Final Report for STSM in COST–IC 0601

Sonic Interaction Design

Socio-psychological cognition of spatial sound

and its application in interactive scenarios

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Abstract

This STSM aimed at testing scenarios of spatialized sound in which both acoustics and socio-psychology are considered. By transforming the structure of linear narration into non-linear interaction the scenario can be explored by embodied experience.

The realized installation allows the user to explore different dimensions and perspectives of the scenario: The characters' conversations, thoughts and actions are cued to simple movements of the user, the composition of different ambiences can be altered by the choice of listening positions. Audio augmented environment technology with binaural rendering set up main features of a sonic virtual reality by the use of an accurate, low-latency, three-dimensional tracking system that served as interface for user interaction. The software modules, realized by Thomas Musil from IEM, were developed continuously, departing from the needs of the scenario and using as starting point the existing ambisonic rendering tool from IEM, based on Pure Date language. Its graphical surface enables the adjustment of spatial parameters and sound parameters, as well as a basic visualization of the scenario and the user movements.

The key questions are firstly how to transform the linear structure of audio dramas questioning both aesthetical and technical requirements and their each limits. Further questioning relies on the socio-psychological perception of space and its incorporation in the framework of artistic creation. A brief evaluation of the final installation had been assessed with probands responding to a standardized questionary.

Content

1 Idea and preparation

Audio dramas developed since the early 20th century besides sound feature language and literature. With their artistic and technical widening they freed their definition from literary content, expressing themselves in stereophonic sound, in binaural and multichannel sound. The present STSM aims to question language as artistic material in the context of a virtual sound environment by intertwining narration and interaction.

The basic idea was to contrast thoughts and conversations which I found given in the novel „Willkommen neue Träume" (Welcome new dreams) from Norbert Niemann. The german author won the renowned Ingeborg-Bachmann-prize for his first novel and became rewarded for his time novels. In one of the first scenes the main character, a journalist and intellectual, is introduced. He hasn't got any actual name so far, but reading a book with poems, is named „lyricist" in further descriptions. He is traveling in a train on the way to his home city. In the same train compartment an elder couple, Rudolf and Helene, as well as an soldier keep him company. They start a reduced, elliptic kind of small talk which when only looking at their very conversation stays cryptic. Yet, their thinking reveals the background of their conversation i.e. actual motivations, opinions, memories and attitudes. Moreover, their gestures and non-verbal expressions represent a further level, hidden behind the actual conversation. In the original text all these levels are intertwined, representing one linear flow that switches constantly between the different perspectives and information levels. The narrator is almost omniscient, except the ones of the journalist whose behavior is described solely from the point-of-view of an accurate observer.

Adapting the original text for the installation implicated several aspects:

- shortening the original scene
- extracting the actual conversation
- choosing moments that express the thoughts of the characters on themselves as well on the other characters
- re-writing the characters' thoughts in a way to set them to a neutral point-of-view i.e. neither first-person nor talking about themselves in third-person (and still keeping close to the original text)
- extracting a level that tells the actions and reactions during the conversation and that allows to finally understand the context of the conversation

2 Recording and montage

For the recording I contacted three theatre networks in situ as well as an acting school. According to the responses, I could choose among the triple amount of semi-professionals and found a cast that was quite well-fitting. The characters are the following ones:

Helene   – a resolute woman in the fifties, chatty and demanding

Rudolf   – her husband, asthmatic and introverted

Lieutenant   – tough with a pronounced military attitude

Lyricist   – courteous, curious, inhibited

The narrators' attitude was chosen very neutral, soft and reticent with regards to psycho-sociological cognition of sound in the background sphere (see chapter 4). Some special sequences had been recorded furthermore with a second narrator contrasting the first one by a non-professional but fresh voice, that may represent an observer in the train.

A Neumann U89i condenser microphone had been available. All recordings were done in Mono with absorbing walls around the microphone in order to minimize room information. Effects or sound treatment had not been made, what made it more difficult later-on to handle the sound. The use of a compressor would have helped to make the different sounds more even.

Finally the montage was made with Garage Band which provides only basic operations and is not really sufficient. The timing of the the voices was made in a first step, the voices afterwords were exported in a way that each voice became a separate sound file assigned to a chair. This procedure was made for two mixes:

◆ The first one (Intro-Mix) is done for the conversation without the narrator, adding different sounds from the situational context like smoking, snoring, eating, preparing food, pouring a drink, clearing one's throat, putting out one's cigarette. It is kept chaotic, with the elements of the conversation and sounds overlaying with others.

◆ The second mix adds the narrator and puts the voices in an overall timing with one character speaking at a time.

Third, mixes for the ambiances were made, dealing with train sounds and associated train sounds, taken from IEMs-library:

◆ Solar Eclipse from Barry Truax + train driving

◆ departing and arriving trains + sibilant sound from Kurt Schwitters' „Ursonate" + rumbling of thunder

◆ train-interior-mix from my journey there with people talking

◆ the same recording but mixing the pure train sounds without people talking

3 Scenario description

The user enters the scenario from outside with tracked headphones on his ears. In the middle of the room are placed four chairs with spots on them, the rest of the room is dimmed. On each chair are „seated" the characters.

