

PARADISO

Christian Ziegler, EPFL LAUSANNE research assistant / PhD candidate

EPFL Lausanne ENAC / IC / SINLAB

ABSTRACT: *In this paper I would like to draw the line from my research project 'PARADISO', a cinematic installation (2012-2013) to 'Responsive Body/Responsive Space', an interactive choreographic digital stage, scheduled for 2013-2014.*

Keywords: *space, image, body, performing arts, installation, dance, expanded cinema, interactivity, movement technologies, improvisation, choreography, digital stage, copresence*

1. INTRODUCTION

In my first SINLAB artistic research project with choreographer Pablo Ventura (CH/ES) I was interested to develop a gesture based relation of movement to sound. In my second research project I am working together with the choreographic center ICKAmsterdam (NL) and las negras film (ES) on an installation, which is an interactive cinematic event. gesture based tracking software connects a dance film to movements of a viewer.

In 2013 I am planning to collaborate with choreographer Kenneth Flak (NO) on an interactive dance performance. Two dancers and the audience create an interactive digital performance.

2. PAPER AIMS:

Description of PARADISO as an environment between cinema and performance, using digital tools for time based tracking, relating physical movement to moving images.

3. SPECIFIC QUESTION

Theater and Cinema are - seen from a spatial and time perspective - linear events. Postdramatic theater used text, body, image and sound as equal source to organize a play. The encounter of audience with actors still needed a spatial and time based framing. There is an appointment, where space and the time of theater is prepared for audience and performer to meet - know as social contract. In performances, where there were attempts to break the 4th wall changing responsibilities and roles of audience and actors on stage in the 60s in New York [1] had strict time based rules, enabling unpredicted flows of the plot by different reactions of the audiences. Richard Schechner's "Performance Group" performed "Dionysus in 69" wanted to establish a co presence of actors and audience in theater: *"First, participation occurred at those points where the play stopped being a play and became a social event - ... letting people into the play to do as the performers were doing, "to join to story".*

In cinema it is even more restricted due to the simple fact, that viewer watch the result of a celluloid / digital projection machine.

1967, Raduz Cincera presented at the Expo of 1967 in Montréal a "Kinoautomat" (movie-vending-machine) he developed together with the directors Jan Rohac and Vladimir Svitacek, scenographer Josef Svoboda, and Jaroslav Fric and Bohumil Mika. In the movie theater's seating, viewers found two buttons necessary for making selections; they were confronted with a film whose action could always be stopped. The audience voted how the film proceeds. The vote was executed by the projectionist switching one lens cap between the two synchronized projectors. [2]

"Cause and Effect" (2002) was performed by Chris Hales and Teijo Pellinen where viewers were shouting to change the plot of a cinematic event.

In PARADISO I am trying to find a movement link of a dance film to the viewer. Going through a viewing and physical apprehension level, the viewer can finally reorganize a linear film with movement phrases - a physical montage of film.

A performative physical act connects image and space in the movement of the viewer's body.

4. PARADISO

4.1. you PARA | DISO

Emio Greco | PC dance company Amsterdam (NL): " After the internationally successful dance productions that Greco and Scholten created between 1996 and 2001, they shifted their perspective and that of their company, to opera, music and film. ... In 2004 a continuous project, *Double Points: +*, about dance, music and interactivity with contemporary Swiss composer Hanspeter Kyburz followed [at IRCAM, PARIS]. These interdisciplinary excursions gave rise to the trilogy that is inspired by Dante's *La Divina Commedia*. In 2006, the first part, the highly acclaimed dance production HELL premiered, in 2008 the second part [purgatorio] followed in the Holland Festival, in 2010 the third part, you PARA | DISO premiered and in 2011 they created the 'best of the Dante Cycle'." [<http://www.ickamsterdam.nl>]

I asked choreographer Pieter Scholten to describe the different motion qualities in the Dance Cycle.

- 1.) Hell: crowds running / loops
- 2.) [purgatorio]: competitive climbing / linear time
- 3.) you PARA | DISO: solitary separate movements / endlessness.



you PARA | DISO performance, Emilio Greco | PC (2010)

Flexible silver curtains in different textures waving and the dancer's costumes were reflecting light moving created an atmosphere of ephemeral physicality. The human body was almost disappearing, transformed by light and movement, disappearing into pure light.

Paradise can be seen as vast space with durational limits. The mortal body, causing limitations, almost disappeared into light.

