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# From the sound installation to the sound situation: on my work *transition – berlin junction*

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Since mid-1999 I have been working on an expanded concept of musical space not only incorporating space according to its spatial characteristics in the narrow sense (acoustic, architectonic, sculptural, perspective and ambient). Beyond this my installation works conceive of space in its site-specificity, usually existing in several layers: a social layer, a historical-political layer and a situational layer. This concept of space is thus not limited to interior spaces and architectonic-formal relationships, a position which naturally also defines my working methods: only subjective, on-site research yields the theme and concept of an installation. I call such installations *sound situations*, following the 'conscious creation of situations' conceived by Guy Debord (International Situationists) in the 1950s. This means first that I open myself up to situations – usually in public spaces – in order to sense their site-specific tensions and to draw them out in all their possible relationships. Secondly, I alter these situations in order to make them more dense through intensification. The concept can be defined as articulating the space, the site; for this reason I prefer to work with site-specific acoustic and visual material found at the site, but also introduce foreign material when it serves to reinforce communication with the site and its occupants and visitors.

## 1. OVERVIEW

The interactive installation *transition – berlin junction: a sound situation* is located on a traffic island in front of the Philharmonie, the most important concert hall in Berlin. The installation is located in the steel sculpture 'Berlin Junction' by the New York sculptor Richard Serra, which was placed there in 1987. Between both of the sculpture's tilted, curved steel plates four loudspeakers have been set into the ground, emitting electronic sounds and fragmentary words and sentences. Eight sensors, which are also placed underground, react to the movements of visitors and trigger specific sound and speech transformations. Metal grids cover the loudspeaker cavities and give off a faint light at night. Sound and light contrast with the weight of the solid plates. Yet both works correspond to each other. For *transition* refers to the form and the material of the sculpture – its curved arch and the rusting steel – and exploits the unusual echo characteristics of the gap between the plates.

Serra chose the site of his sculpture in front of the Philharmonie especially because of the

correspondence of the curves of his steel plates with those of the Philharmonie's roof. In the *sound situation* this correspondence was rendered in time via the *sound curves*.

In Serra's 'Berlin Junction' work, *transition* emphasises the moment of passage. Transformation through movement is the concept. In the sculpture a fundamental sound is permanently induced by six computer-based sinus generators. Only when a visitor moves through the sculpture does this static sound begin to move and is gradually changed. Infrared sensors in the ground measure the distance to the visitors, so that their movements are fed into and processed by the computer system in the Philharmonie's foyer. Over time visitors cause the sound to change day and night. Listeners transform what they hear. The visitors become players in a musical process lasting months. The sculpture becomes an instrument.



**Figure 1.** 'Berlin Junction' sculpture (1987) by Richard Serra before the Berlin Philharmonie Concert Hall by Hans Scharoun, with ground grids from the installation *transition* in the gap between the plates (2001).



**Figure 2.** One of four ground grids with a loudspeaker and a light underneath the ground on the left side and two infrared distance sensors at the right side covered by a little window. Each loudspeaker cavity contains two sensors aimed in different directions.

## 2. ARTISTIC AND TECHNICAL DETAILS

The aspect of active transformation is fundamental to the installation's concept. *transition* means in essence 'passage and crossing' and incorporates first of all the spatial-sculptural situation of the passage between the two steel plates – rendering it in time, in the sense of a permanent, musical passage from one sound to another. Music has always been the art of passage and transition par excellence. Every sound is in essence an ephemeral entity, possessing nothing perpetual but our memory of it.

The transitoriness, the passage created here by the sculpture, not only defines the aural situation between the two steel plates, but also the environment here at the edge of the Cultural Forum complex and of the Potsdamer Platz square. The somewhat abandoned site is not a place where one usually spends some time, but is instead completely defined by the through traffic of cars, bicycle riders and pedestrians. In the evenings, visitors to the Philharmonie walk past the site and after the concert quickly disappear into the waiting taxis and buses. A permanent passage thus, as much as at the site as in sound, which is now translated from this – bodily – motion into an – acoustic – motion, into movement, which changes the sound in the short-term as well as in the long-term.