Figure 1   *Picture of scenario in the CUBE, IEM, Graz*

When the user first enters the installation they are talking in a messy kind of way, intertwined with all kinds of sounds (smoking, snoring, eating, preparing food, pouring a drink, clearing one's throat, putting out one's cigarette). Once the user sits down on a chair, she enters the characters intimate sphere and gets to know some thoughts of the characters about himself while other sounds and reverberation have disappeared.

When the user nods towards the direction of one of the other three characters/chairs, she will listen to different thoughts: For instance, sitting on the chair of Helene and nodding towards the lyricist, the user hears Helene talking about the way the lyricist makes her remind her of her son and that she feels attracted to him. Sitting down on Rudolf's seat, he first wonders about his feeling of being cut off from the world. Or, being seated at the soldiers position and nodding at Rudolf, the user hears that the soldier is full of deprive for Rudolf's overweight and, nodding at the lyricist, full of disgust for the lyricist intellectual attitude. However, sitting down on the lyricist resets the conversation and it starts from the beginning.

When the user stands up, he enters back the normal conversation, but at a point that is connected with the content the user just listened to. Thus revealing different dimensions of the content and the context, the understanding of the initial conversation (Intro-Mix) is changing gradually. Moreover, when the user first stands up, the narrator is added, telling about the actions and reaction of the characters and filling in the gaps of their conversation. The narrator is positioned above the users head, in the middle of the "train compartment" (the four chairs). Third, the user perceives different ambiances in the background, located at the outlines of the walkable area.

When the user leaves the inner room, the room size changes from small to big with the narrator leaving its center position and circling slowly and randomly around, accompanying the user. Thus, the narrator stays close whereas the conversation alters depending on the distance to the chairs. Leaving the inner area changes the virtual room size and with it the reverberation characteristics. The user moves around and finds four ambiances on the angles of the room, similar to windows: They can be approached and they have a diffuse width and hight. According to the user's position, the proportion of the ambiances is different i.e. their composition. Finally, the user can in a way choose his personal audio drama setup.
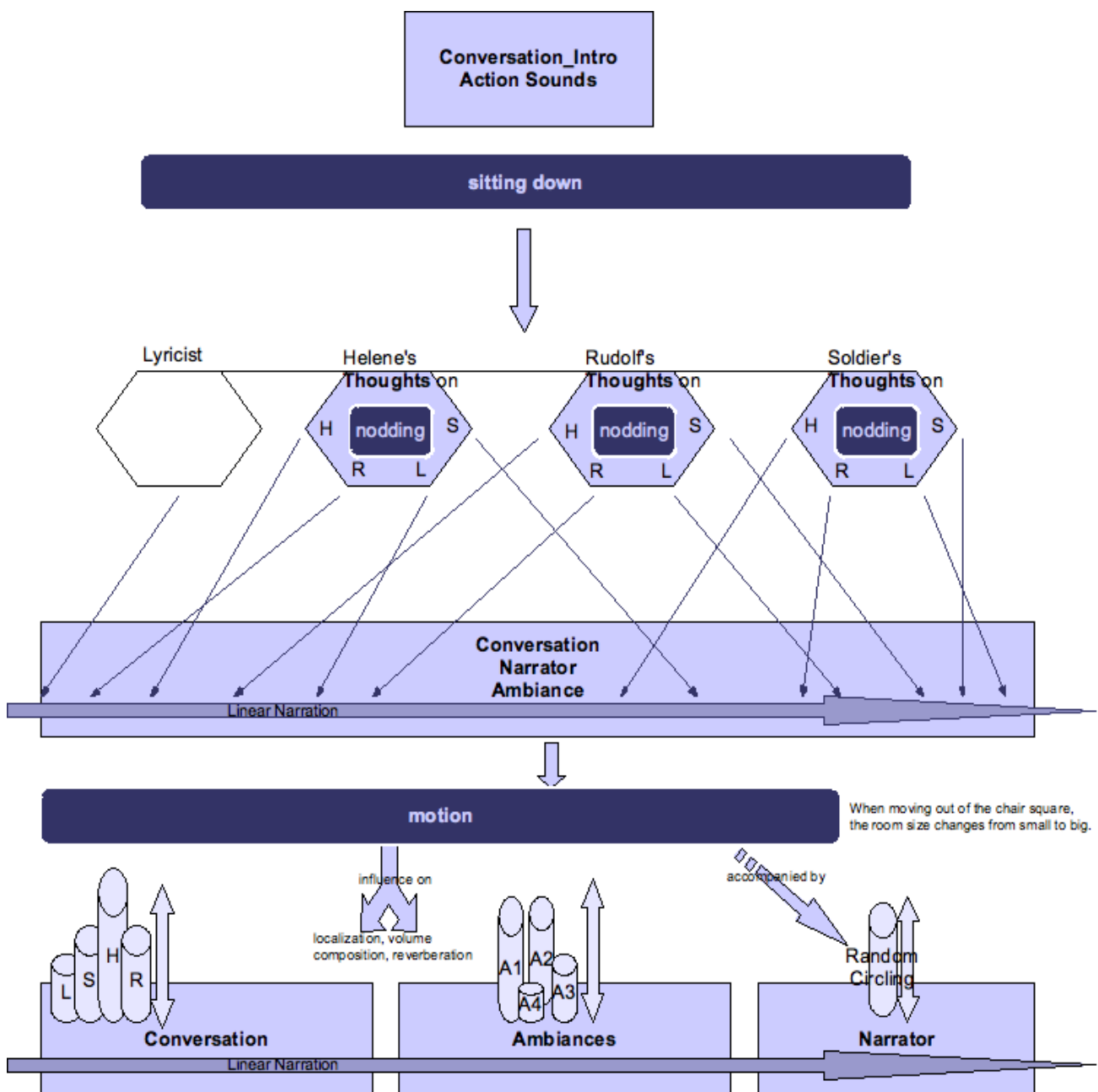