4.2. movement - interaction

In PARADISO we will have a projection area, possibly made out of silver stage curtains to project on or have monitors around an interactive area in the center for the viewer. The viewer is connected to the cinematic space with only one single body sensor.

The viewer is learning a set of very simple movements:

- 1.) "shift left/right"
- 2.) "lean forward/backward"

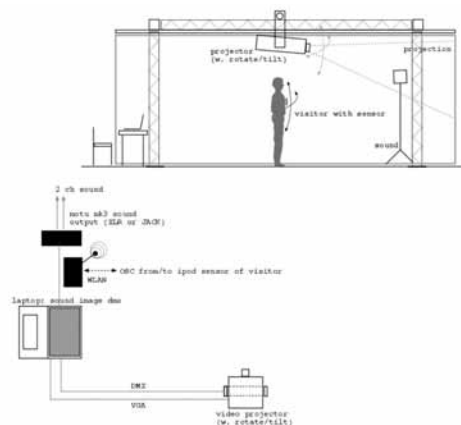
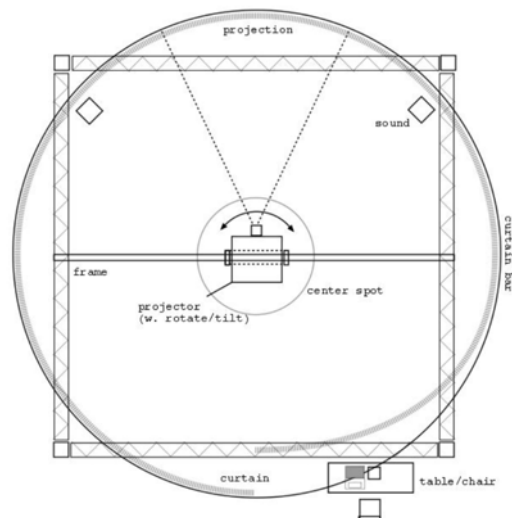
- 3.) "turn"
- 4.) "down/up"

Instead of having *keyframes* in film, we have *keymovements*. In three levels we are building step by step a tighter physical link from the image to the viewer.

1.) learning body to space relations realizing physical camera motion as a filter to actual motion in space

2.) adaptation of the camera to dancers motion path. It is a creative act to conclude the circle from cinematic space, relating the dancers motion in image space to the viewer's movements in real space. The act of movement is the creation of a new artistic realm in between watching a film and dance. The viewer is in a conversation between body and image.

3.) reorganizing the film scenes with learned movement phrases.



PARADISO installation sketch (2012)

Sergei Eisenstein (1898 - 1948) developed a theory of montage in film as a *mental* technique associating images, times and places in film. In PARADISO we are research *physical* montage of dance film.

5. STATE OF THE ART: IMAGE - MOVEMENT

5.1. 66movingimages

In *66movingimages* (1998/2002) at FUTURE CINEMA the installation connected physical motion of a narrative. The road movie installation had two channels: one to show various events, happening during a travel on route66 in the US. The other channel was active when the viewer was moving a screen physically along linear tracks. The tracks correspond to the map on the opposite wall of route 66 from Chicago to Los Angeles.



66movingimages, ZKM Karlsruhe (2002)

During the repositioning of the monitor in exhibition space, the images were morphing, connecting time and space of the travel. The viewer re-enacted the physical transformation of travelling shifting the monitor in space. While moving the monitor he watched the channel of travelling, stopping the monitor, he watched the scenes, related to that place on the corresponding map.

Film theorist Vivian Sobchak wrote in the 90s, that morphing was a typical effect for the digital age, in which time is reversible, liquid and infinite.

Yvonne Spielman wrote that morphs simulate Eisensteins montage in a single unit of one image as a state of a permanent becoming.

in *66movingimages* it is the morph of photographs in motion, connecting places to the viewers cinematic spaces, opening up a field of possibilities to navigate to. Shifting the monitor in "*66movingimages*" can be seen as interactive roadmovie, without moving physically there is no movie to watch.

5.2. Deleuze/Bergson: Cinema 1

Deleuze puts in "cinema 1" linear image to movement relations describing causalities of narratives in traditional film. He referred to Bergson, who "discovered" the *movement-image* and the *time-image*. Film is a world in itself of images and sounds. Directors were philosophers, not thinking in concepts and categories, but in images and sounds. In traditional film, time is overruled by demands on continuity of movement and space.

