the window and hums continuously. Briefly after that, I close the window again. It strikes against the window soffit. I shut it by turning the window handle back into its starting position. Thereby, the floor creaks under me. It is quiet again in the kitchen. As I walk back towards the door to the hallway, the whirring of the fridge appears. Thereby, with every step I take, the floor continuously creaks. I grasp with my left hand after the door handle. With a clack, the door jumps open. I go out, and my steps appear dull as I come down on the wooden floorboards in the hall. I close the door behind me, and it once again hits the soffit. I turn to my left and open the door. It sounds dry as if an adhesive connection tears apart as I move the door handle down and push it open.

Birds chirping comes towards me from the front, as I step through the door frame. I shut the door again, and this time it echoes less than in the hallway. I move towards the left window in

the room, my steps seeming more distinct and much closer than before. In front of the window, I come against the cord of the roller blind as I want to open it. The plastic pearls at the end of the drawstring briefly hit each other. With my left hand, I grab the window handle. The seals come loose as I turn the handle around. It sounds as if a vacuum has been entered. I tilt the window, and it springs after it bumps against the limit stop. The plastic pearls of the blind roller bump against each other anew.

Voices enter the room from the outside. There seems to be a lot of activity in the pedestrian zone in front of the house. The vocal mixture is dense and even. I am not standing precisely in the middle of the window and hear it first in my right ear. I centre myself in front of the window and then lean back to the right to close the window. I push it against the reveal; it springs back briefly, and with a clack, the voices become quiet. I can hardly hear them anymore. I turn the handle around and the window snaps back into place. With a huge step to my right side, I pass around the corner of the bed that occupies almost the entire room. I move further in the direction of the door and pull it towards me with a sweep. When I push the door handle down, it squeaks. Its sound reverberates towards me from the hallway. While I walk through the door frame, my steps change and resound inside the hall. I change my grip on the door handle, and a soft snap appears. It reverberates more than on my way into the bedroom. As I push the handle down, it creaks slightly. I pull the door towards me and close it. Thereby, the door leaf vibrates briefly as it hits the reveal. I turn around and take a step forward. With a clack, I turn on the light switch to my right. The door handle in front of me sounds fuller than the ones before as I push it down. It clicks, and I open the door. With a step, I stay inside the room and close the door behind me. The door leaf rattles as I release the handle. The sound appears right in front of me.

Inside the room, it is quiet. After a moment, I reach for the handle again and push the door open. The first click of the push down of the door handle still remains in the room, but when I let it go it already echoes in the hallway. I come up hollow on the wooden floorboards of the hallway, turn around and close the door. The door leaf bounces back again as I release the door handle. I turn off the light to my right and walk to the left. With big steps, I move towards the bathroom and reach for the door handle, which squeaks softly as I push it down. With momentum, I open the door. There is a short draft to hear. As I enter the room, I briefly bump with my fingers against the door leaf. It sounds hollow and thin. The floor changes under me, and I come up hard on the tiles of the bathroom. I turn and pull the door towards me. Whereby, the reveal buffers it. I click the light switch to my right and notice how silent it is inside the room. I flick the light switch again and reach for the door handle. I open the door quietly. The handle smacks a little as I go out. My footsteps are again clearly audible on the wooden floorboards. I close the door, and the leaf bumps dull against the seal. With a turn to my left, I grab the door handle to the dining room. It squeaks as I move the handle downwards.

With a creak and clang, I open the door towards the inside. I notice while I walk through how my steps become louder and bigger as I step into the room. Thereafter, I pull the door shut. The door leaf strikes against the reveal, and the door handle cracks as I let go of it. I turn towards the window front and move straight ahead to the right window inside the dining room. The wood planks creak and squeak with every step under me. Towards the window, my steps become firmer. I open the window in front of me. With a squeak, I loosen the window handle and pull the window to an inclined position. The pearls at the end of the roller blind pull cord hit each other for a short moment. From the outside, voices penetrate the room. It

sounds livelier than before. After a while, I close the window again and push it back into the reveal. It bounces back. The plastic pearls of the pull cord rub against each other. I turn the window handle back to its former position. Thereby, it smears a little on the plastic of the frame. I walk away to the right and stand in front of a large double-wing door. The floor creaks under me while I move. With my right side, I grab the door handle, and with a clack, I open the door in my direction. While I walk through the door frame, the planks creak under me even louder. I turn around and close the door. It strikes briefly against the other wing. With a clack, I let go of the door handle. From behind, music appears for a moment. I turn around and walk towards the window opposite me. It faces the forecourt of the building and lies to the right of the room. My footsteps are even, reverberating dully from the wood floorboards. I turn the window handle around with a squeak. The window opens, and voices from outside appear in the room around me; especially, male voices are clearly audible. After a while, I close the window again and push it back into the reveal. The seal buffers the movement, and with a click, the window is locked again, and the voices remain outside. I turn around and go back into the room. From behind, a short impulse enters the living room. It sounds like the unloading of a vehicle.