Figure 2   *Interaction and narration as scenario structure*

4   Socio-psychological cognition of sound

In the following I describe a theoretical framework developed during my diploma thesis (cf. (3) Gampe 2006: Hörspiel als Raumklang).
I originally planned to carry out tests during the first week of my STSM in order to familiarize with the system and to bolster my theoretical research. In agreement with the STSM's supervising tutor I yet started directly with the interactive scenario as it became clear that I will need all the STSM-time for it. Nevertheless I will point out the outlines of the theoretical issues since they contributed to the STSM's practical work.

Traditions of perception

Whereas hearing is offering several interpretations of one sound, visual information are more distinct and as a consequence, we tend to trust our eyes more than our ears. So called „visual primacy“ however goes along with another phenomenon that can be named „frontal primacy“. It is based on both physiognomies and anatomies given that fixations are made in the sagittal dimension where on the retina is placed the point of best vision (macula lutea). Visual primacy also is reflected in the tradition of stage where the back sphere is omitted and the recipient is outside the scenario. In contrast to the eye, the ears are able to naturally treat omnidirectional information and so the question is how to characterize the perception of the back sphere, as well as the perception of a surrounding space instead of a frontal scene.

Back Sphere Theory

From an evolutionary point of view, dangerous situations hold only few options: fight or flight. For animals concrete radii can be defined in which either behavior is elicited. The mechanisms of fight or flight are still working for humans what can be exemplified by the stress phenomenon. As soon as a situation is considered as dangerous or even displeasing, our body pours adrenaline and noradrenaline no matter if our opponent is a wild animal, a noisy neighbor, or a pile of outstanding papers. If flight is not possible anymore, there's only defense and attack left. With no visual information, no extremities nor teeth for defense, our back and neck represent the most sensitive and vulnerable part. As a result, both main attention (visual primacy) and action (anatomy) are orientated to the front and hence the principal attributions for the frontal sphere can be named 'control and activity'. Contrariwise, the back sphere is characterized by limited action and vulnerability, by passivity and loss of control. As a result, the latter cause a type of augmented emotivity: If a situation is not clearly assessable, it may be potentially dangerous, especially when there is higher vulnerability. According to Antonio Damasio, emotions can be interpreted as rise in the neutral emotional state defined as vital background sensation. Loss and leck of estimation increase this normal „background sensation“ and the emotivity of the back sphere can therefore be defined as an elevated disposition to interprete (uncertain) situations emotionally. In this context, psychology assumes a cognitive mechanism of monitoring and comparison that reacts with changes in the normal excitation level, leading to the extend of stress and fear.

For Damasio, „emotions play out in the theater of the body", representing stored experiences and functioning as catalyst for decision-making and motivation (cf. somatic markers). In idiomatic speech, the emotional characteristics of the back sphere can also be detected like for example „back-stabby" or „to back s.o.". In fact, „fear/surprise/betrayal" and „trust/intimacy/support" are two main semantic fields connotated to the back sphere as well as situations of daily life like for example eavesdropping (cf. cocktailpartyeffekt). Both semantic fields and natural situations may serve in the dramaturgic production of spatial sound, answering on what sound to put in the back.