For the musical realisation this means that the acoustic events in the sculpture do not consist of a pre-fabricated endless loop, but instead a compositional process using a musical automaton: a computer with the Max/MSP software. For the initial material I employ, aside from the sinus generators, three samples: sixteen seconds of traffic noise, recorded at the site, the poem 'Changing Wheels', from Bertolt Brecht's *Buckow Elegies*, eighteen seconds, and the word 'Hier' [here] in two versions, two seconds – a total of four different sound sources, four voices. The form in which these voices then appear, contrast and weave into one another in time and in sound is continuously variable and can be changed via the sensors. With the help of the computer the sound is



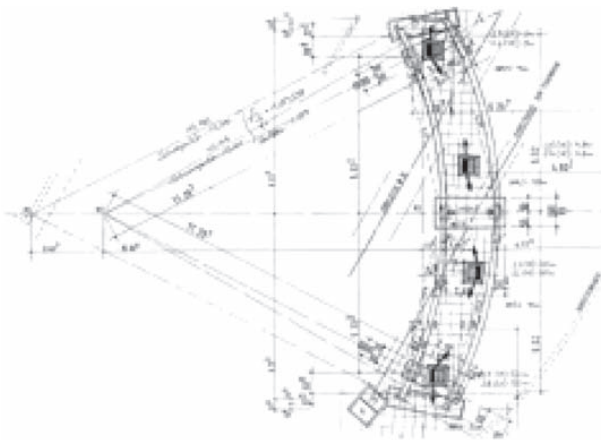
**Figure 3.** Visitors to the installation in the gap between the sculpture's plates playing with the sensors or just walking through the *sound situation*.

constantly produced anew and transformed via the sensors in its composition, its dynamics, its tone colour and rhythm.

The degree of acoustic transformation depends on which point the sound is at, at that moment, and how long a visitor has affected the sensors. When the sound is momentarily deep and quiet, then it can occur that a visitor has little direct influence, instead a long-lasting effect which first takes place when the visitor is once more outside. In my score there are such posterior functions, 'Verweile\_doch 1-6' ('tarry\_ awhile 1 to 6') is what I called them, which repeat the actions, plus their durations, occurring at another sensor in a variation, after the visitor has moved on – like a temporal, acoustic mirror with a short delay and some distortion.

Serra's sculpture also interested me as a musical starting point in other respects. First regarding its acoustic peculiarities and, second, its, shall we say, bodily impressions. My fundamental sound of sinus tones in the sculpture is itself an unstable entity: it is a sound which 'stays'. In order to stay it has to be continuously kept in motion, must be permanently generated. How strenuous this is for conventional instruments can be seen when one observes a flute player during circular breathing. The paradoxical construction of a 'staying sound' presents a similarity to Serra's sculpture, where the contradictory intertwining of movement and stasis in the faint vibrations of these heavy steel plates is so fascinating.

In its frequency arrangement, in other words the different pitches produced by the six sinus generators in the computer, the fundamental sound is continuously variable. Yet there are two pairs of frequencies whose relationship to one another is fixed, remaining stable through all the transformations over the period of six months. This relationship corresponds exactly to



**Figure 4.** Sketch of the sculpture 'Berlin Junction' by Richard Serra with radii as well as the four loudspeaker grids and eight sensors drawn in.



**Figure 5.** Installation works in March 2001.

the relationship between the radii of the focal points of both of Serra's 'curves'. Expressed in figures this results in the factor of 1.052598 – which almost corresponds exactly to a semitone. Serra's plates are thus a semitone distant from one another, and in my fundamental sound one can always perceive an articulation of two pairs of pitches with this distance. This leads to a first relationship of tension, in which a similar relation between proximity and distance exists as between Serra's plates. Naturally I exploited the possibilities of the computer and employed not the factor for a semitone – 1.059 – but instead the sculpture's exact factor. This is then important because for the next transformation process consequences arise, which I call 'metallisation of sound', an aspect which can be reinforced or reduced by the visitors via one of the sensors.