Image=Movement [3]p.88. There is nothing moveable, which is different from its performed motion. There is a sensory motor interrelation, because on perceiving a situation follows a reaction. [3]p.193. This was meant to be a critique of successive narration in Hollywood style film, not related to performing arts. Still, there is more than memory and recollection in film. The camera which perceives quicker than the eye. Film is not simply camera, it is montage. ... a construction of artificial viewpoints, immanent in the items. [3]p.115

If image can be another reality, the body, relating to this moving image can also transform itself.

Deleuze: My body is an image, thus an ensemble of action - reaction. [3]p.86

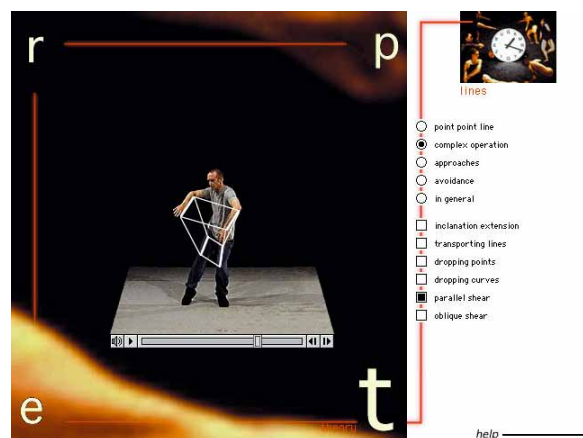
5.3. Mirror Neuron Research

When we see dance, we activate the same brain areas like dancing physically. 1988 the scientist Giacomo Rizzolatti found neurons in the ventral premotor cortex of monkey equally active, regardless of whether the monkey performed a movement of observed the same movement. [4] Beatriz Calvo-Merino proved in an experiment with dancers and non dancers, learning various movements, how mirror neurons are necessary to translate visual information into motor commands. [5]

Acting dance and watching dance seems very close physiologically.

5.4. Bill Forsythe: Improvisation Technologies

In 1994 I had to design an interface for dancers of Frankfurt Ballett to learn the dance technique "Improvisation Technologies".



Bill Forsythe: Improvisation Technologies (1994)

Nik Haffner from the dance company introduced me to that time into various levels of dance learning or physical embodiment.

First step is the information, mostly received by oral instruction, sometimes text/notation, sometimes video. Then - more important - a dancer apprehends movement in a physical demonstration of another dancer. The appropriation and embodiment of

movement in rehearsal embodies the viewed example, finally there is the performance on stage.

I designed a 4 step interface T (theory), E (example), R (rehearsal), P (performance) - see screenshot on p.3.

In "Improvisation Technologies" dancers were "reorganizing space and time". Danced movements can be the source of reorganization of new dance moves. Moves can be DJ - like scratched, looped or deconstructed and transformed, building new movement sequences. Having two dancers improvising on stage, Improvisation Technologies demands a clear rules on communication, using simple geometric transformations and set key images. Generating a duet in realtime by improvisation needs a presets and simple key instructions to build complex movements.

In PARADISO we use simple key movements "shift left/right", "lean forward/backward", "turn", "down/up".

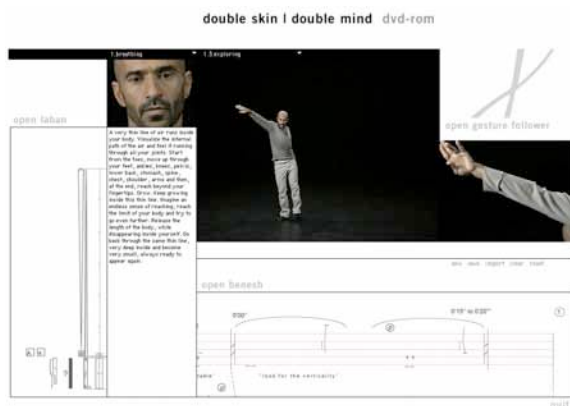
5.5. Double Skin | Double Mind

Between the experiments on dance, music and interactivity with contemporary Swiss composer Hanspeter Kyburz at IRCAM and producing the Dante Cycle Emio Greco | PC had a research project at the Amsterdam School of the Arts about their workshop Double Skin | Double Mind.