Proxemics (E.T. Hall) **& Equilibrum theory of intimacy** (Argyle and Dean)
Further aspects on socio-psychological perception of spatial sound can be deduced from the following theories. Social-psychologists Argyle and Dean assume that every interaction and relation has its own niveau of intimacy, that the partners attempt to maintain by constantly monitoring their signals of intimacy such as glancing, smiling, interpersonal distance etc. The equilibrium theory of intimacy indicates that the raise of intimacy signals in one modality (e.g. little interpersonal distance) is compensated by the lowering in another modality (e.g. a more decent eye glance behavior), like for instance when strangers meet in an elevator. Acoustically, glances will not come into account, but distances on the contrary can be expressed and designed by several parameters such as loudness, reverbs and attitude. In fact, Jens Blauert in his first experiments on spatial hearing has already recognized that as far as distance is concerned whispering and screaming are perceived differently. With regards to distances expressed by sound, the socially connotated spaces described in the proxemics theory from E.T. Hall become interesting, too. Hall segments the public space into several spheres, each of them marking special behavioral patters and expectations between individuals. Moreover, the specificities of the spheres also depend on culture and social context.

Body and Voice
In audio plays, voices have an important role. As a matter of fact, they give information about the bodily, emotional and mental state of the voice owner, such as her health and personality. Wether these information are real, associated or staged, they nevertheless evoke an image of a person, of a bodily presence, due to paraverbalia, vocalizations and other vocal information.

Resume
The back sphere can be characterized by higher emotivity to outstanding sound. This higher emotivity can be balanced via other modalities of intimacy. Both distances as well as body attributes can be represented through sound, allowing to apply socio-psychological issues. Loudness (level), reverbs and the attitude of the actor, as a result, represent instruments to adapt the meaning of sounds in a scenario, whilst specific connotations of the back sphere offer dramaturgical ideas for a spatial sound scenario. Thus, artistic intention and listening attention can both profit. In the present installation can be named the following examples: the attitude of the narrator, the entering of the intimate sphere of the virtual characters e.g. her thoughts, the listening to the converation from a eavesdropping context, the loudness given to ambiances

5   Intuitive movements and tracking

At the origin of how to design interactivity for a sonic scenario were two aspects:

• First to transform the content to a multidimensional, cross-linked structure based on optional behavior.

• Second to use intuitive e.g. "natural" body movements for cuing the switch points of the scenario.

• Third to transform the ideas into programing, done by Thomas Musil from IEM in Pure Data language, extending the original Ambisonic-patch from IEM.

In games, tools and minimal movements like pushing a button are used and re-interpreted by learning.

For the installation, on the contrary, the concept was to solely use intuitive movements whose course of motions is already internalized. Thus, nodding and sitting down served as cues, their ulterior motive to merge virtual perception (spatial sound) and sensual experience (embodied interaction).

In order to capture the sitting down, the areal of the real chairs had been mesured (x and y axis). Together with the difference in hight (z axis) the cue could be defined.
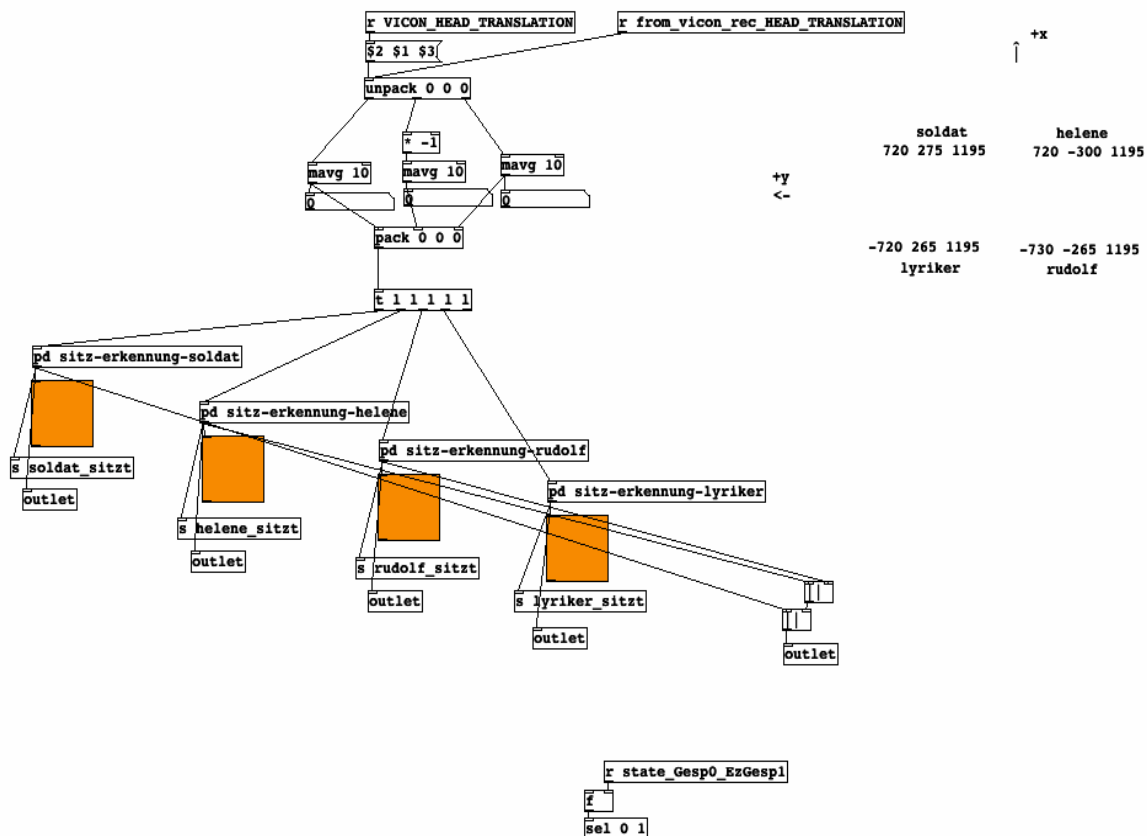