Just like the rust which sets on Serra's sculpture, my sounds can also become 'dirty'. My initial material for the fundamental sound consists of six pure sinus tones, which then by a surprisingly simple procedure are 'dirtied', namely 'metallised'. A vibration, in the simplest case that produced by a sinus curve, consists of a segment above and a segment under the zero line. By means of a simple mathematical additive process I have flipped this negative part of the curve upwards, so that the whole vibration now lies on the upper side. One could say that I have brought upwards what was under the earth – and this has a reason which I will come back to later on.



Figure 6. Sinus curve, with flipped negative segment, which leads to a 'metallisation' of the sound.

This results in many irregularities, fractures and bends in the course of the vibration, which result in a large number of non-harmonic overtones characteristic of metallic sounds. When the relationship among the several initial pitches is neither even numbered nor based on any other simple pitch relationship, but instead is – shall we say – made somewhat chaotic, as in the sculpture's factor, then the sound is additionally distorted. In a way the metallised sound goes 'rusty'. Even I cannot predict what the exact result will sound like, since a small change in the frequency – triggered by a visitor – can set off a major transformation in the sound. This is the exciting aspect, but also the risk which I take by employing this open concept. In spite of the metallisation and the unpredictable changes in sound, the articulated semitones remain perceivable. The type of articulation is influenced by a noise dependent on the daylight which modulates the sinus tones. 'Day/night – disquiet' is what I call it. Moreover, the sampled traffic noise from the environment also transforms the sound via the sensors into a noise, which at times can hardly be distinguished from the surrounding traffic noises.

While the 'metallisation' referred to the material of Serra's sculpture, another part of the musical structure corresponds to the form of the sculpture: the *sound curves*. They are derived from the momentary frequency in semitone distance, which are translated into a twenty-six second long musical phrase. This phrase executes an extended pitch modulation with a maximum of one whole tone. Similar to the shadow line in the sculpture, which changes with the position of the sun, these sound curves appear in constantly varying forms, depending on how visitors pass by a sensor, a correspondence which Serra for his part discovered in the curved lines of the roof of the Philharmonie, built in the 1960s by Hans Scharoun.

Due to the tilted position of the curves, the sculpture is caught in the delicate balance in which both steel plates find themselves, as so often in Serra's works. It is truly a pity that few people when observing the sculpture realise that these plates are not sunk deep into the earth and thus anchored. They are indeed simply balanced in this way, have their centre of gravity so located that they can just stand there, without need of anchoring and not falling over even in a strong

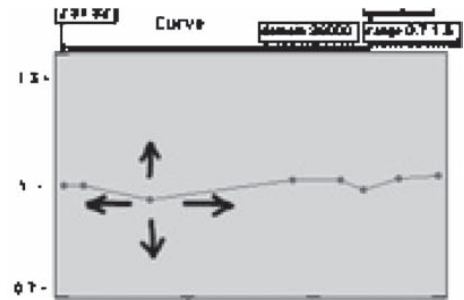


Figure 7. Sound curve in Max programming, with fixed points at the end of the time phrase and variable-pitch frequency points in between.



Figure 8. Curves of shadow in the sculpture.

wind. That both solid steel plates nevertheless give the impression that at any moment they will fall into one another creates a threatening feeling when one goes through the sculpture. This unstable balance of heavy masses generates – at first sensed bodily – tension, which interests me and which for me determines the overall ambience of this sculptural situation – and of my sound situation.

### 3. HISTORICAL – POLITICAL RELATIONS

*transition* is primarily concerned with a sharpening of perception. For before the installation was set up, neither the sculpture (particularly its interior space) nor the memorial plaque set into the ground beside it were noticed by the majority of visitors and tourists passing by on their way to the nearby Tiergarten park during the day, or by the many culture-interested concert visitors standing around in the evenings.

Through the sounds emitted by the sculpture from the four underground loudspeaker cavities, seemingly with no visible source, a first moment of acoustic irritation is produced which draws passers-by into the sculpture's interior. Walking into and passing through the sculptural passage transforms the normally static sound situation as described above. The interactive transformation process is set up in such a manner that no clear relationship exists between actions at the sensors and changes in the sound in the sense of a stimulus–reaction pattern. Rather, the influence of the visitor is not completely discernible, thus leaving the question of who is responsible for the transformations lingering in the air. The triggering of speech samples (the poem 'Changing Wheels', recited by Otto Sander, and the single word 'hier' [here], spoken by Angela Winkler, both famous actors in Germany with well-known voices) is the most obvious effect of influence on the sensors, although the way and the type of fragmented rendition is not directly obvious. The audience's behaviour is correspondingly varied: some walk through without noticing that they have triggered and changed something, others discover the interaction possibilities, especially children, and some let themselves be completely absorbed by the sound situation, opening themselves up to further aspects of the work or spinning their own associations.