The workshop is a physical technique, training movement qualities, forcing, recalling and visualizing internal kinetic energies. We built an installation, which incorporated the workshop's training qualities in an interactive digital environment. This dance training installation is part of the first and second year dance curriculum at the Amsterdam dance theater department.

5.6. Notation - Annotation

2005 Emio Greco | PC dance company founded their internal department "academia mobile". The mobile academy started the year after the book/DVD project "Capturing Intention", researching the company's movement vocabulary.



'Capturing Intention' DVD book (2007)

The "Double Skin | Double Mind" installation was realized 2006 - 2010 at the Amsterdam School of the Arts. 2010 Emio Greco | PC found the international choreographic center ICKAmsterdam. This center is part of LABO21, a european platform for interdisciplinary research on artistic methodologies [<http://www.labo21.eu>].



'Double Skin | Double Mind' installation (2010)

Notation in dance is a writing system permitting a graphical representation of human bodily movement. Notation usually is documenting pieces on stage, final dance "products". Emio Greco | PC used Notation research to work on a workshop technology, preparing the body for rehearsal. After warm up a mental awareness preparation process enhances the dancers movement qualities for rehearsal.

Labanotation or Kinegraphy, developed around 1928 identified already "force" and "effort", but still, intention and quality of movement are essential components of dance making and difficult to notate. Notators, practising Labanotation told me, to go to rehearsal sessions, before notating the final stage piece. So again, it is essential to also understand the process of dance making in order to fully grasp the result on stage.

ICKAmsterdam is focusing right now on the "Pre-Choreographic", as a technology for movement creation, extending the interest from preparation to creation.

Notation does analyze and record movement for documentation purpose and make dance comparable. Notating dance, breaking down movements to its essential elements gives space for new movement styles.

It leads to variations and individual styles, which makes it difficult to compare them. There is a contradiction in Notation, that the full scope of dance (and music) can never be fully recorded by a standardized language. Even more today, where recent dance documentation projects like "motion bank" (2010 - 2013) [<http://www.motionbank.org>] in Frankfurt are using the new term *Annotation*, to express the individual character of the very notation language, depicting the work of different artists - Deborah Hey, Jonathan Borrwos & Mattheo Fargion and TWO: Bebe Miller & Thomas Hauert.

5.7. Conclusion

With knowledge of a dance training environment we want to develop a performance environment, generating movement. The installation PARADISO is a first step into methodologies to learn technically, but also by practise with the audience and choreographers and dancers, how an interactive choreographic environment could be built.



PARADISO installation (dance: Bertha Bermudez)

The cinematic view on the body in landscape recordings is liberating the view on the dancers body. In a theater, the audience is in the dark, watching dance. In dance films or cinematic events the relation to the viewer is set. It comes to the question of Representation. Is dance film talking *about* dance or can it be perceived - see *chapter 5.2* - as another realm of realities expressed by image and sound?

With Berth Bermudez, a former dancer from Emio Greco | PC , now researcher from ICKAmsterdam, we discussed the idea to use *action - response* relations of film to design to design a performative environment for the viewer, where cinema and performance meet by means of interactivity.

With choreographer Kenneth Flak (NO) *Responsive Body - Responsive Space* I am planning to work together 2013/2014 on an interactive choreographic environment for two dancers and a moving audience.

6. PARADISO INSTALLATION

6.1. Landscape

you PARA | DISO is a dance piece including many solos. The bodies of the dancers almost disappear on stage in the reflective lights of surrounding stage curtains and the costume's texture. Each solo is a

solitary example of individual movements, disappearing in vastness, emptiness.

The PARADISO installation's main motive is the horizon line. The Landscape divides the image into two parts: the above and the ground, the vertical body in between.

Footage was recorded in the deserts of Namibia / Africa, the Arctic near North Pole and, finally in December 2012, we will have recordings of red mountains in Arizona / US.

The horizon line connects the image to the viewers space. The horizon is the information necessary to read a landscape. The display should be positioned that the monitor's or projections horizon line is on eye level with the viewer. A human body is upright, standing 'against' this line of orientation. These are the axis of PARADISO: x - horizontal line, the landscape / y - vertical line, the body.

A *kinesphere* is the required space for movement. The kinesphere is centered around the human body. In "Bill Forsythe: Improvisation Technologies" (see p.3) the kinesphere, defined by Rudolf von Laban (1879 - 1958), can be modified, where the body is off center. The kinesphere can be twisted, amplified, shrunk around single body parts and even put outside your body on the palm of your wrist (using finger movement)

PARADISO is a kinesphere around film and the viewers body.