Figure 3   *PD-programing of the cue 'sitting down'*

The capturing of the nodding had been much more difficult. Per se, it is a quite small movement and the individual execution differs from one individual to another. Also, the hight of the voices are placed between standing and sitting, whereas big differences in the users' size will change the intended hearing impression. Moreover, the distance between the narrator and the user is affected. For future work, it hence might be useful, to measure key data of the listener and to indicate key positions relatively.

For making the nodding work, the analyze of several test nods had been smoothened with a filter. Nevertheless Thomas Musil chose a stylized nodding with not only a downwards movement, but also with a preceding upwards movement in order to make the acquisition more distinguishable. This definitions finally worked together with the angular degree. Thus, the tilt of the head (vertical plane) is used to capture the nodding. Moreover, the direction (horizontal plane) of the nodding serves as cue to switch from one characters to another. The angular degree corresponding to each character/chair was defined with regards both to real angles and practicality, i.e. looking to the direct left or right neighbor should be possible in a easy way without effort or physical pain.
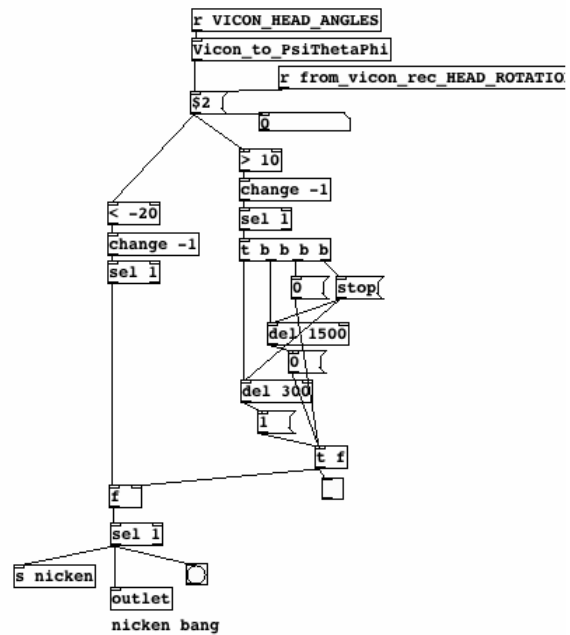
Figure 4
PD-programing of the cue 'nodding'

6   Binaural rendering and programming

The virtual ambisonic system from IEM is working up to 4rth order providing room simulation by means of a mirror source model, overcoming HRTF problems and realized in pure data language. The order m is indicating the accuracy of the system with references to the spherical harmonics of the waves defined by Huygens' principles. For a 2D-system are needed 2m+1 channels of transmission, for a 3D system $(m+1)^2$ channels are needed i.e. virtual (or real) loudspeakers. Together with the length of the impulse response, the number of virtual loudspeakers is reflected in the computational power necessary for the convolutions.

Main features of the ambisonic patch that were applied to the installation are dealing with input data from the tracking system, distance models, first and second room reflections, different sound input and realtime-rendering of the binaural image. With increasing sound sources, the computational power that was needed