Most present:

The reverberation of my footsteps in the rooms; the change of material from paving stones to PVC and the wooden planks; the transition from one room to the next, especially from the hallway to the bedroom and also the toilet room; the rattling and chattering of the doors, as well as the clicking of the light switch and squeaking of the windows as well as bouncing against the window seal; the rattling of the exhaust air system in front of the kitchen window and the voices from the pedestrian zone; the silence in the bathroom and the toilet.

Interpretation:

The steps and movements provide information about the material composition and size of the rooms. My footsteps come up hard on the cobblestones. They have little reverberation. Moreover, the ambient noise masks my sound. The wooden staircase is a good resonance room, the steps sounding bigger here. Besides, the wet rubber sole of my shoes causes the squeaking on the PVC. In the apartment, the wooden floorboards dampen the footsteps. However, the floor creaks in the dining room and kitchen. In the latter is an old floor underneath the PVC. The wood has warped and creaks between the junction of the beam and board under load. The movement makes the transitions from one room to another present and can be easily compared. Interesting is the change from the hallway to the toilet and also to the bedroom, as they have unexpected reverberation times. The tiled bathroom sounds bigger while standing outside. The crackling of the door handle reflects in the tiled interior, but as soon as I stand inside the room, it becomes smaller, because my body swallows the sound when closing the door. The bedroom sounds smaller than it is because there is a large open wardrobe right at the entrance. It consumes the sound as I go inside. The wooden doors in the apartment have no sealing strips and are slightly warped. As soon as a door moves, the fillings inside the leaf rattle and the trap hits against the locking plate. It has too much space to move. The rattle of the doors and the clicking of the light switches act like an impulse, providing information about the size of the room. The plastic windows do not seem to have been weighted because they squeak and are challenging to open. Further on, they were renovated years ago, but they do not sufficiently insulate against the sounds in the surround. The pedestrian zone noises and buzzing of the snack bar’s ventilation system in the backyard are

audible while the window is closed. The inner rooms are quiet; nobody moves in the house. Both rooms have connections to common areas of the house. The toilet connects through one wall and an old window to the staircase. The bathroom has a shaft that links all apartments to the roof.

Effect:

Attraction, Cocktail, Colouring, Cut-Out, Cross-Fade, Drone, Fade, Filtration, Incursion, Mask, Mixing, Repetition, Resonance, Reverberation

H 3 Transition and stationary

H 3.1 Dining room – Living room

I'm standing in the dining room in front of the big double-wing door to the living room. There is a slight noise around me when a birdcall pierces through from the window to my left. I grab the door handle with my left side. It cracks when I push it down and immediately afterwards when I release it. After that, I open the door and enter the room. Thereby, the floorboards creak under my steps and echo inside the living room. I turn around and close the door again. The handle rubs lightly on the sign, the door slams against the reveal and the trap snaps shut with a clack. I release the grip, and the door leaf falls in my direction. The trap strikes again with a clack. Also, in the living room, a quiet noise appears. It sounds somewhat darker than before in the dining room. I grab the door handle anew and push it down, the trap clicks out of the striking plate and also as I release the grip. I open the door with a creak and leave the room as I step on the threshold. I turn around and close the door. The handle clicks, the door bounces against the reveal, the trap snaps shut and the door falls a touch to the front, so that the trap strikes the striking plate a second time. The slight noise in the dining room is still consistent.

Most present:

The noise in the dining and living room; the clicking of the door when closing; the creaking of the floorboards while stepping on them.

Interpretation:

The windows filter the traffic noise from the outside. Additionally, the dining room is further away from the traffic than the living room. As a result, the sound in the dining room seems brighter. The trap clicks into the striking plate when the door closes. It does not sit tightly so that the door moves when one lets go of the handle and the latch hits the striking plate a second time. The floorboards in the flat are old and warped, which makes them creak under load.