6.2. Learn, Adapt, Create

The viewer is learning movement in three levels learn - adapt - create - see also *chapter 4.2*.

At first the dancer isn't there - there is an empty landscape. The landscape is moving by camera motion. In this level the viewer appropriates the first simple movements like "move left" or "turn" to adapt to the cameras motion. The viewer moves *in* the landscape, he restates time-space relations of camera to the viewer. Both bodies are linked to the image - the dancer's body inside the film and the viewer, who is linked to the view angle of the camera, watching the film.

When the dancer in PARADISO appears in the landscape, the dancer is not moving. There is an encounter of two bodies. The viewers body and the dancer's body in film. The viewer is moving, the dancer is static. Who is performer, who is audience?

After the viewer managed to move like the camera, the dancer's body starts moving. The dancers movements are sometimes in sync with the camera, sometimes go against it. A pas de deux of image and space generates solos and duets of two moving entities.

The canvas is both dividing and joining the couple. The viewer has learned specific paths of motion, leading to specific scenes of the dance film. Finally the viewer can reorganize the movie according to the movement paths leading to specific scenes. The viewer as performer is morphogenetically reorganizing the PARADISO dance film.

6.3. Software

Key technology to connect the moving image to the viewer's body is "Gesture Follower" (GF) a time based movement tracking technology. Developed by IRCAM at Centre Pompidou Paris, we already used the technology in "Double Skin | Double Mind" for dance training. The Software enables us to:

- 1.) recognize specific motion paths (in a delay of only 0,2 sec)
- 2.) after recognizing and identifying movement, the software maps the performed motion quality (timbre) to music, images or lights.

GF was designed as tool for conductors to control a digital sounds. Musicians can also sync digital music to live played instruments. GF checks the likelihood of incoming data to prerecorded time based events.

Performances are time based event. So it made sense for us to search for a tool to track time to build a digital stage. Most of tools used in recent years are limited to the position and speed of a moving body. So far, there was no "recognition" or "knowledge" in the system *what* the dancer did perform.

In PARADISO installation and later in "Responsive Body - Responsive Space" we map movement to music and light. The dancer's space isn't limited to his own physical kinesphere, it can be extended by interactivity to build a responsive space with the audience.

7. RESPONSIVE BODY - RESPONSIVE SPACE

Responsive Body - Responsive Space (RB/BS) is a collaboration between choreographer / dancer / composer Kenneth Flak (NO), choreographer/dancer Külli Roosna (EE) and media artist Chris Ziegler (GER). The aim of the project is to create an evening-length performance exploring notions of ecology and interdependence, using the means of spontaneously evolving choreography and electroacoustic music.

7.1. Responsive Body

Kenneth Flak: *"Külli Roosna and me have recently begun developing a system of tools for spontaneously devising movement called The Responsive Body in a series of workshops in Norway, Estonia and Germany. The basic premise of this system is the idea of the body as a fluid system, where the senses and motor skills are inseparable from each other. The act of moving is also an act of sensing the environment, and the act of sensing is impossible to separate from the body's movements. Add to this our incredible capacity of memory and imagination, and it becomes possible for us to anticipate and respond very quickly to small and big changes in the environment. This responsiveness to instability lies at the heart of many martial arts, as well as performance styles such as contact improvisation and action theater.*

The Responsive Body (RB) system rests on three pillars: My extensive martial arts experience, Roosna's and my ongoing research into improvisation, and our technical body work. We aim to develop the ability to receive and transform various forms of sensory input: touch, sound and sight, as well as disturbances of balance and relationships between limbs. We have also found that it is relatively easy to integrate symbolic meaning in this framework, such as words, sentences and images, to produce more complex responses. One of the central points of research at the moment is the difference and balance between instinctive, very fast responses to input, and more long-term responses, involving strategic planning, guiding as well as blocking of different possible choice paths. The long-term responses include the use of memory, drawing on the history of previous responses to influence the decision-making process. Finally, we engage the imagination actively to find and communicate potential symbolic content of the physical processes we are engaged in.