got quite high. In order to maintain the idea of running the whole on a notebook (MacBook Pro / Macbook), the system was reduced to 3nd order, the second reflexions were abandonned and for the sounds, most of them nevertheless voices, the sample rate was reduced to 22,5kHz. But still, the sounds showed drop outs and interferences in the end.
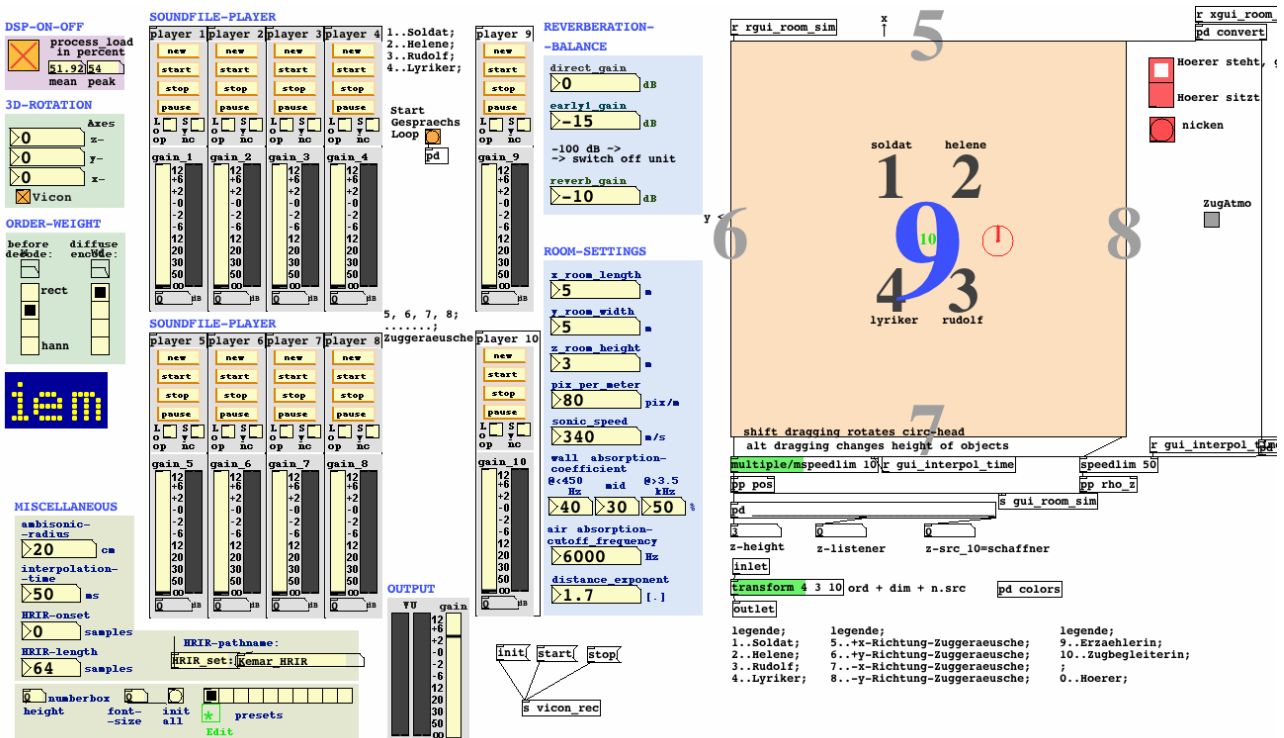

Figure 5   *surface of the scenario run on IEM binaural ambisonic patch (AmbIEM)*

The systems' features also enables specific means of creating:

Combining spatialized and non-spatialized sound was aimed, so the characters' thoughts were NOT rendered ambisonicly in order to establish a pronounced contrast with the other dimensions of the scenario. Moreover, sound sources in the virtual ambisonic system normally are solely punctual. Yet, the ambient sounds were widened by reducing the computed order down to first order. The ambiances were placed on the baselines of the square that can be captured by the tracking cameras with the idea to make them appear similar to windows. Last, the directivity of the sound sources as parameter for convincing virtual sounding was very preferable, yet, unfortunately, wasn't implemented so far and could not be solved within the time limitations. This too, will be an important issue in future work.

7 Questionaries

Eight probands separately went through the installation within 15min up to 50min, an initial introduction was given to them first. Afterwards they were asked to answer twelve questions (see annex). In order to familiarize the each proband with the nodding, she did some testing before entering the installation, trying to activate the cue. First attempts to not tell all of the features were altered very quickly, since the complexity of the installation already demands to know the basic functioning from the beginning.

- The probands' first impressions were expressing mainly captivation and interest, as well as partly confusion at the beginning.
- All of them thought that the chairs were helpful for localizing the sound sources.
- As far as the thought level is concerned, the voices were sensed as rather pleasant (6 from 8) or exciting (2), but their localization evoked very different impressions, according to the seating position of each individual (slightly in the front: 3, on the seating position: 3, slightly in the back: 2, in the head: 1; some of them ticking several answers).
- The nodding was functioning for the majority (5 from 8). Yet, for many is was distracting as soon as it didn't work and for two it didn't work at all. Only one person indicated a natural feeling. Reasons might be capturing definitions, individual differences, as well as a missing initial testing (1).
- The narrator's voice was neutral or pleasant to all probands. Nearly none of them had the impression to be followed. The fact that the actions are narrated without any further sounds was perceived less exciting, but helpful and inviting to concentrate on the story. For some it was nearly to much text.
- The ambiances had been experienced as contrast to the actual conversation giving a different perspective on the whole scenery. One found it difficult, another one initially irritating, some found it pleasant and exciting.
- The headphones were pleasant to most of the probands (6). Some felt a bit deranged by the cable and the loose fit of the phones. The dimmed light yet was perceived as mainly positive. Some appreciated the comfortable atmosphere helping them „to get engaged with voices and sounds", to have their „own pictures", and to „not be distracted by optics".
- Asking for problems and irritation, many probands mentioned the missing transitions from one level to the other what wasn't established so far due to time constraints. Further irritation was caused when the nodding didn't work or the system had mushes because of the computational power being at its limits. One proband mentioned that she got sometimes frightened when voices appeared in her back.
- The driving motivation for all probands was the curiosity about the different levels of the installation (characters, ambiances, narrator) yielding a overall picture. Also, questioning them what they would like to know more with regards to the scenario, they mentioned the overall context. Others (2) would like to know more about how the characters interaction and talking to each other, about the lyricist (2) or the characters thoughts and experiences in general.