Effect:

Colouring, Filtration, Drone, Incursion

H 3.2 Living room – Window

I stand in the living room in front of the window to my right, which faces the building forecourt. I hear voices coming through the glass, but can't make out anything in particular. A child's voice appears for a second and a bird also emerges. I turn the window handle around with my left hand. The lock comes loose and I pull the window in my direction. The seals separate and the voices from the outside appear more clearly. I tilt the window further until it bumps against the limit stop with a clack. The plastic pearls of the blind roller string collide with a slight jingle. A call stands out from the mass of voices and is repetitive. I wonder what it could be because I can't assign it to a bird, maybe it's a dove. A draft of wind causes the plastic pearls right next to me to strike against each other anew. I push the window shut and the wing bumps dampened against the rubber seal. Thereby, the plastic pearls jingle another time. I turn the handle around and with a clack, the window closes. The voices come back through the glass into the room. The voice of a little boy stands out.

Most present:

The voices when the window closes; the boy’s voice that stands out from the rest; the opening and closing of the window, which appears even; the presumable birdcall that repeats itself.

Interpretation:

The glass of the window filters the exterior sounds and merges them to an even mass. Also, the position of the apartment on the 1st floor adds to it. The height and differences in pitch become less perceptible. The voice of a boy stands out clearly from the rest since it lies higher in the frequency range. The plastic window has a typical sound. The handle turns slightly and unlocks the lock evenly; the same applies to its closing. The repeating call, probably that of a bird, sounds filtered by something or distorted, which makes it hard to assign to something explicit.

Effect:

Attraction, Cocktail, Colouring, Cut-Out, Drone, Incursion (jingle), Filtration, Repetition

H 4 Stationary – Standing

H 4.1 Living room

I stand in the middle of the living room and look at the wall to the neighbouring apartment. To my right is the double door to the dining room. Behind me, there are two windows towards the pedestrian zone and to my left another window facing the forecourt.

H 4.1.1 Morning:

There is a quiet buzzing sound hovering in the background. It cracks around me. A dove coos behind me from the pedestrian zone. Shortly after that, a step from above echoes dimly in the room. At the same time, someone pushes a chair over the tiled floor underneath me. It squeaks. The pigeon continues to coo. Then the footsteps from above wander into the dining room. Slowly a hiss approaches from behind, consistently getting louder and shortly after disappearing again. The soft hum remains in the background.

Most present:

The buzzing in the background; the cooing pigeons; the dull steps from above; the squeaking from below out of the snack bar; the slowly approaching hiss.

Interpretation:

The buzzing comes from the ventilation system of the snack bar. As there are no sealing strips inside the door frames of the apartment, the noise from the kitchen can get into the room. The doors filter part of the sound, which can give the impression of a buzzing. Also, a part of the sound penetrates through the wooden beam floor directly from the snack bar. It only dampens the noise to a small extent. As a result, the squeaking of chairs is noticeable in the living room. Also, its sharpness adds to the recognition. The glass in the windows filter the sounds from outside like the pigeon cooing. Furthermore, it must be close by, as the cooing is audible. It is similar to the approaching hiss, which gets louder the closer it is. It comes from the cleaning vehicle that sweeps the streets in the morning.

Effect:

Attraction, Drone, Filtration, Incursion, Mixing, Resonance, Reverberation

H 4.1.2 Afternoon:

In the background lies a soft hum. Additionally, a pigeon coos from behind. From the outside, rain drips onto the windowsill and against the windows. It appears dull. Also, voices appear in the distance. The pigeons keep on cooing and the sound seems to come from the left.

Most present:

The quiet hum in the background; the cooing pigeons; the rain that hits dully on the windowsill and against the window.

Interpretation:

The buzzing comes from the ventilation system of the snack bar under the apartment. Part of it propagates from the kitchen, where the ventilation system is located, directly in front of the kitchen window. Thereby, the doors in the apartment contribute because they do not have sealing strips inside the frames, which would dampen the sound. Besides, part of the buzzing spreads through the wooden beam floor. It acts as a resonance chamber and only separates the spaces sound wise to a limited extent. The cooing of the pigeons is present because they are close by the window and sit on one of the ledges of the facade. Also, the window glass filters the sound and reduces it in terms of the highs and lows. The rain is present because it hits against the window sill and glass and therefore, activates the material.