The Responsive Body training consists in giving and receiving different kinds of sensory input, listening to and acting out the responses these triggers in us, as well as developing and expanding the possible range of responses. A very important aspect of this training is the exploration of how movements travel through the body: Where does a movement originate, what is it's pathway, which obstacles does it encounter, and is it possible to find ever more efficient ways around these obstacles? Suitable training for this are movement forms that actively employ sequencing of movement: certain forms of martial arts, Contact Improvisation, Feldenkrais, and others.

An equally important element is to train the ability to deal very quickly with changing circumstances. To be able to do this, we use principles from various sports in addition to the previously mentioned forms to train explosive force and reaction time.

7.2. Responsive Space

We want to expand the principles of the Responsive Body to the use of space as well. During the initial research phase, the primary tools for shaping the space is the distribution of audience members and the sound score. Following the logic of a self-organizing system, we will attempt to create a space that is as alive, as fluid and as responsive as the bodies of the performers.

The creation of a responsive space at this stage of the research requires real-time information about the movements of dancers and audience members, both in the spatial and the temporal domain. This information needs to be processed in some ways and used to create and place music in the space. The way to get this information is by the use of sensors and a camera. This will be more fully described in the Sensors and Digital Stage chapters.

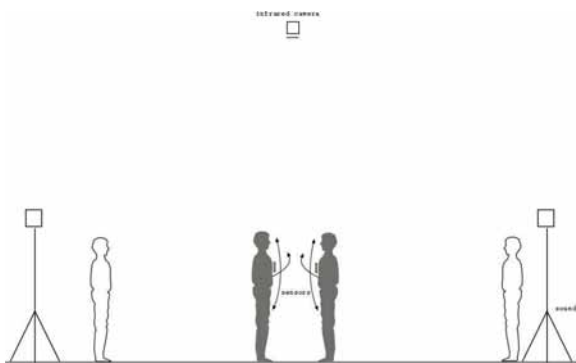
At a later stage, we will also include light and possibly video in this system, drawing on the

experiences we've made in *The Chinese Room* (2010), as well as doing specific research for this project, with all the issues involved in making light for a shared space between audience and performers, a space with no defined front."

7.3. Digital Stage

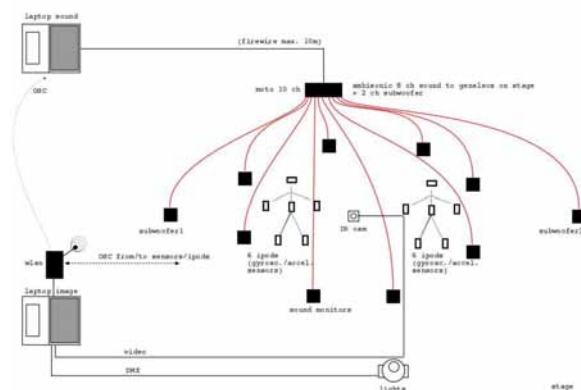
"Responsive Body - Responsive Space" is a piece, where movement improvisation is relating to information received from the audience, linked to sound, light,

Each dancer will carry wireless sensors to track movement vectors of his/her body. Tracking and position data from the audience we receive by central infra red camera positioned above the stage.



Camera and Sensor Tracking Systems RB/RS

The spatial frame of stage is constructed by an elliptic long circle of loudspeakers on high stands, surrounding audience and dancers. The audience moves freely in this area. The ceiling camera is the centre of space, where the spatial tracking has its reference. The "audience body" generates motion gravities, influencing dance, light and music. Two dancers both create and react to all sensorial values of the environment.



AV System on Stage RB/RB

- [1] E. Fischer-Lichte, *Ästhetik des Performativen*. Suhrkamp Verlag KG, 2004, p. 378.
- [2] R. Frieling, "Medien Kunst Netz | Çinçera, Radúz: Kinoautomat: One Man and his Jury." Medien Kunst Netz, 12-Nov-2012.
- [3] G. Deleuze, *Kino / Deleuze, Gilles ; Bd. 1: Das Bewegungs-Bild*, 2. Aufl. Frankfurt am Main: Suhrkamp, 1998.
- [4] G. Rizzolatti and C. Sinigaglia, *Empathie und Spiegelneurone. Die biologische Basis des Mitgefühls*. Suhrkamp Verlag GmbH, 2008, p. 229.
- [5] J. Birringer and J. Fenger, *Tanz im Kopf / Dance Cognition*. Lit Verlag; Auflage: 1., Aufl., 2005.

[1]