8 Résumé and further research

Socio-psychologic cognition of space is especially interesting for scenic sound. The higher emotivity of the back sphere yields an aesthetic sensitiveness to be respected or challenged, their connoations offering dramaturgical ideas and and colors of reception that can be implemented in the creative context.

The main conclusion of the present, very basic installation might be that the general concept of interactive scenarios is interesting for both

- the artist : mixing up, contrasting and playing with realistic sensation and artistic creation, exploring the potential and restrictions of sound as non-mixed medium
- the listener : exploring different perspectives and putting together the global picture
- the researcher : spatial sound perception can be more easily achored scenically, yielding a field of interdisciplinarity, allowing multiple creative approaches

For making the immersion of the virtual sound environment work, it appears necessary that all components are well tuned, elsewise the listener looses contact with the story and the sounding so that immersion doesn't work. Thus, for future work, the quality of the sound material is likely to be improved by creating the transitions between the different levels and by implementing the directivity of the sound sources. Moreover, the enrichment of the scenario by contextual sounds and action sounds may be integrated. From hereon, the complexity of the scenario can be progressively elevated, giving the user the possibility to interact with virtual characters and objects within the virtual environment, as well as with other users. On the other hand, more complexity makes it difficult to give a picture of the whole. Especially the implication of the body is both challenging and promising.

Figure 6   IEM binaural ambisonic patch
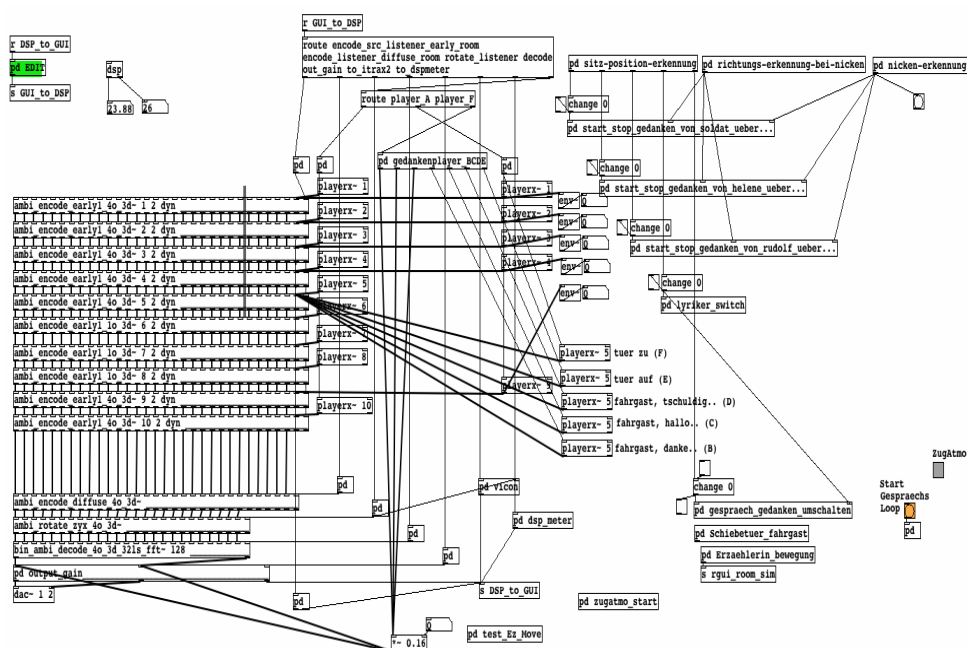
The interaction with a virtual passanger and a virtual door was partly implemented but couldn't be brought to fonctioning before the end of the STSM.

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Annex

a) Questionnary

1. Bitte beschreibe einen spontanen ersten Eindruck!
   Please discribe a first spontanous impression !

2. Gesprächsebene: wie hilfreich schätzt du die Stühle ein bei der Lokalisation der Schallquellen? (ankreuzen)
   gar nicht – nebensächlich – hilfreich – sehr hilfreich
   Conversation level: how helpful do you estimate the chairs with regards to localization of the sound sources? (tick)
   not at all – secondary – helpful – very helpful

3. Gedankenebene: wo hast du die Stimmen lokalisiert? (ankreuzen)
   im Kopf - leicht hinter dir - leicht vor dir - auf meiner Sitzposition - leicht rechts von dir - leicht links von dir
   Wie empfandest du die Stimme in der Stitzposition tendenziell?
   eher angenehm - eher unangenehm – neutral - eher spannend - eher langweilig
   Thoughts level: where did you localize the voices? (tick)
   in the head – sharp behind you – sharp in front of you – where I'm sitting – sharp right from you – sharp left from you
   How did you generelly sense the voice in the seated position?
   rather pleasant – rather unpleasant – rather neutral – rather exciting – rather boring