Two aspects of the work reveal a political dimension. First there is the history of the site, as described in the memorial plaque succinctly but clearly: before the end of the Second World War a formerly Jewish villa stood here, in which the Nazis installed the administrative headquarters for their euthanasia programme. Over 200,000 mentally and physically handicapped people were murdered according to this

'T4 Action', named after this address, Tiergartenstrasse 4. Nothing remains of the house, and the memorial plaque is so discreetly set into the ground that it is hardly noticed. The aural sharpening of perception, which I intend with the installation, is meant to induce a heightened perception of the whole site. The sensors, as well as the sounds and voices arising from the ground between the sculpture's plates, direct the attention and glances of visitors downwards – a sensitising which acquires a certain direction through the acoustic-spatial constellation. The innate threatening-ambivalent situation of passage through the tilted, solid steel plates is intensified by the voices suddenly appearing and the continuous semitone sound, so that the bodiless voices from the earth atmospherically establish a reference to the memorial plaque beside the sculpture, which looks like a sealed grave.

Serra himself gave the sculpture, without knowing the history of the site, the title 'Berlin Junction', leading to my second political aspect. I read his sculpture as a commentary on Berlin's situation before the fall of the Wall, during which the two halves of the city,



Figure 9. Memorial plaque in the ground beside the sculpture.



**Figure 10.** A child passing through the sculpture with concert visitors in the back at the entrance of the Philharmonie concert hall.

the West and East blocks, the two political systems, stood threateningly against one another and kept themselves in a precarious balance, constantly in danger of falling into themselves. I emphasise with my work the possibility of passage, of transition, which is embodied in Serra's work as a spatial situation, and fuse it with a continuous musical process, as described above. This transformation through movement, in other words, is that which after the Wall's fall in 1989 mentally and physically became reality.

Brecht's poem,<sup>1</sup> which in the installation appears fragmented and multiplied, can be related to the political situation at the time of its creation, to the rebellion of 17 June 1953 in the former East Berlin.

<sup>1</sup>Bertolt Brecht: 'Changing Wheels'  
I sit at the roadside.

The driver is changing the wheel.

I don't like where I come from.

I don't like where I am going.

Why do I watch the changing of the wheel with impatience?

More important for me, however, is its contrapuntal function: I place the poem as a verbal moment of reflection within the permanent flow of sound, as a barb in the aural submersion, with a text addressing the ambivalence of transition processes. In the context of the so-called 'change' of 1989, this ambivalent remaining in a transition process could not be endured and productively used; instead it was rashly ended, in my opinion, in favour of a capitalist, distorted variation of democracy.

This somewhat paradoxical experience, of finding oneself in flux and staying still at the same time, of 'remaining' in a transitory situation, is in *transition* on the one hand a *pausing*, which allows commemoration and remembering, on the other hand a *sustaining*, in effect of feelings of insecurity and uncertainty, between hope and peril. The interactivity in *transition*, coupled with the concept of 'transformation through movement' and the reference to the fall of the Wall in 1989, raises a thoroughly political issue. In the art discourse of the last decade, interactivity, as regards an active involvement of the audience, has often meant a utopian understanding entailing a democratising of the artistic process. In *transition* too the musical process is continued and changed by the visitor – and only by the visitor. However, this influence is limited by the artistic framework and cannot be individualised. Thus the question arises: What does the influence of the individual really mean? In a wider sense this means: What does the co-determination and responsibility of the individual in social transformation mean? Democracy as an incomplete process.