Effect:

Colouring, Drone, Filtration, Mixing, Masking, Repetition, Resonance

H 4.1.3 Evening:

Footsteps echo from above. Someone with heels seems to be walking through the apartment. It narrows the room for a short moment. Voices mingle into the scene. They are very close and come from underneath me. Then a beat starts to play. I feel the ground pulsing under me. There are also noises from the outside. Although voices seem to lie further away. To my right, it cracks briefly. Another crack now from the dining room appears. The voices remain constant. There appears to be a lot of activity in the snack bar below the apartment.

Most present:

The reverberation of the footsteps from the 2nd-floor apartment; the voices and the music from the snack bar.

Interpretation:

The sounds reverberate through the wooden beam ceiling and floor. It acts as a resonance chamber for sounds. The beat of the music is perceptible through the foot soles. The reverberation of footsteps, especially when someone wears shoes, squeezes the room together. The impulsive sound makes us flinch and prepares us for a possible defence.

Effect:

Filtration, Mixing, Repetition, Resonance, Reverberation

H 5 Stationary – Sitting and lying

H 5.1 Living room – Lying

I'm about to fall asleep, lying on my back with my eyes closed. I breathe deeply in and out. A soft murmur approaches and disappears again. Quietly I hear voices in the background. It seems as if people are talking outside on the forecourt. I can make out the voice of a woman then shortly afterwards, a young man speaks. Then I am by myself again. I hear how heavy my breathing is and my body slowly relaxes. Suddenly, the bass hammers through the floor, against my head and into my body, followed by a woman walking in heels downstairs in the snack bar. It is late. I try to concentrate and be at one with myself again, pushing my blanket in the right direction. It crackles for a moment and covers the hammering of the bass on my head. I feel like it's getting louder. It vibrates around me. In front of me, it cracks briefly from the wing door. I try to stay with myself. Then a stroke from the outside, I shrug briefly. Probably the sliding door of a car that was closed. More voices push themselves into the room and from below, it cracks loudly. From the corridor, it rattles and vibrates the wing door before me. Again, a stroke from the outside, followed by another rattling of the door in front of me. I am wide awake, the music from below gets louder again, the bass hammers. I try to find a better position. The air mattress on which I lie crackles and my blanket rustles once more.

Most present:

My breath, the rustling of the blanket and the rattling of the swing door; the voices from outside and the slamming of the sliding door; the bass from below, the clacking of the high heels and the voices.

Interpretation:

I feel my breathing particularly well because I am about to fall asleep and breathe deeply in and out. The tension of the day disappears. The crackling and rustling of the blanket seem clear because it lies so close to me. The swing door has a space in the striking plate and as soon as something moves in the house or apartment, it rattles. The voices are filtered through the window. Even though they are new, they do not dampen the sound sufficiently to provide a good night's sleep. Also, the voices are in direct proximity to the house. Furthermore, the human ear is particularly sensitive in the frequency range in which the speech is located and can quickly perceive the sound. The sliding door that is closed acts like an impulse and announces danger, thereby making me shrug. The bass from below resonates with the wooden beam floor and me lying on the air mattress that sits on the vibrating floor. It literally gets under my skin and presses on my head. I feel attacked because I want to sleep. The clack of high heels sets impulses and attracts attention because of the rhythm. Besides, the floor does not mute the sound enough; the same applies to the voices from there. They can be identified because of the sensitivity in the sound area and the proximity to the sleeping position.

Effect:

Attraction, Cocktail, Colouring, Drone, Envelopment, Filtration, Incursion, Mix, Resonance, Repetition

Appendix D - CD

V2 Transition
V3.1 Hallway - Room
V3.2 Room - Window
V4.1.1 Room - Morning
V4.1.2 Room - Afternoon
V4.1.3 Room - Evening
V5.1 Room - Meditating

B2 Transition
B3.1 Hallway - Living room
B3.2 Living room - Window
B4.1.1 Living room - Morning
B4.1.2 Living room - Afternoon
B4.1.3 Living room - Evening
B5.1 Living Room - Meditating

H2 Transition
H3.1 Dining room - Living room
H3.2 Living room - Window
H4.1.1 Living room - Morning
H4.1.2 Living room - Afternoon
H4.1.3 Living room - Evening
H5.1 Living room - Lying