4. Wie natürlich wirkt das Nicken (als interaktives Element) auf dich? (Ziffer angeben)
   (1-3: ablenkend – 4-6: funktioniert – 7-9: natürlich)
   How is the nodding (as interacitve element) to you ? (indicate number)
   (1-3: distracting – 4-6: functioning – 7-9: natural)

5. Exploration / Neugier: Was war deine Hauptmotivation, dich in der Installation weiter zu bewegen? (ankreuzen, Mehrfachantworten möglich)
   ... Neugier mehr über die Szene zu erfahren (Inhalt) ... die Möglichkeit als solche (Raum)
   ... Zufall (mal schauen, was geht) .... Neugier, mehr über die Installationsebenen zu erfahren (Personen, Atmo, Erzählerin)
   .... Bewegungsdrang als solcher ..... andere ....
   Exploration / curiosity: Was was your main motivation to move on in the installation? (tick, multiple answers possible)
   ... curiosity to know more about the scene (content) .... the possibility as such (space) ... random (just see) .... curiosity to know more about   the different levels of the installation (persons, ambiance, narrator) ..... motor acitivity as such ...... other ....

6. Wie wirkt eine Gesprächsszene ohne Geräuscheebene auf dich, bei der sich die Handlung über einen Erzähler vermittelt?
   How does a conversation scene without background sounds is to you in which action is solely presented by a narrator?

7. Bitte beschreibe die Sprechhaltung der Erzählerin?   ....
   Please discribe the narrators attitude ?
   Wie empfandest du die dich verfolgende Erzählerin?   ....
   How did you sense the narrator following you ?

8. Wie empfandest du das Experimentieren mit verschiedenen Atmo-Mischungen?
   How was it for you to experiment with different mixes of ambiances?

9. Was würdest du gerne noch weiter erfahren? (z.B. Figuren, Erlebnisse, Geräusche, Informationen)
   What would you like to get to know furthermore?

10. Wie empfandest du die Kopfhörer?
    How did you like the headphones?

11. Wie empfandest du dich Lichtsituation?
    How did you like the lighting?

12. Was hat dich irritiert, womit hattest du Probleme?
    What irritated you, what caused you problems?

b) Text of conversation level (Norbert Niemann: Willkommen neue Träume (S.18/24-50))

Rudolf   Lass mich das machen.
Heute klappt gar nichts.

Helene   Erst der Flieger in der Warteschleife, dann der ICE um über eine Stunde verspätet. Ich kann Ihnen sagen.

Lyriker   Bitte nicht.

Helene   Rudolf ist nun einmal nicht mehr der gesündeste. Magen, Gelenke, Leberwerte, der Blutdruck gibt den Ärzten Rätsel auf. Rauf, runter, wieder rauf.
Nichts wären sie im Amt ohne ihn gewesen. Denen ist das natürlich egal
Den Politikern sowieso

Rudolf   Helene!

Helene   Hundertfünfzig Euro weniger. Hören Sie mal. Das sind einhundert Mark.

Lyriker   Eine schlimme Zeit.

Soldat   Was lesen Sie da?

Lyriker   Gedichte.
Von einem Engländer Ende des Zweiten Weltkriegs geschrieben.

Helene   Das ist aber nicht schön.
(zum Soldaten gewandt, weiterkauend) Wir kommen aus dem Urlaub. Bulgarien. Waren Sie schon mal da?

Soldat   Zwischenstop. Auf dem Weg nach Afghanistan.

Helene   Das ist nicht wie am Mittelmeer, da werden Urlauber noch als Gäste behandelt.

Soldat   Leider lässt das seit kurzem sogar in Bulgarien nach.

Helene   Die Einheimischen trifft jedenfalls keine Schuld

Soldat   Natürlich nicht.
Da sind andere Kräfte am Werk.

Helene   Der Urlaub ist vorbei.

Soldat   Wir leben mitten im Krieg.
Hier nimmt das offenbar keiner zur Kenntnis.
Wie auch.

Helene   Muss man deshalb alles gleich schwarzsehen?

Soldat   Wenn wir unseren Auftrag wenigstens erfüllen könnten. Wenn wir besser ausgerüstet und ausgebildet wären. Für was alles Geld ausgegeben wird. Aber das ist nicht das Entscheidende. Es handelt sich schlicht um … Was wir brauchen, ist …

Helene   Was denken Sie, was wir brauchen?

Lyriker   Seedorf?

Rudolf   Nächste Station.

Lyriker   Ist es noch weit?

Rudolf   Elf Minuten.

Helene   Wohin geht denn die Reise?

Lyriker   Nach Hause

Rudolf   Hier müssen Sie raus.