#### 4. REFLECTIONS ON THE CONCEPT OF SPACE IN MUSIC

Working with spaces in the sound arts means for me working with spaces of tension. This means that I seek out spaces which have a history, a function and a specific character outside the art world. These can be architectonic-sculptural spaces but also urban spaces or trans-regional and international spaces. And as the literal meaning of the term *space of tension* implies, the political and social, but also physical and existential relationships are not incidental.

The relationships between music and architecture are usually often described in the corresponding theories as formal relationships between numbers, and indeed of the most simple numerical relationships. The discourse centres on eurhythmics and symmetry, harmony and rhythm, proportions and frequency relationships, extending all the way to a cosmic ground plan and its reflection in a celestial music of the spheres. This was favoured in almost all religious and in many philosophical systems based on Platonic-Pythagorean ideas and is today continued in

esoteric conceptions of the 'world as sound'. Music's immateriality has promised the highest degree of spirituality and unity in harmony. Yet sound is more than number in this simplified sense. Throughout the musical development of the West, one can trace a continuing engagement with dissonance and its taming, all the way to Schoenberg's proclaimed emancipation. The *sustaining of tension* instead of the *resolution of tension* has become the central issue.

In comparison, the sustaining of tension in architecture has always been a problem of statics. Building always meant building upwards and was allied with utopian expectations of salvation. These expectations have been exposed and destroyed in the last hundred years most visibly in urban planning. It is in the erection of individual buildings where a deconstructionist approach first made intensified architectural expression possible, addressing a social state in which tension – difference in a 'multi-cultural and globalised' world – must be sustained and cannot be resolved. Zaha Hadid's buildings or Daniel Libeskind's Jewish Museum in Berlin are examples of what it can look like to face this engagement – the incurable rupture – and to find a form with the goal of sustaining, and not of repressing or of a totalising simplification.

Inherent in the building of spaces is also – as in Libeskind's museum – the counterweight for the involvement with tensions and conflicts, which without regressive possibilities could not be endured: the rescuing, protective, supportive function of the space – the cave. A space, a house, an urban space which allows both, *sustaining tension* and *making tension sustainable*, possesses the balance necessary in the face of all the standardising or escapist tendencies in today's life, a balance which on the other hand was often lost in the resistant impenetrability of last century's art music.

The use of the *sound-space* as an experience of being in sound comes closer to this need for balance, which after Cage and the Minimalists has been increasingly offered by sound artists. The pendulum though often swings to the other extreme: tension and sharpness are avoided. One does not want the audience, which can and must decide for itself how long it

stays, to be driven away, but instead to be gratified with a sometimes more, sometimes less irritating game of perception, or to adorn the space with sound ornament.

I conceive of working with the sound space in three perspectives: *internally*, entering individual sounds and the perception of acoustic fine structures; *externally*, working with spatial sound, with the distribution of sound in space, with which pitch figures and sound patterns cannot only be formed in time but also in space; and *contextually*, working with the reference space, in which acoustic metaphorical aspects and site-specific aspects can emerge just as much as the social function of the space and the addressing of conditions of reception. The sound-space then links itself with the rescuing, sustaining function of the architectural space, in which tensions can be revealed and manifested, which refer beyond the concrete space.

Just as in the installation *transition*, it is spaces of transition, passages and place-less sites of flux which interest me particularly and which increasingly dominate our urban space. My concept of space refers to space as social space (e.g. also in my sound–light installation *Ortsklang Marl Mitte. blaues blach. Viel Kunst. Wenig Arbeit*, German Sound Art Award 2002). Spaces of tension are sites loaded with conflicts, in which the social conditions of modern life manifest themselves, namely in a concrete, site-specific form with a direct connection to daily reality. Working with sounds – and I also enjoy employing texts and speech sounds very much – becomes, in these mute, restless and disquieting sites, working on the perception of these conflicts, on their reflection and their communication. For works in this form I have chosen the term 'sound situation', since I encounter a pre-existing situation and draw material and concept from it. At the same time I reflect and enrich the site via sound art means, producing a *condensed* situation.

Translation: David Sanchez,  
 Berlin photos: Georg Klein, Dirk Wackerfuss  
 Catalogue *transition*, Pfau-Verlag, Saarbrücken,  
 Germany  
 CD *transition* and video documentary available at  
[www.georgklein.de](http://www.georgklein.de)